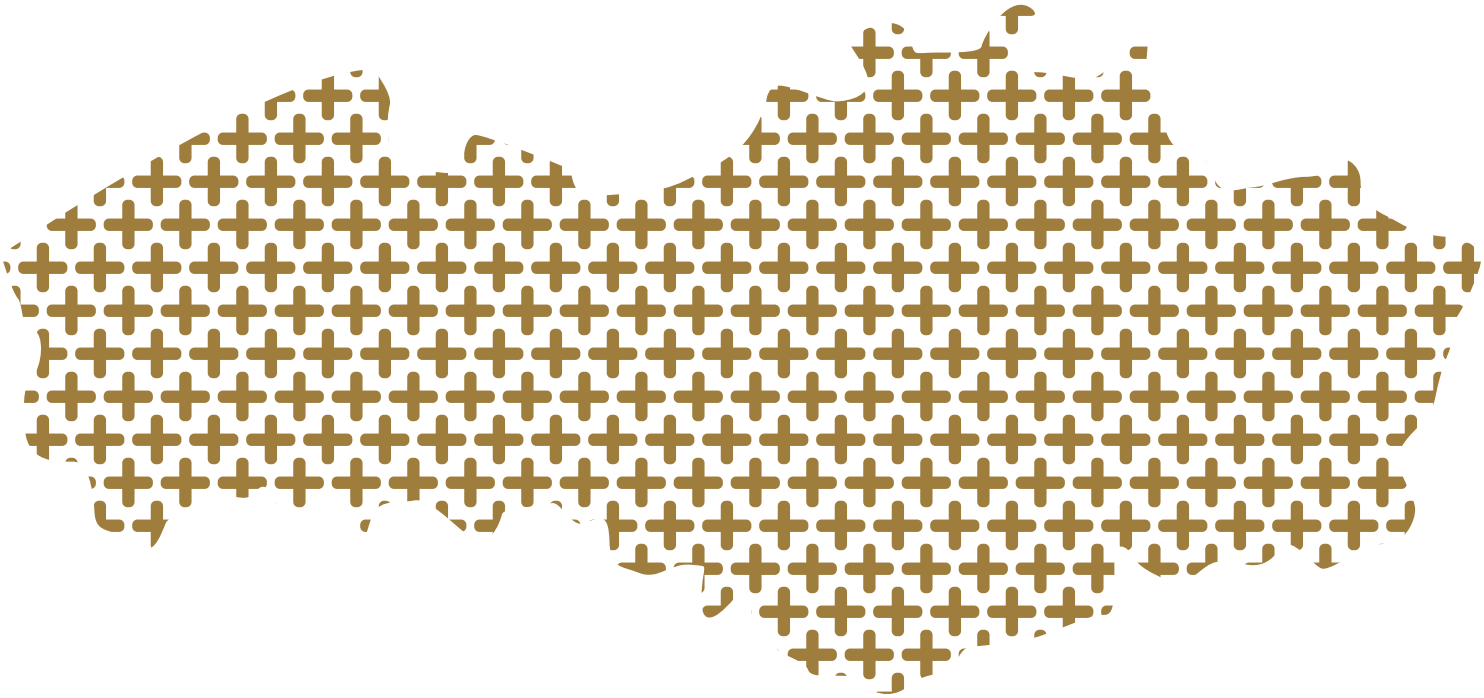
# Exploring the future of hospital quality management and policy in Flanders

A multi-method approach

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Dissertation presented in partial fulfillment of the requirements for the degree of Doctor in Biomedical Sciences (PhD)

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# EXPLORING THE FUTURE OF HOSPITAL QUALITY MANAGEMENT AND POLICY IN FLANDERS

## A MULTI-METHOD APPROACH

Jonas BROUWERS

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# SUMMARY

This PhD research aims to provide scientific evidence on how quality of care can be embedded in government policy and hospital management and aims to generate a better understanding of the financial impact of current policy on hospital budgets. In 2009, a "quality of care triad" with accreditation, inspection and public reporting was installed by the Flemish government to promote quality of care in hospitals. Although it was a clear policy approach, it seems no longer supported by healthcare stakeholders and hospital managers. Therefore, new frameworks are necessary to assure sustainable quality of care in hospitals.

As shown in this research, there is no single, unifying approach for governments to implement strategies to ensure quality of care in hospitals. Nevertheless, a sustainable system can be achieved by a broadly supported policy with right incentives on different levels. It is the responsibility of policymakers to ensure that governmental frameworks are developed in co-governance with all healthcare stakeholders from bottom up and within feasible time frames.

To facilitate the development of a new Flemish quality of care policy, we explored the attitudes of healthcare workers, hospital management, patient representatives and other stakeholders towards elements of a future quality of care policy. By using a Discrete Choice Methodology (DCE), we transferred a methodology coming from the marketing industry to a healthcare context and investigated respondents' choices on different characteristics of future quality of care policy. By carefully selecting attributes and levels for each component of this new policy framework we could quantify people choices for future components. This was extremely useful to determine if future policy decisions will have support in the field and if policymakers can pursue the incorporation of these elements in future frameworks.

We used qualitative study designs to incorporate international and national expertise on the continuation of current quality frameworks and elements for future policy. This led to the development of a framework with cornerstones for a sustainable, national quality policy and a list of fundamental elements of a sustainable quality management system in hospitals. We incorporated the views of national and international experts with the quantified preferences of Flemish stakeholders to propose policy recommendations for future quality of care strategies in hospitals.

This dissertation also analysed the financial impact of international accreditation on hospital budgets in Flanders. Also, the financial impact of the introduction of a Pay for Performance (P4P) program on hospital budgets was analysed. To conclude, a qualitative analysis of quality components in the Budget of Financial Means (BFM) was performed.

# BEKNOPTE SAMENVATTING

Dit doctoraatsonderzoek wil op een wetenschappelijk manier onderbouwen hoe kwaliteit van zorg ingebed kan worden in het overheidsbeleid en ziekenhuismanagement. Daarnaast wil het een beter inzicht genereren in de financiële impact van het huidige beleid op ziekenhuisbudgetten. In 2009 werd door de Vlaamse overheid een "kwaliteitstriade" met accreditatie, inspectie en publieke rapportering ingevoerd om de kwaliteit van de zorg in ziekenhuizen te verbeteren. Hoewel dit een duidelijke beleidsaanpak was, lijkt dit minder en minder gedragen te worden door de mensen op het terrein en ziekenhuisbeheerders. Daarom zijn er nieuwe kaders nodig om duurzame kwaliteit van zorg in ziekenhuizen te verankeren.

Uit dit onderzoek is gebleken dat er geen eenduidige, uniforme aanpak voor overheden bestaat om strategieën te implementeren om de kwaliteit van zorg in ziekenhuizen te waarborgen. Toch kan een duurzaam systeem worden bereikt door een breed gedragen beleid met de juiste prikkels op verschillende niveaus te voorzien. Het is de verantwoordelijkheid van beleidsmakers om ervoor te zorgen dat overheidskaders worden ontwikkeld in samenspraak met alle belanghebbenden in de gezondheidszorg binnen haalbare tijdskaders.

Om de ontwikkeling van een nieuw Vlaams kwaliteitsbeleid te vergemakkelijken, onderzochten we de houding van gezondheidsmedewerkers, ziekenhuismanagement, patiëntvertegenwoordigers en andere stakeholders voor elementen van een toekomstig kwaliteitszorgbeleid. Door gebruik te maken van een Discrete Choice Experiment (DCE), brachten we een methodologie uit de marketingindustrie over naar een gezondheidszorgcontext en onderzochten we de keuzes van respondenten over verschillende kenmerken van een toekomstig kwaliteitssysteem. Door het zorgvuldig selecteren van attributen en levels voor elke component van dit nieuwe beleidskader konden we de keuzes van mensen kwantificeren. Dit was uiterst nuttig om te bepalen of toekomstige beleidsbeslissingen steun zouden krijgen in het veld en of beleidsmakers de integratie van deze elementen in toekomstige kaders kunnen voortzetten.

We gebruikten daarnaast kwalitatieve studietechnieken om internationale en nationale expertise over de huidige kwaliteitskaders en elementen voor toekomstig beleid te integreren. Dit leidde tot de ontwikkeling van een raamwerk met hoekstenen voor een duurzaam, nationaal kwaliteitsbeleid en een lijst met fundamentele zaken voor een duurzaam kwaliteitsmanagementsysteem in ziekenhuizen. We verwerkten de visies van nationale en internationale experts met de gekwantificeerde voorkeuren van Vlaamse stakeholders om beleidsaanbevelingen te formuleren voor toekomstige strategieën voor kwaliteit van zorg in ziekenhuizen.

Dit proefschrift analyseerde ook de financiële impact van internationale accreditatie op ziekenhuisbudgetten in Vlaanderen. Ook een financiële analyse van de invoering van een Pay for Performance (P4P) programma in België werd onderzocht. Tot slot werd een kwalitatieve analyse van kwaliteitscomponenten in het Budget van Financiële Middelen (BFM) uitgevoerd.

# CONTENTS

# LIST OF ABBREVIATIONS

| | |
|---|---|
| **BFM** | Budget of Financial Means |
| **CEA** | Cost Effectiveness Analysis |
| **CEO** | Chief Executive Officer |
| **CFO** | Chief Financial Officer |
| **CMO** | Chief Medical Officer |
| **DCE** | Discrete Choice Experiment |
| **DICA** | Dutch Institute for Clinical Audit |
| **EHMA** | European Health Management Association |
| **FFS** | Fee-for-service |
| **FLAQUM** | Flanders Quality Model |
| **FTE** | Full Time Equivalent |
| **GTT** | Global Trigger Tool |
| **HB** | Hierarchical Bayesian |
| **HBVP** | Hopsital Value-Based Purchasing |
| **HQID** | Hospital Quality Incentive Demonstration |
| **HQIP** | Healthcare Quality Improvement Partnership |
| **HQM** | Healthcare Quality Manager |
| **IHI** | Institute for Healthcare Improvement |
| **INAMI** | l'Assurance soins de santé et indemnités |
| **IOM** | Institute of Medicine |
| **IQR** | Interquartile range |
| **ISQUA** | International Society for Quality in Health Care |
| **JCI** | Joint Commission International |
| **KCE** | Federaal Kenniscentrum voor de Gezondheidszorg |

| | |
|---|---|
| **LIHP** | Leuven Institute for Healthcare Policy |
| **MCDM** | Multiple Criteria Decision Making |
| **MOC** | Multidisciplinair Oncologisch Consult |
| **MSA** | Multiple Stakeholder Analysis |
| **NAM** | National Academy of Medicine |
| **NHS** | National Health Service |
| **NIAZ** | Nederlands Instituut voor Accreditatie in de Zorg |
| **NKP** | Netwerk klinische paden |
| **NQP** | National Quality programme |
| **NSQIP** | National Surgical Quality Improvement Program |
| **OECD** | Organization for Economic Co-operation and Development |
| **PDSA** | Plan, Do, Study, Act |
| **PREMS** | Patient Reported Experience Measures |
| **PROMS** | Patient Reported Outcome Measures |
| **QI** | Quality Improvement |
| **QMS** | Quality Management System |
| **QUAGOL** | Qualitative Analysis Guide of Leuven |
| **RIZIV** | Rijksinstituut voor Ziekte- en Invaliditeitsverzekering |
| **VIKZ** | Vlaams Instituut voor Kwaliteit van Zorg |
| **VPP** | Vlaams patientenplatform |
| **WHO** | World Health Organization |

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# Chapter 1

# INTRODUCTION AND RESEARCH OBJECTIVES

## 1.1 Quality of care: key topic in health policy

Quality of care and patient safety in hospitals have been receiving growing attention in the last few decades. Since the 1999 report 'To Err is Human: Building a Safer Health System' by the Institute of Medicine (IOM), now called the National Academy of Medicine (NAM), policymakers and governments around the world realized that hospitals don't always provide safe care, and that action is needed [1,2]. The IOM report demonstrated that mortality from medical errors in hospitals was higher than from vehicular accidents, breast cancer and AIDS combined [2]. Recent international reports have built on these findings and indicated that one in ten patients may be harmed during hospital care and that half of these incidents are preventable [3–6]. Even "never events" such as wrong-patient and wrong-site surgery still occur with disturbing frequency [7]. Some researchers advocated to focus on 'bad apples' between care providers who account for a big part of harm and dissatisfaction among patients [8–10]. However, adverse events in patient care can not only be attributed to human failure on the part of clinicians. James Reason introduced in 1990 his "Swiss cheese" model of accidents occurring in organizational settings such as hospitals. He demonstrated how upstream errors such as failures of system design can lead to accidents downstream, at the point of care and patient safety [11]. 'To Err is Human' also introduced the concept of systemic errors which showed to be a significant contributing factor to patient harm. Therefore, there is a shift in responsibility from individual practitioners to organisations and structures with a need to focus on system-wide policy improvements [1].

Quality of care and patient safety definitions have been changing through the years. In 1980, Donabedian described quality of care as the *ability to achieve desirable objectives using legitimate means* [12]. This was a rather general definition that could define quality even outside a healthcare context. Ten years later, the IOM defined it more specifically to a healthcare context as *the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent*

*with current professional knowledge* [13]. In 2001, the same institute established six aims, or domains, of health care quality: care had to be *safe, effective, patient centred, timely, efficient and equitable* [14]. These six aims have been the golden standard for years in quality thinking. The European Commission and the World Health Organization (WHO) took over these aims and added an extra domain of *integrated care* [15,16]. In recent years, the scope of quality of care expanded with focus on the impact of patient incidents for health care workers: caregivers that are involved in patient harm are also affected, often feeling guilt, shame, and in some cases, depression [17]. Hence, the concept of *"second victim"* was introduced in the broad definition of quality of care and patient safety [18–20].

Based on the quality evolution in the last forty years, a recent new multidimensional quality model was developed by Lachman, Batalden and Vanhaecht (Figure 1.1) [21]. These key opinion leaders in quality thinking emphasised the need to expand the six dimensions of quality that were introduced by the IOM with new domains such as ecology and transparency and the introduction of person- or 'kin-centred care'. The latter emphasises the shared humanity of people involved in the interdependent work. The emergence of 'service-oriented' systems, complexity science, the challenges of climate change, the growth of social media, the internet and other new realities invited researchers to rethink current quality of care models [21]. The voice and vision of healthcare workers, patients, hospital management and policymakers are therefore crucial in the development of future quality policy to ensure that new models are broadly supported and can contribute to patient safety in all hospitals.

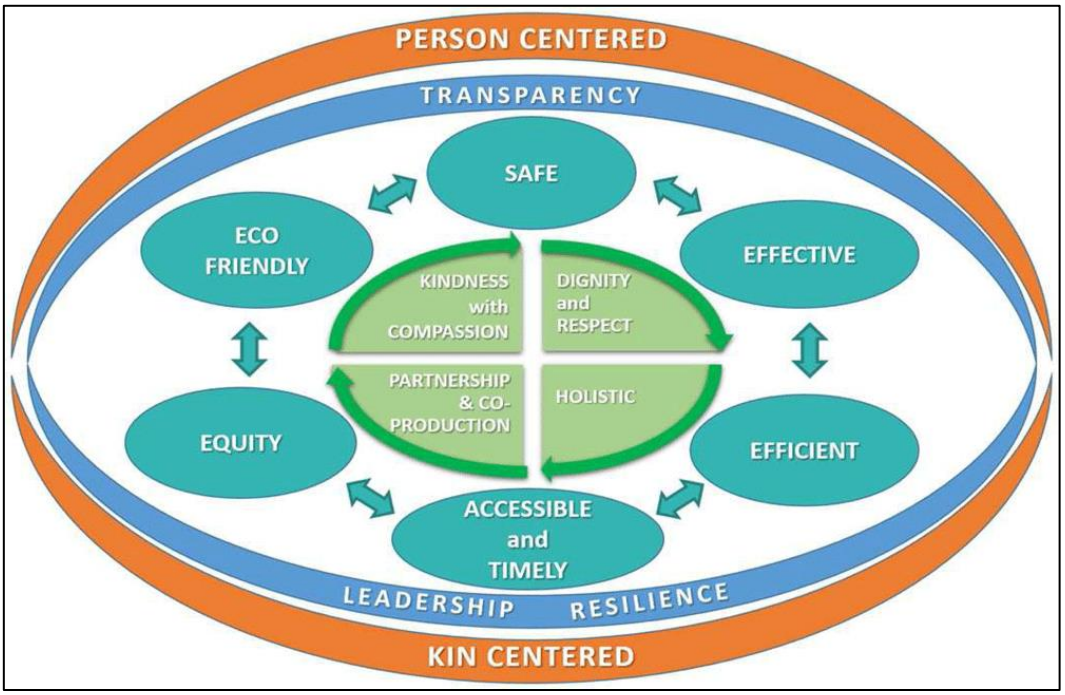



**Figure 1.1:** The domains of quality for the new era of health [21]. Reproduced with permission.

Currently, quality of care is high up on the agenda of researchers and policymakers at national, European and international levels because of the growing awareness of gaps in the delivery of care systems [22,23]. In addition, the pace of action to combat quality issues is increasing as governments respond to growing public demand for transparency and accountability in healthcare delivery [16]. The literature on quality of care in health systems is very extensive and scattered across different platforms and governments, which makes it difficult for policymakers to overview existing quality programs [24]. Research on strategies aimed at assuring or improving quality of care is abundant with focus on different organizations like hospitals, health centres and particular areas of care like emergency care, maternal care and others [25,26]. Available evidence on quality in these particular settings helped to understand the effectiveness of certain interventions but does not offer a system-wide policy approach. Policymakers and managers therefore need advice on which improvement strategies to implement in their own local healthcare settings and in their system as a whole. In addition, as mentioned previously, there is no common understanding of the term 'quality of care' and the disagreement about what it encompasses is dependent on contexts, disciplinary paradigms and levels of analysis [27].

International institutions like the Organization for Economic Co-operation and Development (OECD), WHO and World Bank Group called for high-level actions to ensure the best and safest healthcare possible [28]. Many countries started to adapt strategies to improve the performance and structures of their healthcare systems [23,28]. Nevertheless, hospital managers and decision-makers across the world are struggling with creating a vision on how to sustainably improve quality of care in their hospitals. Additionally, evidence on the effectiveness of past policy decisions on quality of care, healthcare professionals' work and hospital finances is lacking. Recently, the COVID-19 crisis and the increased demands on healthcare services highlighted the pressure on healthcare workers and hospital management with a workforce facing what many call a "crisis of burnout" [29,30]. New quality models must therefore strive for a balance between motivation of healthcare workers, quality control and system sustainability for future generations.

## 1.2 Quality of care policy in Flanders, Belgium

Belgium is a federal state of 11 million inhabitants with a Northern community (Flanders) and Southern community (Wallonia). In Flanders, a region that is home to about 6 million inhabitants, the current hospital quality of care policy is primarily built around a triad of 'accreditation', 'government inspection' and 'measurement and public reporting' (Figure 1.2). This triad was set out by the government in 2009 but was not preceded by broad consultation of the sector [31].

The first pillar of this quality triad incentivizes hospitals to engage in a process of accreditation, carried out by an international external organization and announced beforehand. Accreditation bodies evaluate whether the hospital meets predetermined standards of care [32]. If a hospital is found to have met the

quality requirements, it receives a quality label for a limited period of time. Flemish hospitals can voluntarily choose whether or not to obtain such an international accreditation label. The government did not provide resources to pay for international accreditation, so the choice for accreditation was individual and at hospitals' own expense. Since 2018, hospitals can earn points and incentive payments in a Pay for Performance (P4P) program when they decide to go forward with a hospital accreditation trajectory. Today, nearly all Flemish general and university hospitals started with their accreditation surveys, with some still in their first and others already in a fourth cycle by either the Joint Commission International (JCI) [33] or the Dutch Qualicor Europe (Qualicor) [34].

In a second pillar, the Flemish government inspects hospitals in two ways. Firstly, the government audits certain thematic care trajectories in an unannounced way via compliance monitoring (Vlaamse Zorginspectie) [35]. The focus lies on care trajectories for surgical patients, cardiac care patients, internal medicine patients, psychiatric patients, geriatric patients, oncological patients, dialysis patients and the mother-child trajectory. Secondly, an announced systemic inspection of the hospital takes place. However, whereas unannounced care trajectory inspection takes place in all hospitals, hospitals that take part in an international accreditation trajectory are exempt from the announced systemic inspection.

Lastly, the Flemish Institute for Quality of Care (VIKZ) develops and gathers a limited set of quality indicators of which several are publicly reported on the website www.zorgkwaliteit.be since 2014 [36]. Public transparency of this set of indicators is voluntary and the majority of Flemish hospitals have chosen to participate on at least one indicator. So far, indicators on breast, lung and rectum cancer, patient experiences, patient safety (e.g. hand hygiene, patient identification, surgical safety checklist…) and hospital-wide indicators (e.g. website, vaccination rate…) have been publicly released. The VIKZ works as a private organization with five major missions: linking by organising intersectoral consultations, intervision and building a knowledge network. Develop quality indicators, together with the sector, according to a fixed evidence-based methodology. Policy impact to help build a future-oriented, integrated Flemish quality policy. Stimulate research and training in cooperation with universities and scientific associations. Facilizing public transparency of quality of care and creating understandable information.

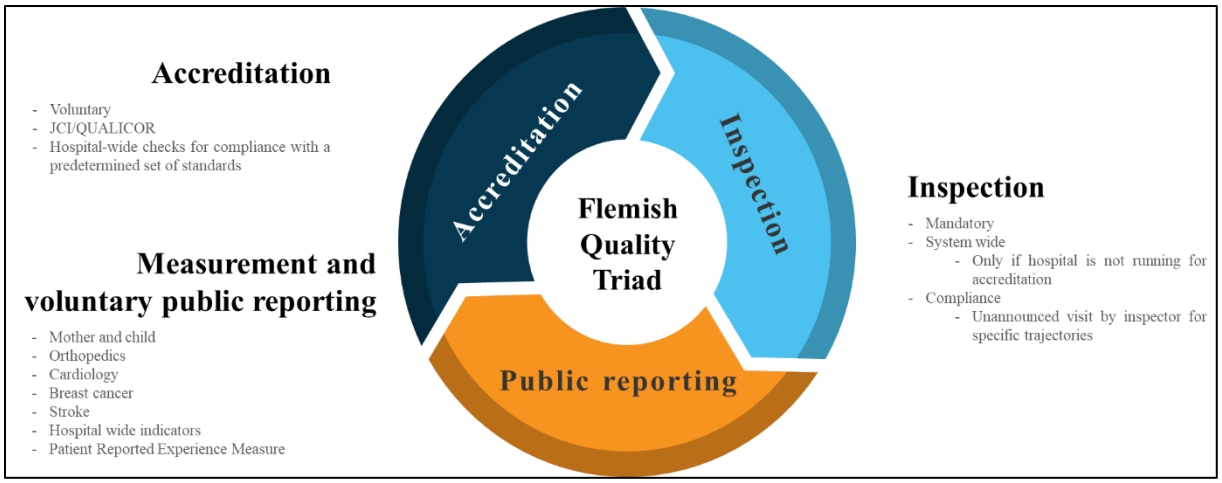



**Figure 1.2:** The Flemish quality triad

In their latest government coalition agreement in 2019, Flanders stated to evaluate the added value of the current accreditation system [37]. The Flemish government and hospital associations continue to search for a good way to incorporate healthcare quality into their daily systems without demotivating healthcare professionals and clinical leaders. As the Flemish quality triad is now in place for over a decade, Flemish hospitals are questioning if they should still adhere to these triad elements or adapt their system to the evolving quality thinking and test new approaches. Many hospitals therefore decided to stop international accreditation and engaged in novel, locally designed quality initiatives.

Apart from the competences around quality of care at the Flemish level, initiatives have also been taken at the federal level to improve the quality of care in general hospitals. For instance, the federal government provides specific funding in the context of certain quality indicators (Pay for Performance, see below). In addition, a Federal Council for the Quality of Nursing Activity was set up to help initiate, systematise and harmonise initiatives to improve the quality of nursing activity in order to promote shared practices that have proved their worth. This Council has already worked on topics such as pressure ulcers, aggression and malnutrition in hospitals. The federal scientific institution, Sciensano, is also developing field support and indicators around quality of care. Together with the Federal Knowledge Centre for Healthcare (KCE) and the National Institute for Sickness and Disability Insurance (NIHDI), it monitors the quality of Belgian healthcare by coordinating national databases, evaluating care pathways, monitoring hospital infections and following up health crises such as the corona pandemic.

Although this dissertation focuses on the Flemish initiatives and the policy, governance and cost aspect of quality improvement initiatives in Flemish hospitals, it is nevertheless important not to lose sight of the division of powers between the federal and federated entities. Brussels, for instance, is a separate federated entity, with both Flemish and Walloon hospitals. The particular political Belgian situation

therefore means that healthcare policy always requires coordination with different partners to avoid unnecessary duplication of effort and to enable a coordinated policy.

## 1.3 Financing of Belgian hospitals and physicians

The financial situation of hospitals in Belgium is an important determinant in possibilities to improve quality of care. Government policy is aimed at making the most efficient use of available resources and therefore choices have to be made in what to invest. Health care spending is increasing and the costs for hospitals have also been rising in recent years. Of the 103 hospitals in Belgium, 28% of hospitals are public institutions and 72% are private not-for-profit institutions. Public hospitals are mostly owned by public municipal welfare centres or intermunicipal organisations, while private hospitals are generally owned by religious charitable organisations or in some cases by sickness funds or universities [38]. There are no private for-profit hospitals. The Law on Hospitals applies in equal measure to both the public and private sectors, and their financing by the public authorities is identical. Belgium has different types of hospitals like general, specialized, geriatric and psychiatric hospitals. In this PhD dissertation, we focus on general acute-care hospitals, which encompass the majority of hospitals (67%) and which includes seven university hospitals and 96 non-university hospitals.

Belgium has a dual payment system depending on the type of services that are provided. Physician fees are paid through compulsory health insurance, while hospitals are funded through a separate budget envelope, the Budget of Financial Means (BFM) (table 1.1) [39,40]. Consultations and technical procedures are remunerated through the variable reimbursement system of fee-for-service (FFS). Non-medical activities, such as the service of accommodation, accident and emergency services and nursing activities are paid for via a budgeting system partially based on pathologies, directly to the hospital. Physicians relinquish part of their fees to the hospital to pay for (part of) the costs directly or indirectly linked to the provision of medical activities. The BFM together with the fees for consultations and technical procedures make up about 73% of total hospital revenue. In addition to these two main revenue sources, other income sources are payments for pharmaceutical products, low variable care budgets, rehabilitation conventions, and supplements paid by patients [41].

**Table 1.1:** Hospital revenue sources, 2019 [40]

| Revenue source | Share of total revenue |
|---|---|
| Hospital budget | 34.7% |
| Physician fees | 38% |
| Room supplements & ancillary products | 0.9% |
| Lump sum payments for conventions, day care etc. | 4.4% |
| Pharmaceutical products | 19.1% |
| Low variable care | 2.9% |

## 1.4 Financing quality in Belgium

Hospital quality of care is currently financed in different ways in Belgian hospitals. The BFM contains working costs for hospitals and is split up in different payment parts, with a specific part for extra governmental obligations, which contain different quality improvement initiatives.

It is obvious that harm caused by patient safety failures carries an enormous price tag. Research estimated the direct costs of preventable harm at 19.5 billion dollar per year in the United States (most of which was due to additional medical expenses necessitated by the harm) [42]. Together with indirect costs of preventable harm, the estimate approaches 1 trillion annually in the U.S. alone. In OECD countries, more than 10% of the total hospital expenditures are used to treat harm caused by preventable medical errors and healthcare-associated infections [28]. The burden on healthcare budgets and governments aiming to contain costs is high and any effort to improve value in healthcare must therefore include efforts to improve quality of care and patient safety [17].

In 2013 a task force at the National Institute for Health and Disability Insurance (RIZIV-INAMI) was installed to increase efficiency in the Belgian healthcare system. A reduced payment for readmissions from 1 January 2014 onwards was introduced and the variable payment for hospital admissions was limited to 82% in case it concerned a readmission within the same hospital within a 10-day period.[41] This financial penalization can be seen as a quality improvement initiative although it was more perceived as a cost containment measure [41].

In 2018, Belgium implemented a Pay for Performance program (P4P) after ten years of lump sum payments for quality improvement projects. The federal government intended to reward hospitals financially dependent on their score on a selected set of structure, process and outcome indicators with this P4P program. These indicators are used as a measurement for the organisation and its quality processes, the care provided and the health outcomes of treated patients.

## 1.5 Knowledge gaps in quality policy

As quality of care has become increasingly important for policymakers and governments, many are searching for a right answer on how to sustainably implement new quality systems in hospitals. Many knowledge gaps remain in quality policy. A lot of improvement projects already started in hospitals or on a higher level but it is currently unknown how different healthcare professionals experience these quality improvement projects. Two systematic reviews show diffuse attitudes of hospital employees towards accreditation and other quality improvement initiatives [43,44]. In Denmark, before the abolishment of accreditation in 2015, overall attitudes of healthcare professionals towards accreditation were supportive, yet a small group of physicians was extremely negative [45]. Another recent paper from 2019 demonstrated that accreditation processes were mainly perceived as positive by health

professionals, although it also imposed a slightly negative bureaucratization effect on clinical practice [46].

The COVID-19 crisis also emphasised the issues in terms of flexibility of current quality systems and sustainability in times of crisis. New dimensions of quality and the importance of person- and kin-centred care urged policymakers to go a step further than the current quality triad. The Flemish government acknowledged the evolution in quality thinking and the diversity in the sector and the Flemish minister of health therefore announced in 2021 to stop system-wide inspections in hospitals for two years [47]. He stated to start with the development of a new Flemish quality framework in co-governance with all healthcare stakeholders. This announcement gave hospitals the guarantee to work and develop new quality models, without being sanctioned for abandoning international accreditation systems.

Evidence on the financial impact of quality improvement efforts on hospital budgets and financial incentives to improve quality of care remains very limited too. A mixed methods study published in 2015 showed that accreditation costs varied from 0.03% to 0.60% of total hospital operating costs per year[48]. Furthermore, it was observed in Lebanese hospitals that expenses increased due to accreditation[49]. There is no hard evidence on the cost-effectiveness of accreditation [32,50]. Furthermore, financial incentives for quality improvement efforts are set in place by some countries. It is unknown if this has a real impact on quality of care and patient safety outcomes and if these budgets are accordingly well spent. A systematic review in 2017 showed unclear effects of UK provider financial incentives on healthcare quality and suggests further research in this domain[51].

## 1.6 Research objectives of this PhD dissertation

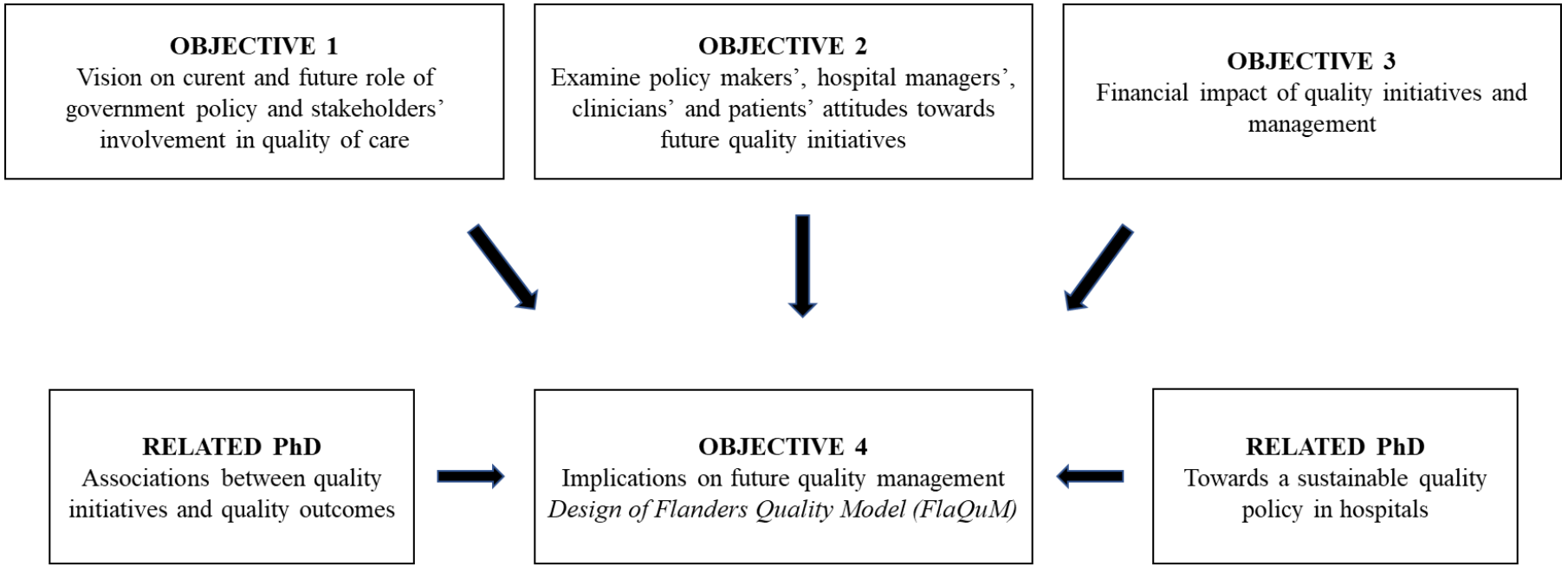
The overarching aim of this PhD project is to provide scientific evidence on how quality of care can be embedded in government policy and hospital management, as well as to generate a better understanding of the financial impact of current policy. Four research objectives were integrated in this work (Figure 1.3).

1. First, we explore the vision on the current and future role of government policy, hospital management and clinicians and patients' involvement in quality of care among national and international opinion leaders.
2. A second objective is to examine policymakers', hospital managers', clinicians' and patients' attitudes towards future quality initiatives.
3. A third objective encompasses the financial impact of quality initiatives and management in three ways.

   a. A research methodology was set up to determine the cost for Flemish hospitals of realizing a first and second international accreditation.
   b. Besides this 'cost calculation', we aimed to assess the financial impact on Belgian hospitals of a policy change to a 'pay for performance' system.
   c. We aim to provide an overview of the financial posts related to quality improvement in the Budget of Financial Means (BFM).
4. As a fourth objective, this PhD dissertation intents to formulate a scientific policy advice on future hospital quality of care management.

The Research Chair Zorgnet-Icuro 'future of hospital quality' promotes two PhD studies. Along with the study described above, a second PhD project started in March 2019 with a retrospective observational study of associations between quality improvement initiatives and quality and patient safety outcomes. Thus, whereas the current PhD study focusses on the 'cost' and 'policy' aspect of quality improvement initiatives, this other work focusses on the 'effectiveness' part. Additionally, another PhD study will provide insights into the embedment and sustainability of quality improvement initiatives in a regional hospital. The three PhD projects together will provide a scientific basis for a new Flanders Quality Model (FlaQuM) for hospitals (Figure 1.3).

**Figure 1.3:** Overview of objectives and related PhD projects



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# Chapter 2

# THE VISION ON GOVERNMENT POLICY AND STAKEHOLDERS' INVOLVEMENT IN QUALITY OF CARE

This chapter was previously published as:

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Claessens, F., Castro, E., Seys, D., **Brouwers, J.**, Van Wilder, A., Jans, A., De Ridder, D., Vanhaecht, K. (2022) Fundamental elements of sustainable quality management in hospitals: the experiences of healthcare quality managers. *Health Services Management Research* [submitted]

This first objective of the PhD explores the vision on the current and future role of government policy and stakeholders' involvement in quality of care by national and international opinion leaders. We started with a narrative literature review about the evidence for the current Flemish quality triad followed by qualitative interviews with renowned international and national experts on the future of hospital quality of care and quality management systems.

# 2.1 Is a hospital quality policy based on a triad of accreditation, public reporting and inspection evidence-based? A narrative review

**Abstract**

**Background**: Since 2009, hospital quality policy in Flanders, Belgium, is built around a Quality-of-Care Triad, which encompasses accreditation, public reporting and inspection. Policy makers are currently reflecting on the added value of this Triad.

**Objective**: To examine the evidence-base of the impact of accreditation, public reporting and inspection, both individually and combined, on patient processes and outcomes.

**Methods**: We performed a narrative review of the literature published between 2009 and 2020. The following patient outcomes were examined: mortality, length-of-stay, readmissions, patient satisfaction, adverse outcomes, failure-to-rescue, adherence to process measures and risk aversion. The impact of accreditation, public reporting and inspection on these outcomes was evaluated as either positive, neutral (i.e. no impact observed or mixed results reported) or negative.

**Results**: We identified 69 studies, of which 40 on accreditation, 24 on public reporting, three on inspection and two on accreditation and public reporting concomitantly. Identified studies reported primarily low-level evidence (level-IV, n=53) and were heterogenous in terms of implemented programs and patient populations (often narrow in public reporting research). Overall, a neutral categorization was determined in 30 papers for accreditation, 23 for public reporting and 4 for inspection. Ten of these recounted mixed results. For accreditation, a high number (n=12) of positive research on adherence to process measures was discovered.

**Conclusion**: The individual impact of accreditation, public reporting and inspection, the core of Flemish hospital quality, was found to be limited on patient outcomes. Future studies should investigate the combined effect of multiple quality improvement strategies.

**Keywords**: Hospital; Accreditation; Public Reporting of Healthcare Data; Quality Control; Patient Outcome Assessment

## 2.1.1 INTRODUCTION

The IOM's *To Err Is Human* [1] served as a global tipping point for hospital quality. Two decades have passed since its publication, resulting in the research and implementation of many quality improvement (QI) initiatives, including accreditation, public reporting (PR) and inspection, stimulating patient safety and hospital quality [2]. In Flanders, the northern region of Belgium, a government coalition agreement was established in 2009 [3] that forms the basis of today's 'Quality-of-Care Triad': 1) voluntary announced hospital-wide accreditation by an international external agency, 2) voluntary measurement and PR of quality indicators and 3) mandatory inspection by the Flemish government. The latter consists of an announced systemic inspection of which accredited hospitals are exempt, as well as an unannounced examination of patient trajectories, which occurs on average every year. All 55 Flemish acute-care hospitals have since entered into an accreditation process, defined as an assessment of pre-determined standards [4], by either the USA-based Joint Commission International (JCI) or the Dutch Qualicor. To date, most hospitals (n=35) have either achieved their first-cycle accreditation label or have gone through consecutive cycles. Recently, two hospitals successfully passed third reaccreditation. From 2015 onwards, all but one hospital chose to publicly report quality indicators on cancer survival rates, patient experiences and patient safety measures [5].However, despite the widespread application of each Triad component, a growing number of voices are questioning the added value of current healthcare policy. Several Flemish hospitals have decided to discontinue their accreditation trajectories based on global concerns on its bureaucratic nature, often described as time consuming [6], merely market-driven [7], costly [8], and not promoting what actually matters to patients [9]. Furthermore, there is worry that PR leads to risk aversive behaviour in physicians [10] that might harm patients, that data can be misinterpreted or gamed [11], that reporting may impose a significant financial and administrative burden [12] and finally that it does not reach the patient [13]. Concerning inspection, apprehension exists on the topic of 'decoupling', i.e. the gap between the paper-based reality of rules and guidelines and actual clinical practice [14,15]. Lastly, evidence of associations with patient outcomes is scant, as reported in several reviews [16–19]. Our research aims to extend previous literature by investigating the joint impact of various types of QI initiatives (accreditation, PR, inspection) exclusively on several patient outcomes. We aim to provide a systematic identification and narrative synthesis of all empirical research published between January 2009 and February 2020.

## 2.1.2 METHODS

### *Study design*

We performed a narrative literature review of studies on the effects of hospital accreditation, PR and inspection on patient outcomes. We employed a narrative rather than statistical method because first, the number of interventional studies is limited, second, research methods are heterogeneous and last,

because of the considerable complexity and variety in the organisation of different Triad components in multiple jurisdictional and legislative environments. Quantitative comparison of outcomes between studies is problematic due to this context heterogeneity.

*Data sources and search strategy*

We searched MEDLINE, the premier database for biomedical research, for literature published between January 1st 2009 and February 29th 2020. From three established research questions (What associations can be observed between accreditation/PR/inspection and quality and patient safety outcomes in hospital care?), a PICO-searching strategy for each component was determined, wherein combinations of key words and MESH terms were searched. Each individual search was subsequently combined to find literature on shared components. A detailed transcript of this search strategy can be found in Supplemental files. We included original research in English or Dutch, the research team's first language, conducted in high- or middle-income countries and concerning secondary and tertiary care. We assigned literature to a QI component when the impact of an initiative similar to a Quality-of-Care Triad component was assessed on a patient outcome, i.e. the mere mention of the e.g. term 'accreditation' did not suffice. We excluded literature describing disease-specific accreditation, as this differs vastly from the hospital-wide assessment used in Flanders and therefore falls outside the research scope. This exclusion was not applied to PR and inspection literature, as they contain both hospital-wide and disease-specific components. We included all quantitative original research, i.e. level-II (randomised controlled trials (RCT)), III (quasi-experimental) and IV (case-control and cohort) evidence [20], therefore excluding reviews (level-I and V), original qualitative and descriptive research (level-VI) and expert opinion papers (level-VII). Lastly, we only included papers with full-text availability within our institution. The reference lists of selected articles were searched for potentially relevant studies meeting the inclusion criteria. In addition, we explored search terms on Google Scholar and repeated the search strategy of the Belgian Health Care Knowledge Centre (KCE) on accreditation literature [21] (Supplemental File).

*Study characteristics*

The following study characteristics were identified: country, setting, patient population, design, level of evidence, type of QI initiative, studied patient outcome(s) and reported impact of the initiative on the outcome(s). We performed a manual content analysis to determine the frequency with which eight thematic categories were examined: mortality, length-of-stay, readmissions, patient satisfaction, adverse outcomes, failure-to-rescue, adherence to process measures and risk aversion. The latter was added based on anecdotal evidence of risk aversion occurring in PR [10]. It is possible a single publication studied the impact of one or more Triad components on several patient outcomes. The reported direction of impact on patient outcomes was recorded as either positive, neutral or negative, inspired by Deneckere

*et al*.'s systematic review on care pathways [22]. A neutral impact was defined when either no associations between the Triad component and the patient outcome were found or when mixed results were reported for several indicators or patient groups of the same patient outcome. Due to the range of different studied patient outcomes and varied designs and quality, we opted to not reach conclusions on the strength of evidence by means of meta-analysis. Alternatively, we provide an overall picture by identifying the frequency of records per outcome and reported impact. The search was executed by AVW and revised and validated by JB, who independently examined a subsample of 25 references. Disagreement between authors occurred in only two studies and was resolved after discussion among the research team.

### 2.1.3 RESULTS

#### *Search results*

We identified 59 694 records via the MEDLINE database. Screening of title and abstract led to the exclusion of a vast amount of records that did not relate to the impact of accreditation, PR and inspection on patient outcomes. Subsequently, 93 full-text articles were read for accreditation, 70 for PR and 5 for inspection. The search on combined components led to duplicates of the search on individual components and did not provide additional studies on either individual or combined components. An overview of the search results is visualised in Figure 2.1 and further detailed in Supplemental Files. Concerning accreditation, the main reason for excluding publications was the description of disease-specific accreditation (n=26). After chain searching (n=7), the final number of studies included for accreditation totalled 42. Two of these discussed the impact of both accreditation and PR on patient outcomes. Out of the 70 papers read on PR, 48 were excluded and four chain references included, leading to a final sample of 26 papers on PR, of which two aforementioned publications acknowledged both PR and accreditation. Finally, three of the five papers on inspection were excluded and one added through chain referencing, leaving a final sample of three publications. No studies encompassing all three components of the Quality-of-Care Triad could be identified. Supplemental Files provides an overview of the excluded fully-read articles. Lastly, no additional studies could be discovered from the Google Scholar search engine and repeated KCE strategy.

#### *Characteristics of included studies*

A summary and full reference list of 69 included publications can be found in Supplemental Files, including first author, publication year, journal, country, setting and patient population, objectives, research design, level of evidence, studied QI initiative with its specified program description, studied patient outcome(s) and impact of the component on this outcome. The gathered evidence was quite evenly spread across the study years and conducted in 24 countries across North-America (n=33), Europe (n=20), Asia (n=13) and Australia (n=3). All inspection literature (n=3) was UK-based, while studies on PR were predominantly conducted in the USA (n=21). Included publications reported mainly

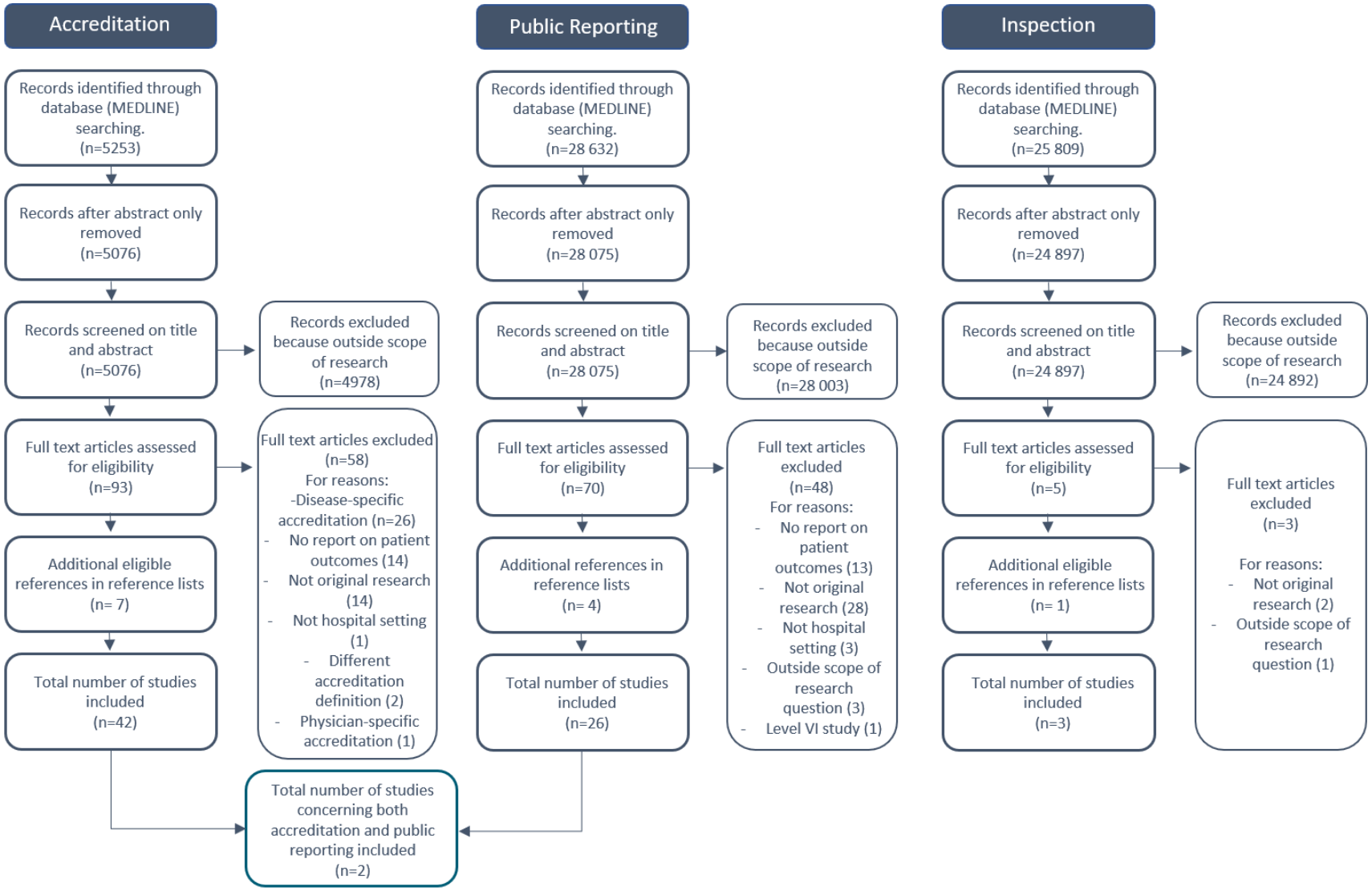


**Figure 2.1:** Flowchart of literature search

level-IV evidence (n=53), while five papers reported level-III studies and one recounted a RCT. The research settings varied largely, ranging between the study of just one hospital and over 1000 hospitals. As detailed in Supplemental Files, a plethora of programs was assessed. Accreditation programs were primarily developed nationally (n=29), while five publications reported on international programs. Concerning PR, different levels of reporting were observed, such as individual-level (n=5) or hospital-wide (n=2). However, the majority recounted disease-specific (n=16) and unit-based (n=6) levels of reporting. Finally, many different patient populations were studied. In general, most accreditation literature reported hospital-wide outcomes or assessed a wide spectrum of diseases to reflect overall care. In contrast, PR literature predominantly surveyed narrow patient groups, of which the fields of cardiology (n=17) and respiratory disease (n=6) were observed most frequently. Concerning inspection literature, one study assessed a hospital-wide patient sample, while the other two studied a more restricted sample (maternity and emergency room).

*Study categorisation*

An overview of the number of identified papers categorised according to type of QI initiative, patient outcome and direction of impact can be found in the heatmap displayed in Figure 2.2. The most frequently studied patient outcomes are adherence to process measures (n=27), followed by mortality (n=26), whereas only few studies (n=4) assessed failure-to-rescue. For PR specifically, mortality is most frequently explored (n=15), followed by the impact on risk aversion (n=11). Inspection papers have only addressed adherence to processes (n=2), adverse outcomes (n=1) and readmission rates (n=2). Overall, a neutral impact was observed in 30 papers for accreditation, 23 for PR and 4 for inspection. The neutral category includes ten studies reporting mixed results (see Supplemental File). For accreditation, 26 papers narrate a positive impact on patient outcomes, primarily due to the high number (n=12) of positive results on adherence to process measures. Several papers (see Figure 2.2) reported inconsistent directions of impact for multiple patient outcomes, as exemplified by Gupta *et al.* [23] or Lam *et al.* [24]. Two studies researched the impact of both accreditation and PR on process measures [25,26]. Schmaltz *et al.* [26] found that accredited hospitals already outperformed non-accredited hospitals prior to PR and the difference between the two groups increased after PR. Howell *et al.* [25], however, found no association between the PR of accreditation standards and maternal morbidity.

*Accreditation impact*

The majority of identified publications reported that accreditation had no observable impact on patient outcomes. Numerous studies reported an unsustainable impact. In e.g. several adherence to process measures studies [27–32], it was reported how compliancy with processes improved steadily in the build-up towards an accreditation survey, but continued at a slower rate after the survey or even returned to baseline. Similarly, Barnett *et al.* [33] observed a significant decrease in 30-day mortality in the week of

the survey visit, which was nullified within the next three weeks. While a consecutive accreditation cycle reduced variation in compliancy with processes, it could not deliver more improvement than the first visit [31]. At baseline, hospitals with lower performance improved at greater rates [34,35] than those with higher performance. The positive associations found between accreditation and patient satisfaction were primarily due to a better observed satisfaction of hospital structures [36,37]. Conversely, Lam *et al.* [24], reported superior patient satisfaction in non-accredited hospitals, despite readmission rates being better in accredited centres. The type of accreditation program had no apparent influence on patient outcome impact, although the reported impact of national Magnet-accreditation was positive in all [38–41] but one [42] study.

*PR impact*

A duality was observed in Gupta *et al.* [23], where the PR of readmission rates led to reduced readmissions, but increased mortality. Several publications (n=11) studied whether PR led to risk-avoidant behaviour, which was contested in the majority of them [43–49]. However, evidence of risk-avoidance by physicians was found in some of the cardiology reports [50–52] and was even demonstrated to increase mortality rates [53]. Only one RCT was identified, which could not find any impact of PR on cardiac process indicators. Consistent with accreditation literature, hospitals with low baseline performance had the largest quality gains [54] and the repeated release of data [55] had no further impact on outcomes, despite improvements gained from the initial PR. Hospitals with a higher baseline performance were most likely to make use of PR [56].

*Inspection impact*

No associations were found between hospital inspection and emergency department processes and readmissions [57,58], while rates of falls and pressure ulcers [59] were negatively associated with inspection.

### 2.1.4 DISCUSSION

Healthcare policy in Flanders on the quality of hospital care is based on initiatives commonly concurring worldwide. However, no evidence exists on the impact of the complex intervention that combines both accreditation, PR and inspection on patient outcomes. This review identified 67 studies that investigated the impact on patient outcomes of one single improvement initiative and two studies that investigated the impact of both accreditation and PR. Only three studies were found on the impact of inspection. The majority of publications could not find evidence of associations between policy components and patient outcomes and some even described a negative impact. The latter needs to be nuanced as studied patient populations were narrow (primarily cardiology) in most of the negative studies. As the focus of accreditation is primarily on processes within their accreditation standards, it comes as no surprise that impact on adherence to process measures is predominantly positive. However, one could inquire

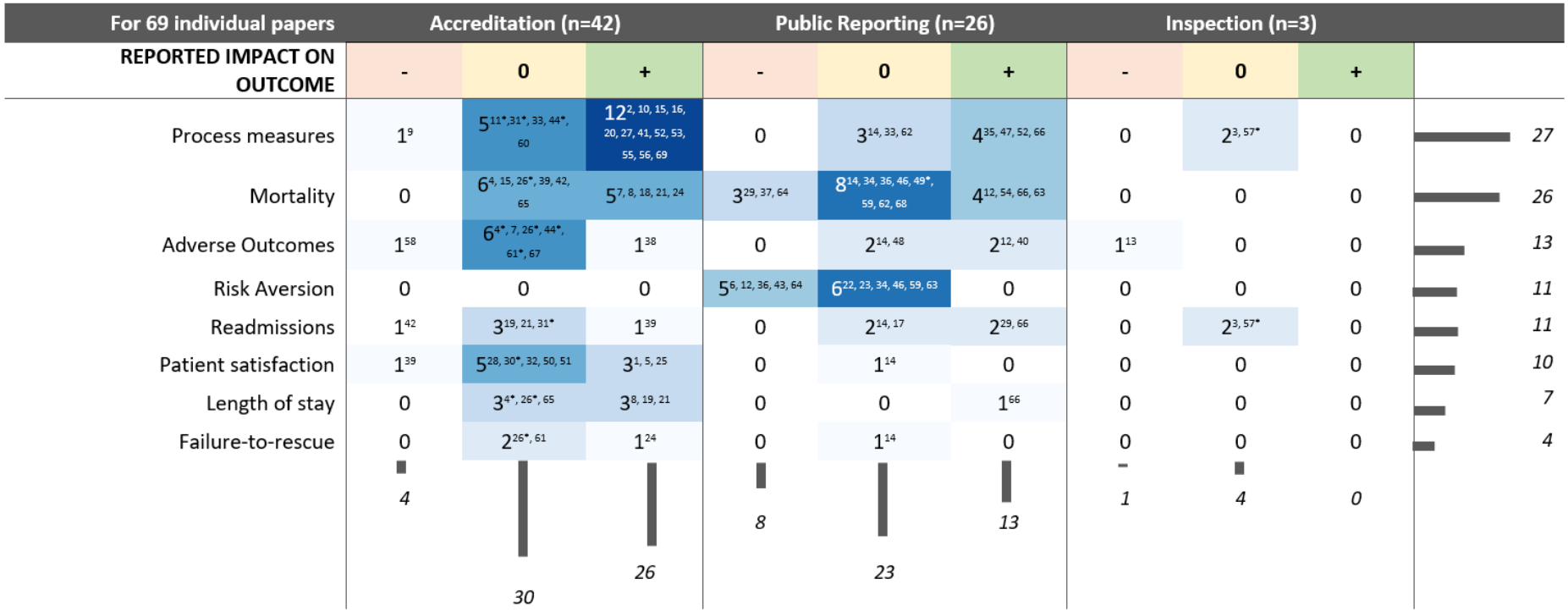


**Figure 2.2:** Heatmap on the reported impact of the Flemish Quality of Care Triad on identified patient outcome

Heatmap displaying the number of identified papers, classified according to type of quality improvement initiative, patient outcome, and impact of quality improvement initiative on said outcome (negative impact = "-", neutral impact = "0", positive impact = "+"). A darker color indicates a higher number of publications. Quality improvement initiatives and patient outcomes are sorted according to the total number of publications for each (represented by the grey bars). The references added to each number of identified papers refer to the summary of included articles, displayed in Supplemental File. When a reference is followed by an asterisk in the neutral category, the reference makes notice of mixed results in either multiple patient populations or multiple outcome indicators for that particular patient outcome.

whether achieving formal compliance is truly an indication of QI in clinical practice or merely a required cornerstone from which improvement can be built. Despite the lack of high-level evidence on patient measures, international reports suggest current policy has benefited other healthcare segments, with accreditation promoting change and professional development [6] and PR stimulating QI activity and altering hospital selection by the patient [19]. Along with inspection, accreditation and PR have provided a solid foundation for monitoring and promoting healthcare organisation performance and achieving quality of care, particularly in low baseline performers. However, the reported lack of further improvement in consecutive accreditation and PR cycles, suggests a rethink of the current policy is required. Potential opportunities for next steps lie in introducing unannounced [60], short-notice [61] or mandatory [62] accreditation programs, although the evidence remains inconclusive. Additional initiatives could be considered that have shown promise, such as internal audits [63], total-quality-management [64] or peer-review [50,65]. Multiple Flemish hospitals have already implemented initiatives besides the Quality-of-Care Triad, like ISO-certifications, Magnet-accreditation or disease-specific accreditation. The latter is consistently associated with more favourable results on patient outcomes [66], including mortality [67], length-of-stay [67], care processes [68], patient satisfaction [68] and adverse outcomes [67]. Additionally, all Belgian hospitals have been subject to a pay-for-performance scheme since 2018. How this financial incentivisation impacts Flemish hospitals, remains to be seen. International evidence suggests equivocal results [69].

Remarkably, no research was discovered conducted in a Flemish setting. With the passing of the 10-year anniversary of the Quality-of-Care Triad, we would argue it is high time to study how well each independent QI initiative is integrated within participating hospitals and evaluate its synergistic effects, both within the Triad as well as with other implemented initiatives. The detected evidence-base in this paper found only a limited individual impact of accreditation, PR and inspection on patient outcomes. Flanders should look at the added value of the current system by further investigating the combined effect of multiple improvement strategies. First, the implementation of Triad components and other initiatives should be mapped out historically and studied for associations with patient outcomes. Additionally, how healthcare professionals perceive current policy should be studied within the Flemish setting, as current views are primarily based on international evidence and hearsay. The financial impact on hospitals of present policy should be considered and we recommend further research into perspectives of national and international stakeholders to decide the appropriate and supported next steps. Finally, the sustainability of current and future policy should be assessed and improved upon. This review brought to light how accreditation and PR might have failed to leave a durable impact. Future research into both internal and external QI initiatives should therefore focus on the solid anchoring of quality policy.

Several study limitations merit attention. First, despite the systematic search strategy, we might have missed other relevant research. Nevertheless, the reported method aimed to encompass a broad range of

articles and the narrative nature of this review is not hindered by an inexhaustive list of papers. Second, we did not formerly asses the quality of papers or tested categorisation validity. However, we feel this would not be meaningful considering the large heterogeneity of identified records and the unambiguous characterisation. Third, considering the paucity of inspection literature, our results remain limited to the effects of accreditation and PR on patient outcomes. Further research is thus required to study how inspections affect patient outcomes. Fourth, the described evidence-base did often not disclose the context in which patient outcome improvement could (not) be discovered, such as financial and staff support or baseline quality level. Therefore, implementation science remains an area for future research. Fifth, we could not attempt a statistical meta-analysis due to the heterogenous research contexts and study designs. Future research could provide more robust analyses for each individual component. Nonetheless, our narrative synthesis has provided valuable insight into the impact accreditation, PR and inspection has on patient outcomes.

### 2.1.5 CONCLUSION

The discovered evidence-base on how accreditation, PR and inspection - the core of Flemish hospital quality - impacts patient outcomes, primarily reported no overall effect. Still, accreditation was discovered to positively influence processes of care. Further studies should investigate the combined impact of multiple QI strategies. We recommend a thorough policy revision in Flanders to determine the added value of the current system and move towards a sustainable future quality system that benefits the patient above all.

## 2.2 Cornerstones of a sustainable national quality policy: a qualitative study based on international expert opinions

**Abstract**

**Background***:* National initiatives launched to improve the quality of care have grown exponentially over the last decade. Public reporting, accreditation and governmental inspection form the basis for quality in Flemish (Belgian) hospitals. Due to the lack of evidence for these national initiatives and the questions concerning their sustainability, our research aims to identify cornerstones of a sustainable national quality policy for acute-care hospitals based on international expert opinion.

**Methods***:* A qualitative study was conducted using in-depth semi-structured interviews with 12 renowned international quality and patient safety experts selected by purposive sampling. Interviews focused on participants' perspectives and their recommendations for a future, sustainable quality policy. Inductive analysis was carried out with themes being generated from the data using the constant comparison method.

**Results***:* Three major and five minor themes were identified and integrated into a framework as a basis for national quality policies. Quality culture, minimum requirements for quality education and quality control as well as continuous learning and improvement act as cornerstones of this framework.

**Conclusions***:* Complementary to the current national policy, this study demonstrated the need for profound attention to quality cultures in acute-care hospitals. Policymakers need to provide a control system and minimum requirements for quality education of all healthcare workers. A model for continuous learning and improvement with data feedback loops has to be installed in each hospital to obtain a sustainable quality system. This framework can inspire policymakers to further develop bottom-up initiatives in co-governance with all relevant stakeholders adapted to individual hospitals' context.

**Keywords:** Quality Improvement, Quality of Health Care, Health Policy, Accreditation, Public Reporting of Healthcare Data, Healthcare

**Highlights**

- A sustainable national quality policy focuses on major cornerstones: quality culture, minimal requirements and continuous learning and improvement.
- Major cornerstones are described with minor ones to face current challenges in healthcare quality.
- A future quality policy is not a 'one-size-fits-all' approach, but need to be adapted to individual hospitals' context and the maturity of their quality system.
- The proposed framework can inspire policymakers to develop quality initiatives bottom-up.

### 2.2.1 BACKGROUND

Patient safety and healthcare quality are public health issues that are receiving increasing attention globally[70,71]. Different national quality policies illustrate the various ways in which a government can contribute to improvements in the quality and safety of healthcare[72–74]. These national initiatives, launched to improve the quality of care, have grown exponentially over the last decade. Discussions about the role of the government in quality improvement are a contemporary topic[75,76]. Nowadays, governments, who are not directly delivering care to patients, will routinely measure the performance and quality of this care. Besides, different healthcare providers and healthcare institutions get the feeling that quality is imposed on them and are less motivated to create their own bottom-up quality system[77,78]. This might be detrimental to patient safety, as a recent review has demonstrated that healthcare professionals' contribution to quality can lead to improved patient safety[79].

In Flanders, Belgium, a coalition government agreement was established in 2009 as the basis for quality in acute-care hospitals[80]. This agreement introduced a 'Quality of Care Triad' consisting of three main components: voluntary hospital-wide accreditation by an international external agency, voluntary measurement and public reporting of quality indicators as well as mandatory inspection by the government with an announced and unannounced part. Since 2016, acute-care hospitals in Flanders demonstrated increased effort into these triad components[81]. However, a recent review has shown the lack of evidence for all three 'Quality of Care Triad' components[82]. Furthermore, hospitals and healthcare stakeholders are critical about the sustainability of today's quality policies and voices are rising worldwide for a new approach for future quality of care initiatives[83]. Already various European hospitals announced to stop renewing their accreditation label every three or four years[84–86].

Several countries are reflecting on the future direction of their national strategy for quality in hospitals. The views of international experts in the field of quality and patient safety management can inspire policymakers and health services researchers on how to face the current challenges and to regain healthcare stakeholders' commitment to quality[87]. In this research, we aimed to identify common cornerstones of a future sustainable national quality policy for acute-care hospitals, based on international expert opinion.

### 2.2.2 METHODS

*Study design and sample*

We conducted in-depth semi-structured interviews with international quality and patient safety experts to identify recommendations for a future quality policy. As recommended by Pope in 2000, we explored the data inductively using content analysis to generate categories and explanations[88]. The participants were purposely selected based on their experiences and expertise in quality and safety policy. Participants included chief executive officers, directors of quality institutes and academics, all of whom

had a key leadership position and international experience (Table 2.1). The experts had to be fluent in English or Dutch. To obtain a heterogeneous sample of participants with a wide range of experiences, we used a variety of demographic and geographic characteristics during the sampling process. A structured screening of international quality organizations and quality research groups was performed to obtain an overview of all relevant international healthcare quality experts. The experts were invited to participate in the study by email. After indicating their interest in participating, they were sent information consisting of detailed, explanatory notes about the three components of a quality triad (accreditation, inspection and public reporting). These components form the basis for many healthcare quality systems worldwide as a recent narrative review evaluated[82]. Participants were asked to express their opinion on what elements were lacking or superfluous in this example policy. The purpose of the interview and the focus on these components were clear for the participants. The voluntary nature of their participation was emphasised.

*Data collection*

The interviews were conducted by video call using Skype or Zoom by three researchers (JB, FC, AVW) between February and May 2020. The interviewers were unbiased as they had no previous experience with formulating a national quality policy. Nine interviews were carried out in English, three interviews in Dutch. A semi-structured interview guide was used to focus on gathering participants' perspectives on a quality triad and recommendations for a future national policy. By asking open-ended questions, the researchers invited them to tell more about their experiences for a sustainable quality policy. The mean duration of the interviews was 50 minutes. During monthly briefings between the researchers there was consensus that inductive thematic saturation was obtained after ten interviews, as no new themes emerged[89]. All interviews were independently recorded and transcribed verbatim by two researchers (JB and FC).

*Data-analysis*

After reaching data saturation, the three researchers moved from the data collection phase to the data analysis. Field notes were taken from each interview. Two researchers independently (JB and FC) read the interviews multiple times to identify and understand the experts' recommendations and the underlying motivations for these recommendations. Using the constant comparison method, they gradually developed and refined insights into the cornerstones of a sustainable national quality policy[90]. Open coding was used to derive themes inductively based on the respondents' own words. This open coding process consisted of two steps. In the first step, paper and pencil were used to develop a list of meaningful themes. In the second step, the actual coding process took place with transcripts imported into NVivo 12, a software program for analyzing qualitative data. The researchers repeated this process on a regular basis, individually and as a team, increasing the level of abstraction of the themes. With the third interviewer (AVW), the preliminary results and key themes were reflected and discussed at regular intervals. This cyclical approach, the iterative process and the research team discussions enabled us to

identify and understand the preliminary recommendations across the experiences. The methodological process was supervised by an experienced researcher in qualitative research (EMC). Finally, the three interviewers, the qualitative researcher and two senior academic experts (KV and DDR) formulated on a conceptual level a description of the recommendations for a sustainable hospital quality. This description was finally discussed and validated within the research team including all authors.

*Methodological quality*

To enhance the quality of this study, we used data source and investigator triangulation[91]. International quality and patient safety experts from nine different countries are included. At regular intervals (n = 7), peer review was conducted with an expert in qualitative research (EMC) and the senior experts (KV and DDR). The research team consisted of eight experienced researchers, each with a different academic and clinical background: five health services researchers (four men and one woman, with nursing, medical or allied health professional background, all with PhD degree and with experience in healthcare quality) and three junior researchers (two women and one man; a nurse, a pharmacist and a physician, all PhD Candidates) with clinical experience. Everyone had previous experience with qualitative research. Two of them are full/associate professors (one is an expert in healthcare quality and the other is a clinician and head of the quality department in a university hospital) with more than 20 years of experience in creating policy recommendations. Regular critical self-reflection and discussions in a team about a sustainable national quality policy helped to foster an open attitude to listen to and interpret the recommendations of the participants. There was no relationship established between the interviewers and the participants prior to study commencement. Before the interview started, the interviewers introduced themselves and explained the goal of the interview and described the research projects they are working on. Finished transcripts ad verbatim were verified by another member of the research team for accuracy of language with the video or audio recording.

*Ethical considerations*

Consent was obtained from all participants and detailed information about the study was provided. Permission for audio or video recording was asked before starting the interview. We assured their anonymity and all data were treated confidentially. This research protocol was approved in 2019 by the Doctoral Committee of KU Leuven and is in accordance with scientific guidelines.

### 2.2.3 RESULTS

*Study participants*

The participants of this study (n=12) were all healthcare leaders and renowned for their international expertise in health policy and quality of care (Table 2.1). Six participants represented international organizations of healthcare policy, such as the International Society for Quality in Health Care (ISQUA), Organization for Economic Co-operation and Development (OECD), European Health Management

Association (EHMA), Institute for Healthcare Improvement (IHI) and World Health Organization (WHO). Six participants on the other hand were chosen for their expertise in health policy and quality of care leadership in The Netherlands, Sweden, Italy, Denmark and Australia. One interview was a dual interview.

Three major themes were identified during the interviews with subsequent subthemes as cornerstones for a sustainable national quality policy (Figure 2.3). The first and overarching theme represents the 'quality culture' in hospitals. The second theme specifies the minimum requirements for governments to establish a sustainable, national quality policy and consists of quality education and quality control. The third major theme provides a way to continuous learning and improvement with subtopics as 'clinical collaboratives', 'integrated care systems', 'data infrastructure', 'indicators' and 'feedback'. These themes are all analyzed using supporting evidence from the data.

### *1. Quality Culture*

Participants indicated that quality of care has to become a part of the institution's culture so that it is embraced by all healthcare workers, hospital managers and patients. It should be part of the organizational development of the hospital. By giving ownership to healthcare workers and by not giving the feeling that it is imposed on them, policymakers can let this culture for quality evolve from 'bedroom to boardroom' within an organization. Many of the experts emphasised the need to create an environment where quality of care can become sustainably incorporated into the daily workflow. Bottom-up goals coming from healthcare workers themselves are an opportunity to create an environment where people want to incorporate quality themselves. As one of the participants said:

> *"You want to give the ownership to the healthcare workers, because they have to feel it is their own system. How do you make it sustainable from that perspective? It is the responsibility of clinical leaders to empower their own collaborators and make them feel that it is not imposed. It is part of the strategic cycle they want to develop. Like clinicians say, for the next three years we are going to have an ambitious goal, and we are going to use the quality system to do this. They have to use it as their own system to manage the department units. If that doesn't happen, if they are just reporting because they need to report, then you are not there." (Participant 1)*

> *"Quality is sustainable at the moment you have laid a good foundation and that you have a basis for what is included in the accreditation, that you have a quality policy, that you have properly defined moments of the primary process and that you have indicators, so, just go to the basics and that can be per department and then built up, start as low as possible in the organization and then yes, refined or aggregated toward the top, whether or not with a dashboard, whether that can be a part and whether it is not too much of a reflection in a learning cycle, you could keep that sustainable" (Participant 2)*

**Table 2.1:** Characteristics of the participants (n = 12)

| Healthcare system | Title | Context | Role description |
|---|---|---|---|
| The Netherlands | Professor | University, hospital | Medical doctor and strategic lead of a quality and patient safety board giving advice about the quality of care at national level. |
| France | Professor | Policymaker | Medical doctor, researcher in quality of care of health services and systems and strategic lead of a quality and patient safety program at global public health level. |
| Ireland | Chief Executive Officer | International organisation | Medical doctor, part of the leadership and quality program to develop clinical leaders in quality improvement at national level and policy role in public health. |
| Sweden | Chief Executive Officer | Policymaker | Strategic lead of a learning and innovation program, Regional Improvement Authority. |
| Italy | Professor | University, hospital | Professor in public health policy, coordinator of national and international research programs and research projects about quality of care. |
| Denmark | Chief Executive Officer | Policymaker | Medical doctor, strategic lead of a quality improvement program, executive leadership position in several healthcare regions. |
| Italy | Professor | International organisation | Research about healthcare management, health administration and policy, strategic lead of a European management association. |
| Australia | Professor | University | Program lead within a national institute of health innovation, strategic lead on healthcare resilience and implementation science and policy at national level. |
| USA | Professor | University, hospital | Medical doctor, strategic lead of a centre for research about patient safety, program lead for research on patient safety and policy and public health on global level. |
| The Netherlands | Professor | University, hospital | Research about patient safety, strategic lead at a research institute about quality and organisation of health care, policy at national level. |
| United Kingdom | Vice president | International organisation | Strategic lead of key senior relationships and design and implementation of large-scale health system improvement efforts and networks globally, policy role in the EU and at global level. |
| Scotland | Senior Director | International organisation | Strategic lead of improvement collaboratives and policy at national and European level. |

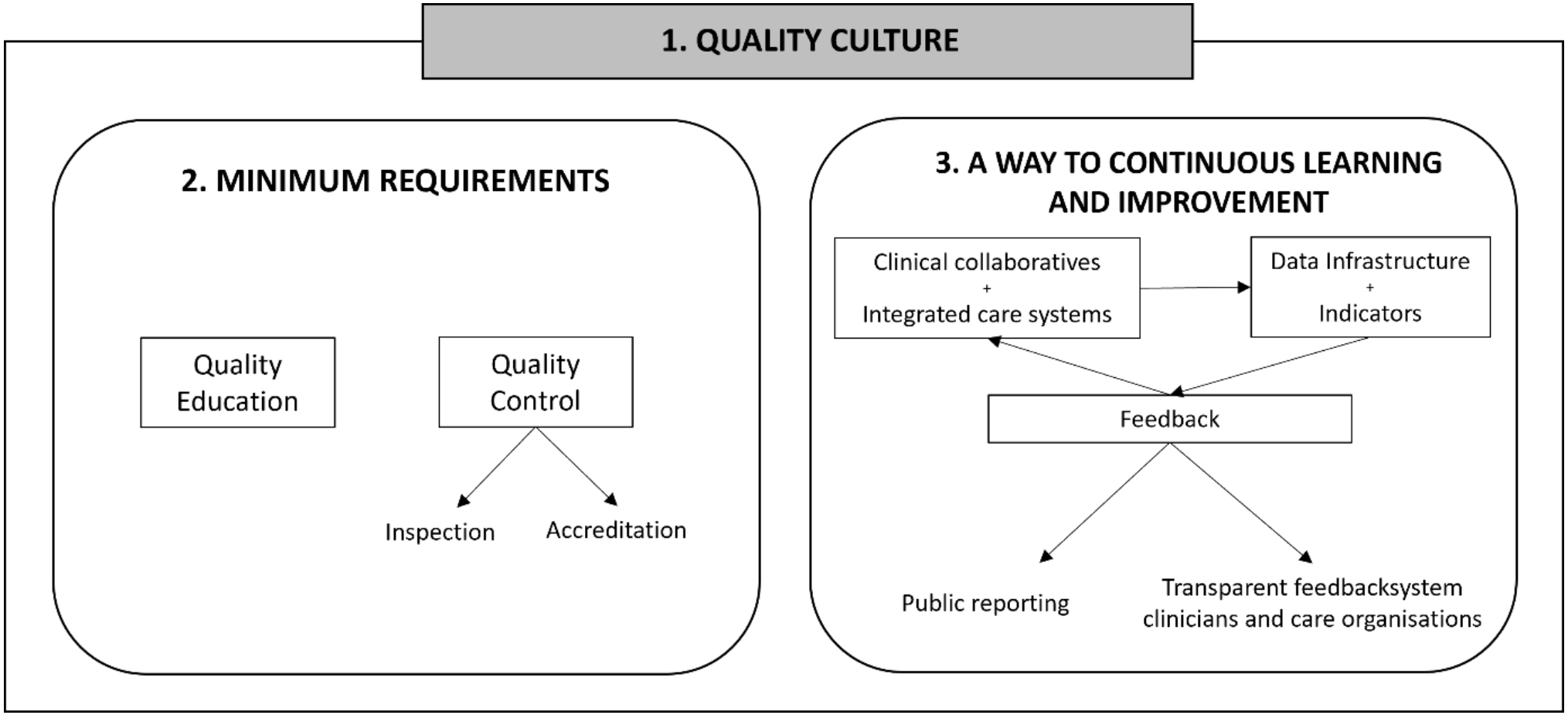


**Figure 2.3:** Framework with cornerstones for a sustainable, national quality policy

Furthermore, hospital and healthcare leadership can also play an important role in endorsing quality improvement initiatives. Healthcare employee's behavior is guided by the decisions their management make. So, if there is room to implement quality improvement initiatives, a sustainable culture of improvement can grow:

> *"A lot of behavior is driven by having a culture of quality improvement, but also a capacity for quality improvement. It is okay to give just messages, but if people don't really know how to do it, they are not getting permission to improve quality improvement at the local level. Then they are not going to do it. (...) I think that those messages from a leadership perspective are so important to drive quality" (Participant 3)*

> *"It is about people. It is looking at how, at that level, can you really change the model. Interface with humans. Human factors, people, patients. Whatever you do when you design a survey, design with human factors principle. (...) Government inspection has to look at what you have to do." (Participant 4)*

### *2. Minimum requirements*

Interviewees recommended several minimum requirements as a starting point for sustainable quality systems in hospitals to reach a base level of quality. Quality education (see 2.1.) and quality control (see 2.2.) are a minimum condition for quality in healthcare sectors.

#### *2.1. Quality Education*

Experts all agree on the fact that a quality education system is required to provide good knowledge of quality concepts for all healthcare workers, starting with a basic education for all healthcare workers. This education program might continue within the healthcare organizations to enhance continuous learning that fits the healthcare workers' needs. Policymakers can create a national curriculum for quality that could foster all healthcare workers to speak the same language. Some participants advised a different specific national curriculum for healthcare leaders. Quality education is described by the experts as follows:

> *"The system needs to develop training schemes for the different careers and development of professions. You have to have something in medical school (next generation physicians and healthcare workers need to have some classes or introduction on quality). When they move into becoming resident: they should have another specific training, more fit to the specialty they are going into, like developing quality measures or PREMS or PROMS in that specific area. And the people getting into clinical leadership positions, so moving to the management side of the organization, they should have another specific focus on developing a quality system. They need to do more in-depth training on how to either manage the system in the organization or on how they can develop specific attention to quality in their department." (Participant 1)*

*"(...) the curriculum they had been working on is publicly available and is now part of most healthcare leadership programs you encounter in my country at the moment and that is the biggest influence that it has done." (Participant 5)*

*"You need a core of people in a hospital that know the basic things of how to do quality improvement, every hospital I think should have a program that teaches everybody in the hospital about quality improvement and we can have several levels of courses, one is a one-day thing which everybody takes actually, where you learn about PDSA cycles and how to do a quality improvement project, a second one is slightly more intensive" (Participant 6)*

*"If you have a strong education of physicians, nurses, physiotherapists and occupational therapist and you have a strong development of specialty nurses, I think that is an accreditation in itself. And if the education system moves quick enough so that the more knowledge that the daily work has, also is taught in the education system" (Participant 7)*

### *2.2. Quality Control*

Quality control by inspection and/or accreditation bodies is necessary as defined by the experts in the interviews. For accreditation, experts are not unanimous in how many cycles are required in a hospital to ensure sustainable quality of care but consensus exists on the minimum requirement of one accreditation cycle in every hospital to ensure standardized procedures and basic quality systems are in place.

#### 2.2.1. Inspection

International experts emphasise the need for an external inspection system. An unannounced inspection has the advantage that organizations have to be prepared in a continuous way rather than just prepare for the inspection to come on a fixed date as described by the following interviewee:

*"One thing that has been helpful is unannounced inspection, so that at least organizations don't spend months preparing for the inspection and neglect other priorities in the three months leading up to the inspection" (Participant 6)*

Respondents suggest a more appreciative approach of inspection systems with a focus on good practices and positive ways an institution has installed to ensure its quality of care mechanisms:

*"Inspection is an important pillar, supervision in general and accountability in general. There are a few accent differences: quality versus safety. We come from an era in which the inspection focuses very strongly on security, we no longer know exactly what we think is right with each other and out of pure poverty we then look at what we think is wrong and what we should not do. We are very much looking for negatives, we do not know exactly how to deliver*

*good care, but let us not give the wrong care. I see a shift that inspection is going to look more and more at good care: How are you going to improve?" (Participant 8)*

### 2.2.2. Accreditation

Accreditation by an external organization is recommended for every hospital for at least one cycle. Experts argue that accreditation provides the opportunity to set up procedures and let them validate their system by external assessment. It leads to a quality framework in which hospitals can work for their quality systems as is best described by the following quote:

*"Because you could say if you are in the beginning and you can work on the house in order, you might benefit more from the accreditation, because it really is elemental to properly set up everything, describe your processes, show clarity, everyone knows what you have agreed with each other, then you can switch to or measure at the same time" (Participant 2)*

Accreditation enhances those organizations to get their procedures and framework for quality in place. It intends to reach the same base level of quality systems in all hospitals. One of the participants described it as follows:

*"It is most helpful for organizations in my view that are at the bottom of the curve, so it really lifts all the boats so that everyone reaches a standard level. With accreditation, everybody has to achieve a certain level. The hard part is making standards in all the parts of the organization that you actually have. It is quite clear that in transitional countries or developing countries accreditation is really helpful. In developed countries it is a little less clear but the role is going forward. And I think accreditation needs to evolve in the coming years, in developed countries in particular." (Participant 6)*

***3. A way to continuous learning and improvement***

A third theme was identified as a way to continuous learning and improvement in a healthcare organization. This is possible with clinical collaboratives (see 3.1.A) and integrated care systems (see 3.1.B). Also, a uniform data infrastructure (see 3.2.A) and a set of fixed indicators (see 3.2.B) to measure are critical aspects to improve each day. Continuous learning requires feedback (see 3.3.) towards clinicians, healthcare organizations, patients and the society.

#### *3.1.A Clinical collaboratives*

Clinical collaboratives between clinicians within and between hospitals would facilitate the local involvement and the responsibility for quality improvement projects. It offers the opportunity to encounter other healthcare workers between hospitals to talk and think about quality. As such, they feel

responsible for the quality they deliver and they can discuss quality indicators and improvement initiatives that are specific for their discipline.

> *"I think creating collaboratives to improve some sort of clinical outcome, could be hip fractures or outcomes around knee replacement something like that in orthopedics. [This] can actually drive culture really well. And an orthopedic unit where you work, if you are collaborating across the region so creating a collaborative based on a common goal, based on your specialty can be another really useful way of driving culture and driving change and actually improving outcomes" (Participant 3)*

### *3.1.B Integrated care systems*

Integrated care systems can facilitate vertical integration and collaboration between different healthcare institutions. Many experts emphasised the evolution towards these integrated care systems to improve the continuum of care:

> *"Care integration is probably very important in terms of delivering better care for some populations. Especially safety events, many of them happen at the interfaces, when someone goes from the hospital to the primary care, when they go to another different setting. So that I think is very important. It is a little hard to measure, but you know one of the most important things is to make it easy to transfer information across these areas." (Participant 6)*

> *"In other countries, you can see that they are moving towards accountable care organizations, integral care networks, integrated delivery systems and some are set up without hospitals, that are type 1e lines, etc. and collecting in a network. But most of them have a central role, and that is also what I know about the future of hospitals in the EU countries, how can I put those classic hospital tasks into a broader healthcare system for the future." (Participant 9)*

> *"Integration, second point, integration is absolutely important! The hospital of today, not of the future must be integrated because the continuum of care is something necessary. We are talking about a short time in hospital and a long time outside and with out-of-hospital monitoring [required]. In my opinion, it should be on a different level. First level: hospital level. All hospitals in a country/region must work as a network, not only clinical networks (stroke network etc.). But also, in networking of hospital planning and investment and education, research. If The system can modulate and integrate etc. (and it can organize the single hospital). So, I think it is time not for a single plan, [as] it should be a system plan. For hospitals I think it could improve the quality of the care of the system." (Participant 10)*

Quality initiatives, like care pathways, could be initiated to improve integrated quality care systems. Just as clinical collaboratives, they start with discussions bottom-up that let quality of care initiatives grow.

> *"Moving from hospital to larger clinical pathways to other levels of care. Most likely we need to have at least an area, I think of vascular science or orthopedics, having integrated clinical pathways. The health system authorities should force hospitals and other providers to work together and also use quality indicators so they can make hospitals responsible not just for the intervention, but for the functional recovery of the patients over time. For orthopedics e.g. hip refracture: quick intervention within the four hours but what happens after?" (Participant 1)*

### *3.2.A Data Infrastructure*

For the digital registrations and follow-up of quality indicators, a data infrastructure that can be mutually used by healthcare organizations is needed to monitor quality improvement. This data infrastructure could be provided by the government (e.g. on a central platform). As such, the quality indicators, patient experiences and incident-reporting that are measured are at least measured in a consistent way between all members. A participant expressed the needs as follows:

> *"But there has to be a common dashboard provided by the government where hospitals should place their figures to have the opportunity for a good comparison between hospitals. Hospitals should be forced to do whatever they [have to] do about adoption or implementation to be sure that it is consistent with the information required by the government or external agency in terms of measures." (Participant 1)*

### *3.2.B Indicators*

The choice for a set of quality indicators is an important topic for implementing a continuous learning system whereby indicators can be used to follow improvement trajectories over time and over institutions. Different experts agree on the fact that not all indicators can be measured continuously and that we need to focus on "vital few" indicators over a broad range of "useful many" indicators. These indicators must be evaluated after time and can change in function of the progress that is made. A balance between process, structure and outcome indicators is desired.

> *"I think that broadly cherry picking is definitely a concern, it is better to have a reasonably broad market basket of indicators and you know that doesn't mean that sometimes cherry picking is not an issue, for example if you look at outcomes of the ERCP in the scopic cholangiopancreatogram the persons with the worst outcomes are always the person who deals with the most difficult patients and that is actually the person who is the best doing the procedure." (Participant 6)*

*"These are some of these things we are talking about at the moment, we should try to develop a framework for indicators where some of them are more for research, some of them for public reporting and some for underground quality surveillance." (Participant 5)*

*"(…) to take perspective about the systematic evaluation of the system, some kind of continuous evaluating, not about satisfaction of course, but about the patient experience and the patient journey. A different kind of measurement. Not so quantitative but more qualitative data. As a part of the system." (Participant 10)*

### *3.3. Feedback*

Finally, a feedback system to ensure transparency about quality of care towards healthcare workers and the public is necessary to build a sustainable quality program. We identify two sub themes in this third theme 'feedback'.

#### 3.3.1. Transparent feedback system

The indicators that we measure should fit in a transparent feedback system. This has to be installed within a system that is clear for all healthcare workers concerned as well as for the public that needs the opportunity to consult it. Transparency is essential for quality improvement as described by the following interviewee:

*"For transparency for individuals, if it is anonymized and it allows people to compare with each other to learn it should definitely be part of systems. For systems: transparency is fundamental. I mean honestly, it is part of it." (Participant 11)*

#### 3.3.2. Public reporting

The patients and general public need to obtain information about the quality of care they potentially receive. Experts all agree on the fact that a public reporting system of quality indicators should be installed. They emphasise the evidence for public reporting in terms of improvement efforts for healthcare institutions.

*"For public reporting I think there is quite good evidence. That things improve with public reporting, it makes a deal with which indicators you pick, how evidence based they are and how, however they are updated routinely. Which indicators you pick is really important. Most of the evidence about improvement suggest that if hospitals know that they have to publicly report those things, they will be embarrassed and will work harder on those items, the downside of this approach is that anything that is not one of the indicators could get lost." (Participant 6)*

Some interviewees also express their concerns for gaming issues if quality indicators would be published on individual caregiver level, so they would prefer a more aggregated hospital or department level:

> *"I would suggest keeping it at the department or hospital level, but not the single physician, the public one. I would have a physician level one but only on a hospital level and managed by the hospital management. But not make it public. If you make that public you're going to have a vicious circle: stronger will get stronger, and others not. You have consequences for the training of new ones, the young ones." (Participant 1)*

> *"There is pretty good evidence about public reporting that public reporting has more impact on provider or health service behaviour than it does on public behaviour, on people; So, although it is important from a perspective of transparency, for public to have access to that information. What you should be doing is designing those public reporting for the health services because they are the ones that work on reputation issues in terms of not wanting to be (a bad one) or all wanting to be at the really good end of the hospital." (Participant 3)*

### 2.2.4 DISCUSSION

In general, three major cornerstones for a sustainable hospital quality system were identified in this study: quality culture, minimum requirements and a way to continuous learning and improvement. Quality culture is considered as an overarching cornerstone and forms the foundation for all national quality initiatives. As we know from previous studies in the past 20 years, quality of care needs a profound quality culture in hospitals[92]. Furthermore, the minimum requirements and the way to continuous learning and improvement match closely with previous studies describing multidimensional quality management models[76,93,94]. The recommendations are not a 'one-size-fits-all' approach but they give the opportunity to policymakers to create a quality community or network where collaborative learning and empowerment of healthcare workers and patients leads to excellent care[95]. During this collaboration within and between hospitals it is important to note that these cornerstones cannot be installed top-down from a management perspective but need to grow bottom-up with healthcare workers feeling involved in the policy of their hospital and workplace[96]. Furthermore, the involvement of stakeholders by a bottom-up approach can lead to different quality focuses within each hospital. Moreover, by making a difference between minimum requirements and the way to continuous learning and improvement, we also highlight the possibility for different initiatives according to the maturity of hospitals' quality systems.

Governments and policymakers should be aware of the challenges hospitals face to implement new quality initiatives. On the one side, they can use the provided framework to create an environment for hospitals to start co-creating new initiatives from bottom-up. On the other side, regulatory instances should provide quality control mechanisms such as inspection of hospitals and should ensure that the

data infrastructure is in place to establish transparent feedback mechanisms towards all healthcare stakeholders as well as the public. Governments are responsible to set up an educational program for quality. The framework provided in this research can thus not only be seen from one perspective but hospitals and governments need to work together to create the best possible quality of healthcare systems.

The national recommendations for hospital quality presented in this study encompasses the three components of a quality of care triad (accreditation, inspection and public reporting) currently in place together or separated in many European countries. Both accreditation and inspection are presented as minimum requirements within this framework. Nevertheless, previous research has shown that the evidence for these components is scarce[82] and expert opinion in this study inspired a new future direction. The need for interconnections between the different cornerstones and the focus on them in a future national quality approach is necessary to ensure that quality can grow throughout the organization. Accreditation and inspection are therefore not the sole condition for a sustainable quality policy. Instead they are a minimum requirement within the bigger picture. Furthermore, quality education for all healthcare workers serves as an additional minimum requirement in order to ensure healthcare stakeholders speak the same "quality language" between them. A curriculum including quality themes is already discussed and tested in different countries and healthcare education programs[97]. A way to continuous learning and improvement is presented as continuous, transparent feedback loops ensured by different concepts such as public reporting with comparative benchmarking, which is already a part of the quality systems in most countries[76]. The power of this feedback loop is the addition of clinical collaboratives. The creation of collaboratives not only gives the opportunity to involve stakeholders, but a recent review also reported significant improvements in clinical processes and patient outcomes after the collaborative implementation[98]. Although clinical collaboratives and a uniform data infrastructure are not yet in place in many countries, they are stressed as critical factors for quality improvement by the international experts through sharing opportunities and ideas for improvement as well as mutual learning across healthcare organizations as is described in international literature[76,99].

Financial implications of current and future quality concepts were not the focus during the interviews with the international experts. When the theme emerged, we lacked clear views on the financial implications of a sustainable quality system in hospitals because of the divergent payment systems and social care reimbursements in European hospitals. Future research on the financial feasibility of the cornerstones presented in this paper is therefore required.

***Strengths and limitations***

A major strength of this study is the triangulation of contexts in countries, international organizations in quality and patient safety and various policy levels linked to the European quality field. The use of expert opinion for specific policy questions was also already recommended by the European commission[100]. The sample size of twelve renowned experts was adequate to explore the objective of

the study and to obtain data saturation[101]. The credibility of our results was enhanced using investigator triangulation and peer review moments. The continuous and systematic stimulation of reflexivity and the method of constant comparison was of great value in developing strong recommendations, grounded in the full potential of the rich interview data. The interviews were performed with experts from different countries and either in Dutch or English. As the latter is not the researchers' mother language, in qualitative research this could introduce possible language bias. We did not translate the interview transcripts to our native language. Nonetheless, another member of the team relistened the recordings to correct language mistakes and minimize this bias. The international experts interviewed in this study are mostly linked to the European context of healthcare quality. Today, it remains unclear how experts from other continents like Asia, Australia or Africa are recommending a future quality policy.

***Implications for policy, practice and research***

The proposed recommendations for a sustainable national quality of care approach in hospitals can be an encouragement for policymakers to lift their policy plans to a next level. Each topic can be the start for an in-depth gap-analysis of current quality of care policy and future directions. Governments and policymakers can decide within their own context how to implement the presented cornerstones into practice. For example, they can install an inspection of hospitals as a minimum requirement for quality control but they can simultaneously organize systems for quality education on a local level. Also, the use of data infrastructure systems to improve the quality of care and to stimulate clinical collaboratives can be a clear task for governments to promote implementation on macro level. Nowadays, no uniform financial system is in place to financially reward or penalize quality of care and this is experienced as a shortcoming in current research and policy worldwide[102]. Nevertheless, in international literature, different studies on pay for quality systems and value-based healthcare were performed, without a uniform policy recommendation derived from it[103–105]. Important in future research is to involve the recommendations of healthcare stakeholders, patients and their kin to include the wide range of experiences with current national quality systems. Recommendations of drivers for a sustainable quality management system on meso and micro level can be explored in pilot projects. Combining worldwide experts with similar views or differences would give us more insight about a global quality policy. Furthermore, it would be an opportunity to include neutral and opposite views in follow-up research. The findings presented here can be used as major themes during RAND or Delphi studies with international experts.

## 2.2.5 CONCLUSION

Complementary to the current national policy, this study demonstrated the need for profound attention to quality cultures in acute-care hospitals. Policymakers need to provide a control system and minimum requirements for quality education of all healthcare workers. A model for continuous learning and improvement with data feedback loops has to be installed in each hospital to obtain a sustainable quality

system. The proposed framework gives the opportunity to governments, policymakers and researchers to develop a bottom-up supported quality of care policy with attention for each of these cornerstones, adapted to individual hospitals' context. They fit with previously described recommendations for quality of care policies, like accreditation, inspection of hospital facilities and public reporting of indicators but were not yet brought together in one overarching model. Future research on global differences and the national development of a sustainable quality of care policy can be built on the described concepts in this paper.

# 2.3 Fundamental elements of sustainable quality management in hospitals: the experiences of healthcare quality managers

**Abstract**

Quality management systems are essential in hospitals, but evidence shows a real literature gap on the sustainable implementation of quality. This study aimed to explore and identify fundamental elements towards sustainable quality management in hospitals. Interviews were conducted with 23 healthcare quality managers from 20 hospitals. Data collection and analysis were conducted simultaneously by using the Qualitative Analysis Guide of Leuven and following the COREQ Guidelines. Thematic analysis from interview transcripts was performed in NVivo 12. The results reveal two categories: (1) quality in the organisation's DNA and (2) quality in the professional's DNA. The first category consists of: bottom-up and top-down management, the organisation-wide integration of quality and an organisational culture shift. The second one consists of: quality awareness, understanding the added value, the encouragement and engagement, the accountability and ownership for quality. Moving towards sustainable quality systems in hospitals requires a good interaction between a bottom-up approach and leadership to ensure continuous support from healthcare stakeholders. This study contributes to existing conceptual and theoretical foundations with practical insights into sustainable quality management. The findings can guide quality departments and hospital management to regain professionals' commitment to quality and to develop a sustainable quality management system.

**Keywords:** Healthcare management; Hospitals, Qualitative Research, Sustainability.

### 2.3.1 INTRODUCTION

Healthcare organisations have been stimulated to implement quality improvement (QI) initiatives for over two decades.[106] Healthcare is characterized by complex processes and rapid changes in order to improve services.[93,107] Research shows that continuously adapting to this changing workflow can result in professionals experiencing change fatigue and resistance,[108] which is negatively associated with well-being and job satisfaction.[109] Recently, a heterogeneity of perceptions towards QI initiatives is observed between healthcare professionals,(Gadolin & Andersson, 2017; Siverbo et al., 2014; Van Wilder et al., 2021) such as feelings of lack of relevance, time and resources. Since 2019, multiple Flemish hospitals announced to leave organisation-wide external accreditation. Nevertheless, the commitment of professionals to QI is indispensable to ensure long-term success.[112] Without sustainable commitment to QI, gained quality results can deteriorate over time. Hospitals currently face the challenge to develop a new quality management system (QMS) that re-invigorates healthcare professionals for quality again.

Going back to the roots of quality management, as developed by quality pioneers,[113–117] the ultimate goal is to incorporate quality sustainably into the daily workflow of healthcare professionals. Recently, the definition of healthcare quality has evolved to a multidimensional one with explicit attention to the contributions of healthcare professionals.[118] In practice, healthcare professionals should be perceive QI as an integral part of their job and not as an additional task. Few studies identified success factors for sustainable healthcare quality, which are related to leadership and management, [119–123] involvement of patients, professionals and the community,[124,125] continuous improvement and innovations,[126,127] employee empowerment and satisfaction,[128,129] and teamwork.[122,130] However, most studies focused solely on drivers for sustainability of one QI intervention or program, often implemented in one single care department [131] rather than on the QMS of an entire hospital.[132]

To develop a sustainable QMS in hospitals, it is essential to understand theoretical and practical factors ensuring both the current quality level and future support for continuously improving the healthcare quality. The challenges healthcare quality managers (HQMs) experience in today's management paradigm are often described in literature,[133] but little is known about their quality sustainability experiences after a decade of commitment to QI. HQMs' insights into the sustainability factors can make the bridge between theory and practice to regain commitment of professionals to QI.[122,134]

This study builds on the current evidence to unpack the black box towards sustainable quality management in hospitals. The aim of this research is to explore and identify fundamental elements to sustainably incorporate quality into the daily workflow of professionals in hospitals by examining the experiences of HQMs.

## 2.3.2 MATERIAL AND METHODS

*Context*

In Flanders, Belgium, the government introduced a 'Quality of care triad' in 2009, consisting of voluntary participation in organisation-wide external accreditation, mandatory governmental inspections and voluntary public reporting of quality indicators. If hospitals opted for external accreditation, they were exempt from systemic governmental quality control. Nowadays, all Flemish hospitals obtained accreditation by either the USA-based Joint Commission International (JCI) or the Dutch Qualicor Europe. Since 2014, the government has been executing yearly inspections on specific patient care trajectories. Today, over 90% of the Flemish hospitals voluntarily report quality indicators publicly.[106]

*Study design and Sample recruitment*

A qualitative design with a grounded theory approach was used to explore and identify fundamental elements for sustainable healthcare quality.[135] Theoretical insights were derived inductively from semi-structured interviews with HQMs. A HQM leads the overall implementation, integration and coordination of the hospital's quality management program.[136] Based on both, demographics of the manager and hospital setting, the supervisors of this study and the head of the Quality Commission within the umbrella hospital association, selected HQMs purposively. In this way, a heterogeneous sample of participants with a wide range of quality experiences in different contexts was obtained. Managers that met the inclusion criterion were invited for the interview by email. In this email the purpose of the study and interview focus was explained. The voluntary nature of their participation was emphasised.

*Data collection*

Semi-structured in-depth interviews both in person and by video call using Skype© or Zoom© were conducted with 23 HQMs employed in 20 hospitals. Three interviews were duo-interviews (one interviewer with 2 participants at the same time, which were both HQMs in the same hospital). The interviews were performed by one female researcher (first author) between June and October 2020. She received intensive guidance from an expert in qualitative research methods and in managing hospital quality (second author). As a theoretical foundation, a topic list and interview guide were developed based on sensitizing concepts for quality management and subsequently tested on relevance and clarity in a pilot interview.[137] Each interviews started with the question to describe the hospitals' QMS, to finally zoom in on their experiences of a sustainable QMS. Every interview ended with a concluding question on the currently missing sustainable elements. By following the principles of the Qualitative Analysis Guide of Leuven (QUAGOL), the interview guide was continuously adapted during the study in response to data analysis.[138] By asking open-ended questions, participants were invited to share their experiences. The mean duration of the interviews was 83 minutes. All interviews were audio or video

recorded and transcribed verbatim. Since new data repeated the experiences in previous data, there was consensus during monthly peer debriefings with all authors that both theoretical and data saturation was reached after 20 interviews.

*Data analysis*

Data analysis was guided by QUAGOL.[138] This systematic and comprehensive guide for researchers draws on the constant comparative method of Corbin and Strauss's grounded theory approach and the interdisciplinary team approach.[135] The step-by-step method of QUAGOL enabled us to gradually develop and refine insights into fundamental elements of sustainable quality management. Data collection and data analysis were conducted simultaneously. All interviews were read multiple times to identify and understand the experiences. Descriptive, theoretical and reflective field notes were taken during each interview.[139] Descriptive notes included observational information about the context and non-verbal actions of the participants. Theoretical notes included all topics expressed by participants. Both descriptive and theoretical notes were used as starting point for analysis. Reflective notes focused on methodological reflections of the interviewer herself to increase the quality of subsequent interviews. Three researchers (first, second and fourth author) independently coded the interview transcripts. In the first step, paper and pencil were used to develop a list of meaningful fundamental elements. In the second step, the NVivo 12 software program was used to ensure open coding by identifying and clarifying themes based on the managers' own words and the systematic, repeatable analysis of these concepts. At each step of the QUAGOL guide, the research team met to increase the level of abstraction of codes and to discuss preliminary results. This cyclical approach, i.e. the iterative process and research team discussions, enabled us to achieve coherence in the meaning and interpretation of fundamental elements. In the last phase, these fundamentals were integrated into a conceptual framework in response to the research question. Finally, a description of fundamental elements for a sustainable QMS took place on a conceptual level. This description was finally discussed and validated with all authors.

*Methodological quality*

To enhance the methodological quality of this research, space triangulation was used.[137] We included managers employed in hospitals across eleven regional hospital networks in Flanders, Belgium. No relationship was established between interviewer and participants before the study started. Peer review was conducted at regular intervals (n=8) with an expert in qualitative research (second author) and senior managers (last two authors) in healthcare quality. These peer reviews supported critical self-reflection and discussions in team about fundamental elements to manage quality sustainably. The research team consisted of eight researchers with experience in qualitative research, each with a different academic and clinical background: six health services researchers (three women and two men, with nursing, medical or allied health professional background, all with PhD degree and experience in healthcare

quality) and three junior researchers (two women and one man with nursing, medical and pharmaceutical background). The consolidated criteria for reporting qualitative research were used in this research.

*Ethics*

Consent was obtained from participants after providing detailed information. They could withdraw from the study at any time without further explanation. Permission for audio or video recording was asked before the start of the interview. Anonymity of both participants and hospitals was secured by numbering them. Only the research team had access to interview recordings and transcripts. The research protocol was approved in 2019 by the Doctoral Committee of [details omitted for double-anonymized peer review] and is in accordance with scientific guidelines.

### 2.3.3 RESULTS

The final sample consisted of 23 HQMs employed in 20 hospitals (Table 2.2). Analysing transcribed interviews resulted in an empirically grounded understanding of fundamental elements towards a sustainable QMS. The results revealed two major categories: (1) quality in the organisation's DNA and (2) quality in the professional's DNA (Figure 2.4). Both categories influence each other and are described in detail below. Participant quotations are selected and presented to ensure transparency of results (Table 2.3).

**Quality in the Organisation's DNA**

The first category expressed by the managers is quality incorporated in the organisation's DNA, such as the integration of quality in the mission, vision and strategy. This category is facilitated by: (1) bottom-up and top-down management, (2) the organisation-wide integration of quality and (3) an organisational culture shift.

*1. Bottom-up and top-down management.* Managers argued the success of the combination of two management styles, a bottom-up and top-down approach, to create a broad support base and wide acceptance for quality in an organisation. The organisation's quality department was a catalyst for the combination of these two management styles.

A bottom-up approach was experienced as important by managers because of the involvement of and dialogue with all stakeholders to include their voices in the future quality direction, to create shared understandings and to increase support among all professionals. The term 'stakeholders' refers to patients with experiential expertise and to healthcare professionals with practical and medical expertise. By discussing the relevance and feasibility of new quality initiatives and by responding to problems stakeholders indicated, not only the support for future implementations increased but also the ownership and leadership.

**Table 2.2:** Characteristics of participants (n = 23) and hospitals (n = 20).

| **Characteristics of participants** | **Frequency (n = 23)** |
|---|---|
| Gender | |
| Male | 8 |
| Female | 15 |
| Educational background (highest level of education) | |
| Master's degree | 17 |
| Doctoral degree | 6 |
| Experience in Healthcare Quality (years) | |
| <5 | 8 |
| 5 – 10 | 10 |
| 11 – 15 | 5 |
| **Characteristics of hospitals** | **Frequency (n = 20)** |
| Type of organisation | |
| General hospital | 15 |
| General hospital with university character | 1 |
| University hospital | 4 |
| Licensed beds | |
| <400 | 6 |
| >400 - <800 | 7 |
| >800 - <1200 | 5 |
| >1200 | 2 |
| Organisation-wide external accreditation | |
| JCI | 10 |
| Qualicor Europe | 10 |

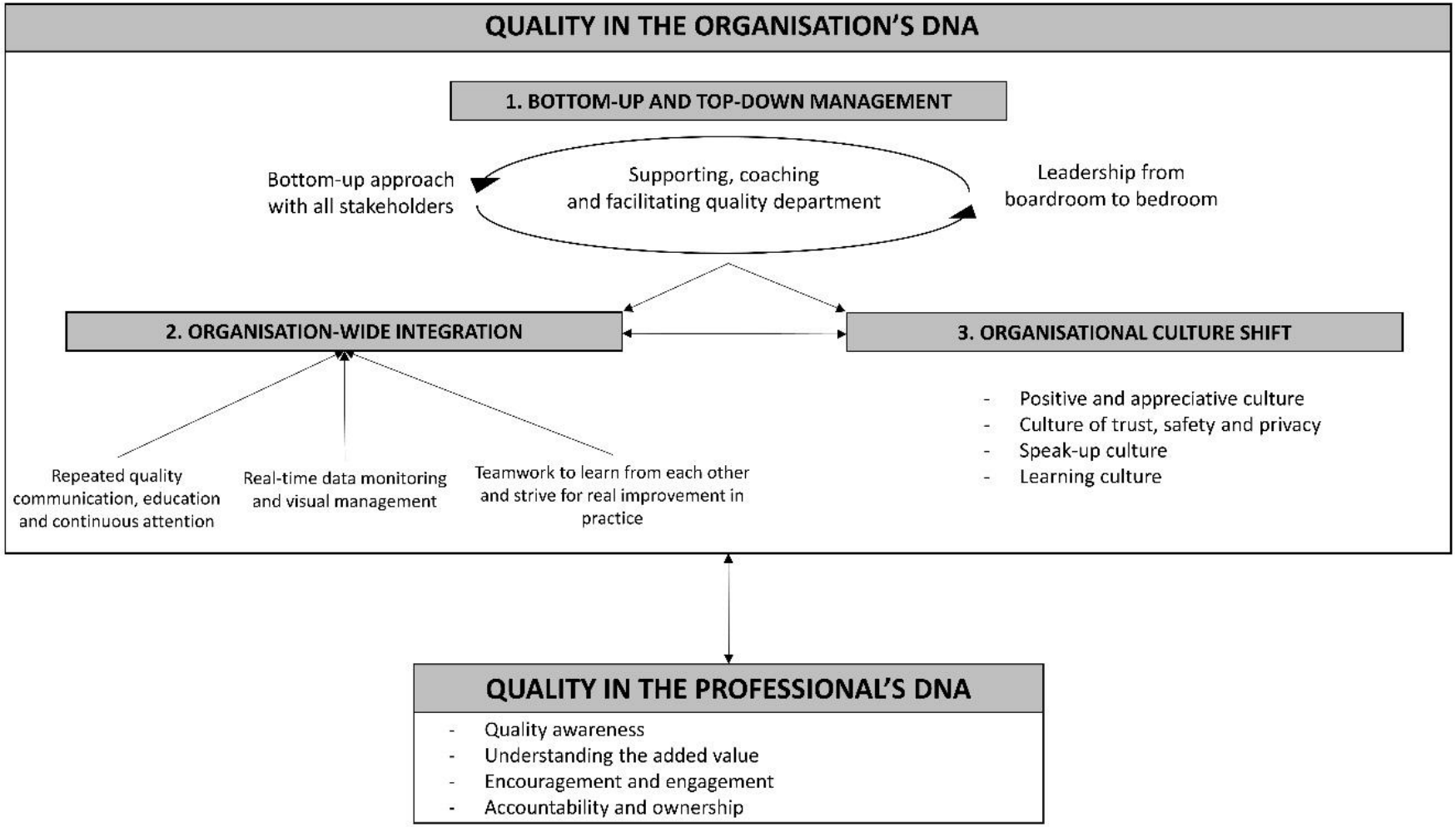


**Figure 2.4:** Fundamental elements of a sustainable quality management system.

In a top-down approach, leadership for quality was taken throughout the entire organisation. Quality leaders' daily attention to improve healthcare quality, enhanced a continuous quality culture in the organisation and inspires others to improve. Particularly, hospital directors and board members sent a strong signal to professionals by visibly propagating and continuously supporting QI from boardroom to bedroom. Besides, they influenced sustainability by taking quality into account with every decision and by creating time, budget and space for professionals to improve quality.

The organisation's quality department was experienced as a catalyst for the combination of a bottom-up and top-down management approach through supporting, coaching and facilitating techniques. The ultimate strength of a quality department is to build the bridge between all organisation levels and to be continuously available as the point of contact for quality. The department supports professionals by working together with them to improve their services and by assisting the implementation of QI initiatives they indicated. The members of quality departments are coaches who dare to think out-of-the-box while teaching professionals to systematically use quality methods in practice. Additionally, they facilitate quality integration in the organisation by translating quality theories into practice in order for stakeholders to really understand and speak the same quality language.

*2. The organisation-wide integration.* Managers argued to embed quality organisation-wide, i.e. into the daily working routine of both clinicians and non-clinicians. Critical factors to integrate quality organisation-wide were: (1) repeated quality communication, theoretical and practical quality education for healthcare professionals and continuous attention to quality throughout the organisation; (2) real-time data monitoring and visual management, such as learning boards where data trends of process and outcome indicators are automatically displayed in real-time and easy-to-read manner with benchmarking as a motivator to change; and (3) teamwork within and between hospitals to learn from each other by sharing best practices and by striving for real improvement in practice, such as checking the data for improvement, evaluating it and adapting the improvement strategy on it.

*3. Organisational culture.* Managers experienced that the bottom-up and top-down management approach and the organisation-wide integration of quality, activated an organisational culture shift that supports the sustainability of quality. This culture shift included: (1) a positive and appreciative culture; (2) a culture of trust, safety and privacy; (3) a speak-up culture and (4) a learning culture.

First, the positive culture encompasses communicating about and building on positive quality experiences or successes in practice. Moreover, this culture focuses on celebrating quick wins and appreciating professional's efforts to keep them motivated and committed to quality. According to the principle 'leading by example', managers suggested that the appreciative culture can be initiated by hospital leaders themselves.

Second, essential to an organisational culture shift is ensuring trust, safety and privacy in order to make professionals feel comfortable to report quality issues and to learn from each other. Managers suggested to let professionals feel that 'blaming' or 'punishing' people is not the focus of the QMS. This could be facilitated by focusing on the process instead of on the person during solution-oriented, constructive quality meetings.

Third, the speak-up culture is considered important to strengthen improvements in practice. This culture can be reinforced by motivating professionals to give feedback to each other and by diminishing the fear to discuss mistakes or quality issues. To further strengthen this culture, managers recommended to start improvements based on issues reported by professionals themselves so they feel the usefulness of improving quality in their services.

Lastly, a learning culture is needed to create a sustainable quality policy. On the one hand, by having a culture focusing on continuous learning rather than on seeking blame, quality is experienced less as a personal threat to professionals. On the other hand, by QI perceiving as a learning moment, the distribution of time spent to monitor and improve quality is more balanced.

**Quality in the Professional's DNA**

The second category identified by the managers is embedding quality into professional's DNA. All managers were very clear on the broad support base and intrinsic motivation of professionals that is necessary to create a sustainable QMS. To use the words of one manager: "They need to breath quality". To embed quality into healthcare professionals' DNA, it is crucial that they are aware that quality is useful and meaningful. They need to understand the added value of improving quality. A supporting factor is continuously communicating and explaining the reasons behind 'why' we do things in a certain way rather than on the 'how'. Moreover, the encouragement and engagement of professionals to improve the quality of their own services is essential. To gain this encouragement and engagement from all stakeholders, managers suggested to let them feel with every QI initiative: 'What is in it for me?'. Another supporting factor in relation to professionals is their accountability and ownership for continuous QI. Managers indicated that these individual characteristics can be enhanced by letting them think about possible improvement projects, by teaching them methods to implement these projects and by reinforcing them to initiate improvement actions themselves.

**Table 2.3:** Fundamental elements with supporting quotes

| Fundamental elements | Quotes |
|---|---|
| **Quality in the Organisation's DNA** | |
| | *"What typifies our hospital is that we are actually - and you often see this in the mission statement - customer-oriented, patient-oriented. That really is a starting point in all the decisions we take. We think from the customer's point of view, from the patient's point of view, from the patient's voice, which is central to our entire strategy." (Participant 3)* |
| 1. Bottom-up and top-down management | |
| | *"When a department told that an incident repeated several times, we told them: 'We can handle this together'. We really worked bottom-up with a problem that lives in the group. We also work top down, which is necessary because you have to put some pressure on: 'We expect you to set up improvement projects to raise the healthcare quality to a higher level'." (Participant 11)*<br>*"The department is responsible for its own incidents, through a decentralised reporting committee that they have set up themselves. We really want that on the local department level. They need to be the driving force and owner of it." (Participant 2)*<br>*"It is about the leadership showed at the quality steering group. Board members making themselves available on a weekly basis to enter into a dialogue with their organisation about delivering healthcare quality, is a very powerful signal to the organisation. Show the organisation how important you perceive it, that the culture of continuous improvement and constant striving for excellent care is constantly present. (Participant 20)*<br>*"It is the attitude of how you look at a local safety round. The quality department is not trying to control, but we try to help them. We always end up giving advice and never end up saying: 'You are not in line with the guidelines'. That is part of what makes them feel that they can do it." (Participant 17)* |
| 2. Organisation-wide integration | |
| | *"I think the culture has changed enormously. In the beginning quality was one of those people sitting behind their desk and thinking about what we were going to improve and implement. Nowadays, we try to get that* |

| | |
|---|---|
| | *"quality thinking" at all organisational levels. Everyone in the organisation perceives quality as something they are responsible for." (Participant 15)*<br>*"By repeatedly explaining that tracing healthcare quality is a learning moment, we accelerated that culture change. People are asking now for more tracers and do not perceive it as something threatening. We also imitated a television program in healthcare quality theme, where someone was making jury jokes. I think we always try to bring some humour in it so that it is pleasant and people see the added value." (Participant 1)*<br>*"It is sustainable because we have objective data available that is benchmarked within and between departments. A dashboard helped to map and visualise data. By using the dashboard, we can work with all organisational department." (Participant 4)*<br>*"It is important that quality champions meet regularly and provides own content. We have to work in a uniform way with uniform tools and learn from each other. When people already tried things out they can share best practices to pollinate each other." (Participant 7)* |
| 3. Organisational culture shift | |
| | *" (…) change that culture, positively highlight certain improvements, but perhaps also positively highlight incidents that happened. It is all about the positive side, such as communicating in a positive way." (Participant 18)*<br>*"We emphasised an open culture and the idea that you do not report an incident to point your finger at someone, but to raise a problem in order to find a solution. Our attitude is very open and ask what exactly happened. We focus on 'how can we avoid that from happening again with another patient' with minor and major incidents." (Participant 19)*<br>*"Quality should not be perceived as something negative. People should dare to say: 'Oh well, that is not going well here' or 'I don't know'. We need the mindset of a culture of addressing people in terms of quality and safety." (Participant 9)*<br>*"We did have to go through steps to get an open culture and one of addressing people. Sometimes we hear professionals mentioning: 'I noticed someone that should be addressed'. Giving feedback is often only expected in the hierarchical line. Employees do not address each other yet. We need that culture change." (Participant 12)* |

| | |
|---|---|
| | *"If an incident is reported, we advise the reporter to discuss it with colleagues. Our attitude is as neutral as possible and we outline the situation. When all stakeholders meet, we clearly mention that it is not our intention to accuse. We want to learn from the system and processes and what we can do to prevent the incident from happening again." (Participant 8)* |
| **Quality in the Professional's DNA** | |
| | *"If quality does not come from doctors and nurses, then it is a theoretical story. They have to see and feel that by systematically working on quality, it will lead to a safer environment for both patients and professionals. This is our continuous goal. As long as you do not achieve it with professionals, working on quality will be experienced as ballast, as something that you have to do extra and that comes across as bureaucratic. The challenge is to let them feel, notice and identify that initiatives are improving what they are really interested in." (Participant 16)*<br>*"When starting something new, you have to convince people of the usefulness and you have to take them by the hand to name it together. At a certain point in time, and I think that is the power of quality, it is perceived as useful for both the organisation and their people. Your staff will feel that and they will do it themselves because it is useful for the care. That is the art of a good quality policy, to ensure that it is meaningful to both your staff and your patients. So that it actually takes on a life of its own and people can take over and do it themselves." (Participant 10)*<br>*"To create a sustainable quality management system, you especially need 'ownership'. That is something we are striving for. But it often goes wrong with the ownership and accountability, such as taking that responsibility: 'That is YOUR part'." (Participant 8)* |

### 2.3.4 DISCUSSION

*Main findings*

This study builds on the existing conceptual and theoretical foundation with insights into how HQMs experience sustainable quality management in hospitals. To sustainably integrate quality into the daily workflow of professionals, managers defined two main categories: quality in the organisation's DNA and quality in the professional's DNA. In this way, the framework represents a holistic approach to embed quality on all organisational levels.[133] As described by Feigenbaum, quality needs to be a management philosophy and strategy that intrinsically lives in every individual of the organisation.[116] The emphasis in our study results is placed on a good interaction between a bottom-up approach and leadership for quality, facilitated by the organisation's quality department. This finding supports previous research in co-creating an overall quality framework together with all stakeholders in order to regain commitment, especially after leaving hospital-wide external accreditation, without appearing as imposed or bureaucratic.[108,112,123,125] To ensure commitment, quality focus groups can be established to discuss face-to-face quality priorities.[126,140]In literature, quality assurance is described as periodic checks to ensure services are meeting the needs of stakeholders.[93,121] Furthermore, in this study different strategies to incorporate quality into the daily workflow are defined. Organisations need to invest in new communication strategies to make quality attractive again in a meaningful way, of which the narrative part to connect interests and values was emphasised by QI managers in New Zealand.[122] Instead of continuous monitoring of process improvements,[114,130] a better balance between process and outcome indicators during feedback loops is desirable to support and sustain performances over time.[107,133] This draws on the trilogy of quality planning, control and improvement as described by Juran.[113] Different from other research,[93] innovation characteristics were in our study results not defined by the managers as fundamental. To strengthen the focus of learning together, a quality community based on mutual learning across hospitals can be initiated. Moreover, our results show that the success of a new QMS depends on the culture shift an organisation can let grow over time. Hospitals need to get rid of the perception that quality is 'imposed' on them. Instead, staff should experience an open culture with trust and support to create own QI initiatives that takes professionals' own values into account. In accordance with principles of safety-II and just culture,[141,142] organisations need to transform the perceived culture of judging and blaming into a safe one where professionals dare to speak-up. This environment, where professionals have emotional freedom to think and act themselves, can enhance resilience and job satisfaction of professionals. The latter characteristics are needed to respond to the continuously evolving context without experiencing change fatigue.[109]

The emphasis on well-being and resilience of professionals shifts the management focus from patient-centred care to patient- and professional-centred care.[118] Other research mentioned that job satisfaction is an enabling factor for sustainability in critical care practices.[128] In our results, the role of professionals

in quality is evolved from following international accreditation standards to taking ownership and accountability. Deming called the expertise of professionals 'Subject Matter Knowledge', while the quality department supports the increase in capability for improvement with 'Profound Knowledge'.[114,143] Moreover, previous studies described the success of employee empowerment(Gadolin & Andersson, 2017; Verma & Moran, 2014) and engagement,[129,133] which is extended in our results with encouragement. However, to trigger employee autonomy, adequate training programs can be initiated by hospitals or on governmental level. A training program can make significant changes in professional attitudes and learn them basic values of quality.[115,122]

Although staff turn-over, budget cuts and major crises were not the focus during the interviews with HQMs, hospitals reviewing and critically reflecting with stakeholders on the usefulness of implemented QI initiatives, can lead to reducing costs if inefficient processes are redesigned.[116] Improving inefficiencies based on quality issues reported by the staff themselves can remove perceived barriers to change processes. In conclusion, the professional's perception of a lack of relevance, time and resources might change.

The most important limitation of this study concerns the sampling strategy. The purposive sampling method may have resulted in selection bias, so that relevant experiences from other HQMs may have been missed. Despite this limitation, the interviewed HQMs are employed in a heterogeneous sample of hospitals and were willing to share their experiences in our study. Their willingness has had a positive effect on the quality of the interviews and the information-rich data allowed to reach saturation after 20 interviews. The credibility and validity of our results were enhanced by using investigator, data and space triangulation. Member checking, also known as respondent validation, was performed by immediately validating our understanding of the topics discussed during the interviews. Furthermore, the coding and interpretation of the data were conducted separately by at least two researchers and intensively discussed during peer review moments. The continuous and systematic stimulation of reflexivity, in accordance with the guidelines described by QUAGOL, supported the researchers to inductively derive fundamental elements based on managers' own experiences. Moreover, to ensure a transparent data analysis process, multiple quality controls (e.g. the use of field notes, researcher debriefing after each interview, and refining codes within the research team) were applied in both the data collection and interpretation stages.

*Implications*

The findings can guide quality departments and hospital management to regain healthcare professionals' commitment to quality and to develop structures for a sustainable QMS in their organisation. Furthermore, the results can stimulate hospitals to reflect on their current QMS and can contribute to the development of a new Flemish quality management model. Although this research is limited to managers' experiences from hospitals, future research could focus on experiences in other care

organisations to understand the transferability of the results. In addition, the sustainability factors of other stakeholders, such as patients, their kin, professionals and policymakers, may be different. Pilot testing the implementation of identified factors in a real-world practice setting is a next research priority. Multicentre, mixed-method designs would be interesting to relate the implementation of the fundamental elements to patient and professional outcomes.

### 2.3.5 CONCLUSION

This research identified fundamental elements for sustainable quality management in hospitals from the perspective of HQMs. Quality becoming a part of the organisation's DNA and a part of the professional's DNA are expressed as the two major categories and subsequently described. Managers put emphasis on fundamentals associated with the organisational, cultural and individual level. The results can guide hospitals towards a sustainable QMS that is supported by all stakeholders throughout the organisation. By focusing on the fundamentals expressed by HQMs, professionals' commitment to quality can be regained and outcomes of both internal and external stakeholders can be positively influenced. Moreover, this study reveals the need for more clarification about sustainability factors experienced by other stakeholders, the transferability of the results to other contexts and the impact of fundamental elements within a larger study design.

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# Chapter 3

# ATTITUDES TOWARDS FUTURE QUALITY INITIATIVES

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As a second objective, this PhD aims to increase understanding of the attitudes towards future quality initiatives in different groups of participants. To overcome the standard qualitative approach in this type of research, we conducted a mixed-methods design with a quantitative cross-sectional study with a multiple stakeholder analysis (MSA). This was done by a Discrete Choice Experiment (DCE), a form of multiple criteria decision making (MCDM) design. We also summarized the various initiatives Flemish hospitals have adopted under government encouragement between 2008 and 2019 and studied the perspectives of healthcare stakeholders on current quality of care policy.

# 3.1 The future of hospital quality of care policy: a multi-stakeholder discrete choice experiment in Flanders, Belgium

**Abstract**

**Background:** Collaboration between policymakers, patients and healthcare workers in hospital quality of care policy setting can improve the integration of new initiatives. The aim of this study was to quantify preferences for various characteristics of a future quality policy in a broad group of stakeholders.

**Materials and methods:** 450 policymakers, clinicians, nurses, patient representatives and hospital board members in Flanders (Belgium) participated in five discrete choice experiments (DCE) on quality control, quality improvement, inspection, patient incidents and transparency. For each DCE, various attributes and levels were defined from a literature review and interviews with 12 international quality and patient safety experts.

**Results:** For the attributes with the highest relative importance, participants exhibited a strong preference for quality control by an independent national organization and coordination of quality improvement initiatives at the level of hospital networks. The individual hospital was chosen over the government for setting up an action plan following patient complaints. Respondents also strongly preferred mandatory reporting of severe patient incidents and transparency by publicly reporting quality indicators at the hospital level.

**Conclusions:** A future quality model should focus on a multicomponent approach with external quality control, improvement actions on hospital network level and public transparency. DCEs provide an opportunity to incorporate the attitudes and views for individual components of a new policy recommendation.

**Keywords:** Hospital; Quality of Healthcare; Health Policy

### 3.1.1 INTRODUCTION

Governments worldwide struggle to find models for their healthcare systems that ensure the quality of care delivered to patients. In the past twenty years, different external quality control mechanisms were implemented and tried in many European countries ranging from accreditation of hospitals to compliance with ISO-norms as identified by the European research project on external peer review mechanisms (ExPeRT) [1,2]. Quality of care policy in hospitals is often decided by policymakers and hospital managers with less incorporation of stakeholders' opinion and thus creating an "accountability gap" between health care providers on the one hand and patients, financiers and governments on the other [1]. Healthcare workers often feel disconnected to decisions taken above their head and they feel like quality initiatives are imposed on them. Nevertheless, promising evidence exists to incorporate bottom-up initiatives for sustainable quality improvement policy [3]. Therefore, to establish broadly supported quality models for hospitals, policymakers should also incorporate the views of stakeholders such as healthcare workers and patient representatives [4]. Various strategies are now employed to tackle quality concerns in our healthcare services but the cost-effectiveness is not always demonstrated [5–8]. An example is the external accreditation of hospitals, which has been implemented as a quality control mechanism in many European countries to ensure the safety of care processes and patients. Studies suggest that accreditation has promoted change and professional development but also involved substantial financial costs, staff time and other resources [9,10]. Many countries have also implemented other quality initiatives such as visitation by clinical peers, public reporting of quality indicators, government inspection or incident reporting systems [1,11]. Different voices raised concern about the possible negative impact on patient outcomes by risk aversive behaviour by physicians [12] or gaming of data [13] with public reporting. Also, the growing gap between paper-based initiatives and the reality of clinical practice questioned the continuation of certain initiatives [14,15]. During recent years, criticism has been raised regarding the administrative burden [9,16], excessive demands [17,18] and the reduced attention for patients [19,20] associated with many quality initiatives. As a result, some hospitals started to withdraw from these quality efforts and rethink their quality of care policy [21–24]. Limited data exist on the effect of healthcare worker's attitude towards accreditation [17,18,25], but is not available for other quality efforts. Nevertheless, a positive attitude of healthcare staff towards quality improvement initiatives is a key factor for their successful implementation [25,26] and agreement between stakeholders is an essential part for broadly supported policy reforms.

The aim of this study was to quantify healthcare workers', policymakers' and patient representatives' preferences for various characteristics of future quality of care initiatives on policy (macro) and hospital management (micro) level in Flanders, Belgium. For this purpose, we used a discrete choice experiment (DCE) which is extensively used in medical and health services literature [27–30] but, to the best of our knowledge, has not yet been applied to elicit preferences for general quality of care policy questions.

## 3.1.2 MATERIALS AND METHODS

### Setting

In Flanders, the northern region of Belgium with 6.6 million inhabitants, the regional government introduced a 'Quality of care triad' in 2009, consisting of voluntary participation in hospital-wide external accreditation, mandatory government inspections and public reporting of quality indicators. A full overview of the Flemish quality of care approach is provided by Van Wilder et al [31]. Recently, some Flemish hospitals have withdrawn from external accreditation and started thinking about a new approach for future quality of care processes, with involvement of their healthcare workers. The hospital umbrella organization (Zorgnet-Icuro) and the government intend to start negotiations on new quality policy reforms based on evidence-based research and involvement of all relevant stakeholders.

### DCE

A DCE is a stated choice exercise that can quantitatively assess people's choices in different scenarios [32–36]. Unlike ranking or rating methods, DCEs force respondents to make trade-offs, thereby providing insight into the relative importance of the questioned attributes (characteristics of the quality initiatives in this case). A DCE has theoretical grounds in the random utility theory and can establish preferences in controlled experimental conditions through responses to realistic and hypothetical screening scenarios, composed of their characteristics (attributes) which are specified by variants of those attributes (levels). A DCE is constructed by systematically varying attribute levels to generate a set of screening modalities. In each choice task, respondents will choose their most favourable scenario between a number of competing scenario's. By changing the attribute levels repeatedly, preferences for different attributes and levels can be estimated [37].

### Selection of attributes and levels

We selected the attributes and levels by applying an extensive framework [37,38] for the development of a DCE. We started with a literature review including policy reports and peer reviewed articles published between 2000 and 2020 concerning quality of care guided by the Donabedian framework [6,39–44]. Interviews with 12 experts from various international institutes (ISQUA, OECD, IHI 2x, EHMA, NIVEL) and countries (USA, Sweden, Denmark, Italy, Australia, Netherlands) were performed to identify facilitators and barriers in the current Flemish model for hospital quality of care and give recommendations for future policy plans. This led to the development of five individual DCE experiments on the following topics: quality control, quality improvement, inspection, patient incidents, and transparency of results. Feedback on attributes and attribute levels was given by a stakeholder group (n=33) consisting of patient representatives, quality managers, government representatives, physicians, hospital board members and medical directors. Based on this feedback, a group of five quality experts

from our research group narrowed down the list of attributes and levels. According to good practices for DCE research [45,46], the final number of attributes per DCE ranged from three to five and the number of levels per attribute from two to four and most of the attribute levels were nominal variables (Table 3.1). A pilot test of the DCE was performed among 10 randomly invited persons (nurses, doctors, patients and quality experts) resulting in some minor adaptations to exclude unrealistic attribute-level combinations that could discourage respondents

**Experimental design of the choice sets**

We used Sawtooth Software (Lighthouse Studio V.9.9.1) to create the 5 DCEs, using the balanced level overlap method and D-optimal procedures to maximize statistical efficiency [47]. For each DCE, 300 survey versions were automatically made with the number of random choice tasks per DCE ranging from 5 to 10. For each choice task, the respondent was asked to choose one situation out of four alternatives. The estimated minimum sample size required to achieve an acceptable level of statistical precision was 300 respondents [48–50].

**Survey administration**

Hospital board members, clinicians (physicians and nurses), staff members and supervisors, policymakers and patients (staff members of the Flemish Patient Association (VPP)) were invited to participate in the online survey. The survey was disseminated with a general link by the hospital umbrella organization Zorgnet-Icuro, the Flemish hospital network KU Leuven (VznkuL), and the Leuven Institute for Healthcare Policy (LIHP). The survey was available for respondents between July 16 and September 3 2020. The survey also included questions on sociodemographics (profession, working experience, region of working place, type of hospital…). All respondents read the project information and provided online consent to take part before starting the online survey. A multistakeholder steering committee was brought together to give feedback and discuss the results of the survey and analyses in February 2021. This steering committee existed of 33 representatives of the umbrella hospital organization (Zorgnet-Icuro), the government, patient organizations, physicians, hospital board members, quality managers and medical directors. Subsequent negotiations with the government to shape and re-calibrate the current Flemish quality of care policy took place based on the results of this DCE.

**Table 3.1:** Attributes and levels of the 5 discrete choice experiments

| DCE topic | Attribute | Level |
|---|---|---|
| **Quality control** | Control by | Hospital itself |
| | | The government |
| | | Independent national/Flemish organization |
| | | Independent international organization |
| | Announced control | Yes |
| | | No |
| | Control at the level of | Department |
| | | Care trajectory |
| | | Hospital |
| | | Loco-regional hospital network |
| | Transparency results | Only internally in the hospital and/or network |
| | | Public website |
| | Improvement trajectory based on | External audit results |
| | | Complaints |
| | | Internal quality measurements |
| **Quality improvement** | Coordination of initiatives by | Loco-regional hospital network |
| | | Individual hospital |
| | | Discipline-specific scientific organization |
| | Financial incentive for quality | At hospital level |
| | | At individual caregiver level |
| | | No financial compensation |
| | Quality education | Mandatory for all hospital employees |
| | | Not mandatory for all hospital employees |
| | | Only for hospital quality staff |
| | Comparison of quality results | Between nationally comparable hospitals |
| | | Between internationally comparable hospitals |
| | | Between all hospitals |
| **Inspection** | Patient complaints are followed by an action plan by | The government |
| | | The individual hospital |
| | Well-being of employees is surveyed by | The government |
| | | The individual hospital |
| | The government inspects basic conditions, organization and results | Of the hospital as a whole |
| | | Of certain care trajectories within the hospital |
| **Patient incidents** | Reporting of severe incidents | Mandatory |
| | | Not mandatory |
| | Detection | Through personal reporting by employees |
| | | Through validated tools |
| | Reported to | The hospital internally |
| | | A central agency or government |
| | Numbers of incident reports | Publicly available each year |
| | | Only available for the individual hospital |
| **Transparency** | What to report | Hospital-wide indicators (e.g. mortality, readmissions…) |
| | | Disease-specific indicators |
| | Collection of data | At individual patient level |
| | | At department level |
| | | At hospital level |
| | Public reporting of quality indicators | At individual caregiver level |
| | | At department level |
| | | At hospital level |

**Model estimation**

The DCE results were analysed through the Hierarchical Bayesian (HB) method for choice-based conjoint analysis in Sawtooth software [51], using the default settings and including profession as a covariate. At the lower level of the two-level hierarchical logit model, the coefficients of individual respondents are estimated through multinomial logit, and at the upper level information among respondents is shared through a multivariate normal distribution. Parameters are estimated using the Metropolis-Hasting algorithm, a type of Markov chain Monte Carlo iterative procedure. Results are presented as the mean zero-centred part-worth utilities across respondents and can be interpreted as the attractiveness of each level within the attribute [46]. We also estimated the mean importance of attributes across respondents, reflecting the effect (importance) of the attribute in the choice decision. In a secondary analysis, we obtained mean part-worth utilities and importance by profession groups. In sensitivity analyses, we assessed robustness of results by excluding fast respondents, and by restricting the analyses to those that completed the five DCEs. A respondent was considered as fast when his/her total survey time up to the last page completed was lower than the 10$^{th}$ percentile of the cumulative time distribution up to that page.

### 3.1.3 RESULTS

**Sample**

After dissemination, 601 surveys were returned, of which 20 were excluded because they could not be categorized within an established professional group. A total of 131 respondents filled in the demographic questions but did not complete any choice task, resulting in a final sample size of 450. Of these respondents, 15 (3.3%) were government officials, 72 (16%) were hospital board members, 187 (41.6%) were staff members and supervisors, 165 (36.7%) were clinicians and 11 (2.4%) were staff members of the Flemish Patient Association (hereafter referred to as patient representatives). Almost half (45.1%) of the respondents had more than 10 years of working experience in their current job, whereas the other half had less than 5 years (30.4%) or 5 to 10 years (24.4%) of working experience (Table 3.2).

**Table 3.2:** Sociodemographic characteristics of respondents (N=450)

| Characteristics | Number (%) |
|---|---|
| **Profession** | |
| Government officials | 15 (3.3) |
| Hospital board members | 72 (16) |
| Staff members and supervisors | 187 (41.6) |
| Clinicians | 165 (36.7) |
| Patient representatives | 11 (2.4) |
| **Working experience in current job** | |
| <5 years | 137 (30.4) |
| 5-10 years | 110 (24.4) |
| >10 years | 203 (45.1) |
| **Region of working place** | |
| Flemish-Brabant | 108 (24) |
| Antwerp | 92 (20.4) |
| East-Flanders | 76 (16.9) |
| West-Flanders | 83 (18.4) |
| Limburg | 54 (12) |
| Brussels | 34 (7.6) |
| Wallonia | 0 (0) |
| Netherlands | 3 (0.7) |
| **Type of hospital*** | |
| University hospital | 106 (26.4) |
| Regional hospital | 296 (73.6) |
| **Number of recognized beds in hospital**** | |
| <500 beds | 145 (35.5) |
| 500-1000 beds | 134 (32.8) |
| >1000 beds | 121 (29.6) |
| I don't know | 9 (2.2) |
| **Accredited hospital*** | |
| Yes, by JCI | 222 (55.2) |
| Yes, by NIAZ | 164 (40.8) |
| No | 14 (3.5) |
| I Don't know | 2 (0.5) |
| **Times accredited***** | |
| 1x | 224 (58) |
| 2x | 61 (15.8) |
| More than 2x | 87 (22.5) |
| I don't know | 14 (3.6) |

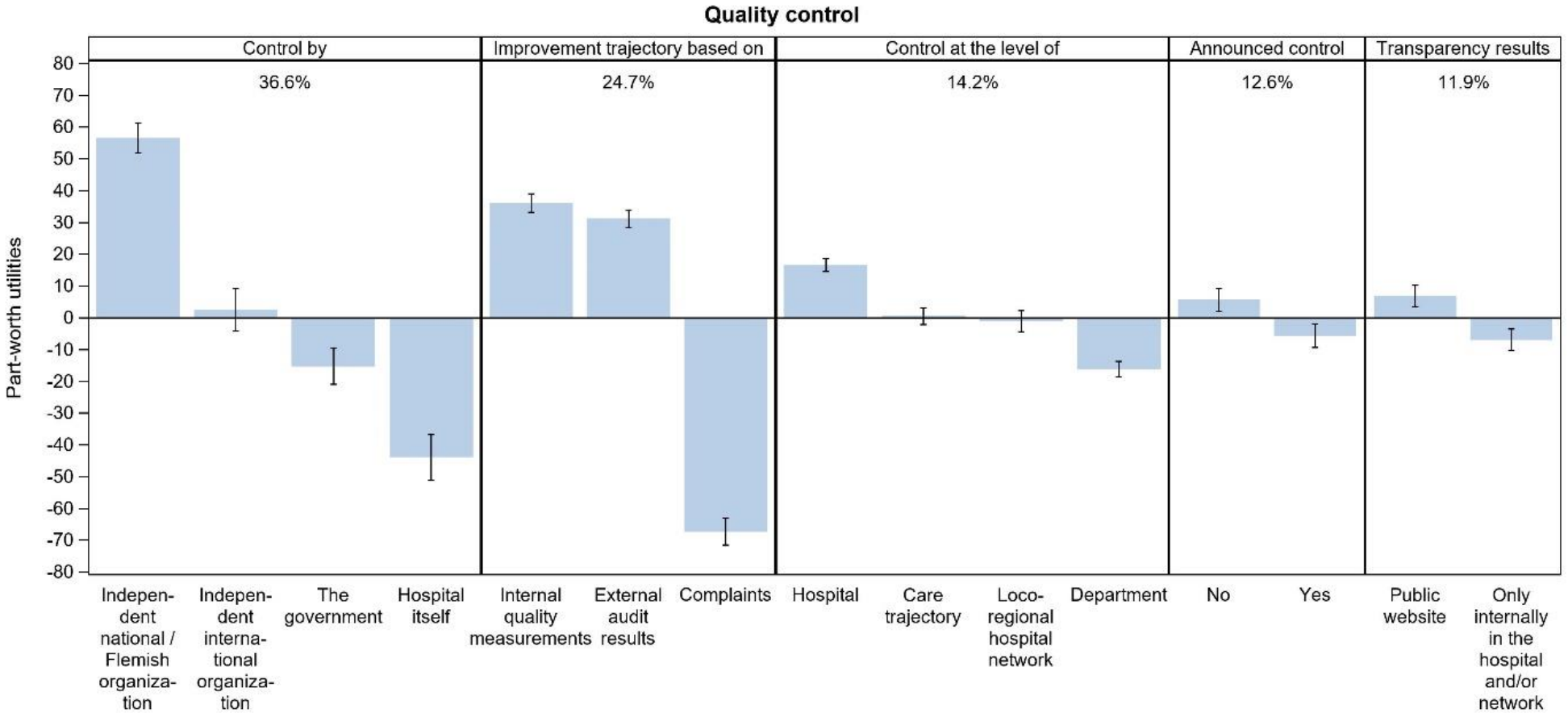
**Only applicable for n=402*
***Only applicable for n=409*
**** Only applicable for n=386*

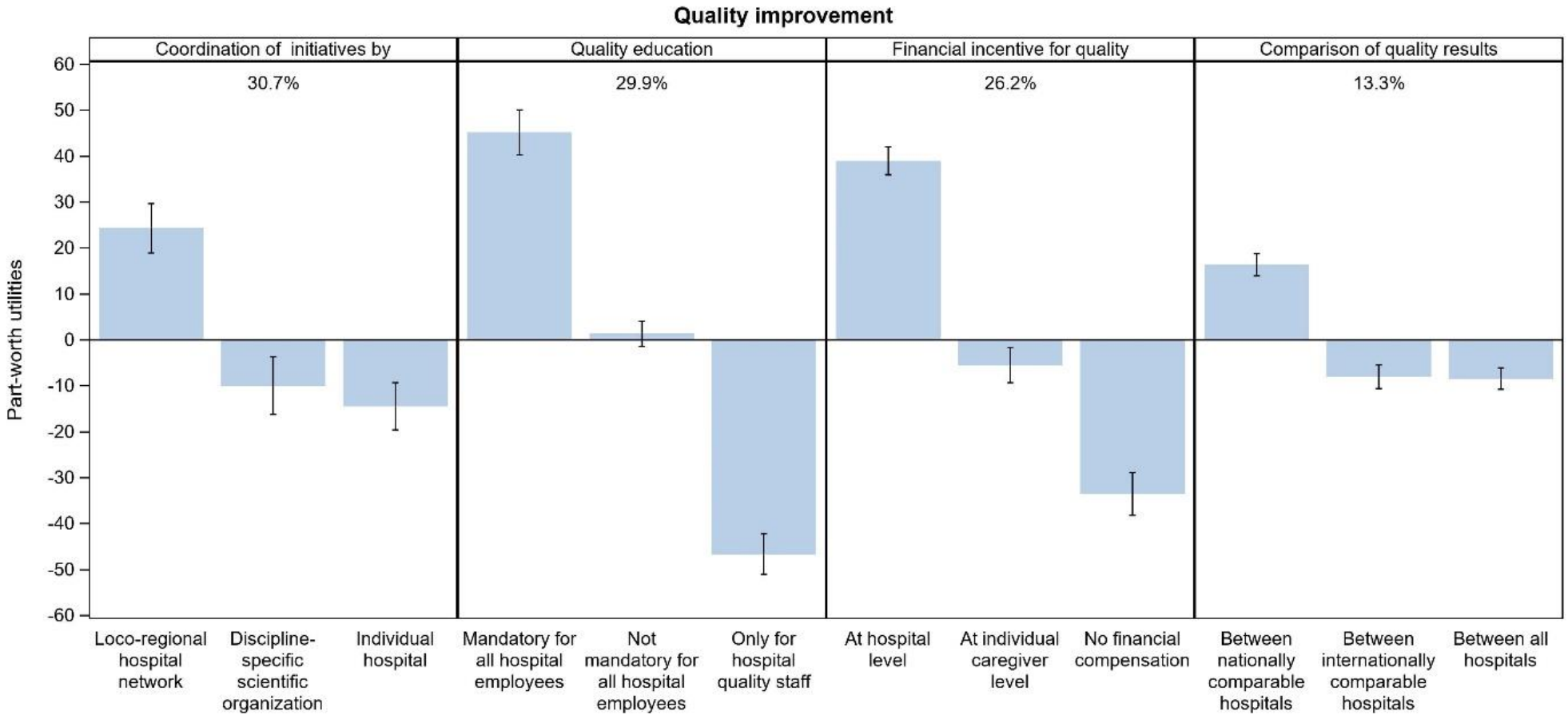
**Main analysis**

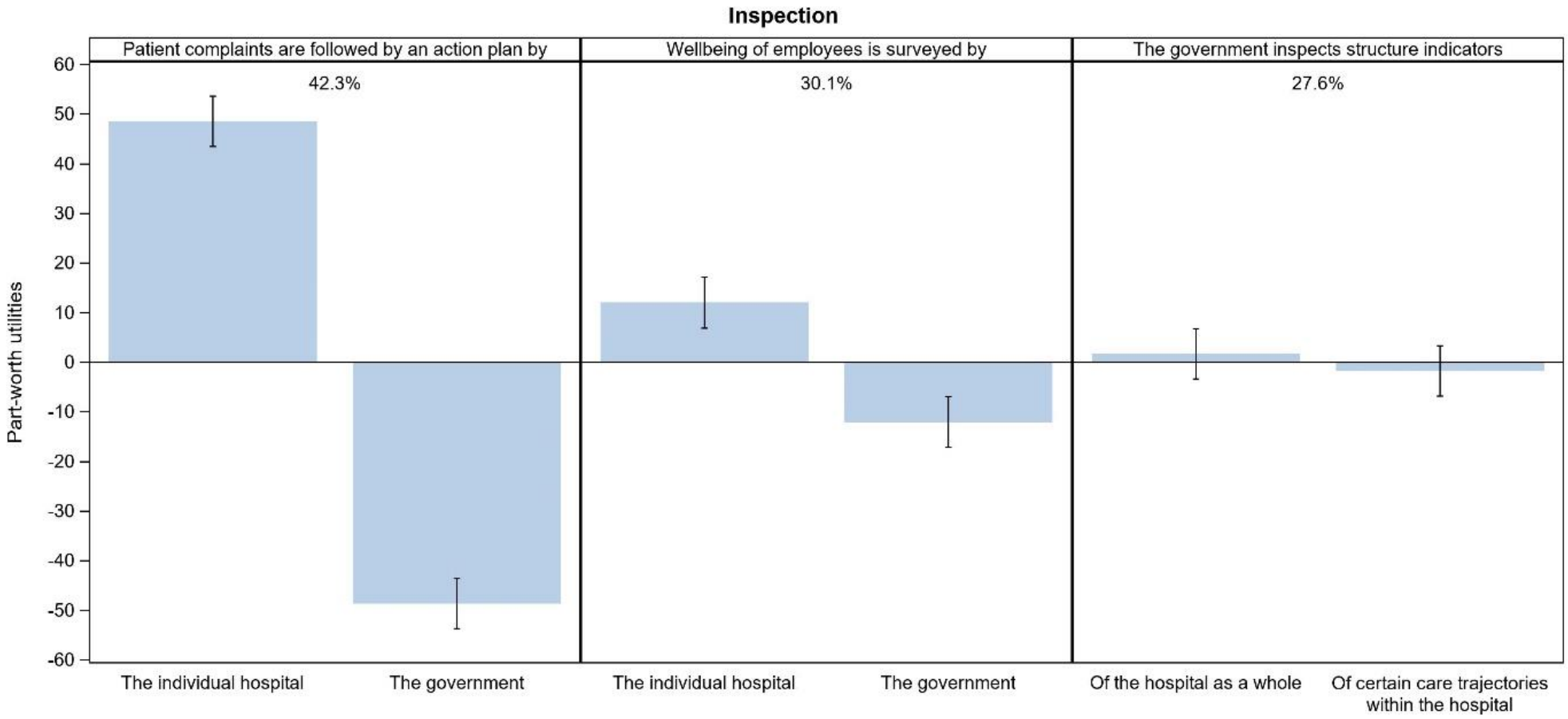
DCE-specific analyses included all respondents that completed that DCE, i.e. 450 (quality control), 379 (quality improvement), 362 (inspection), 358 (patient incidents), and 356 (transparency) respondents respectively.

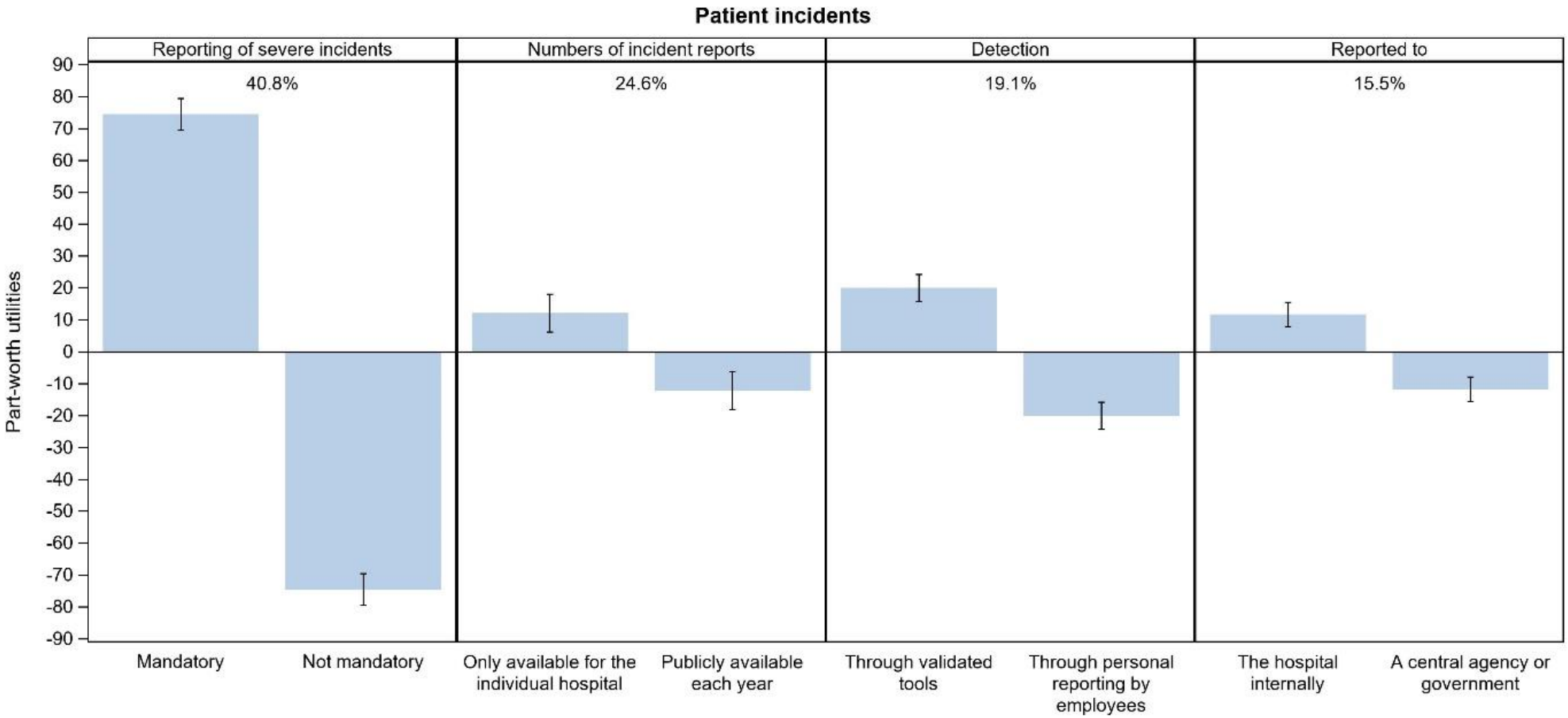
Figure 3.1 panels A to E show the estimated importance and part-worth utilities for the five DCEs. Attributes are ordered by descending importance and levels by descending part-worth utility. In the quality control DCE (panel A), "control by" was the attribute with the greatest relative importance on respondents' choices (36.6%), followed by "improvement trajectories based on" (24.7%). Of the levels, control by "an independent national/Flemish organization" had the highest (positive) attractiveness (most preferred) and control by "the hospital itself" the lowest (negative) attractiveness (least preferred). Improvement trajectories based on "internal quality measurements" and "external audit results" were approximately equally preferred (overlapping confidence intervals) and were more attractive than improvement trajectories based on "complaints". Relative importance of the other 3 attributes were lower (<15%). Control at the level of the "hospital" was most preferred and at the level of the "department" least preferred, whereas respondents did not seem to have distinct preferences for the remaining two attribute levels (part-worth utilities not significantly different from zero). "Unannounced quality control" and "transparency of quality control results on a public website" scored better than "announced control" and "transparency limited to hospital- or network-level", respectively.

The same visualizations are made for the other DCE topics as shown in panel B to E. Coordination of quality improvement initiatives by "a loco-regional hospital network" was preferred over "discipline specific scientific organizations" or "individual hospitals" and education in quality of care was chosen to be "mandatory for all hospital employees" (panel B). Patients' complaints should be followed by an action plan "by the individual hospital" rather than "by the government" amongst most of the respondents. There was no distinct preference for one of the levels of the attribute "government inspects structure indicators" ("of the hospital as a whole" versus "certain care trajectories within the hospital") as seen in panel C. Reporting of severe patient incidents is chosen to be "mandatory" (attribute importance of 40.8%). Other attributes were less important (24.6%, 19.1%, 15.5%) and preferences for their levels is shown in panel D. Finally, as seen in panel E, "public reporting of quality indicators" was the most important attribute (53%) with highest preference for "reporting at hospital level". If asked about "what to report", respondents preferred "disease specific indicators" and collection of data at "department level".


Quality control
Control by
36.6%
Improvement trajectory based on
24.7%
Control at the level of
14.2%
Announced control
12.6%
Transparency results
11.9%
Part-worth utilities
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Independent national / Flemish organization
Independent international organization
The government
Hospital itself
Internal quality measurements
External audit results
Complaints
Hospital
Care trajectory
Loco-regional hospital network
Department
No
Yes
Public website
Only internally in the hospital and/or network


Quality improvement
Coordination of initiatives by
30.7%
Quality education
29.9%
Financial incentive for quality
26.2%
Comparison of quality results
13.3%
Part-worth utilities
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
Loco-regional hospital network
Discipline-specific scientific organization
Individual hospital
Mandatory for all hospital employees
Not mandatory for all hospital employees
Only for hospital quality staff
At hospital level
At individual caregiver level
No financial compensation
Between nationally comparable hospitals
Between internationally comparable hospitals
Between all hospitals


Inspection
Patient complaints are followed by an action plan by
Wellbeing of employees is surveyed by
The government inspects structure indicators
42.3%
30.1%
27.6%
Part-worth utilities
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
The individual hospital
The government
The individual hospital
The government
Of the hospital as a whole
Of certain care trajectories within the hospital


Patient incidents
Reporting of severe incidents
Numbers of incident reports
Detection
Reported to
40.8%
24.6%
19.1%
15.5%
Part-worth utilities
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Mandatory
Not mandatory
Only available for the individual hospital
Publicly available each year
Through validated tools
Through personal reporting by employees
The hospital internally
A central agency or government

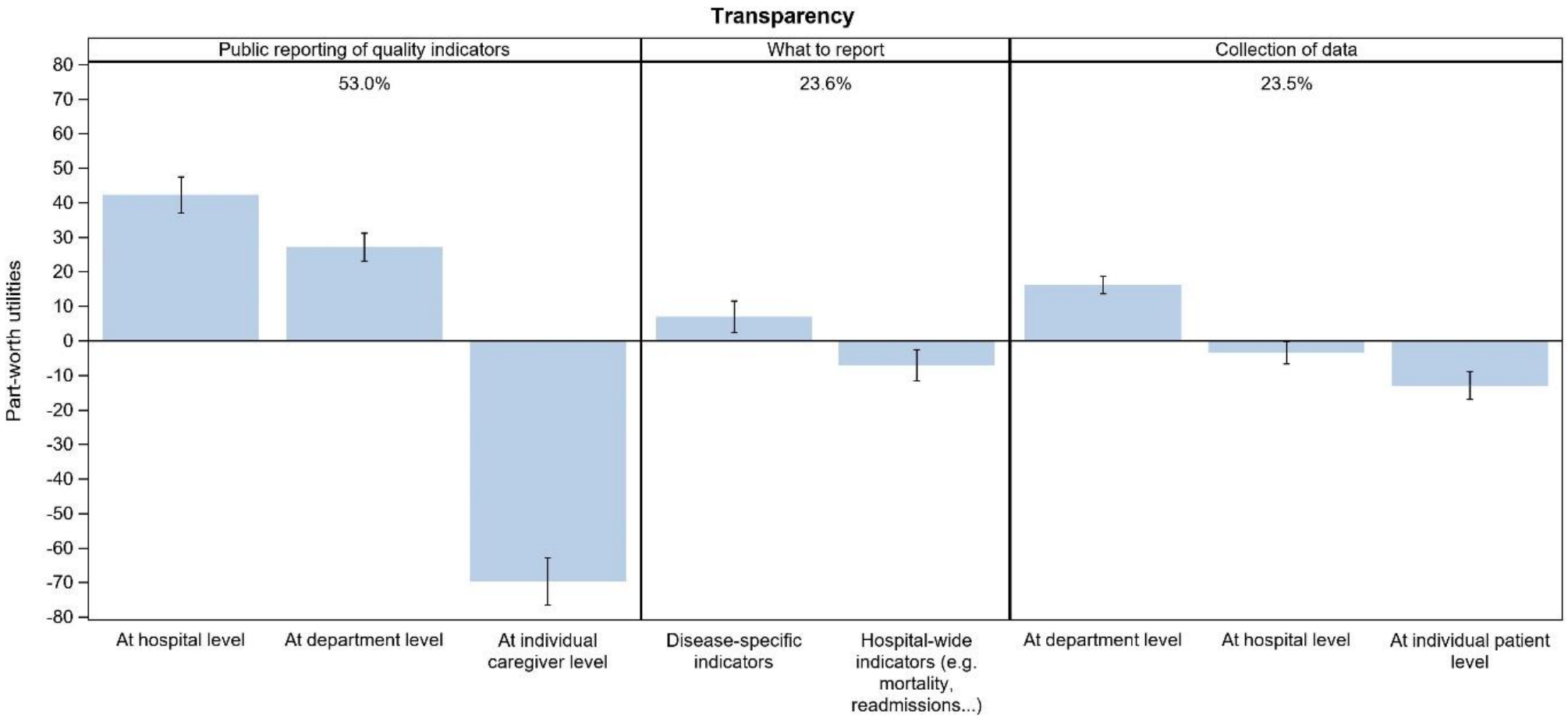



**Figure 3.1 A-E:** Estimated importances and part-worth utilities for the five DCEs. Attributes are ordered by descending importance and levels by descending part-worth utility

**Secondary and sensitivity analyses**

Results by profession are presented in Supplemental files. Relative importance and part-worth utilities were quite similar between groups, except for some differences observed for patient representatives and government officials.

Results from sensitivity analyses (excluding fast respondents and excluding those that did not complete all five DCEs) were similar to those from the main analysis (Supplemental files).

### 3.1.4 DISCUSSION

This study provides a novel approach for policy setting in healthcare quality reforms. It is the first attempt to include stakeholders' views by the use of discrete choice experiments for different quality of care topics. The importance of involvement of stakeholders in policy setting discussions in our hospitals has been highlighted for years [4,52,53]. The results of this research show a preference (high part-worth utilities within attributes) of participants towards quality control by an independent national organization rather than international organizations or the government itself. This trend is also seen in other countries as more and more hospitals withdraw from international accreditation systems [24,31,54]. Hospital employees, for example, have raised the concern that standards of international accreditation organizations are not always appropriate for specific local circumstances and they feel disconnected with this imposed control mechanism. The paucity of high-quality controlled evaluations of external inspection systems, the need for more explicit values and customer adaptations but also the heavy bureaucracy are seen as extra reasons for this trend of withdrawal [4,55].

Quality improvement initiatives on regional hospital network level are preferred by respondents in our sample. Although quality improvement initiatives on more local level, like clinical pathways [56,57], are standard practice, a recent policy reform in Flanders installed different hospital networks whereby hospitals will need to work together to centralize certain pathologies and supporting services like the hospital pharmacy and laboratory. This could be the reason that respondents in this sample tend more towards quality improvement on network level rather than to keep it on individual hospital level.

The other discrete choice experiments are in line with international trends as we see that reporting of patient incidents is already mandatory in many countries[58–60]. Until now, in the Flemish healthcare setting, incident reporting is not yet mandatory and these results urge policymakers to rethink this choice. The public transparency of quality indicators on hospital level is also key for a healthcare quality policy as it stimulates quality improvement activities and alters hospital selection by the patient [31,61]. Government agencies, including the Agency for Healthcare Research and Quality and the Institute of Medicine, and the European ExPeRT program have emphasised that public availability of hospital quality information is integral to a long-term strategy to improve healthcare for patients [2,62,63]. Public

reporting of data on quality of health care in Flanders currently encompasses the publication of hospital-level process and outcome indicators by a governmental agency. Results of our study indicate a positive attitude towards more detailed reporting of disease-specific quality indicators collected at department level. On the other hand, respondents showed a strong preference for reporting at hospital or department level instead of at individual caregiver level, which may be linked to the expected risk-averse behavior or other issues associated with physician-level reporting [64,65]. Although globally, questions are raised about the effectiveness of public reporting on patient outcomes [66,67], the importance to incorporate this in future policy is well demonstrated in this DCE. Finally, patient complaints are an important topic for hospitals because it provides areas of concern and a basis for quality improvement projects. Our DCE shows that respondents prefer to link these complaints to action plans by an individual hospital which corresponds with trends seen internationally [68,69].

Overall, the results of these DCE topics provides the basis for policy reforms in a local Flemish context. As many of the respondents' preferences in these topics are also seen internationally, the convergence of quality improvement programs is possible as was also emphasised as a working point by the European ExPeRT project. It is the duty of policymakers to consider the input they receive of different sources for their policy choices. An extensive discrete choice experiment can be one of the ways to use the voice of stakeholders for new frameworks, but just as important are international trends and good practices as demonstrated above. This research does not aim to give an exhaustive list of mandatory policy reforms but rather presents a good basis for future discussions. Different quality ideas in our DCE that are not yet implemented in Flanders (like mandatory reporting of severe patient incidents and hospital-wide action plans following patient complaints) suggest that participants are open to new quality of care initiatives. It is therefore recommendable to use their voice and enthusiasm for the construction of a new quality of care model in Flanders. Although, to our knowledge, multi-criteria decision tools have not yet been applied in the context of quality of care policy, they have proven to be useful for eliciting preferences in health services utilization [70–74] and DCEs are increasingly used in priority setting for medical interventions and clinical issues. Rational approaches to guide decisions are desirable and a more formalized and explicit way to include different views may improve the policy process [75,76]. DCEs can be one of the methods to meet these demands for healthcare policy settings. Although the scenarios used in the DCEs are hypothetical, they are effective in approximating real-world decisions rather than just ranking or rating single characteristics [77]. Despite the time-consuming and cognitively challenging aspect to DCEs, a commendable number of respondents (N=356) completed the entire survey, possibly indicating the importance they attach to the research questions. The settings of the DCEs were built around a current Flemish quality of care approach but can be easily adapted for other international contexts. This can help to shape systems to local situations and aid governments to implement specific quality of care reforms and frameworks.

This study has a number of limitations. First, the generalizability of profession-specific results can be questioned due to the low number of respondents in some groups (patient and governmental representatives). Nevertheless, the numbers for clinicians, staff members and hospital board members were high and the use of a DCE to hear their voices is on itself already a very useful initiative. We therefore did not go deeper into the profession-specific results in this paper. Second, the time burden and cognitive challenge associated with filling in five DCE exercises could be a limitation for consistency of our results. Yet, sensitivity analyses showed good internal validity of the DCEs and 356 respondents completed the whole questionnaire till the end. Third, this study design employed a main-effects model, the most commonly used approach in healthcare-related DCEs [34], which assumes the absence of attribute interactions [78]. Although this study was pilot tested to identify and remove attributes that were seen as highly correlated, the possibility of bias introduced by correlation between these attributes cannot be excluded. Lastly, although this study is built around five separate DCE scenarios, it's aim is to give a multi-topic approach for policymakers to make supported decisions in their policy plans. We are aware that the relative (perceived) importance of each DCE topic itself is not assessed, as this is inevitable in the design of this study. We could impossibly make a DCE design concerning all five topics at once, because this would lead to an uncountable number of attribute-level combinations and analyses would not be possible. Nevertheless, each DCE topic on itself provides useful information for policymakers and governments to start their process of policy reforms.

### 3.1.5 CONCLUSION

The choice for future quality of care initiatives is an important challenge to tackle and policymakers should consider stakeholders' preferences to ensure support in the field. This research attempted to provide a better understanding of healthcare workers', government officials' and patient representatives' perspectives towards future quality of care policy by the use of DCEs in a Flemish context. Among these stakeholders, future policy reforms should focus on quality control by an independent national organization and coordination of quality initiatives on hospital network level. Patient complaints should be followed by an action plan by an individual hospital and reporting of incidents should be mandatory. This study also showed that public reporting of quality indicators at individual caregiver level is not preferred among healthcare workers. DCEs can be a promising instrument for assessing attitudes towards various aspects of quality of care and they can serve as an intermediary step in creating new policy reforms. Policymakers will need to continue discussions with relevant stakeholders and make further choices based on their opinions, international good practices and proven evidence of new quality of care models.

# 3.2 A decade of commitment to hospital quality of care: overview of and perceptions on multicomponent quality improvement policies involving accreditation, public reporting, inspection and pay-for-performance


**Abstract**

**Background:** Quality improvement (QI) initiatives such as accreditation, public reporting, inspection and pay-for-performance are increasingly being implemented globally. In Flanders, Belgium, a government policy for acute-care hospitals incorporates aforementioned initiatives. Currently, questions are raised on the sustainability of the present policy.

**Objective:** First, to summarise the various initiatives hospitals have adopted under government encouragement between 2008 and 2019. Second, to study the perspectives of healthcare stakeholders on current government policy.

**Methods:** In this multi-method study, we collected data on QI initiative implementation from governmental and institutional sources and through an online survey among hospital quality managers. We compiled an overview of QI initiative implementation for all Flemish acute-care hospitals between 2008 (n=62) and 2019 (n=53 after hospital mergers). Stakeholder perspectives were assessed via a second survey available to all healthcare employees and a focus group with healthcare policy experts was consulted. Variation between professions was assessed.

**Results:** QI initiatives have been increasingly implemented, especially from 2016 onwards, with the majority (87%) of hospitals having obtained a first accreditation label and all hospitals publicly reporting performance indicators, receiving regular inspections and having entered the pay-for-performance initiative. On the topic of external international accreditation, overall attitudes within the survey were predominantly neutral (36.2%), while 34.5% expressed positive and 29.3% negative views towards accreditation. In examining specific professional groups in-depth, we learned 58% of doctors regarded accreditation negatively, while doctors were judged to be the largest contributors to quality according to the majority of respondents.

**Conclusions:** Hospitals have demonstrated increased efforts into QI, especially since 2016, while perceptions on currently implemented QI initiatives among healthcare stakeholders are heterogeneous. To assure quality of care remains a top-priority for acute-care hospitals, we recommend a revision of the current multicomponent quality policy where the adoption of all initiatives is streamlined and co-created bottom-up.

### 3.2.1 INTRODUCTION

Across all levels of healthcare, from micro- to macro-systems, initiatives to improve quality have been globally arising [79]. Still, patient harm continues to persist, with one in twenty patients experiencing preventable harm [80,81] and harm putting a substantial burden on healthcare systems of high-income countries [82,83]. Quality's position at the top of hospitals' agenda is therefore well-deserved.

In Flanders, the Dutch-speaking region of Belgium, a government agreement that forms the basis of today's 'Quality-of-Care Triad' for the hospital setting was established in 2009. This Triad encompasses 1) voluntary announced hospital-wide accreditation, defined as an assessment of a pre-determined set of standards [5] by an international external agency, 2) voluntary measurement and public reporting of quality indicators and 3) mandatory inspection by the Flemish government. An overarching patient safety contract was drawn up at federal level between the government and acute-care hospitals from 2007, rewarding hospitals financially that committed to implementing QI initiatives with a small fixed portion of hospital payment. From 2018, the contract became known under the heading of P4P with adjusted reimbursements.

Since 2019, however, Flemish hospitals are starting to publicly express an alleged 'quality fatigue' [24,84], claiming the burden of the multicomponent government policy is becoming exorbitant. However, no overview exists on how hospitals have adopted the initiatives under government policy in the past decade to corroborate this statement. Both clinicians and policymakers alike are expressing concerns on the continued application of accreditation, supported by international evidence describing it as bureaucratic and time consuming [9], merely market-driven [85], costly [10], and not promoting what actually matters to patients [19]. As a result, already about ten Flemish hospitals have declared their intention to abandon accreditation. Regarding public reporting, worries are mainly about the possibility of risk aversive behaviour in physicians that might harm patient outcomes [12], about misinterpretation or gaming of data [13], about the significant financial and administrative burden [16] and finally about the lack of reach to patients [20]. Concerning inspection, apprehension exists on the topic of 'decoupling', i.e. the gap between the paper-based reality of rules and guidelines and actual clinical practice [14,15]. On the other hand, initiatives such as accreditation [86,87], public reporting [88] and pay-for-performance (P4P) [89] have shown promise in multiple healthcare segments. Examples include accreditation promoting change and professional development [9] or public reporting further stimulating quality improvement (QI) activity and altering hospital selection by the patient [61]. This conflicting evidence urges a formal assessment on the perspectives of relevant healthcare stakeholders. Hence the objective of this study is twofold. First, to provide a detailed overview of the various initiatives that Flemish hospitals have adopted in line with current hospital policy between 2008 and 2019. Second, to study healthcare stakeholders' perspective on the current hospital policy.

## 3.2.2 MATERIALS AND METHODS

### History of quality improvement initiatives

We conducted a retrospective region-wide multi-method study of all acute-care hospitals (n=62 in 2008, n=53 in 2019 after hospital mergers) in Flanders, Belgium on government-imposed QI initiatives occurring between 2008 and 2019. Information about accreditation trajectories between 2008 and 2019 was obtained from multiple sources: an online survey, Qualicor Europe (a Dutch institute focused on accreditation, formerly known as NIAZ), and public websites of hospitals. The online survey was distributed in January 2020 via Qualtrics© to all quality managers within the study sample, and contained retrospective questions about the accreditation body, the number of accreditation cycles, their audit and re-audit dates and their respective overall scores between 2008 and 2018. Secondly, data on public reporting was provided by the Flemish Institute for the Quality of Care (VIKZ), which is responsible for the measurement and the public reporting of quality indicators [90]. Thirdly, information on inspection dates and hospital mergers was obtained from the Department of Health at the Flemish government. Finally, the Federal Public Service for Health (federal government) provided information on the participants to each yearly patient safety contract between 2008 and 2017 as well as to the pay-for-performance initiative from 2018. A more detailed overview of the data collection guide and characteristics of the various QI initiatives under government policy in Flanders can be found in Additional File 1.

### Perspectives on current policy

We assessed healthcare professionals' perspectives on current policy in two ways: a widespread online survey and an in-depth questionnaire in a focus group with Flemish healthcare policy experts. First, a survey assessing respondents' attitudes towards current policy was distributed between July and September 2020. The survey was implemented in Sawtooth© and disseminated via email to the management of all Flemish acute-care hospitals, to government representatives and to the staff members of the Flemish Patient Association (hereafter called patient representatives). Reminders were sent with the encouragement of hospital association Zorgnet-Icuro. To further increase the number of returned surveys, survey invites were published in a medical newspaper (Artsenkrant), on social media (Facebook, LinkedIn, Twitter) and the research group's website (www.ligb.be) and participants were encouraged to further distribute the survey link to healthcare professionals. The following eight professional groups were invited to fill in the survey: doctors, nurses, paramedics, middle management & supervisors, quality staff & executives, hospital board members, government representatives and patient representatives. The survey first pertained to how respondents perceived the implementation of an external international accreditation program (positive, neutral, negative). Subsequently, respondents were asked to rank the ten following groups according to their importance in the determination of

hospital quality policy: doctors, nurses, hospital management, quality staff & executives, middle management & supervisors, paramedics, patients & family, government, board of directors and other care providers.

Second, we invited 22 Flemish top executive healthcare policy experts for a focus group in February 2020. The group consisted of hospital board members (n=7), government representatives (n=6), middle management (n=4), patient representatives (n=3) and doctors (n=2) and all made significant contributions to past or current hospital policy. The focus group was moderated by KVH and DDR, while AVW and JB acted as notetakers. The session aimed to discover what expert opinion considered as the most important aspects of current hospital policy to bring to future policy discussions. We adapted the focus group methodology [91] to generate quantitative data by introducing a Qualtrics© survey to all focus group members during the session. After a short introduction section, the survey was taken by all present focus group members (average survey time was 18 minutes), after which the results were discussed within the group. The survey consisted of 17 in-depth statements concerning current hospital policy (see Additional File 2) and related to the currently implemented QI initiatives, i.e. accreditation (n=5), public reporting (n=5), inspection (n=5) and pay-for-performance (n=2). The focus group members were asked to indicate how important they considered the statement to be included in future hospital quality policy discussions by means of a slider scale ranging between 0 (not important) to 100 (very important).

**Statistical analyses**

For our first objective, an overview of the adopted QI initiatives was visualised. For clarity, inspection dates were grouped into 'compliance monitoring' and 'other inspections', while all individual release dates for public reporting across the four overarching domains are jointly displayed. Only the dates of the public release of indicators were presented, while data on measurement and benchmarking within hospitals were disregarded (see Additional File 1). To generate healthcare professionals' perspectives on current policy, we first described results from the widespread Sawtooth© survey by describing the attitudes towards accreditation (positive, neutral or negative). Variation in accreditation attitudes across respondents (by one of eight invited professional groups) was assessed by means of a Kruskal-Wallis test. Data on the importance of the ten surveyed profession groups in the determination of quality policy were summarised by ranking the sum of ranks for all respondents and by invited profession (eight groups). This information was depicted by means of a radar chart, with the lowest rank representing the highest importance. Second, results from the Qualtrics© survey disseminated during the focus group were visualised in box plots ranked from highest to lowest importance for future policy discussions. Analyses were generated using SAS© software, Version 9.4 of the SAS System for Windows.

### 3.2.3 RESULTS

#### Sample

An overview of the adoption of government-promoted QI initiatives was provided for all Flemish acute-care hospitals (n=62 in 2008, n=53 in 2019 after hospital mergers). Of these, 49 are general hospitals, while four are university hospitals. The online survey on the history of QI initiatives generated a response rate of 83% (n=44). The number of beds per hospital ranged between 170 and 1955 with an average of 542. To assess perspectives on current policy, first, the widespread online survey targeted towards all healthcare professionals was filled in by 486 respondents. 19 had to be excluded because they could not be categorised within the eight established professional groups, resulting in a final sample of 467 respondents. Of these, the majority were quality staff & other executives (n=137), doctors (n=119) or hospital board members (n=74). Other respondents represented middle management & supervisors (n=57), nurses (n=39), government representatives (n=15), paramedics (n=14) and patient representatives (n=12). There was a balanced representation of Flemish hospitals within the surveyed sample, with an even distribution in working experience, region, type of hospital and accreditation status among respondents. Second, 17 policy experts participated in the focus group (response rate 77%) to assess perspectives on current policy. The final group consisted of hospital board members (n=6), government representatives (n=4), middle management (n=4), patient representatives (n=1) and one doctor.

#### History of quality improvement initiatives

Figure 3.2 depicts when accreditation, public reporting and inspection have taken place within Flemish hospitals and shows yearly participation to the patient safety contracts. Hospitals are ordered by date of their first accreditation audit. To date, all hospitals have entered into an accreditation trajectory by either the US-based Joint Commission International (JCI) or the Dutch Qualicor Europe (Qualicor). Only one hospital (number 62 in Figure 3.2) had not yet obtained its label by the end of 2019. Few (13%) hospitals achieved their first accreditation label before 2016, but the earliest adopter (number 1) was already accredited by the beginning of 2008 and had achieved three labels by the end of 2019. The majority of hospitals opted for the four-year-cycled Qualicor accreditation (n=31). JCI hospitals (n=22) are audited every three years, except for the third audit in hospital 5 occurring within a year after the second due to the move to a new building. One hospital (number 10) additionally obtained a label by the US accreditation body ANCC Magnet. One hospital (number 16) opted out of the accreditation process by the end of 2019. Overall, the procurement of an accreditation label required a re-visitation in five hospitals (numbers 3, 7, 23, 40, 51) and was refused in three (numbers 4, 7, 8). Concerning public reporting, the majority of hospitals (n=45) agreed to immediately start reporting from 2016 (Figure 3.2). Four hospitals (numbers 10, 33, 44 and 60) waited to report their indicators until the second semester of

2016, while three started reporting from mid-2017 (numbers 11, 40, 59) and one from mid-2019 (number 39). Inspections were mostly carried out once a year, with about 30% of hospitals having inspections in 2008-2013 and nearly all hospitals from 2014 onwards. Some hospitals (e.g. numbers 22, 58) even received three inspector visits within the same calendar year, occasionally (e.g. numbers 3, 12, 14, 22, 58) concurring with accreditation visits. Finally, all but three (numbers 27, 39, 50 on Figure 3.2) hospitals agreed to the federal government's patient safety contract from 2008 (Figure 3.3). By 2010, all had entered the contract.

The chances of concomitant QI initiatives have increased throughout time, as the overall number of QI initiatives across hospitals has surged, in particular in 2016 and 2017. A summary of the occurrence of initiatives per study year aggregated over hospitals can be found in Figure 3.3. It demonstrates how more than 40% of hospitals received an accreditation audit in 2017, how over 90% of hospitals undertook yearly public reporting from 2016 and how inspection has monitored compliance for over 90% of hospitals in 2015 and 2019.

Table 3.3 provides more detailed information on the accreditation status of Flemish acute-care hospitals by the end of 2019 as well as on audit scores for each accreditation cycle. It demonstrates how the preponderance of hospitals have undergone one accreditation cycle (83%), while eight hospitals already went through re-accreditation. Accreditation details provided by 44 hospitals showed that audit scores were high on average, with global Qualicor scores ranging between 90% and 98% and the number of JCI elements not met and partially met (out of nearly 1300 measurable elements) ranging from 0 to 11 and from 0 to 43, respectively.

**Table 3.3:** Accreditation status in December 2019 and accreditation scores ranges between 2008 and 2018 in Flemish acute-care hospitals

| Number of accreditation cycles undergone | Qualicor | | JCI | | |
|---|---|---|---|---|---|
| | Number of hospitals[1] | Global scores (%), range[2] | Number of hospitals[1] | Elements not met (n), range[3] | Elements partially met (n), range[3] |
| 0 | 1 | / | 0 | / | / |
| 1 | 29 | 92-98 | 15 | 0-7 | 7-43 |
| 2 | 0 | 90-98 | 5 | 0-8 | 23-39 |
| 3 | 1 | 92-94 | 0 | 2-5 | 0-32 |
| 4 | 0 | / | 2 | 5-11 | 0-26 |

[1]Out of all 53 Flemish acute-care hospitals.
[2]For 24 completed surveys.
[3]For 20 completed surveys. JCI examines over 300 standards, each with their own number of measurable elements, resulting in just under 1300 measurable elements. The number displayed in this table refers to the unmet or partially met measurable elements as determined by the JCI-auditors. The exact number of standards and measurable elements varies between editions of the standards manual. In Flemish hospitals, the fourth, fifth and sixth edition of the manual were used between 2008 and 2018.

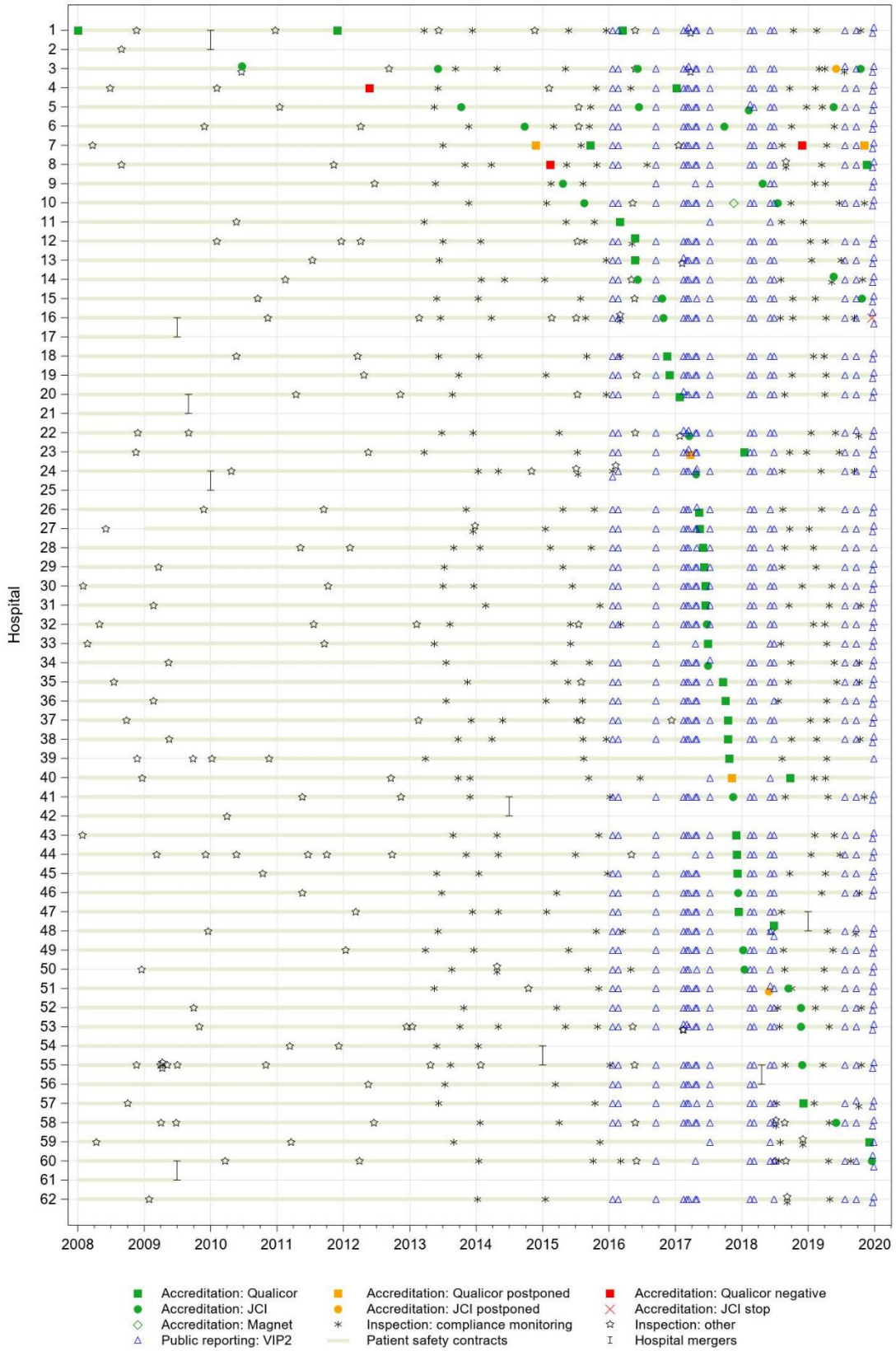



**Figure 3.2:** History of quality improvement initiatives in Flemish acute-care hospitals between 2008 and 2019

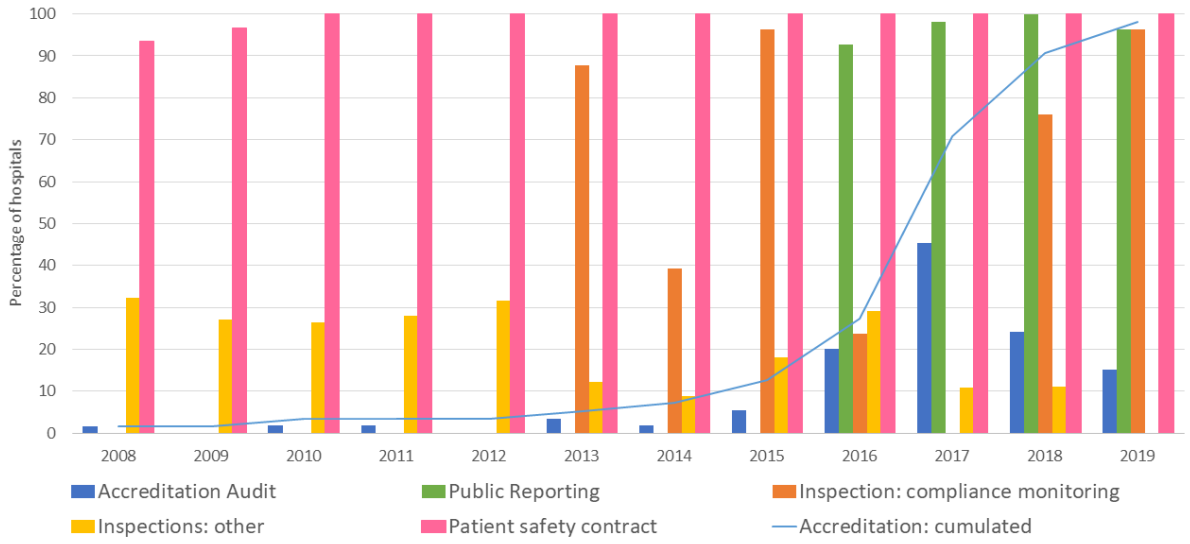



**Figure 3.3:** Number of quality improvement initiatives undertaken for aggregated Flemish acute-care hospitals between 2008 and 2019

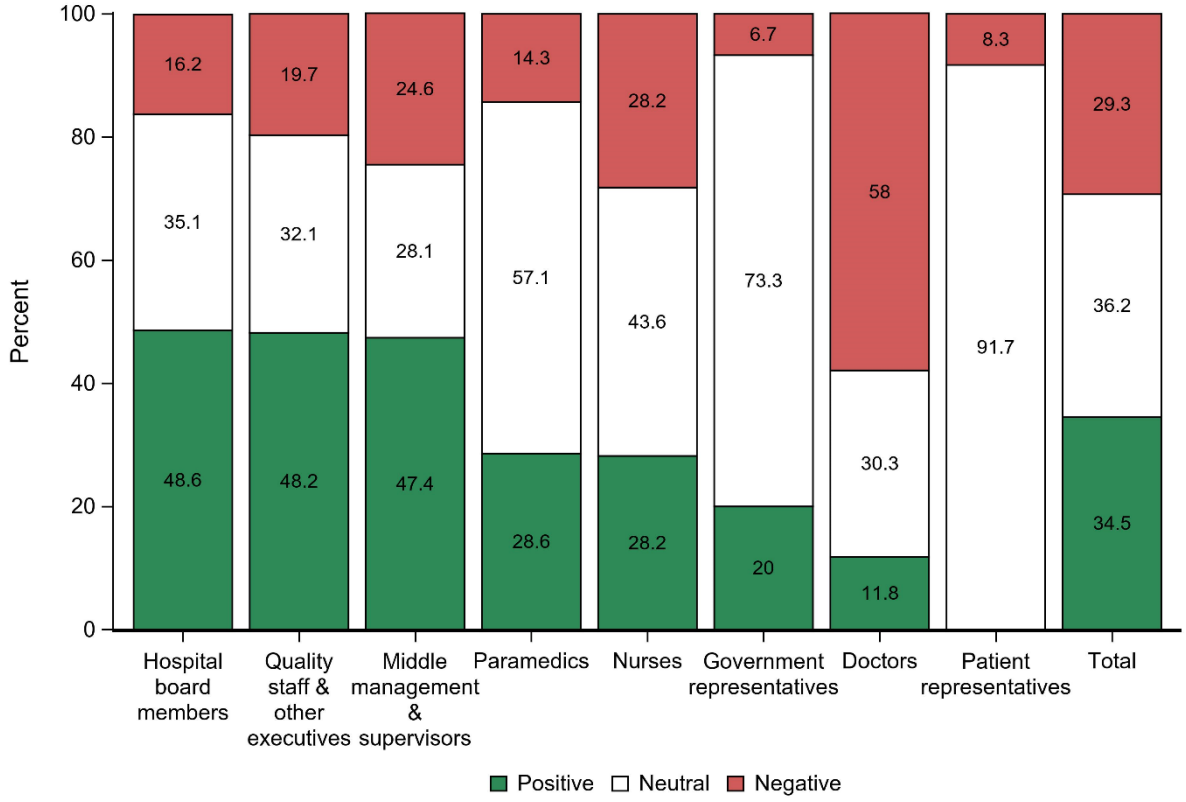



**Figure 3.4:** Perspectives of healthcare stakeholders on international external accreditation programs

**Perspectives on current policy**

Figure 3.4 displays the perspectives of 467 healthcare stakeholders on the topic of international external hospital accreditation per profession, ranked by decreasing positive views. Overall, the majority (36.2%) of respondents had a neutral attitude towards accreditation, while 34.5% had a positive view on accreditation and 29.3% perceived it negatively. Non-clinical hospital staff were more positive about accreditation than other professional groups, with nearly half of the hospital board members (48.6%), quality staff & other executives (48.2%) and middle management & supervisors (47.4%) rating accreditation as positive. Among nurses, paramedics, government representatives and patient representatives, the majority of respondents were neutral about accreditation (43.6%, 57,1%, 73,3% and 91.7% respectively). As much as 58% of doctors had a negative attitude towards accreditation. The observed differences among professional groups were significant (p=<.0001).

Overall, respondents of the online survey (n=467) ranked doctors as the group with the highest importance for the determination of hospital quality policy, followed by nurses and hospital management (Figure 3.5). Other care providers, government and board of directors were ranked as least important. However, different views could be observed when looking at specific types of respondents. Patient representatives, for example, found clinicians to be of minimal importance for policy setting, while they considered hospital management, government and patients & family most important. Alternatively, nurses, government and middle management & supervisors found nurses to be most important to determine policy, while quality staff & executives, patient representatives and paramedics ranked hospital management in the top position.


**Figure 3.5:** Radar diagram of healthcare stakeholders' rankings on the importance ten professional groups have in the determination of quality policy, with the lowest ranking representing the highest importance

The focus group revealed large disagreement among policy experts (Figure 3.6) as there was a larger than 80% difference among the minimum and maximum range in established importance for future policy discussions in 13 out of 17 surveyed statements. Examples without concordance included the impact of accreditation on time for patient care (A3) and the involvement of mystery patients in future inspections (I2). The largest consensus as well as highest ranked importance among focus group members existed for two inspection and two accreditation statements, i.e. that inspection should focus on a minimum set of requirements (I4) and occur unannounced (I1) and that accreditation has brought about a positive dynamic within hospitals (A2) and has opened up conversation on quality within hospital boards (A5). The introduction of a minimum set of quality requirements (I4) was found most important (average importance 84%) to take to future quality policy discussions. On this topic, one focus group member stated: *"When considering to discontinue accreditation, we should be aware not to throw out the baby with the bathwater. Accreditation has opened up conversation on the topic of quality and ensured a base level we can build up from. This minimum quality level should be guaranteed in future policies."* In contrast, the concept of patient selection and risk-avoidance by physicians in public reporting (PR1) was found least important (average 30%) to bring to future discussions, followed by the topic of public reporting on physician-level (PR5 and PR3). One focus group member discoursed the topic as follows: *"Public reporting on a physician-level is irrelevant in today's hospital landscape. Patient care is no longer a single individual's merit, but always involves team effort."*

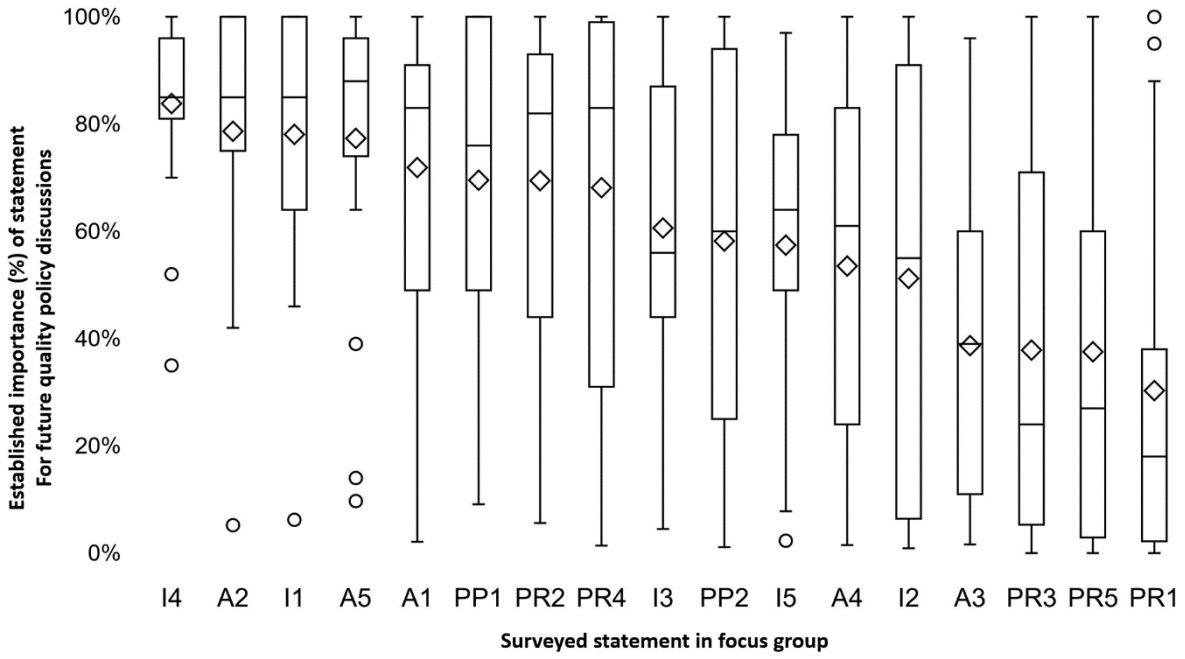



**Figure 3.6:** Established importance of surveyed statements for future quality discussions among focus group participants

### 3.2.4 DISCUSSION

To our knowledge, this is the first attempt at a region-wide overview of external QI initiatives. Strengthened by its multi-method approach, our research has recapitulated paramount quality strategies implemented by hospitals between 2008 and 2019, as encouraged by the government, as well as established healthcare professionals' viewpoint on said strategies.

This study showed that substantial commitments were made into the improvement of hospital quality in the past decade. The majority of hospitals have demonstrated they highly prioritise quality, with all hospitals opting in to the pay-for-performance program and over 90% of hospitals actively choosing for the public reporting of quality indicators and quality assurance via accreditation. The new inspection program focusing on patient trajectories has further stimulated this tendency towards quality by enforcing all hospitals to regularly acknowledge organisations' current quality level. A recent surge in the implementation of accreditation, public reporting and inspections could be observed, in particular for accreditation from 2016 onwards. This growing investment into QI by acute-care hospitals is commendable. However, our research also highlights an incremental strain put on hospitals as initiatives stimulated by authorities are becoming more frequent and occasionally even concurrent. Despite all described initiatives being jointly encouraged by the government, they appear to be regarded as separate initiatives with their adoption not coordinated. This might have contributed to the alleged feeling of 'quality abundance' among hospital staff. To assure quality of care remains a top-priority for acute-care hospitals and current workload is reduced, we encourage a more streamlined and synchronised implementation of future quality improvement initiatives. Furthermore, this study has focused solely on external and government-encouraged QI initiatives. Coordination of initiatives should also include the supplemental initiatives hospitals have adopted internally on both patient-, department- and hospital-level, exemplified by the initiatives instigated within the domain of patient experiences [92].

Today, in the wake of the first termination of one hospital's accreditation trajectory by an external body in December 2019, already about ten hospitals have declared their intention to abandon accreditation [84]. One potential reason for this decision might be that accreditation has failed to show distinctiveness among hospitals, with every hospital now having entered an accreditation trajectory and accreditation scores being high for all. With the large majority of hospitals also opting in to public reporting and P4P, hospitals hoped to differentiate themselves by accreditation. This distinction was encouraged by the government, as P4P points were rewarded to accredited institutions and systemic inspections were waived after entering an accreditation trajectory. However, being accredited today is no longer an assurance of competing among top-performers, it is now merely an indication of being a participant in the game, making being accredited a less coveted status to achieve prestige. Instead, accreditation has laudably provided a solid baseline level of quality for all hospitals, by ensuring they all comply with a large set of healthcare standards. Despite some doctors' negative attitudes towards accreditation being

voiced loudly within printing press [24,84], our study consequently revealed only a minority (29.3%) of healthcare stakeholders viewed accreditation negatively. Within the focus group of policy experts, rare agreement existed on the positive dynamics accreditation have brought to hospitals. These results are in line with international findings that described overall hospital staff's attitudes towards accreditation as positive [26,93], with more scepticism found among physicians [26]. The latter corresponds with our finding of 58% of doctors perceiving accreditation negatively. Our study exposed a gap between clinical and non-clinical hospital staff in terms of perspectives on current policy, with clinicians most frequently displaying a negative stance towards accreditation and non-clinical staff such as hospital board, management and quality staff demonstrating a more positive attitude. While a disproportionate distribution in workload might partly explain this gap, illustrated by the fact that doctors were overall considered to be the largest contributors to quality, this also further confirms the existence of the concept of 'decoupling'. As previously described for inspections [14,15], a paper-based reality of rules and guidelines in the boardroom is not always reflected within clinical practice. Even among top executive policy experts within the focus group, where one would assume congruity, disagreement dominated. There is therefore a need for future policies to be co-created by all stakeholders involved, i.e. government, non-clinical staff , clinicians and patients [53,94]. Too often, QI initiatives have been considered as universal all-purpose solutions that work regardless of context, leading to poor fidelity and the disregarding of lessons learnt from local settings [95]. It is time quality policy was built bottom-up from clinical practice, rather than imposed top-down, making sure everyone involved can intrinsically claim ownership over quality of care.

To move forwards in the development of future healthcare policies, we recommend further research in a number of fields. First, we need stronger evidence concerning the benefits of currently employed QI initiatives. Current knowledge remains scarce and equivocal and the symbiotic effects of compound initiatives is a neglected area of research at present [31]. Minimum criteria should be determined such as a minimal set of accreditation cycles or requirements imposed by inspections. Contrastingly, maximum criteria should also be examined. Perhaps attempting more than two accreditation cycles is genuinely excessive and without additional benefit as is suggested by Devkaran *et al* [35]. Perhaps new policies should be considered where other high-potential initiatives should move to the forefront like disease-specific [97] or unannounced [98] accreditation or peer-review [99]. Some hospitals have already independently adopted these initiatives. We would recommend future research in the least labour-intensive way to avoid additional strain on hospital workers and management, preferably on objective data such as patient outcomes out of electronic healthcare records or discharge data sets. From the increasing adoption of QI initiatives demonstrated in this paper, it can be concluded there is a need to establish priorities for future policy, where evidence-based targets could facilitate a more coordinated and integrated policy implementation. Second, the cost of current and future employed initiatives should be assessed, to determine the further feasibility of the quality policy. QI efforts today are primarily funded by the

hospitals themselves, with no additional funds provided by the government besides a limited portion of hospital finances through P4P. Policymakers should consider increasing funding for evidence-based QI initiatives. Investing in quality might result in a positive return-on-investment and at the very least could relieve some of the current pressure on hospitals and help facilitate a level of investment that can leave a durable impact on the quality of hospital care. Third, the support of the entire healthcare sector, from clinicians to hospital management to patients, should be considered for both current and potential elements of a future quality policy and a broad consensus should be strived for. As such, policy will move more towards a healthcare service that's endorsed by both patient and healthcare provider [53,100]. Finally, we stress the importance of a sustainability assessment of quality policy. Our paper has demonstrated the significant and increasing commitment hospitals have made in recent years. This raises questions on how much we should demand of our hospitals and especially what the threshold is above which we have asked too much. With the Covid-19 pandemic having shaken healthcare at its very core, there's potential for rethinking current quality practice and policy from the ground up, inclusive of all stakeholders involved.

A number of considerations that merit further attention and highlight a number of limitations to this study needs to be outlined. First, results derived from the survey on QI implementation might have suffered from a response and recall bias. As primarily objective data were procured from a survey with a commendable response rate of 83% and combined with objective data from other sources, we feel this bias is minimalised to the extent possible. Second, the survey on perspectives of healthcare stakeholders did not contain questions on other specific initiatives such as e.g. governmental inspections or public reporting. Perceptions on accreditation were specifically surveyed because accreditation programs appeared most strongly connected to feelings of dissatisfaction within hearsay and due to hospital statements claiming accreditation abandonment. Our focus group with policy experts instead focused on all government-encouraged QI initiatives and revealed large disagreement on all initiatives. As stated above, additional research is required that takes all potential initiatives and all healthcare stakeholders into account and looks for a balanced compromise. Additionally, the widespread survey generated lower sample sizes in specific groups, e.g. patient representatives. Still, those representatives constitute over a thousand patients among several patient organisations and the overall response of 467 healthcare stakeholders is laudable. Finally, our research remains limited to initiatives stimulated by government policy. The inclusion of initiatives instigated by individual hospitals might have provided a more comprehensive historic overview of QI initiatives. Nevertheless, our focus on government-encouraged initiatives exposed a disconnect between policymakers and clinicians which future policy will need to resolve, while capturing the essence of quality improvement within Flemish hospitals in the past decade.

### 3.2.5 CONCLUSION

Acute-care hospitals in Flanders, Belgium, have demonstrated an increased implementation of government-encouraged quality improvement initiatives over the past decade. From 2016 onwards, the adoption of accreditation, public reporting, pay-for-performance and inspection has surged and has demanded an incremental commitment. Our study revealed healthcare stakeholders were incongruous in their viewpoints on current policy. While doctors are overall considered as most crucial in quality policy, current accreditation programs are frequently perceived negatively by them. Nonetheless, overall views on accreditation were predominantly neutral or positive among different healthcare stakeholders. With growing concerns on the sustainability and efficacy of today's multicomponent policy, we recommend a thorough policy revision with both patients' and all relevant stakeholders' involvement that prioritises and streamlines the implementation of future quality improvement initiatives.

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# Chapter 4

# FINANCIAL IMPACT OF QUALITY INITIATIVES AND MANAGEMENT

This chapter was previously published as:

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This third objective of the PhD explores the financial impact of quality initiatives and management in three ways. We determined the cost for Flemish hospitals of realizing a first and second international accreditation. Besides this 'cost calculation' of accreditation, we aimed to assess the effect on hospital incentive payments and quality performance with the introduction of a hospital pay for performance (P4P) program in Belgium. To conclude, we provide an overview of the financial posts related to quality improvement in the Budget of Financial Means (BFM).

# 4.1 The cost of a first and second hospital-wide accreditation in Flanders, Belgium

**Abstract**

**Background**: Hospital accreditation is a popular and widely used quality control and improvement instrument. Despite potential benefits, questions are raised whether it constitutes appropriate use of hospitals' limited financial resources.

**Objective:** This study aims to calculate the cost of preparing for and undergoing a first and second accreditation by the Joint Commission International or Qualicor Europe in acute-care hospitals.

**Methods**: All (n=53) acute-care hospitals in Flanders (Belgium) were invited to participate and report on the costs in preparing for and undergoing a first and/or second accreditation cycle. To measure costs, a questionnaire with six domains and 90 questions was developed based on literature review, policy documents and a multidisciplinary expert group. All costs were recalculated to 2020 EUR to correct for inflation and reported as medians with interquartile range (IQR).

**Results**: Twenty-five hospitals (47%) participated in the study. Additional investments and direct operational costs for a first accreditation cycle amounted to 879.45 EUR (IQR:794.81) per bed and 3.8 FTE per hospital additional new staff members were recruited for coordination and implementation of the trajectory. A second accreditation survey costed remarkably less with a total cost of extra investments and direct operational cost of 222.88 EUR (IQR: 244.04) per bed and less investment in additional staff (1.50 FTE). Most of the costs were situated in consulting costs and investments in infrastructure. The median total extra cost (direct operational cost and additional investments) amounted to 0.2% of the hospital's operating income for a first accreditation cycle and 0.05% for a second cycle.

**Conclusion**: A first accreditation cycle requires a strong financial commitment of hospitals, as many costs result from the preparation in the years prior to an accreditation survey. A second survey is less expensive for hospitals, but still requires a considerable effort in terms of budget and staff. Policy makers should be aware of these significant costs as hospitals are operating with public resources and budget is scarce. The identification of these costs is a necessary building block to evaluate cost-effectiveness of accreditation versus other quality improvement systems and the continuation of these accreditation systems and their costs needs further study and a thorough debate.

**Keywords:** accreditation, cost, quality of care, hospital

### 4.1.1 INTRODUCTION

Quality of care and patient safety in hospitals have gained growing attention in the last decades [1–3]. Patient harm during health service delivery remains an issue and safety accountability in healthcare has become an international concern [4,5]. Hospital-wide accreditation programs such as the Joint Commission International (JCI) and Qualicor Europe (Qualicor) claim to ensure quality control and improvement mechanisms in hospitals. During an accreditation trajectory, external surveyors assess the hospital's compliance with a predetermined set of clinical and organizational standards by means of external surveys, self-assessment and indicator measurement [6,7].

Since 2009, the government of Flanders (a 6-million population region in Belgium) based its hospital quality of care policy on a triad consisting of voluntary accreditation by an external agency, mandatory inspection by the Flemish authorities and voluntary public reporting of quality indicators [8]. Almost all (98%) Flemish hospitals have obtained an accreditation label from JCI or Qualicor by now. The decision for accreditation is made by the hospitals and all associated costs are paid by them, with limited governmental financial support [8] . When successful, the hospital is granted a quality label valid for a defined period in time, after which it can apply for accreditation renewal.

Evidence on the financial impact of these accreditation cycles has remained largely unknown [9–12]. Mumford et al. counted costs of accreditation in six acute-care hospitals in Australia in 2015 and found costs varying from 0.03% to 0.60% of total hospital operating costs per year with relatively higher costs for smaller facilities [7]. Saleh et al. found that all Lebanese hospitals incurred increased expenses due to accreditation with most of them situated in training of staff and consultant costs [13]. A master dissertation by Ally et al. concluded that Flemish hospitals invested on average 1,509,000 euro to obtain an accreditation label [14]. To our best knowledge, this study was the first to calculate the cost for subsequent accreditation cycles in Belgian hospitals.

Current evidence-base describes the attitudes of healthcare workers towards these extra costs as negative and the perception of benefits of the accreditation in hospitals as mixed [13,15–17]. Various Flemish hospitals already announced to stop accreditation due to perceived high costs and perceived low quality improvement, especially after two or more accreditation cycles. These hospitals consider some international standards as non-applicable to national contexts, raising questions about the value and sustainability of these systems. Belgian hospitals face a difficult financial situation with small profit margins and falling revenues for years, searching for the most efficient use of available resources [18]. As a report of the Australian National Registration and Accreditation Schemes demonstrated that accreditation can have economic benefit for accreditation agencies, questions are raised about the profitability and sustainability of it for international organisations [19] . Therefore, the evaluation of cost effectiveness of accreditation systems compared to other quality improvement systems is recommended [20–22].

This study aims to calculate the cost of preparing and undergoing hospital-wide accreditation in acute-care hospitals for both a first and second accreditation cycle.

### 4.1.2 METHODS

*Setting*

We reviewed the costs of a first and second hospital-wide accreditation cycle in acute-care hospitals during the entire implementation process from decision to start the accreditation trajectory to on-site visit. Invited hospitals included all acute-care hospitals in Flanders who were accredited at least once between 2008-2020 (n=53). A participation form was sent to the CMO and CEO of all eligible hospitals.

*Survey*

A retrospective questionnaire was designed based on literature review, policy documents, a previous pilot study and research in different components of both JCI and Qualicor accreditation programs [5–7,11,14,23–26]. A multidisciplinary expert panel of 25 participants (physicians, CMO, CFO and healthcare quality experts) reviewed and validated the content of the questionnaire, which contained 6 domains and 90 questions with 6 to 37 questions per domain. The first domain focused on hospital characteristics and the accreditation trajectory, such as duration, gap analyses performed (e.g. assessment of current performance against required standards), mock surveys (e.g. test survey before the actual visit) and accreditation results after the on-site visitation. A second domain aimed to quantify the direct operational costs of the on-site survey, travel and hotel bills, translation costs, communication material, staff training and consulting services. The third domain looked at additional investments made by the hospitals for the accreditation survey, i.e. for infrastructure, maintenance, IT, medical and non-medical equipment. The fourth domain queried staffing levels during the accreditation cycle (from decision of accreditation until the on-site survey itself). The fifth domain estimated opportunity costs (time not spent on clinical care while preparing for accreditation) such as training for accreditation, internal audits and tracers (who follow a patient's trajectory throughout the organisation). The last domain was about additional investments for accreditation cycles made by physicians who are self-employed in the hospital, separate from the hospital's investments.

*Cost analysis*

We analysed the overall costs of the accreditation survey process as well as the average cost per bed. All costs were reported in euros (EUR) and recalculated to 2020 EUR to correct for inflation during different years of accreditation in the hospitals. If hospitals did not report costs on certain questions, they were excluded for analysis of that specific cost item. We reported the costs and staffing levels as a median per bed with the interquartile range [IQR] to correct for different sizes of hospitals. The data were analysed using SAS© Enterprise guide 8.2. We performed univariate analysis with frequency

tables on hospital characteristics and accreditation cycles. Differences between a first and second accreditation cycle were calculated on the medians of each cost object. Staffing levels were analysed and combined for a first and second accreditation and visualised by means of boxplots. We did not go deeper into differences between accreditation agencies.

### 4.1.3 RESULTS

*Hospital characteristics and accreditation survey*

Out of 53 acute-care Flemish hospitals, 25 hospitals completed the survey (response rate of 47%). Twelve hospitals were JCI-accredited (representing 52% of all Flemish JCI-accredited hospitals) and thirteen hospitals chose for the Qualicor accreditation agency (43% of all Flemish Qualicor-accredited hospitals). Of the 25 participating hospitals, nine were small hospitals (<400 beds), ten were medium sized (400-800 beds) and six were large hospitals (>800 beds). Three hospitals were university hospitals (two large and one medium sized). All hospitals completed a first accreditation cycle and seven hospitals completed a second accreditation cycle. Hospitals undertook on average 1.48 mock surveys in a first accreditation cycle and 1.14 in a second accreditation cycle (Table 4.1). They performed on average 6.04 gap analyses in the first cycle, and 3.57 in a second cycle. Three out of 25 hospitals (12%) did not pass the initial on-site survey in their first accreditation and succeeded only after a revisit. All hospitals succeeded in their initial on-site visit with their second accreditation cycle.

**Table 4.1**: Hospital characteristics and accreditation survey

| | **First accreditation (n=25 hospitals)** | **Second accreditation (n=7 hospitals)** | **Total population (n=53 hospitals)** |
|---|---|---|---|
| **Accreditation agency** | | | |
| JCI | 12 (48%) | 6 (86%) | 23 |
| Qualicor Europe | 13 (52%) | 1 (14%) | 30 |
| **Hospital size** | | | |
| >800 beds | 6 (24%) | 3 (29%) | 10 |
| 400-800 beds | 10 (40%) | 4 (71%) | 20 |
| <400 beds | 9 (36%) | / | 23 |
| **Number of beds (mean)** | 631.76 | 801.29 | 551.13 |
| **Number of employees (mean)** | 1,541.53 FTE | 2,069.35 FTE | |
| **Mock survey (mean)** | 1.48 (± 0.85) | 1.14 (± 0.90) | |
| **Gap analysis (mean)** | 6.04 (± 16.04) | 3.57 (± 9.02) | |
| **Revisit survey** | 3 | / | |

*Direct operational costs*

The total cost of invoices for the first on-site accreditation surveyor visit was 209.20 EUR and 129.15 EUR per bed for a second cycle of accreditation (Table 4.2). Translation costs were only applicable for JCI-accredited hospitals and amounted from 66.30 EUR for a first accreditation to 44.51 EUR per bed for a second accreditation. The total costs for additional services from the accreditation agency itself, such as document review, design review or support with test audits were on average 39.40% more for a second accreditation audit (47.06 EUR versus 33.76 EUR). External consulting from other agencies accounted for 88.45 EUR and 98.79 EUR per bed for first and second cycles of accreditation, respectively. Travel and hotel costs were the same per bed for a first and second accreditation. Communication tools were 47.41% cheaper for a second accreditation compared to a first one. Expenses for staff training and development of training modules were 51.37 EUR per bed and 2.34 EUR per bed for a first and second accreditation respectively. Other costs included a celebration party, business gifts and catering and were mostly applicable for a first accreditation cycle. The total direct operational costs (sum of the above) sum up to 608.97 EUR per bed for a first accreditation cycle and 63.40% less for a second cycle (222.87 EUR per bed).

*Additional investments*

The total additional investment for hospitals was on average 427.35 EUR per bed for a first accreditation cycle and 174.86 EUR per bed for a second accreditation (59% decrease). Infrastructure investments made for accreditation accounted for a considerable part of the costs with 118.76 EUR per bed for a first survey and 49.8 EUR for a second one. Larger hospitals (800 beds or more) spent remarkably less per bed on infrastructure as did smaller hospitals. All other investments were higher in a second accreditation than in a first one, with medical investments accounting for 32.34 EUR and 74.84 EUR in a first and second accreditation consecutively. Non-medical investments amounted to 14.20 EUR per bed for a first accreditation and 62.37 EUR per bed for a second one. Hospitals invested 15.74 EUR and 195.33 EUR per bed in IT infrastructure during a first and second accreditation cycle, respectively. Hospitals spent 172.69 EUR per bed on equipment maintenance contracts, but this was only reported for a first accreditation cycle (Table 4.2).

*Total costs*

Hospitals spent 879.45 EUR per bed for a first accreditation cycle and 222.88 EUR per bed for a second cycle (direct operational costs + additional investments), which is 74.66% lower. Larger hospitals spent less per bed on accreditation than smaller hospitals. Hospitals spent around 0.2% of their operating income on the first round of accreditation and 0.05% on a second round.

*Staffing levels*

Additional staff recruited specifically for accreditation implementation tasks amounted to 2 FTE in a first and 1 FTE in a second accreditation. For coordination tasks, hospitals recruited 72% fewer FTE in a second accreditation compared to a first. Reallocated staff in the hospital for accreditation coordination tasks was three times higher in a second cycle than during a first one, while reallocated staff for implementation tasks was 78% more in a second cycle (Table 4.2).

If staffing levels are stratified by years of preparation towards an accreditation survey, they increased on average in the years towards the on-site accreditation survey with coordinating staff (newly recruited) of 0.8 FTE three years before the accreditation up to 1.71 FTE in the year of accreditation. The number of FTE for reallocated staff for the implementation of the accreditation trajectory raised from 0.75 FTE to 2.07 FTE during the years towards accreditation (Figure 4.1).

*Opportunity costs*

Training hours ranged from 5,124 hours for a first accreditation cycle to 6,073 hours for a second one. Internal tracers in the hospitals were implemented for 590 hours in the first accreditation and 498 hours in the second one, a decrease of 16%.

The additional costs made by independent physicians could not be analysed properly due to the lack of reported data in this domain and we will therefore not go deeper into this.

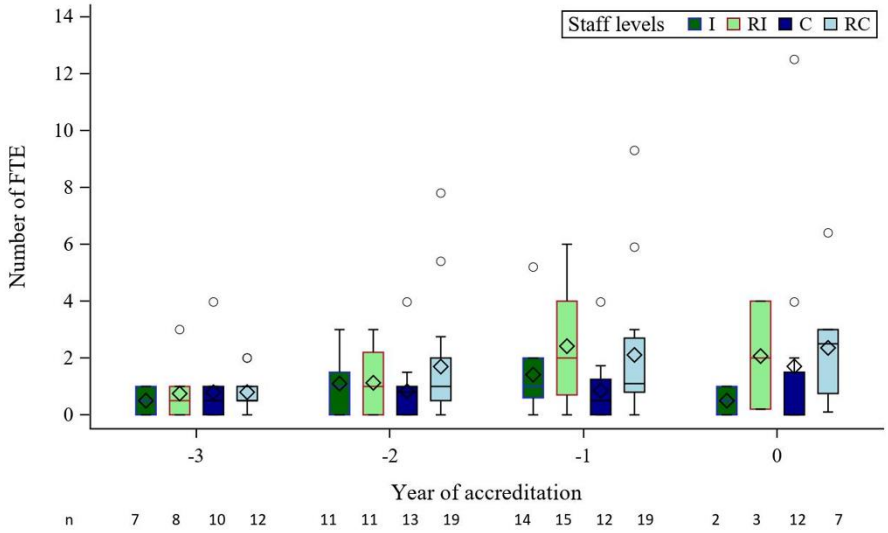


**Figure 4.1:** Boxplots of staffing levels during a first and second accreditation trajectory combined. (Four boxplots are given for each year from left to right: I: newly recruited implementation staff, RI: reallocated implementation staff, C: newly recruited coordination staff, RC: reallocated coordination staff). O=outlier, –= median, ◊=mean, n=number of hospitals.

### 4.1.4 DISCUSSION

*Statement of principle findings*

Accreditation of acute-care hospitals has become a trademark of quality control and improvement systems across the world. In Flanders, nearly all hospitals obtained at least one accreditation label by the international accreditation agencies JCI or Qualicor, stimulated by government legislation introduced in 2009. The financial costs of these accreditations are still an under-researched topic and questions are raised about the value of these labels versus their cost and the impact on hospital budgets [5,13,27]. This study is the first attempt to quantify the cost of hospital-wide international accreditation for a first and second survey in a European country. The proposed methodology and findings provide a necessary building block to evaluate the cost-effectiveness of accreditation versus other instruments for quality improvement.

This study showed additional expenses associated with accreditation in all hospitals on different domains, from the decision to accredit until the on-site visitation itself. Hospitals spent 879 EUR per bed on direct costs and extra investments related to a first accreditation survey. For a second survey the costs were considerably smaller with 223 EUR per bed, a decrease of 75%.

We also demonstrated that hospitals tend to invest more in external consulting services in a second accreditation cycle, which could be explained by the fact that a second survey demands remarkably more of the hospitals in terms of updated standards and protocols. This was also seen in previous literature whereby consulting services prior to accreditation tend to be a big cost for hospitals [14]. Consulting services can help them in creating the right procedures and evaluate them in their institutions. The high number of reported training hours in our sample brings an important extra opportunity cost because of the time not spent on care while professionals are being trained for accreditation. In contrast with Ally et al., in our sample hospitals spent less time at internal tracers in a second accreditation cycle which can point out the learning curve hospitals tend to have in subsequent preparations for accreditation [14].Hospitals made most of their additional infrastructure investments in a first accreditation round, with also a high cost for equipment maintenance contracts. Maintenance regulation is stricter within accreditation requirements than within current legislation in Flanders, which could explain these high costs. IT expenses were much higher in a second accreditation cycle and this can reveal the digitalisation efforts hospitals made to comply with accreditation agencies requiring digital control systems and paperless patient records.

**Table 4.2:** Overview of costs, staff and time spent on accreditation. Reported as median with interquartile range [IQR]

| | First accreditation: median [IQR] per bed | N | Second accreditation: median [IQR] per bed | N | Difference second vs first accreditation per bed |
|---|---|---|---|---|---|
| **COST (in EUR)** | | | | | |
| **Direct operational cost** | 608.97 [673.96] | 25 | 222.87 [166.85] | 7 | -63.40% |
| Invoice of accreditation agency | 209.20 [191.14] | 25 | 129.15 [646.14] | 7 | -38.27% |
| Translation cost | 66.30 [33.32] | 11 | 44.51 [49.46] | 3 | -32.87% |
| Additional service JCI/Qualicor | 33.76 [110.79] | 19 | 47.06 [58.03] | 4 | +39.40% |
| External consulting | 88.45 [340.28] | 18 | 98.79 [101.70] | 3 | +11.69% |
| Travel and hotel | 6.83 [28.80] | 23 | 6.85 [12.78] | 6 | +0.29% |
| Communication tools | 18.37 [37.31] | 21 | 9.66 [10.76] | 6 | -47.41% |
| Training cost | 51.37 [93.94] | 19 | 2.34 [53.93] | 3 | -95.44% |
| Other | 32.41 [40.10] | 15 | 1.68 [3.31] | 4 | -94.82% |
| **Investments** | 427.35 [563.54] | 17 | 174.86 [144.70] | 4 | -59.08% |
| Infrastructure | 118.76 [497.61] | 14 | 49.8 [153.35] | 3 | -58.07% |
| Medical | 32.34 [157.41] | 14 | 74.84 [/] | 1 | +131.42% |
| Non-medical | 14.20 [55.27] | 14 | 62.37 [124.73] | 2 | +339.23% |
| IT | 15.74 [177.51] | 13 | 195.33 [/] | 1 | +1140.98% |
| Maintenance contracts | 172.69 [256.83] | 10 | / | 0 | / |
| **Total cost (direct operational + investment)** | 879.45 [794.81] | 25 | 222.88 [244.04] | 7 | -74.66% |
| Total cost (hospital <400 beds) | 1,071.93 [725.13] | 9 | / | 0 | / |
| Total cost (hospital 400-800 beds) | 877.14 [1,158.27] | 10 | 392.94 [277.13] | 4 | -55.20% |
| Total cost (hospital > 800 beds) | 708.07 [805.66] | 6 | 135.63 [61.20] | 3 | -80.85% |
| **STAFF (in FTE)** | | | | | |
| **New recruited staff** | | | | | |
| Implementation task | 2.00 [1.50] | 16 | 1.00 [/] | 1 | -50.00% |
| Coordination task | 1.80[2.00] | 15 | 0.50 [1.00] | 2 | -72.22% |
| **Reallocated staff** | | | | | |
| Implementation task | 2.80 [4.30] | 12 | 5.00 [9.15] | 3 | +78.57% |
| Coordination task | 2.05 [3.90] | 14 | 6.50 [5.25] | 6 | +217.07% |
| **TIME SPENT (in HOURS)** | | | | | |
| Training hours | 5,124.06 [1,933.50] | 20 | 6,073.06 [11,878.00] | 5 | +18.52% |
| Internal tracers | 590 [718] | 20 | 498 [487] | 8 | -15.59% |

*Interpretation within the context of the wider literature*

Our analysis is in line with previously performed studies [28]. Mumford. et al concluded that accreditation costs amount to 0.6% of total annual hospital operating costs, averaged across the 4-year accreditation [7]. In our sample, hospitals did spend 0.2% of their operating income for a first accreditation cycle, which is substantial in times of scarce public funding. Larger hospitals have fewer expenses per bed for accreditation because of smaller infrastructure investments, consulting services and communication tools due to a scale advantage. This advantage could be an argument to centralise accreditation systems on higher levels (for example in hospital networks) as well as the expenditures hospitals have to make for additional investments such as maintenance contracts, IT and infrastructure. The same trend is seen in previous literature by Ally et al. whereby larger hospitals have less expenses per bed for accreditation although they pay a higher absolute cost in total [14]. The perceived high cost of accreditation by many healthcare workers needs further attention, given the fact that it is not always clear which expenses could have been avoided without accreditation. It is important to communicate transparently both internally and externally about how much money hospitals are spending on accreditation, as all Flemish hospitals are mainly publicly funded.

*Implications for policy, practice and research*

Accreditation is not independent from other quality control and improvement efforts of hospitals and a cost analysis of accreditation must be performed carefully. It is not always clear which costs are associated directly and only to accreditation and which costs would also have been incurred anyway, independent of accreditation. We aimed to bridge this gap by asking to report specifically those costs that would not have been made without accreditation. As seen by the large IQR in our results, the reported costs between hospitals differ considerably. Some hospitals address a lot of expenditures while other had much lower reported. The same trend is seen in the reporting of staffing levels in our sample and explains the reporting difficulties hospitals experienced. Although accreditation as a system does require an important financial commitment of hospitals, it is clear that investment in quality of care cannot solely be seen as a pure cost for hospitals. Policy makers should reflect on the role of external quality control systems such as accreditation and inspection compared to internal improvement mechanisms hospitals set up already.

It was noted that cost of accreditation is often not transparent for hospitals themselves. During the preparation towards the accreditation survey, many costs are made for investments and compliance with guidelines and standards of the accreditation agency. Hospitals need to invest in extra personnel to coordinate and implement the accreditation administrative requirements and survey itself. Also, additional training for clinical and non-clinical staff has to be organised. All those (opportunity) costs cannot always be identified at the moment of the decision to go for accreditation. Billed costs of

accreditation trajectories are neither reported on the websites or information brochures of international accreditation agencies, hampering transparent estimation of expected accreditation costs. An increasing number of hospitals challenge the added value of the accreditation system itself, as many achieved at least one label and motivation to introduce accreditation-related changes dwindles over time [20].

A justified decision on the continuation of accreditation cannot be made without balancing costs against advantages, such as improved quality of management, standardizing processes and clarifying responsibility [16,29]. Accreditation agencies also state on their websites many benefits like a competitive edge in the marketplace, improve risk management and reduction, provide a framework for organizational structure and management and organize and strengthen patient safety efforts. The aim of our study was not to look into all advantages that could possibly arise from an accreditation trajectory but an evaluation of these benefits on quality of care is needed. Future research should focus on the clinical benefits and advantages of accreditation for hospitals to be able to perform a detailed cost-effectiveness analysis (CEA) afterwards. A thorough debate on the continuation of current hospital accreditation systems and the way policy makers nowadays try to implement quality control systems in healthcare must take place.

*Strengths and limitations*

This study has several strengths and limitations. The retrospective design of the survey and resulting possible recall bias and self-selection of participating hospitals is one of the limitations. Nevertheless, a representative sample of 47% of Flemish hospitals participated in this study, which is more than in previous studies [7,13,28]. We acknowledge that the self-reported voluntary participation may bias the results as those with lower costs may have chosen to participate. The difficulties that hospitals experienced in reporting the costs and FTE over the years could also be a possible limitation of this study. We recommend future studies to set up a prospective design to allocate costs to specific accreditation standards and other quality improvement projects. Another limitation of this study is the analysis of costs with two different accreditation agencies. We did not go deeper into differences between accreditation agencies as the aim of our research focused on the differences in cost of accreditation trajectories for a first and second accreditation cycle as a whole. We acknowledge that differences in cost between accreditation agencies can be important and we suggest to analyse this in context with other international accreditation agencies and healthcare systems in future research. Working with a multidisciplinary expert group to validate the questionnaire, which was based on a literature review and policy documents, is definitely a strength of the study. Finally, we could not obtain a clear view on other opportunity costs such as unpaid overtime, stress and time spent on accreditation that would otherwise have been spent on clinical tasks, as is also mentioned as a limitation in other research [9,30].

### 4.1.5 CONCLUSION

Accreditation in acute-care hospitals implies an important financial commitment. A first accreditation cycle is almost four times more expensive than a second one in terms of direct operational costs and additional investments. Most of these costs are operational costs, which are a direct consequence of the decision towards accreditation. Furthermore, hospitals invest substantially in infrastructure and material to obtain the prestigious accreditation label. Larger hospitals have lower costs per bed due to the economy of scale. Further research is necessary to investigate if external assessment of an organisation's quality control and improvement efforts by an accreditation agency is more efficient than other systems of quality control and a thorough debate on the future quality of care policy in hospitals should take place.

# 4.2 Effect on hospital incentive payments and quality performance of a hospital pay for performance (P4P) program in Belgium

**Abstract**

**Background**: Belgium initiated a hospital pay for performance (P4P) program after a decade of fixed bonus budgets for "quality and safety contracts". This study examined the effect of P4P on hospital incentive payments, performance on quality measures, and the association between changes in quality performance and incentive payments over time.

**Methods**: The Belgian government provided information on fixed bonus budgets in 2013-2017 and hospital incentive payments as well as hospital performance on quality measures for the P4P programs in 2018-2020. Descriptive analyses were conducted to map the financial repercussion between the two systems. A difference-in-difference analysis evaluated the association between quality indicator performance and received incentive payments over time.

**Results**: Data from 87 acute-care hospitals were analysed. In the transition to a P4P program, 29% of hospitals received lower incentive payments per bed. During the P4P years, quality performance scores increased yearly for 55% of hospitals and decreased yearly for 5% of hospitals. There was a significant larger drop in incentive payments for hospitals that scored above median with the start of the P4P program.

**Conclusions**: The transition from fixed bonus budgets for quality efforts to a new incentive payment in a P4P program has led to more hospitals being financially impacted, although the effect is marginal given the small P4P budget. Quality indicators seem to improve over the years, but this does not correlate with an increase in reward per bed for all hospitals due to the closed nature of the budget. The current P4P program seems to favour improvement more than performance.

**Keywords:** Pay for performance; hospital; quality of care; health policy; cost

# KEY MESSAGES

## 1. Implications for policymakers

- P4P programs should clearly differentiate between hospitals who perform better and those who perform worse year after year
- Changing quality indicators in P4P programs can have an impact on the improvement of hospitals as they need time to adapt and make long-term progress
- A closed budget for P4P programs potentially results in high performing hospitals receiving less budget if low performing hospitals improve over time
- P4P programs should have clear indicators and overarching aims so that hospitals can improve and work towards the set goals, and to encourage them to participate in the program.

## 2. Implications for public

Pay for performance (P4P) programs are increasingly implemented and reward hospital quality performance. In Belgium, a transition to a P4P program has affected hospital incentive payments. For hospitals already operating with small margins, this can have important effects. On the other hand, in Belgium, the closed budget for the national P4P program is very small if set out to the total hospital budget and therefore may not sufficiently incentivize. The differentiation between hospitals is low, and the efforts they have to make to keep improving performance on quality indicators that change each year can threaten the support for this P4P program. Policymakers should develop a robust P4P program in collaboration with patient representatives, healthcare stakeholders and the community.

### 4.2.1 INTRODUCTION

Hospital managers, policymakers and governments are on a continuous journey to address persistent and wide-ranging quality problems in hospitals [8,23,31–34]. An intuitively plausible way to incentivise health providers to ensure high quality of care is a pay for performance (P4P) program, also known as pay for quality (P4Q). It relies on the premise that healthcare providers can be extrinsically motivated by financial incentives to deliver better quality of care [35,36]. However, despite global uptake, programs are heterogeneous across countries and evidence regarding their effectiveness remains ambiguous, with a subset of schemes showing moderately positive effects in processes of care and other studies showing negative or no effects [37–39]. The US has already experimented with pay for performance programs since 2003 with the introduction of the premier Hospital Quality Incentive Demonstration (HQID), which was followed by the Hospital Value-Based Purchasing (HVBP) program in 2011 that was similar to the Advancing Quality program in England. Various studies have shown that these programs did not lead to lower mortality rates, improved surgical outcomes or improved patient experiences [40–42].

The specifics of P4P programs are very diverse, with payments at group or individual level, rewards or penalties, differences in size of payments and fixed or relative payments. In addition, the indicators intended to improve under P4P vary across programs. Some are more disease-specific while others are more general. Moreover, these components might change over time [37,43]. Countries have been experimenting with the design and implementation of P4P schemes for years [38]. In Belgium, a "quality and safety contract" for acute-care hospitals was in place from 2007 to 2012 and from 2013 to 2017. This multi-annual program encouraged hospitals to introduce improvement measures in four areas: 'high risk' medication, safe surgery, identity vigilance, restriction of freedom and transmural care. Hospitals wishing to feature in this plan had to attain a number of specific objectives and in return, they received financial support to implement these measures and for training purposes. From 2018 onwards, Belgium implemented a P4P program that rewarded hospitals for achieving prespecified standards on hospital-wide and pathology-specific indicators. The structure, process and outcome indicators used to determine the hospital total score however changed each year, as a result of negotiations in a federal P4P working group with experts in quality and patient safety, and were communicated each year before the program started. Incentive payments by hospital were calculated at the end of each year funded by a government closed budget. Participation was voluntary and there was no financial penalty for non-participating.

Multiple reviews indicate that it is necessary to evaluate the real world impact of P4P programs in hospitals to better inform future policy decisions [37,44]. As quality discussions and hospital payment policy changes are emerging and hospitals question the cost-benefit of some mandatory quality efforts, an evaluation of the P4P program and its financial consequences is needed to ensure supported and evidence-based policy decisions [45]. Hence, the aim of this paper is threefold. First, we calculated the financial impact on hospitals from transitioning from a lump sum payment via a "quality and safety contract" to a P4P program with incentive payments. Second, we evaluated the incentive payments and

quality performance for individual hospitals in the first three years of the Belgian P4P program. Third, we studied the association between quality indicator performance and received incentive payments over time.

### 4.2.2 METHODS

*Data collection*

We obtained data from the Belgian Federal Public Service for Health on the "quality and safety contracts" lump sum payment per participating hospital between 2013 and 2017, the P4P incentive payment per hospital and their performance for each quality measure between 2018 and 2020. Hospitals could indicate if they wanted to participate to this study and consented with the transfer of their data.

All Belgian acute-care hospitals (n=103) participated in the "quality and safety contracts" and subsequent P4P program. We received financial data and P4P scores for 90 general hospitals (response rate of 87%). During this period three hospital mergers took place. For these hospitals data were aggregated from 2013 onwards, leaving 87 hospitals.

*Incentive payments and quality indicators*

When quality and safety contracts were in use, the federal government provided a yearly budget of 5,8 million EUR for acute-care hospitals in 2013-2016 and 5,9 million EUR in 2017. Hospitals with less than 100 beds received a fixed amount of 10.000 EUR. Larger hospitals received a budget of 111 EUR per bed in 2013-2016 and 115 EUR per bed in 2017. All hospitals provided the government with a progress report on their quality initiatives at the end of each contract year. Under the P4P program, the federal government provided 6.060.935 EUR to acute care hospitals in 2018, which increased to 6.182.154 EUR in 2019 and 2020. In 2018 and 2019, this budget consisted of a fixed and a variable part. Of this budget, 20% (1.212.187 EUR) was allocated as a fixed budget to participating hospitals in 2018 and 10% (618.215 EUR) in 2019. This fixed part was equally distributed across all hospitals that participated within the P4P program to incentivize them to start quality improvement efforts. In 2020, a fixed budget was no longer allocated. From the variable part, incentive payments were distributed to hospitals based on the overall score per hospital that was calculated from their performance on structure, process and outcome indicators (Table 4.3).

**Table 4.3:** Overview of indicators and budget per P4P program

| | | **2018** | | **2019** | | **2020** | |
|---|---|---|---|---|---|---|---|
| **Hospital-wide** | **Structure** | ISQUA accreditation status | 25 points | ISQUA accreditation status | 25 points | ISQUA accreditation status | 25 points |
| | | Quality labels | 5 points | Quality labels | 5 points | Quality labels | 5 points |
| | | Patient safety reporting system | 10 points | Patient safety reporting system | 10 points | Patient safety reporting system | 10 points |
| | **Process/result** | Patient experiences measurement | 15 points | Patient experiences measurement | 15 points | Patient experiences measurement | 15 points |
| **Pathology-specific** | **Process** | Antibiotics prophylaxis | 10 points | pTNM classification 5 cancer types | 15 points | Oncology registration | 25 points |
| | | Breast cancer + malignant tumor classification | 15 points | Antibiotics prophylaxis total knee replacement | 5 points | | |
| | **Result** | Mortality indicators | 0 points | 90day mortality rectum surgery | 5 points | 90day mortality colon surgery | 10 points |
| | | | | Mortality hip fracture | 0 points | Mortality hip fracture | 10 points |
| | | | | | | Mortality cerebrovascular accident | 0 points |
| **TOTAL POINTS** | | | **80** | | **80** | | **100** |
| **BUDGET (in EUR)** | | **Fixed (20%)** | 1.212.187 | **Fixed (10%)** | 618.215,40 | **Fixed (0%)** | 0 |
| | | **Variable (80%)** | 4.848.748 | **Variable (90%)** | 5.563.938,60 | **Variable (100%)** | 6.182.154 |
| | | **Total** | **6.060.935** | **Total** | **6.182.154** | **Total** | **6.182.154** |

*Analysis*

A Z-score was calculated based on the available amount of P4P budget (A), the number of justified beds for each hospital (Bi) and the P4P score for each individual hospital (Ci): Z-score = A/ ∑ (Bi * Ci). The Z score reflects the amount of variable budget per P4P point and per justified bed and was 1,81 EUR in 2018, 1,98 EUR in 2019 and 1,66 EUR in 2020. The budget per hospital (Hi) was calculated as: Hi = Z * justified beds Hi * P4P score Hi [46,47]. Justified beds (Bi) are calculated based on patient-related activity per hospital. A 'justified activity' is defined according to the number and type of admissions for a reference year. Each person admitted is granted a length of stay justified according to their pathology. The total number of justified hospital days is divided by a normative occupancy rate multiplied by 365 to obtain a justified number of hospital beds.

Performance on quality metrics in 2018 and 2019 was scored on a scale from 0 to 80, and on a scale from 0 to 100 in 2020. Hence it was recalculated as a percentage. For 2018, 2019 and 2020 the received incentive payment was calculated per bed. We used the amount of licensed beds in 2017 as reference to correct for size of hospitals and categorized them into <400 licensed beds, 400-800 licensed beds and >800 licensed beds. Using difference-in-difference analysis, we evaluated whether any changes in incentive payments over time were statistically significantly different depending on the starting score in the P4P program. Hospitals that scored above median at the start of the P4P program in 2018 were classified as 'high performers' and hospitals that scored below median at the start of the program as 'low performers'.

All analyses were performed in SAS Enterprise®.

### 4.2.3 RESULTS

*Effect of the P4P program on hospital incentive payments*

During the quality and safety contracts (2013-2017), there were only minimal differences in incentive payments, which can be explained by small shifts in number of beds in some hospitals. In 2018, larger differences can be seen between hospitals due to the implementation of a P4P program and its financial repercussions for hospitals, whereby 29% of hospitals decreased in budget compared to the previous year (2017). The fluctuations in amounts can also be seen in the following years, with 21% of hospitals decreasing in absolute amount in 2019 compared to 2018 and 52% of hospitals decreasing in 2020 compared to 2019 (Figure 4.2).

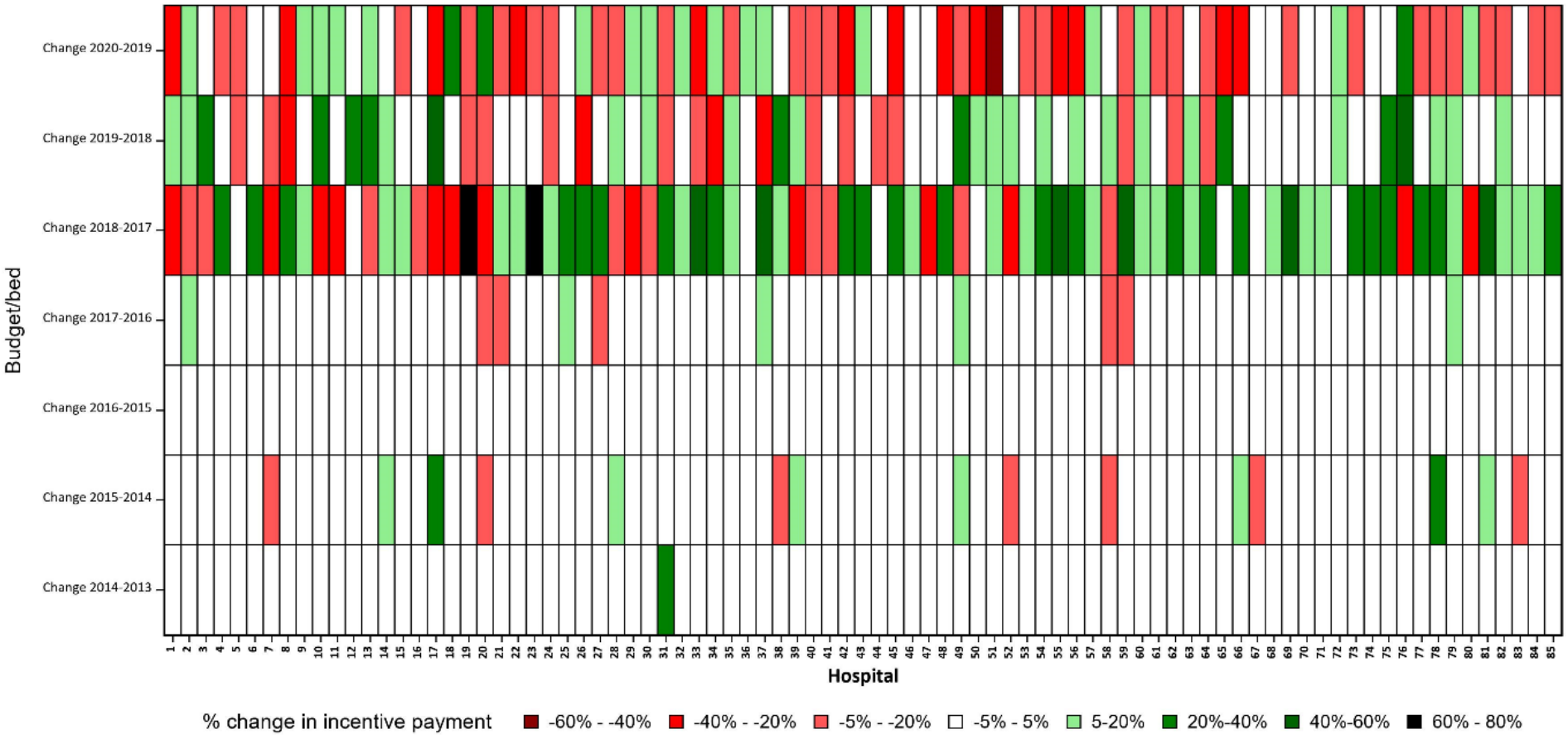


**Figure 4.2:** Overview of difference in incentive payment received per bed for quality and safety contracts and P4P for each participating hospital compared to the previous year. The colours represent the decrease or increase incentive payment budget per hospital in percentage

Figure 4.3 provides more details in the evolution of incentive payments per hospital during the P4P program, showing the difference in incentive payments received per bed for each hospital between the start of the program in 2018 and the most recent available year of P4P (2020). Of all hospitals, 15% have systematically increased in budget (green) and 29% of hospitals have systematically decreased in budget (red). A further 55% hospitals have decreased once and increased once in incentive payment per bed during the three surveyed study years of the P4P program (orange). The maximum amount per bed that a hospital has increased during the P4P period is +69 euros, while the maximum amount that a hospital has decreased is -61 euros per bed. Of the larger hospitals (>800 beds), 80% received larger incentive payments between 2018 and 2020. Of the smaller hospitals (<400 beds), 7% received larger incentive payments between 2018 and 2020. In total, 64% of hospitals decreased in incentive payments per bed between 2018 and 2020.

*Performance on quality measures*

Figure 4.4 demonstrates the evolution between 2018 and 2020 in the overall P4P quality indicator score by hospital. Over half of hospitals (55%) increased year after year in P4P score and four hospitals (5%) decreased in score year after year. More than four in five hospitals (84%) had a higher score for P4P points in 2020 compared to 2018. Of the 55% of hospitals that increased year after year in score, only 12 (26%) also increased in budget year after year (hospitals 2, 10, 13, 14, 30, 43, 60, 63, 67, 72, 76, 80). Of the latter, seven hospitals have more than 800 beds, one hospital has less than 400 beds and four hospitals have 400-800 beds. Of the 5% of hospitals that decreased year after year in score, only two hospitals (hospitals 4 and 45) decreased in budget year after year.

*Association quality indicator performance and incentive payments*

Findings from the difference-in-difference analysis showed that ‘high performing’ hospitals at the start of the P4P program declined more in incentive payment during the following years than ‘low performing’ hospitals. High performing hospitals declined roughly 12,58 euro per bed (144,60 to 132,02) during P4P years while low performing hospitals declined by 0,49 euro per bed (113,82 to 133,33) for a difference-in-difference of 12,09 euro. The difference is significant at the $\alpha = 0,05$ level, with a p-value of 0,003.

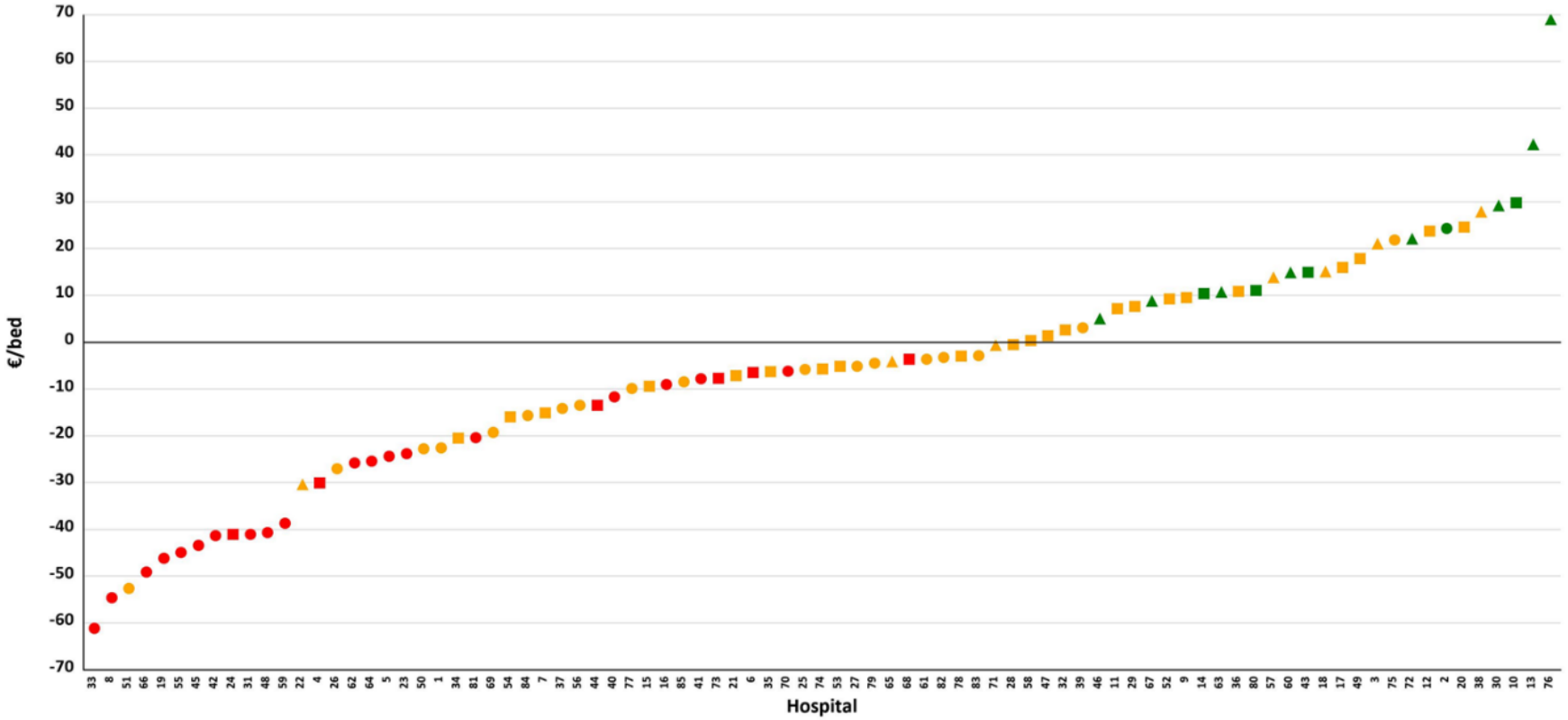


**Figure 4.3:** Difference in reward per bed per hospital during P4P years (2018-2020). Size of hospitals is represented by symbols whereby a sphere = <400 beds, square = 400-800 beds and triangle = >800 beds. Green = increase in budget per bed each year, red = decrease in budget per bed each year, orange = increase and decrease during these years

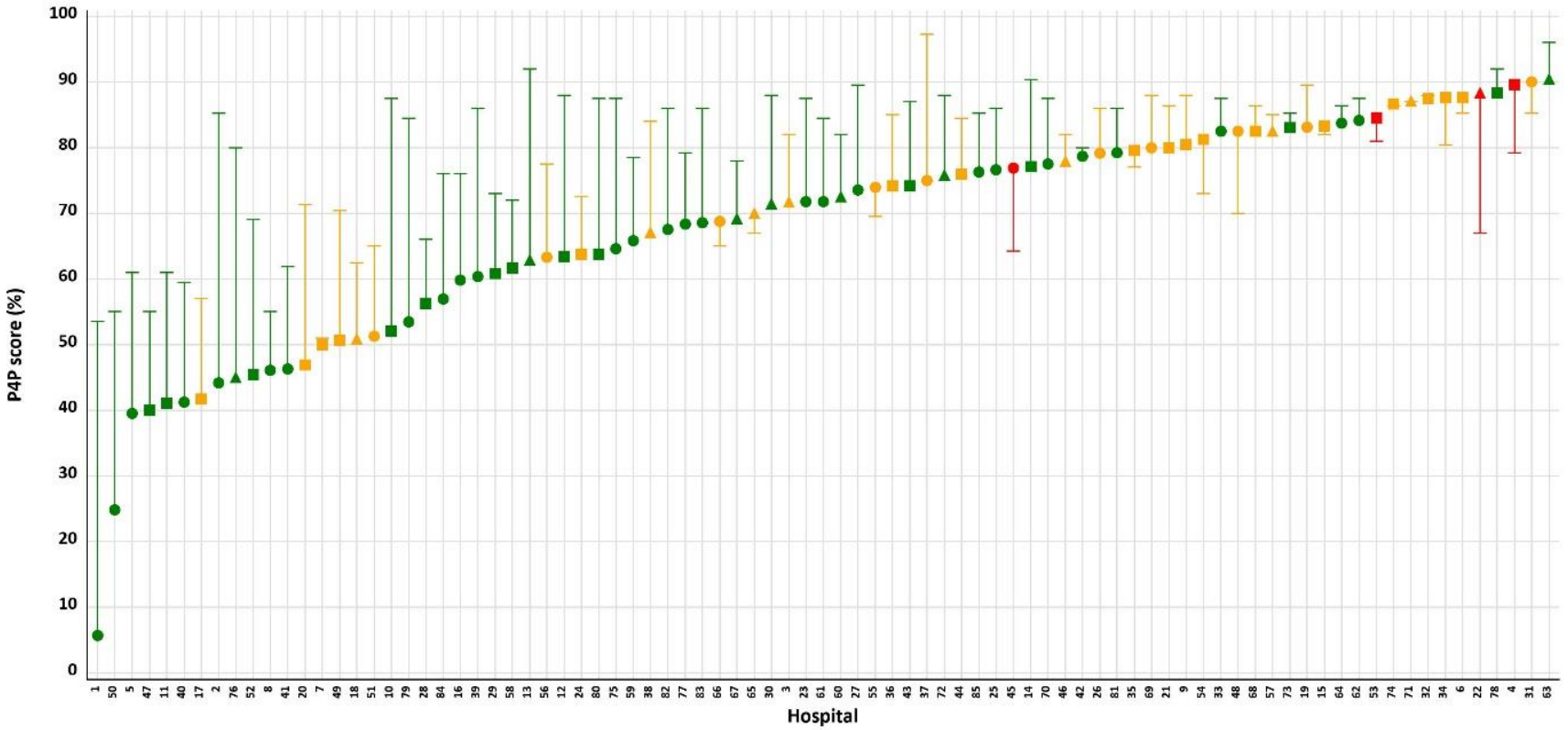


**Figure 4.4:** Difference in quality score per hospital during P4P years (2018-2020). Size of hospitals is represented by symbols whereby a sphere = <400 beds, square = 400-800 beds and triangle = >800 beds. Green = increase in score each year, red = decrease in score each year, orange = increase and decrease in score during these years. The difference between the P4P score of 2020 and 2018 is shown as a line starting from the P4P score of 2018

### 4.2.4 DISCUSSION

Our study demonstrated the effects on individual hospital incentive payments and quality indicators of transitioning from a system whereby each hospital received fixed bonus budgets to a system where hospitals are rewarded depending on their quality indicators. The results show a decline in incentive payments for almost one third of hospitals (29%) in the first year, increasing to over half of hospitals (52%) in the years afterwards. This observation could be possibly explained by the fact that some hospitals no longer took interest in the P4P program and that the incentive payment did not sufficiently incentivised to put more effort in healthcare quality. Also, the yearly change in the set of quality indicators could have add an extra fatigue in measuring and reporting for both hospital administrations and clinicians. This can be a possible explanation for the fact that only 15% of the hospitals systematically improved their performance on the P4P quality indicators year after year.

As demonstrated in our study, the transition to a P4P program in 2018 presented a big change in terms of quality budgets allocated to individual hospitals as almost one third of hospitals (29%) decreased in incentive payment per bed compared to the previous (last) year of lump sum payment. Of all hospitals, 55% of hospitals increased year after year in P4P score during the P4P program although only a quarter of these hospitals saw their incentive payment increase year after year. This discrepancy between reward in budget and increase in P4P score is due to the closed budget of the program and can be the reason that hospitals get demotivated to pursue. Additionally, incentive payments decreased in almost one third (29%) of hospitals year after year within the P4P program, while performance on quality indicators only decreased systematically in two of these hospitals during the same period. Hospitals improving their performance but not being rewarded for it could drop out, under the assumption that participation remains voluntary.

Policymakers often use the idea of value-based purchasing because it has a high face-validity and they hope it will incentivize hospitals and physicians to deliver better healthcare quality [42,48–50]. A review of 34 P4P programs in 14 OECD countries showed that all programs are still very heterogeneously spread in purpose, selection of indicators and design of financial rewards [38]. This observation can also be made in the Belgian P4P program: there are no defined overarching healthcare aims and the indicators change annually, making it difficult for hospitals to focus on an indicator to improve over years. Other studies demonstrated the importance of selecting the right indicators, supported by healthcare workers and potential for improvement [51–53]. Moreover, the financial incentive in Belgium is rather limited and often does not differentiate sufficiently between hospitals as the maximum gain in budget per bed is only 69 euros over the P4P implementation years and the maximum decrease in budget per bed is only 61 euros. Other reviews already appointed the importance of sufficiently large budgets for hospitals to make the quality efforts beneficial in terms of cost-efficiency [37–39]. The impact of the P4P program on budgets for Belgian hospitals can also be considered marginal, as it represents less than 0,1% of Belgian hospital

financing in total [47]. The question is therefore whether hospitals will make the effort to obtain a relatively low bonus in the current system. On the other hand, hospital margins are under pressure and every euro counts [54,55]. Some hospitals do increase in incentive payment each year, however this does not necessarily correlate with quality improvement as such. It could be possible that some hospitals are focusing on indicators that weigh more in total score like accreditation status (25 points) or patient experiences surveys (15 points) to obtain a higher score and greater incentive payment without focussing on other quality indicators. In addition, as seen by the difference-in-difference analysis hospitals that scored high in 2018 decreased 12,09 EUR more per bed compared to 'low performing' hospitals in 2018. As such, the P4P program in Belgium focuses more on rewarding improvement than performance. Hence, the current P4P program in Belgium could possibly be discouraging high performing hospitals.

This study is a first scientific evaluation of the transition to a P4P program in Belgium, based on hospital-specific data. Although P4P can reward hospitals in some way for quality efforts, the investment that hospitals need to make to obtain scores on indicators seem quite high. For example, hospital accreditation is a hospital-wide structure indicator that is rewarded in the Belgian P4P program for 25%. We know from other studies that the investments for hospital accreditation can be a high threshold and it is possible that hospital administrators decided not to carry out (subsequent) accreditations because of financial difficulties [9,28,56]. Should that be the case, then these hospitals would score significantly fewer points in the current P4P model and ultimately receive less financial bonus. This is a vicious circle whereby hospitals in difficult financial circumstances will also make less effort and gain less bonus in the P4P program.

The current system also seems to favour larger hospitals as we found that no hospital with more than 800 beds has seen a systematic decrease in the bonus amount per bed received during the P4P years and it are mostly the bigger hospitals that rise systematically in P4P bonus per bed compared to smaller hospitals. This could be explained by the greater resources and staff they have to focus on optimizing processes to achieve higher scores and is an important observation for the development of future quality models. It could be an extra argument to coordinate quality efforts on more centralized levels such as a hospital network to use available resources more efficient [32].

*Strengths and limitations*

The data used in this research are directly provided by the government so there is no possible reporting bias from participating hospitals, which strengthens the validity of our results. The high participation rate, with almost all Belgian hospitals opting in to share their data shows the commitment towards scientific evaluations of policy decisions and is certainly a strength of this paper. This study also has some limitations. First, we only assessed data for Belgian hospitals and the conclusions drawn from this study cannot be extrapolated unconditionally to other countries. Nevertheless, a recent Cochrane review

demonstrated comparable implementation results with P4P systems in other countries [37]. Secondly, in this study we only looked at financial data and scores on P4P indicators, we did not correlate the findings with other quality measurements like hospital-wide mortality, potentially preventable complications or other patient safety indicators. Thirdly, this study only looked at administrative financial data and quality indicators. Future research should add a qualitative design to understand choices that hospital managers and healthcare workers made in relation to the P4P implementation and the cost-benefit for individual hospitals.

### 4.2.5 CONCLUSION

Pay for performance (P4P) programs are increasingly common in various countries around the world, although evidence on their effectiveness is lacking. Belgium implemented a national P4P program in 2018 on a voluntary basis, with all acute-care hospitals joining in. This study demonstrated that the financial consequences for hospitals cannot be underestimated as 29% of the hospitals have seen incentive payments per bed decrease compared to the previous quality rewarding system with fixed bonus amounts per hospital. Hospitals that have systematically improved their performance on quality measures did not receive corresponding rising incentive payments, potentially undermining support for such program in the long run. More differentiation between hospitals is needed with a sufficiently high incentive payment and overarching main healthcare quality goals.

## 4.3 An analysis of hospital's Budget of Financial Means (BFM) in Belgium: how is quality financed?

The Belgian Budget of Financial Means (BFM) is the main component of total hospital revenue together with fees for consultations and technical procedures. The BFM makes up about 35% of the total revenue of hospitals (Table 4.4) and each year, the national budget is defined by the *Royal Decree on the establishment and settlement of the budget of financial means of the hospitals*[57]. It is a closed-end budget for hospitals that is set at the national (federal) level. The rules for the organization, operation and financing of the hospital activity are laid down in the law of 7 August 1987 on hospitals (Hospital Act) and in the implementing decisions of this law. An important source of income for the hospital is the BFM that will reimburse the cost of recognition and the residence of patients in a hospital or surgical day hospital but does not cover the fees of doctors, technical services or medicines.

**Table 4.4:** Hospital revenue sources, 2019 [58,59]

| Revenue source | Share of total revenue |
|---|---|
| Hospital budget (BFM) | 34.7% |
| Physician fees | 38% |
| Room supplements & ancillary products | 0.9% |
| Lump sum payments for conventions, day care etc. | 4.4% |
| Pharmaceutical products | 19.1% |
| Low variable care | 2.9% |

The BFM consists of three major parts: A, B and C which are further split up in different subparts with in total 15 components (from A1 to C3). Each subpart has different rules and criteria resulting in a complex calculation process to determine the individual hospital budget. Part A covers capital and investments cost, part B operational costs and part C some additional financial costs [60]. Subparts B1 (common operational costs) and B2 (clinical costs) are the two major parts of the hospital budget (Table 4.5). A state reform in 2016 transferred the competences and budgets of A1, A3 and C1 to the communities. From then on, they became responsible for investments in hospital infrastructure and medical-technical infrastructure.

**Table 4.5:** Components of the hospital budget in absolute amounts and share of the hospital budget, on 1 January 2019

| Component | Description | Amount in million EUR 1 January 2019 | % of total hospital budget |
|---|---|---|---|
| A1 | Depreciations of movable and immovable investments and financial costs of the credit taken | 644.55 | 7.42 |
| A2 | Costs of short-term credit | 45.02 | 0.52 |
| A3 | Investment and depreciations costs of MRI-units, PET-scanners and radiotherapy | 12.12 | 0.14 |
| B1 | Common operational costs (administration, maintenance, laundry, etc.) | 1 856.61 | 21.36 |
| B2 | Clinical costs (nursing and care personnel and medical equipment) | 3 377.68 | 38.86 |
| B3 | Operational costs for medico-technical departments | 78.07 | 0.9 |
| B4 | Costs of pilot projects or of legal obligations (e.g. data registration) | 1 350.81 | 15.54 |
| B5 | Operational costs of the hospital pharmacy | 135.82 | 1.56 |
| B6 | Costs for carrying out the social agreement for personnel not included in the hospital budget | 94.08 | 1.08 |
| B7 | Costs for specific missions of university hospitals or non-university hospitals with university beds | 152.36 | 1.75 |
| B8 | Specific costs for patients with a weaker socioeconomic profile | 25.73 | 0.3 |
| B9 | Costs for extra-legal benefits determined in the social agreements of 2005 and 2011 | 639.36 | 7.36 |
| C1 | Advance costs for new construction or existing hospitals | | 0 |
| C2 | Readjustment (positive or negative) of budgets for past financial years | 292.69 | 3.37 |
| C3 | Reduction of the budget of financial means to ‘compensate for’ the room supplements charged in single rooms (negative amount) | -13.14 | -0.15 |
| **Total** | | **8 691.75** | 100 |

In this chapter we aim to qualitatively describe components in the BFM that are installed to finance quality of care improvement. Historically, policymakers added regulation and initiatives in the BFM of which some were specifically designed to improve quality in hospitals. In light of this PhD dissertation, it is important to acknowledge the instruments that the federal government implemented in the BFM. It is out of scope of this chapter to exactly quantify the total specific amount of financial means that goes to quality in the BFM.

### 4.3.1 INCENTIVES FOR QUALITY OF CARE

We analyzed the Royal Decree on the establishment and settlement of the budget of financial means of the hospitals from 2002 until the last version of January 2021. We aimed to identify all posts in the BFM that can be directly related to quality and are described as such. During our research it became clear that the BFM is very fragmented and that many parts are outdated or not defined in a clear way. We therefore decided to use Donabedian's definition of quality with structure, process and outcome indicators to categorize different components in the BFM [61]. Specific articles are classified under one of these three indicators as examples of what is currently being financed. This exercise is considered as a useful part of this PhD dissertation because of the important impact on hospital's budgets and the way our government currently finances quality of care.

The main part in the BFM that encompasses quality of care initiatives is the B4 component for costs of pilot projects or for legal obligations. Originally, the B4 part was used to compensate hospitals for revenue losses as a result of bed closure. It represents 15.54% of the BFM (1 January 2019). Nowadays it contains more than 40 different items where most of these items are meant to cover costs incurred by extra obligations imposed to hospitals such as coding of data, auditing hospital accounts, bonus payments for nurses with a special nursing title or special nursing competency [60]. Several extra obligations financed by the B4 items are quality improvement initiatives and described as such. We therefore focus in this analysis on the B4 components in the BFM.

### 4.3.2 STRUCTURE COMPONENTS IN THE BFM

Donabedian described structure components as attributes of the settings in which care occurs. It includes the attributes of material resources (such as facilities equipment, and money), of human resources (such as the number and qualifications of personnel), and of organizational structure (such as medical staff organization, methods of peer review, and methods of reimbursement) [61]. The BFM encompasses many of these structure components as it is an easy way for governments to pay for these well described elements. We listed some examples that are currently financed in the BFM:

- **Article 53** grants an amount to meet the legal obligations of the Chief Medical Officer (CMO). For example, the CMO is explicitly responsible for the quality of care in the hospital. A flat rate amount per bed is provided for each hospital.
- **Article 56** provides the hospitals with a budget based on the number of justified beds and type of series to comply with hospital hygiene allowance. The Royal Decree of 23 October 1964 obliges hospitals to have a nurse and a physician who are specialized in hospital infection control taking up a set of tasks that are detailed in the law. The minimum budget guarantees one full-time equivalent (FTE) infection control nurse and 0.5 FTE infection control physician.

Hospitals also receive a 10% add on to cover the operating costs of the hospital hygiene department. A hospital only receives the hygiene allowance on the condition that it participates in the surveillance program on nosocomial infections organized by the Scientific Institute for Public Health and a working group on the antibiotics treatment policy is installed.

- **Article 63bis** funds internal geriatric liaison teams in hospitals since 2014. The main aim of internal geriatric liaison teams is to share the core geriatric principles and multidisciplinary expertise to all medical staff and care teams, and for all hospitalized older persons not hospitalized in an acute geriatric ward. Every acute hospital with a recognised geriatric department (in addition to general surgery and internal medicine departments) is funded to develop and implement a geriatric liaison team. The budget guarantees a minimum of 2 FTE but is limited to a maximum of 6 FTEs. The number of FTEs depends on the number of inpatient hospital stays of patients of 75 years or older in non-geriatric wards.
- **Article 63quater** finances the establishment of a multidisciplinary algological team, provided that the data relating to the composition and activities of the team are recorded, and that these data are kept at the disposal of the department of Health, Food Chain Safety and Environment.
  This team must have medical, nursing and psychological competencies and is responsible for:
  - coordination of pain treatment in the hospital structure,
  - sensitizing all health care providers to the need for proper pain treatment,
  - support for the care teams in the context of identifying and treating pain,
  - identify the training needs of the staff of the different care teams and organize the training of care staff in the assessment and treatment of pain,
  - facilitating the implementation of guidelines for the treatment of chronic pain in the care units;
  - taking part in the education of chronic pain patients, in cooperation with the care teams,
  - ensuring the continuity of care by acting as a link with a multidisciplinary centre for the treatment of chronic pain and with the treating doctor and other actors in the home care or in a care structure;
  - to organize the participation of the hospital in the network with the external healthcare providers and with the other hospitals.
- **Article 63quinquies** establishes a quality system for the transfusion chain under the responsibility of a multidisciplinary hemovigilance/transfusion team, consisting of at least one reference nurse transfusion, the hospital blood bank manager and a doctor with clinical expertise in blood transfusion.
  This team is responsible for carrying out the following tasks, in cooperation with the transfusion committee, with regard to the collection of pre-transfusion samples, the preservation and administration of blood and blood components:
  - the prevention of serious incidents and transfusion reactions,
  - notification of serious events and transfusion reactions,

- the analysis of serious events and transfusion reactions,
- the implementation of improvement actions on the basis of the analysis of serious incidents and transfusion reactions,
- Report serious incidents and transfusion reactions to the Federal Agency for Medicinal Products and Health Products and send them the annual notification form for adverse transfusion reactions and events,
- the formation and sensitization of hospital staff involved in transfusion,
- the application and/or development of computerized monitoring procedures and of a computerized tracking system of blood components,
- The participation in the survey by BeQuinT (Belgian Quality in Transfusion) every two years.

- **Article 64** finances different elements from the Belgian cancer plan which encompasses nursing and psychosocial support to the patient. Therefore, a multidisciplinary team is funded in hospitals with an approved oncology care program, in proportion to the number of multidisciplinary oncology consultations reimbursed by the sickness and disability insurance (MOCs). These FTEs are connected to this care program and also work effectively for this care program. In order to improve the quality of care, from 1 July 2008, in hospitals with an approved oncology care program, one university-level FTE per 1 000 multidisciplinary oncology consultations shall be reimbursed by the Health and Disability Insurance (MOC), amounting to EUR 55.242 per FTE.

  In order to benefit from this specific additional financing, the following conditions must be met:
  - The FTE is connected and must work effectively for the care program,
  - The FTE fulfils the function of data manager,
  - He must have received prior training in the Register of particulars concerning the encoding of data,
  - He is responsible for registering with the Cancer Register and must evaluate whether the recommendations of the hospital oncology manual are being followed. He must also assess whether the decisions of the MOCs to which he must participate are being taken into account.
- **Article 71** foresees a budget for hospitals within the framework of the appeal plan for the nursing profession with a view to enhancing the special professional qualifications (BBT and BBK) of the recognized nurses who are effectively employed in a service, a function or a care program for which that specialization is provided.

### 4.3.3 PROCESS COMPONENTS IN THE BFM

Process indicators are described by Donabedian as what is actually done in giving and receiving care. It includes the patient's activities in seeking care and carrying it out as well as the practitioner's activities in making a diagnosis and recommending or implementing treatment [61]. By analyzing the B4 components of the BFM we found different examples that can be categorized under quality process indicators, although many of them are also part of structure indicators. The legislator did not make a distinction when designing these extra obligations within different quality aspects.

- **Article 56** provides hospitals with a financial compensation for the compulsory data collection on nosocomial infections (organized by the Scientific Institute for Public Health). Each year, the available budget of EUR 1.450.000 (value on 1 July 2017) is distributed equally among the hospitals concerned. In order to benefit from this amount, hospitals must commit themselves to:
  - the collection of data relating to the abovementioned protocols and quality indicators,
  - The transfer of the above data to Sciensano, according to the delivery period specified in the respective protocols,
  - The deposit to Sciensano of an amount equal to 85% of the funding allocated. The deposit must be settled before the end of March of each year.

  Sciensano provides feedback to each hospital on the analysis of individual data and national data. It will also send a report every 12 months to the Minister responsible for Health, including the national data and the opinions or recommendations on the matter. In addition, Sciensano guarantees the administrative support of the Minister responsible for Health, in accordance with the terms of an agreement signed with the Director-General of the Directorate-General for `Healthcare' of the Federal Public Health Service, Food Chain Safety and Environment.
- **Article 61** finances the hospitals for the realization and use of action point 2 (electronic medical patient record) described in the Roadmap 2.0 of the Belgian e-Healthplan. It is a combination of a lump sum payment for each hospital and an extra payment depending on the number of beds. An electronic medical patient record has proven to increase the quality of data and quality of care.
- **Article 58** describes a lump sum for the purpose of permanent training of nursing staff. But there are no described conditions to receive the budget. It is distributed between hospitals based on the number of beds. We classified this permanent training as a quality improvement initiative even though we realize that we cannot verify if hospitals used this permanent education budget for such initiatives.
- **Article 62** describes the amounts for the evaluation of the quality of medical and nursing activities and the promotion of medical activity as a whole of hospital.

- **Article 63** gives the opportunity to hospitals to participate in pilot studies for the improvement and evaluation of procedures for hospital management, multidisciplinary care, research on hospital financing and coordination of innovation. Also coding of data, standardised terminology and collection of specific hospital data can be part of these pilot projects. Pilot studies on quality of care are possible to fall within these criteria.

### 4.3.4 OUTCOME COMPONENTS IN THE BFM

Outcome indicators denotes the effects of care on the health status of patients and populations, as defined by Donabedian. Improvements in the patient's knowledge and salutary changes in the patient's behaviour are included under a broad definition of health status, and so is the degree of the patient's satisfaction with care [62]. The BFM encompasses some articles that could be linked to outcome indicators, although it is not always clear how the legislator defined these outcomes.

- **Article 56** foresees an amount of EUR 8.014.690 (index 1 January 2018) from 1 January 2018, to promote the coordination of activities in hospitals in the field of quality and safety. It is distributed among hospitals that voluntarily enter into an agreement with the Director-General of the `DG Health Care' of the FPS Health, Food Chain Safety and Environment. This amount is now used for the Pay for Performance (P4P) program with some structure, process and also outcome indicators in it as described in Chapter 4.2.

### 4.3.5 CRITICAL REFLECTION

The Belgian Budget of Financial Means (BFM) has been in existence for several decades now. The complexity of the hospital budget has only increased and although it is a major source of income for hospitals, it is not always clear what the exact content and calculation method of each part and subpart in this budget. The government intended to finance different projects and obligations through the B4 section of this hospital budget and quality improvement became an important element of these project.

As this qualitative analysis demonstrated, the legislator mainly focused on structural indicators in the BFM. This could be explained because it is easier to define and fund these structure indicators than process or outcome indicators. The introduction of a P4P program in 2018 has created the opening to a (partial) funding of process and outcome indicators as also explained in chapter 4.2. However, it is unclear what the overarching aims of policymakers are in adding the different projects under B4. Given the budget funded in this B4 section for hospitals, it is necessary to set clear goals and indicators. In addition, the fragmentation of the budget into different parts does not benefit transparency. Hospitals in Belgium are operating within small profit ranges and they strive for each euro they can get. As the BFM

is a global budget, with only a small part of it for B4, it can be questioned if hospitals are aware of this marginal part of the budget and if the allocated money is really used for the elements it was initially foreseen.

Belgian stakeholders are aware of the complex source of funding that the BFM currently is. It calls for a comprehensive reform of hospital funding, including a review of the nomenclature and operating costs for hospitals. The BFM should be an integral part of this reform and the elements that it is subsidizing should be clearly indicated and identified. If it is the aim to finance quality of care, it should be clearly indicated in the budget and overarching goals and indicators should be set based on evidence and stakeholders' consultation.

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# Chapter 5

# DISCUSSION

## 5.1 Introduction & general overview

This PhD aimed to provide scientific evidence on how quality of care can be embedded in Flemish government policy and hospital management, as well as to generate a better understanding of the financial impact of current policy. In chapter 2, the vision on the current and future role of healthcare stakeholders in quality of care among national and international opinion leaders was explored, and a narrative review on the evidence for current quality of care policy in Flanders was executed. In chapter 3, attitudes of policymakers, hospital managers, clinicians and patients towards future quality initiatives was examined using five discrete choice experiments (DCE). A survey was performed among healthcare workers, patients and policymakers to assess their views towards current international hospital accreditation and the importance of different stakeholders in the determination of quality policy in hospitals. In chapter 4, the financial impact of realizing a first and second international accreditation on hospital budgets was explored as well as the impact of the implementation of a 'pay for performance' (P4P) program in Belgium. Quality components in the hospitals' Budget of Financial Means (BFM) were described. To conclude, this PhD dissertation intended to formulate a scientific policy advice on how quality of care can be embedded in government policy and hospital management.

## 5.2 Five domains of a future quality policy

During the first phase of this PhD, five discrete choice experiments (DCE) were executed, which serve as the basis for the policy advice described afterwards. These DCEs questioned different elements of future policy to different healthcare stakeholders, such as staff members & supervisors, clinicians, hospital board members, government officials and patient representatives. The strength of these DCEs is that they consider different characteristics of future policy scenarios at once which is not possible in classical rating exercises. It forced respondents to reveal their preferences on elements in future quality of care policy for hospitals. A common denominator between all respondents was identified in the following five quality topics: quality control, quality improvement, healthcare inspection, patient incidents and transparency of quality results (Table 5.1). The found preferences in the DCEs were

supplemented with the insights of national and international experts (Table 5.2). We discuss these findings within an international context and based on previous research and authors in the following sections.

**Table 5.1:** Overview of discrete choice experiments (DCE) for five quality topics, ordered from most important to least important topic

| | Quality control | Quality improvement | Inspection | Incidents | Transparency |
|---|---|---|---|---|---|
| **Most important** | Control by **an independent national/Flemish organization** | Coordination of quality initiatives by **a loco-regional hospital network** | Patient complaints are followed by an action plan by **the individual hospital** | Reporting of severe incidents **mandatory** | Public reporting of quality indicators **at hospital level** |
| | Improvement trajectory based on **internal quality measurements (1) / external audit results (2)** | Quality education **mandatory for all hospital employees** | Well-being of employees is surveyed by **the individual hospital** | Numbers of incident reports **only available for the individual hospital** | Reporting of **disease-specific indicators** |
| | Control at the level of **hospital** | Financial incentive for quality **at hospital level** | The government inspects structure indicators **of the hospital as a whole (1) / of certain care trajectories within the hospital (2)** | Detection of incidents **through validated tools** | Collection of data **at department level** |
| | **Unannounced** control | Comparison of quality results **between nationally comparable hospitals** | | Reporting of incidents **to the hospital internally** | |
| **Least important** | Transparency results **public website** | | | | |

**Table 5.2:** Overview of conclusions international and national interviews (Chapter 2) and national focus group (Chapter 3)

| **International interviews** | **National interviews** | **National focus group** |
|---|---|---|
| Quality culture | Quality in the organisation's DNA<br>- Bottom-up and top-down management<br>a. Leadership from boardroom to bedroom<br>b. Supporting, coaching and facilitating quality department<br>c. Bottom-up approach with all stakeholders<br>- Organisation-wide integration<br>a. Repeated quality communication, education and continuous attention<br>b. Real-time data monitoring and visual management<br>c. Teamwork to learn from each other and strive for real improvement in practice<br>- Organisational culture shift<br>a. Positive and appreciative culture<br>b. Culture of trust, safety and privacy<br>c. Speak-up culture<br>d. Learning culture | Highest ranked importance<br>- Inspection should focus on a minimum set of requirements<br>- Inspection should occur unannounced<br>- Accreditation has brought about a positive dynamic within hospitals<br>- Accreditation has opened up conversation on quality within hospital boards<br>- Introduction of a minimum set of quality requirements |
| Minimal requirements<br>- Quality education<br>- Quality control by inspection and accreditation | Quality in the professional's DNA<br>1. Quality awareness<br>2. Understanding the added value<br>3. Encouragement and engagement<br>4. Accountability and ownership | Least ranked importance<br>- Patient selection and risk-avoidance by physicians in public reporting<br>- Public reporting on physician-level |
| A way to continuous learning and improvement<br>- Clinical collaboratives and integrated care systems<br>- Data infrastructure and indicators<br>- Feedback by public reporting and transparent feedback to clinicians and organisations | | |

### 5.2.1 QUALITY CONTROL

In a future **quality control system** for hospitals, a control by an independent national or Flemish organization is most preferred by our respondents in the DCE. As emphasised by international experts in Chapter 2, an external control system has the advantage that organizations must be accountable and have a quality management system in place. These experts also recommended to execute at least one external accreditation as a minimal requirement for every hospital. In Chapter 3, Belgian stakeholders indicated not to be as opposed as most thought to current accreditation systems, with only one third of respondents being against this type of external quality control. Different subgroups showed different opinions towards accreditation with clinicians being the most negatively looking to current accreditation systems and hospital board members and quality staff more positively. This can be explained by the feeling that some international standards are imposed on clinicians and create an extra administrative burden for them. This is in line with international research whereby other authors described negative attitudes towards accreditation systems of healthcare workers, mainly because of a lack of education and training to act upon the accreditation survey results and a lack of management visibility and support for quality improvement [1]. A review of 26 research papers identified facilitators and barriers for implementation of accreditation programs in hospitals [2]. This review highlighted that organizations should support multidisciplinary team building and collaboration and should choose a participative approach involving healthcare professionals in order to prevent reluctance and to prevent an organizational culture of resistance to change. It was emphasised that enhanced leadership and staff training is required to create awareness about the idea of continuous quality improvement. As stated further on in this discussion, our results indicated that mandatory quality education for all hospital employees is preferred and would be an important step forward. In future policy discussions, the need for adequate communication about policy decisions and rationale is crucial for broad support for quality control mechanisms. Communication should be tailored to different stakeholder groups as physicians have different needs compared to patient representatives and hospital managers. This was also shown in Chapter 3 where different stakeholders had to rank other stakeholders on the importance they had for hospital quality policy. An improvement trajectory within a quality control mechanism should be based on internal quality metrics and external audit results as preferred by stakeholders in our results. National experts in our study stressed the importance of real-time data monitoring and visual management, such as learning dashboards. These dashboards could automatically display data trends of process and outcome indicators in real-time and in an easy-to-read manner. Benchmarking of these trends and data visuals can work as a motivator for change. Experts see it as a fundamental element for sustainable quality management systems in hospitals (Chapter 2). This complementary view on a future quality control mechanism is certainly implementable and can be supported bottom-up by co-creation in hospitals and departments itself. As indicated in the DCE, control at the level of a hospital itself was more preferred than on an individual care trajectory program or loco-regional hospital network level and

an unannounced audit on quality seemed to be more preferred than announced ones. The latter was also seen in our national focus group with policy experts who agreed with the largest consensus that audits should occur unannounced [3]. International experts emphasised that an unannounced control ensures that hospitals must be constantly prepared and therefore their quality management systems should be in place. Strong political and financial support from the government is essential for successful implementation of external assessment strategies, which should always be designed in consideration of an individual health system's characteristics, as stated by Fortes et al. [4]. Because of this, a financial evaluation of the current accreditation policy in Belgium was certainly needed (see further). Furthermore, our research results showed that in a future quality control policy, transparency of quality results should be available on a public website rather than only internally in each hospital. Public availability of quality data gains growing attention in future policy discussions as also seen internationally with countries as the USA and the Netherlands publicizing their quality results to their population. Flanders already took steps forward by the creation of a public website (www.zorgkwaliteit.be) with a limited number of indicators per hospital since 2016 [5]. Our research indicated to certainly continue along this path and further expand these first steps on public availability of quality indicators.

### 5.2.2 QUALITY IMPROVEMENT

**Quality improvement** is seen as a second big challenge in future quality policy discussions. The DCE on this topic revealed some common denominators between respondents. Coordination of quality improvement initiatives should take place on the level of locoregional hospital networks as seen by the demonstrated importance of this attribute and level by our respondents. Additionally, our international and national experts and Belgian stakeholders emphasised the absolute need for education in healthcare quality topics for all healthcare workers in hospitals. It is essential that everyone speaks the same *quality language* so that problems can be truly understood and addressed. This need for a universal education was also stressed out by the European Union. The EU Council issued a recommendation in 2009 on patient safety that included four cornerstone areas of action: national safety plans, adverse events reporting systems, patient empowerment and safety-sensitive training for the health workforce. The European Commission evaluated the implementation of this recommendation in 2014 and found that many countries still had a long way to go, particularly with regard to patient empowerment and workforce education with only Ireland, France, Latvia and the UK making progress in education and training of healthcare workers [6]. Research in the Netherlands also showed that improvements in patient safety culture by professional education and workshops can increase incident reporting in general practice [7]. Belgium can play a leading role by setting up legislation to make quality education mandatory for healthcare practice. Quality of care is more and more to be seen in a multidimensional way with new themes emerging, such as eco-friendliness, partnership and co-production, kindness with compassion

and dignity and respect. Educational reforms should therefore take these core values into account and search for a way to incorporate them in existing education programs [8]. National and international experts in quality education should not only look at 'patient safety' anymore but should expand their courses with extra domains and ways to educate healthcare workers. Our stakeholders in this DCE also pleaded for financial rewards on hospital level if quality improvement was achieved. The first steps in Belgium were set out with the implementation of a pay for performance program (P4P) in 2018. Stakeholders may prefer the idea of financial rewards on hospital level, but the system on how to implement these rewards within hospital budgets are still topic of debate as well as on which basis they should be implemented, as set out in Chapter 4. Recent research of the European Observatory on Health Systems and Policies indicated the importance of quality indicators in a healthcare quality rewarding system [9]. Quality indicators should be accurate and timely on the desired quality criterion, sensitive to variations in provider effort, and resistant to manipulation or fraud. They also stated that the effect of any quality rewarding scheme depends on the intrinsic motivation of the professionals and organizations at whom the program is directed. Our research clearly indicates the importance attributed to these type of quality rewards and supports policymakers in their intention to continue with a value based rewarding system. Quality outcomes need to be compared on a national level between acute-care hospitals. Benchmarking can stimulate further growth in quality commitment for hospital management and healthcare workers as indicated in Chapter 3. This was further confirmed by international experts who all agreed on the fact that a public reporting system of quality outcomes should be installed and comparison is essential to foster quality improvement (Chapter 2). An important article of ten renowned representatives of organisations working to improve quality and value in healthcare called upon a new, more practical quality measurement policy [10]. They recommended to invest 30% of the quality measurement dollars spent by providers in metrics required by external stakeholders and 70% of the quality measurement dollars spent by providers in metrics based on the provider's assessment of what most needs attention now to improve performance. They warned that currently the balance is more on the order of 90% and 10% respectively, because of the explosion in number of measures that are required by external groups. The latter certainly threatens to shift resources from improving quality to covering a plethora of quality-performance metrics that may have limited impact on what patients and payers want and need. The link between quality control and quality improvement is therefore becoming more and more important. The National Surgical Quality Improvement Program (NSQIP) registry was developed in 1994 in the United States to better understand preoperative risk factors and outcomes [11]. It is now adapted by the American College of Surgeons and includes over 600 hospitals and numerous surgical subspecialties, serving as the basis for a large database with clinical data [12]. It can be seen as a predecessor in data gathering and use for quality improvement. In Flanders, with the establishment of a quality measurement organization 'Flemish Institute for quality of Care' (VIKZ) in 2017, a first step is made towards data collection and reporting but real quality improvement efforts still need to follow. Recent initiatives in Flanders such as 'FLAQUM consortium'[13], 'VZN-KUL improvement collaboration'[14], Belgian One Health Network [15]

and 'Netwerk Klinische Paden' (NKP)[16] are making the conversion of measuring quality indicators to comparing and real improvement efforts, in collaboration with healthcare workers and managers bottom-up.

### 5.2.3 QUALITY INSPECTION

Within the third domain of **quality inspection** our research suggests to link patient complaints to an action plan per individual hospital, to survey well-being of hospital employees by the individual hospital and to inspect structure indicators of the hospital and specific care trajectories within the hospital. Unlike today, where hospitals are free to determine how they handle patient complaints, a uniform system could improve quality of care in many institutions. As also stated by the OECD in 2017, an integrated patient complaints reporting system would be a cost-effective implementation [17]. Countries such as the USA and the UK already experimented with thorough follow-up of patient complaints and research indicated that patient complaints provided important and additional information to healthcare organisations on how to improve patient safety[18]. Furthermore, analysing data on negative patient experiences strengthened the ability of healthcare organisations to detect systematic problems in care[19]. A literature overview of Mirzoev et al. supported these findings as they also emphasised the need for patient complaints to be dealt with locally so that speedy and timely responses are ensured and to avoid complex response processes[20]. As our narrative review in Chapter 2 demonstrated, there is currently no hard evidence of the Flemish quality triad components on positive patient satisfaction as measured by questionnaires like the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAPHS). It would be interesting to measure patient satisfaction as patient reported outcome measures (PROM) as well as patient reported experience measures (PREM) in future quality management systems. This is also in line with the new multidimensional quality thinking where patient experience is increasingly important. The three-pillar model of the Flemish quality model does not contain enough evidence to achieve higher patient satisfaction only with its current quality components. Additional elements and analysis are therefore needed. As mentioned above, the serious investigation of patient complaints (and thus satisfaction in itself) has added value for the safety of healthcare systems as it promotes the systematic detection of problems in healthcare. As a second main outcome, well-being of hospital employees and healthcare workers should be surveyed by the hospital itself. Well-being of health workers is part of the quadruple aim as proposed by Bodenheimer and Sinsky [21]. Therefore, the assessment of well-being in hospitals is of utmost importance. Our study indicated that the assessment of well-being of employees should be performed by the hospital itself rather than by the government as a separate entity. The importance of the individual measurement of well-being was also emphasised by national experts as a fundamental element for a high performing quality management system in hospitals. In Belgium, the occupational health services in each hospital are obliged to see each employee once a year. The integration of a mandatory mental well-being survey in this yearly examination would

be a first start and is easy to implement. A systematic reporting to hospital management on general trends and specific attention points in well-being surveys would provide them with data and actionable topics.

A third outcome in this part of our research indicated that governmental inspection services should look at both structure indicators of the hospital as a whole (number of certified physicians, nurse/bed ratio, procedures in place…) and certain care trajectories within the hospital (such as surgical day care procedures, paediatric wards…). The inspection of care trajectories within the hospital is supported by international experts who emphasise the need for external inspection systems. In the UK, the National Clinical Audit Programme is led by the Healthcare Quality Improvement Partnership (HQIP). National audits are performed for about 30 clinical conditions, including acute and chronic conditions. Benchmark reports on compliance and performance are provided to local trusts and annual reports are published for each of the clinical conditions. In the Netherlands, the Dutch Institute for Clinical Audit (DICA) was set up in 2009 and medical specialist societies use DICA to measure quality and communicate about it. DICA runs registers for cancer patients, collects patient-reported outcome measures, and provides feedback reports to professionals. Almost all hospitals have established quality improvement strategies based on feedback reports [6]. One cannot underestimate the back-office support that is necessary for such systems and the organization that is needed to disseminate the output. In Belgium, the national research public health institute (Sciensano) developed the *healthdata.be* platform to bring all the data that is now stored in multiple health registers into a single internet-based platform. This platform contributes substantially to the provision of an infrastructural system dedicated to research in Belgium, but does not provide feedback to individual healthcare providers in a systematic way nor is it used for inspection purposes. Nevertheless, the development of this platform should be expanded in coming years with priority-setting and overarching goals. In Germany, Ireland and Finland the use of inspection systems for specific care trajectories is common standard and feedback to the institutions is provided after the inspections. International experts in our research also gave the recommendation to use a more appreciative approach of inspection systems and a focus on good practices that an institution already has to ensure its quality of care mechanisms (Chapter 2). The latter is in line with an international evolution of the 'safety I' to a 'safety II' principle whereby the focus should be more on processes that go well in hospitals [22]. Proactive safety management should look on how everyday performance usually succeeds rather than on why it occasionally fails, and should actively strive to improve the former rather than simply preventing the latter [22]. In Italy, for example, Primary Care Teams receive quality reports featuring structure, process and outcome indicators computed on the basis of data from the regional healthcare administrative database. The reports are not perceived as 'punitive' but rather promote teamwork and coordination and encourage clinical discussion. General practitioners seem to have a positive view of these reports [23]. In Belgium, the Flemish government inspects hospitals on a regular basis for specific care trajectories as discussed in Chapter 2. Nevertheless, these inspections do not

happen often as indicated by the overview of quality initiatives in Chapter 2. Hospitals do not receive a benchmark report and cannot compare with other peers in Flanders. Our results indicate that policymakers should not abandon these type of inspections but should rather expand them to more care trajectories within hospitals. These first steps are currently being made in Flanders with the development of care trajectories for mother & child and geriatric patients. Feedback should include a comparison of achievable but challenging indicators with a peer group as also indicated by other authors [24]. International research indicated that a form of audit and feedback cycles of one hospital with another would be a feasible option to reduce costs for government and could install a learning cycle between hospitals. It could also increase source credibility which would encourage hospitals to do more with their data [25]. In Belgium, loco-regional hospital networks are just set in place and this audit and feedback system can be one of the tasks entrusted to them within a legal framework of the government that has to be set out. Within quality inspection frameworks, it is also important to renew our views in a multidimensional way towards quality as set out by Lachman et al. [8]. We must move towards never-ending learning cycles and 'kin-centred care' as well as pay attention to new domains such as ecology and transparency. It is an opportunity when revising our inspection systems to propose a framework of requirements that considers these different aspects of quality. Future requirements should come away from just 'ticking the box' of standards towards the review of a quality management system within hospitals where a demonstration of quality culture, improvement trajectories and change elements is incorporated, independent of which external guidance system a hospital uses. This framework of requirements is therefore best developed in co-creation with the healthcare sector itself.

As stated above, quality inspection can be interpreted as a broad concept but it is important to distinguish between inspection systems by a governmental organization and quality control by self-evaluation systems in hospitals themselves. A government needs to retain control over the overall quality policy for its people. Therefore, inspection cannot be seen separately from quality control and sometimes these concepts are interrelated.

### 5.2.4 PATIENT INCIDENTS

A fourth topic of reform are **patient incidents** in hospitals. As explained in the introduction, these incidents still happen quite often in healthcare institutions worldwide and incident reporting systems have been introduced in various countries on national, regional and local level [26,27]. It is key to handle the impact of these incidents carefully and at least report them in a structural manner. Our research proposed mandatory reporting over voluntarily reporting as also shown by previous authors who indicated that mandatory reporting may result in lower error rates than voluntary reporting [28,29]. The reporting profession and the mode of reporting may also play a role in how effective reporting systems can be. The number of patient incidents should be visible for each hospital individually and not reported on a public level and detection of incidents should occur by validated tools (like the "Global trigger

tool" [30]) is preferred by respondents in the DCE on this topic. The latter is also shown in international literature to be a possible part of a range of other methods of incident tracking like morbidity and mortality conferences, malpractice claims analysis, administrative data analysis, chart review and observation of patient care and clinical surveillance [31]. Reporting of incidents within the hospital to discuss and evaluate next steps is preferred over a central agency or government control. International debate on the reporting of incidents on a central level versus decentralized level is not yet cleared out. The United Kingdom implemented a national reporting system (the National Reporting and Learning System) in 2003, with a million reports in a period of five years, mainly from acute care hospitals and which is the largest patient safety reporting system in the world [32]. In 2010, it became mandatory for National Health Service (NHS) trusts in England to report all serious patient safety incidents to the central Care Quality Commission. In the Netherlands, on the other hand, they opted for a local and decentralized unit-based approach. An incident that occurs must be reported in the hospital and a follow-up must be assured and documented in internal procedures. If an incident is serious or fatal for the patient, it must also be reported to the external inspection service under government supervision, they will follow up on whether the hospital has taken the necessary improvement steps and keep track of the number of reports. The advantage of a centralized system is the opportunity to discover rare but important problems, but decentralized reporting systems might increase the sense of urgency and engagement of healthcare workers because reported incidents happened in a recognizable context [6,33]. In our research, there is a preference for a decentralized reporting system, and it can be advocated that healthcare workers and management get ownership over the data. A centralized incident reporting system would probably be too big of shock in terms of policy change and would create a reverse effect in terms of negative attitude, non-stimulating culture, a perceived lack of ability to fulfil related tasks and a fear of reprisal. Other barriers that are reported in the literature showed a code of silence (reporting as a sign of lack of loyalty), loss of reputation, additional work based on user-unfriendly platforms, and lack of feedback or action when incidents are reported [34]. Other research has indicated that hospitals that encourage incident reporting also benefit of certain other features like flat hierarchy, staff participation in decision-making, risk management procedures, teamwork and leadership ability and integrity [35]. We suggest starting with a mandatory patient incident reporting system within hospitals in Belgium and to give ownership to hospital management and healthcare workers over their data to learn and improve of reported incidents. Mandatory reporting at government level may have contradictory effects in this starting phase. Edmondson et al. indicated that reporting of (near-)incidents can also have an effect on psychological safety of healthcare workers in a hospital [36]. Reporting and the installation of a 'no-shame and no-blame culture' is essential to create support and safety within organizations [37]. Mandatory reporting within a hospital is therefore preferable and healthcare workers should be able to freely report incidents that happened with their patients. Nevertheless, a critical reflection on the current patient incident reporting system in Belgium has to be made. Although the government stimulated already (within P4P) to have reporting systems in place, it is questionable if hospitals really learned of the

reported incidents. International literature also indicates the problem of underreporting and fear of healthcare providers for reporting (near-)misses, which emphasises that reporting systems alone are just the tool to obtain the goal of adequate reporting [29,36,38]. It is important to share experiences and learning points of incidents with other hospitals to create an open reporting culture but also to get practical examples on how to prevent similar incidents in other hospitals. Therefore, a mandatory sharing of learning points of incidents within a loco-regional hospital network could be a big step forward in Belgium and is an added value to the mandatory reporting within a hospital itself.

### 5.2.5 TRANSPARENCY OF HEALTHCARE QUALITY

As a last topic in our executed discrete choice experiments, different elements for a future policy in the domain of **transparency of healthcare quality** were analysed. As set out in Chapter 3, public reporting of quality indicators on hospital level is preferred by respondents and is emphasised by international experts as an important element for future quality of care policy (Chapter 2). Patients and the general public need to obtain information about the quality of care they receive in hospitals. A public reporting strategy should aim to promote transparency and informed choice of providers, to stimulate quality improvement, and to hold providers accountable for the care they deliver. In the discussion on which indicators should be reported publicly, our research showed that disease-specific indicators are preferred, and this is also in line with international expertise and other examples. Rather than collecting the quality data on individual patient level, the collection should take place on departmental level. A Cochrane review in 2018 indicated slightly improved processes after public release of performance data. As to patient outcomes, the evidence on effectiveness was mixed with some studies reporting improvements and others seeing no difference [39]. This was also seen in other relevant literature such as Campanella et al. and Vallance et al., where positive results and non-significant results on patient outcomes were reported [40,41]. The introduction of a public reporting of surgeons' outcomes on mortality in colorectal cancer surgery in England found that the introduction of public reporting coincided with a significant reduction of mortality over and above the existing downward trend in mortality [41]. Our own narrative review (Chapter 2) indicated that the public reporting of indicators had positive effects in 13 studies while a neutral impact was observed in 23 studies and 8 selected studies reported a negative impact [42]. As mentioned above, in Flanders, a public website with public reporting of a limited number of indicators on hospital-level already exists. It is important to build on this initiative and find new and reportable indicators on quality of care while clarifying the aims and target groups and develop an overarching strategy for public reporting on Flemish government level. As indicated in literature, the involvement of all relevant stakeholders in this debate is necessary and our research already indicated that there is a willingness for healthcare workers and hospital managers to continue on this path [6]. The Flemish government needs to educate patients and users about quality in healthcare and increase patient and user awareness of public reporting. A patient representative organization in Flanders already exists

at the moment and its collaboration is essential in this continuum of public reporting and selecting of the right indicators.

## 5.3 Financial constraints and implications

As set out in Chapter 4 and in answer to our third objective of this PhD dissertation, **the financial impact of current Flemish quality initiatives** on hospital budgets is high. Accreditation of hospitals is a widely used quality control instrument in Belgium and the cost-calculation of continuing with this type of control is an important element to investigate. As our research indicated, the costs for hospitals to achieve a first accreditation are enormous in absolute terms and put a high burden on hospital budgets and management of hospitals. A second accreditation has shown to cost less in total but still requires a lot of infrastructure investment and staff to execute and coordinate the accreditation trajectory. The question remains whether this is a good and sustainable policy with almost all Flemish hospitals already having obtained at least one accreditation. It is questioned if a continuation on this path is economically beneficial within more and more restricting budgets in healthcare and the small budget margins Belgian hospitals are operating in [43]. As seen in other countries, accreditation systems are less and less used to assure quality in hospitals but more and more other quality control and improve systems are tested [44]. In Denmark for example, a new National Quality Programme (NQP) launched in 2015 to strengthen the focus on continuous quality improvement. They phased out accreditation of public hospitals and installed eight specific national quality goals, a national educational program for quality management and quality improvement collaboratives. Since the introduction of the NQP the indicator results have improved in several important clinical areas, although causal conclusions related to the effect cannot yet be made [44]. Overall, international experts agree on the fact that one accreditation cycle is certainly useful for hospitals to set up their quality systems and install a quality culture (Chapter 2), but the burden subsequent accreditations bring with it in terms of cost and staff dedicated to the implementation is not always worth the effort. New quality management systems and a quality policy should focus on a cost-effective way to ensure quality in hospitals and in the meanwhile administrative burden on healthcare workers and hospitals should be avoided as much as possible. Some suggestions made above and derived from the discrete choice experiments can be implemented in a new quality framework that needs to be developed in Flanders and the investments that are made by hospitals for accreditation can be dedicated to the development of more hospital-specific initiatives that are guided by this new quality framework.

At the income side of hospital budgets, the implementation of a **Belgian pay for performance (P4P)** program in 2018 created a shift of individual hospital bonus budgets. Before the P4P system, a national fixed budget per hospital was allocated to compensate for quality efforts hospitals had to take in a voluntary ‘quality contract’. The implementation of a P4P system rewarded hospitals for the score they reached on different quality indicators with a total closed budget of approximately six million euros for all hospitals in Belgium (Chapter 4). Pay for performance programs are more and more tested in many countries as set out in the introduction. Our research confirms the difficult implementation of a P4P system in a national context and indicated that hospitals cannot predict their financial incentive as the

Belgian government works with a closed budget. Setting out overarching aims and goals and sticking to the same indicators over time so that hospitals can improve is essential in the continuation of a P4P program at national level. Our research also indicated that sufficient differentiation between hospitals is needed. Hospitals that perform better should be rewarded with a substantial financial incentive that can be calculated, rather than a closed budget of which the bonus payments are defined at the end of each year and where hospitals cannot predict what they will earn. The latter can lead to diminishing bonuses for hospitals that still perform better year after year, just because other hospitals do rise in indicators. The support for this kind of P4P program should be looked at critically and we recommend to rethink the current P4P as also set out in Chapter 4. A new P4P program should consider developments in the sector, such as the abolishment of international accreditation systems in Belgian hospitals. It is questionable that a large proportion of P4P points go to the involvement of a hospital in this external accreditation trajectory when there is no conclusive evidence that accreditation is the only modality that improves quality of care in a structural way. Future P4P models should focus more on real patient outcome data and the use of available hospital data that is already collected for administrative or financial reasons. In Belgium, the minimal hospital data set, the administrative dataset used for reimbursing purposes, per hospital could be used to determine validated quality patient safety indicators and to follow-up improvement of hospitals in certain care trajectories [45]. Although the use of administrative hospital data also has potential negative consequences such as (financial) gaming of data, the benefits of more standardized registered and patient-specific outcome data is more interesting to evaluate hospitals on their performance on quality. The minister of Health in Belgium announced in 2021 to go further on this path and use more available quality indicators for financial bonusses in the current P4P system.

A final important element in the evaluation of Belgian financing of quality was the qualitative analysis of the **Budget of Financial Means (BFM).** This hospital budget is a strictly regulated budget by the federal government that is built up in three major parts with different subparts. The BFM analysis has proven to be very heterogeneous in terms of quality financing. Different elements that contribute to quality improvement are paid by the government to individual hospitals via this BFM although no specific indicators or overarching aims are set out. The BFM can be seen as a building block where policymakers placed a new block every now and then, losing the global overview of what exactly is being financed for quality in this budget. Many elements can be seen as dedicated to quality but not exclusively, such as the Chief Medical Officer (CMO). Our analysis showed that many posts are structure based while process and outcome elements are not financed by the BFM. A thorough reform of the hospital payment systems is currently underway in Belgium. Our research suggests that a review of the elements funded by the BFM for quality improvement initiatives in hospitals should be brought together and clearly indicated with a budget per hospital that should only be used for the intended goals in quality of care.

## 5.4 Strengths and limitations of the research

This PhD research comes with strengths and limitations. **Different strengths** need to be underlined. This PhD research offers a first comprehensive overview for policy recommendations on quality of care in Flanders. Different international organizations already published literature reviews and overviews for general quality setting en theoretical frameworks but emphasised the need to tailor policy setting to a local healthcare quality context. This doctoral research aimed to bridge that gap by exploring local healthcare workers' views and by adapting policy recommendations to the local context. The second strength of this work is the use of national and international expertise, because finding a mix between feasible options which are evidence-based and have shown by experts to work is the big challenge in reform policy. A third strength is in the bottom-up approach of this work. We focussed on research starting from healthcare workers in the field so that this dissertation would become a practical work and advice for policymakers and management. The use of a discrete choice methodology, coming from the marketing industry, in healthcare quality policy questions is innovative and new. It is certainly a strength that we showed that this methodology is also suitable for policymakers in a healthcare quality context. We are convinced that quantifying preferences of stakeholders for policy decisions and setting priorities afterwards has an added value to create broad bottom-up support. Finally, the mixed method approach with qualitative and quantitative research designs in this PhD is an added value. The variety of research designs combines different approaches, statistics and analysing methods together and underlines the importance of mixed research methodologies for policy questions as it is clear that not everything can be solved with one type of research design.

**Some limitations** should be pointed out. Each chapter outlined already the limitations specific to each study. An overarching limitation of our research is that the quantifying of preferences by discrete choice experiments does not make a judgement on the feasibility in a political context. As most of our recommendations need implementation in future policy, any chosen topic need a political and cost-effective consensus with policymakers. This research gives a supported image of what is preferred from bottom-up, but obviously still needs additional discussion about the elaboration into a new quality model. A second limitation is the constantly changing political situation in Belgium with different levels of competence in health care. Policies are not always aligned, which makes it difficult to evaluate different impacts and clarify initiatives. Some quality initiatives are initiated on a federal competence level (i.e. pay for performance) but have consequences on defederated levels by changing indicators and financial impact on hospitals. The advises in this PhD therefore need discussion in a broader policy reform and must be aligned with all competence levels. A third limitation is the involvement of only a limited number of patient representatives in this study. Although we used the input from the umbrella patient association in Flanders that defends the interests of all patients, the number of individual patients in our studies is rather low in quantitative terms. However, the involvement of patient representatives'

voice can also be seen as a strength and the clear use and further expansion of their voice in follow-up research is emphasised throughout this work.

## 5.5 Future research

Our findings are important for healthcare policymakers and managers as well as governmental administrations searching for a new quality of care model in Flanders. The bottom-up approach and described findings for future quality of care policy, added with national and international expertise, may contribute to new research opportunities and the development of a new quality legislation framework. A first area of future research lies within the financial impact analyses of quality projects that are already undertaken within hospitals and governmental legislation. The impact on hospital budgets and on social care expenses is important to determine future policy decisions. Although a first step in this research was made with the cost evaluation of external hospital accreditation, other projects such as the cost of certain obligated quality elements in the BFM could also be researched. A second field of research can focus on international comparison in quality policy and projects that are set out. Many countries are setting up other quality legislation for their hospitals and it is important to learn from practices in other countries. A thorough research design to evaluate qualitative and quantitative differences between countries in quality policy could have an added value for many other research projects in this domain. As a third future opportunity, researchers experienced in legislation determination and governmental policy decisions, could focus on the implementation of new legislation based on this research in Belgium. The incorporation of certain projects such as mandatory quality education or mandatory incident reporting systems within hospitals can be an opportunity to research if those elements are not in conflict with other legislations or if this could potentially have negative effects in a broader legislative context. Other interesting future research questions include the evaluation of the accreditation impact on innovation of care and professional development, the impact of public reporting on patient choice in Flanders and research on feedback systems to hospitals and professionals. As this dissertation also indicated the difficulties with different policy levels in a federated country as Belgium, future research could compare and investigate quality management policies in other federal states with fragmentation of competencies. A last important future research opportunity lies in the use of discrete choice experiments for other policy domains in healthcare. DCEs have proven to be a valuable instrument to quantify preferences of respondents on certain policy questions. As the marketing industry has already been using this instrument for many years, the transfer towards the public sector and governmental questions is a logical consequence. This PhD dissertation has proven a useful contribution to the use of this methodology within healthcare quality policy. The innovative manner of the questionnaires (choice tasks) challenges respondents to think about decisions they have to make. Future research can help in developing other DCEs for other policy questions, on a governmental and aggregated level or in a more local context within hospitals or other industries.

This dissertation forms one of the cornerstones for the development of a new Flanders Quality Model (FlaQuM) that has already started by a research team at the Leuven Institute for Healthcare Policy in collaboration with 19 hospitals in Flanders. This FlaQuM model serves as a co-creation roadmap towards quality of care in each hospital and starts bottom-up with screening modalities, focus groups, and hospital-specific interventions. Future research has to build further on this concept of individualized quality management systems, tailored to an individual hospital, within a broader governmental framework. A thorough continued research with an interrupted time series design with longitudinal follow up pre and post implementation measurement is needed to test new concepts and expand it in other hospitals and healthcare contexts. Besides this, a process analysis to understand contextual factors and organizational requirements for a good implementation should accompany the interrupted time series design.

## 5.6 Take home messages and practical advise

**INSPECTION AND COMPARISON**

**1. Every Belgian hospital should at least have one external accreditation visit**. This visit can be held by an external international organization like Joint Commission International (JCI) or Qualicor Europe or other (local) certified accreditation agencies. The aim is to ensure basic quality systems are in place and approved by an external organization. Currently, a generic requirements framework for Flemish hospitals already exists within the Flemish inspection services. It may be an opportunity to expand this framework step by step with the evaluation of quality management systems in hospitals and to control these requirements by an independent organization.

**2. Establish an independent Flemish or national control organization for quality management systems.** Policymakers should invest in the creation of an independent organization that can control hospitals' quality management systems and ensure the public that high quality of care is offered in these institutions. Hospitals and healthcare workers get the ownership over their own quality management system as long as it can demonstrate the checks and balances obligated by the government.

**3. Benchmarking of quality results should take place between hospitals on a national level**. Hospitals should be compared based on the pathology they treat and with risk adjustment in outcome indicators as well as complication ratio and 'vital few' indicators that are designated as important. Preferably, hospitals should be compared based on the same case mix of pathology. For example, hospitals that treat high-specialised care should be compared with other high-specialised care hospitals. In Flanders, the Flemish Institute for Quality of Care (VIKZ) is already measuring and publishing quality indicators for different hospitals. Their assignment can be extended with dashboards for all hospitals and categorized in type of hospitals and care. Policymakers can create the opportunity to compare data with European and international hospitals and between different healthcare contexts.

**4. Public reporting of indicators on hospital level should be continued and expanded.** The reporting should preferably focus on disease-specific indicators that are created bottom-up by healthcare workers in the field. As such, they are perceived as useful and actionable for hospital management and healthcare workers. It is not necessary to create more indicators, but it is better to choose quality over quantity and invest in a set of useful indicators that are also interpretable by the public. The efforts delivered in Flanders with the creation of the indicator website *"www.zorgkwaliteit.be"* can be extended to the rest of Belgium.

## QUALITY MANAGEMENT

**5. Ownership for quality management systems should lay within the hospital itself.** The Flemish and federal government needs to establish a legal framework for quality with elements that lay within their responsibilities like pay for performance (P4P) and governmental inspection possibilities. Nevertheless, hospitals themselves need to create a quality management system within their organizations bottom-up in co-creation with their working physicians, nurses and other healthcare personnel. This quality management system should be verified and approved by an independent organization as set out in recommendation 2.

**6. Quality management should be centralized in loco-regional network entities.** Loco-regional hospital networks in Belgium consist of at least two hospitals that work together and rationalize high-specialised care in their network. It is the ideal place to start collaboration concerning quality between the participating hospitals and to centralize quality management and indicator reporting. These networks can offer the opportunity to start collaboration out of good and bad examples from each hospital in quality of care management. A central morbidity & mortality case meeting can be a first common start and should contribute to a positive quality culture in hospitals.

## PATIENT COMPLAINTS AND INCIDENTS

**7. Patient complaints need to be followed by an action plan by individual hospitals**. Until now, hospitals are free to determine how they install a follow-up for patient complaints. Every hospital has an 'ombuds service' whereby complaints can be logged. There is no legislation about the follow-up for these complaints and this research suggests to give ownership to hospitals to follow-up the complaints by an action plan. These action plans can be monitored by the government or legislative frameworks but the registration and action for each patient complain is situated in the hospital. A distinction between the severity of each patient complaint has to be made and action plans should include proper referral to other authorities if needed.

**8. Patient incidents in hospitals should be reported mandatorily within the hospital with a reporting of incidents on board and management level.** The detection of incidents should ideally take place by healthcare workers themselves but also by validated tools like the Global Trigger Tool (GTT).

Substantial investments in research and IT is necessary in coming years to take a leading role in the development of tools and systems to detect patient incidents in electronic patient records followed by a reporting and action plan in each hospital.

## WELL-BEING AND TRAINING

**9. Monitoring of healthcare workers' mental well-being should be mandatory in each hospital**. In light of evolving attention for mental well-being and the evolution towards the quadruple aim and care for healthcare workers, the mandatory monitoring of healthcare workers' well-being should be included in future policy. Each hospital already has a mandatory occupational health service that checks the health of each employee once a year. A mandatory well-being checklist and monitoring can be added to this examination moment. Reporting of well-being status of employees to the hospital management should be part of the action plan in each hospital.

**10. Quality training should be mandatory in healthcare workers' curricula**. The legal qualification criteria for physicians, nurses, healthcare management and other healthcare workers have to include competence in quality of care education with basic principles like patient incident reporting, quality indicators, shared decision making, quality dashboards and other information.

## FINANCIAL

**11. The Pay for Performance (P4P) program in Belgium should be reconsidered with overarching quality goals and aims that are set out by the government**. The incentive with P4P should be high enough for hospitals to put efforts in it and there should be enough differentiation between hospitals. Non-pay for non-quality systems are another option to explore in Belgium. As for now, there is already a small financial penalization for readmissions within 10 days in the same hospital in Belgium. Policymakers need to consider if this penalization is effective enough and if other quality rewarding and penalization systems can be installed in future financing systems.

**12. The Budget of Financial Means (BFM) for Belgian hospitals needs to be redesigned and simplified**. Elements that are specifically indicated for quality should be further refined and grouped together. Overarching goals should be tailored to these elements and the government must ensure the budget that is dedicated for quality can only be used for this purpose. The creation of a separate budget to finance quality improvement efforts in hospitals should be considered.

## 5.7 Conclusion

This PhD research provides a comprehensive overview of the possibilities for the Flemish government and hospital administrations to improve quality of care. For more than 10 years now, Flanders has been pursuing the same policy on quality of care while the changing healthcare landscape, and various voices from healthcare professionals are calling for a revision of this quality triad. This dissertation qualitatively involved national and international experts and provided an overview in a narrative review of the current components of quality policy in Flanders. The most important factor in achieving sustainable quality policy is the support of healthcare workers and employees. It is essential that they are involved in governmental decisions and that their voice is heard. Therefore, we needed to move away from the 'good old policy around the table', whereby policymakers determine top-down how a policy is to be shaped. The methodology of discrete choice experiments (DCE) was therefore translated in this research project. DCE is coming from the marketing industry where a company has to look for the elements in a product that most appeal to the consumer. In this dissertation, the methodology was used for the first time ever in policy issues concerning quality of care. Although it is a time-consuming task and also requires the necessary attention of the respondents, it gives policymakers an overview of supported future elements of policy with also a weighted importance of each element. As a board table, this offers a perfect overview for further in-depth discussions and a policy adaptation that is created and supported from bottom-up. In addition to evaluating the current policy and looking at future initiatives and adjustments, it was obviously crucial to analyse the financial impact of previous policy decisions.

In this PhD three financial analyses were performed. First, the cost analysis of a first and second accreditation survey in Flemish hospitals was investigated. In current quality policy, hospitals were strongly encouraged to undergo such an international check with standards. Our study showed that a first accreditation was much more expensive than a second one and that in global terms these accreditation rounds required a strong financial commitment from the institutions in any way. This combined with an emerging negative criticism towards international accreditation from healthcare workers themselves (certainly clinicians) imposed an important challenge to consider whether international accreditation agencies are truly necessary to achieve standards of quality. Secondly, a financial analysis of the national pay for performance (P4P) program in Belgium was performed. Hospitals were given a bonus when they reached certain structure, process and outcome indicators since 2018. The change in policy towards this P4P program involved a shift in hospital budget, although rather marginally in relative values compared to the total hospital revenue. While we have to admit that a certain incentive is associated with P4P systems, it is necessary to maintain a consistent policy with indicators that do not change annually and with an overarching goal and targets that are set out by the government. The budget has to be meaningful enough to motivate hospitals and healthcare workers and it should be able to differentiate enough between hospitals. Policymakers should ask themselves whether

the current P4P system meets the needs of Belgian hospitals and whether it is currently reaching what it wants to achieve. As a third analysis, we gave an overview of the quality posts in the current Budget of Financial Means (BFM) in Belgian hospitals. We concluded that there is a great fragmentation in components for quality with great attention on structure components. Hospitals are reimbursed in a non-consistent way for quality elements, although it is very difficult to identify the overall cost of spending. A reform of this BFM that finances hospitals is also pressing for clear quality targets and highlighted quality posts.

Finally, it is clear that the final goal of hospitals is per definition the delivery of high-quality care. The elements in this doctoral research thus contribute to a vision that needs to be developed at governmental level and in hospital administrations on how future policy can influence this final goal with regard to the right financial incentives but also to the difficult budgetary situation in which governments and hospitals need to develop innovative and sustainable systems. This PhD dissertation can be the basis for continued debate and a policy reform on healthcare quality that is created from bottom-up in the interests of all our hospitals, healthcare workforce and, above all, our patients.

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# APPENDIX

## A.1 Appendix to chapter 3

**Supplemental Table 1:** Data collection guide for requested variables concerning government-encouraged quality improvement initiatives along with their characteristics

| Characteristics | Data sources for requested variables |
|---|---|
| **General: Hospitals in Flanders** | |
| - 62 acute-care hospitals in 2008<br>- 53 acute-care hospitals in 2019<br>- 9 hospital mergers took place between 2008-2019<br>- Anno 2019:<br>  o 4 university hospitals and 49 general hospitals<br>  o Number of beds ranges between 170 and 1955<br>  o Average number of beds: 542 | - Hospital characteristics (e.g. number of beds, teaching status): www.health.belgium.be<br>- Hospital mergers: http://atlas.ima-aim.be/databanken |
| **Accreditation** | |
| - Voluntary.<br>- Hospitals opting for accreditation are exempt from one part of inspection process (see below).<br>- No national hospital-wide programme exists. Hospitals can opt for any recognised international accreditation body.<br>- Announced<br>- Promoted since 2009. | - For Qualicor-accredited hospitals:<br>  o Survey dates for all audits and re-audits between 2008 and 2019<br>  o Edition of accreditation manual<br>  o Accreditation scores<br>  o Status of accreditation label (achieved, postponed or declined)<br>  ➔ Information derived from Qualicor Europe after approval of each individual hospital provided in the Qualtrics© survey sent out to quality managers of all 53 hospitals.<br><br>- For JCI-accredited hospitals:<br>  o Survey dates for all audits and re-audits between 2008 and 2019<br>  o Edition of accreditation manual<br>  o Accreditation scores<br>  o Status of accreditation label (achieved, postponed or declined) |

| | |
|---|---|
| | ➔ Information derived from Qualtrics© survey sent out to quality managers of all 53 hospitals.<br><br>- For hospitals who did not respond to the Qualtrics© survey sent out to quality managers of all 53 hospitals. (n=9)<br>o Accreditation body<br>o Survey dates for all audits and re-audits between 2008 and 2019<br>➔ Information derived from publicly available hospital websites [not disclosed here to safeguard anonymity] |
| **Public reporting** | |
| - Voluntary for each indicator.<br>- Includes validated structure, process and outcome indicators across four overarching domains:<br>o Cancer (breast cancer, rectum cancer and lung cancer survival)<br>o Patient experiences<br>o Patient safety (hand hygiene, patient identification, medicine prescription completeness and safe surgery checklist)<br>o Website content<br>- Measurement and internal benchmarking were introduced in 2013. The reporting to the general public started in 2016. | The Flemish Institute for the Quality of Care (VIKZ) provided the following information:<br>- Participating hospitals to the measurement and internal benchmarking of each quality indicator within the 4 domains per year (2013-2019)<br>- Participating hospitals to the public reporting of each quality indicator within the 4 domains per year (2013-2019)<br>- For each quality indicator: dates of measurement, availability of benchmark and public reporting on www.zorgkwaliteit.be for each semester between 2013 and 2019 (the same dates for all participating hospitals) |
| **Inspection** | |
| - Organised by the Flemish government.<br>- Consists of:<br>o Compliance monitoring:<br>▪ Unannounced<br>▪ Compulsory for all hospitals<br>▪ Introduced in 2013<br>▪ Examines patient pathways, concentrating on a different pathway every two years: surgery (2013-2014), internal medicine (2016) and cardiology (2018-2019), with a repeat inspection for surgery and internal medicine in 2018.<br>o Systemic inspection:<br>▪ Announced | The Department of Health (Flemish Government) provided the following information:<br>- Dates of compliance monitoring surveys, systemic inspections, safety audits and allocation inspections for all Flemish acute-care hospitals between 2008 and 2019.<br>- Hospital mergers occurring between 2008-2019 missing from http://atlas.ima-aim.be/databanken |

| | |
|---|---|
| ▪ Compulsory except for accredited hospitals<br>▪ Includes intensive self-assessments and risk analyses to study quality guarantees on the long term<br>o Safety audits:<br>▪ Unannounced<br>o Inspections for the purpose of allocating hospital beds:<br>▪ Announced | |
| **Patient safety contracts / Pay-for-performance** | |
| - Voluntary<br>- A first contract was introduced in 2007 and asked for a yearly commitment between 2007 and 2012. The contract was built on three pillars: patient safety management system, transmural care and indicators.<br>- A second contract for the period 2013-2017 focused on four general themes (safety management, leadership, communication, patient and family empowerment) and four specific themes (high-risk medication, safe surgery, transmural care, restrictive measures in psychiatric care). The criteria were determined based on international accreditation requirements to further support hospitals opting for an accreditation trajectory.<br>- Hospitals entering the contract received a predominantly fixed budget after meeting the terms of the contract.<br>- From 2008, the patient safety contract initiative was dismantled for acute-care hospitals and changed into a Pay-for-Performance initiative. Herein, hospitals are rewarded when they have demonstrated to have provided qualitative care. A variable budget, totaling to about 5 million on a total budget of 6.4 billion euros (Federal Public Service Health. Pay for performance-programma 2018 voor algemene ziekenhuizen. 2018) is rewarded depending on the indicators met. Indicators include hospital-wide structure and process indicators (e.g. accreditation achieved, patient experiences) as well as disease-specific process indicators (e.g. antibiotics prophylaxis). | The Federal Public Service for Health (federal government) provided the following information:<br>- Participating hospitals per year to the patient safety contracts between 2008 and 2017<br>- Participating hospitals per year to the pay-for-performance programme between 2018 and 2019. |

**Supplemental Table 2:** Statements surveyed to focus group

| Question number | Statements asked to focus group | Related quality improvement initiative within hospital policy |
|---|---|---|
| A1 | Every hospital should undergo a minimum of two external hospital accreditation cycles. | Accreditation |
| A2 | Accreditation trajectories bring about a positive dynamic concerning the 'hospital quality' mindset. | Accreditation |
| A3 | Accreditation trajectories are responsible for a decrease in time for patient care. | Accreditation |
| A4 | Accreditation trajectories are responsible for an increase in quality and middle management staff. | Accreditation |
| A5 | Discussions and actions on quality policy by hospital board members are triggered by accreditation trajectories. | Accreditation |
| PR1 | Public reporting has led to doctors selecting healthier patients. | Public reporting |
| PR2 | Data on mortality and readmission rates on a hospital-level should be made publicly available. | Public reporting |
| PR3 | Data on mortality and readmission rates on an individual physician's level should be made publicly available. | Public reporting |
| PR4 | Data on patient outcomes such as complications and quality-of-life on a hospital-level should be made publicly available. | Public reporting |
| PR5 | Data on patient outcomes such as complications and quality-of-life on an individual physician's level should be made publicly available. | Public reporting |
| I1 | Quality control of hospitals should involve unannounced quality checks. | Inspection |
| I2 | Quality control of hospitals should involve mystery patients to assess care quality. | Inspection |
| I3 | To assess quality of care, it is better to evaluate care programs and care trajectories than to evaluate hospital-wide quality. | Inspection |
| I4 | Every hospital should meet a set of minimum requirements for qualitative hospital care (i.e. 'the vital few'), which are evidence-based and determined by both government and the care sector. | Inspection |
| I5 | Should a hospital achieve good quality outcomes, the quality control of its processes and protocols will become less of a priority for the inspection body. | Inspection |
| PP1 | Hospitals with good quality outcomes should be rewarded financially. | Pay-for-performance |
| PP2 | Physicians with good quality outcomes should be rewarded financially. | Pay-for-performance |

**Supplemental Figure 1:** Example of a choice set included within the DCE

**SITUATION 1**

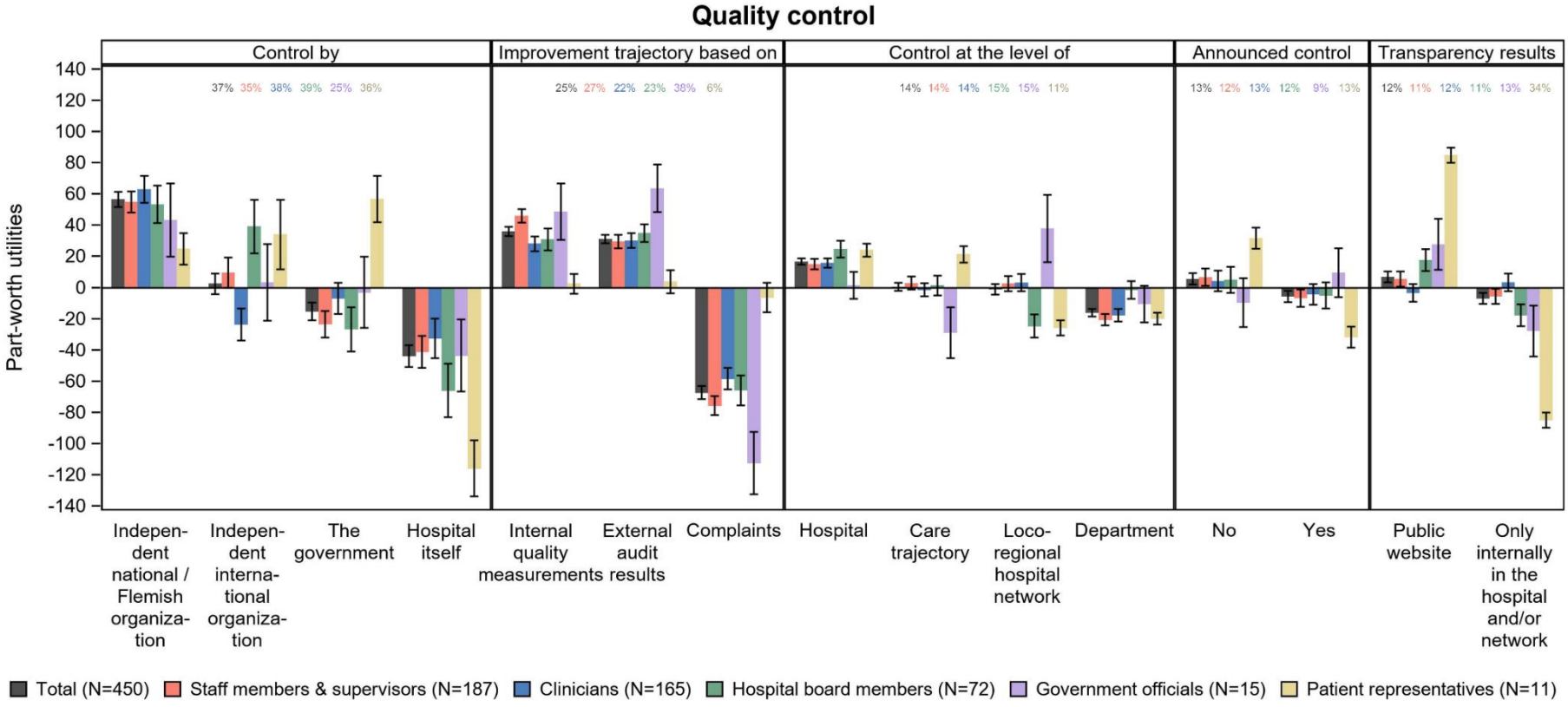
In the past, hospitals have been monitored individually, on a regular basis and announced by an external international organization where the hospital can choose whether or not to disclose its results.

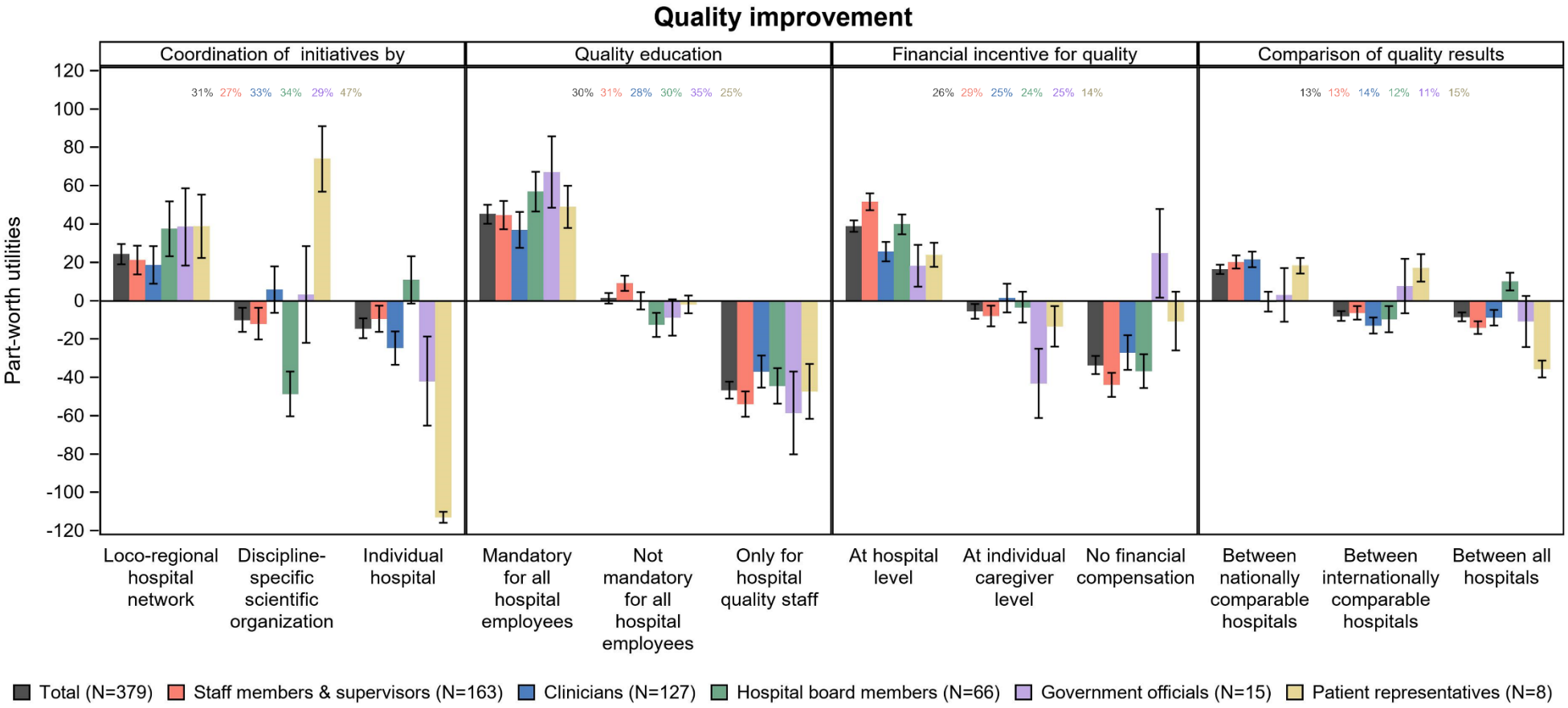
An international label was achieved when the hospital met the high quality and safety standards. Based on these results, an improvement process was set up.

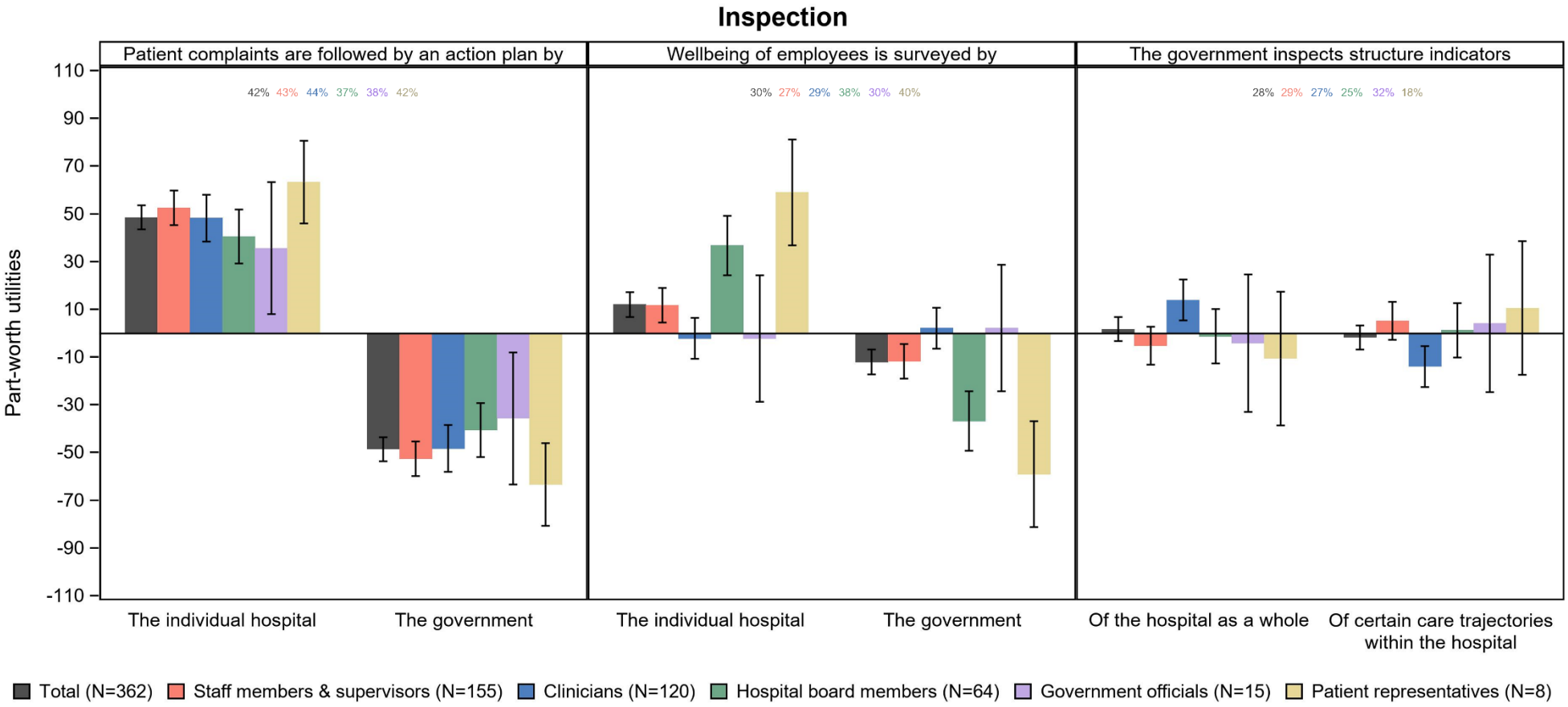
**Which of the scenarios below do you prefer in a future quality policy?**
**(1 out of 10)**

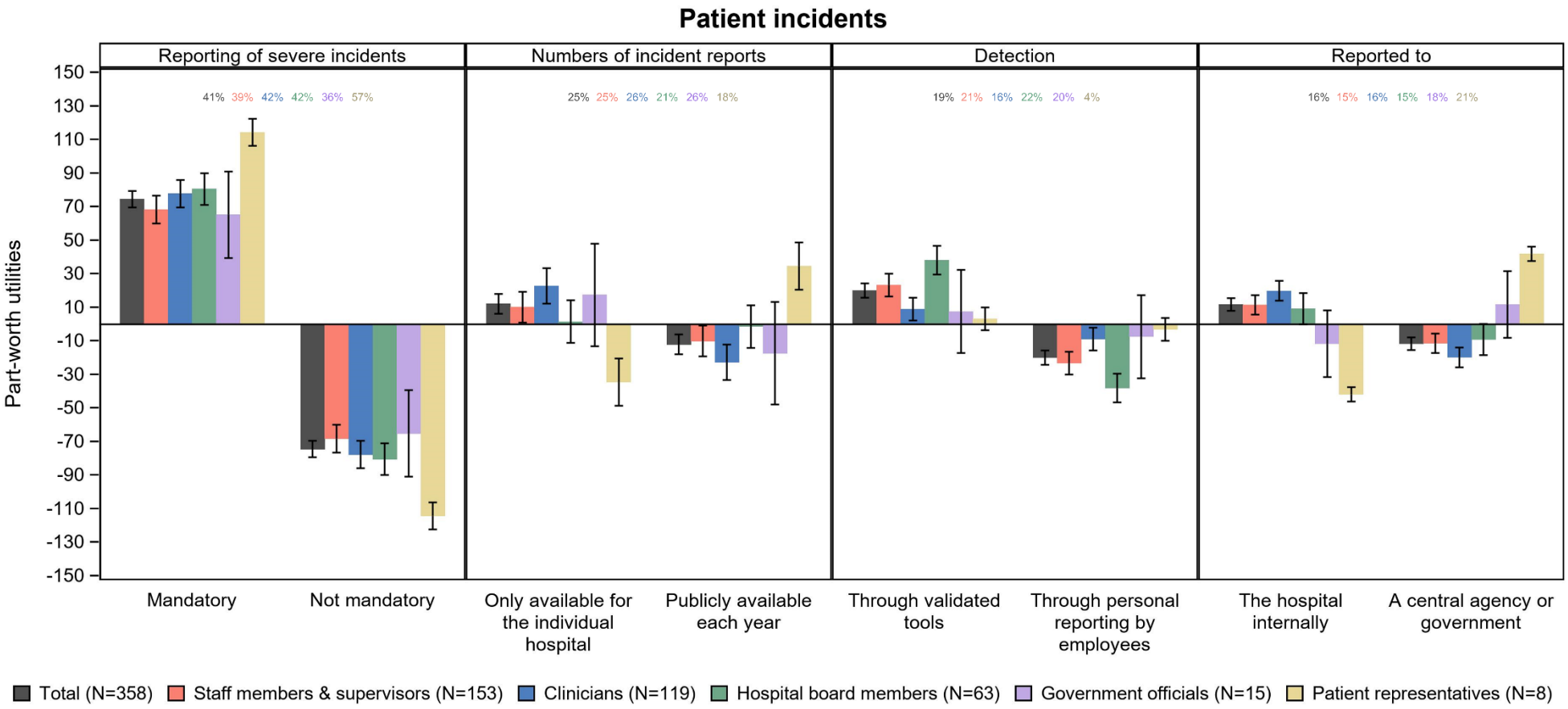
| | | | | |
|---|---|---|---|---|
| **Control by** | The government | Independent national/Flemish organization | Independent international organization | Hospital itself |
| **Announced control** | Yes | Yes | No | No |
| **Control at the level of** | Care trajectory | Department | Hospital | Loco-regional hospital network |
| **Transparency results** | Public website | Public website | Public website | Only internally in the hospital and/or network |
| **Improvement trajectory based on** | Complaints | External audit results | External audit results | Internal quality measurements |
| | **Select** | **Select** | **Select** | **Select** |

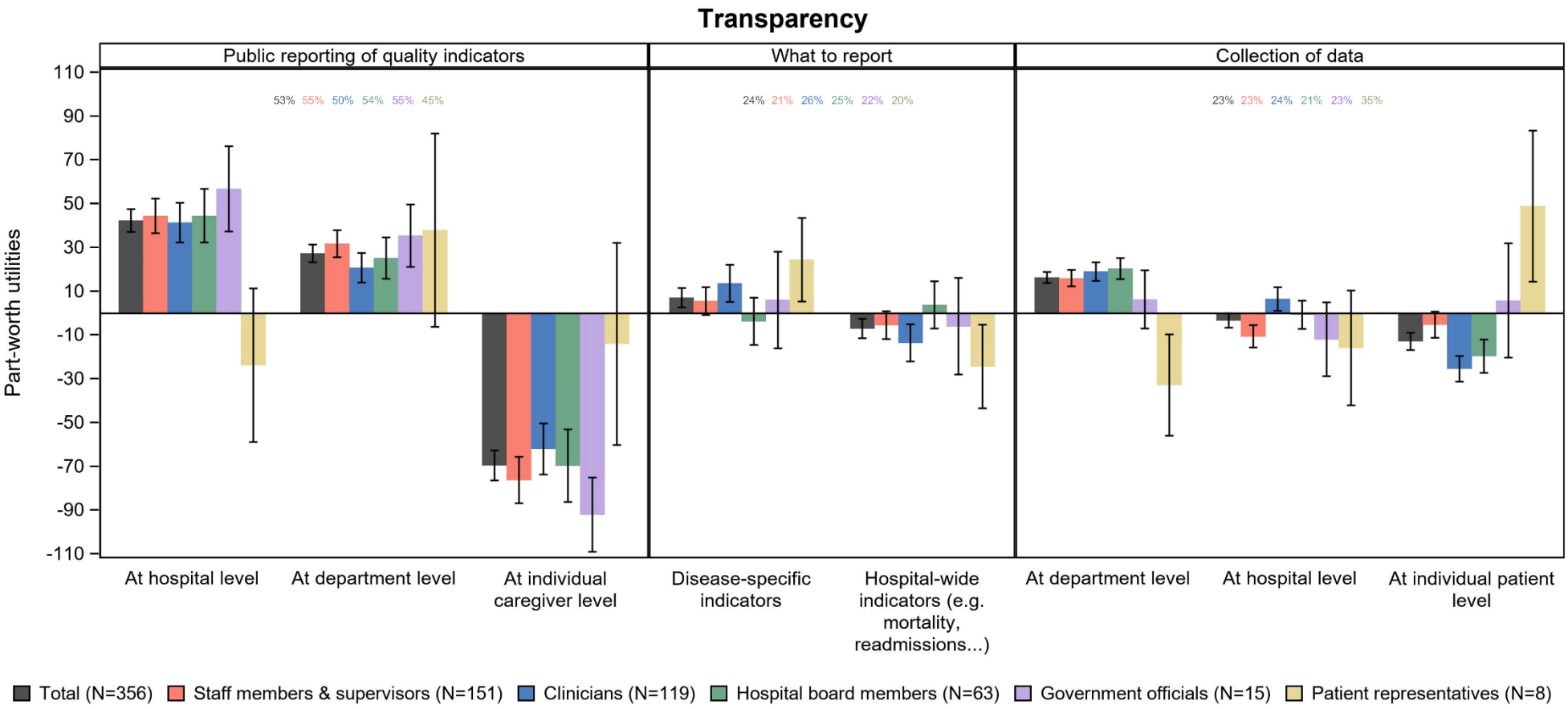
**Supplemental Figures 2 A-E**: Profession-specific estimated attribute importances and part-worth utilities for the five DCEs



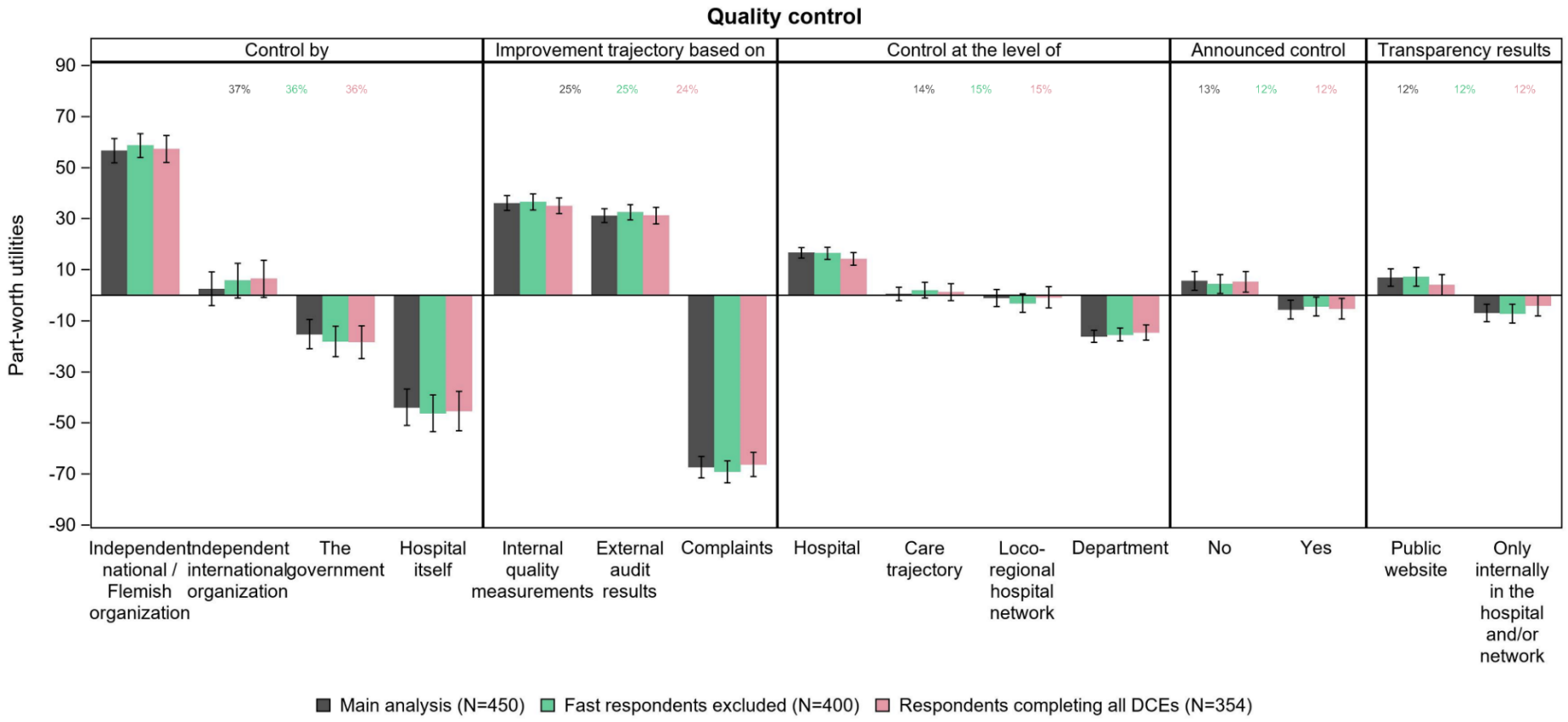

Quality improvement
Coordination of initiatives by
Quality education
Financial incentive for quality
Comparison of quality results
31% 27% 33% 34% 29% 47%
30% 31% 28% 30% 35% 25%
26% 29% 25% 24% 25% 14%
13% 13% 14% 12% 11% 15%
Part-worth utilities
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
Loco-regional hospital network
Discipline-specific scientific organization
Individual hospital
Mandatory for all hospital employees
Not mandatory for all hospital employees
Only for hospital quality staff
At hospital level
At individual caregiver level
No financial compensation
Between nationally comparable hospitals
Between internationally comparable hospitals
Between all hospitals
Total (N=379)
Staff members & supervisors (N=163)
Clinicians (N=127)
Hospital board members (N=66)
Government officials (N=15)
Patient representatives (N=8)

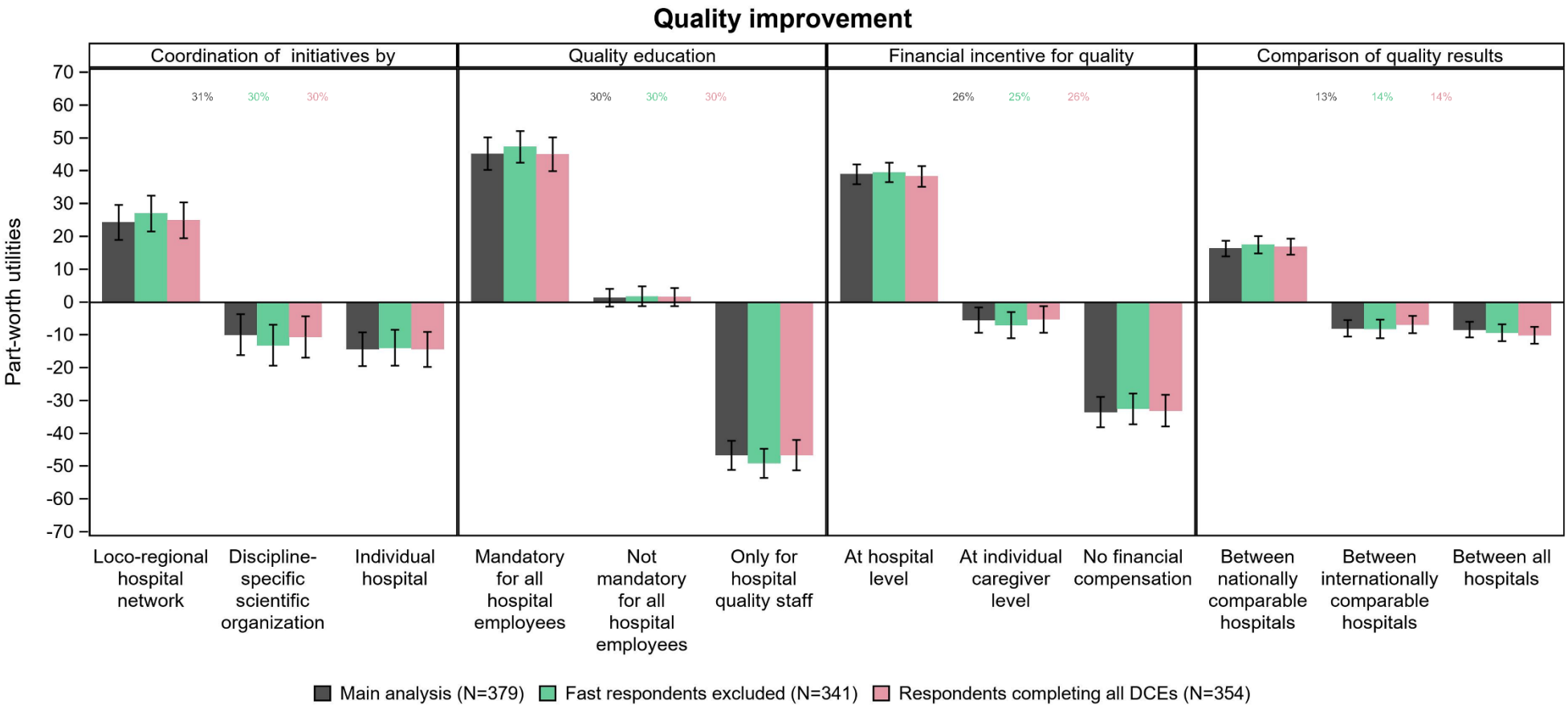

Inspection
Patient complaints are followed by an action plan by
Wellbeing of employees is surveyed by
The government inspects structure indicators
42% 43% 44% 37% 38% 42%
30% 27% 29% 38% 30% 40%
28% 29% 27% 25% 32% 18%
Part-worth utilities
110
90
70
50
30
10
-10
-30
-50
-70
-90
-110
The individual hospital
The government
The individual hospital
The government
Of the hospital as a whole
Of certain care trajectories within the hospital
Total (N=362)
Staff members & supervisors (N=155)
Clinicians (N=120)
Hospital board members (N=64)
Government officials (N=15)
Patient representatives (N=8)

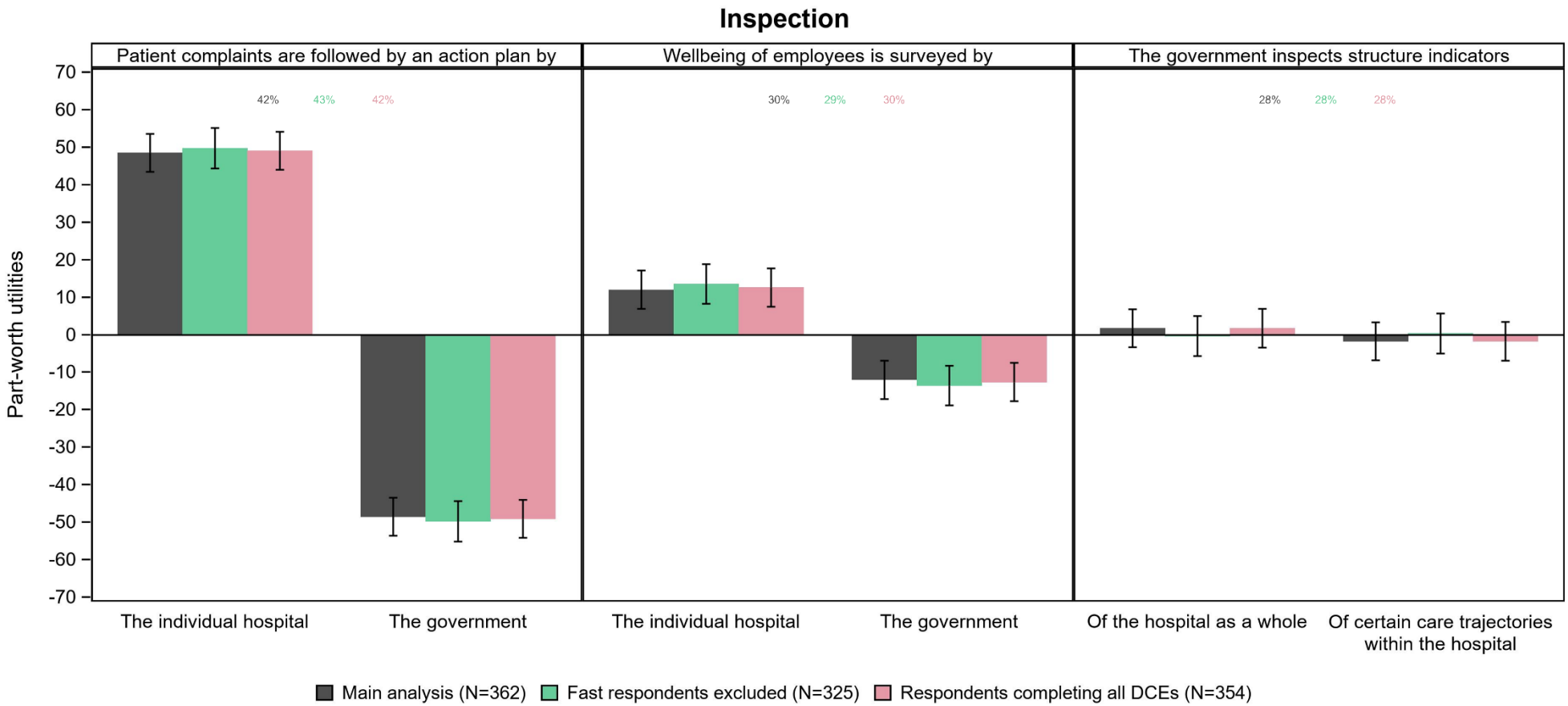

Patient incidents
Reporting of severe incidents
Numbers of incident reports
Detection
Reported to
Part-worth utilities
150
130
110
90
70
50
30
10
-10
-30
-50
-70
-90
-110
-130
-150
41% 39% 42% 42% 36% 57%
25% 25% 26% 21% 26% 18%
19% 21% 16% 22% 20% 4%
16% 15% 16% 15% 18% 21%
Mandatory
Not mandatory
Only available for the individual hospital
Publicly available each year
Through validated tools
Through personal reporting by employees
The hospital internally
A central agency or government
Total (N=358)
Staff members & supervisors (N=153)
Clinicians (N=119)
Hospital board members (N=63)
Government officials (N=15)
Patient representatives (N=8)

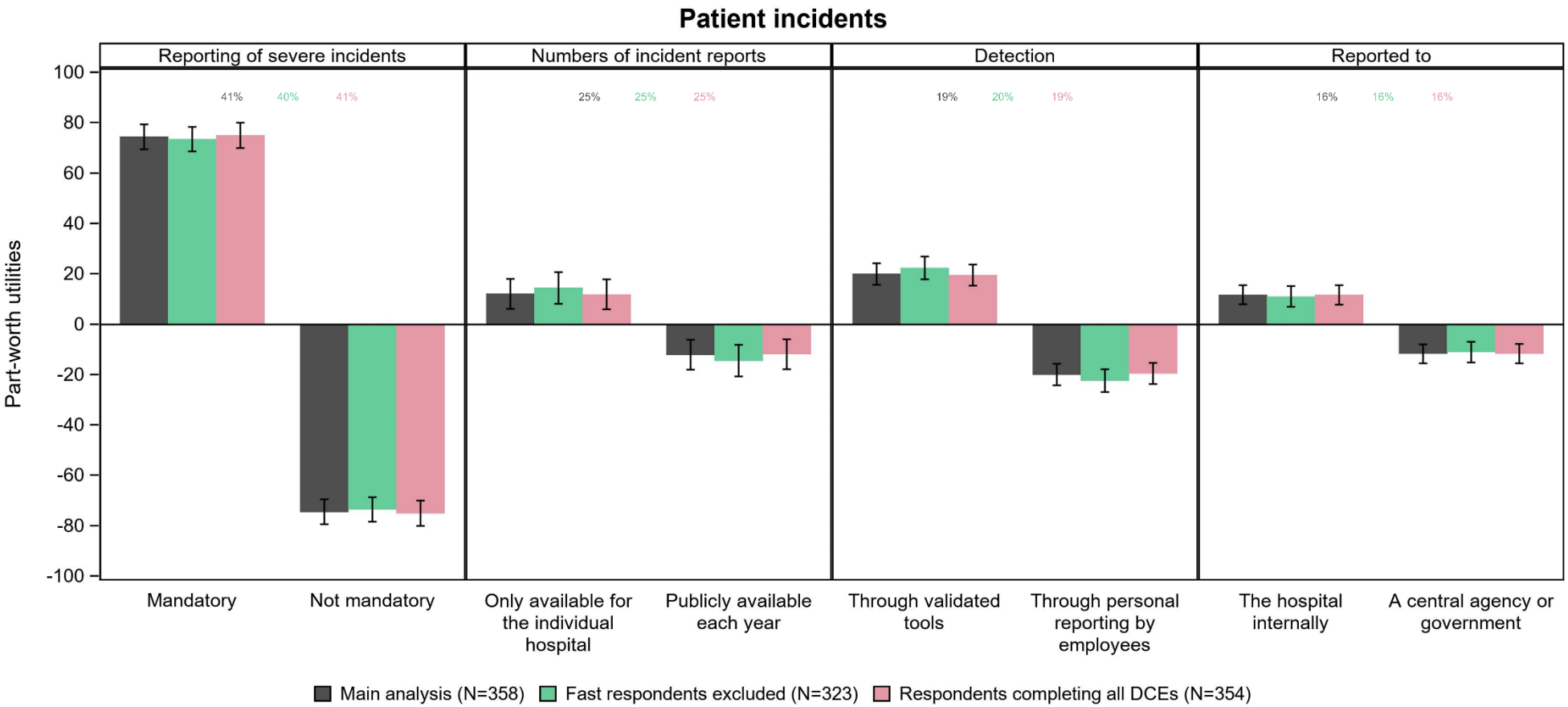

Transparency
Public reporting of quality indicators
What to report
Collection of data
Part-worth utilities
110
90
70
50
30
10
-10
-30
-50
-70
-90
-110
53% 55% 50% 54% 55% 45%
24% 21% 26% 25% 22% 20%
23% 23% 24% 21% 23% 35%
At hospital level
At department level
At individual caregiver level
Disease-specific indicators
Hospital-wide indicators (e.g. mortality, readmissions...)
At department level
At hospital level
At individual patient level
Total (N=356)
Staff members & supervisors (N=151)
Clinicians (N=119)
Hospital board members (N=63)
Government officials (N=15)
Patient representatives (N=8)

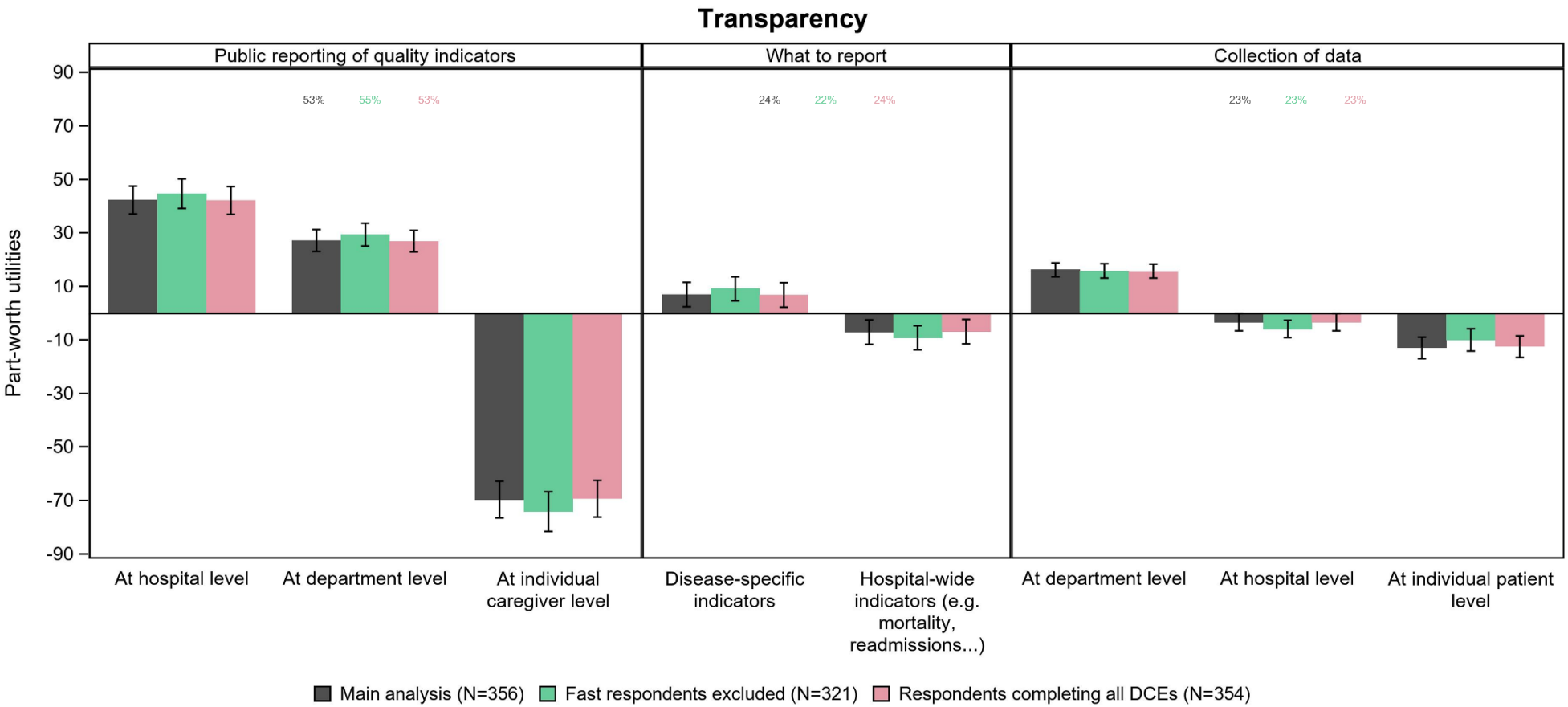
**Supplemental Figures 3 A-E**: Estimated attribute importances and part-worth utilities for the five DCEs in the main analysis and in sensitivity analyses excluding fast respondents and restricting analyses to respondents that completed the 5 DCEs.




Quality improvement
Coordination of initiatives by
Quality education
Financial incentive for quality
Comparison of quality results
Part-worth utilities
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
31%
30%
30%
30%
30%
30%
26%
25%
26%
13%
14%
14%
Loco-regional hospital network
Discipline-specific scientific organization
Individual hospital
Mandatory for all hospital employees
Not mandatory for all hospital employees
Only for hospital quality staff
At hospital level
At individual caregiver level
No financial compensation
Between nationally comparable hospitals
Between internationally comparable hospitals
Between all hospitals
Main analysis (N=379)
Fast respondents excluded (N=341)
Respondents completing all DCEs (N=354)


Inspection
Patient complaints are followed by an action plan by
Wellbeing of employees is surveyed by
The government inspects structure indicators
Part-worth utilities
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
42%
43%
42%
30%
29%
30%
28%
28%
28%
The individual hospital
The government
The individual hospital
The government
Of the hospital as a whole
Of certain care trajectories within the hospital
Main analysis (N=362)
Fast respondents excluded (N=325)
Respondents completing all DCEs (N=354)


Patient incidents
Reporting of severe incidents
Numbers of incident reports
Detection
Reported to
Part-worth utilities
100
80
60
40
20
0
-20
-40
-60
-80
-100
41%
40%
41%
25%
25%
25%
19%
20%
19%
16%
16%
16%
Mandatory
Not mandatory
Only available for the individual hospital
Publicly available each year
Through validated tools
Through personal reporting by employees
The hospital internally
A central agency or government
Main analysis (N=358)
Fast respondents excluded (N=323)
Respondents completing all DCEs (N=354)


Transparency
Public reporting of quality indicators
What to report
Collection of data
Part-worth utilities
90
70
50
30
10
-10
-30
-50
-70
-90
53%
55%
53%
24%
22%
24%
23%
23%
23%
At hospital level
At department level
At individual caregiver level
Disease-specific indicators
Hospital-wide indicators (e.g. mortality, readmissions...)
At department level
At hospital level
At individual patient level
Main analysis (N=356)
Fast respondents excluded (N=321)
Respondents completing all DCEs (N=354)

# CURRICULUM – Jonas Brouwers

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Born: April 12, 1994 – Tongeren, Belgium
Nationality: Belgian

## Professional experience

| | |
|---|---|
| 2014 – (now) | **Member Permanent Education Committee** faculty of medicine – KU Leuven |
| 2018 – (now) | **President** Flemish association for medical specialists in training (VASO) |
| 2019 – (now) | **President** Leuven Association of Medical Residents (LVGA) |
| 2019 – (now) | **Representative medical specialists in training** – Alfagen alumni KU Leuven |
| 2019 – (now) | **Member of the Medical Council Plexus** (Ziekenhuisnetwerk Oost-Vlaams-Brabant) |
| 2020 – (now) | **Representative medical specialists in training** – National commission hospitals – doctor associations |
| 2021 – (now) | **Representative Flemish government** – Federal Committee of Healthcare workforce Planning |
| 2021 – (now) | **Representative Flemish government** – Flemish committee of Healthcare workforce Subplanning |

| | |
|---|---|
| 2019 – 2022 | **Member of the Medical Council** UZ Leuven |
| 2020 – 2022 | **Member of the Faculty Board of Medicine** – KU Leuven |
| 2017 – 2018 | **President** Flemish Medical Student Organisation (VGSO) |
| 2017 – 2019 | **Member of the Faculty Council** of Medicine – KU Leuven |
| 2017 – 2018 | **Member of the internship working group** Faculty of Medicine – KU Leuven |

| | |
|---|---|
| 2015 – 2017 | **Secretary** Flemish Medical Student Organisation (VGSO) |
| 2015 – 2017 | **Member of the Flemish supervisory committee** admission test for medicine |
| 2009 – 2016 | **Youth animator** Clip language holidays |
| 2009 – 2018 | **Swim instructor** Sporty Sportief Leuven |
| 2009 – 2018 | **Youth animator** Sporty Creactief Leuven |

# Education

| | |
|---|---|
| 2018 – (now) | **Master of Medicine in Specialist Medicine** – Catholic University Leuven<br>*Orthopaedic surgery* |
| 2019 – 2022 | **PhD – Student** – Leuven Institute for healthcare policy (LIGB)<br>*Exploring the future of hospital quality management and policy in Flanders* |

| | |
|---|---|
| 2005 – 2011 | **Latin – Mathematics** – Heilige Drievuldigheidscollege Leuven |
| 2011 – 2012 | **Biomedical sciences** – Catholic University Leuven |
| 2012 – 2014 | **Bachelor of Medicine** – Catholic University Leuven<br>*Cum Laude* |
| 2014 – 2018 | **Master of Medicine** – Catholic University Leuven<br>*Magna Cum Laude* |
| 2019 – 2021 | **Master Management and Healthcare Policy** – Catholic University Leuven<br>*Magna Cum Laude* |

# Interests

Politics, pianist, sports, travelling, volunteer work

# Skills

Communication, team player, flexibility

Dutch (native), English (good), French (good)

# LIST OF PUBLICATIONS

## Articles

**Published**

(1) Brouwers, J., Cox, B., Van Wilder, A., Claessens, F., Bruyneel, L., De Ridder, D., Eeckloo, K., Vanhaecht, K. (2021). The future of hospital quality of care policy: A multi-stakeholder discrete choice experiment in Flanders, Belgium. Health Policy, 125 (12), 1565-1573

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(7) Brouwers, J., Claessens, F, et al. (2021) Cornerstones of a sustainable national quality policy: a qualitative study based on international expert opinions. International Journal of Health Planning and Management

(8) Brouwers, J., Seys, D., Claessens, F., Van Wilder, A., Bruyneel, L., De Ridder, D., Eeckloo, K., Vanhaecht, K., Kesteloot, K. (2022). The Cost of a First and Second Hospital-Wide Accreditation in Flanders, Belgium. International Journal For Quality In Health Care

(9) Van Wilder, A., Cox, B., De Ridder, D., Tambeur, W., Vanden Boer, G., Brouwers, J., Claessens, F., Bruyneel, L., Vanhaecht, K. with Vanhaecht, K. (joint last author) (2022). A comprehensive analysis of temporal trends of between-hospital variation in mortality, readmission and length of stay using logistic regression. Healthcare Analytics, 2, Art.No. 100123

(10) Claessens, F., Castro, E.M., Jans, A., Jacobs, L., Seys, D., Van Wilder, A., Brouwers, J., Van der Auwera, C., De Ridder, D., Vanhaecht, K. (2022). Patients' and kin's perspective on healthcare quality compared to Lachman's multidimensional quality model: Focus group interviews. Patient Education And Counseling

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**Reports**

(1) Vanhaecht, K., Claessens, F., Van Wilder, A., Brouwers, J., De Ridder, D. (2021). Vlaams Kwaliteitsmodel FlaQuM

**Book**

(1) Sermeus, W., Van Dijck, H., De Ridder, D., Seys, D., Brouwers, J. (2022). Succesvol arts zijn: jonge professionals in de gezondheidszorg. België: Acco learn. ISBN: 9789464145113.

**International presentation**

(1) Brouwers, J. (2022). The future of hospital quality policy: a multi-stakeholder discrete choice experiment. Presented at the IHI BMJ International Forum on Quality & Safety in Healthcare, Gothenburg, Sweden

(2) Brouwers, J. (2022). How much do hospital-wide accreditations really cost? The case of Flanders, Belgium. Presented at the IHI BMJ International Forum on Quality & Safety in Healthcare, Gothenburg, Sweden

(3) Brouwers, J. (2022). How much do hospital-wide accreditations really cost? The case of Flanders, Belgium. Presented at the European Health Management Association (EHMA) 2022 Annual Conference, Brussels, Belgium

(4) Brouwers, J. (2022). The future of hospital quality of care policy: a multi-stakeholder discrete choice experiment in Flanders, Belgium. Presented at the European Conference on Health Law 2022, Ghent

(5) Brouwers, J. (2020). Impact of the first COVID-19 wave on surgical training in Belgium. Presented at the Belgian Surgical Week 2020, Online, 24 Nov 2020-27 Nov 2020

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## Personal contribution

**Chapter 2:** Astrid Van Wilder (AVW) performed the search strategy for the narrative review and content analysis, which was validated by Jonas Brouwers (JB) and Deborah Seys (DS). JB and Fien Claessens (FC) conducted the international interviews together and worked on the conceptualization of the included manuscript. FC conducted the national interviews. Content analysis of the national interviews was performed by FC, Eva Marie Castro (EMC) and JB.

**Chapter 3:** JB designed and conceptualized the Discrete Choice Experiments. JB and Bianca Cox (BC) analysed the data of these experiments. AVW performed the overview of quality improvement initiatives

in Belgian hospitals. JB performed the perception analysis of stakeholders towards quality improvement policy.

**Chapter 4:** JB performed the cost analysis of a first and second hospital-wide accreditation in Flanders. DS helped with the analysis of the data. Katrien Kesteloot (KK) and JB conceptualized the study and JB wrote the first draft. JB performed the analysis of the pay for performance program in Belgium with help of DS for analysis of the data. JB performed the analysis of quality components in the Budget of Financial Means.

# Conflict of interest statements

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The authors declare no other conflicts of interest.

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