



# Evaluation programmes Beatrix hospital and Bernhoven

Since 2015, Beatrix hospital and Bernhoven have been implementing extensive change programmes. CPB, IQ healthcare and the Dutch Healthcare Authority (NZA) have evaluated the changes, efficiency and other effects over the first three years.

## Effects

- efficiency improvements compared to other hospitals
- less (intensive) care provided
- no transfer of patients to other hospitals
- no obvious change in quality

## Change programmes

- multi-year fixed contract price between insurers and hospitals
- more cooperation with and transfer of care to general practitioners
- organisational change
- bottom-up initiatives
- diminishing production incentives



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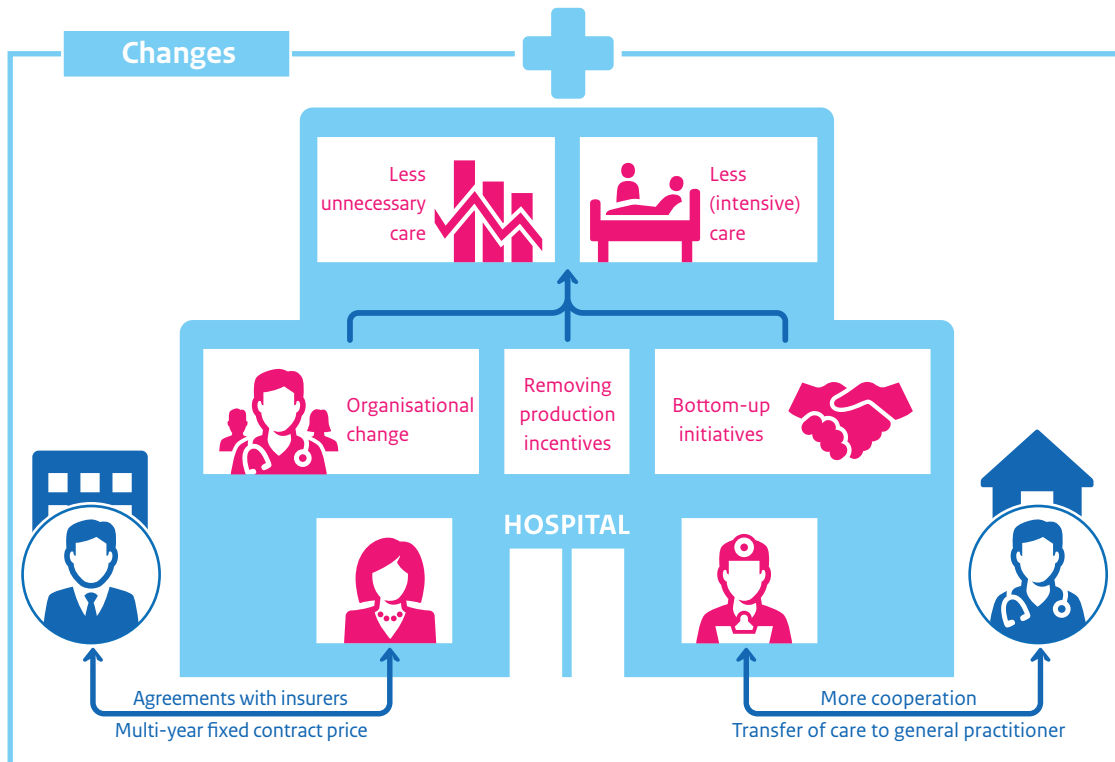
Scientific Center for  
Quality of Healthcare

## CPB Policy Brief

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# Evaluation of hospital efficiency

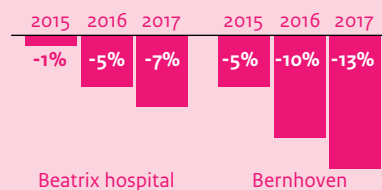
Since 2015, Beatrix hospital and Bernhoven have been implementing extensive change programmes. CPB, IQ healthcare and the NZa evaluated the changes, efficiency and other effects over the first three years



## Efficiency

Efficiency has improved more over time than in similar hospitals

Decrease in the value of treatment volume compared to the average of comparable hospitals



## Other findings

- The extent of permanent financial savings still unclear
- Increase in care outside hospital (such as general practitioners)
- Waiting time the same for most specialities, but longer for some
- Shift of treatments from inpatient to outpatient care
- Hospital's initial position partly determines efficiency potential

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## Summary

**Two Dutch hospitals, Beatrix hospital and Bernhoven, have improved their efficiency more than similar hospitals.** In 2015, the two Dutch hospitals introduced extensive change programmes, facilitated by multi-year fixed contract price between insurers and hospitals. Over the first three years, this has resulted in a greater reduction in treatment volume compared to similar hospitals. No undesirable effects, such as volume shifts to other hospitals or a decline in quality, are indicated. However, it is still too early to determine whether this will lead to lasting financial savings in the long term. This is evident from a joint evaluation by the CPB, Netherlands Bureau for Economic Policy Analysis (CPB), IQ healthcare and the Dutch Healthcare Authority (NZA).

**The evaluation of the change programmes shows that fewer treatments and less intensive treatments took place in both hospitals compared to other hospitals.** We find a reduction in the number of inpatient treatments, obtained by treating less patients or by shifting patients from inpatient to outpatient treatments. There has also been intensive collaboration with general practitioners to keep patients out of hospital for longer.

**No undesirable effects, such as shifts to other regional hospitals or a decrease in the quality of care, are indicated.** Also, the number of people visiting other hospitals did not increase in either region. An examination of the scores on the quality indicators show that the quality of care in both hospitals is medium to high and that on average the quality has not changed. However, at Bernhoven the waiting time has increased for four specialties.

**It is not yet clear whether these programmes will lead to lasting financial savings in the long term.** Improving efficiency is the first important step in achieving financial savings. These savings occur when both hospitals manage to slow down their internal costs, such as staff and capital, more quickly than similar hospitals. An analysis of the annual reports and interviews with stakeholders show some positive indications in this direction, but it is still too early to draw definitive conclusions.

**Both programmes are characterised by major organisational adjustments.** Important were the more than fifty new initiatives that were started from the work floor in each hospital, the removal of production incentives from medical specialists and well-coordinated cooperation with general practitioners and insurers. In Bernhoven, they also switched to four types of care models: acute care, diagnosis and indication, contiguous care tasks and chronic care.

**The programmes are also characterised by a change in financing with lower production incentives.** Both hospitals have concluded a five-year fixed contract price with their main insurers. As a result, the income of the hospitals has become less dependent on their production. This gives hospitals financial scope and certainty to implement the programmes without directly resulting in less income. A change in financing is therefore a precondition. Ultimately, it is about the organisational changes that are thereby facilitated. A national upscaling of these programmes to all hospitals requires more than just a change in financing. The immediate opportunities for savings are also based in a different internal organisation within the hospital.

## Introduction

**There is an ongoing quest to increase efficiency in healthcare.** In the report "The right care in the right place", a committee appointed by the Ministry of Health, Welfare and Sport (the TaskForce) concluded that the way we organise care in the Netherlands is good but that it can be done much better. Examples mentioned by the Taskforce include making care more efficient, preventing more expensive care, moving care closer to people at home and replacing care with better alternatives. In hospitals, they cite as examples the prevention of unnecessary referrals and treatments, or double diagnostics.<sup>1</sup>

**Experiments in hospitals can help boost efficiency.** In the healthcare system of regulated competition, the task of more efficient care provision lies with market parties such as care providers and health insurers. There are incentives built into the healthcare system that encourage market parties to design healthcare more efficiently. However, this is not an easy process and in practice proves to be trial and error. Experiments with new partnerships between hospitals, health insurers and other care providers can provide further insight into more efficient care, but this depends on a good evaluation.

**When does the efficiency of a hospital increase?** In this Policy Brief, we speak of an increase in efficiency when a hospital succeeds in reducing or less rapidly increasing its treatment volume compared to similar hospitals during the period of the experiment without affecting quality and accessibility. For example, this can be achieved by providing less care, by substituting more intensive care by less intensive care in the hospital or by substituting hospital care with primary care, while the outcome of the treatment remains the same. In addition, there were no or limited adverse effects during the experiment, such as a shift of care to other hospitals. An increase in efficiency does not necessarily need to lead to financial savings for hospitals or insurers in the shorter term.

**Since 2015, two hospitals along with insurers CZ and VGZ have introduced change programmes to make healthcare more efficient: Beatrix hospital with the "Quality as medicine" programme and Bernhoven with the "Dream" programme.**<sup>2</sup> Both programmes feature major organisational adjustments and different financing schemes with lower production incentives. The introduction of patient decision support and the replacement of inpatient treatment with outpatient treatment are examples of the more than a hundred initiatives that have been started from the workplace. An important part was also the five-year fixed contract price that was concluded between both hospitals and insurers. The aim was to switch from more production-driven care to more quality-driven care. CPB, Netherlands Bureau for Economic Policy Analysis (CPB), IQ healthcare and the Dutch Healthcare Authority (NZA) jointly investigated whether both hospitals became more efficient during the first three years since the introduction of these programmes.

**With these programmes, Beatrix hospital and Bernhoven have improved their efficiency compared with similar hospitals.** In the next section, we show that three years after implementation, the value of the treatment volume of the Beatrix hospital decreased by 7% and that of Bernhoven by 13%, compared to the treatment values at similar hospitals, with no adverse effects being found. This decrease is partly explained by a shift from inpatient to outpatient care and the transfer of care to the general practitioner. Paragraph 3 discusses the programmes and the mechanisms that contributed to this result based on interviews. The last paragraph discusses lessons from research for policy. For a comprehensive accountability and more empirical analysis, we refer to the reports of CPB / NZa (2020) and IQ healthcare (Van Dulmen et al., 2020).

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<sup>1</sup> Taskforce (2019).

<sup>2</sup> Beatrix hospital is a regional hospital in Gorinchem and is part of the Rivas Care Group. The catchment area includes the Alblasserwaard, Vijfherenlanden and the land of Heusden and Altena. Bernhoven has a regional hospital in Uden. The catchment area is the regions Uden, Oss and Veghel.

## 2. Both hospitals have improved their efficiency

**For both hospitals, the value of treatment volume (DRGs) decreased compared with a group of similar hospitals between 2015 and 2017.** Figure 1 compares the value of the treatment volume of the Beatrix hospital and Bernhoven with the average of similar hospitals and with the average hospital in the market for the years 2009-2017. <sup>3</sup> After the introduction of the programmes, the value of the treatment volumes declined annually step by step for Beatrix hospital by approximately 1% in 2015, 5% in 2016 and 7% in 2017, and for Bernhoven by 5% in 2015, 10% in 2016 and 13% in 2017 more than the average for a group of similar hospitals. <sup>4</sup> The drop in value provides an initial indication that after the introduction of the programmes, both hospitals started treating fewer patients, or treating patients less intensively.

**Figure 1 Value of treatment volume at hospital level (measured in median market prices)**

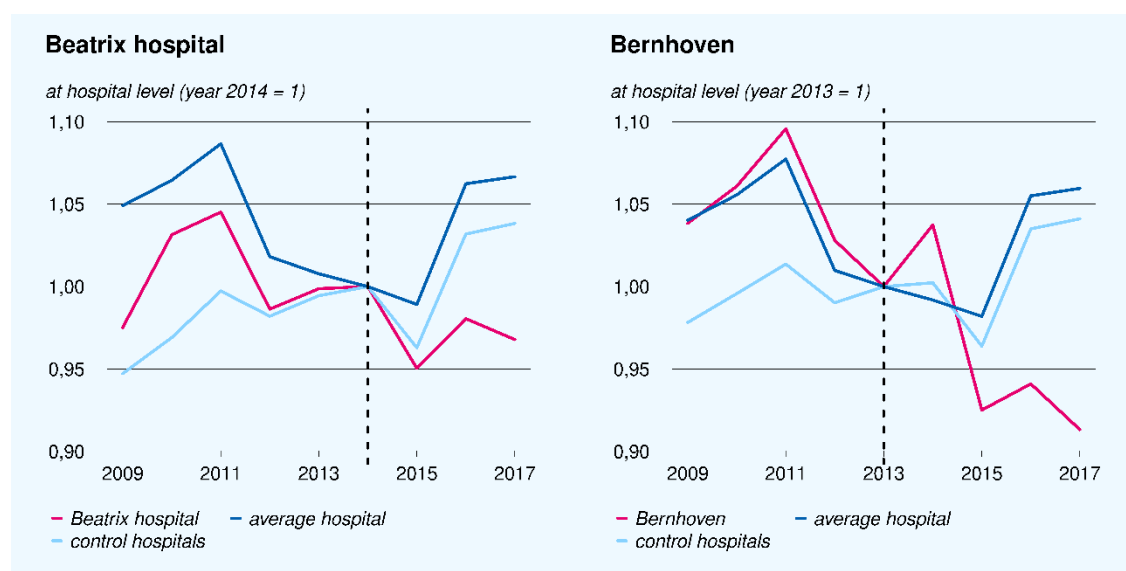


Table 1 shows that this decrease in value for Bernhoven is explained by a relative reduction in the number of patients (7.1% in 2017). This indicates less care and more shifting of care outside the hospital, such as GP care. <sup>5</sup> At the Beatrix hospital, we see a small increase in the number of patients and the decrease in value is explained by less intensive treatment. An important question is whether the reduction in the treatment volume causes any adverse effects, such as shifting care to other hospitals or a reduction in quality of care.

**Table 1 Effect of change programmes at hospital level for different volumes**

	Beatrix hospital	Bernhoven
Effects at hospital level with respect to the average of similar hospitals.		
Turnover (median prices)	-7.1%	-13.1%
Number of patients	+1.3%	-7.1%

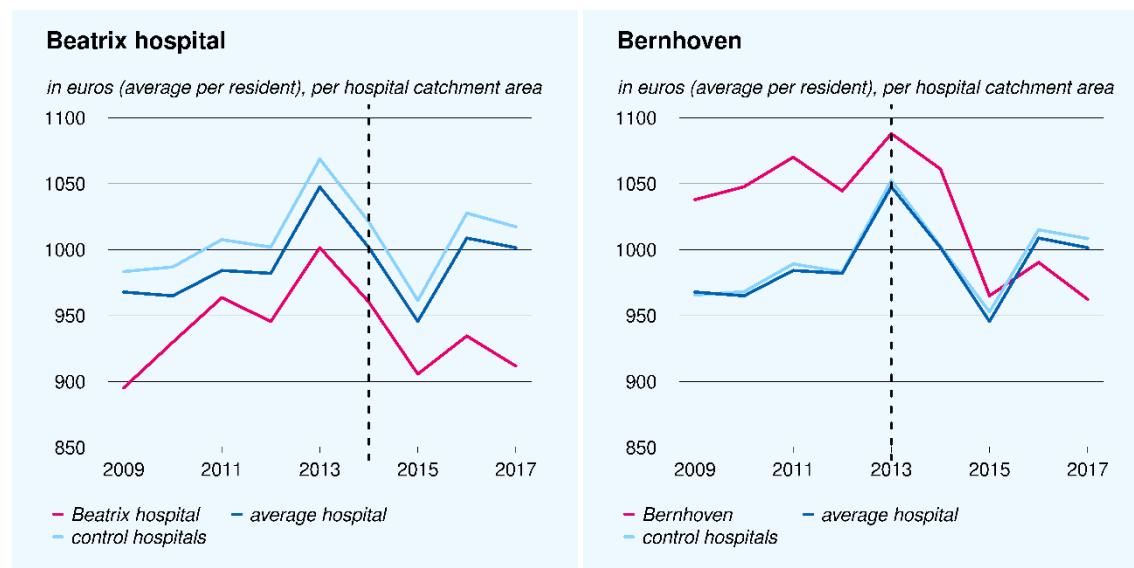
<sup>3</sup> The value of treatment volume is calculated using median market prices for diagnostic related groups (DRGs). The value is determined by adding up all the median prices of DRGs declared in hospital care. We expect this to be a good indication of the value or treatment intensity of those DRGs.

<sup>4</sup> For Beatrix hospital, the comparison year is 2014, the year before the introduction of the programme. For Bernhoven, there was a difficult to interpret peak in production in 2014 (see Figure 1). To prevent this peak from strongly influencing the results, 2013 was chosen as the comparison year. Beatrix hospital was compared with 23, and Bernhoven with 16 similar hospitals.

<sup>5</sup> Bernhoven has implemented a specific policy to have their medical specialists work together with general practitioners in the region. This resulted in more GP consultations and fewer treatments in the hospital.

**No undesirable effects, such as shifts in care to other hospitals, are indicated.** With a multi-year fixed contract price a hospital can save money, by delivering lower quality, by attracting fewer patients or by referring patients to other hospitals more frequently. There would be no question of efficiency, but of unwanted patients being passed on to other hospitals. If this effect occurs, reductions in treatment volume at Beatrix hospital and Bernhoven will not result in a reduction in treatment volume in their hospital catchment area. However, figure 2 shows that the average treatment value has also decreased. For the Beatrix hospital, the value of the treatment volume fell by an average of 4.7% more than at similar hospitals. The reduction at Bernhoven is 7.4%. This reduction is lower than the reduction at hospital level because patients in the catchment areas also visit other hospitals. Table 2 shows that the number of patients in the catchment area also fell compared to similar hospitals.<sup>6</sup> This result does not indicate an undesirable shift of patients to other hospitals.

Figure 2 Average value of treatment volume per inhabitant in hospital catchment area.



**There are no clear indications of changes in the quality of care at Beatrix hospital and Bernhoven.** The general impression of the quality of care, based on the report figures collected by the Dutch Hospitals Association in 2019, is that average quality is high for Beatrix hospital and average for Bernhoven.<sup>7</sup> Based on patient experiences published by the Dutch Patient Federation, the quality is average for Beatrix hospital and high for Bernhoven.<sup>8</sup> No clear upward or downward trends in quality are visible after 2015. An in-depth analysis of several initiatives does not provide any clear indications of higher or lower quality care after the introduction at both hospitals.<sup>9</sup>

**Waiting times are longer with some specialties.** The lower production incentives that characterise both programmes could also lead to longer waiting lists. A comparison of trends in waiting times for eighteen different specialties for the years 2012-2017 shows that waiting times have increased for one specialism at Beatrix hospital and

<sup>6</sup> The number of residents in the catchment area who opt for a different hospital does not seem to be increasing (CPB / NZa, 2020).

<sup>7</sup> Beatrix hospital received an average score of 8.1 in 2019 and Bernhoven a 7.6. The control group at Beatrix hospital received an average score of 7.8 and the control group at Bernhoven a score of 7.7. ([link](#))

<sup>8</sup> For example, in 2019 Bernhoven hospital received an average score of 8.9 and Beatrix hospital an 8.4. The Bernhoven control group received an average score of 8.5 and Beatrix hospital an 8.6. ([link](#))

<sup>9</sup> This in-depth study concerns three specific initiatives at Beatrix hospital: outpatient review, fast-track orthopaedics and ENT in outpatient treatment and three initiatives at Bernhoven hospital: decision aid for gallbladder and inguinal hernia, interventions in orthopaedics and eye measurements (IQ healthcare, 2020).

for four specialties at Bernhoven, compared with a group of similar hospitals.<sup>10</sup> The extent to which the increase in these waiting times has influenced the quality of care was not investigated further.

**The decrease in volume is partly explained by a shift from inpatient treatments to outpatient treatments.** Table 2 shows that the number of inpatient treatments in the catchment areas of Beatrix hospital and Bernhoven is decreasing, and the number of outpatient treatments remains the same or increases. This indicates a shift from inpatient treatments to outpatient treatments (see example in box on page 6 for two specific initiatives).

**The number of residents in the catchment area around Beatrix hospital and Bernhoven who have contact with a GP increased compared to residents in similar catchment areas.** This indicates more intensive cooperation with general practitioners to keep treatments out of the hospital. In the Bernhoven region, we find an increase in the number of patients who receive a long consultation or visit, and in the number of telephone consultations. In the region of Beatrix hospital, we see an increase in the number of long visits.

Table 2 The effect of the change programmes on use of care in the catchment area of a hospital

	Beatrix hospital	Bernhoven
Average effect of care use in catchment area with respect to similar hospitals		
Treatment volume value (median prices)	-4.7%	-7.4%
Number of patients	+0.1%	-5.1%
Number of outpatient treatments	+2.9%	+0.4%
Number of inpatient treatments	-2.7%	-8.0%
General practitioner (unique patients with long consultations)	+0.4%	+3.5%
General practitioner (unique patients with long visits)	+5.9%	+9.2%
Other healthcare expenditure (excl. hospital expenditure)	+2.2%	+3.0%

Note: effects are calculated for all residents in an catchment area, adjusted for age and gender. In an catchment area, about 20-25% of patients visit a hospital other than Bernhoven and Beatrix hospital. This partly explains why the effects at the level of the catchment area are smaller than at the hospital level.

**Placing care out of the hospital increases other healthcare expenditure (excluding hospital expenditure).**<sup>11</sup> After the implementation of the change programmes, the other healthcare expenditure increased in the catchment area of both Beatrix hospital and Bernhoven compared to similar catchment areas. The estimates show that the increase in other healthcare expenditure roughly corresponds to 10-25% of the decrease in value of the treatment volume in the hospital.

**The starting position of Beatrix hospital and Bernhoven may play a role in the reduction in treatment volume.** Figure 2 shows that the average value of the treatment volume was relatively high for residents in the Bernhoven catchment area in the period 2009-2013, before the programme was introduced. The high starting level probably gave Bernhoven more scope to achieve a sharp decrease in the treatment volume, as shown in Figure 1. The starting position for Beatrix hospital was lower than for the other hospitals. This could indicate that Beatrix hospital was already more efficiently organised at the start of the programme and that there was more potential for Bernhoven to increase efficiency.<sup>12</sup>

<sup>10</sup> We speak of an increase in waiting times for a specialty when an increasing trend is visible after the introduction of the change programmes and in a given year the waiting time is higher than for 90% of control hospitals.

<sup>11</sup> Other health care expenditure includes expenditure on general practitioner care, obstetrics care, pharmacy, oral care, paramedical care, mental health care and maternity care.

<sup>12</sup> Adjustments were only made for age and gender and not for disease characteristics of the population. Analysing the claims of insurers of Dutch hospitals, De Nijs (2020) shows that regions around hospitals with many claims as a starting position are more likely to show a decreasing trend in claims over time, while regions around hospitals with a low start position often show an upward trend compared to the average hospital. This suggests that tapering off treatment volume is easier at a high starting position.

**A reduction in volume and unnecessary care does not automatically lead to financial savings.** Reductions in volumes cannot be translated one-to-one into a reduction in internal hospital costs such as personnel costs and building-related costs. Buildings still have to be paid for and a minimum number of staff is required to run a hospital. Saving on the internal cost structure is a long-term process and requires continuous attention and active policy. Various sources, including annual reports and interviews, cautiously indicate that both hospitals have achieved cost savings, such as closing a nursing department (Beatrix hospital) and a reorganisation of care models (Bernhoven). Lower health insurance premiums for insured persons occur when the budgets provided by insurers to both hospitals increase less rapidly than those for similar hospitals. An analysis of the annual reports suggests that the hospital budget grew faster in the first year, in 2015, of the five-year contract and less rapidly in later years than in similar hospitals. The financial savings therefore mainly seem to occur in the later years of the five-year contract period. The annual reports show that profit margins are under pressure in both hospitals, which suggests that reducing the internal cost structure remains challenging.<sup>13</sup>

**The analysis has limitations; it is not possible to quantify all effects.** The analysis is based on the available data. We cannot observe all effects equally well, nor can we measure all aspects of quality. Registration effects may play a role, although they are likely to be small.<sup>14</sup> It is difficult to weigh up all the effects found, because the direction of effects is not always unambiguous. Another limitation is that the analysis only concerns the first three years after implementation, although the multi-year fixed contract price concluded in 2015 lasted for five years. Nor can we isolate the different parts of the change programmes from each other. For example, we cannot measure the extent to which the effects are driven by the multi-year fixed contract, employment or other factors. The next section therefore explores the mechanisms of the programmes based on interviews with stakeholders from both hospitals, healthcare providers from the region and health insurers.

#### **Example of an initiative at Beatrix hospital and Bernhoven.**

**Beatrix hospital: Ear, nose, throat (ENT) operations in outpatient treatment.** At the Beatrix hospital, there was an initiative to have a patient spend the night less often in the hospital during ENT operations, but to do the treatment within a day. This is an example of shifting from inpatient to outpatient treatment. This involved the treatments of removing tonsils, nasal septum and grommet insertion. The effect was greatest for nasal septum corrections. The number of outpatient treatments fell by about 39% points between 2014 and 2017, compared to the control hospitals.

**Bernhoven: offering shared decision making to the patient.** At Bernhoven, shared decision making was introduced from the end of 2015 for four different operations: gallbladder removal, inguinal hernias and knee and hip replacement in osteoarthritis. With shared decision making, the patient receives more information in advance about a treatment with all the advantages and disadvantages. Subsequently, the patient and the specialist decide together whether to carry out a treatment. For all four treatments, the percentage of operations decreased compared to the control hospitals. For inguinal hernia surgery, the effect was the greatest with a decrease of 13% points between 2013 and 2017 compared to the control hospitals.

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<sup>13</sup> See IQ healthcare (2020).

<sup>14</sup> For hospitals with a fixed contract price, the need to register every treatment via DRGs is smaller than for hospitals that are paid per treatment. Hospitals are legally obliged to register treatments. It is also important because both hospitals are paid per treatment by some insurers. Insurers have an interest in good registrations, for example for collecting own payments in connection with the deductible.



### 3. Description, implementation and mechanisms of action

**The change programmes of Beatrix hospital and Bernhoven are very extensive.** <sup>15</sup> Table 3 shows that both hospitals have implemented large-scale changes. The goal of both programmes is to transition from more production-driven to quality-driven care: higher quality at a lower cost. Besides implementing improvement initiatives and more intensive cooperation with stakeholders, major adjustments have been made to the financing structure. A specific cultural programme has also been developed in Bernhoven and more changes have been made to the organisational structure. All components have fundamentally changed both hospitals. To map out the implementation and mechanisms of the programme, interviews were conducted with 63 stakeholders from both hospitals. This enabled us to identify the main implementation factors as experienced by the stakeholders themselves.

**Quality initiatives are an important driver of change and commitment to the change programme.** The quality initiatives were initiated by professionals at the workplace (bottom-up quality initiatives) in both hospitals which created ownership and support for the strategy. The quality initiatives are (slightly) different in the two hospitals. However, a common aim of both hospitals is to provide a better connection between healthcare and the needs of the patient, such as shared decision making. They also want to ensure that care takes place in the right place, such as transfer of care to primary care. Furthermore, it appeared that properly propagating successful strategies had a stimulating effect within the organisation. As a result, the strategy became more than the sum of the individual initiatives. Important preconditions proved to be a good project team and sufficient resources to support the care providers.

*Table 3 Components of the strategic programmes*

Part	Beatrix hospital 'Quality as a medicine'	Bernhoven 'Dream'
Bottom-up quality initiatives	Large number of initiatives (50+) set up to improve quality and limit volume	Large number of initiatives (50+) set up to improve quality and limit volume
Strengthen cooperation with general practitioners	Intensive collaboration with the GP association "HenZ" + Pilot more time for the patient	Intensive collaboration GP association "Synchronous"
Revised financing structure	Multi-year contract price	Multi-year contract price
Remove production incentive MS	Adapted distribution model within medical specialist company (LOGEX)	Salaried medical specialists (2015) + participation model
Organisational change		Reorganisation in four care models + medical specialists as a manager
Cultural change		Cultural programme

**Strengthening cooperation with general practitioners (GPs) and health insurers proved to be a condition for the success of the programme.** In both programmes, an important part of the strategy was collaboration with GPs. This was partly because some of the initiatives focused on more intensive collaboration between GPs and specialists and on the transfer of care to primary care. General practitioners were closely involved in the strategy from the start, promoting contact between general practitioners and medical specialists. The shorter lines enable patients to be treated in primary care more often. Because this increases work pressure, for the success of the strategy it is important to sufficiently compensate GPs for this.

**An important part of the strategy are the long-term fixed contracts with the largest health insurers of both hospitals.** This requires intensive cooperation and trust between hospitals and insurers. For both hospitals, strategic support from an external party proved essential to get the movement started, for transparency and to improve cooperation with the insurer. The multi-year fixed contract gives financial scope for change. Both hospitals have

<sup>15</sup> The changes at Beatrix hospital were part of the changes at Care group Rivas.

signed a five-year fixed contract with the major health insurers in the region. This gave the hospitals time and financial space to implement the strategy, remove the production incentive and to gradually reduce staff and building-related costs.

**The important precondition for providing financial security to medical specialists requires a change in payment method.** In both hospitals, this has been achieved in different ways: with a salary model for medical specialists (Bernhoven) or with a change in the distribution model in the medical specialist company (Beatrix hospital).<sup>16</sup> Both payment methods have resulted in financial security for specialists despite a decrease in production. In addition, removing the incentive to produce has been a promoting factor in the implementation of several quality initiatives. In some departments, this created scope to treat less and reduce unnecessary care. This has contributed to a cultural change from production-driven to quality-driven work.

**The organisational structure in care models at Bernhoven has potential, but implementation is proving difficult in practice.** The organisation of the hospital is based on four types of care provision: acute care, diagnosis and indication, contiguous care tasks, and chronic care. Healthcare professionals indicate that this makes them think more cross-departmentally, producing a more streamlined care process for the patient. For acute care in particular, this has meant that not all components have been implemented according to plan and experiences with the care models have been divided.

**A cultural change is achieved through a combination of parts of the programme.** The Bernhoven culture programme played a limited role in this. Some of the staff at Bernhoven took part in a training focused on the ideas of the Dream strategy. The programme received positive reactions but does not seem essential to the success of the programme. A successful cultural change also seems to have taken place at the Beatrix hospital and this is more than the sum of the separate parts of the strategy.

**Obstructive factors were incomplete support, insufficient resources and insufficient support for executing the strategy and measuring the results.** Continuous attention is required to get and keep medical specialists on board. There is variation in the involvement of the different departments. Nurses joined in late (Bernhoven), which made involvement in the programme low. Partly because of this, the views about the goals and content of the programmes varied widely. In addition, general practitioners experience insufficient support to absorb the increased workload caused by the programme. Substitution to primary care has increased the range of duties of the GPs, as well as the number of consultations. GPs need specific knowledge and skills and greater capacity to provide more volume and more specialised care. Measuring the effects of the strategy is time consuming and involves a lot of resources. Although this was considered important, barriers are experienced in the infrastructure and data exchange between the first and second line. In addition, neither hospital had sufficient internal capacity to conduct extensive effect evaluations. There is uncertainty among the medical specialists and administrators about extending the long-term contracts. The development is nevertheless experienced as irreversible; returning to the old financing model does not seem to be an option. There were different perceptions about the goals and the expected results. It is therefore important to fine-tune expectations for future contracts and cooperation.

**Culture and context-bound strategies make upscaling challenging.** Implementing such extensive programmes requires time and energy / leadership to create support from all involved. When implementing such programmes in other hospitals, it is essential to adapt the components of the strategy to the local context. Changing financial incentives is another precondition for improving efficiency. Another important organisation is the care. Finally, good coordination and financial support are important for substitution of care. Context factors such as a strong general practitioner association have a positive effect, but do not make upscaling obvious. Successful implementation seems to work best when initiated from the hospital and requires broad support among medical specialists. This makes it difficult for a government or health insurer to enforce the movement, but they can facilitate.

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<sup>16</sup> Medical specialists in an MSC receive compensation according to a distribution model (LOGEX). The model was changed to make the transition from production-oriented to patient-oriented care. The compensation is no longer based only on the share of production, but also on the contribution to quality initiatives.

## 4 Discussion and lessons

**With the "Dream" and "Quality as medicine" programmes, Beatrix hospital and Bernhoven have improved their efficiency compared with similar hospitals.** Three years after its introduction, the value of the treatment volume of Beatrix hospital fell by 7% and Bernhoven by 13% compared to similar hospitals, without any structural adverse effects being observed. This decrease is partly explained by a substitution of inpatient treatments by outpatient treatments and the return of care to the GP. The results are context specific. Due to the project-driven approach, initiated from the work floor, there is a lot of variation in the precise approach that hospitals follow to achieve greater efficiency.

**More effective care is the first important step towards lower care expenditure, but it is not yet clear whether the change programmes will lead to lasting financial savings in the long run.** In a financing scheme where hospitals are paid by health insurers per treatment, a drop in the treatment volume would lead to financial savings for the health insurer. With a fixed multi-year contract, financial savings for health insurers only occur when the (expected) financial savings of the programme for hospitals are already (partly) included in the contract price. This seems to apply to the final years of the contract. For hospitals, financial savings do not occur until they manage to slow down their internal costs, such as staff and capital costs, more quickly than similar hospitals. In practice, this is difficult and internal cost savings (strongly) lag behind reductions in the treatment volume. In addition, both parties must consider that some of the savings in the multi-year contract are reserved to compensate for the increase in care outside the hospital, such as general practitioner care. Follow-up research into internal cost structures at hospitals and contract negotiations may provide more insight into this in the future.

**The multi-year fixed contract must be designed in such a way that (future) efficiency efforts remain attractive.** The extent to which hospitals pass on financial savings to insurers via the multi-year contract partly depends on the negotiation process between the insurer and the hospital about (follow-up) contracts. These negotiations are difficult strategic processes, because of the difference in information and market power between hospitals and insurers. An important question is how tenable these contracts are in the long run. When insurers want to pass on the reductions in treatment volume by lowering the price for the new contract, the interest for more efficiency in hospitals will decrease (ratchet effect).

**Multi-year fixed contract make insurers' tracking policy important to prevent free rider behaviour.** Hospitals enter into contracts with various health insurers. It is important that all health insurers support change programmes so that the hospitals do not have to differentiate between insurers, which would compromise efficiency. This can also prevent the risk of some insurers not wanting to invest in the programmes but wanting to benefit from any efficiency gains (free rider behaviour).<sup>17</sup>

**The government cannot enforce new change programmes for hospitals but can stimulate and facilitate them.** In the Dutch healthcare system, insurers and healthcare providers negotiate volumes and prices without government intervention. For hospitals and insurers, there is room for innovative contracts in which healthcare providers are given scope to set up change programmes. The opportunity to steer towards common objectives such as regional cooperation and changes in organisation and care provision with a long-term contract seems promising. The government can encourage and facilitate this process by examining how best to design multi-year change programmes. Several things are important here. Multi-year contracts shift the risk to healthcare providers. Risks that cannot be influenced by the healthcare provider should be with the healthcare insurer as much as possible. Nor should a fixed contract price lead to extremely few treatments. To avoid this, contract conditions, monitoring of the quality and care waiting lists are necessary. Multi-year contracts should not only have a volume reduction trajectory, but also an internal cost reduction trajectory and the healthcare provider's financial position. To promote cooperation between care providers in the chain, it is also necessary to look at the connection between hospital care

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<sup>17</sup> In principle, insurers who hold on to a payment per treatment benefit from the change programmes because hospitals treat less and less intensively.

with other care and the social domain.<sup>18</sup> Furthermore, it is important to consider the consequences of volume reductions for the viability of the healthcare providers. Due to volume reductions, for example, a hospital may no longer meet the minimum requirements with regard to treatment and new questions will arise among GPs about capacity, financing and medical knowledge in primary care.

**Broad support in the hospital is required for the implementation of change programmes.** The interviews showed that initiatives to implement change programmes must come from hospitals themselves. Both programmes featured extensive changes in organisational structure and production incentives. It is important to create broad support inside and outside the organisation. In the current funding, medical specialists lose income if they start to treat less. This requires adjustment, for example through salary (Bernhoven) or with an adapted model for medical specialists that reduces the production incentive (Beatrix hospital). Changing financing is a precondition. Ultimately, it is about the organisational changes that are thereby facilitated. National upscaling requires more than just a change in financing because opportunities for savings also lie in a different organisation within a hospital. For example, this evaluation makes it clear that both hospitals with a similar approach and preconditions do not necessarily come up with similar projects. People will follow their own route within their own context and that is one of the success factors.

**Research into experiments in healthcare is important and can provide direction.** Making healthcare more effective by starting up new initiatives is difficult and risky, because it is often unknown what works and what does not. Experiments can provide more insight into this. Unfortunately, the outcome of experiments often remains unclear because a good analysis is not possible or is omitted. It is therefore important to scientifically facilitate and independently analyse promising experiments. Ideally, the way the analysis is performed will be taken into account when setting up the experiment.

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<sup>18</sup> Other countries and other circumstances in which similar contract aspects play a role can serve as examples. For a literature overview of contracts in healthcare, see Cattel and Eijkenaar (2019). In the energy sector, research is being conducted into the incentives of long-term contracts and agricultural cooperatives have a long history in which cooperation and coordination of production must be arranged. For example, see Bogetoft and Olesen (2007) and Giuliotti and Price (2005).

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