

# Hospital quality: A product of good management as much as good treatment



**ANDY HYDE**  
SOUTH EASTERN REGIONAL HEALTH AUTHORITY, NORWAY



**ANDERS FRAFJORD**  
DIAKONHJEMMET HOSPITAL, OSLO, NORWAY

**ABSTRACT:** In Norway, as in most countries, the demands placed on hospitals to reduce costs and improve the quality of services are intense. Although many say that improving quality reduces costs, few can prove it. Furthermore, how many people can show that improving quality improves patient satisfaction. Diakonhjemmet Hospital in Norway has designed and implemented a hospital management system based on lean principles and the PDCA (Plan-Do-Check-Act) quality circle introduced by WE Deming (Deming 2000). The results are quite impressive with improvements in quality and patient satisfaction. The hospital also runs at a profit.

Diakonhjemmet Hospital is a faith-based, non-profit, medium-sized city hospital in Oslo. It has A&E facilities and departments of internal medicine, orthopedic-, gastrological-, and general surgery, rheumatology and rheumatological surgery. It also has a large psychiatric practice ranging from child to elderly psychiatry. Support departments include radiology, biochemical and psychopharmacological laboratory services and clinical activity.

In 2006 the government made it obligatory for all hospitals to introduce a holistic management system based on “New Public Management” (NPM) with a strong focus on reporting. At the same time, ISO 9001 was required as a standard for quality management, although certification was not mandatory. Later attention was turned towards COSO (Committee of Sponsoring Organizations of the Treadway Commission) as a framework for managing enterprise risk. With these competing and sometimes conflicting demands, Diakonhjemmet Hospital started work on a new management system to combine the best of these three management models. Deming’s PDCA (Plan-Do-Check-Act) model was chosen as the underpinning philosophy as this is present in each of the three models to which we had to conform. In addition, lean philosophy also built on Deming’s work and was central to the development of the management model now called Value-based Performance Management or in Norwegian, *Verdibasert Virksomhetsledelse*.

case of hospitals in Norway, there are regulatory requirements, financial requirements, cooperation agreements with other actors in the health care system, and not least employee organizations. From quality management, quality is defined as the degree to which the service meets the patients’ requirements and these can either be needs and expectations either stated, implied or obligatory (based on ISO 9000:2006). The sheer number of explicit requirements from all these stakeholders is overwhelming and it is almost correct to say that no hospital can manage all of these demands. NPM focuses very much on internal processes, whereas quality management and lean management focus on the customer, for a hospital, the patients. As a faith-based, non-profit hospital, Diakonhjemmet had a long tradition of value-based care therefore keeping the main focus on the patient and patient care whilst managing internal processes gave us the correct balance.

After the requirements were identified, plans such as strategies and yearly action plans were written. These were goal driven and

## The basic principles of Value-based Performance Management

The Plan-Do-Check-Act (PDCA) cycle aims to identify the demands, both external and internal, on the management system, i.e. what must be delivered. In the

FIGURE 1: THE ELEMENTS OF VALUE-BASED PERFORMANCE MANAGEMENT

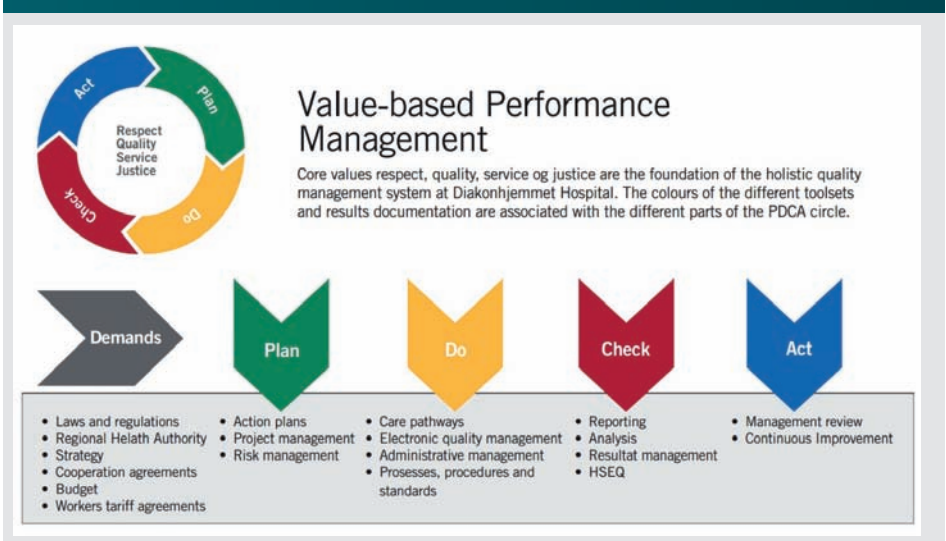
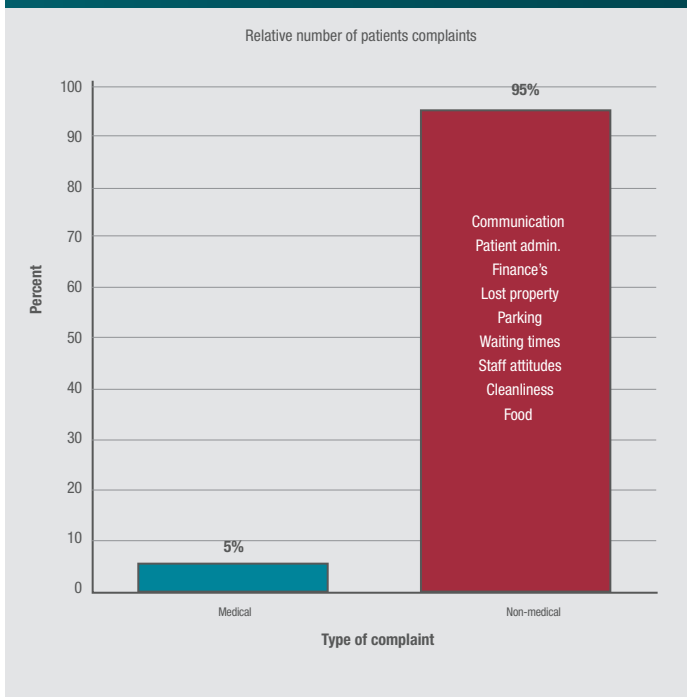


FIGURE 2: TYPES OF PATIENT COMPLAINTS



highly collaborative with all employees being invited to contribute ideas as to how the goals for the following year could be achieved. All of the suggestions must be assessed for risk in terms of the likelihood of achieving the specified goal. Any high risk elements must have a risk management plan before they can be included in the yearly action plan. All activities on the plan need to be aligned with the four core values of the hospital: respect, quality, service and justice.

Once the plan was completed, it was signed off by the CEO and each department's management and enacted. The departmental managers had complete responsibility for following up the plan whilst the CEO received continuous reports on progress through monthly control meetings, quarterly ISO-based management reviews and his own management meetings. Any deviation from the plans was picked up quickly before the situation became irrecoverable. Departmental managers have now understood this responsibility and often initiated corrective action before the hospital management were involved and could report at the regular follow-up meetings accordingly.

This was a large part of the NPM risk management-based steering model but extending this to patient care and patient satisfaction was where Diakonhjemmet Hospital went one step further.

**What is quality in a hospital context?**

Through a rather non-scientific and non-exact survey of complaints, we quantified the number of complaints directly relating to patient care, i.e. incorrect or unsatisfactory treatment and severe adverse events, and the number relating to other issues such as communication, patient administration, finances, i.e. incorrect bills, lost property, parking, waiting time, staff attitudes,

cleanliness and food. Although the numbers of non-care related issues were not exact, it became clear that they far exceeded what the hospital was expecting and far exceeded the number of care related complaints which were most often formal written complaints.

Just from complaints regarding payments for outpatient services, where we registered an average of two per day, complaints about the response time answering the telephone at more than two per day, and cleanliness issues, this came to over 1,500 complaints per year. The hospital received 61 official care related complaints in 2012. This meant that around 95% of complaints were non-care related. In reality this figure is higher, when taking into account other categories such as complaints about food, staff attitudes, etc. which were not included in this figure.

Therefore if a hospital is serious about improving quality, it should look more closely and intensify its efforts in solving non-care related quality issues. Of course, it must not reduce focus on care related issues in the process.

**Some examples of specific issues addressed at Diakonhjemmet Hospital**

*Communication – correspondence*

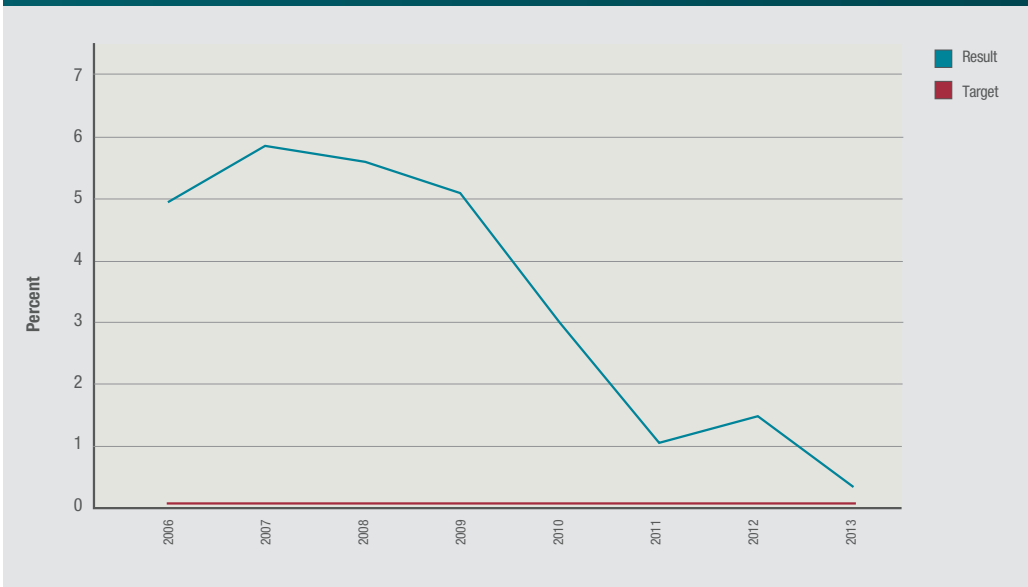
Communication issues included correspondence to patients regarding appointments and information to other tiers of the health service such as General Practitioners (GPs). The focus for the PDCA continual improvement efforts has been on the final part of the treatment process where the case summary is created and sent to the patient's GP in a timely fashion such that the treatment can continue as seamlessly as possible. This is measured by the percentage of summary documents that are sent within seven days; the legal requirement and the target was 80%, but now it is 100%.

In 2006 when work started, this figure was 40% with one department achieving just 4% according to figures from the reporting system. Just instructing the departments to improve was not working. They did not understand where in the process the problems were caused. Using a lean-based approach, an improvement methodology was developed around Deming's PDCA (Plan-Do-Check-Act) cycle. A reporting and analysis system

FIGURE 3: PERCENTAGE OF CARE SUMMARIES SENT WITHIN SEVEN DAYS. MONTHLY RESULTS FROM 2005-2013



FIGURE 4: . BROKEN TREATMENT GUARANTEE PERCENTAGE



Norway certain parts of this process are regulated by law. The number of days from when the referral is received to when it is evaluated must be under 30 working days and in a revised law proposal, 10 working days. In this period, the doctor evaluating the referral must decide whether the patient has the right to priority treatment, and if so, specify a treatment guarantee, a date within which treatment must be initiated. The hospital must then commence treatment within this date or face a potential penalty if the patient then chooses to be treated elsewhere. The percentage of patients not receiving treatment within the guarantee date in the south

DIA-LIS, Diakonhjemmet's Leadership Information System, was created to support detailed process measurement with very short cycle improvement periods. The participants in the process, secretaries, nurses, doctors and other relevant workers, were consulted and invited to suggest reasons why the results were as they were. The hypothesis could be tested immediately and either ruled in or ruled out. Any measurement that was ruled in was then added to the list of measurements to be followed over time. The people involved in the process worked together to resolve the issues and implement permanent solutions.

Each time the result improved, another workshop was organized to identify new issues to address and one by one all of the issues were identified and resolved.

From its start in 2006, it took over 12 months to establish a new continuous improvement method but once it was established the results improved. From January 2008, where the figures were still at 40%, it took 18 months to achieve the target figure of 80%, and this has been maintained. The target was increased to 100% in 2012 and despite this, the result has remained around 80%. Achieving the last 20% addresses completely new issues that have not been addressed before. One major barrier is the belief that the target is unobtainable by many actors in the process and therefore there has not been sufficient focus on identifying the new issues to be solved. Latest figures show 87.5% for Diakonhjemmet with an average of 84.3 for the whole country (Helsenorge.no 2013).

**Waiting lists**

One of the biggest issues affecting both care and non-care related quality issues is waiting times for treatment. The longer patients wait before their health issue is addressed, the worse the potential outcome becomes. In

eastern region of Norway is currently 7.2% with a maximum of 23% in somatic care at one hospital, while the two biggest hospitals in the region have 16% and 17% in somatic care, 10% and 16% across all areas. This is a serious issue and is extremely highly prioritized nationally. Diakonhjemmet Hospital is listed in the same report with 0%.

By focusing on the four core values of respect, quality, service and justice, this method really addressed all four. It shows a lack of respect to give patients a treatment date and then not begin treatment before this date. It is a lack of both experienced and real quality. It is poor service and not least it is breaking the law of patient rights. Patients, however, do not actually complain much to the hospital, but we know from other hospitals with higher rates that this becomes a media issue especially if a patient dies in the queue waiting for treatment. Also other hospitals have been accused of manipulating this figure to avoid the penalty payments which also became a media issue.

In 2009, we put this at the top of our target list and broke the

FIGURE 5: BREAKS IN THE REGULATORY EVALUATION OF REFERRALS

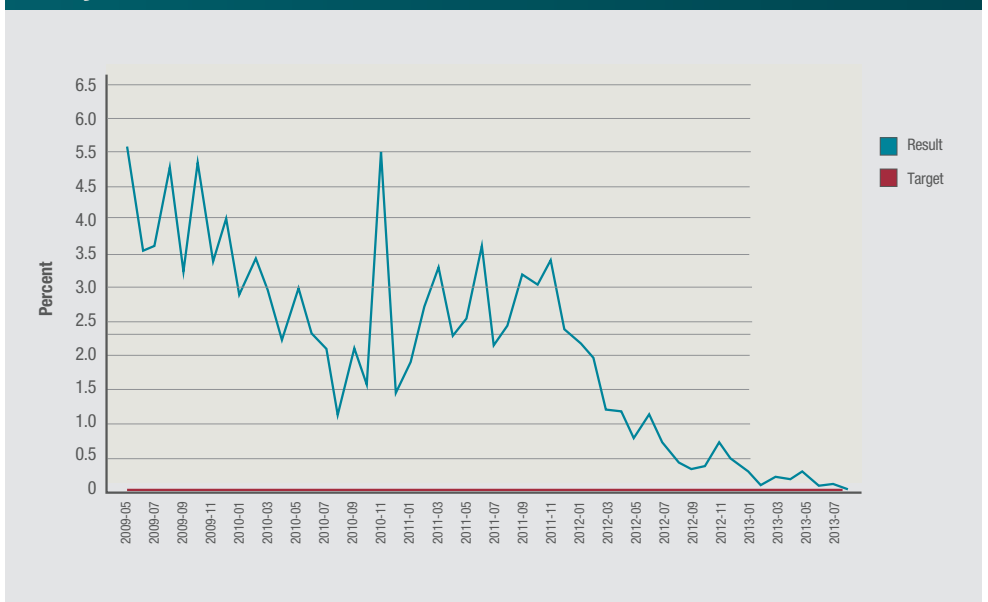


figure down into departments, specialties, and even which doctor had set the guarantee date. New targets were set in DIA-LIS. Business Intelligence (BI) was the tool the hospital used for reporting and analysis. The targets were aggressively followed up in all meetings, and the process improved in the same way as the treatment summaries had. Figure 4 shows there was a constant and quite dramatic reduction in guarantees broken.

A similar approach to reducing the time to evaluate referrals was initiated in 2010 with the mapping of the process to identify both bottlenecks and activities that were regulated by law. The process was then redesigned and made consistent across all departments and functions. Measurements were made and followed up. Figure 5 shows the results. The figures now show that over 99% are evaluated within 10 days with an average of 2.6 days.

A final measurement in this area is the number of patients waiting a year or more for treatment with or without a guarantee date. For Diakonhjemmet Hospital this has been less than 10 patients for the first half of 2013, whilst several 100 is not uncommon and one hospital has over 4,000. Hospital sizes affect this number, however, as a percentage of the number of referrals received each year the difference is dramatic.

## Conclusions

This approach is nothing new but only goes to show that Deming's PDCA method, when applied consistently and with a good process analysis to target real bottlenecks, still works as well as it did in the 1930s when it was first described. Elements of lean, such as employees redesigning their own processes and being responsible for their own quality have resulted in sustainable results where often top-down mandated improvement efforts fail or give a temporary improvement that reverts to its original state after a short time.

Verdibasert Virksomhetsledelse or Value-based Performance Management combines NPM internal focus, enterprise risk management to secure performance and quality management to ensure a patient focus in all the improvement work in the hospital. This is often portrayed as rational top-down NPM command and control, and bottom-up irrational quality, and lean based approaches being combined to achieve a holistic management system that has the hospital's core values in the centre.

The results from the last eight years have been impressive, and Diakonhjemmet Hospital is now leading in a number of the national quality measurements and is among the top hospitals in the others.

Focus has largely been on patient administration and management processes and less on care related processes although these are of course being addressed. Other areas such as payment issues and telephone services are being addressed already and hopefully will already show results in 2014.

Our initial hypothesis was that good quality would save money and increase patient satisfaction. In the national patient satisfaction survey from 2005, Diakonhjemmet Hospital was placed number 32 out of 60 hospitals. In 2011 after five years of improvement, we placed seventh and when excluding tertiary specialist hospitals, we were forth. Only two hospitals achieved a significant increase in over half of the measured categories and Diakonhjemmet Hospital was one of these (PasOpp Report 2012).

As the final conclusion, it can be added that the hospital makes a profit large enough to reinvest in equipment, new buildings and research. □

*Andy Hyde has a Master's degree in applied computing and an advanced lean practitioner certificate. He has worked in several different types of organization including flood forecasting, pharmaceutical clinical trials, and most recently as director of quality and performance management in a hospital in Oslo. Common to all these is process and quality improvement through the application of lean and systems thinking. At Diakonhjemmet Hospital he redesigned the hospital management system based on lean and quality management principles. He currently works in the South Eastern Regional Health Authority where his role is matching new technology to processes and vice versa.*

*Anders Frafjord is CEO of Diakonhjemmet Hospital. He is a value-based manager with over 10 years of management experience in health care. He is creative, has a visual expression and is keen to see the connections between the objectives and strategies set. Mr Frafjord is a person with great dedication who wants to find new solutions to challenges. He has keen leadership skills in business and enjoys working with others. He is of the opinion that the best solutions and results come when everybody works together towards a common goal.*

*Andy Hyde and Anders Frafjord won the Best Poster Overall Award at the poster awards at the IHF World Hospital Congress 2013 in Oslo, Norway.*

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