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World Hospitals and Health Services

The Official Journal of the International Hospital Federation

Papers from the 38th IHF World Hospital Congress in Oslo

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

The effects of preventive mental health programmes in secondary schools

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The CASSANDRE Project: Automated alerts for optimal coding of diagnosis and interventions

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Learning from the Oslo Congress



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Top health care and hospital leaders from around the world came together at the International Hospital Federation's (IHF's) 38th World Hospital Congress in Oslo, Norway, from 18–20 June 2013. Following the opening ceremony featuring HRH Crown Prince Haakon of Norway as a guest of honor, Dr Margaret Chan, Director-General of the World Health Organization, presented her views on how innovation and technology are game changers for the future of health care.

The World Hospital Congress was an opportunity for health care leaders from around the world to share information on the challenges and opportunities to be found in the health care sector.

Key decision-makers from the health care and hospital industry participated in five plenary sessions and more than 30 parallel sessions run by IHF members such as the American Hospital Association (AHA), the Norwegian Hospital and Health Service Association (NSH), the Healthcare Information and Management Systems Society (HIMSS) and other key health and hospital associations from around the world.

This edition of *World Hospitals and Health Services* showcases some of the contributions made by speakers at the Congress.

Andy Hyde and Anders Frafjord describe how Diakonhjemmet Hospital in Norway has designed and implemented a hospital management system based on lean principles and PDCA (Plan-Do-Check-Act) with impressive improvements in quality and patient satisfaction. Bror Just Andersen looks at the effects of preventive mental health programmes in Norwegian schools.

Iain Blair and Amer Sharif show how the United Arab Emirates have introduced private health insurance and encouraged a growth in private health provision as part of an ambitious programme of health system reform. Follow up studies have been initiated to look at the impact of these reforms on key performance indicators such as the unit cost of services and growth in the

hospital sector compared with other forms of care.

Sandrine Boucher reviews a decade long experimentation with diagnosis related groups (DRGs) payment systems in France. France opted for such a financing systems for over 80% of hospitals funding today. French policy-makers are currently fine-tuning this model and looking at key impact indicators such as cost and quality of care.

Alberto Guardia, Peter Rohner and Rodolphe Meyer describe the DRG system that was introduced in Swiss hospitals in 2012. Early results are encouraging in terms of the financial performance of hospitals that have switched to a DRG system of reimbursement.

Johnny Van der Streaten looks at how Antwerp University Hospital in Belgium restructured itself into a more specialized centre of expertise. After six years, the hospital demonstrates how a small and more specialized institution can be successful.

Gerald Rockenschaub and Kai B Harbou describe several crisis management tools to help countries better prepare for large scale emergencies that could otherwise overwhelm the surge capacity and functional safety of hospitals and health systems during emergency situations. The tools include (a) the Hospital Safety Index, (b) Hospital Emergency Response Checklist and (c) a toolkit for assessing health-system capacity for crisis management.

Lee Wang Jun discusses the challenges of adapting the Korean health care system and hospitals to the challenges of an ageing population, technological advances and the increasing cost of health care. His recommendations for the Korean system, which may have applications elsewhere, include both familiar and new areas such as expansion and consolidation, quality assurance, greater use of health care information systems, attracting foreign patients, research-driven hospitals, public-private partnerships and focusing on service design and patient experience. □

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



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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

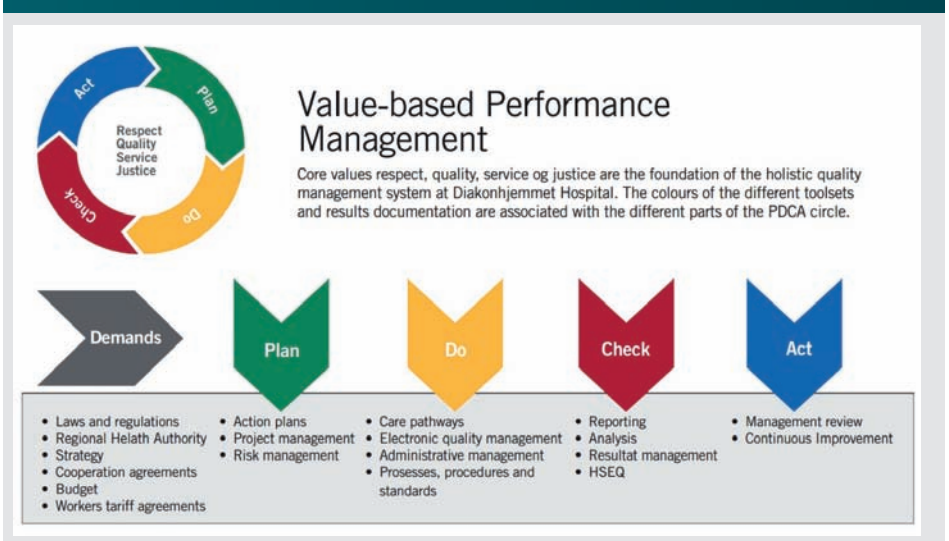
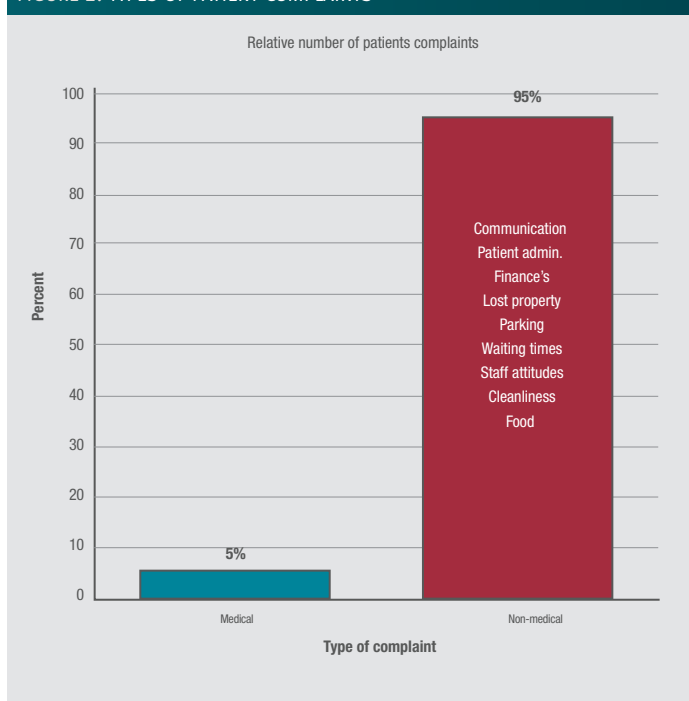


FIGURE 2: TYPES OF PATIENT COMPLAINTS



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

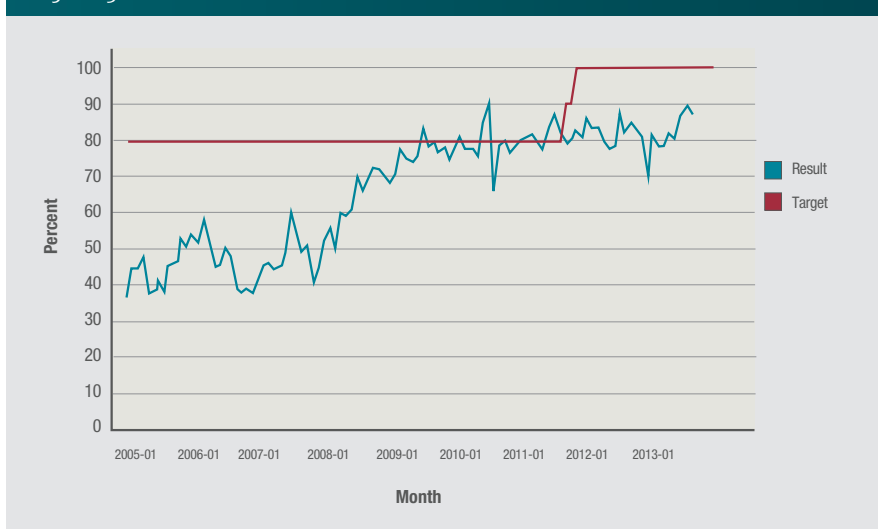
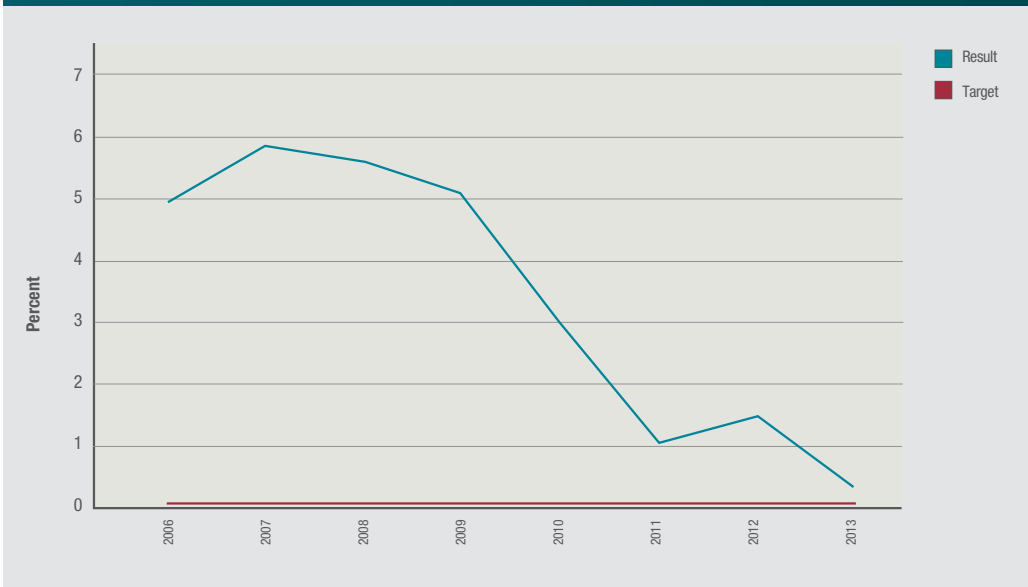


FIGURE 4: . BROKEN TREATMENT GUARANTEE PERCENTAGE



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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The effects of preventive mental health programmes in secondary schools



BROR JUST ANDERSEN

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ABSTRACT: The author wanted to test the effects of preventive mental health programmes in schools and established a longitudinal study with a test group and a control group, using Solomon's method. Data was collected through questionnaires prior to intervention and at 1, 6, 12, and 24 months after the intervention. The size of the effect on the various indices were estimated in terms of (a) differences in improvement of total percentage scores and (b) Cohen's d. From t_0 to t_1 , t_2 and t_3 the intervention group showed significantly greater progress in six out of seven knowledge indexes, and 12 months later we found significant effects on the level of mental health problems.

Clinical studies have shown that depression in adolescents is under diagnosed and that too few receive treatment. In 2000, it was found in the USA, that only 20% of severely depressed youth received treatment. In the same study, it also found high recidivism, and by the age of 24, many had developed other mental health problems and substance abuse problems in addition to depression, especially alcohol and drug abuse (Lewinsohn et al 2000). Studies in Norway have also shown that between 10% and 20% of children have mental health problems that affect their ability to function, and for between 4% and 7% the problems were so severe that they need treatment (NDH 2000; NOKC 2004).

There are indications that these figures could be reduced by increasing knowledge through universal prevention, including behavioural changes, and that an increase in knowledge could reduce the duration of untreated problems. For such a purpose, schools seem to be a suitable arena. "VIP" (the Norwegian abbreviation of Guidance and Information About Mental Health), was started in 2000 on the initiative of the user council at Blakstad Hospital in 1999 (VV HT 2013). The background for initiating the intervention was that users felt that if they had gained knowledge about mental health problems, disorders and where they could seek help before problems started, they would probably have tackled the problems in a better way and sought help earlier. This intervention focused, first and foremost, on reducing incidence of mental health problems by increasing knowledge about mental health. Secondly, it contributes to a closer relationship between primary everyday venues and primary services for young people, across professions, sectors and services.

In the school year 2007/08, VIP was conducted at 128 schools in 15 counties. The programme is founded on dialogue, empowerment and salutogenesis, and has elements of prevention and promotion. In May 2005, this intervention was included in the Norwegian Directorate of Health's cooperative project: "Mental Health in Schools" (NDH 2013).

Implementation manuals were prepared for all sections of the project, and no special prior knowledge was required from the

teacher (for more about the manuals see the interventions website (VV HT 2013).

The implementation of the project is interdisciplinary and cross-sectional. It involves the coordinator of mental health in the community, the school administration and teachers, school nurse and specialist mental health services. The intervention differs from many types of school-based prevention activities through the focus on a knowledge-dialogue based presentation and by the degree of involvement of local support agencies (VV HT 2013).

Previous effect evaluation of psycho-educational interventions

In international surveys, including both longitudinal studies (Spence et al 2005) and reviews of universal preventive interventions in depression (Durlak et al 1997; Cuijpers et al 2008; Cuijpers et al 2009; Merry et al 2009; Horowitz 2006) and mental health, the relevant comparable effect sizes vary, where they are reported, between 0.26 to 0.57 (Merry et al 2009; Weisz et al 2005; Weisz et al 2004; Lipsey et al 1993). The dependent variables in the study encompass changing, self-perception, behaviour, coping, problem solving, school and mental health climate and referrals. Several review articles conclude positively about prevention and early intervention for anxiety and depression (Tennant et al 2007; Gillham et al 2000; Greenberg et al 2001; Jané-Llopis 2005). When the interventions are universal, they generally accomplish a slightly weaker effect. On the other hand, they reach a much larger number of people and therefore can be justified by a relatively lower power. Thus, when variations in relation to the generalized effect are larger, the orientation remains mainly significant and positive (Farrington et al 2010; Neil et al 2009; Merry et al 2007; Arnarson et al 2009; Aune et al 2009).

There are a limited number of studies that have measurements at six and 12 months (Lipsey et al 1993; Gladstone et al 2009). The studies that have a longitudinal design have brought findings that are consistent with the findings made in my research (Andersen et al 2010a; Andersen et al 2010b; Andersen 2011; Andersen et al 2012). Some of the studies are of limited interest in our context, since they are selective and not universal (Neil et al 2009; Merry et al 2007;

Arnarson et al 2009; Aune et al 2009). These include programmes that were aimed at reducing anxiety in anxiety patients.

The effect evaluation of VIP

The author conducted an effect evaluation of VIP from 2007 to 2010, which was published as three articles in two Norwegian peer-reviewed journals (Andersen et al 2010a; Andersen et al 2010b; Andersen 2011; Andersen et al 2012). The t4 analysis will be ready for publication in winter/spring 2014.

The hypothesis has been that a universal preventive intervention in mental health, such as VIP, increases the level of knowledge, helping to change behaviour and improve mental health among adolescents. The research question was defined as;

“Does the adolescent self-reported mental health status and behaviour in relation to seeking help for mental health problems change through participation in a universal preventive intervention, which aims to increase the knowledge and the basis for decision regarding own or others’ mental health problems?”

Method

The research was built as a quasi-experimental method with test and control groups following Solomon’s design. The key dependent variables in the project have been:

- + self-reported mental health;
- + pupils’ skills in recognizing signs of mental disorders;
- + self-reported behaviour in help-seeking;
- + students’ knowledge levels about mental health.

The research wanted to examine whether the intervention had an effect on these variables. Since the study was interested in the whole the range of indicators of mental health, and not primarily diagnosed disorder, the study was carried out though self-reporting on behaviour and mental health. Nevertheless it will emphasize that there may be discrepancies between self-reporting and clinical ratings.

Changes are examined through repeated data collections self-reported by the same students. To assess the effects the research compares changes in sum scores or latent variables between the intervention and control group.

Design

For the assessment of mental health, the research used the self-reporting form SDQ-Nor (Heyerdahl et al 2003; Van Roy et al 2006, Ronning et al 2004, Goodman et al 1998). The form asked the respondent to answer various statements as “not true,” “somewhat true” or “certainly true” considered for the last six months. Each statement is scored with 0, 1 or 2.

Since anxiety represents a relatively stable 10–20% of the clinical cases reported in Norway and SDQ-Nor does not explicitly cover this area, it was decided to add to the scale “anxiety symptoms” from the TOPP study (Mathisen 2010) with scoring of 0–10 ($\alpha = 0.68$).

To assess changes in the other three outcome variables, seven indexes were developed:

- + Familiarity with mental illness. Rate scale: 0–12.
- + General knowledge about mental health. Rate scale: 0–15.
- + Knowledge of different expressions of diagnosis. Score scale: 0–44.
- + Ability to connect symptoms to diagnosis. Rate scale: 0–50.

- + Confidence in treatment. Rate scale: 0–12.
- + Knowledge of support services related to mental health in general. Rate scale: 0–30.
- + Knowledge of local community support services in mental health. Rate range: 0–8.

For questions about knowledge, it was decided in advance what the right answer should be. Similarly, for attitudinal and behavioural questions, it was determined what was the most desired attitude or behaviour.

Information was collected through the questionnaire prior to the intervention (t0) and 1 (t1), 6 (t2), 12 (t3) and 24 (t4) months after the intervention. At each data collection point, knowledge was measured as a percentage of the maximum score on a set of indexes, while the incidence of problems was measured by SDQ-Nor and scale for anxiety.

To measure the dimensionality of the self developed indexes, analyses were conducted of internal correlation and principal component analysis with Varimax rotation. The reliability is calculated using Cronbach Alpha/Kruder-Ricardsons (KR-20). The reliability of the scales and subscale has proven to be somewhat variable with alpha values between .437 and .972. For the analysis of the data sets collected we have used SPSS, version 14.

The internal consistency of the scales has been calculated using Cronbach’s Alpha, while reliability of the scale and any individual items used has been estimated through a test-retest study. Effect sizes have been specified as Cohen’s d-values (Cohen 1988). Since the intervention largely has an intrinsic goal of changes in the psychosocial school environment, the allocation to groups is carried out from school and not classes. In all the statistical analyzes where there have been such opportunities, has been controlled for cluster effects (Shadish et al 2002; Cohen et al 2003; Goldstein 1995).

Sample and response rate

The sample was a total of 880 pupils in Akershus County, where the intervention was implemented, compared with 811 students from Vestfold County who did not participate in this or other interventions on the completion date. The total average response rate (t0–t3) was 79.3% for the intervention group and 76.7% for the control group. The individual questions were grouped, basic additive sum scores were made more basic, and changes were described using difference scores, total percentage change, and Cohen’s d with its belonging significance test.

Results

The main findings were that the programme provides quite strong effects in the short-term when it comes to knowledge of mental health and support services. From t0 to t1, the intervention group significantly improved on the index “knowledge of mental disorders” (10.2% improvement; Cohen’s d = 0.58), “general knowledge about mental health” (4.4% – 0.30), “ability to coupling of symptoms to diagnosis” (3.1% – 0.34), “knowledge of the support services in mental health in general” (11.6% – 0.51) and “knowledge of local community support services in mental health” (11.3% – 0.74). Knowledge about mental health seems to keep up pretty well in the first year after the intervention, while knowledge of the support services seems to be largely forgotten. After six and 12 months we observed a small effect on help seeking.

TABLE 1: EFFECTS ON EVERYDAY LIFE: CHANGES IN MENTAL HEALTH PROBLEMS 12 MONTHS LATER

Mental health status (SDQ-Nor)	
Difference of change	16.50 %
Cohen's d	0.15
Sig. t-test	.007*
Peer problems scale 0-10	
Difference of change	31.80 %
Cohen's d	0.31
Sig. t-test	.009**
Anxiety scale 0-10	
Difference of change	53.50 %
Cohen's d	0.37
Sig. t-test	.001***

On the other hand, here seems to be a fairly surprising moderate, but significant, beneficial effect on the prevalence of mental health problems. From t1 to t3, we found significant differences between the intervention and control groups in the change of the symptom level on the SDQ-Nor total score ($d = 0.15$), in sub score "peers problems" ($d = 0.31$) and the "anxiety index" ($d = 0.37$). The programme also seems to be a cost-effective intervention for schools.

Conclusion

The effects on mental health presented in this research project were most prominent in areas where improvement is largely dependent on the confidence and social contexts. The hypothesis is therefore that the psychoeducational effects of the intervention contribute through changes in young people's insight/knowledge, which provides a higher degree of social support, increased knowledge for better decision making, reduced stigma, lower threshold for sharing problems and greater confidence in interpersonal processes to improve the mental health of young people (Rusch et al 2011).

Besides this research project, there is currently little research evidence on the effects of universal preventive mental health interventions in terms of changes in mental health. A search in the PubMed, MedLine, PsycInfo, Embase, Cinahl, The Cochrane Library and Eric databases conducted in November 2011, gave no hits on studies of universal preventive interventions in mental health and behavioural problems with power ratings or effect assessment of mental health indicators using internationally validated instruments as SDQ or HSCL-10. Nevertheless, we know that many young people have mental health problems or disorders.

Previous clinical studies have also shown that early intervention is of great importance in the prognosis. Early help from the health care system will provide young people with mental problems with a faster recovery and a reduced risk of recurrent, severe illness periods, while simultaneously increasing the chance that the patient can live a normal life. In order to get early help, however, young people's knowledge of the area is essential. □

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Bror Just Andersen won the Best Scientific Quality Award at the poster awards at the IHF World Hospital Congress 2013 in Oslo, Norway.

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Health and health systems performance in the United Arab Emirates



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ABSTRACT: In the early 2000s, the United Arab Emirates (UAE) had good levels of health and its health system was ranked twenty-seventh in the world by the World Health Organization. Since that time, to further improve the situation and to address cost and quality challenges, the UAE has embarked on an ambitious programme of health system reform. These reforms have focused on the introduction of private health insurance and encouraging the growth of private health provision. In these areas there have been impressive achievements but while it is too early to say whether these reforms are succeeding some anxieties are emerging. These include the rising cost of services with no obvious improvement in outcomes, a growth in hospital provision that may not best meet the needs of the population, rising levels of chronic disease risk factors and an insufficient focus on public health services, public health leadership, health work-force planning and research.

The United Arab Emirates (UAE) is a federation of seven emirates founded in 1971. Abu Dhabi, the capital, and largest emirate, has its own health authority as does the Emirate of Dubai. The five remaining emirates (Sharjah, Ras al-Khaimah, Ajman, Fujairah and Um al-Quwain) sometimes referred to as the Northern Emirates are served by a federal Ministry of Health (MOH). In the past 40 years, UAE has undergone unprecedented economic and social development. This has been possible because of the prudent investment of oil revenues under the guidance of its founder, His Highness Sheikh Zayed bin Sultan Al Nahyan and his successors. Within a short time, UAE has been able to modernize, improve living standards and social conditions and has become a model state in the region and a respected international player (Middle East Policy Council 2011).

By the end of the 1990s, the UAE population was enjoying good levels of health and the World Health Organization (WHO) ranked the UAE health system twenty-seventh in the world on the basis of good health, responsiveness and health financing (WHO 2000).

However by the early 2000s the UAE Government was voicing concern about the performance of its health system and had identified a number of challenges (WHO Regional Office for the Eastern Mediterranean 2006a). At that time (2002) the UAE population was estimated to be 3,754,000, average life expectancy was 73 years for males and 75.1 for females and GDP per capita was USD 25,614 and growing at 13% each year (WHO Regional Office for the Eastern Mediterranean 2006b). The challenges identified by the Government included the cost and quality of services and limited choice. Key areas for action were proposed and these included strengthening the organization of health services and functions within the Ministry of Health, improving human resources development, reducing the burden of disease, especially non-communicable disease, improving

community involvement and enhancing health research (World Health Organization 2007). What has happened to health and health systems in the UAE in the 10 years since this debate was initiated? This paper provides some answers to these questions and reviews developments and current thinking on health systems reform in the UAE.

The UAE health system landscape

Already by the early 2000s organizational change in the UAE health system was underway. By that time, the federal Ministry of Health (MOH) had started to decentralize funding and decision making, was withdrawing from direct service provision and had already introduced charges for certain services.

Dubai has had its own local health authority and service provider in the form of the Department of Health and Medical Services (DOHMS) since 1970 even before the MOH was established. In 2007 a new entity was set up, Dubai Health Authority (DHA), to oversee health strategy and regulation and there was a separation of service provision. Private health insurance was promoted and for-profit private health care providers were encouraged although the DHA continued to develop its own high quality hospitals and health centres. A health care “free zone”, Dubai Healthcare City (DHCC) has been established to meet the growing demand for high quality services both from within UAE and from neighbouring countries. DHCC is one of the largest private health care developments in the region and currently has two hospitals, more than 120 outpatient medical centres and diagnostic laboratories and over 3,700 licensed professionals.

In Abu Dhabi, the Government re-organized its health system in 2006, introducing a private health insurance and private provision model (Taha NF et al 2013). The Health Authority of Abu Dhabi (HAAD) adopted a strategic and regulatory role and a separate

health services company (SEHA) was established to operate government owned health care facilities. Private for-profit health care providers were encouraged to compete in a health market place.

In the northern Emirates the MOH retains a major role in the provision of health services in addition to its strategic UAE-wide role. UAE citizens generally access MOH services without charge while non-citizens make payments. The MOH is considering introducing health insurance but has not yet done so. In the northern Emirates, the private sector is less well developed than in Dubai and Abu Dhabi and the quality and cost of services varies between these two Emirates and the remainder of the country.

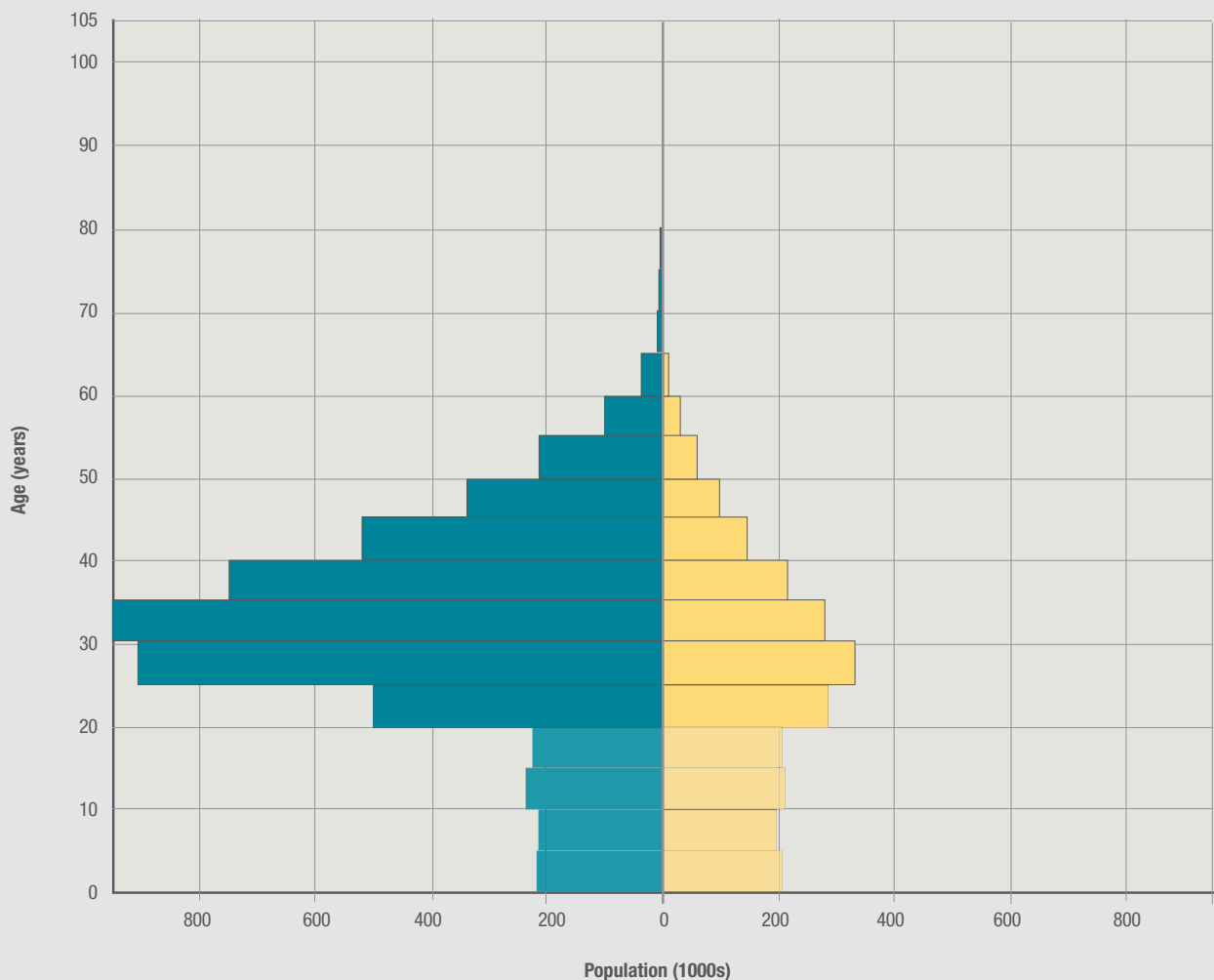
Population structure and growth

One of the key challenges to the UAE health system in the past 10–15 years has been the dramatic growth in population. The population increased from 2.4 million in 1995 to 4.1 million in 2005 and to an estimated 8.2 million in 2010. In each of these years the number of citizens was 590,000, 825,000 and 947,000 respectively (UAE National Bureau of Statistics 2011a and 2011b). This dramatic increase is due to natural growth (births minus

deaths) and net migration both of which are high in the UAE (Blair, I; Sharif, AA 2012). For example in 2011 births exceeded deaths by 76,000 and, although dependent on economic factors from year to year, net inward migration can exceed one million per year. Of course, growth of the citizen population depends only on natural growth which was 31,000 in 2011.

A second challenge is the structure of the population. The UAE has a remarkable population pyramid (Figure 1). Amongst citizens, 79% are aged less than 35 whilst among non-citizen males, 89% are of working age (20–64) and amongst non-citizen females, 69% are of working age. Overall 50% of the population are non-citizen males of working age and only 5% of the population (citizens and non-citizens) is aged 70 or over. The UAE is passing through the demographic transition in which falling child mortality is accompanied by declining fertility with an ageing and stabilizing population (UN Department of Economic and Social Affairs/Population Division 2011). Nevertheless the growth and structure of the UAE population is a major determinant of the health services that are required now and those that will be needed in the future. Clearly child and maternal health services, youth services, health promotion and preventative services and occupational

FIGURE 1: POPULATION (1,000S) BY AGE GROUP AND SEX, UAE, 2010



Source: United Nations Department of Economic and Social Affairs/Population Division (2011).

TABLE 1: UAE HEALTHCARE INFRASTRUCTURE 2000–2011

	2000	2005	2011
Government *			
– hospitals	32	26	34
– beds	6,072	4,273	7,029
– physicians	2,410	2,105	5,031
– nurses	7,599	6,132	10,875
Private			
– hospitals	-	37	58
– beds	-	1,546	2,556
– physicians	-	1,143	7,866
– nurses	-	1,866	1,0611
Total			
– hospitals	-	63	92
– beds	-	5,819	9,585
– physicians	-	3,248	12,897
– nurses	-	7,998	21,486

Source: United Arab Emirates National Bureau of Statistics
 * includes Defense, Ministry of Health, Dubai Health Authority,
 Abu Dhabi Health Authority, ADNOC, Ministry of Interior

health services should be priorities (Sharif,AA; Blair, I 2011).

The burden of disease

By 2010, life expectancy for men in UAE was 75.3 years and for women it was 78.6 years (Salomon JA et al 2012). According to the 2010 Global Burden of Disease Study, in 2010, the leading causes of premature death in the UAE were road injury, ischemic heart and cerebrovascular disease which accounted for 17%, 14% and 5% of years of life lost respectively (GBD 2010). This study also reported that the leading causes of disability were depression, back pain, anxiety disorders, drug misuse and diabetes. The risk factors that accounted for most disease burden were overweight and obesity, diet and high blood sugar levels. Age-standardized death rates can be used to compare UAE with other countries. In the UAE although the rate has improved from 795 deaths per 100,000 population in 1990 to 615 in 2010, the rate is higher than in other high income countries like Singapore (425) and Kuwait (511) but is comparable with Oman (596) and Turkey (628). When UAE is compared with other countries using cause-specific age standardized death rates it is ranked sixty-first for cardiovascular disease (1=lowest rate), sixth for cancer and fifty-second for injuries (Global Health Observatory 2008). The UAE has passed through the epidemiological transition so that 67% of deaths are now caused by non-communicable or chronic diseases (NCDs) rather than infectious, maternal, perinatal or nutritional conditions (World Health Organization 2013).

Amongst UAE citizens there is a high prevalence of the recognized behavioural and metabolic risk factors for NCDs such as physical inactivity, raised blood glucose and obesity which if left unchecked will translate in the future to further high levels of NCD morbidity and mortality (Loney, T et al 2013). There is evidence that even amongst the non-citizen majority, the healthy worker effect is quickly lost and NCD risk factors increase in prevalence after only a few years in the UAE due to acculturation to modern urban lifestyles (Newson-Smith, MS 2010). Benchmarking UAE health

system performance using data of this sort gives a helpful insight into public health successes while highlighting areas where performance may be lagging or deteriorating and where action is needed.

The UAE National Health Account

Like other high income countries in the region with youthful populations and large expatriate sub-populations, the UAE total expenditure on health (THE) has averaged between 2–4 % of gross domestic product (GDP) over the past 15 years. Since UAE GDP has more than trebled in this time from USD 100 billion to USD 380 billion this means that THE has also increased from USD 752 (per capita) in 2000 to USD 1,640 in 2011. Of this, about 75% comes from government and the remainder from private sources namely insurance and out-of-pocket payments. Government expenditure on health makes up about 9% of all government expenditure and has risen over five-fold from USD 1.7 billion in 2000 to USD 9.5 billion in 2011 easily outpacing both growth in population and GDP (World Health Organization 2013). Data from Abu Dhabi in 2011 indicates that there were 15.3 million insurance claims with an average cost per claim of USD 105 giving a total insurance bill for Abu Dhabi of USD1.6 billion (Health Authority Abu Dhabi 2011).

The three main health authorities in the UAE (MOH, DHA, HAAD) have all clearly stated their vision for health in terms of promoting long and healthy lives for citizens and providing equitable access to world class medical care (UAE Cabinet 2013). It is unclear to what extent this will require additional funding in the future over and above the current levels. Abu Dhabi for example, in 2005, had aspirations to “invest significantly and spend at the level of G7-countries” (Vetter, P; Boecker, K 2012). What is clear is that if there is to be additional investment then, without a major shift in policy, it is likely that this will come from private rather than government sources and will be spent in the private sector on secondary and tertiary care.

Health care infrastructure and workforce

Hospital bed and physician and nurse numbers have increased in the past decade generally keeping pace with the growth in population (Table1). In the most recent years much of this growth has been in the private sector. Bed, physician and nurse densities (number per 1,000 population) in the UAE were 1.07, 1.47 and 2.6 respectively (WHO EMRO). These densities are popular metrics and comparisons are often made with other countries or so-called international norms. Generally they are interpreted as evidence that further increases in hospital bed and staff numbers are needed. However as far as hospital beds are concerned, taking Abu Dhabi as an example, it has been noted that an increase in the number of facilities does not necessarily mean an improvement in terms of access to care and there may already be oversupply in some specialties (general medicine) and undersupply in others (intensive care, psychiatry) also the health needs of the population may not be best met by further expansion of inpatient provision (Sharif, AA; Blair, I 2011; Koorneef, EJ et al 2012).

UAE continues to rely on overseas recruitment to fulfill its health workforce needs. Although data for the UAE as a whole has not been published, in Abu Dhabi expatriates comprise 87% of physicians, 88% of dentists, 94% of allied health professionals and 99% of midwives and nurses. As recruitment is mainly from developed countries or those such as India and the Philippines

which train specifically for the overseas labour markets this may not be an issue although there is still a need for effective planning, and training and retention strategies to guarantee a sustainable health workforce for the UAE (World Health Organization 2010). A recent paper has again highlighted challenges caused by “low staff numbers, morale problems, skill imbalances and geographical maldistribution” (Hannawi, S; Salmi, I A 2013). Nevertheless, the UAE remains a very attractive place to live and work and exerts has a strong “pull” factor for migrants particularly from neighbouring countries.

The impact of reforms: Satisfaction and utilization

The authors of a recent report say that the effect of the Abu Dhabi health system reforms have been remarkable but acknowledge that it is extremely difficult to quantify their impact in terms of better outcomes or greater efficiency (WHO EMRO). Access (measured by utilization) has doubled, surveys have shown that customer satisfaction and trust has improved and there is more private sector investment amongst service providers. Finally there are more reliable raw-data flows which the authors hope will drive service improvement, innovation and investment. A second report examined whether the reforms have had the desired effect of improving quality, access and ensuring affordability (Koorneef, EJ 2012). The authors confirmed that satisfaction with services was high although they did comment that Emirati patients continue to use health care services overseas (3,000 in 2010 compared with 2,654 in 2009). The authors concluded that it is too early to know whether the reforms are achieving the hoped for outcomes but they did provide some helpful insights which may guide decision makers in the other Emirates and neighbouring countries who may be contemplating similar reforms.

In Abu Dhabi all members of the population should now be covered by one of three health insurance schemes which will guarantee them access to services. Citizens are enrolled in the “Thiqa” scheme but while they account for only 16% the insured population they account for 40% of the number and value of claims. While those with the “basic” insurance package, invariably lower paid workers, make up 47% of the insured but account for only 27% of the claims. Higher levels of morbidity and need amongst citizens and lower co-payments may account for these differences but further investigation of the causes is required.

Between 2007 and 2010, in the years after the introduction of health insurance, service utilization increased. Although the number of inpatient episodes was unchanged, emergency room attendance increased by 28% from 637,000 to 817,000 and outpatient episodes increased by 46% from 8.37 million to 12.25 million. This is only partially explained by the 27% increase in the population that occurred over this time as, when expressed as rates, ER attendances increased by 10% and outpatient rates by 26%. These increases may reflect that prior to the introduction of health insurance low access to services was associated with levels of unmet need which was then satisfied when access improved. However over utilization due to moral hazard is an alternative explanation. Moral hazard theory argues that health insurance is inefficient because fully insured persons overuse health services because they appear “free” or low-cost, do not take-up preventative measures and consume medical care that is not necessary for health (Vera-Hernandez, M 2003). The counter argument is that full insurance is both effective and efficient because without it a person will delay seeking treatment which will then be more expensive to treat or may use inappropriate and more expensive options such as emergency care rather than primary care (Nyman, JA 2004). Benchmarking current levels of health service utilization in Abu Dhabi with other countries can be helpful in clarifying whether levels of service utilization are appropriate for given level of need or whether there is over-utilization (Table 2).

Admission rates amongst citizens are comparable with those seen in the USA and UK populations aged 0–64 (Centers for Disease Control and Prevention; Health and Social Care Information Centre 2013). Higher rates are generally seen in the older age groups but these are under-represented in Abu Dhabi. ER attendance rates amongst Abu Dhabi citizens are 2–3 times higher than those seen in the USA and UK while amongst non-citizens they are lower. Outpatient attendance rates in the UK are approximately 1,000 per 1,000 population which means on average that a person will make one visit each year. Rates in the USA are lower (about 300). Outpatient rates in Abu Dhabi are higher than those in the UK for both citizens and non-citizens. This may reflect higher levels of genuine need but it is likely there will be other factors including referral practices, patient expectation as well as moral hazard. In the USA and UK crude attendance rates

TABLE 2: NUMBER AND CRUDE RATE (PER 1,000 POPULATION) OF EPISODES OF HEALTH CARE BY TYPE OF EPISODE, CITIZENS AND NON-CITIZENS, ABU DHABI, 2011

	Population	Inpatient admissions		ER attendances		OPD attendances		Other clinic/centre attendances	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate
Citizens	433,785	59,481	137	356,527	820	1,864,869	4,300	2,533,994	5,840
Non-citizens	1,988,615	70,738	35	298,867	150	3,124,069	1,570	3,052,613	1,530
Total	2,422,400	130,219	54	655,394	270	4,988,938	2,060	5,586,606	2,306

Source: Health Authority Abu Dhabi, 2011

Note: Estimates of the size of the Abu Dhabi population in 2011 vary. The figure used here is that published by Abu Dhabi Health Authority. Episodes for which nationality is not known have been equally distributed between citizens and non-citizens

in ambulatory care (at doctors' offices and in general practice) are about 3,500 per 1,000 population so that on average a person will visit a doctor three to four times per year. Amongst non-citizens in Abu Dhabi the rates are lower whereas citizens visit a clinic doctor around six times per year. Again this may be due to higher levels of need but may also reflect illness behaviour. In summary it would seem that health service utilization by non-citizens in Abu Dhabi is similar to that seen in UK and the USA and is reasonable and acceptable even allowing for a healthy worker effect. The level of utilization amongst non-citizens is higher than international norms for non-inpatient care, especially so given the younger age profile of the population. This may be due to higher level of need but is likely to be also influenced by medical practice, patient expectations, supply induced demand and "moral hazard".

Discussion

Fourteen years ago, Kronfol found much that was positive and commendable in the UAE health system but also cited challenges in the areas of quality, costs, MOH stewardship and a lack of consumerism (Kronfol, NM 1999). The same author has recently provided insights into the historical development of health systems in the Arab World drawing on key policy analyses from the World Health Organization (Kronfol, NM 2012). What seems to be clear is that in countries where rapid economic and social development led to health improvement and the development of high quality services in the 1980s and 1990s, government agencies were instrumental in these achievements. Moreover the subsequent move to share costs through active and passive privatization puts these successes at risk. The proposed remedy is to strengthen state governance of health systems, to ensure fair and adequate health financing, to attend to health workforce issues, to invest in public health programmes and to improve the collection and reporting of health information.

This prescription may not have been followed in the UAE. Despite having a good health system and good level of health in the early 2000s, the UAE has embarked on an ambitious programme of health reform to improve health and build a world-class health service but also to reduce government involvement in health by shifting payment and provision responsibilities to the private sector. While this has achieved universal private health insurance coverage and an impressive growth in private sector provision it may have resulted in insufficient attention to leadership, work-force, public health and research issues. Expenditure has increased significantly without clear evidence of a parallel improvement in outcomes. Given the population structure one might question whether the current pattern of service provision is appropriate. A youthful population with a high proportion of generally health workers does not require a high level of secondary and tertiary level services. Primary care, occupational health and public health services (screening, health promotion) would be more appropriate. However these are not services that fit well with a health insurance model of funding or a market place model of private provision which encourages the development of hospital care. Indeed such services are often specifically excluded from the scope of coverage of health insurance policies. Similarly the growing burden of chronic disease and chronic disease risk factors requires urgent action that may not be possible with the current model of financing and provision. Workforce challenges, public health leadership, service gaps in low volume high cost specialties

and health research are other issues that have been raised but where policy and implementation seems to be missing.

What is happening in the UAE has been promoted as best practice for other countries in the region. While this is flattering it may not be the best path to follow. While, globally, health insurance seems to be the way to achieve WHO's goal of universal coverage, the private model is not the only solution and it is reassuring that at least in one neighboring country alternatives are under consideration (World Health Organization 2010; Spaan, E et al 2012; Al-Sharqi, OZ; Abdullah, MT 2013).

Conclusion

Since the UAE embarked on its ambitious programme of health system reforms there have been impressive achievements with the introduction of private health insurance and the growth of private health provision. However, there are anxieties that the hoped for outcomes may not be realized. Spending and utilization have certainly increased, satisfaction seems high but substantial numbers of citizens still opt to be treated abroad. In addition questions remain about whether the population's health needs will be most effectively satisfied by further growth in secondary care and whether the current market model can fill gaps in shortage specialties. Finally because the reforms have focused on insurance and privatization other issues including chronic disease risk factors, public health services, public health leadership, health workforce planning and research have slipped down the health agenda. □

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Testing payment-for-performance in French acute care hospitals: A point of view from the French Federation of Comprehensive Cancer Centres



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ABSTRACT: In 2004, France began a diagnosis related groups-based financing system for both public and private acute care hospitals. France opted for a mix of financing systems with over 80% of funding based on diagnosis related groups (DRG). After seven years of DRG-based financing, the French government is testing a payment-for-performance system in acute care hospitals, based on the USA experience. France is currently fine-tuning this model. So far, observations have raised doubts as to whether this approach will improve the value of health care in French hospitals: the budget appears insufficient, the quality of the available indicators is poor and the model is complex. However, it has focused attention on the question of health care quality.

The financing system of French acute care hospitals is to a great extent activity-based. The national health care system plans to spend 56.6 billion euros on hospitals in 2013. Only 15% of the spending is not based on activity: this concerns specific activities like research and education, some public health care missions like emergency and palliative care and so on. It funds contracts between the regulatory authority and hospitals; this could concern financial aid to develop a new activity or to support a loss-making activity.

The important point is that in France, hospitals rely on national health care insurance as their main source of investment funding. It pays for around 80% of hospital resources.

There is an ongoing debate about the advantages and disadvantages of this kind of funding. Advocates argue around four main points:

- + it provides more fairness in resource allocation for health providers;
- + it allows more independence for hospital managers;
- + it leads to better use of resources by rewarding efficiency;
- + activity-based funding makes for a more transparent payment model.

On the other hand, detractors argue that:

- + activity-based funding is inflationist: it raises health care costs by rewarding overutilization of resources. It increases volume and costs due to inaccurate coding;
- + it could adversely affect patient selection by prioritizing profitability;
- + it could lead to excessive cutbacks in the length of hospital stays;
- + the activity-based system is very expensive because it requires gathering and auditing a great deal of information for the payer;

- + this kind of funding discourages cooperation between actors;
- + there is no incentive for increasing the quality of health care.

Activity-based funding does not increase the level of quality, but governments have other ways to pressure hospitals into improving health care quality. Basically, there are four kinds of mechanism that encourage quality in hospitals:

- + government-delivered accreditation to authorize an activity;
- + government-developed quality labels indicating performance levels, a mechanism that has been used in France since 2003;
- + the obligation for hospitals to communicate with the public on some quality measures: French acute care hospitals report on twenty-two quality metrics every year;
- + government can factor in quality as a criterion for hospital funding. For instance, Medicare has introduced a payment-for-performance system in the USA.

FIGURE 1: DIFFERENT LEVELS OF PRESSURE ON HOSPITALS TO IMPROVE HEALTH CARE QUALITY

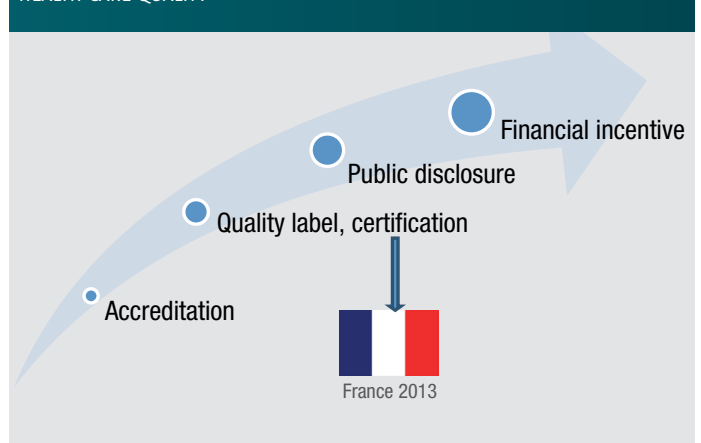
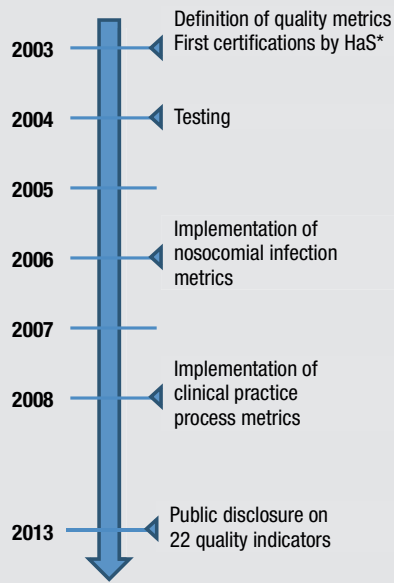


FIGURE 2: EVOLUTION OF FRENCH HOSPITAL QUALITY POLICY



(*) national health authority

After six years of activity-based funding, France has decided to test payment-for-performance in hospitals, based on the idea that money changes behaviour. In fact, up to now, some quality-based payment has existed in France but measured by volume, not by performance. For instance, there is a specific budget for cancer “announcement”, a kind of package which has been created to finance the necessary time to announce and explain the disease to a patient. However, the amount is calculated on the basis of the number of patients treated.

The first discussions with professionals about a performance-based payment began in 2010. The first test was announced two years later. In 2014, the first French acute care hospitals will start being funded on the basis of their performance.

How will this payment be calculated?

The French government is now defining the payment mechanism. Many questions must be answered before the project reaches the

FIGURE 3: QUESTIONS FOR DEFINING A PAYMENT-FOR-PERFORMANCE SYSTEM

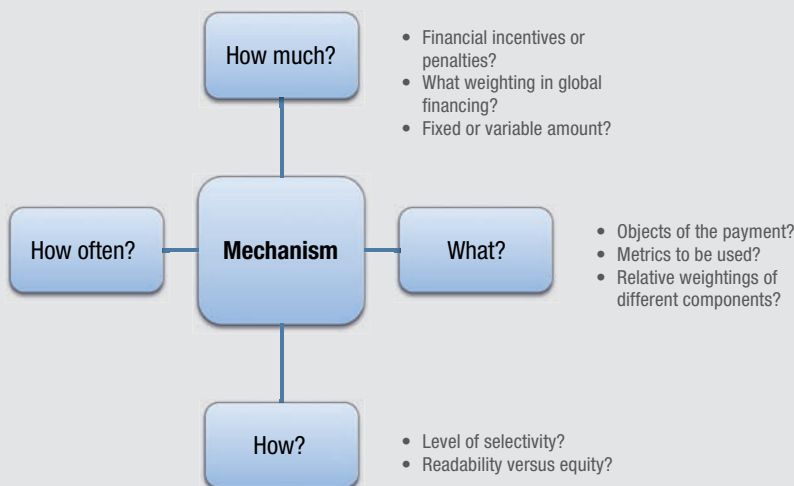


FIGURE 4: LIST OF QUALITY METRICS INCLUDED IN THE FRENCH MODEL

Health care challenges

- Patient file keeping ("TDP")
- Time until notification of end of hospitalization ("DEC")
- Traceability of pain assessment ("TRD")
- Diagnosing nutritional problems ("DTN") - Level 3
- Anesthetics file keeping ("TDA")
- Cross-specialization meeting ("RCP") - Level 2
- Evaluation of computerization of patient file
- Dashboard for nosocomial infections ("TBIN-V2")
- Policy and organization of professional performance evaluations
- Management of adverse incidents
- System and management of suits and complaints
- Care and rights of dying patients
- Patients' access to their own files
- Patient identification
- Emergency care and unprogrammed care

operational stage. Questions such as:

- + How much could a facility receive through this quality-based system?
- + On what basis will hospitals be offered incentives?
- + How will the earn back be calculated?
- + When and how often will they receive funding?

The French model is not completely determined. However, we already know that certain features will be included:

- + 15 quality metrics will be included in the model, one of which is yet to be defined. The others are already reported by hospitals or included in their certification process.
- + There will be no sanctions, only rewards.
- + For each metric there will be a score based on attainment and a score based on improvement. This will occur only when it is possible. In two cases, it will not be possible: some metrics are new or have been changed only recently. Some metrics are examined only every four years. Of course, no score for improvement will be possible for them.
- + 12 million euros will be allocated for testing.

Finally, the French model is largely inspired by the USA Medicare P4P model. However, many questions are still to be answered, like the relative weighting of the different metrics or what sort of exchange model will be used.

According to what we already know about this funding system, three main issues raise doubts as to whether it will improve the value of French hospital care:

- + Is the planned budget sufficient to change behaviour?
- + Are the French quality metrics fitting for pay-for-performance funding?
- + Is the mechanism too complex to be managed?

The planned budget

The budget is very small compared to what is

expected in terms of results. Only 12 million euros are allocated for testing. The government announced that one hospital could earn up to 0.5% of its activity resources. Therefore, in theory, if all hospitals earned the maximum amount, the government would distribute 45 million euros. It seems obvious that 0.5% is not a realistic figure. Therefore, there will be two possible outcomes: first, a large number of hospitals will receive small amounts, or secondly, a small number of hospitals will benefit from substantial amounts of funding. The question remains: will this be sufficient to change behaviour?

Quality of the French quality metrics

According to the World Health Organization (WHO), France is lagging behind in examining the quality of health care. They based their evaluation on the lack of a permanent information system dedicated to quality and security. They see three data issues: the data is only partial, it is often contradictory, and it is difficult to access.

We can conclude that including French quality indicators in a quality-based funding programme assesses care organization due to hospital certification. All acute care hospitals have some standardized process-of-care metrics in common. Hospitals publish some of this information every year and are ranked on that basis. However, there are no specific metrics for the majority of diagnostics or care fields. In addition, there is no way of measuring outcomes, patient satisfaction or patient health. For example, there is nothing on patient mortality, hospital-acquired infections or readmissions.

France improves its quality measures every year: some patient satisfaction assessment measures are being developed, and there are more and more criteria for measuring specific care fields. For example, France is currently working on criteria for mortality assessment.

The complexity of the model

As it is widely acknowledged with regard to variable remunerations for sales representatives, the mechanism must be easily understood by hospital managers to record and encourage improvement in quality levels. The model has to be a user-friendly tool. Unfortunately, given the 15 different metrics used—most having two scores: one for attainment and one for improvement—it does not appear to be simple. The reason for this is that the French government opted to include all available indicators rather than focus on priority metrics. This situation raises doubts as to the model's capacity to change behaviour.

To conclude, the future French model, due to its specificities, cannot be criticized for the reasons usually cited for most P4P funding systems. There is little possibility of negative substitution because our quality metrics are very general and there is no focus on priority areas. For the same reason, this system should not create access issues for patients. There is no need for complex data because there are no outcome metrics, no satisfaction assessment measures and no patient health metrics. Finally, the additional cost of implementation should be low because data for public disclosure are already gathered. However, there would be additional audit costs for data checking.

It is very interesting that French hospitals responded enthusiastically to the call for volunteers for this test. More than 1,300 acute care hospitals had the opportunity of responding, and

450 hospitals volunteered. The French government only aimed for 100 hospitals for the test, however, due to the successful call for volunteers, they decided to enlarge the number of hospitals to more than 200. There are two simple reasons for this success: there will be no penalties, only rewards, and no additional workload for participants.

In conclusion, introducing quality into hospital funding criteria answers one of the main criticisms of activity-based funding: the absence of incentives to increase the level of quality. However caveats are in order for the French test:

- ✦ Firstly, the planned budget is likely to be too low to change behaviour. In our view, the system will work only if hospitals accept the notion of penalties for underperformance.
- ✦ Secondly, the model is based on the indicators available at the present time. And as suggested by WHO, France needs to improve its health care quality metrics.
- ✦ Thirdly, the mechanism appears too complicated to be efficiently managed by hospitals.

However, what is positive is the fact that even if the budget is low, and even if it does not include perfect quality metrics, it focuses attention on the importance of quality. □

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The CASSANDRE Project: Automated alerts for optimal coding of diagnosis and interventions



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ABSTRACT: As of 1 January 2012, all Swiss hospitals have had to charge acute somatic care hospitalization according to the Swiss disease related group (DRG) System. In this system, hospital bills are based on the discharge summaries. Coders analyze these in order to identify diagnostic and interventional codes. These codes are used by the system grouper to determine a specific DRG code and cost-weight. The amount to be charged per episode is based on this cost-weight. Since acute care billing relies on discharge summaries and knowing that these are incomplete, our aim was to improve the completeness of these documents by automatically detecting pathologies that should have been coded and charged. We also aimed to help improve the selection of the main diagnosis. We have implemented algorithms for the automatic detection of pathologies that directly inform the coders whilst by-passing the physician. Final validation of the new pathologies remains with the physician. Our results are very encouraging from a financial point of view.

Before 2007 the *Hôpitaux Universitaires de Genève* (HUG), charged acute somatic hospitalizations based on a flat rate billing per day care. The advantage of this system was that the invoicing was easier, but it remains very opaque and inequitable for the different groups of patients or insurances (Lopes, S 2008; Lovis ch et al 1996).

In January 2007, HUG changed from a flat rate billing per day basis to flat rate billing per case basis. The system used until 2012 was the All Patient Diagnosis Related Group (APDRG), then in 2012, the Swiss DRG.

The purpose of DRG systems is to distribute individual patients into homogeneous medical groups with similar treatment costs. The DRG groups are determined by a software grouper which is based on the medical coding of the diagnoses and interventions mentioned in the patient's discharge documents. This information is then translated into ICD-10-GM codes for medical diagnoses and into CHOP codes for surgical procedures (Fetter, FB and Freeman, JL 1986; Wennbero, JE et al 1984). The DRG calculation takes into account other criteria such as the patient's age, gender, type of discharge and so on. The amount to be charged for the hospitalization is directly related to the calculated cost-weight of each DRG. The value of a cost-weight point is negotiated between insurers and hospitals. For example, the value for HUG was CHF 11,233 in 2012.

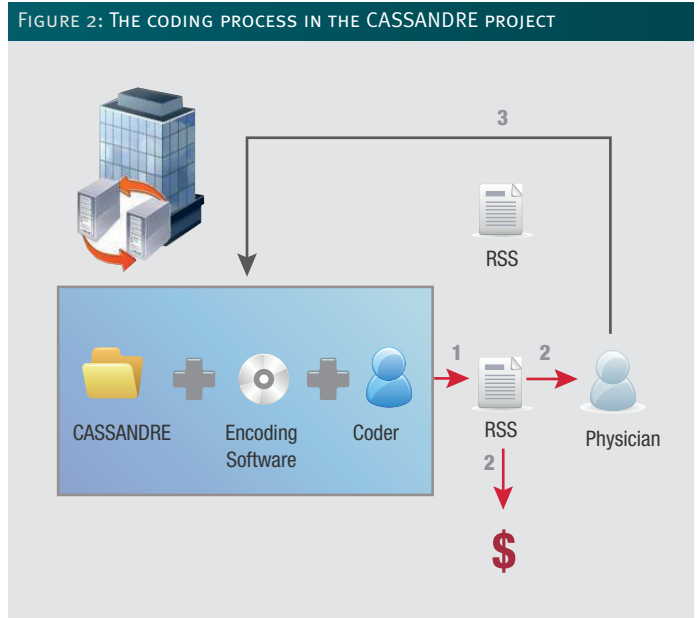
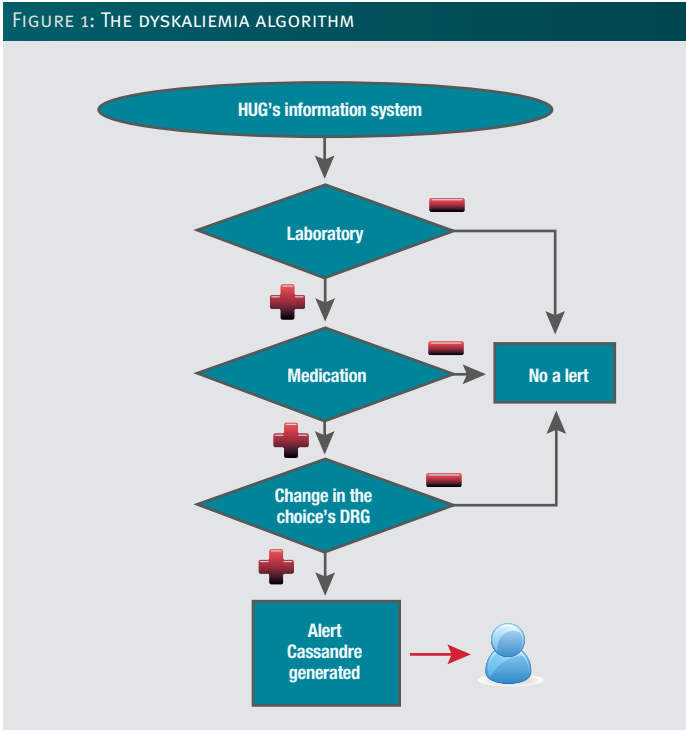
This system is not only used for hospitalization invoicing but also as a tool for performance evaluation, comparison and control of hospital cost – benchmarking (Brauer, S 2008).

Since patient's discharge summaries are used, via the coding, to

determine the DRGs and their cost-weight, it is very important that coders obtain exhaustive information (Rossier, P 2011). In addition, the DRG attribution takes into account the selection of the main and associated secondary diagnoses. The main issue is therefore to provide a discharge document containing a maximum of complications and comorbidities the patient has had during his hospital stay. The rule for choosing the main diagnosis is to select the one that needed the most resources during the patient's hospitalization. Our aim is to increase the completeness of the release documents by automatically detecting pathologies to be coded and to be able to upgrade the DRG code and optimize the choice of the main diagnosis.

Materials and methods

We have developed a tool that can detect and analyze potential comorbidities for individual patients. By using the HUG's information system, we can access the laboratory results, the hospital treatment and the clinical documentation for a patient. With this information, we can define algorithms for detecting pathologies. Once these pathology detection algorithms were defined, they were implemented in the coding process to alert coders (and indirectly the physicians) with pathologies patients have had during their hospitalization which may affect the DRG. The alerts are only communicated to the coders if the added code changes the DRG as illustrated in Figure 1. The coder in charge of the discharge document informs the physician who was in charge of the patient. The final decision to add the diagnosis in the discharge document remains with the physician. Figure 2 shows a



macroscopic view of the entire process.

The innovative part of our project is that the alert receiver is currently not the physician in charge of the patient but the coder treating the discharge document. Due to this the coder in our service is more sensitive to these alerts, unlike physicians who receive different alerts often during their hospital practice especially when e-prescribing. In fact 46–96% of true alerts are ignored by physicians (Van der Sijts, H et al 2006). The reasons are mostly human factors, including fatigue due to low specificity of the alert, lack of time, confidence in physician's own knowledge and at a procedural level such as interruption of the workflow. In addition, inadequate alerts can also lead to a lack of physician impact (Wipfli, R and Lovis Ch 2010; Jung, M et al). There are only 16 coders employed at HUG. By directing our alerts to the coder, we hope to increase their impact and to reduce the alerts to physicians.

If one or more pathologies are not mentioned in the discharge document as verified by the coder, he will ask the treating physician to validate and modify as needed the release standard summary (RSS). We proposed this process in order to obtain the most exhaustive RSS and therefore to obtain a reimbursement in line with the patient's hospital stay and care. During the development of this first approach, we worked on optimizing the choice of the main diagnosis because it has a great influence on the DRG attribution by the grouper. We also examined diagnoses and their associations that would strongly impact on the DRG and its CW. These are the three main topics for the CASSANDRE (encoding assisted by requested data analysis) project.

Dyskaliemia

We initiated our study with pathologies for which an algorithm could be implemented and which would potentially influence the choice of the DRG code in the Swiss DRG system. This impact is determined by the comorbidity and/or complication level (CCL), on an increasing impact scale ranging from 0 to 4. We associated to every ICD-10-GM code, a further ICD-10-GM code with a CCL > 1.

This created over 56 million associations. Among these associations, we focused on dyskaliemia (hypo- and hyperkaliemia). The dyskaliemias are common diagnoses (hypokaliemia representing 20% of hospitalizations) (Fumeaux, Z 2007; Katerinis, I and Fumeaux, Z 2007). They are easy to diagnose and are certainly under-documented. Thus, we established criteria that would allow us to detect patients likely to have had a hyper- or hypokaliemia during their hospital stay in 2012. As detection criteria for hyperkaliemia, we chose a value of kaliemia above the norm (> 5.5 mmol/l) during the stay and at least one of the four drugs used to treat hyperkaliemia at HUG. For hypokaliemia, we defined a value of kaliemia below the norm (<3,5mmol/l) and at least one of the 20 drugs used in treating hypokaliemia at HUG. This tool detected 2,777 cases of dyskaliemias for all acute somatic care hospital stays at the HUG during the first semester of 2012 (total n = 22,109). We then added the specific ICD-10-GM code for dyskaliemia and determined again the Swiss DRG code (grouper software SwissDRG). This allowed us to reveal the cases for which the DRG changed, the CW increased and also the reimbursement for these hospitalizations.

Optimizing the choice of the main diagnosis

It is known that the main diagnosis is important for the choice of the DRG code. Therefore, we performed a simulation in which for each episode of care (EDS) in 2011, we changed the primary diagnosis with each secondary diagnosis related to that EDS. For each rearrangement per EDS, we obtained a DRG and its CW. For each of these CWs, we retained the one with the highest value. Once this theoretical exercise was done, we repeated the simulation and added a clinical perspective. We kept the permutations for which the DRG had a higher CW and stayed in the same Major Diagnostic Category (MDC) (28 groups into which the 1,053 DRGs are divided corresponding to the main specialties) as before the permutations. In other words the MDC had to remain the same as the original one.

The creation of a list of unavoidable associated diagnoses

A further objective was to establish a list of comorbidities that strongly influence the DRGs. These comorbidities have a

contextual influence and in certain cases change the DRG, while in other cases they have no influence. On the other hand certain comorbidities determine systematically the DRG whatever the context. Therefore these comorbidities must not be ignored by physicians and coders and are an important objective of the CASSANDRE project.

Results

For dyskalemia, our tool detected 2,777 cases out of 22,109 cases. Among these 2,777 cases, 2,690 were not coded for dyskalemia. After adding this code in the simulation we could determine 152 DRG changes, with a delta of 84 CW points, which represent a gain close to CHF 1 million (= 84 CW points x CHF 11,233).

By rearranging the order of the diagnoses for each EDS regardless of the clinic and retaining only the arrangements that have a DRG with a higher CW, we obtained an increase of 8,134 CW points. This hypothetical gain, without taking into account the clinical state, is around CHF 91 million (8,134 points x CHF 11,233). Subsequently we repeated the simulation selecting again the DRGs with the higher CW but only when the simulation's MDC was identical with the original main diagnosis. Obviously we obtained a much lower delta of 1,573 CW points, which represents a hypothetical gain of more than CHF 17 million (1,573 points x CHF 11,233).

With our various simulations, we observed that certain diagnoses always point to the same DRG regardless of the secondary associated ICD-10-GM code. In addition, we also observed that some diagnoses are assigned to well-defined DRGs that require some diagnoses or specific surgical procedures associations. So far, we detected 33 ICD-10-GM codes that, associated to other ICD-10-GM codes, always pointed to the B61Z DRG with a CW of 3.26 points. These diagnoses are essentially related to spinal cord injuries (paraplegia, tetra-plegia, etc).

Discussion

Regarding our work on dyskalemias, the number of DRGs that have been modified by our algorithm may seem low, but it must be kept in mind that these few cases represent a potential gain close to CHF 1 million. Our detection algorithm must be balanced with the validation of the diagnosis by the physician in charge of the patient. For the future selection of algorithms for further pathologies, it will be important to choose between the difficulty of detecting the pathology and the impact on the DRG. Indeed, we will need to focus on common pathologies, rarely documented and detectable from HUG's information system.

It is well known that diagnoses are not exhaustive in the discharge documents, which our study confirms. Furthermore, we tested the importance of selecting the main diagnosis. Our simulations, changing the main diagnosis confirm that the choice of the main diagnosis, is essential. In the discharge documents, the selection of the main diagnosis should be based on the diagnosis which used most resources during the patient's hospital stay. The most serious diagnosis is not necessarily the one that consumes most resources. This implies that physicians must be informed accordingly. Furthermore, a billing-specific document could be considered, which would be different from the usual discharge document for factual clinical transmissions.

TABLE 1: RESULTS OF THE DYSKALIEMIA SIMULATION

	Number of cases	
First semester 2012	22,109 cases	
Number of dyskalemia cases	2,777 / 22,109	12.6%
Number of dyskalemia encoded cases (with or without DRG change)	87 / 2,777	3.1%
Number of cases with uncoded/ detected dyskalemia	2,690 / 2,777	96.9%
Number of DRG changes for the uncoded cases	152 / 2,690	5.7%

Regarding the creation of the unavoidable associated diagnoses list, we currently detected 33 diagnoses for which we have initiated a detailed study regarding clinical detection and eventual detection algorithms. It is important not to miss these diagnoses as they point to DRG codes with high CWs. Due to their impact, we are now working on algorithms that allow us to flag these diagnoses in the HUG's information system in order to have them systematically documented and coded. Certainly there are still other pathologies or associations of pathologies to be identified among the 16,136 ICD-10-GM codes.

In the future, we will refine our current algorithms and look at new common pathologies, often under-documented, as for example MRBs (multi-resistant bacteria) infections, bacterial sepsis, septic arthritis, bacterial meningitis and malnutrition. We will also exploit our database of 56 million ICD-10-GM code associations. This work will allow us to create a Wiki containing for every ICD-10-GM code another associated diagnosis. This could also be achieved with a case manager. This person will collaborate with the physicians for optimizing the discharge summary by using this Wiki and the knowledge on coding and DRGs.

Conclusion

Currently, the billing of hospitalizations for acute somatic cases is based on the DRG attribution, which in turn relies on discharge summaries. We have identified three areas to optimize: the discharge summaries, the coding, and therefore the billing of hospitalizations. Our plan is to, firstly, improve the completeness of the release document, secondly, to optimize the choice of the main diagnosis, and finally, to create a list of unavoidable code associations. With these encouraging results, we believe that these three areas will allow us to create tools, which will improve the quality of coding at HUG.

In the future, we plan to generate automatic alerts of pathologies for physicians during the preparation of the discharge documents. These alerts, with doctor validations, will serve for better coding and for increased hospital reimbursement. □

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Making medical and research strategic choices: A case study from Antwerp University Hospital



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ABSTRACT: In the early 2000s, Antwerp University Hospital witnessed drastic changes to its circumstances: large general hospitals in the area were merged and the university hospital was privatized and separated from the University of Antwerp, which is primarily a teaching university. In light of these developments, Antwerp University Hospital adopted a strategy of transforming itself into a more specialized centre of expertise. Three fields of specialization were selected by the management as centres of excellence, based on clinical and scientific indicators. In a renewed synergy with the university, a clinical research centre was established to direct joint translational research. The core facilities for translational research were also selected in limited numbers based on strengths and opportunities. After six years, the centre had demonstrated that small, more specialized institutions can also be successful.

Antwerp University Hospital is the youngest and smallest university hospital in Belgium. The hospital has an inpatient capacity of 573 beds, 64 of which are for intensive care (adult and neonatal). In 2012, the number of admissions was 27,316. In the same year, there were 31,628 outpatient admissions and 625,850 ambulatory services. Total revenues amounted to 329 million euros. The medical staff consists of 359 doctors: 225 specialists and 134 residents.

The environment is highly competitive. The Belgian financing model is more likely to encourage competition between hospitals than collaboration. Ten years ago, hospital mergers in Antwerp created hospitals with capacities of between 1,000 and 2,400 beds. These hospitals are also important for the faculty of medicine at the University of Antwerp, because they offer half of the internships for specialist training.

Knowledge as a distinguishing criterion

In 2002, an internal decision was made within Antwerp University Hospital to adopt a growth scenario as well – not in terms of capacity, but in terms of activity, and thus also in terms of revenue. The objective was to increase the hospital's cash flow, making it possible to fund innovation and applied research out of its own resources. This strategic choice involved an implicit decision to invest patient-care revenues in scientific research.

At the same time, the strategy that had previously been implicit was made explicit. The mission was reformulated, with strong emphasis on the academic dimensions of research and training: "Antwerp University Hospital (UZA) is an academic centre for leading clinical and customer-friendly patient care, high-quality academic education, and ground-breaking scientific research with a major international dimension."

In addition to the reformulation of the strategy, the hospital's relationship with the University of Antwerp underwent changes during the same period. The university was created in 2003

through the merger of three small, incomplete universities. The new University of Antwerp was a broad, largely teaching-oriented university, of which Antwerp University Hospital was also a part. In 2005, the hospital became a separate legal entity and chose to become a more research-driven university hospital. The restricted scale of the hospital, however, limited the options for creating a rich research culture in most disciplines. Research-informed training also requires a sufficient volume of research projects and patients who can be included in trials. It was therefore decided, in contrast to the other university hospitals in Belgium, that the hospital would no longer offer all specializations, focusing instead on acute somatic care. An assessment was conducted to determine which specializations the hospital would no longer offer, but for which a general hospital within a network could function as a teaching hospital. For example, psychiatry, pediatric psychiatry, geriatrics and rehabilitation were outsourced to general or categorical hospitals. Aesthetic treatments were also eliminated from the range of services offered at Antwerp University Hospital. It was nevertheless necessary to ensure that the foundation for the range of medical services offered and the choice of portfolio would be sufficient to continue to provide high-quality multidisciplinary treatments. In addition to their primary diagnoses, Antwerp University Hospital patients still have an average of eight secondary diagnoses: it would not have been acceptable to dilute the range of medical services in acute somatic care in order to offer quality. Concentration on third-line medicine is possible only if sufficient second-line pathology remains at the hospital. This is due to economic considerations, as well as for reasons related to training and selection: rare, complex diseases are filtered out of a large patient flow.

Strategy map

The choice to use "knowledge," translated into research and innovation, as the distinctive criterion in the hospital's relationship

FIGURE 1: THE INTERNAL BENCHMARK FOR MEDICAL DISCIPLINES AT THE ANTWERP UNIVERSITY HOSPITAL



research projects outside the clinical trials, and the number of PhD degrees conferred in the last three years.

Each indicator (both clinical and scientific) was assigned a weight, reflecting its importance for the hospital. This created a quadrant that indicates the relative position of each discipline in relation to the other services. Within the quadrant, each discipline is depicted by a sphere, the size of which reflects the financial turnover for the discipline, with the colour representing its profitability. The current quadrant is shown in Figure 1.

A strategic choice was made to support the disciplines falling into the upper right quadrant as priority areas. Assessments and new quadrants are created every three years.

with other hospitals, was transformed into a strategy map, according to the model developed by Kaplan and Norton (Kaplan 2004). The strategy map included the critical success factors that are necessary in order to implement the strategy.

Within each critical success factor, key performance indicators (KPIs) were defined, to be followed at the level of the hospital and of the various disciplines. The model was adapted to the Antwerp University Hospital culture. Instead of being arranged in a quadrant, the causal relationship between the four perspectives is from the bottom up, starting from human resources and R&D. At the top is the creation of excellence for stakeholders. This is the equivalent of shareholder value: the dividend consists of more quality for the patients.

Positioning and selection of priority areas

To determine the priorities of Antwerp University Hospital, an internal benchmark was designed for the medical disciplines. The benchmark was compiled according to seven criteria for clinical activity (four quantitative and three qualitative) and six criteria for scientific output (three quantitative and three qualitative). These criteria were weighted together at 100% and plotted along an x-axis containing clinical indicators and a y-axis containing scientific indicators. Clinical criteria included the number of new patients in relation to the total number, the share of secondary referral patients from other hospitals, the relative seriousness of the pathology treated, the number of ambulatory patients treated per doctor, the number of outpatient admissions per doctor, the number of overnight admissions per doctor, and the length of admission relative to the national average for the same pathology. Scientific criteria included the number of scientific publications per doctor in the Web of Science, the number of full scientific papers, the quality of the publications (measured as the median of the impact factor of all publications), the number of clinical trials started, the number of

This generates a Matthew effect of accumulated benefit, with the disciplines that already have considerable resources receiving even more to the detriment of the others¹. Antwerp University Hospital has limited itself to three priority areas: cardiovascular diseases, oncology/hematology and pneumology/thoracic surgery.

Translational research

The next strategic question concerned how Antwerp University Hospital could connect clinical care to research, particularly within its priority areas. This question involves data collection, data integration, data exploration and decision support. Data were available in patient records, in several small biobanks, in other hospitals and in the university's research laboratories. The hospital's objective was to build up its successful translational research in the disciplines that were advanced as strong disciplines. The value chain designed at Duke University was adapted and used as a model (Dzau 2009). The ability to develop translational research successfully in the domains important for Antwerp University Hospital depended heavily upon collaboration and agreements on common priorities with the university. First, at the initiative of the Antwerp University Hospital, a common, central biobank was established as a key tool. A tumour bank was established at the same time, with financial support from the Belgian government. For this facility, collaboration agreements were also made with other hospitals.

The infrastructure of the biobank, excluding its operations, is partly financed by the Flemish government. An agreement was made between the four Flemish university hospitals regarding the biological material that is to be collected by each partner and made

¹Matthew, 25:29 (King James Version): For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken even that which he hath.

available within a network for scientific research. Given that cardiovascular diseases were advanced as the most important priority area within Antwerp University Hospital, the hospital chose to develop the first structured biobank for heart failure.

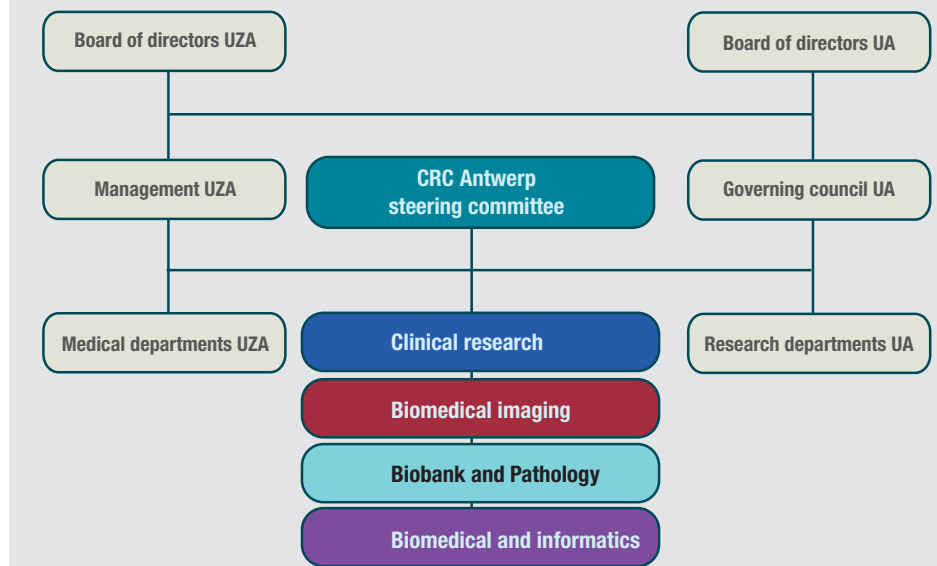
Carrying out translational research also implied the development of core facilities and strategic choices for the technical platforms that could distinguish Antwerp University Hospital from its competitors. In addition to the biobank and tumour bank, three other strategic investment choices were made in order to bring research into the hospital: the development of a clinical pharmacological research unit for Phase I studies, the establishment of a centre for biomedical molecular imaging and the creation of an institute for biomedical informatics. Decisive factors in this choice included the existing presence of expertise and the existing research facilities in the other Belgian university hospitals.

Together with the university, a governance model was developed and a structure was set up for the joint development of translational research in Antwerp. The collaboration and the determination of the strategy for translational research take place through the Clinical Research Centre (CRC). Antwerp University Hospital and the University of Antwerp are represented equally in the CRC. Both managers and doctors participate on behalf of Antwerp University Hospital. Participants on behalf of the University of Antwerp include academic authorities, the Faculty of Medicine and Health Sciences and the Faculty of Pharmaceutical, Biomedical and Veterinary Sciences. This governance structure is shown in Figure 2.

The governance structure also ensures the synchronization of the core facilities with each other, thus allowing for synergy. For example, the clinical trials are intensively focused on cardiovascular diseases and Phase I trials in oncology, which together represent more than half of all trials. The Molecular Imaging Centre Antwerp (MICA), the core facility for biomedical imaging, conducts both basic research and applied research in the field of oncology. The MICA core facility has a cyclotron for experimental tracers. It is a lab for nuclear imaging, ranging from molecular to pre-clinical and first-in-man studies. The university incorporated a nuclear small-animal imaging facility for evaluating new tracers and unraveling molecular pathways. A long-term collaborative agreement has been made with Janssen Pharmaceuticals for this facility.

The ICT group working within the Institute for Biomedical Informatics consists of scientists from the Department of Mathematics and Computer Science within the University of Antwerp Faculty of Science, along with ICT staff from Antwerp University Hospital. These experts examine workflow systems, design visualization tools, and develop algorithms for the early diagnosis of rare diseases. Their work area is located at the intersection of translational medicine, bioinformatics and medical informatics. The various research projects correspond to the priority areas that are being developed clinically and scientifically within Antwerp University Hospital.

FIGURE 2: GOVERNANCE STRUCTURE OF CRC ANTWERP



Conclusion

It would be useful to consider whether Antwerp University Hospital's transformation into a more specialized centre of expertise with a medical and scientific choice for specific domains in the medicine has yielded any results.

Such results are visible in terms of synergy with the university's research fields, as evidenced by the sharp increase in the number of grants that have been awarded in the past five years for joint research projects. The past five years have also witnessed a 20% increase in the number of clinical trials, despite a declining Western European market. The choice has also reinforced Antwerp University Hospital as a medical reference centre, as demonstrated by the increase in referrals for the disciplines that are being supported as centres of excellence. □

Johnny Van der Straeten has been the Chief Executive Officer of Antwerp University Hospital since 2001. He joined the hospital in 1988 and he was subsequently appointed to the positions of CHRO (1989) and CFO (1996). He obtained a Master's degree in political and social sciences at the University of Antwerp and an EMBA at the Antwerp Management School. Van der Straeten is also an alumnus of the European Health Leadership Programme at Insead.

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Disaster resilient hospitals: An essential for all-hazards emergency preparedness



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ABSTRACT: Hospitals and health facilities play a crucial role in providing health services for their communities, in particular during crises and emergencies. Well prepared and disaster resilient hospitals are therefore essential to be able to meet the increased demands for life saving services in large scale emergencies, which can quickly overwhelm the surge capacity and functional safety of the hospitals and of the health system at large.

The World Health Organization (WHO) has developed tools like the Hospital Safety Index, the WHO Regional Office for Europe's Hospital emergency response checklist and Toolkit for assessing health-system capacity for crisis management to assist emergency managers to assess the structural and functional safety of health facilities, to enhance emergency preparedness to respond effectively to the most likely disaster scenarios and to strengthen overall health system preparedness with an all-hazards approach through fostering the crisis management capacities of hospitals.

This article briefly introduces these WHO tools and provides an overview of their implementation and roll out in Member States of the WHO European Region.

As the directing and coordinating authority for health within the United Nations (UN) system, the World Health Organization (WHO) has a clear mandate in the area of emergency preparedness and response, with the ultimate objective of reducing emergency related mortality, morbidity and societal disruption through supporting countries in building capacity to manage public health risks associated with emergencies. The Organization's core commitments and critical functions in emergency response are outlined in WHO's Emergency Response Framework (WHO 2013). As the lead agency for the Global Health Cluster and member of the Inter-Agency Standing Committee (IASC) WHO is responsible for coordinating the health response in humanitarian emergencies. The legally binding International Health Regulations IHR (2005) underpin WHO's mandate to manage the international response to acute public health events and risks, including public health emergencies of international concern (WHO 2008).

In the area of emergency preparedness, WHO is aiming at building resilience and strengthening the emergency risk management capacities of health systems through an all-hazards and multi-sector approach.

With health being a major concern in almost any type of disaster the health system is often confronted with rapidly increasing service demands. There are numerous examples of hospitals and health care facilities failing in disasters and mass casualty events, when they are needed most to save lives. Inadequate preparedness can result in functional shortcomings, while structural damage to hospital building and the local infrastructure can further aggravate the situation and render hospitals dysfunctional in the aftermath of a disaster. Enormous public investments in building a countries' health infrastructure can be lost when inadequately constructed health facilities are damaged

or destroyed in disasters.

In light of the above the 2008-2009 World Disaster Reduction Campaign, launched by the secretariat of the International Strategy for Disaster Reduction (UNISDR) and WHO, with support from the World Bank, focused on "Hospitals Safe from Disasters: Reduce Risk, Protect Health Facilities, Save Lives" (UNISDR, WHO, The World Bank 2008); World Health Day 2009 was dedicated to the same topic "Save lives. Make hospitals safe in emergencies" (WHO 2009).

To prevent hospitals from failing in emergencies, WHO has been promoting national and local "Safer Hospitals" programmes for many years resulting in global, regional and national policy commitments, technical guidance and assistance provided to Member States and partner organizations. To assist hospital managers in the assessment of the structural and functional safety of facilities and to enhance emergency preparedness to respond effectively to the health consequences of disasters hospital specific tools like the Hospital Safety Index (Pan American Health Organization 2008) and the Hospital emergency response checklist (WHO Regional Office for Europe 2011) were developed and rolled out; these are complemented by the WHO Toolkit for assessing health-system capacity for crisis management, a standardized methodology for country capacity assessments to identify gaps and monitor progress in improving all-hazards emergency preparedness of the health system (WHO Regional Office for Europe 2012).

The Hospital Safety Index

The Hospital Safety Index (HSI) is a method to objectively assess the structural and functional safety of hospitals. Combined with technical support and training programmes to enhance the emergency management capacities of health professionals, it is

part of the Safe Hospitals Initiative (Pan American Health Organization 2012), which supports concrete actions for implementation of the Hyogo Framework for Action 2005-2015 (UNISDR 2005). More than 50 countries worldwide implemented activities under this initiative. The methodology has been rolled out globally to assess hospital vulnerabilities, to promote low-cost/high-impact mitigation measures, and to strengthen emergency preparedness to ensure that hospitals remain functional in emergencies. To date, the safety and preparedness of more than 1,800 health facilities have been assessed and recommendations based on these assessments were implemented to strengthen hospital resilience and emergency preparedness.

One hundred and forty-five items of structural, non-structural and functional components are evaluated in applying the index. A computer based analysis of the gathered information generates results between 0 and 1, with 1 corresponding to the highest safety level. A hospital scoring 0.35 or below is categorized as category C, which is considered to be inadequate to protect the lives of patients and hospital staff during and after a disaster. A hospital classified as category B, with scores between 0.35 and 0.65, is likely to resist a disaster, but its equipment and critical services are at risk. A hospital scoring 0.66 or higher is ranked in category A and is considered to be likely to continue to function in disasters. The results of the assessment can help decision makers in prioritizing and allocating limited resources. Recommendations are provided on necessary actions and how to optimize investments to strengthen hospital resilience within the complex health system.

In the WHO European Region, more than 150 hospitals and health facilities in 11 countries have been assessed. Eighteen percent were ranked in category A, 57% in category B, and 25% in category C. The results varied from 0% of hospitals in category C in one country to 50-70% in others. Several countries have linked the hospital safety assessments with capacity building programmes in “public health and emergency management” to strengthen hospital safety and to develop contingency plans. In the Republic of Moldova all 61 public hospitals were assessed in 2010: 15 (25%) hospitals were assessed to be category A, 41 (67%) as category B and 5 (8%) as category C. Based on the evaluation results, a dedicated programme to strengthen hospital resilience was initiated (Republican Center for Disaster Medicine 2010). Following the devastating Marmara earthquake in 1999 Turkey put substantial efforts to strengthen the disaster resilience of hospitals. Priority hospitals are being seismically retrofitted or reconstructed. In the Istanbul area this is part of a wider public building campaign for improved community risk reduction within the Istanbul Seismic Risk Mitigation and Emergency Preparedness Project (ISMEP).

Several countries have chosen to adapt the Hospital Safety Index to meet country specific considerations. Drawing from these experiences and in order to further improve the applicability of the tool, a revision of the HSI was initiated by WHO and partners, with the revised version planned to be released in 2014 (WHO 2013b).

The WHO Regional Office for Europe’s hospital emergency response checklist

The Hospital emergency response checklist was developed by WHO and partners to assist hospital administrators and emergency managers in responding effectively to the most likely disaster scenarios. This tool comprises current hospital-based

emergency management principles and best practices and integrates priority action required for rapid, effective response to a critical event based on an all-hazards approach. It builds on previous work by WHO to assist hospitals with pandemic management (WHO 2009) and is structured according to nine key components, each with a list of priority actions to support hospital managers and emergency planners in achieving:

- + continuity of essential services;
- + well-coordinated implementation of hospital operations at every level;
- + clear and accurate internal and external communication;
- + swift adaptation to increased demands;
- + the effective use of scarce resources;
- + a safe environment for health care workers.

References to selected supplemental tools, guidelines and other applicable resources are provided. The principles and recommendations included in this tool may be used by hospitals at any level of emergency preparedness. The checklist is intended to complement existing multi-sectoral hospital emergency management plans and, when possible, augment standard operating procedures during non-crisis situations.

WHO Toolkit for assessing health-system capacity for crisis management

The compilation of the WHO Toolkit for assessing health-system capacity for crisis management was initiated in 2008 in the context of a joint project of the European Commission Directorate-General for Health and Consumers (DG-SANCO) and the WHO Regional Office for Europe on “Support to health security, preparedness planning and crisis management in European Union (EU), EU accession and neighbouring (ENP) countries”.

The toolkit aims to assist countries to assess the capacity of their health system to manage health crises. It is not intended to replace existing planning processes but to serve as basis for the development/updating of national action plans.

The tool was developed through a consultative process with involvement of national and international experts. It is structured along the six health system blocks of the WHO health systems framework:

- + leadership and governance;
- + health workforce;
- + medical products, vaccines and technology;
- + health information;
- + health care financing;
- + service delivery.

The resulting country assessment reports describe the level of preparedness of the health system and evaluate the arrangements in place to deal with crises, regardless of cause, using the all-hazards approach. They also examine the established risk prevention and mitigation initiatives. While the main focus is on the national level, the reports also address to some extent the crisis management capacity at the local level and examine the links between the various levels of government. In addition, some country reports focus on specific preparedness aspects, like preparedness for mass gathering events, or health system preparedness for large scale migration or refugee waves.

An initial version of the tool was piloted in assessment missions

to Armenia, Azerbaijan and the Republic of Moldova. A second assessment round covering Kazakhstan, Kyrgyzstan, Poland and the Ukraine contributed to the further refinement of the toolkit. The ministries of health of Ukraine and Poland had requested the assessments in the context of their preparedness efforts for mass gatherings (UEFA EURO 2012), and the respective assessment reports had a particular focus on health system preparedness for mass gatherings.

The revised and finalized toolkit was subsequently used for assessments in Croatia, Kyrgyzstan and Tajikistan and for a re-assessment in Armenia.

Based on requests from the ministries of health of Greece, Malta and Italy, respectively, the toolkit was used to carry out local assessments in the context of strengthening health system preparedness for large scale migration waves. The assessment in the part of Greece at the Greek-Turkish border was conducted jointly with the European Centre for Disease Prevention and Control (ECDC).

England and Israel adopted a self-assessment approach to document their crisis management arrangements, and the assessment report for England was used to support public preparedness efforts for the 2012 Summer Olympics and Paralympics in London.

Assessments were also completed in Kosovo (in accordance with Security Council Resolution 1244 (1999) and the Republic of Moldova, with assessment reports being finalized.

A preliminary analysis of those country assessments revealed a number of common challenges, mainly related to gaps in emergency management competencies of the health workforce and the lack of strategies to address those gaps; the lack of institutionalized and comprehensive hospital preparedness programmes and systemic gaps in mass casualty management and integrated emergency medical services systems. These findings are currently further analysed.

Conclusion

While some progress has been made to date to strengthen emergency preparedness of health systems and to promote the notion of disaster resilient hospitals through effective strategies in some countries, sustainable improvements will depend on the political commitment and the active engagement of other sectors to support the health sector in ensuring the functioning of hospitals and health system at large before, during and after disasters. Strong advocacy is required to promote a paradigm shift from prioritizing reactive emergency response activities towards a more comprehensive emergency risk management approach along the disaster management cycle encompassing prevention, mitigation, preparedness, response and recovery. □

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Global health care trends and innovation in Korean hospitals



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ABSTRACT: Health care is one of the most significant global issues. The Korean health care system, which has both good and bad features, is grabbing international attention because of its cost effectiveness. However, it is also facing a lot of challenges such as a rapidly ageing population, increases in expenditure and too many competing acute hospitals. Therefore, many Korean hospitals have been trying to find innovative ways to survive. This article introduces some possible answers such as expansion and consolidation strategies, quality assurance, converging ICT and health care, attracting foreign patients, research-driven hospitals, public-private partnerships and a focus on service design and patient experience.

Health care has become a problem throughout the whole world. In the USA, health care is even threatening the nation itself. To date they have spent USD 1,000 billion, which is nearly 18% of the GDP, and efficiency has not improved at all. Although President Obama has brought in the Affordable Care Act, the conflicts among stakeholders are only getting worse. The Republican Party has openly opposed Obamacare, on the grounds of the government's control over the private sector's medical insurance system. They are even willing to shut down the federal government.

However, the USA is not the only country with this health care problem. European countries with free health care are also burdened with similar problems. Earlier this year, due to over-bureaucratization and low quality health care, the UK passed the Health and Social Care Act. They hope that they can eliminate bureaucratic inefficiency and improve the responsibility of primary health care providers. Many people in the UK have conflicting opinions over this change. They claim that this is the most drastic change in the NHS' 60-year history. The opposition party and some professionals are still against this Act.

It is interesting to note that these leading countries are envious of Korean health care system. As of 2012, the Korean GDP per capita was USD 24,000 and medical expenditure was only 7.1% of GDP. Medical expenditure in USA is 18% of GDP, which does not even come close to that of Korea. Access to specialists in Korea is also far different from that of the UK.

The indicators for the Korean health system also look good. Life expectancy in 2000 was 75 and this has now risen to 81. During the last 12 years, the infant mortality rate has decreased from 6.2 to 3.0. Also, non-Koreans are amazed to see that the entire nation is covered by medical insurance. However, the Korean health care system also has systematic problems which need to be tackled immediately.

The first issue is an ageing society. The speed of ageing in Korea is the fastest in the world.

Back in 2000, the proportion of the population aged over 65 was 7.3% and this was enough to categorize Korea as "ageing society". Twelve years later and it is now 11%. Four years on, this figure will rise to 14% and eventually it will be over 20%. This means Korea will become a super aged society by 2026. The rate of ageing even exceeds that of Japan.

This definitely influences the health care system. This will bring changes to the types of diseases, medical institutions and the delivery system. The recent increase in cancer patients is related to the ageing population. Also, the sudden increase in long term care facilities supporting the elderly population has close relationship with the current situation.

Secondly, medical expenses have increased faster than GDP. Of course, it is still at a tolerable level. However, there is no doubt that it will eventually become a big burden for the country. This will result in the potential of pressure from the government and insurers for payment system reform as an all-round tactic to reduce medical expenses. Yet the most serious problem is that the medical insurance fee is below the actual cost and this has not been solved. In this situation, the discord between the government and hospitals would be deepened.

Thirdly, hospitals' growth in numbers and quality has added to

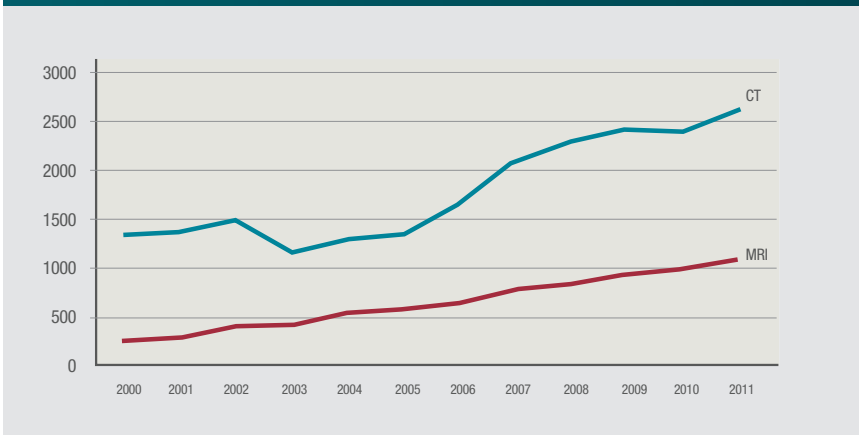
FIGURE 1: THE RAPID CHANGE OF HEALTH CARE IN KOREA

2000	2012
Population: 47,000,000	Population: 50,000,000
Over 65 years old: 7.3%	Over 65 years old: 11%
GDP: USD 17,000	GDP: USD 24,000
Health expenditure: USD 25.3 Bil	Health expenditure: USD 73.7 Bil
Health expenditure, % of GDP: 4.9	Health expenditure, % of GDP: 7.1
Total Hospital: 866	Total Hospital: 2,700
Total Bed: 180,000	Total Bed: 470,000 (LTC 160,000)

1. The population is ageing, rapidly
2. Increase of Health expenditure
3. Providers suffered by heavy competition

Data: Ministry of Health and Welfare

FIGURE 2: CHANGING ENVIRONMENT AND MANAGEMENT RISK: LIMITLESS COMPETITION IN HARDWARE



the conflict. For instance, there were 900 hospitals in 2000, and that increased to 2,700 in 2012. The implementation of long term care insurance in 2008 resulted in 1,100 long term care hospitals. The increase in the number of specialized hospitals and specialized medical centres has fuelled competition in quality.

From the patients' point of view, these changes give them more choices. However, to hospitals it means that there is more competition to achieve superior quality. Since the medical fee is below medical cost, the quality control and regulation on hospitals are not that pleasant.

Competition among hospitals means that there is much more competition in terms of equipment and facilities, just like the arms race during the Cold War. CT and MRI are a good examples. Korea has one of the highest ratios of equipment to patients, and it keeps increasing. During early 2000s, total number of CTs was 1,334 and MRIs was 254. In 2011, the number of CT had become 1,787 and MRIs to 1,062. Then, the competition in bed numbers started.

These expenditures are fundamental to managing hospitals. To survive this competition, hospitals need to invest and then it is hard for them to meet their break-even-point (BEP). These investments are a breeding ground for overtreatment and competition to secure more patients. This vicious cycle can already be seen among Korean hospitals.

Thus, managing a hospital in Korea is not an easy activity. Korean hospitals have been trying to find ways to survive. Over the past 10 years, they have come up with seven innovative models.

The first strategy was expansion and consolidation. All the secondary and tertiary hospitals expanded their bed numbers. Large hospitals increased twofold or threefold in size and many of them have multiple branches. Still, they are a long way away from effective consolidations.

The second trend was guaranteeing patient safety and quality assurance. Starting with the certification of the Severance Hospital in the mid-2000s, JCI has become a hot issue. There are many meanings to JCI certification and it became the method of marketing the quality of the hospital. Quality Improvement (QI), which was only used internally for process improvement became the marketing tool to propagate the competitiveness of the hospital. Patient safety and quality assurance have become the core of strengthening hospital competitiveness.

The third strategy was the use of ICT in health care. The development of an app for managing patient's

health is a good example. It is also possible to design a portable device to monitor specific factors. These efforts to increase convenience and accessibility for the patient by using health care ICT will continue.

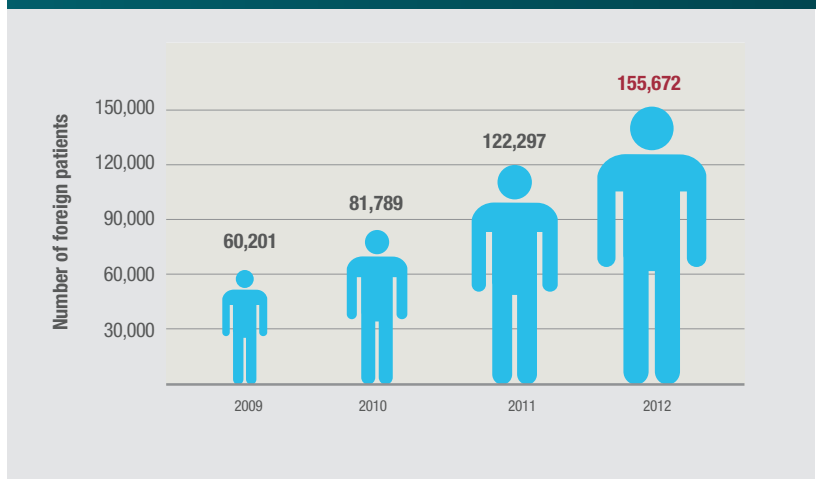
The fourth strategy is attracting foreign customers and business expansion overseas. In the late 2000s, the government started supporting medical tourism. Previously, only a few hospitals were capable of admitting and treating foreign patients. Now most hospitals can do this. This effort by the government has paid off and during 2012, 160,000 foreign patients visited Korea. The recent overseas expansion of hospitals is also leading to visible results. Hospitals are now expanding to the Middle East, Southeast Asia, Russia and Mongolia using turn-key systems.

The fifth is the emergence of research-driven hospitals. In Korea, if a hospital is not privately owned, it has to run as a non-profit hospital. That means hospitals are relying on the patient treatment fee to make a profit and invest. This is almost impossible with the current system where medical fees are below medical costs. Research driven hospitals are a solution to this dilemma. The government plans to provide financial support for R&D to research driven hospitals, so they may become a platform for future health care business.

The sixth is the public funding of private hospitals. Bound to a single insurance system, Korean medical institutions have public funding from the start. Also, social safety nets such as ERs and ICUs are operating on red. However, unlike public hospitals, there is not much support from the government. Originally, this kind of public-private partnerships (PPP) was done in less developed countries. But in Korea, this public endeavour is entrusted to the private sector. With the recent revision in law, private hospitals can also receive government support. For example, government is able to entrust infectious disease surveillance and control activities and chronic disease management functions to the private sector. This new form of PPP will become more important from now on.

Lastly, the improvement of service design and patient experience is now in the spotlight. This theme was introduced at the KHC (Korea Healthcare Congress). "Service Design" can be defined as discovering and implementing new ways to deliver better health. It

FIGURE 3: GLOBALIZATION OF KOREAN HOSPITALS



means improving the patient experience through improving the environment, process change and enhancing service. In other words, service design and patient experience are two sides of the same coin. It could be said that the customer service (CS) of the past became service design and quality Improvement (QI) became patient experience.

In order to improve patient experience by using service design, it is important to find the solution through multidisciplinary cooperation. Although many patients do not seem to have any complaints, the truth might be different by the time they go through a focus interview.

Actually, we have tried to change the patient experience using service design at Myongji Hospital, which I now run. The result was fine. For example, the health checkup centre called "Supmaru" allowed patients to experience something new: they felt as if they were in a forest. In addition, our newly renovated outpatient orthopedic department showed improving patient satisfaction following in-depth interviews with patients. The improvements also helped the hospital financially by reducing waiting times. A renovated psychiatric ward called "Heamaru" and a support system called "Onco Emotion System" created for cancer patients are also good examples of service design.

All these innovations have showed great outcomes so far. The advances in Korean health care have been possible thanks to the hidden efforts by hospitals. However, the ageing population and increasing medical expenditure cannot be fixed by hospitals alone. Like many other developed countries, Korea's health care requires aggressive innovation. □

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He is also one of the leading NGO activists in the medical aid area for migrant workers in Korea and serves as Vice Chairman of the Migrant Health Association in Korea. As a board member of the Korean Hospital Association, he is Secretary General of the Korean Healthcare Congress, which is top health care-related annual congress in Asia.

Dr Lee graduated from Seoul National University's College of Medicine. He achieved board of surgery in Seoul National University Hospital. He was awarded a PhD from the same University.

Résumés en Français

La qualité hospitalière résulte autant d'une bonne gestion que de bons traitements

En Norvège comme dans la plupart des pays, les hôpitaux sont soumis à de très fortes contraintes pour abaisser les coûts et améliorer la qualité. On dit beaucoup qu'améliorer la qualité réduit les coûts, mais bien peu de gens peuvent le prouver. De plus, combien de gens peuvent-ils démontrer qu'améliorer la qualité améliore la satisfaction du patient. En Norvège, Diakonhjemmet Hospital a inventé et mis en place un système de gestion hospitalière fondé sur les principes Lean et le cercle de qualité PDCA (penser-démarrer-contrôler-agir) lancé par W.E. Deming (Deming, 2000). Les résultats sont impressionnants en termes d'amélioration de la qualité et de satisfaction des patients. Qui plus est, l'hôpital génère des profits.

Effets de la prévention de la santé mentale dans les écoles secondaires

Nous avons voulu tester les effets des programmes de prévention de la santé mentale dans les écoles et avons lancé une étude longitudinale comportant un groupe traité et un groupe témoin d'après le concept de Solomon. Les données étaient recueillies par questionnaire avant les interventions et à 1, 6, 12 et 24 mois après l'intervention. Les mesures des effets sur les divers indices étaient évaluées en termes de (a) différences dans l'amélioration des scores totaux en pourcentage et (b) la formule d de Cohen. De t0 à t1, t2 et t3, le groupe traité présentait une amélioration significativement supérieure pour 6 des 7 indices de connaissance, et 12 mois plus tard nous avons observé des effets significatifs sur le niveau de problèmes de santé mentale.

Santé et performances des systèmes de santé dans les Emirats Arabes Unis (UAE)

Dès le début des années 2000, les Emirats Arabes Unis (UAE) bénéficiaient d'un bon système de santé (classé au 27^e rang par l'Organisation mondiale de la santé) et de bons niveaux de santé. Depuis, pour améliorer encore la santé et les services de santé et relever les défis de coûts et de qualité, les UAE ont lancé un ambitieux programme de réformes du système de santé. Celles-ci sont axées sur l'introduction de l'assurance médicale privée et encouragent le développement des prestations de santé privées. Ces régions ont connu des réalisations remarquables, mais bien qu'il soit encore trop tôt pour affirmer que ces réformes seront

couronnées de succès, certaines questions préoccupantes apparaissent : entre autres, une hausse des coûts des services qui ne s'accompagne pas d'amélioration manifeste des résultats, une augmentation des prestations hospitalières qui ne répondraient pas particulièrement aux besoins de la population, l'élévation des facteurs de risques de maladies chroniques et l'accent insuffisant mis sur les services de santé publique, le leadership en santé publique, la planification des ressources humaines de santé et la recherche.

Premier test de paiement à la prestation dans les hôpitaux français de soins actifs: le point de vue d'une Fédération française de centres intégrales de cancer.

En 2004, la France a lancé un système de financement basé sur les groupes homogènes de malades (GHM) pour les hôpitaux publics et privés de soins actifs. La France a opté pour une combinaison de systèmes financiers avec plus de 80% de financement basés sur les GHM. Au bout de sept ans de financement basé sur les GHM, le gouvernement français a mis à l'essai un système de paiement à la prestation dans les hôpitaux de soins actifs basés sur le modèle américain, qu'elle est en train de perfectionner. Jusqu'ici, les résultats observés ont soulevé des doutes quant à la capacité de cette démarche d'améliorer la qualité des soins de santé dans les hôpitaux français : le budget semble très insuffisant, la qualité des indicateurs disponibles est médiocre et le modèle est complexe. Toutefois, il a permis d'attirer l'attention sur le problème de la qualité des soins.

Projet CASSANDRE: alertes automatisées pour codification optimale du diagnostic et des soins reçus

A partir du 1^{er} janvier 2012, tous les hôpitaux suisses doivent facturer l'hospitalisation pour soins somatiques aigus selon le système suisse de DRG (groupes de pathologie). D'après ce système, les factures hospitalières sont basées sur les registres de sortie d'hôpital. Des codeurs les analysent pour déterminer le diagnostic et les codes de soins reçus. Ces codes sont alors utilisés par le groupeur du système pour créer un code DRG spécifique et la pondération des coûts. Le montant qui sera facturé par séjour hospitalier est basé sur ce poids des coûts. Comme la facturation des soins aigus repose sur les registres de sortie, et sachant que ceux-ci sont incomplets, notre but était d'améliorer l'exhaustivité de ces documents en détectant automatiquement les pathologies qui

pouvaient être codées et facturées. Nous avons également visé à optimiser le choix du diagnostic principal. Nous avons appliqué des algorithmes pour la détection automatique des pathologies qui informent directement les codeurs sans passer par le médecin. La validation finale des nouvelles pathologies dépend toujours du médecin. Sur le plan financier, nos résultats sont très encourageants.

Des choix stratégiques pour la médecine et la recherche: l'étude de cas du CHU d'Anvers

Au début des années 2000, le CHU d'Anvers a été témoin de changements radicaux de son environnement: les fusions de grands hôpitaux généraux de la région et la privatisation de l'hôpital, séparé de l'université d'Anvers, qui est essentiellement un CHU. A la faveur de ces innovations, le CHU d'Anvers s'est orienté sur une stratégie de transformation en un centre d'expertise plus spécialisé, avec trois domaines de spécialisation appuyés par une gestion visant l'excellence et reposant sur des indicateurs cliniques et scientifiques. Au sein d'une nouvelle synergie avec l'université, un centre de recherche clinique a été créé pour orienter la recherche de transfert. Dans cette perspective, les installations principales ont également été sélectionnées en nombre restreint en fonction des points forts et des possibilités. Au bout de six ans, le centre a montré que des petites institutions plus spécialisées pouvaient aussi réussir.

Hôpitaux à l'épreuve des catastrophes : indispensables pour être prêts à affronter toutes les situations d'urgence

Les hôpitaux et les établissements de santé peuvent jouer un rôle crucial dans la fourniture de services de santé à leur communauté, notamment en cas de crise ou de situation d'urgence. Les hôpitaux bien préparés et résistants aux catastrophes sont donc indispensables pour faire face aux fortes demandes des services de sauvetage dans les situations d'urgence de grande ampleur qui risquent de submerger rapidement la capacité de pointe et la

sécurité fonctionnelle des hôpitaux et du système de santé dans son ensemble.

L'Organisation mondiale de la santé (OMS) a conçu des outils comme le Hospital Safety Index, Hospital emergency response checklist et Toolkit for assessing health-system capacity for crisis management du Bureau Régional de l'OMS pour l'Europe pour aider les responsables d'interventions d'urgence à évaluer la sécurité structurelle et fonctionnelle des équipements de santé, à améliorer la préparation aux situations d'urgence pour faire face efficacement aux scénarios de catastrophe les plus probables et pour renforcer la préparation des services de santé en général dans une approche tous risques en renforçant les capacités hospitalières de gestion de crise.

Cet article présente brièvement des outils de l'OMS en expliquant leur mise en œuvre et leur déploiement dans les Etats-membres de la Région européenne de l'OMS.

Tendances et innovations à l'échelle mondiale des hôpitaux coréens

Les services de santé sont l'une des plus importantes questions dans le monde. Le système de santé coréen a des zones d'ombre et de lumière, attire l'attention mondiale en raison de son rapport coût-efficacité. Mais ils sont confrontés à plusieurs problématiques telles que le vieillissement rapide de la population, l'augmentation des dépenses, l'excès d'hôpitaux de soins aigus et la concurrence sévère entre eux etc. Beaucoup d'hôpitaux coréens ont donc tenté de trouver des moyens originaux de survivre. Cet article présente certains d'entre eux, tels qu'une stratégie d'expansion et de consolidation, l'assurance de qualité, la fusion des technologies de l'information et de la santé, la prospection auprès des patients étrangers, les hôpitaux orientés sur la recherche, le partenariat public-privé et l'accent sur la conception des services et le vécu des patients.

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Resumen en Español

La calidad hospitalaria: un producto de buena gestión tanto como de buen trato

En Noruega, como en muchos otros países, las exigencias que se les hacen a los hospitales para reducir los costos y la calidad de los servicios son intensas. Aunque muchos dicen que mejorando la calidad se reducen los costos, no hay que muchos que puedan demostrarlo. Por otra parte, ¿cuántos pueden mostrar que mejorando la calidad se mejora la satisfacción del paciente. El hospital de Diakonhjemmet, en Noruega, ha diseñado e implementado un sistema de gestión hospitalaria basado en los principios de Lean y el ciclo de calidad PHVA (planificar-hacer-verificar-actuar) Introducido por W.E. Deming (Deming, 2000). Los resultados son bastante impresionantes en cuanto a mejoras en la calidad y la satisfacción del paciente. El hospital también está produciendo beneficios.

Los efectos de la salud mental preventiva en las escuelas secundarias.

Queríamos probar los efectos de los programas preventivos de salud mental en las escuelas y establecimos un estudio longitudinal con un grupo de prueba y un grupo control, basado en el diseño de Solomon. Los datos fueron recogidos a través de cuestionarios antes de la intervención y 1, 6, 12 y 24 meses después de la intervención. Las medidas del efecto sobre los distintos índices se estiman en términos de (a) las diferencias en las mejoras de las puntuaciones de los porcentajes totales y (b) la fórmula d de Cohen. Desde t0 a t1, t2 y t3 el grupo de intervención mostró significativamente mayores progreso en 6 de cada 7 índices de conocimiento y 12 meses encontramos efectos significativos en el nivel de los problemas de salud mental.

Salud y desempeño de los sistemas de salud en los Emiratos Árabes Unidos (EAU)

A comienzos de los años 2000, los Emiratos Árabes Unidos (EAU) tenían un buen sistema de salud y buenos niveles de salud y su sistema de salud se ubicaba 27 en el mundo en el rango de la Organización Mundial de la salud. Desde ese momento, para mejorar aún más la salud y los servicios de salud y para abordar los desafíos de costo y calidad, los Emiratos Árabes Unidos se han embarcado en un ambicioso programa de reformas del sistema de salud. Estas reformas se han centrado en la introducción de un seguro médico privado y estimulan el crecimiento de la prestación de salud privada. En estas áreas ha

habido logros impresionantes pero aunque es demasiado pronto para decir si estas reformas van a triunfar, surgen algunas inquietudes. Entre estas tenemos el creciente costo de los servicios sin ninguna mejora evidente en los resultados, un aumento de los suministros hospitalarios que no satisface necesariamente las necesidades de la población, aumento de los niveles de factores de riesgo de las enfermedades crónicas y enfoque insuficiente en servicios de salud pública, liderazgo en salud pública, planificación del personal sanitario y la investigación.

La primera prueba de un pago por desempeño en hospitales de atención aguda franceses: el punto de vista de una Federación francesa de centros integrales de cáncer

En 2004, Francia comenzó un sistema de financiación basado en los GRD (grupos relacionados por el diagnóstico) tanto para los hospitales públicos como privados. Francia optó por una combinación de los sistemas de financiación con más del 80% de la financiación basada en los DRG. Después de siete años de financiación basada en los DRG, el gobierno francés está poniendo a prueba un sistema de pago por rendimiento en los hospitales de cuidados intensivos, con base en la experiencia de los EE.UU. Francia está actualmente ajustando este modelo. Hasta ahora, las observaciones han dejado dudas sobre si este enfoque mejorará la calidad de los cuidados de la salud en los hospitales franceses: el presupuesto parece muy insuficiente, la calidad de los indicadores disponibles es pobre y el modelo es complejo. Sin embargo, ha permitido centrar la atención en la cuestión de la calidad asistencial.

Proyecto CASSANDRE: alertas automáticas para la codificación óptima de diagnóstico y las intervenciones

A partir del 1 de enero de 2012, todos los hospitales suizos deben facturar las hospitalizaciones por la atención aguda somática según el sistema suizo de DRG. En este sistema, las facturas del hospital se basan en los expedientes de alta del paciente. Los codificadores los analizan para identificar los códigos de diagnósticos y las intervenciones recibidas. Estos códigos son utilizados por el agrupador del sistema para determinar un código específico de DRG y de costo-peso. La cantidad que se cobrará por estadía se basa en este costo-peso. Dado que la facturación por atención aguda se basa en los registros de alta y sabiendo que estos son incompletos, nuestro objetivo era mejorar la

exhaustividad de estos documentos detectando automáticamente las patologías que deben ser codificadas y facturadas. También apuntamos a optimizar la elección del diagnóstico principal. Hemos implementado los algoritmos para la detección automática de patologías que informan a los codificadores directamente sin pasar por el médico. La validación final de las nuevas patologías sigue dependiendo del médico. Nuestros resultados son muy alentadores

Financieramente hablando.

Las decisiones estratégicas en los campos médicos y de investigación : estudio de un caso del Hospital Universitario de Amberes

A principios del año 2000 , el Hospital universitario de Amberes fue testigo de cambios drásticos en su entorno: las fusiones de grandes hospitales generales de la zona y la privatización del hospital, separado de la Universidad de Amberes, que es principalmente una universidad de enseñanza. A la luz de estos acontecimientos, el Hospital Universitario de Amberes ha adoptado una estrategia de transformación en un centro de experiencia más especializado, con tres campos de especialización apoyados por la administración como centros de excelencia, basada en indicadores clínicos y científicos. En una renovada sinergia con la Universidad, se estableció un centro de investigación clínica para dirigir la investigación traslacional conjunta. Las instalaciones de la base para la realización de la investigación traslacional también fueron seleccionadas en un número limitado, basado en los puntos fuertes y las oportunidades. Después de seis años, el centro ha demostrado que las instituciones pequeñas más especializadas también podrían tener éxito.

Hospitales resistentes a los desastres: esencial para la preparación de emergencias todo riesgo

Los hospitales y centros de salud juegan un papel crucial en la prestación de servicios de salud para sus comunidades, en particular durante las crisis y emergencias. Hospitales bien preparados y resistentes a los desastres son esenciales para

poder satisfacer la demanda creciente de servicios de salvamento en las emergencias de gran escala, las cuales pueden inundar rápidamente la capacidad de sobrecarga y la seguridad funcional de los hospitales y del sistema de salud en general.

La Organización Mundial de la salud (OMS) ha desarrollado herramientas como el Índice de Seguridad del Hospital, la lista de control de respuesta a emergencias hospitalarias y el juego de herramientas de la Oficina Regional de la OMS para Europa, para evaluar la capacidad del sistema de salud para la gestión de la crisis para ayudar a los responsables de las intervenciones de emergencias a evaluar la seguridad estructural y funcional de los centros de salud, a mejorar la preparación para emergencia y responder eficazmente a los más probables escenarios de desastres y para fortalecer la preparación de los sistemas de salud en general con un enfoque que abarque todos los riesgos a través del fomento de las capacidades de gestión de las crisis en los hospitales.

Este artículo presenta brevemente estas herramientas de la OMS y proporciona una visión general de su aplicación y su práctica en los Estados miembros de la región europea.

las tendencias y la innovación a la escala mundial de los Hospitales de Corea

La salud es uno de los problemas mundiales más importantes. El sistema de salud de Corea, que tiene zonas de luz y de oscuridad, está acaparando la atención internacional debido a su rentabilidad. Pero, se enfrenta a una gran cantidad de enigmas, como un rápido envejecimiento de su población, el aumento de los gastos, el exceso de hospitales de cuidados intensivos y la dura competencia entre ellos, etc. Por lo tanto, muchos hospitales coreanos han estado tratando de encontrar una forma innovadora para sobrevivir. Este artículo presenta algunos de ellos, como la estrategia de expansión y consolidación, la garantía de calidad, la fusión de la informática y de la salud, la atracción de pacientes extranjeros, los hospitales de investigación, la colaboración público-privada y el enfoque en el diseño de servicios y la experiencia del paciente.

2013-2014 Corporate Partnership Programme



Supporting collaboration, ideas and innovation
in global healthcare

Who We Are

Founded in 1929, the **International Hospital Federation (IHF)** is the leading global body representing **public and private national hospital and healthcare associations**, departments of health and major healthcare authorities; with **members** from some **100 countries**.

Our vision and objectives

The founding philosophy of the IHF is that it is the right of every human being, regardless of geographic, economic, ethnic or social condition, to enjoy the best quality of health care, including access to hospital and health care services. By promoting this value, the **IHF supports the improvement of the health of society**.

The objective of the IHF is to develop and maintain a spirit of cooperation and communication among its members and other stakeholders so as to create an environment that facilitates the **cross – fertilization and exchange of ideas** and information in healthcare policy, finance and management.

The role of the IHF is to help international hospitals and healthcare facilities work towards improving the level of the services they deliver to the population regardless of the ability of the population to pay. The IHF recognizes the **essential role of hospitals and health care organisations** in providing health care, supporting health services and offering education.

The IHF is a **unique arena** in which all major hospital and health care associations are able to address and act upon issues that are of common and key concern.

What IHF Accomplishes

- ✦ **Projects** aimed at supporting and improving delivery of hospital and healthcare services.
- ✦ Regular and extensive **collaboration** with governmental and non-governmental organizations in developing health systems.
- ✦ Creation of “**knowledge hubs**,” through its international conferences, education programmes, information services, publications and consultations.
- ✦ In official relations with the World Health Organization (WHO) and the Economic and Social Council of the **United Nations (ECOSOC)**, it is strategically positioned as a bridge between IHF members, the United Nations.
- ✦ Acts as a **global facilitator for health care delivery** among and between key governmental and non-governmental stakeholder organisations.

What Is the Corporate Partnership Programme?

The IHF Corporate Partnership Programme, launched in 2009, is an **opportunity** presented to major corporations seeking to join IHF members in working to improve hospital and **healthcare performance** around the world.

Partnership is open to a limited number of companies who are fully engaged in the **global health sector** and have a **good reputation** as providers. Affiliation with this Partnership Programme gives a strong signal to the global community that the Corporate Partner is a major world player in the hospital and healthcare sector.

The Partnership package provides **access to hospital and healthcare decision makers** from around the world. The Programme provides an exclusive opportunity for relationship building and sharing of ideas and experiences between corporate leaders and executives in the hospital and healthcare sector. **Dialogue** through this platform will ultimately introduce new ideas and expand knowledge in the healthcare market.

The benefits of the Programme are designed to maximise interaction between actual and potential clients through a “**one-stop shop**” approach.

Opportunity to ultimately create a **corporate leadership body**, to act as a neutral platform for wide-ranging intra-industry discussions on issues of mutual concern beyond and outside of traditional parameters of marketing in order to **foster collaboration** and **enhance confidence** in commercial relations in the health sector as well as **performance** and quality of services and **life to the community** at large.

Becoming a Corporate Partner

Contract Terms

- ✦ **Payment** covers a calendar year period of:
1 January – 31 December

(For the 2-year option, payment can be made on annual basis)

- ✦ **Letter of Agreement**

The Corporate Partnership is established upon signature of a letter of agreement by representatives of both the International Hospital Federation and an authorised signatory of the Corporate Partner organisation.

Application

For additional information, please contact:

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IHF Secretariat

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2013 Corporate Partners



Meet IHF corporate partners



Transparência é nossa maior tecnologia

Bionexo is the center of a community comprised of over 15,000 players of the hospital business. Through our web platform, we integrate hospitals throughout the supply chain sector, focusing on business development and relationships. Established in 2000, in just 10 years, Bionexo was structured in Brazil, becoming the largest marketplace reference to the hospital industry and contributing significantly to the professionalization of the purchasing sector and growth of the healthcare market. The success of this innovative business model has led to Bionexo for Latin America and Europe, where also attained leadership in addition to export technology and implement a new concept in commercial transactions of organizations. Everything happened in a short time, just like businesses are made between the companies that integrate our platforms. This makes Bionexo the largest core of the hospital sector in Brazil. Pioneering and innovation, helping thousands of companies and hospitals.

www.bionexo.com.br



Esri is the world leader in GIS technology. Esri software promotes exploring, analyzing and visualizing massive amounts of information according to spatial relationships. Health surveillance systems are used to gather, integrate and analyze health data; interpret disease transmission and spread; and monitor the capabilities of health systems. GIS is a powerful tool for identifying health service needs. Esri software is extensively used by health organizations throughout the world, including the US Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), 127 national health ministries, and over 400 hospitals.

For more information, contact Christina Bivona-Tellez, CBivona-Tellez@esri.com. www.esri.com/health



DNV Business Assurance, a world leading certification body, is part of the DNV Group; an independent foundation whose purpose is to safeguard life, property and the environment. With over 140 years' experience in developing safety standards in high risk industries, we work with hospitals, healthcare organizations and other businesses to assure the performance and safety of their organisations, products, processes and facilities through accreditation, certification, verification, assessment and training. Within healthcare we are recognised as a leader in identifying, assessing and managing risk to mitigate harm to patients. Our 1,800 employees worldwide help customers build sustainable business performance and create stakeholder trust.



GLOBAL HEALTHCARE PRACTICE



Ingersoll Rand, the world leader in creating and sustaining safe, comfortable and efficient environments, offers products, services and solutions that allow our customers to create healthcare environments that are an asset to life. We help establish the physical environment as the foundation of all that is done to take better care of patients and staff – optimizing patient outcomes and safety, operational efficiency and patient, physician and staff satisfaction. As a part of Ingersoll Rand, Trane and Ingersoll Rand Security Technologies provide a broad portfolio of energy efficient heating, ventilating and air conditioning systems, mechanical and electronic access control, time and attendance and personnel scheduling systems, architectural hardware, building and contracting services, parts support and advanced controls for health care buildings.

For more information, visit ingersollrand.com/healthcare.

IHF events calendar

2014

IHF

4th IHF Hospital and Healthcare Association Leadership Summit (By invitation only)

Seoul Korea For more information, contact sheila.anazonwu@ihf-fih.org

2015 IHF 39th World Hospital Congress

6-8 October 2015, Chicago, USA

For more information, contact sheila.anazonwu@ihf-fih.org

2016 IHF 40th World Hospital Congress

Durban, South Africa For more information, contact sheila.anazonwu@ihf-fih.org

2017 IHF 41st World Hospital Congress

November, Kaohsiung City, Taiwan

For more information, contact sheila.anazonwu@ihf-fih.org

2014

MEMBERS

Australia

The Australian Healthcare and Hospitals Association's 2014 Congress "The Quantum Leap: Innovation - Making Quality Count", in collaboration with the Australian Council on Healthcare Standards

8-10 September 2014, Sydney, Australia

This Congress will focus on quality improvement in the healthcare sector.

More information is available by contacting: swright@ahha.asn.au

We welcome the interest and participation of IHF members in this Congress.

For further details contact: IHF Partnerships and Projects, International Hospital Federation,

151 Route de Loëx, 1233 Bernex, Switzerland; E-mail: sheila.anazonwu@ihf-fih.org or visit the IHF website: <http://www.ihf-fih.org>



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Mark Your Calendar

International Hospital Federation
39th World Hospital Congress

ADVANCING GLOBAL HEALTH & HEALTH CARE

October 6–8, 2015 ★ ★ ★ ★ Chicago, USA

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The Hyatt Regency Chicago—the program site—is a prime location with breathtaking skyline and Lake Michigan views.

More information will be forthcoming at www.ihf-fih.org, but for now, save the date!

