



# CLINICAL HEALTH PROMOTION

Research & Best Practice for patients, staff and community

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Denmark

The Official Journal of the  
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Health Promoting Hospitals  
and Health Services



# CLINICAL HEALTH PROMOTION

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## Aim

The overall aim of the journal is to support the work towards better health gain by an integration of Health Promotion into the organisational structure and culture of the hospitals and health services. This is done by significant improvement of a worldwide publication of clinical health promotion based on best evidence-based practice for patient, staff and community.

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# Promoting a healthy workplace

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In general, hospitals and health services (H&HS) are relatively unhealthy workplaces for staff members, who may experience various physical and psycho-social burdens during work hours. Thereby, H&HS can aggravate the health of their staff. It is therefore necessary to focus on promoting healthy workplaces in all H&HS.

Promoting healthy workplaces includes three main components, all of which ultimately fall under the responsibility of management. There are three main components, which are vital to support and develop:

- A healthy and safe workplace
- Staff training in health promotion skills aiming at better health gain for patients and community
- Health promotion activities for staff

### Standards for promoting healthy workplaces

H&HS workplaces are subject to national and international working environment acts, but an effort to enhance the focus on the working conditions of the staff is often needed. Thus, to do more and to do better in relation to working environments, action needs to be facilitated at all levels. To do just that, both nationally and internationally, the World Health Organisation (WHO) and the International Network of Health Promoting Hospitals and Health Services (HPH) have included basic promotion of healthy workplaces in their standards and indicators for health promotion in hospitals (1). Five standards were developed and evaluated in real-life settings in close collaboration between WHO and HPH. The fourth WHO/HPH Standard deals directly with promoting a healthy workplace.

An important outcome of this work has

been that the standards and indicators are directly and easily implementable in a vast majority of settings. After an evaluation of the WHO/HPH Standards, a majority of the test centres recommended the standards for other hospitals to use (2).

The first of the WHO/HPH standards addresses management policy. Here, implementation of a written policy for health promotion aimed at patients, relatives and staff is included (1). All HPH members have signed up to develop a written policy for health promotion and support the implementation of a smoke free hospital / health service as a key action area. The HPH network in Montreal has published a guide for this work as well as good examples of health promoting policies (3).

### A healthy and safe workplace

H&HS are in themselves dangerous workplaces. For instance, they are relatively noisy environments to be in, they often require contact with chemicals, radiation, viral hazards and other potentially harmful factors. Also, the work is often physically demanding and includes unhealthy postures, prolonged standing and heavy lifting. On this basis, the risk of work-related injuries and infections is high – in spite of preventive strategies (4;5).

In this issue of Clinical Health Promotion, Baslaim and co-authors from Saudi Arabia have published a study on surgeons, Hepatitis B vaccination and infection. They have showed that a written policy and guidelines are not sufficient and they recommend access to vaccination programmes for all risk-prone health care workers and follow-up by education (6).

Another important factor is the psycho-social burden on H&HS staff, which is just as considerable as any of the physical factors mentioned above. H&HS staff are



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faced with working conditions that can include night shifts, lack of influence on planning of work, high expectations from patients, relatives and management - as well as striving to meet one's own high ambitions of solving all problems, smoothing out the patient pathways and leaning the administration without feeling/showing stress and burn-out (7). In this issue of *Clinical Health Promotion*, Sounan and colleagues from Canada present their study on quality work life (8).

On top of all this, in these times of financial austerity, the psycho-social burden may be further aggravated by speculations on budget cuts and employment security on one hand and increased patient flow demands on the other.

### Staff training in HP skills

According to the WHO/HPH Standards, an important part of promoting a healthy workplace is to secure teaching and training of staff in patient-aimed health promotion (1).

Trained staff members are the key persons to systematically reach out to patients in need of health promotion as part of their clinical pathway. Such training has immense effect on success rates. For instance, the success rate doubles when a specially trained nurse offers health promotion activities such as smoking cessation intervention to emergency patients (9).

### Health promotion activities for staff

WHO/HPH standard four on promotion of a healthy workplace reflects the fundamental importance of supporting staff to lead healthy lives in and outside the workplace. This includes, for example, availability of smoking cessation programmes, provision of physical training facilities and so forth. By offering health-enhancing choices to staff, H&HS not only support the staff members to be healthier; they also help them advocate healthy living, which in return ends up benefiting patients. An example of this is a study showing how smoking staff members unfortunately tend to be

less likely to introduce smoking cessation intervention to their smoking patients. In addition, staff members who smoke seem to have a heightened tendency to overlook risky alcohol intake and overweight among patients (10). Thus, a staff-oriented health promotion policy can help improve the survival rate among patients (11).

All in all, promoting and securing healthy workplaces, with all that this includes, is important for staff members, patients and communities. This issue of *Clinical Health Promotion* provides further inspiration and insight into the important theme of healthy workplaces, and helps showcase how to lead the way towards doing better.

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# Surgeons, Hepatitis B vaccination & infection

## The need for supportive health center policy: A questionnaire-based survey

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### Abstract

**Objective** To explore the vaccination status of surgeons, to assess their knowledge of the protective role of Hepatitis B vaccine and how this might reflect on their reaction when dealing with Hepatitis B patients.

**Methods** In December 2011, a 2 page questionnaire was distributed to surgeons of different specialties in 10 tertiary care governmental hospitals in different regions of the kingdom of Saudi Arabia.

**Results** Out of 900 questionnaires distributed, 417 were completed and collected (46%). Out of these, 279 (66.9%) surgeons were completely vaccinated (3 doses received), 58 (13.9%) were partially vaccinated (1 or 2 doses received), 61 (14.6%) were not vaccinated and 19 (4.6%) did not know their vaccination status. Only 219 (52.5%) surgeons knew that the vaccine provides 95% protection and only 50 (12%) knew the correct timing for checking Hepatitis B antibody level. Surgeons with longer duration of practice were less likely to be vaccinated and less likely to follow standard precautions when operating on Hepatitis B patients (P value 0.006 & 0.000 respectively). 387 surgeons (93%) reported that they would not refuse operating on Hepatitis B patients. 233 (56%) expect their health centres to provide them with compensation if they encountered Hepatitis B infection during their practice and 307 (74%) would change their place of work to a health centre that will support them at least financially.

**Conclusions** Two of three surgeons had all three doses of vaccine and about half of the surgeons were not aware of the exact protection degree. The deficient knowledge of surgeons about Hepatitis B infection and vaccination was reflected on their practice. Health centre's policies should clearly provide surgeons with post-exposure supportive solutions and job re-location.

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### Introduction

Hepatitis B is a disease that can cause lifelong infection to the liver, which may result in liver cirrhosis, liver cancer, liver failure and death (1). The risk of acquiring Hepatitis B virus from a Hepatitis B e antigen (HBeAg) positive source is in the order of 1 in 3 for an unvaccinated individual. In contrast, the risk of acquiring Hepatitis C through inoculation with a Hepatitis C positive source is in the order of 1 in 30 and the risk of sero-conversion following exposure to blood from Human Immune-deficiency Virus (HIV) infected patients is about 1 in 300 for percutaneous injury (2).

Lemmer grossly estimated the magnitude of the increased risk of Hepatitis in the surgical profession as follows; the

risk of infection from Hepatitis during a 40 year surgical career is 30 to 40 per cent. The over-all career risk of suffering acute symptomatic Hepatitis is 10 to 20 per cent, and the career risk of fulminant hepatic failure may be as high as 0.1 to 0.5 per cent. The risk of a surgeon becoming a chronic carrier during 40 years of practice is about 4 per cent. It should be noted that these estimations of risk were based upon data collected prior to the introduction of the vaccine (3).

In 1987, the new recombinant Hepatitis B vaccine was launched with minor side effects and high degree of protection (4). Hepatitis B vaccine is 95% effective in preventing Hepatitis B infection and its chronic consequences, and it is the first vaccine against a major human cancer (1). Although surgeons' major concern is



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the post-exposure career situation, a significant under-estimation of the risk and sequel of Hepatitis B infection exists between them; this is combined with poor knowledge about the importance of Hepatitis B vaccine and its protective effect.

Our primary objective was to explore the vaccination status of surgeons, to assess their level of knowledge of the protective role of Hepatitis B vaccine and finally how this reflects on their reaction when dealing with Hepatitis B patients. We thought that the best way to explore that positively in a way that stimulates surgeons' interest is by distributing a self-filled questionnaire which contains the basic information about Hepatitis B infection and vaccination as well as providing different scenarios of responses of surgeons to Hepatitis B accidental exposure.

### Material and Methods

A simple 2-page self-filled questionnaire was prepared for this survey. The first part of the questionnaire was about personal data like age, gender, surgical specialty, duration of practice and centre of practice. The remaining questions were in multiple choice format and divided into 3 sections. The first section was about Hepatitis B vaccination status and knowledge about its protective role. The second section was about the reaction of the surgeon when exposed to Hepatitis B patients and the third was about health centre policy and guideline availability, implications and surgeons' safety and compensation. Before distribution, self-assessment of these questionnaires was performed by the research team. For confidentiality, the surgeons' identity was never explored during the process of distribution and collection of questionnaires as well as during data analysis.

The questionnaires were distributed and collected by the research team in 10 governmental tertiary care medical centres in different regions of the kingdom of Saudi Arabia. The centres were the largest in terms of service provided by the surgical department and being accessible to the research team; symbols were used in the questionnaires to refer to these centres to maintain confidentiality.

Governmental hospitals in Saudi Arabia share the same policies regarding occupational health and staff protection; all newly employed staff should be screened for Hepatitis B and the 3-dose vaccination is provided for the non-vaccinated with post-vaccination antibody level assessment. Furthermore, standard precautions during operation on Hepatitis B patients like wearing double gloves, goggles, and minimal handling of sharp instru-

ments are encouraged but not obligatory.

Some specialties were not targeted since their exposure to Hepatitis B infection is different based on their patients' characteristics, instrumentation and surgical field like dentists, ophthalmologists, transplant surgeons and cardiac surgeons.

It is worth mentioning that the questionnaires were initially distributed via electronic mail, but the response was extremely poor.

### Statistical Analysis

The data from the collected questionnaires was transcribed into SPSS relational database. Analyses were performed using SPSS version 19.0.0. The descriptive statistics were done to determine the basic characteristics of the study population. To evaluate bi-variate association between categorical variables, we used Chi-square test. To determine the strength and directions of these associations among the variables, correlation coefficients were measured using Somer's d method and tested for their significance.  $P < 0.05$  was considered statistically significant.

### Results

Out of 900 questionnaires distributed, 417 forms were completed and collected from all specialties giving a response rate of 46%. Some surgeons were hesitant to participate due to considerations in relation to identity exposure; this was kept in consideration during the process of collection of questionnaires and data processing. General surgeons had the highest response rate followed by obstetricians, gynecologists and orthopedic surgeons (Table 1). The surgeons' age ranged from 25 to 65 years (Mean: 33.6 yrs). Male to female ratio was 282 to 135 (68% to 32%). The duration of practice in surgery was

**Table 1** Number of surgeons who responded and their specialties

Specialty	Frequency	Percent (%)*
General Surgery	177	43
Obstetrics and Gynecologists (OB/GYN)	88	21
Orthopedics	51	12
Otolaryngology	31	7
Urology	28	7
Plastic Surgery	20	5
Neuro-surgery	13	3
Pediatric surgery	6	1
Vascular surgery	3	1
Total	417	100

\*The percent is from the total collected questionnaires. It is not the percent of response from each specialty.



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categorized into 3 groups; 144/417 (35%) practiced < 5 years, 110/417 (26%) practiced from 5- 10 years and 163/417 (39%) practiced > 10 years; mean duration was 10.5 years.

Surgeons' vaccination history was variable; 279/417 (66.9%) received the 3 doses of Hepatitis B vaccine (completely vaccinated), 58/417 (13.9%) received 1 or 2 doses (partially vaccinated), 61/417 (14.6%) were not vaccinated and 19/417 (4.6%) did not know their vaccination status.

Knowledge about the degree of protection provided by Hepatitis B vaccine was variable; only 219/417 (52.5%) knew that it provides 95% protection, 79/417 (18.9%) thought that the protective effect was 60%, 116/417 (27.8%) did not know the protective role of the vaccine and 3/417 (0.7%) believed that the vaccine does not protect at all. There was a significant relation between gender and knowledge about the protective effect of Hepatitis B vaccine ( $P$  value < 0.037); female surgeons were more likely to be aware of the 95% protective effect of the vaccine (62.2 % of the female surgeons compared to 47.9% of the male surgeons).

The surgeons' knowledge of the correct timing for testing antibody level post completed Hepatitis B vaccination is summarized in Table 2.

**Table 2** Surgeon's knowledge about the proper timing of Anti HBs testing after completion of the 3 doses of the vaccine

Response	Frequency	Percent (%)
Every year	115	28
After any blood exposure	69	17
After 1-2 months	50	12
All of the above	89	21
None of the above	87	21
No response	7	1
Total	417	100

It was found that 370/417 (89%) of the surgeons wanted to check patients' Hepatitis B status before any surgical intervention. At the same time, 387/417 (93%) would not refuse to perform surgeries (elective and emergency) on Hepatitis B positive patients.

In Table 3 we summarized how surgeons would react when receiving a positive Hepatitis B test and if they would change their place of work to another health centre based on the availability of compensations for infected surgeons.

**Table 3** Surgeon's response to different scenarios

Response	Variable	Percent (%)
<b>When they discover their positive Hepatitis B test:</b>		
• Hide this information and continue working as before.	41/417	10
• Hide this information and adopt a non interventional field in the same center.	102/417	24
• Involve the hospital and ask for compensation.	233/417	56
• Leave to another center that will not screen for Hepatitis B.	25/417	6
• No response	16/417	4
<b>Moving to another health center that compensates exposed health care worker:</b>		
• Surgeon would absolutely / may consider changing center of practice.	307/417	74
• Surgeon would never change place of work.	49/417	12
• Surgeon doesn't know.	42/417	10
• No response.	19/417	4

There were significant relations between centre of practice and multiple factors related to the surgeons' vaccination status and practice; these are summarized in Table 4. Interestingly enough, surgeons with longer duration of practice were less likely to be vaccinated and less strict in following standard precautions when performing surgeries on Hepatitis B patients.

Gender and specialty had no significant relation with vaccination status or with following standard precautions when operating on Hepatitis B patients. Also, there was no significant relation between vaccination status of surgeons and following standard precautions when operating on Hepatitis B patients or their response to an accidental prick during operative procedure (Table 4).

## Discussion

Around half of the distributed questionnaires were completed. However, this low response rate is reported in the literature for similar studies (5-7). The higher response observed by the general surgeons, obstetricians and orthopedic surgeons (Table 1) does not reflect a true higher response to the survey; it is related to the higher staff volume in these specialties. At the time of questionnaire collection, we noticed increased interest among surgeons, some were stimulated to read about Hepatitis B infection and vaccination guidelines and others actually visited the staff health clinic asking for the vaccine.



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**Table 4** Summary of the relations that were studied in the survey and its significance

Relations between	P value	Correlation coefficients	
		Somer's d value	P value
<b>Center of practice and</b>			
• Vaccination status of surgeons.	0.007	-0.012	0.754
• Following standard precautions* while operating on Hepatitis B patient.	0.001	-0.083	0.025
• Reaction of surgeons to their own Hepatitis B positive status.	0.000	0.135	0.001
<b>Duration of practice and</b>			
• Vaccination status of surgeons.	-0.006 †	-0.128	0.002
• Following standard precautions* while operating on Hepatitis B patient.	-0.000 †	-0.210	0.000
• Reaction of surgeons to their own Hepatitis B positive status.	0.098	0.039	0.388
<b>Gender and</b>			
• Vaccination status of surgeons.	0.201	-0.066	0.153
• Following standard precautions* while operating on Hepatitis B patient.	0.187	0.001	0.987
<b>Specialty and</b>			
• Vaccination status of surgeons.	0.683	0.044	0.283
• Following standard precautions* while operating on Hepatitis B patient.	0.999	0.009	0.827
<b>Vaccination status and</b>			
• Response to accidental prick during operative procedure.	0.083	0.041	0.359
• Following standard precautions* while operating on Hepatitis B patient.	0.854	-0.025	0.546
• Refusing to perform lifesaving procedures on Hepatitis B patients.	0.345	-0.038	0.344

\*Standard precautions: wearing double gloves, goggles, minimum sharp instruments handling, †A significant inverse relation (the longer the duration of practice the less is the number of vaccinated surgeons and following standard precautions during surgery will be less). P-value <0.05 was considered statistically significant.

Hepatitis B infection is 10 times more frequent among surgeons than in the general population (8). The risk of infection is primarily related to the degree of contact with blood in the work place and also to the Hepatitis B e antigen (HBeAg) status of the source person. Generally, surgeons underestimate the risks of percutaneous exposure while operating, the risk of becoming infected with Hepatitis B virus if exposed, and the degree of protection provided by the vaccine (5;7). Surgeons with longer duration of practice were less likely to be vaccinated and less strict in following standard precautions when operating on Hepatitis B patients (Table 4). It was reported that prior Hepatitis B exposure was greater among older surgeons whether by clinical exposure or by antibody testing (5). This could be explained by a lower perception of risk by the older surgeons, given their long disease free practice. Moreover, some of them expressed fear over the actual safety of the vaccine due to their knowledge of an earlier vaccine that they believed was unsafe. Younger staff should understand the risk of Hepatitis B infection in order not to be influenced by their senior's behavior.

Different factors can be linked to the reluctance of some surgeons in obtaining Hepatitis B vaccine in spite of its availability at no cost in all governmental health care centres; probably the most significant one is the lack of

knowledge about its protective effect since only around half knew that it provides 95% protection. In contrast, being vaccinated did not significantly correlate with being less cautious during surgery (P value 0.854) which could be explained by the surgeons' knowledge that the vaccine is not 100% protective or fear of acquiring other infections like HIV and Hepatitis C. Our study also showed that there was a significant relation between the centre of practice and vaccination status as well as following standard precautions when operating on Hepatitis B patients (Table 4). This reflects the diversity of the governmental health centres in terms of strict application of vaccination rules and precautionous measures.

Surgeons who did not check their antibody level are falsely reassured about their immunity against Hepatitis B infection since they may have low antibody levels (<10 mIU/ml) and considered non-responders. In our study (Table 2), only around one of ten surgeons knew the proper time for checking their HB antibody level, which is 1-2 months after completion of the 3 doses of the vaccine.

In this study, about nine of ten surgeons reported that they wanted to check patients' Hepatitis B status before any surgical intervention. At the same time, roughly the same amount would not refuse to perform surger-



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ies (elective and emergency) on Hepatitis B positive patients. Knowing the patient's Hepatitis B status makes the surgeon as well as the whole managing staff more cautious during their work and will minimize the panic state that usually happens when accidentally pricked. The policy of routine checking of patients' Hepatitis B status before surgery is not available in all governmental hospitals. Interestingly enough, it was observed that in centres with no such policy, higher numbers of vaccinated surgeons exist. Another way of heightening the surgeons' safety is to fully implement barrier protection for communicable diseases (standard precautions) for all patients, thereby also protecting against HIV and other communicable diseases. This principle was introduced in 1985 (9).

The risk of developing clinical Hepatitis if the blood is both Hepatitis B surface antigen (HBsAg) and HBeAg positive is around one in four to one in three; this risk drops to significantly below one in ten if the blood is HBsAg positive and HBeAg negative (10). So HBsAg positive carriers pose a very low risk of infectivity and should not be prevented from carrying out invasive procedures (8;11;12). Moreover, the risk of transmission from health care worker to patient is considerably low; an estimated risk of a HBeAg positive surgeon transmitting Hepatitis B to a patient during an invasive procedure was under one fourth of a percent (13). However, there were some reports of transmission of Hepatitis B to patients from an e Ag negative surgeon (11;14).

In some of Saudi Arabia's governmental health centre policies, HBsAg positive employees are not permitted to perform exposure prone procedures. In our survey, one of ten surgeons would hide a newly discovered positive test result, and continue working as before, thereby posing a risk (Table 3). One in four would change to another non-interventional career, but still hide a positive test result.

About half of the surgeons expected the health centre to provide them with alternative solutions like job-relocation and financial compensation, but unfortunately no such policies exist. These responses correlated significantly with the centre of practice (Table 4), which again reflects how policies applied and how protective measures followed differently in governmental centres. Health centres share the responsibility of providing a safe working atmosphere. In case of accidental exposure of health care workers with a resultant carrier or diseased state, there is no applied policy that supports the exposed staff in terms of providing an alternative job (non-interventional) with re-training programs or financial compensation. This created a sense of insecur-

ity among surgeons; just below one in ten reported that they might actually refuse operating on Hepatitis B patients, even for life saving procedures.

In our study, about three out of four of the surgeons expressed an interest or at least thought about moving to another place of work where they could be compensated for work-inflicted exposure (Table 3). This response reflects a state of poor satisfaction with their current work atmosphere and protective policies and it carries a significant message to health centres to review their old policies in that regard.

Loss of career is a major concern for surgeons acquiring Hepatitis B infection during their practice and unless an appropriate policy is established in every health centre, surgeons may start refraining from treating Hepatitis B patients.

### Conclusion

Although this study was conducted in tertiary care centres with available written policies and practice guidelines about risk of infections to health care workers, surgeons' knowledge about Hepatitis B infection and vaccination was incomplete in a way that reflected on their adherence to vaccination and following protective rules during surgeries. Two of three surgeons had all three doses of the vaccine and about half of the surgeons were not aware of the exact protection degree of the vaccine.

About nine of ten surgeons wanted to check patients' Hepatitis B status before any surgical intervention. However, around the same amount would not refuse to do the procedure if Hepatitis B was detected.

We recommend that vaccination must be available to all risk-prone health care workers at their initial employment and contract renewal with anti-Hepatitis B level documentation. Also, an educational program should be regularly and repeatedly conducted about Hepatitis B infection and the importance of vaccination with clear guidelines to health care workers in cases of accidental exposure.

Adherence to occupational health policies and guidelines has to be monitored to provide a safe environment for the health care workers and the patient.

Health centre policies should clearly address situations when health care workers acquire an infectious disease during their practice; the effect on surgeons' career has to be clearly emphasized with provision of different solutions and job re-location to help in maintaining safety, privacy and appropriate income.



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### Contribution Details

MB, MAK, SAQ, SAA, AA, HAA and MO prepared the questionnaire. MAK, SAQ, SAA, AA and HAA distributed and collected the questionnaire. MB, MAK and MO managed the data. The statistical analysis was performed by MO. The data analysis and manuscript concept was done by MB, MAK, SAQ, SAA, AA, HAA, MO. MB wrote the manuscript. MB, MAK, SAQ, SAA, AA, HAA and MO revised and edited the manuscript Pre-submission and MB, MAK, SAQ, SAA, AA, HAA and MO revised and edited the manuscript post-submission. Revision of statistical analysis was done by MO

**Competing Interests:** None declared.

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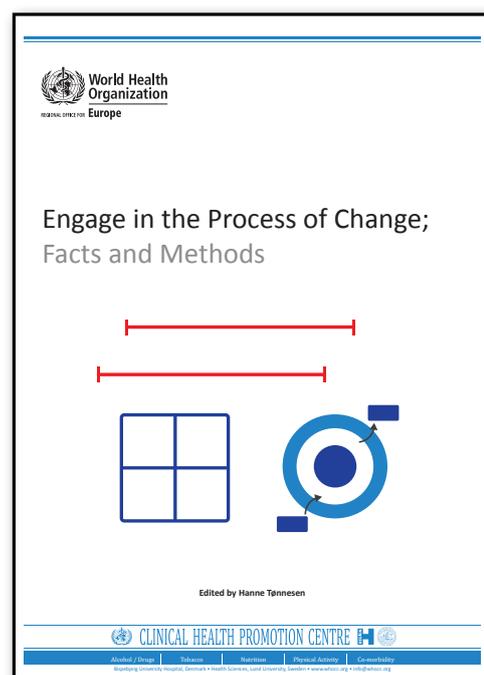
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# Using the Accreditation Canada Quality Worklife revalidated Model to predict healthy work environments

Charles Sounan<sup>1</sup>, Geneviève Lavigne<sup>2</sup>, Melanie Lavoie-Tremblay<sup>2</sup>, Anastasia Harripaul<sup>2</sup>, Jonathan Mitchell<sup>3</sup> & Bernadette MacDonald<sup>4</sup>

## Abstract

**Background** The relevance of improving quality worklife in implementing healthy workplaces successfully has been demonstrated by both the Canadian Health Services Research Foundation and Accreditation Canada. In partnership with Accreditation Canada, this article focuses on two issues: the relationships between quality worklife and healthy work environment, and the prediction of healthy work environments using Accreditation Canada's revalidated Quality Worklife Model.

**Methods** Using the 2008 and 2010 de-identified worklife data gathered among staff in organisations participating in the Qmentum accreditation program from all Canadian provinces (9,578 French-speaking and 16,398 English-speaking respondents), this article attempts to demonstrate how the Quality Worklife revalidated Model predicts healthy work environments. The revalidation of the Quality Worklife Model was done using first principal component factor analysis (FA) with direct oblimin rotations (using SPSS 16.0), followed by a confirmatory factor analyses (using LISREL 8.80) on the French and the English samples. Furthermore, multivariate analyses of variance were conducted in order to detect mean differences between the different work environment groups linked to the psychological and physical consequences.

**Results** The results suggest that the healthy work environment group is associated with high work adjustment, good physical and mental health as well as low absenteeism and health-related presenteeism. On the other hand, the results suggest that the poor work environment group and to a less significant extent the subthreshold work environment is associated with low work adjustment, poor physical and mental health and high absenteeism and health-related presenteeism.

**Conclusion** The proposed model suggests that by categorising the Quality Worklife scores in three work environment groups based on a sample set of 11 quality worklife items, it becomes possible to predict employees' risk of having poor work adjustment, poor mental and physical health, and poor work-related behaviours.

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## Introduction

Promoting healthy work environments is one of the five standards developed by the International Network of Health Promoting Hospitals and Health Services (HPH) (1). HPH describes healthy work environments as environments that support the development of a healthy and safe workplace and health promotion activities for staff as well (1). A healthy work environment is generally associated with lower absenteeism & turnover (2), better employee health & wellbeing (3) (lower fatigue and stress, higher satisfaction), and higher productivity (4). Recently, a widespread tendency consisting of linking quality worklife to healthy workplace has evolved without being strongly supported by evidence.

Quality worklife (QWL) and the health of the work environment are recognized as critical factors to be respected and effectively addressed in order to improve quality in healthcare services (4). This has been demonstrated in the past decade through consistent literature supporting the need to improve both the quality of worklife and the health of the healthcare environment.

In its 'Healthy Workplace Action Strategy for Success and Sustainability in Canada's Healthcare System', the Canadian Council on Health Services Accreditation states the relevance of improving quality worklife in implementing healthy workplaces successfully (4). For the Canadian Health Services Research Foundation



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(5), continuing to make quality worklife a strategic priority is leading the way to a healthy workplace.

The Quality Worklife-Quality Healthcare Collaborative (QWQHC), a pan-Canadian initiative that brings together a coalition of 11 national health partners to develop a strategy for translating evidence-based approaches to building and sustaining healthy work environments, describes QWL as 'evidence-informed processes and activities that are perceived to positively impact Quality of Worklife' (4). This is supported by the Accreditation Canada report exploring the connection between patient safety and quality of worklife (6) where quality worklife is designated to 'encompass a wide range of factors'. Contributing factors include job design, occupational health and safety, learning and development opportunities, supportive supervision, job control, schedules, and leadership commitment to employees. At the individual level, quality of worklife affects job satisfaction, worklife balance, safety, and individual health and wellness. At the organisational level, it affects absenteeism, grievances, employee commitment, and retention.

The Canadian Healthy Workplace Council states that promoting a comprehensive and integrated approach to workplace health in order to improve and sustain the health of Canadian organisations, their work environments and their employees should be a priority for leading Canadian organisations (7). For the QWQHC 'a fundamental way to better healthcare is through healthier healthcare workplaces. It is unacceptable to fund, govern, manage, work in or receive care in an unhealthy healthcare workplace'.

By using the 2008 and 2010 de-identified worklife data gathered among staff in organisations participating in the Qmentum accreditation programme from most Canadian provinces, this article attempts to demonstrate how the Quality Worklife revalidated Model predicts healthy work environments. The article focuses on two issues: the relationships between quality worklife and healthy work environment, and the prediction of healthy work environments using Accreditation Canada's revalidated Quality Worklife Model.

## Methods

### The Worklife Pulse

Accreditation Canada in collaboration with the Ontario Hospital Association developed the Worklife Pulse survey in 2006. The Worklife Pulse emerged from a revision of the Healthy Employee Survey, which was developed by the Workplace Health Research Unit of Brock University and the Ontario Hospital Association (8;9). The

Worklife Pulse was also guided by the results of a National Consensus Meeting on Worklife Indicators, which was hosted by Accreditation Canada in Ottawa.

This 21-item tool is designed to provide a snapshot of the work environment (11 items: organisational communication, work area communication, supervision, job control, role clarity, decision making involvement, job demand, trust, learning environment, safe environment, work-life balance) as well as the individual outcomes (psychological and physical health) in healthcare organisations (10 items: job stress, overall health, physical health, mental health, job satisfaction, absenteeism, health-related presenteeism, work quality, organisation satisfaction and patient safety). All items are self-reported on Likert-type scales. The French and the English versions of the Worklife Pulse have been validated (10). In 2012, Accreditation Canada has updated and strengthened the original Worklife Pulse Tool based on a comprehensive review of the tool.

In addition to the set of standard indicators selected for QWL database collection and benchmarking, the QWQHC also recommends using the Worklife Pulse (WLP) Survey measure (4), which is grounded in the Accreditation Canada healthy workplace framework. The WLP survey (described in the methodology) which focuses on staff perceptions of quality of worklife, provides the organisations with a "snapshot" of key components of worklife quality (work environment, individual quality of work life, and organisational performance). The WLP also helps in targeting areas needing closer review by identifying areas that are exemplary as well as opportunities for improvement related to quality worklife.

Thus, the present revalidation of the Quality Worklife Model will develop a model, which will be useful not only as a quick assessment tool as it is currently used to but also as a predictive tool.

### Participants

This correlational study was conducted using a sample of Accreditation Canada data collected between 2008 and 2010 with respondents from all Canadian provinces (Table 1).

Respondents from both samples occupied a variety of positions (e.g., nurses, doctors, Allied Health, technicians, managers, senior executives) within healthcare organisations in Canada. They were surveyed by their organisation as part of the Qmentum accreditation process. All participants completed the 21 Pulse survey items as well as a number of socio-demographic questions.



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**Table 1** Sample characteristics

	English-speaking sample		French-speaking sample	
Sample size	N = 16,398		N = 9,578	
Gender	Female:	87.4%	Female:	80.5%
	Male:	12.6%	Male:	19.5%
Age	Younger than 30:	15.8%	Younger than 30:	16.8%
	Between 31 and 40:	23.3%	Between 31 and 40:	21.1%
	Between 41 and 50:	33.8%	Between 41 and 50:	34.2%
	Between 51 and 60:	22.5%	Between 51 and 60:	25.1%
	Older than 60:	4.7%	Older than 60:	2.8%
Years of experience	Less than 1 year:	12.6%	Less than 1 year:	8.8%
	Between 1 and 2 years:	13.8%	Between 1 and 2 years:	10.1%
	Between 3 and 5 years:	22.8%	Between 3 and 5 years:	15.2%
	Between 6 and 10 years:	17.8%	Between 6 and 10 years:	17.7%
	Between 11 and 19 years:	16.3%	Between 11 and 19 years:	18.3%
	20 years and more:	16.8%	20 years and more:	29.9%
Work schedule	Full-time:	63.1%	Full-time:	66.6%
	Part-time:	36.9%	Part-time:	33.4%
Province	New Brunswick:	9.6%	New Brunswick:	0.4%
	Newfoundland and Labrador:	0.4%	Quebec:	96.9%
	Nova Scotia:	10.7%	Ontario:	2.7%
	Quebec:	0.8%		
	Ontario:	58.4%		
	Manitoba:	3.5%		
	Saskatchewan:	1.9%		
	Alberta:	13.2%		
British Columbia:	1.5%			

### Data analysis

The revalidation of the Quality Worklife Model was done as follows. A first principal component factor analysis (FA) with direct oblimin rotations was conducted using SPSS 16.0 followed by a confirmatory factor analyses using LISREL 8.80 on the French and the English samples. Furthermore, multivariate analyses of variance using SPSS 16.0 were conducted in order to detect mean differences between the different work environment groups linked to the psychological and physical consequences.

### Results

#### Psychosocial work environment variable

A principal component FA with direct oblimin rotations was conducted on the 11 items of the Worklife Pulse survey pertaining to workers' psychosocial work environment. This was done with both the French and the English samples. The aim of these analyses was to deter-

mine if the 11 items designated to be describing the work environment were indeed forming one distinct variable. Results with both samples confirmed this hypothesis (Table 2).

To further confirm that these 11 items of the Worklife Pulse survey form one distinct factor, a confirmatory factor analyses using Lisrel 8.80 was conducted (Table 3). The covariance matrixes were used for these analyses as suggested by Kline (11). The one-factor hypothesis was confirmed with both the French and the English samples.

Once the one-factor structure of the 11 items describing the psychosocial work environment was confirmed, the average of the items was calculated for both samples in order to have one score. The mean for the French sample was 3.54 (SD = .76) while the mean for the English sample was 3.57 (SD = .84). Both had fairly normal distributions.



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**Table 2** Principal component factor analysis

	English-speaking sample	French-speaking sample
<b>Psychosocial work environment (11 items)</b>	KMO = .950	KMO = .929
	<b>Factor 1:</b> Eigenvalue = 6.15 Variance explained = 55.93%	<b>Factor 1:</b> Eigenvalue = 5.65 Variance explained = 51.32%
<b>Psychological and physical consequences (10 items)</b>	KMO = .797	KMO = .784
<b>Factor 1</b> (5 items): perceived job stress, job satisfaction, perceived work-quality, organisational satisfaction and patient safety	<b>Factor 1:</b> Eigenvalue = 3.54 Variance explained = 35.43%	<b>Factor 1:</b> Eigenvalue = 3.45 Variance explained = 34.54%
<b>Factor 2</b> (3 items): self-rated overall, mental and physical health	<b>Factor 2:</b> Eigenvalue = 1.69 Variance explained = 16.91%	<b>Factor 2:</b> Eigenvalue = 1.68 Variance explained = 11.56%
<b>Factor 3</b> (2 items): absenteeism and health-related presenteeism	<b>Factor 3:</b> Eigenvalue = 1.12 Variance explained = 11.23%	<b>Factor 3:</b> Eigenvalue = 1.16 Variance explained = 11.56%

### Psychological and physical consequences

In order to determine the structure of the 10 consequences, items from the Worklife Pulse Tool, a principal component FA with direct oblimin rotations, was first conducted on both the French and the English samples. The results can be found in Table 2. The results from both the French and the English samples suggested three distinct factors. The first factor was composed of the following items: perceived job stress, job satisfaction, perceived work-quality, organisational satisfaction and patient safety. The second factor was composed of the three self-rated health items. Finally, the third factor was composed of the absenteeism and health-related presenteeism items.

Similarly to what was done with the psychosocial work environment items, confirmatory factorial analyses were conducted with both samples in order to confirm the three-factor structure found with the principal component analyses. Both the results from the French sample and the English sample supported the three-factor structure of the items (Table 3).

In order to create a score for each factor, the original scores from the perceived job stress and the job satisfaction items had to be reversed-coded. This was done in order to create a meaningful positively oriented factor. Furthermore, because different rating scales were used for the items, the original scores were standardized (centered at zero) in order to be able to compute averages. All resulted scores had good variance and were relatively

normally distributed. Tables 3 and 4 show the inter-correlations between the three factors as well as their correlations with the psychosocial work environment variable for the French and the English sample, respectively.

### Proposed diagnostic model

In order to develop a diagnostic model, the psychosocial work environment variable was used to create three groups: *Healthy work environment group (HWE)*, *sub-threshold work environment group (SWE)*, and *Poor*

**Table 3** Confirmatory factor analysis

	English-speaking sample	French-speaking sample
Psychosocial work environment	$\chi^2$ (df = 44, N = 16398) = 8030.63, p = 0.0001, RMSEA = 0.11 (0.10; 0.11), NFI = 0.97, NNFI = 0.96, CFI = 0.97, GFI = 0.92, SRMR = 0.041	$\chi^2$ (df = 44, N = 9578) = 4588.68, p = 0.0001, RMSEA = 0.10 (0.10; 0.11), NFI = 0.96, NNFI = 0.95, CFI = 0.96, GFI = 0.92, SRMR = 0.046
Psychological and physical consequences	$\chi^2$ (df = 32, N = 16398) = 1904.02, p = 0.0001, RMSEA = 0.060 (0.057; 0.062), NFI = 0.97, NNFI = 0.96, CFI = 0.97, GFI = 0.98, SRMR = 0.041	$\chi^2$ (df = 32, N = 9578) = 1029.73, p = 0.0001, RMSEA = 0.057 (0.054; 0.060), NFI = 0.97, NNFI = 0.96, CFI = 0.97, GFI = 0.98, SRMR = 0.043

**Table 4** Correlations between the factors from the WorkLife Pulse survey, French sample

	Psychosocial Work environment	Csq. Factor 1	Csq. Factor 2
Psychosocial Work environment	1.00		
Csq. Factor 1	.73***	1.00	
Csq. Factor 2	-.25***	-.33***	1.00
Csq. Factor 3	-.21***	-.24***	.29***

Note: \*\*\* p < .001

**Table 5** Correlations between the factors from the WorkLife Pulse survey, English sample

	Psychosocial Work environment	Csq. Factor 1	Csq. Factor 2
Psychosocial Work environment	1.00		
Csq. Factor 1	.69***	1.00	
Csq. Factor 2	-.25***	-.33***	1.00
Csq. Factor 3	-.23***	-.27***	.30***

Note: \*\*\* p < .001



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work environment group (PWE). It was decided that scores below 2.5 on the psychosocial work environment variable would be assigned to the *poor group*, scores between 2.5 and 3.5 would be assigned to the subthreshold group, and finally scores superior to 3.5 would be assigned to the *healthy group* (see Table 6 for groups distribution).

Multivariate analyses of variance were conducted on both the French and the English samples in order to detect mean differences between the three groups on the three consequence factors. For both the French and the English samples, the multivariate test, as well as the three univariate tests, were all significant, thus indicating significant mean differences (see Figure 1 and Table 7 & 8).

For the English sample, the results on each factor were very similar to those found with the French sample.

**Table 6** Distribution within the three work environment groups.

	Psychosocial Work environment	Csq. Factor 1	Csq. Factor 2
	% of total sample	English-speaking sample	French-speaking sample
Healthy work environment group	60%	N = 9 343	N = 5 458
Subthreshold work environment group	30%	N = 5 190	N = 3 201
Poor work environment group	10%	N = 1 865	N = 919

**Table 7** Mean differences between the three work environment groups and standardised averages; French-speaking sample

	Univariate tests	Healthy work environment group Mean (SD)	Subthreshold work environment group Mean (SD)	Poor work environment group Mean (SD)
Factor 1	F(2,9575) = 3454.48, p = .0001	0.36 (.70)	-0.34 (.52) a	-0.98 (.76) ab
Factor 2	F(2,9575) = 216.05, p = .0001	-0.16 (.85)	0.20 (.86) a	0.25 (1.02) a
Factor 3	F(2,9575) = 113.29, p = .0001	-0.13 (.77)	0.13 (.84) a	0.31 (.96) ab

a denotes significantly different than healthy work environment group  
 b denotes significantly different than subthreshold work environment group  
 c denotes significantly different than poor work environment group

**Table 8** Mean differences between the three work environment groups and standardised averages; English-speaking sample

	Univariate tests	Healthy work environment group Mean (SD)	Subthreshold work environment group Mean (SD)	Poor work environment group Mean (SD)
Factor 1	F(2,16395) = 1597.76, p = .0001	0.36 (.52)	-0.33 (.52) a	-0.88 (.78) ab
Factor 2	F(2,16395) = 400.80, p = .0001	-0.17 (.83)	0.19 (.87) a	0.30 (1.05) ab
Factor 3	F(2,16395) = 344.42, p = .0001	-0.14 (.76)	0.14 (.84) a	0.30 (.93) ab

a denotes significantly different than healthy work environment group  
 b denotes significantly different than subthreshold work environment group  
 c denotes significantly different than poor work environment group

These results suggest that the *HWE* group is associated with high work adjustment (Factor 1), good physical and mental health (Factor 2) as well as low absenteeism and health-related presenteeism (Factor 3). On the other hand, the results suggest that the *PWE* group, and to a less significant extent the *SWE*, is associated with low work adjustment (Factor 1), poor physical and mental health (Factor 2) and high absenteeism and health-related presenteeism (Factor 3).

**Discussion**

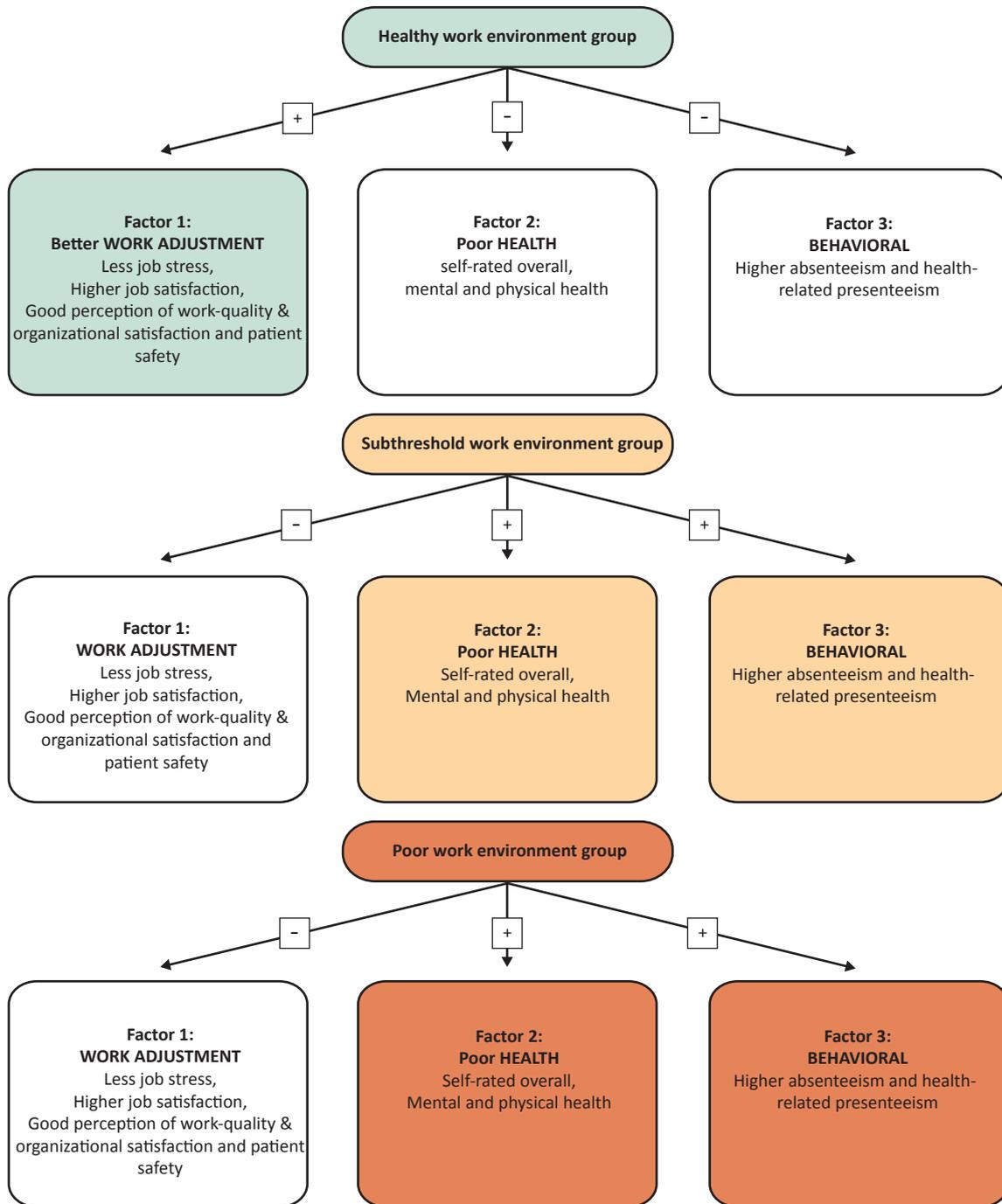
The results of the present study suggest that the measurement structure of the Worklife Pulse survey do not differ between the two samples (i.e., English and French). Both the results of the principal component analysis as well as the results of the confirmatory factorial analysis suggest the same factor structure. Specifically, one psychosocial work environment dimension and three distinct psychological and physical consequence dimensions. This further supports the validation results reported by Lavigne and colleagues (10). In addition, the use of the Pulse items in groups of items versus single items provides added value to the tool.

The proposed model suggests that by categorising the Worklife Pulse scores in three work environment groups, based on a sample set of 11 worklife quality items, it becomes possible to predict employees' risk of having poor work adjustment, poor mental and physical health, and poor work-related behaviours (i.e., absenteeism and presenteeism). This model is a useful tool in order to determine the risks associated with specific work teams or departments within an organisation. Specifically, if most employees within a work team fall into the poor work environment group, action plans would need to be



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Figure 1 Relationships between work environments groups and psychosocial factors.



taken in order to prevent poor work adjustment, poor health and poor behavioural patterns.

This article fits with the recommendations for *‘healthy workplaces for healthy workers in Canada’* highlighted by Shamian and El-Jardali (12). In their paper that provided a progress update on knowledge transfer and up-

take in policy and practice as well as the next steps for the healthy workplace agenda in Canada, the authors stated that the next steps for research should also be to help the healthy workplace agenda achieve its objectives to ascertain that healthcare workers are experiencing better working conditions. This is supported by the Quality Worklife-Quality Healthcare Collaborative which agrees



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that 'every single person working in a healthcare setting is a vital contributor to a healthy and safe work environment' (13).

The organisational and individual benefits of a healthy workplace are many; including reduced health care costs, improved quality of care and organisational performance, and increased employee attraction and retention as well as employee health and wellbeing. Although this has been demonstrated in numerous studies (14), improving practice environment for healthcare workers continues to be one of the major themes, which are priority areas for research funding and policy development by numerous organisations throughout Canada (15).

Given the relevance of the matter, the American Association of Critical Care Nurses (AACN) has identified six standards to maintain a healthy work environment: a) skilled communication, b) true collaboration, c), effective decision making, d) meaningful recognition, e) appropriate staffing, and f) authentic leadership (16). The AACN states that factors that encourage healthy workplace practices should be encouraged through organisational culture. Communication in the workplace should be presented in a professional manner, parties should engage in active listening and be respectful of the perspectives of others, and information should be communicated to the appropriate person with sufficient sequential data (16).

Furthermore, there should be a sense of true collaboration within the work environment where interdisciplinary teams work within a culture of mutual respect and teamwork (16). Although staff members are encouraged to engage in collaborative practice, they should remain autonomous and supported by management (17). Decisions that are made in the organisation should be based on data analysis of causes and priorities with identified success measures being monitored (14). Factors that focus on staff members are essential to maintain healthy work environments. The needs of staff members should be attended to and staff should be allowed to make themselves a priority facilitating meaningful recognition (14). One example of this is to support staff members' attempts to develop professionally through education and performance enhancing activities (17). Staff should also be supported in practicing to their full scope guided by their professional standards and acting within their ethical standards (18).

The final element contributing to healthy work environments is authentic leadership. Management should be in a position where they are both engaged and involved with their staff members in order to effectively resolve problems that arise in the work environment (13).

### Methodological considerations

The brevity of the original 21-item Worklife Pulse has the advantage of offering quick and general assessments of a working environment. However, the brevity of the Worklife Pulse survey is also its main limitation as a prediction model. Each dimension of the Worklife Pulse is assessed with a single item and may limit the predictive power of the survey when taken individually. In addition, in the Quality of Worklife Model (14) the quality of the worklife items are grouped in order to predict two groups of consequences. It offers interesting directions for further research in terms of statistical validation enabling a diagnostic measure of the quality worklife.

Dividing workers' scores into these three groups offers many advantages. First, because the present samples are very large and representative of the Canadian healthcare workers population, the relative percentages of respondents in the three groups can serve as norms for future research. Specifically, if one healthcare centre has 30% of its employees in the problematic work environment group, it can be readily clear that improvements are needed. Furthermore, we can now explore the vulnerability of the three groups to different psychological and physical consequences and thus better understand the pervasive influence of a poor psychosocial work environment.

### Generalisability

A significant element of the QWQHC initiative has been to develop a mechanism for monitoring the quality of work life across Canada over time, using a common set of QWL performance indicators (4). This common measure is actually used by several healthcare organisations on an annual basis as part of their quality-improvement programmes to enable them to benchmark by tracking their own progress and comparing their results with those of similar organisations across the country (4). Highlighting the fact that there is little consistency in measures assessing quality worklife, which make it difficult for organisations to benchmark their progress, Laschinger (19) describes this innovative initiative as a major improvement.

The QWQHC approach not only allows comparisons of work-life quality in Canada, it is also used as a national report card on healthy work environments (19). As defined by both the QWQHC and Health Canada (20), a healthy work environment is 'a work setting that takes a strategic and comprehensive approach to providing the physical, cultural, psychological and work conditions that maximize the health and wellbeing of providers, improves the quality of care and optimises organisational performance'.



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### Conclusion

By using the Accreditation Canada Quality Worklife re-validated Model, this article has demonstrated how the Pulse survey measures predict healthy work environments. Healthcare organisations can use the Worklife Pulse to paint not only the portrait of their worklife quality but also to predict the type of work adjustment, behavioural patterns, as well as the quality of workplace health their employees are experiencing.

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### Contribution Details

CS, ML-T, and GL designed the study, CS, GL, ML-T, AH, JM and BM performed the research, GL, AH and JM collected the data, CS and GL analysed the data, CS wrote the paper, and CS, GL, ML-T, JM, AH and BM edited the paper.

**Competing Interests:** None declared

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# Quality of life in pre- and post-treatment among obstetric fistula patients at Kisii Hospital, Kenya

Judy Mwangi<sup>1</sup>, Stephen Mutiso<sup>2</sup> and Ruchi Puri<sup>3</sup>, Jennifer Gatebi<sup>4</sup>

## Abstract

**Background** Urinary incontinence has been noted to be a major barrier to social activities, entertainment or physical recreation. Ample evidence suggests that urinary incontinence affects a person's quality of life.

**Objective** To establish the impact of a combined surgical procedure and health promoting intervention to quality of life in women treated for obstetric fistula.

**Method** This prospective study focused on women undergoing treatment in Kisii Level Five Hospital in Nyanza Region, Kenya in September 2009. Treatment comprised surgical care, physiotherapy, health education and psychosocial support. The outcome parameters were self-reported incontinence and quality of life measured by the psychometric tool; King Health Questionnaire (KHQ), obtained upon admission and at six months follow-up. Ethical accept was obtained from the AMREF Scientific and Ethical Review Committee.

**Results** 53 women were interviewed at baseline and 40 were followed up after six months. 27 of 40 patients (68%) had vesicovaginal fistula, the other 12 patients (30%) had recto-vaginal fistula, while 1 (3%) patient had both. Full continence was achieved for 26 of the 40 (65%), and an additional 9 patients (23%) had improved from continuous to stress incontinence. Only 5 of 40 patients had failed repair ( $p < 0.05$ ). The KHQ outcomes showed significant improvements for all dimensions of quality of life measure, except personal relationships.

**Conclusion** Women with obstetric fistula were found to drastically improve the continence and quality of life after undergoing a combined surgical and health promoting programme in hospital.

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## Introduction

Health Related Quality of Life (HRQoL), a multidimensional construct referring to patients' perceptions of the impact of disease and treatment on their physical, psychological and social function and well-being (1), is crucial in the assessment of health care interventions (2). Urinary incontinence, in whichever form, sweepingly affects the life of the patients. Causes of urinary incontinence in women include childbirth, menopause and surgery (3). Vesico-vaginal fistula occurs mostly when labour is prolonged/obstructed forming an abnormal opening between a woman's bladder and vagina, and subsequent urinary incontinence (4). A similar pathophysiology exists for recto-vaginal fistula, which is followed by faecal incontinence. The two conditions may co-exist.

It impacts not only the physiological and physical, but also the psychological

realms of a person's life (5). It is conceived as a lack of health, which generates feelings of anger and sadness, as well as embarrassment. There is also the stigma associated with urinary/stool incontinence. Due to the smell of urine, patients avoid social gatherings and lose self-confidence, which has a proportional impact on their social interactions, their sexual life and emotional health (5;6). Obstetric fistula survivors who have been shunned and isolated typically experience intense feelings of shame, self-loathing and depression (8). Obstetric fistula survivors often avoid social contact because of feelings of shame, which negatively influences their quality of life (QoL) (3;9;10).

Up to the present, only a few studies have investigated QoL after fistula surgery so there is paucity of information. Overall, the existing studies show that the symptoms in most patients are reduced after treatment, which leads to an increase of



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different aspects of well-being (5).

The paper aims to establish the impact of a combined surgical and health promoting intervention to quality of life in women treated for obstetric fistula in Kisii Level Five Hospital, Kenya in 2009. It is anticipated that the study findings will be used to contribute towards policy advocacy and improvement in future programming of maternal and reproductive health initiatives in the country.

### Methods

The study used a prospective before-and-after design. The outcome parameters were self-reported incontinence and QoL. A structured interviewer-administered tool was used to collect demographic data, while a King Health Questionnaire (KHQ) tool was utilised to gather QoL measures from all consenting women on admission and six months later during a follow-up visit at the hospital. The KHQ is a psychometric tool designed to assess the impact of urinary incontinence on QoL in women. The KHQ contains 21 questions categorised into nine domains (general health perception, incontinence impact, role limitations, physical limitations, social limitations, personal relationships, emotions, sleep/energy, and severity of urinary symptoms) (10). Weighted summary scores in each domain range from 0 to 100, with higher scores indicating greater impairment. The last part of the questionnaire was a list of bladder problems plus a category covering other options. These items are not summed to form a domain score. However, only the first eight of KHQ dimensions were utilised for this study, as women with fistula were incontinent throughout, thus leaving the last part of KHQ inapplicable.

### Patients

At Kisii Level Five Hospital in Nyanza Region, Kenya, a total of 53 women underwent repair for obstetric vesico-vaginal and/or recto-vagina fistula in September, 2009. 40 of the patients (75%) were followed up after six months. The others were lost to follow up as they hailed from distant areas and were referred to other health facilities nearest to them for further management. 27 of 40 (68%) patients had vesico-vaginal fistula, 12 (30%) patients had recto-vaginal fistula, while 1 (3%) had both. No other medical conditions were noted. The median age of the women was 28 years (15-70); age at marriage 18 years (15-25), while age at birth of first child was 16 years (13-24). The number of living children ranged from 0-8 (1 in median), but 11 (28%) had no living children. Primary repair cases were 34 (85%), while the rest, 6 (15%), were repeated repair cases. Other patients' characteristics are outlined in Table 1.

**Table 1** Characteristics of the 40 patients followed-up

	Patients n=40	100 %
<b>Marital status</b>		
Married	25	62.5
Single	9	22.5
Divorced/Separated/widowed	6	15.0
<b>Education</b>		
None	5	12.5
Primary	27	67.5
Secondary	6	15.0
Tertiary	2	5.0
<b>Employment status</b>		
Working class	2	5.0
Farmer/business	18	45.0
Housewife	20	50.0
<b>Social support following fistula</b>		
Partner	6	15.0
Close relatives	24	60.0
Distant relatives	2	5.0
None	8	20.0
<b>Duration lived with fistula (years)</b>		
<5	12	30.0
5-10	15	37.5
10+	13	32.5
<b>Baby outcome</b>		
Alive	11	27.5
Stillbirth	29	72.5
<b>Number of children following fistula</b>		
None	33	82.5
1+	6	15.0
Unknown	1	2.5

### Health promotion activities carried out

Apart from surgery, the women admitted also underwent medical follow up at two weeks and one month following repair. Physiotherapy was offered to improve urinary incontinence, while health education was carried out to inform and empower the women and their family. The health education also focused on informing on appropriate future maternal health care and hygiene practices to promote quick recovery and prevent recurrence of the condition. Psychotherapy was carried out in all women due to high levels of depression noted in women suffering from fistula and experienced trauma following difficult child birth, child loss, occurrence of fistula and subsequent marital breakdown and stigma (Table 2).



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**Table 2** Combined surgical and health promotion activities

Interventions (general)	Interventions (specific)	Time period
Surgery/medical follow up	Fistula repair	Within the first week of screening/admission
	Catheterisation	At surgery
	Catheter removal	2-weeks following surgery
	Medical review	Within one month following surgery
Physiotherapy	Pelvic floor exercises	Before and after surgery
Health education	Information on cause and prevention of obstetric fistula	Before and after surgery
	Family planning	
	Future pregnancies	
	Antenatal care and delivery	
	Sexual practices	
Psychotherapy	Group counseling	Before and after surgery
	Couple counseling	
	Individual counseling	

### Ethics

The patients participated after informed consent. Ethical review was obtained from the African Medical and Research Foundation (AMREF) Scientific and Ethical Review Committee.

### Statistics

As the variables are not normally distributed, non-parametric statistical analyses have been used (Fisher's exact test for comparison of frequencies, and Wilcoxon test for paired data). A p-value < 0.05 was considered significant. The material seemed too small for sub-group analyses. Identification of patient characteristics associated with specific outcomes was carried out by univariate analyses, followed by a multivariate analysis. SPSS version 17.0 software was used for the analyses.

### Results

Prior to intervention, 100% of the women were continuously incontinent. Significant improvement was seen after the combined intervention. Full continence was achieved for 26/40 (65%), and additional 9 patients (23%) had improved from continuous to stress incontinence. Only 5 of 40 patients had failed repair ( $p < 0.05$ ).

Univariate analyses revealed that foetal outcome was

associated with incontinence, as those who delivered stillborn babies were more likely to report incontinence ( $p=0.043$ ). None of the women with liveborn babies had self reported incontinence. No other associations between patient characteristics and outcomes were found, thus a multivariate analysis was not carried out. The KHQ outcomes at six months post-repair showed significant improvements in all the dimensions, except from personal relationships. The details are presented in Table 3.

**Table 3** Kings Health Questionnaire (KHQ) scores

Dimension	Median Score Pre-surgery (range)	Median Score Post-surgery (range)	P-value (Wilcoxon rank test)
General health perceptions	50 (0-100)	25 (0-100)	0.000
Incontinence impact	67 (0-100)	33 (0-100)	0.000
Role limitations	83 (0-100)	0 (0-100)	0.000
Physical limitations	100 (0-100)	0 (0-83)	0.000
Social limitations	67 (0-100)	22 (0-100)	0.000
Personal relationships	50 (0-100)	67 (0-100)	0.193
Emotions	100 (11-100)	28 (0-100)	0.000
Sleep/energy	67 (0-100)	16 (0-100)	0.000

### Discussion

This study showed that almost nine of ten patients with obstetric fistula had effect of the combined surgical and health promoting programme on their incontinence and about two of three patients became fully continent. Furthermore, QoL increased dramatically for seven out of eight of the dimensions compared to baseline before intervention.

The patients in this study had background characteristics typical of fistula patients documented in Kenya and other parts in developing countries (11-15). The African Medical and Research Foundation (AMREF) is an African-based Non-Governmental Organization that has been implementing the Safe Motherhood Initiative including prevention and treatment of obstetric fistula both at community and health facility level since 2006. Prior to this project, the Safe Motherhood Initiative had been running obstetric fistula outreaches and camps since 1995 in the remote health facilities, where healthcare is almost inaccessible to the women due to poor road infrastructure and long distances to these facilities. However, that activity included a surgical approach, exclusively, with no follow-up or non-surgical interventions.



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In the present study, improvement in QoL following intervention was recorded in the emotion dimension. This dimension focused on three sub-components; feelings of depression, anxiety/nervousness and feeling bad about one-self. In general, depression is characterized by feelings of sadness, emptiness, dissatisfaction, lowered self-esteem, inactivity, self-depreciation and despair (16). A previous study has shown that most women suffering from fistula also suffer from depression (11). Unless the women were aware that fistula could be treated and gained access to provide subsidised treatment and care, women would live with the fistula for life (11). Lack of knowledge about the root cause of fistula persists in many communities, heightens the level of stigma and discrimination, in addition to increasing delays in seeking surgical repair (14). These factors were reflected in the women interviewed in the present study. About two thirds of the women reported to have lived with fistula for over 10 years, with the longest duration recorded in a patient in this study being 40 years.

In African culture, woman's worth can easily be determined by the number of children that she bears for her husband and therefore a barren woman is seen as a disgrace and of no use to her husband (18), which could aggravate feelings of anxiety and depression. This reflects the scenario in the study group, in which the mothers who suffered a traumatic delivery, mostly lost their children at birth, had no other living children and also had not been able to get more children following fistula; factors that could have easily contributed to exacerbate stigma, thus heightened depression.

Loss of continence and inability to maintain hygiene standards among these women may also be accompanied by alienation from family and friends and this may be additionally detrimental to the patient's self-confidence (19-20). Interestingly, personal relationships were not improved by the combined surgical and health promoting programme. Both social limitations and personal relationships had the lowest score at follow-up. These two dimensions involve other persons, and the women may require some more time to regain the level of activity they engaged in prior to the occurrence of fistula. There was no significant association between the social demographic characteristics and incontinence. However, the foetal outcome was associated with incontinence; those who delivered stillborn babies were more likely to report incontinence. Foetal outcome is implicated with prolonged/obstructed labour, which denotes a higher chance of developing fistula/incontinence.

This study was not sizable for sub-analysis. Researchers from Ethiopia found no association between social

demographics and depression markers, but noted differences in relation to continence (21). In Kenya, the present authors observed no significant difference in depression between primary and repeated cases (14).

The strength of the study was its real life setting and that it did not exclude important patient groups on forehand. The relatively high follow-up rate is also considered a strength.

This study has the following limitations; 1) there was no control group; 2) the sample size was very small, which could lead to type-2 failures; 3) the patients had no follow-up performed later than the six months follow-up. In addition, the significance found in this study could be due to a type-1 failure, which could be reduced by repeating the study. The measurement of personal relationships focused on relationships with a partner, sex life and family life, and the answers may be influenced by the advice given to abstain from sex for six months following surgery. This advice guarantees time for the fistula to heal, but also affects the sexual relationships with the partners further. The bias and limitations call for careful interpretation and caution in generalisation of the results. On the other hand, until larger studies in higher quality design may indicate otherwise, implementation of the combined programme under further monitoring seems indicated, because obstetric fistula is very important to treat due to its impact on the QoL of the patient. From this study, it is not possible to identify which or if any specific elements in the combined surgical and health promotion programme are of most importance. This is, however, a general problem for all combined interventions, and therefore the attention should be on implementing the complete programme. When monitoring the implementation, more data will be gathered to further evaluate the effect and to perform relevant sub-group analyses.

### Conclusion

In conclusion, women with obstetric fistula were found to drastically improve their continence and quality of life after undergoing a combined surgical and health promoting programme in hospital. We recommend early repair of fistula to prevent prolonged diminishing of quality of life in the patients. In addition, to promote prevention of development of obstetric fistula, we also recommend health promotion programmes at community and health facility level for the benefit of the women, the families and the society as a whole.



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### Acknowledgments

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### Contribution Details

JM and SM designed the study, SM, JM and RP performed the research, JM and JG collected the data, JM and JG analyzed the data, JM and SM wrote the paper, and SM, RP & JM edited the paper.

**Competing Interests:** None declared

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# Smoking cessation intervention in emergency neurology - introduction of a new practice

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Trine Madsen<sup>1</sup>, Vibeke Backer<sup>3</sup>

## Abstract

**Introduction** Emergency neurological patients are rarely given opportunities for smoking and alcohol intervention. However, both are relevant in the acute phase as well as in future rehabilitation.

**Objectives** The aim of this study was primarily to illustrate the implementation of motivational counselling in an acute neurological department and also to predict factors influencing this motivation.

**Methods** During a four-month period, 100 smoking emergency patients, including 18 patients with hazardously drinking patterns, were admitted with acute neurological illness, offered behavioural counselling before discharge, participated in a six week hospital-based smoking cessation or alcohol intervention programme, and followed-up after six months.

**Results** Of the 100 patients studied, 87 accepted counselling regarding smoking and 16 patients received counselling for both smoking and alcohol. The younger patients had the highest level of motivation. Sixty (69%) patients were contactable at follow-up; of these, 18 patients had continuously quit smoking for six months and the other 15 patients had ceased or reduced their smoking habits. The followed-up group included only 6 (38%) with hazardous drinking patterns.

**Conclusion** The majority of smokers admitted due to emergency neurological illness accepted an offer for motivational counselling followed by a six week smoking cessation programme. The results indicated that this counselling led a significant proportion of the patients to cease or reduce their smoking habits.

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## Introduction

Smoking is a major risk factor for stroke and other neurological disorders, and the international guidelines recommend smoking cessation intervention as a strategy for secondary prevention (1-4). In general, all services of the healthcare system should include counselling aimed at smokers (5), but emergency patients in neurological departments are seldom offered a smoking cessation programme. The prevalence of smokers among patients with neurological illness is higher than that of the background population because smoking is an aetiological factor for the development of several neurological diseases, especially stroke and transient ischemic attack (6;7). Alcohol is also an important risk factor for haemorrhagic stroke together with hypertension. A comprehensive treatment is recommended internationally, which includes intervention of the risk factors (1).

Over the last decade, Bispebjerg Hospital in Copenhagen has been a model hospital for health promotion, as this hospital implements the WHO Standards for Health Promotion in Hospitals (HPH) (8). All patients in contact with the hospital receive written information about smoking and alcohol intervention as an important part of the treatment, the effect of stop smoking and drinking on the specific diseases and the contact persons. Accordingly, smoking and other health determinants are recorded in the patients' medical records. The lifestyle intervention programmes are, however, mostly offered to elective patients, including patients undertaking rehabilitation programmes. Most patients acutely admitted to neurological departments are not terminally ill, and therefore, smoking cessation is equally relevant for these patients in both the acute phase (9) and the subsequent rehabilitation phase.



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We aimed to evaluate the potential for implementing clinical guidelines for motivational counselling as an entry to the smoking cessation programme for elective patients and its acceptance among acutely admitted neurological patients. The motivational counselling did therefore not stand alone, but was an introduction to the intensive 6 weeks Gold Standard Programme (GSP) that has been shown to be rather robust across different social group of smokers (10). The primary aim was to illustrate the implementation of motivational counselling in an acute neurology ward provided by a trained nurse counsellor from the Smoking Cessation Clinic at the hospital, and the second aim was to predict factors for motivation.

### Material and Methods

#### Patients (see Figure 1 for trial profile)

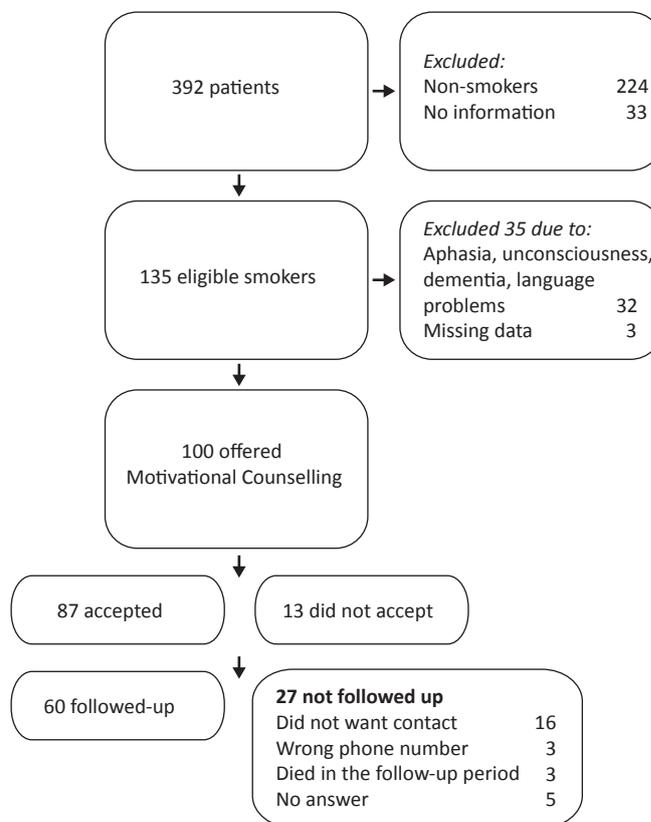
A total of 392 emergency patients were admitted to an acute neurological ward over a period of four months. The majority of the patients (224; 57%) did not smoke, and 135 eligible patients (34%) were smokers. No information on smoking status was available for 33 patients (8%). Smoking was defined as current daily smoking. Hazardous drinking was defined as the intake of more than 21 units per week for men and more than 14 units per week for women. We consecutively contacted all the smokers, with the exception of 3 patients who were not present on the ward. We did not offer counselling to thirty-two patients due to aphasia, unconsciousness, dementia, and language difficulties; the remaining 100 smokers were offered motivational counselling.

#### Methods

This was a non-controlled feasibility study. As a part of the hospital admission procedure, doctors routinely ask all patients about their smoking and drinking habits. The neurological admission diagnoses were registered along with the level of education, gender, age, current employment status, daily tobacco consumption, alcohol intake, and any earlier attempts at smoking cessation or reduction of alcohol consumption. The number of pack-years and the Fagerström score for nicotine dependence were calculated (11). Hazardous drinkers were identified according to the amount of alcohol intake per week, which is the recommended method in Denmark (12). The characteristics of the patients are given in Table 1.

A nurse with special training reviewed all the emergency files at the day of admission or the weekday after to ensure that all the smokers were offered behavioural counselling prior to discharge from the emergency ward or transfer to other wards.

**Figure 1** Trial profile



**Table 1** Trial characteristics. Characteristics of the 100 smokers admitted to the neurological department for emergency reasons and offered motivational counselling, given as median (range) or numbers (per cent)

	Acceptors (n = 87)	Non-acceptors	p-value
<b>Gender</b>			
Males	50 (58%)	8 (62%)	NS
Females	37 (42%)	5 (38%)	
<b>Age</b>	<b>54 (18) (SD)</b>	<b>65 (13) (SD)</b>	<b>&lt; 0.05</b>
<b>Neurological disease</b>			
Stroke	37%	75%	NS
Concussion	14%	0	
Epilepsy	11%	0	
Cerebral tumour	15%	0	
Other neurological illnesses	23%	25%	
<b>Years of smoking</b>	<b>37.7 (18.6)</b>	<b>35.6 (21.0)</b>	<b>NS</b>
<b>Pack years</b>	<b>30.3 (21.0)</b>	<b>28.5 (18.4)</b>	<b>NS</b>
<b>Fagerström (points)</b>	<b>4.0 (2.7)</b>	<b>4.1 (3.1)</b>	<b>NS</b>
<b>Hazardous alcohol intake<sup>A</sup></b>	<b>21%</b>	<b>13%</b>	<b>NS</b>

<sup>A</sup> > 21 units of alcohol per week for men and 14 for women (1 unit containing 12 gram of ethanol).

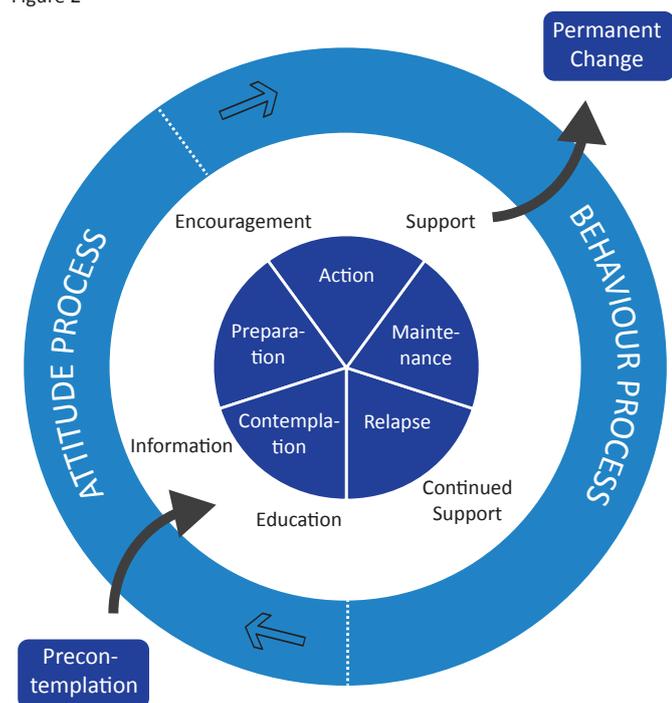


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Before and 20 minutes after motivational counselling, the patient's degree of motivation was recorded, according to the methods described by Prochaska and DiClemente (13). The individual counselling took 10- 30 minutes, and the content was related to the degree of motivation (see Figure 2) (14).

After the counselling, the patients were offered to join a regular smoking cessation programme (five to six visits, supported by nicotine replacement therapy and followed-up by a telephone interview after 6 months) in the Smoking Cessation Clinic within the same hospital. The Alcohol Clinic was also located in the hospital area and was open for both in- and outpatients. If the patient could not enter the clinic, the staff would visit the patient at the neurological department.

Figure 2



Inside the blue circle the different stages between the precontemplation and the permanent change are shown. In the white circle, different kinds of action from the clinician are indicated. The outer light blue circle gives an overview of the stages related to changes of attitude and behaviour.

Following the counselling session, we obtained permission to contact all patients six months after discharge, according to the guidelines for documentation and registration in the national smoking cessation database (15). We specifically noted smoking cessation, the degree of motivation, and willingness for referral to the Smoking Cessation Clinic.

A non-parametric test was used to compare independent groups. The results were given as the median value and range. The level of significance was set to  $p < 0.05$ . Univariate analyses were used to identify significant associations between patient characteristics and motivation. Consequently, a multiple regression analysis with backward elimination was performed to identify potential factors influencing motivation. These results were given as the odds ratio (OR) with a 95% confidence interval (CI), where OR with CI not including the value of 1 was considered significant. All statistical analyses were performed using SPSS 18.

### Results

The prevalence of daily smokers among the acutely admitted neurological patients was 34.4-42.9% (135/392 -168/392, Figure 1). We offered counselling to 100 consecutively admitted smokers, including 58 men and 42 women, with acute neurological diseases during a four-month period. The most frequent cause for admission (37%) was stroke/transient ischaemic attack (Table 1).

Of the 100 smokers, 87 accepted and undertook counselling before they were discharged or transferred from the emergency ward. The nurse spent approximately one hour daily with each patient during the project period. We found no difference in the characteristics between acceptors and non-acceptors, with the exception that the acceptors were of a younger age (Table 1). Overall, 34% of the patients were employed, and the remaining patients were either unemployed, received a pension or otherwise not related to a workplace. The motivational levels are shown in Table 2. In a multiple regression analysis with backward elimination, the only significant factor for potential influence on motivation was a lower age ( $p < 0.01$ ), whereas a low daily intake of alcohol showed a non-significant trend ( $p < 0.08$ ). In contrast, lifetime pack-years, daily tobacco consumption, number of years as a smoker, Fagerström score, employment, education, disease and gender did not significantly influence motivation.

At enrollment, there was no significant difference in motivation between men and women. A positive change in motivational counselling was observed in 12 (14%) patients. Furthermore, 17 patients, including 10 men



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**Table 2** Level of motivation before and 20 minutes after the motivational counselling (30) of the 87 participating smokers.

	Motivation before	Motivation after				
		A	B	C	D	All
A	26	24	2	0	0	26
B	22	0	14	7	1	22
C	27	0	0	25	2	27
D	12	0	0	0	12	12
All patients	87	24	16	32	15	87
Patients subsequently referred to cessation clinic	-	0	0	9	8	17

A = Not motivated, B = Precontemplation, C = Contemplation, D = Preparation.

and 7 women, requested referrals to a Smoking Cessation Clinic, and all of these patients participated in the programme. The referred patients showed no significant differences regarding their characteristics. Of those 17 patients, 12 patients had demonstrated the highest level of motivation prior to counselling, 2 patients demonstrated one altered step in motivation, and 3 patients were unchanged.

Of the 60 (69%) patients who were contactable for follow-up after 6 months, 18 (21%) had quit smoking, including 17 patients who quit after participating in the full programme and 1 patient who quit after receiving the motivational counselling. The patients were all ex-smokers at the time of follow-up. An additional 15 patients had either quit for a shorter period of time or had reduced their smoking habits. Of the remaining 42 smokers, 14% requested referrals to the Smoking Cessation Clinic at the time of follow-up.

Eighteen smokers also requested motivational counselling for hazardous drinking, and 16 patients (including 6 women and 10 men, with an average of 54 years of age) underwent combined counselling. Two patients (both men) wished to be referred to the alcohol unit immediately after the motivational counselling. Among the six patients contactable for follow-up at six months, none quit hazardous drinking, but two patients reduced their intake by 50%. However, these numbers were too small to perform reasonable statistical tests.

### Discussion

Of the 100 patients admitted to the department of acute neurology, 87 accepted and undertook motivational counselling for smoking prior to discharge from the hospital. This high rate could have been due to a support-

ive effect from the local smoke-free surroundings and a health promoting hospital (16). Furthermore, some smokers wished to stop smoking before the counselling, and previous studies have shown that competent and non-smoking nurses provide better outcomes in smoking intervention (17;18). Furthermore, the outgoing nurse, who was familiar with the entire study programme from the hospital-driven Smoking Cessation Clinic, may have overcome potential barriers among the local staff. In addition, the programme was well established for elective intervention (19;20).

During two decades Bispebjerg Hospital was profiled as a model hospital for health promotion in the city of Copenhagen. Very early, guidelines, standards and indicators for all patients regarding smoking and hazardous drinking were developed, implemented and followed up at the hospital (21). Nutrition and physical activity were included soon after. A new Clinical Department of Health Promotion was established end of 1998 to support the local, regional and national HPH network. This work was further developed and disseminated to other hospitals in Denmark together with the Danish National Board of Health and the Danish HPH Network (22) was used as a template for the following international working group on WHO/HPH Standards for Health Promotion (23).

The observed long-term effects of the counselling and smoking cessation programmes on acute neurological patients is consistent with the findings of previous studies, in which approximately half of the acutely admitted patients who received similar programmes quit smoking within six months, although only one of six patients remained smoke-free for the entire six months (9).

Previous studies have also suggested that acutely admitted patients welcome information concerning changes in their lifestyle; for example, 97 of 100 smokers acutely admitted to an internal medical ward and 121 smokers acutely admitted to an emergency ward for orthopaedic surgery accepted and fulfilled motivational counselling (17;24).

However, recent reviews have questioned the effect of brief intervention (BI) in hospital settings (25;26). In the present study, we investigated motivational counselling in combination with an offer to joining a hospital-based smoking cessation intervention programme. We have not been able to identify other studies on emergency stroke patients using BI as in introduction to an intensive programme targeting alcohol and smoking. A recent review has evaluated rehabilitation programs including BI regarding smoking for cardiovascular patients in pri-



## Research and Best Practice

mary care (after the emergency period). The benefit was marginal (27).

The prevalence of smoking in the patient group was high; at least one of three acutely admitted neurological patients smoked daily. The prevalence of smoking in the Danish population is approximately 20-23% for both men and women, and this frequency is increased to 30% for the local community surrounding Bispebjerg Hospital (28).

Another explanation for the high smoking prevalence in our study is that some of the patients suffered from conditions that were attributable to smoking (7). The smoke-free hospital environment and the high prevalence of smokers combined with the need for rapid initiation of secondary prevention including smoking cessation (6) supports the necessity of offering smoking cessation interventions to acutely admitted patients at their first hospital contact. However, follow-up may take place during a consultation with a family doctor or at the rehabilitation centre after discharge.

In our study, age was the only significant factor influencing the level of motivation; we found that younger patients were the most motivated, which is consistent with other studies (29;30). Younger patients in general may be more flexible to lifestyle changes and more informed of the health risks of smoking in comparison to older smokers. Interestingly, gender, smoking habits and hazardous drinking were not significantly related to motivation.

The primary strength of our study was that it was conducted in a busy clinical setting using outgoing staff from our hospital-based Smoking Cessation Clinic. The trained counselling nurse performed BI and afterwards invited patients to participate in the 6 weeks GSP in the Smoking Cessation Clinic (10). The workload of the trained counselling nurse was rather low, at approximately one hour per day. This could easily be implemented in hospitals with a smoking cessation clinic. Another possibility would be to bridge the community and invite/hire an experienced nurse to offer the counselling inside the hospital. A study has shown that using an experienced nurse from a smoking cessation clinic double up the success rate of counselling in the emergency room (24). However, there were several limitations to our study: 1) acutely admitted patients were not available in the department; 2) only a proportion of the patients allowed us to contact them for follow-up; and 3) the extent to which our results can be generalised is

unknown. Although the follow-up for smoking was not validated using biomarkers such as CO levels, the difference between self-reporting with and without CO validation is relatively low (approximately 4% after 6 months and 3% after 1 year) (31;32). Therefore, the outcome of our study was likely overestimated, but only to a minor degree. Furthermore, this study was not large enough to evaluate the effect of simultaneous alcohol intervention. Alcohol counselling alone has been shown to affect alcohol abusers admitted to trauma centres (33;34).

However, it is important to consider how and to which groups of acutely admitted patients the intervention should be addressed and in what context the counselling should be given. This consideration should include information from the patient's perspective, which would be an important next research step. In addition, greater numbers of hazardous drinkers should be included in future studies.

### Conclusion

The majority of smokers admitted for an emergency neurological illness accepted motivational counselling in the form of an introductory six-week smoking cessation intervention programme, and a significant proportion of these patients ceased or reduced their smoking habits.

### Acknowledgements

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### Contribution Details

HT, BMN, BW, VMO, and VB designed the study, HT, BMN, and VB performed the research, BMN and BV collected the data, TM and VB analysed the data, HT wrote the paper, and BMN, BW, VMO, TM, and VB edited the paper.

**Competing interests:** None declared.

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# Outstanding scientific abstracts from the 20<sup>th</sup> HPH Conference in Taipei 2012

As a new initiative to add to the visibility of the scientific work conducted within the International HPH Network, it has been decided to award and publish ten abstracts representing an outstanding scientific level. The selection of the ten abstracts was conducted prior to the HPH Conference by our Journal Editors, and the selection illustrates the quality and methodological breadth of the research performed within the area of Clinical Health Promotion. From the 20th International HPH Conference in Taipei, the following ten abstracts were awarded for their scientific content. The ten abstracts are categorised as Systematic Reviews, Randomised Clinical Trials (RCT)/Controlled Clinical Trials (CCT), Cohort Studies, Quality Management and Qualitative Studies.

## **Systematic review: Where do we stand in production of health education media and educational intervention?**

Zahra Sepehri, Fatemeh Rakhshan, Akram Peigard, Mojghan Javadi, Niloofer Peimandar, Fatemeh Behbooyeh, Mansoor Sepehri, Oldoos Aloosh, Kambiz Keshavarz

### **Introduction**

The aim of this study is to systematically analyse the types of educational media and the process of making educational health materials and educational interventions.

### **Purpose/Methods**

A systematic review of all health education materials and educational interventions was done. After the announcement of gathering all products about health education, 2,926 media were selected from the posted materials that met the following criteria: described health, provided information to educate someone, and published between 2008 and 2009. The review focused on four main criteria and 70-90 alternative criteria (based on the type of media). Sixteen specialists calculated the score of products based on designed checklists. Then, data were entered in special software.

### **Results**

In the section of health education media, the mean scores were under 50 (from 100) in all different media. The overall scores were: poster (39.03), pamphlet (43.03), film (43.03), radio teaser (41.03), television teaser (25.03), journal and bulletin (33.03), book (46.03), multimedia (37.03), website (42.91), and television program (39.03). In the section of educational interventions, the mean of the scores were 29.03, 31.03, 28.03, 20.00, 37.99 for workshop, classes, conferences, exhibitions and campaign, respectively.



### **Conclusions**

Considering a global view on the results, despite our great educational potential, it seems that all of our health educators need to meet again and discuss health education principles and its process. Indeed, empowerment should consider health educators already at the first step of the process.

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## Research and Best Practice

### **Systematic review: Applications of Motivational Interviewing in managing Type II Diabetes Mellitus: A systematic review**

Su-Hsia Hsu, You-Yin Wang, Yueh-Yen Fang

#### **Introduction**

Motivational interviewing (MI) applies a patient-centred counselling protocol to guide patients towards the discovery of conflicts in their health behaviours and construct a health promotion pattern. MI was reported to enhance patients' knowledge and skills in disease control and prevention of complications. Its application in managing type II diabetes mellitus (DM) was investigated across literature. An integration of study results would assist in validating the effects of MI on health promotion of type II diabetes.

#### **Purpose/Methods**

This systematic review aims to evaluate the effectiveness of MI in health promotion of type II diabetes. Electronic databases, including CINAHL, Medline, PubMed, CEPS, Proquest, PsychInfo, Cochrane library, and related diabetic journals were searched for articles that utilized 'motivational interviewing' in patients with type II DM. The search period was between 2001 and 2011. Two reviewers extracted data independently. The Johns Hopkins Nursing Evidence Rating Scale was used to evaluate study quality.

#### **Results**

Five relevant studies that met the inclusion criteria were located from a review of sixty articles. Most studies supported that MI decreased the HBA1C level. As for body weight, it was reduced at the 6th month of intervention, but increased after termination of the experiment. MI was also good for promoting self-efficacy and decreasing depression level as well as fatalism.

#### **Conclusions**

MI may bring benefit in health promotion of DM patients. However, there is a need for further investigation to achieve a consistent result. Problems encountered among MI research include time limitation, intervention frequency and duration, consultation content, and varied MI definitions and its implementations.

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### **RCT: Brief Integrated Group Psychotherapy (IPT) for patients with schizophrenia from a day care unit: Preliminary efficacy study**

Chun-Ya Kuo, Li-Ren Chang, Chih-Min Liu, Bao-Juan Yeh, Tze-Chon Tang

#### **Introduction**

The group cognitive-behavioural therapy (CBT) is effective in the treatment of schizophrenia. The integrated group psychotherapy (IPT), which integrates neuro-cognitive and social cognitive remediation with psychosocial rehabilitation, is a group CBT-based program. Patients with schizophrenia are noted with impairment of neuro-cognitive functioning and higher levels of behavioural organisation, including social skills and social and independent functioning. In this study, we aimed at comparing the efficacy of IPT versus treatment as usual (TAU) in schizophrenic patients of a day care unit.

#### **Purpose/Methods**

In a randomised trial, all patients with schizophrenia or schizoaffective diagnosis by clinical history, received evaluation for the treatment effects with and without a 12-week group IPT delivered by psychologists trained over one year with ongoing supervision. For a successive 12 weeks period, we measured those two groups of patients with standardized neuropsychological assessment: Positive and Negative Syndrome Scale (PANSS), and scales for evaluating mood symptoms and social skills before and after intervention.

#### **Results**

Because of the delayed clinical trial approval of the Research Ethics Committee from the National Taiwan University Hospital, the outcome and data analysis of this study, including the disease relapse rate, occupational recovery rate, neuropsychological findings, the comparison of Positive and Negative Syndrome Scale and other scales, will be postponed to July 2012.

#### **Conclusions**

According to previous related studies, finding of neuro-cognitive function showed that, compared to TAU group, the IPT group might have done significantly better in the scores for attention, verbal memory, and visual memory as well as for Beck Anxiety Inventory scores. The results will be analysed in July 2012. Then, the effects of IPT will be known and decided whether those preliminary results need to be duplicated in a larger sample to validate the claim of the benefits of the IPT group.

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## Research and Best Practice

### **CCT: Effects of exercise intervention for hospital personnel who are at risk of metabolic syndrome**

Chia-Te Lin, Fuh-Yuan Shih, Tai-Yuan Chiu, Yueliang-Leon Guo, Kuo-Liong Chien, Huey-Dong Wu, Kwan-Hwa Lin, Chao-Ying Chen, Chung-Chun Lai, Ni-Yun Hsieh, Chi-Hon Leng, Suh-Fang Jeng

#### **Introduction**

Epidemiological studies showed that recent changes in life style and eating habits might result in poor fitness and increased prevalence of metabolic syndrome. Hospital personnel in Taiwan tend to have a busy working schedule and limited time of physical activity which may have adverse impacts on their fitness and metabolism.

#### **Purpose/Methods**

This study was aimed to examine the effects of exercise intervention on the fitness and metabolic risk factors in hospital personnel in risk of metabolic syndrome. An open non-randomised trial was conducted on 21 hospital personnel with at least one metabolic risk factor. Thirteen participated in an intensive exercise program with classes scheduled three times a week for three months; eight participated in a home exercise programme with instruction scheduled biweekly for three months.

#### **Results**

All participants have completed the exercise intervention. The intensive exercise group showed significantly better cardiopulmonary index (change: 9.8 +/- 7.3 vs. 2.0 +/- 5.2 steps/min,  $p=0.006$ ), flexibility (change: 6.3 +/- 4.0 vs. 1.8 +/- 3.4 cm,  $p=0.03$ ) and heart rate (change: -9.0 +/- 9.8 vs. 3.5 +/- 12.5 beats/min,  $p=0.055$ ) than the home exercise group after adjusting for pre-exercise status. The groups were comparable in the changes in all metabolic risk factors, however.

#### **Conclusions**

The intensive exercise program was more effective than the home exercise program in enhancing the cardiopulmonary endurance and flexibility in hospital personnel. Future research needs to increase the sample size and to employ a randomization controlled study design to increase the generalisability of our results.

#### **Comments**

Intensive exercise intervention appears to benefit cardiopulmonary fitness and flexibility in hospital personnel.

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### **Cohort study: Smoking cessation in the public oral health setting**

Christine Morris, Jane Heron-Kirkmoe

#### **Introduction**

Tobacco smoking is the biggest single cause of premature death and disability in Australia. In 2006, SA Dental Service introduced a clinic based smoking cessation support program. Smoking cessation is a key organisational goal acknowledging the important role of clinicians in assisting smokers to quit.

#### **Purpose/Methods**

The aim of the program is to contribute to the improving client's oral and general health by providing information to increase awareness of support services available to clients who are interested in managing their tobacco dependence. The primary purpose is to provide a referral pathway to the local telephone counselling service, the Quit Line, for more intensive advice. Each smoker is offered tailored brief advice after ascertaining his or her interest in quitting smoking.

#### **Results**

8,500 brief interventions have been delivered since the inception of the program. Each year there is an increasing number of interventions indicating strong acceptance and support by clinicians. Dental teams use the most effective way to deliver a smoking cessation message through specialised training from Quit Line staff. Smokers are delivered a non-judgemental message that is tailored to their stage of interest in quitting. A referral pathway has been developed for clients who are interested in a call-back quit smoking service.

#### **Conclusions**

Over the course of the smoking cessation program dental teams have demonstrated their commitment to deliver an effective quit smoking message to improve oral and general health. Partnering with the South Australian Quit Line, smoking cessation counselling service has provided excellent training for clinicians and professional support for smokers. This program has shown that brief intervention is a useful technique for use in the dental setting to offer tailored smoking cessation advice to clients who smoke.

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## Research and Best Practice

### **Cohort study: Protective and risk factors of Post Partum Depression among mothers in low social-economic areas in West Java**

Sherly Saragih Turnip

#### **Introduction**

In contrary to social expectations, mothers who had just delivered a baby may feel deep sadness, fatigue, unworthiness and unhappiness with their conditions and their babies. This condition is called baby blues, and if the symptoms persist it may develop into post partum depression (PPD). Postpartum depression is found to be quite prevalent in many parts of the world and known to have deleterious effect for the babies, families and mothers.

#### **Purpose/Methods**

This study is intended to investigate the PPD among mothers who live in a low socio-economic area in Indonesia, as well as to identify the protective and risk factors of PPD. Data was collected from approximately 400 mothers who have given birth in the past year and who attended the primary health care. The Edinburgh Postpartum Depression Scale measured postpartum condition.

#### **Results**

The prevalence of PPD was quite high in the study area. Several factors were found to be protective and risk factors for the occurrence of PPD. Those factors include social, psychological, cultural and economical aspects.

#### **Conclusions**

In Indonesia, mothers are expected to take care of the children since the day they were born, manage domestic issues and serve their husbands. The condition of PPD is often denied and ignored by the mothers and their families. Therefore mothers who experience PPD often feel guilty towards their babies and families, which in turn could worsen their mental health condition. Health promotion is badly needed and should make use of the findings of protective and risk factors in the plan.

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### **Quality management: Organisational diagnostic tool for HPH Standard 4**

Louis Côté

#### **Introduction**

Organisations are becoming increasingly aware of the importance of healthy workplaces. While the determinants of employee health have long been expounded in the scientific literature, relatively few tools fully meet the needs of healthcare establishments. The difficulty primarily resides in finding a tool that is comprehensive, psychometrically sound, easily administered, affordable, and available in different languages. The goal of this project was thus to develop a tool that enables such organisations to take an accurate snapshot of their organisation.

#### **Purpose/Methods**

This organisational diagnostic tool for Standard 4 was developed based on an extensive consultation (i.e. literature review and consultation with subject matter experts) and validation process. Existing tools were analysed according to the aforementioned criteria. A questionnaire was subsequently created using an item bank as no single tool met all the criteria. The questionnaire was then administered to employees of Anglophone and Francophone Montreal healthcare establishments.

#### **Results**

Statistical analyses subsequently demonstrated the validity and reliability of the tool. The next phase of this project will be to help healthcare establishments utilise this tool in order to develop effective intervention plans.

#### **Conclusions**

This tool can then be used to help organisations assess the effectiveness of their interventions. In the future, we hope this tool will be used internationally and will potentially serve as an invaluable part of the evaluation process with regard to Standard 4.

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## Research and Best Practice

### **Quality management: Pain assessment: How to improve health care quality through staff empowerment**

Raffaele Zoratti, Carlo Favaretti

#### **Introduction**

Quality measurement in health care is complex and in a constant state of evolution: recent changes in health care promotion standards are driving increased attention to assess patients' needs and to improve the quality of healthcare, both inside and between healthcare institutions. Evaluation of patients' satisfaction with care, especially pain management, is considered an indicator of quality of care, and this can be achieved through patient and staff empowerment procedures.

#### **Purpose/Methods**

Literature on pain management is extensive, but most studies deal with specific conditions while fewer studies deal with inpatients prevalence measures, when the prevalence of patients suffering pain while in hospital is still high. The aim of the study is to investigate the prevalence of pain and pain assessment among inpatients in the "Santa Maria della Misericordia" University Hospital in Udine, Italy, and how this tool can be improved to ameliorate our patients' care through staff empowerment.

#### **Results**

In 2005, our hospital established a Committee for Pain Management with the purpose to set up protocols and guidelines to implement pain assessment and pain management. The target of the study was to get an accurate documentation of pain assessment within 24 hours of the patient's hospital admission. The prevalence of pain assessment documentation in a sample of random clinical records went from 60% in 2009 to 70% in 2010, to 82% in 2011, with a net increase of 20% in two years.

#### **Conclusions**

This study is a baseline measure of pain assessment in our hospital and could be used in quality improvement work plans. Efforts must be made to implement the quality goal of pain management, so that all staff will become familiar with guidelines, procedures and outcomes. A strong collaboration is necessary between clinicians, nurses, healthcare services, researchers, and policymakers in order to achieve a long process of continuous improvement in patient health care and promotion.

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### **Qualitative study: A new measure for the assessment of Estonian nurses' illness related risk of absenteeism**

Eve Palotu, Marika Tammaru

#### **Introduction**

Challenges of the changing health care endanger its workers' health, which in turn affects staff performance. The application of a valid measure for risk assessment provides the opportunity to identify those at risk and implement targeted prevention. Nurse-WIS is a questionnaire used for risk assessment among nursing professionals. It identifies of the difficulties encountered by nurses at work in order to reduce illness related absenteeism.

#### **Purpose/Methods**

To adapt the Nurse-WIS for use in Estonia and to evaluate its applicability. The questionnaire was translated following the forward and back translation methodology. 15 Estonian nurses assessed its face validity. The questionnaire was completed by 209 nurses older than 45 years. The ability to distinguish between groups characterized by different levels of self-perceived health and the number of encountered environmental risk factors in the questionnaire was assessed. The ability to predict the illness related absence from work was evaluated.

#### **Results**

Cronbach's alpha indicated good internal consistency. 40 percent of the respondents had a medium or high risk of absenteeism; in accordance with the recommendations of the authors of the questionnaire, they would need intervention regarding their occupational health. The risk was significantly higher among respondents with long-term illnesses and among respondents with higher exposure to environmental risk factors. With a five-point increase in score, the risk of being absent from work increased 1.3 times.

#### **Conclusions**

The Estonian version of Nurse-WIS can be applied for the assessment of absenteeism risk among nursing staff. This study enrolled nurses older than 45 years who can be considered as being at a higher risk of illness related absenteeism due to their age. Additional studies are necessary to evaluate the applicability of the Estonian version for risk assessment among younger nurses. Research also needs to be carried out to assess the implementation of the score-based recommendations in an Estonian context.

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## Research and Best Practice

### **Qualitative study: An exploratory study of the satisfaction with antipsychotic medication of patients with schizophrenia in Hong Kong**

Tai Wa Liu

#### **Introduction**

To improve the treatment outcomes of patients with schizophrenia, it is important to enhance their adherence to antipsychotic medication in order to reduce the chance of being re-admitted to pharmacological treatment. Overseas studies indicated that patients' satisfaction is correlated with their adherence to antipsychotic medication, but patients' satisfaction towards their antipsychotic medication has not been explored in Hong Kong.

#### **Purpose/Methods**

To investigate the factors related to the satisfaction with antipsychotic medication and the relationship between satisfaction and medication adherence of patients with schizophrenia in Hong Kong. This study utilized a qualitative research method using focus group interviews to explore issues relating to satisfaction level and medication adherence. A purposive sample was recruited from the psychiatric units of a regional hospital in Hong Kong. Two focus groups were conducted and 20 participants who were diagnosed with schizophrenia were recruited. The focus group interviews were transcribed and data were analyzed by content analysis in its original language (Chinese). Meanings were formulated from the significant statements and phrases that directly pertained to participants' satisfaction of antipsychotic medication and then organized into clusters of themes.

#### **Results**

The findings revealed that participants were most satisfied with the perceived benefits of antipsychotic medication. However, they were not satisfied with the information provided to them about the possible side effects caused by their antipsychotic medication and not being involved in treatment decision. Although participants were experiencing side effects, they continued to take their medication because the perceived benefits outweighed the side-effects burden. Furthermore, they would be more satisfied and willing to take their medication if they could be well informed and involved in treatment decision. Lower satisfaction was associated with lower adherence level of antipsychotic medication.

#### **Conclusions**

The findings suggest that mental health professionals should consider the factors influenced by the satisfaction of patients with antipsychotic medication in order to tailor medication regimes that are effective and acceptable to patients with schizophrenia.

#### **Comments**

Education and information about the antipsychotic medication and illness is important to promote patients' level of satisfaction. Patients should be involved in their treatment decisions in order to enhance their adherence to antipsychotic medication.

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## News from the International HPH Network

# Plant-based diet to offset flight carbon emission – an experience from the 2012 HPH Conference in Taiwan

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### About the AUTHORS

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In a letter exchange in *BMJ* in 2008, it was debated whether international medical conferences – which in total produce 600,000 tonnes of carbon emissions per year from flights alone – are an “outdated luxury that the planet can’t afford” (1; 2).

Earlier this year in *JAMA*, John Ioannidis further questioned the usefulness of medical conferences, in addition to reminding readers of the associated climate costs (3). In response to Ioannidis, Richard Horton (4) Editor-in-Chief of the *Lancet* shared his experiences at an inspiring conference in Cape Town with only 250 attendees, but where almost 70 were specialists from African countries that would optimally benefit from this gathering. Kevin Anderson, a climate scientist, shared in *Nature* reasons that he refused to participate in Planet Under Pressure – a leading conference to solve problems related to climate change (5). In his view, both the conference and its carbon-offset projects would inevitably set up the breeding grounds for high-carbon-lifestyle in the future. As demands for energy continues to rise and resources diminish, innovative solutions to ensure a greener conference will be in demand and all fields, especially the healthcare sector, will need to take the lead in cutting carbon foot print.

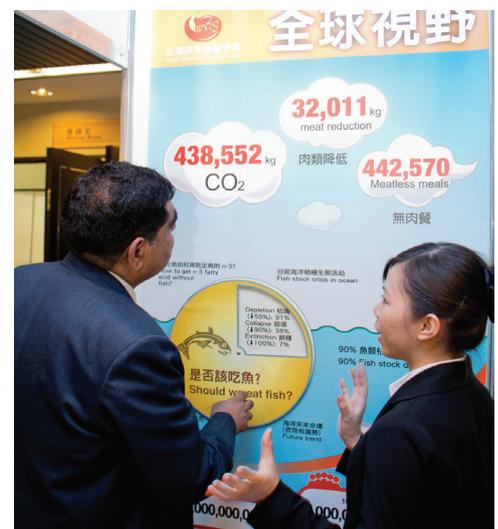
In April, the International HPH Network held its 20th International Conference in Taiwan (the first time outside Europe). 1356 health professionals met to share experiences in preventive medical care and health promotion, and of these, 307 were international professionals flying in for the conference. For the many international delegates, on-site visits of local

health-promoting hospitals, which were not easily substituted by online sessions, were particularly inspiring. The exhibitions at the conference were hosted by local health-promoting hospitals and non-profit organizations; sharing innovations and services that promote healthy lifestyles, reduce health inequalities, and enhance environmental sustainability.

One of the exhibitors (including two co-authors; Chiu and Lin) created an opportunity for delegates to offset carbon emissions from international flights through a plant-based diet, defined as “an eating pattern dominated by fresh or minimally processed plant foods and decreased consumption of meat, eggs, and dairy products” (6). The flight emissions for the 307 international delegates totalled 439,000 kg of CO<sub>2</sub>, estimated with an online flight emission calculator (7). To offset the flight emissions, we invited all participants to adopt a plant-based diet



Hitting the gong for a better environment. This attendee signed the pledge to reduce her CO<sub>2</sub> emissions by reducing meat intake.



The concept is described to an interested conference attendee.



## News from the International HPH Network



for 1 year, as livestock is a major sector that generates greenhouse-gas emissions (8). After the invitation was announced in the plenary session, many delegates were eager to support the cause. Within two days, 573 people (of 1356 total participants) took up one of 6 yearlong pledges to varying degrees: 1) there were 195 people who pledged to eat vegetarian meals for 1 full day every week; 2) 166 for 1 meal every day; 3) 102 for every meal; 4) 63 for 2 meals each day; 5) 27 for every meal in the weekday; 6) 20 for every meal in the weekend. These pledges are equivalent to a potential reduction of 191,000 kg CO<sub>2</sub>, or 44% of the participants' international flight emissions (calculations in Appendix 1). The pledges by 94 (of 307) international delegates accounts for 16% of carbon emission estimated to be offset, while the remaining 84% are covered by 479 (out of the 1049) Taiwanese delegates.

One caution is that these calculations are based on an average meat intake of Taiwanese adults (55.8 kg per person per year) obtained from the 2005-2008 Nutrition and Health Survey in Taiwan (9). Although this may not represent the meat intake for foreign delegates, it is a close approximation as Taiwanese delegates accounted for the majority of attendees and pledges. It may be worth noting that because most of the delegates and most of the pledges were by Taiwanese participants, there is some degree of 'subsidisation' of the international delegates' emissions by Taiwanese participants. Another limitation is that the CO<sub>2</sub> emission for meat and soy were based on estimations from Sweden (10), as no such data is available in Taiwan. Also, the fulfilment of the pledges is not guaranteed and the calculated potential reduction in CO<sub>2</sub> emission is an optimistic, upper and approximate estimate. We do not know the extent to which plant-based diet pledges are fulfilled in general. With this in mind, if all delegates committed to eat one vegetarian meal a day for a year (or reduce meat consumption by 30%), a large percentage (77%) of the total flight emissions could potentially be offset. This 30% reduction in meat intake has been suggested by Friel and

others (11), as an important and healthful step to reduce greenhouse-gas emission by 50% by 2030; a required intermediate step for achieving the UK Committee on Climate Change's goal of 80% reduction by 2050 (11).

It is encouraging that 42% of the conference attendees may be willing to make changes to their dietary habits for the sake of the planet. As health care practitioners and health promotion experts, these delegates may be able to exert substantial impact if they could recruit more people to adopt a plant-based diet. Until technology for clean energy and low carbon air travelling matures, promoting and adopting healthful plant-based diets may be one practical way to achieve the still elusive goal of zero-carbon international conferences.



### Appendix - calculations

The calculation of CO<sub>2</sub> offset with a plant-based diet is based on average meat consumption among Taiwanese adults, who represented the majority of the conference delegates (1,049 out of 1,356 or 77%), and those who took pledges (479 out of 573 or 84%). The average Taiwanese meat consumption was obtained from the 2005 – 2008 Nutrition and Health Survey in Taiwan with samples from representative regions, ethnics, and age groups of the Taiwanese population, using face to face interviewed 24 hour recalls, assisted by a weighted food model to facilitate accurate estimation of food portion size (9).

The calculation of CO<sub>2</sub> offset from an average individual diet is based on the following steps:

- Step (1): Estimation of CO<sub>2</sub> emission per kg of meat consumption
- Step (2): Estimation of CO<sub>2</sub> emission from meat consumed in a year for a typical Taiwanese adult.
- Step (3): Estimation of CO<sub>2</sub> offset from vegetarian pledges



## News from the International HPH Network

### Step (1): Estimation of CO<sub>2</sub> emission (kg) per unit meat consumption (kg):

**Table 1** Calculation for weighted average kg of CO<sub>2</sub> emission for 1 kg of meat consumption

Types of meat	Red Meat (a)	Poultry (b)	Fish and seafood (c)	Total (a) + (b) + (c)
(1) CO <sub>2</sub> emissions (kg) per production of meat (kg)(10)	19.7*	4.3†	8.5‡	..
(2) Average Taiwanese meat consumption per day** (9)	223 kcal	69 kcal	90 kcal	382 kcal
(3) Percentage of total meat consumption (based on kcal)	58%	18%	24%	100%
CO <sub>2</sub> emissions (kg) per average kg meat consumption (1) × (3)	11.4	0.8	2.0	<b>14.2</b>

\*Average of beef and pork, †Chicken, ‡Cod. \*\*Average of men and women. Kcal: Kilocalories, the measurement for energy or caloric intake.

Climate impact of soy equivalent is subtracted from that of meat, as an equivalent amount of protein from plant sources is needed to replace meat intake in order to ensure equal nutrition.

- CO<sub>2</sub> emission (kg) per 1 kg of soy: 0.92(10)
- 1 serving of protein food (defined by 7g of protein): 30g of edible portion of red meat/poultry/fish or 20g of soy (12).
- Calculation of soy equivalent to 1 kg meat:
  - 1kg of meat = 1000g ÷ 30g/serving = 33.3 servings
  - 33.3 servings of soy = 33.3 × 20g/serving = 667g of soy
  - 1 kg of meat is equivalent to 0.67kg of soy in terms of protein content
- Climate impact of soy equivalent to 1 kg of meat: 0.67 kg soy × 0.92 kg CO<sub>2</sub>/kg soy = 0.62 kg CO<sub>2</sub>
- Net emission of 1 kg of meat = emission of 1 kg meat – emission of 0.67 kg soy = 14.2kg – 0.6kg = 13.6 kg CO<sub>2</sub>

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- (7) Flight Emission Calculator. <http://www.travelnav.com/flight-emissions/>

### Step (2): Estimation of CO<sub>2</sub> emission from meat consumed in a year for a typical Taiwanese adult:

- Average nutrient content of 1 serving of meat, poultry, fish (30g edible portion): 75kcal, 7g protein(12). Note: calories for 1 serving (per 7g protein) of red meat such as beef and pork could vary by the parts (cuts) of the animal body, depending on the fat content, and 75kcal is the amount of calories designated for medium fat portion, where each serving contains about 5g fat. A lean cut of meat contains 3g fat and 55kcal per 7g protein, and a fatty cut of meat contains 10g fat and 120kcal per 7g protein.
- Average daily meat consumption in Taiwanese adult: 382 kcal per day (Table 1), equivalent to 5.1 servings or 153 g of meat: Calculation of the amount of meat consumed per day: 382 kcal ÷ 75kcal/serving = 5.1 servings  
5.1 servings × 30g/serving = 153 g
- Average annual meat consumption in Taiwanese adult: 0.153kg/day \* 365days = 55.8 kg
- Emission associated with meat consumption for a typical Taiwanese adult in 1 year = 55.8kg meat\* 13.6 kg CO<sub>2</sub> / kg meat = **759 kg CO<sub>2</sub>**

### Step (3): Estimation of CO<sub>2</sub> reduction from vegetarian pledges:

Types of vegetarian pledges	Proportion of vegetarian meals (a)	Estimated CO <sub>2</sub> reduction (kg) per person (b)*	Number of people took the pledge (c)	Estimated total CO <sub>2</sub> reduction (kg) †
1 day per week	1 / 7	108	195	21,060
Week days	5 / 7	542	27	14,634
Weekends	2 / 7	217	20	4,340
1 meal per day	1 / 3	253	166	41,998
2 meals per day	2 / 3	506	63	31,878
Full time Vegetarian	3 / 3	759	102	77,418
Total CO <sub>2</sub> reduction from vegetarian pledges (kg)				<b>191,328</b>

Notes \* Calculated by multiplying (a) by 759kg CO<sub>2</sub> (emission associated with meat consumption in a year, from Step (2)); † Calculated by multiplying (b) by (c)

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## News from the International HPH Network

# Putting the National HPH Network of France back on the map

### About the FRENCH NETWORK

France joined the International HPH network in 1997 and steadily grew to 15 members by the end of 2009 under the coordination of Dr. Pierre Buttet at the French National Institute for Prevention and Health Education (INPES).

After an internal reorganisation and a job change for Dr Buttet, the HPH project was temporarily "on holding" as there was nobody available to take over the coordination. Now Ms Andrea Limbourg has been installed as network coordinator with the aim of revitalising the French HPH Network.

To get more information go to the French National Institute for Prevention and Health Education's (INPES) website [www.inpes.sante.fr](http://www.inpes.sante.fr)

**Contact:**

National HPH Coordinator  
Andrea Limbourg  
[andrea.limbourg@inpes.sante.fr](mailto:andrea.limbourg@inpes.sante.fr)

2012 marks a new beginning for the National HPH Network of France. After more than 2 years without a national coordinator, the position has been refilled and network activity officially relaunched. Andrea Limbourg took on the coordination role at INPES in the spring and was immersed right away in the HPH world by attending the international conference in Taipei in April. She describes the week in Taiwan:

"The conference provided so much in the way of resources and inspiration. Once I got over the feeling of being completely overwhelmed by the sheer quantity of information and the quality of projects presented, I was ready to get to work to rebuild a network that was once quite active nationally as well as at the international level. I particularly appreciated the opportunity to network with other new and not-so-new National and Regional coordinators and look forward to working with them on more concrete projects in the future."

In order to establish an initial contact with the French hospitals already engaged in the network, a national meeting took place on June 26th 2012. In total there were nine hospitals and health services present at the meeting. Eight others were represented and five more still would have liked to have been there but were not available to come on that day. As the numbers suggest, some of the attendees are not yet members of the network so new interest is already being generated.

The meeting was very positive and productive. Hospitals in the network were able to share their experiences with regards to internal and external support (or lack thereof) in the development, financing and understanding of their health

promotion projects. There is a definite interest from all involved in restarting network activities and the highest priorities to start off will be given to national communication and rebuilding partnerships.

In an effort to educate, disseminate information and provide leverage, national network communication materials will be updated and a collaborative workspace will be created to provide a platform to share questions, difficulties, documentation and resources. In addition, a National HPH Committee will be formed, not necessarily to pilot and make decisions for the network, but more to provide support, strengthen partnerships and facilitate communication of the network's activities.

Specific projects in the works for 2013 include an issue dedicated to health promotion in the hospital setting in INPES' quarterly journal *La Santé de l'Homme* and a day-long seminar in June to help promote local health promotion projects and generate new interest for the network. It will be a busy year ahead for the National HPH Network of France!



(Photo: [inpes.sante.fr](http://inpes.sante.fr))



## News from the International HPH Network

# Japan moves on establishing a national HPH Network

**As the International HPH Network continues to increase its membership, new countries show interest in establishing national networks.**

### About the MEMBERS IN JAPAN

The 7 Japanese HPH members are:

- Chidoribashi General Hospital
- Tokyo Kensei Hospital
- Oizumi Health Cooperative Hospital
- Misato Kenwa Hospital
- Kamiina Co-op Hospital/Kamiina Medical Co-op
- Tatara Rehabilitation Hospital
- Tsugaru Hoken Medical Co-op Kensei Hospital

**Contact:**

The International HPH Secretariat  
info@whocc.dk

### Contact the FUKUSHIMA EVACUEES

During her visit in Tokyo Prof. Tønnesen visited an evacuation-site for evacuees from the devastating tsunami and earthquake in 2011.

To show your support or learn more about the consequences of the 2011 catastrophe, contact the Kyu-Kisei High School at the address shown below.

All encouragement and support is welcome.

**Contact:**

Kyu-Kisei High School  
598-1 Kisei, Kazu City, Saitama  
Prefecture 347-0105,  
JAPAN

In September, 2012, the International HPH Secretariat was invited to Tokyo, Japan, to present the HPH Network at a Board Meeting and at a contiguous seminar. Professor Tønnesen met with several hospital managers; many of whom were interested in becoming members of the International HPH Network.

The initial steps for the visit were established at the 20th International HPH Conference in Taipei in April, 2012. Here 22 participants represented Japan from various hospitals and universities. At the conference, 5 representatives from the Japan Federation of Democratic Medical Institutions (Min-Iren) were also present. Min-Iren is one of Japan's leading organisations of medical institutions and consists of more than 1700 affiliated health care, nursing care and pharmacy institutions.

As per October, 2012, Japan totals seven HPH members and they have initiated the process of establishing a National HPH Network of Japan. Min-Iren is currently playing a big role in the preliminary collaboration with the International HPH Network and the establishment of a new national network. But as a Japanese network should consist of broad variety of hospitals and health services, Min-Iren is also aware of not attaining a too dominating part in the development of the network. Thus, Min-Iren has begun inviting hospitals from outside Min-Iren to become HPH members and to help prepare the new Japanese National HPH Network.

### Visit to tsunami and earthquake evacuation-site

During the event in Tokyo, Min-Iren delegates and Prof. Tønnesen visited an evacuation-site for evacuees from the devastating tsunami and earthquake, which struck Japan in March, 2011.

The evacuation-site was set in a former high-school in Kazu City, Saitama. Here families (from the area around the Fukushima nuclear plant) have been relocated, while they wait until they can return to their homes.

The task of lifting Japan back up from the horrifying catastrophe will take many years and it has affected all of Japan – both the public and private sectors. Many organisations such as Min-Iren have offered tremendous help, manpower and other supporting activities.

As an outsider in these serious conditions, what is striking is the involvement of all volunteers.



Picture taken outside the Fukushima plant by an employee the first week after March 11 2011.  
(Photo: TEPCO / tepco.co.jp)



## News from the International HPH Network

Professor Tønnesen tells about her visit at the site:

'My impression was that there had been taken extremely good care of the evacuees and that the acute situation had been handled with outmost care from all involved parties. In tragic situations like this, we show our best features by helping fellow human beings and showing compassion. It is admirable to see this enormous degree of humanity displayed by the Japanese people'.

Japan is now facing the challenge of restoring the country, and in this process different measures are needed. Where the acute situation in the first period after the catastrophe called for immediate and direct actions, the long haul of rehabilitation requires a totally different approach.

My experience is that sometimes patients - or in this case the evacuees - may experience a vacuum after the intense focus and attention they were given while the situation was acute. This vacuum may result in a feeling of being overlooked by the surroundings. Besides usual friendly initiatives, greetings and thoughts of third parties may provide the evacuees encouragement and a feeling of support.

Thus, Professor Tønnesen recommends all readers of the journal to consider sending a postcard or letter of support to the many evacuees. You can find the address of the evacuation-site in the info-box at the start of this article

# HPH takes part in the 62nd Session of the WHO Regional Committee for Europe

## About the REGIONAL COMMITTEE

The Regional Committee of WHO Europe is its general assembly, and it is comprised of delegates from the ministries of health of each member country.

The Committee meets once a year to address and discuss strategies and action plans to tackle public health issues on the national and regional levels.

For more information go to: [www.euro.who.int/en/who-we-are/governance](http://www.euro.who.int/en/who-we-are/governance)

### Contact:

The International HPH Secretariat  
[jeff.svane@bbh.regionh.dk](mailto:jeff.svane@bbh.regionh.dk)

This year, the Regional Committee met in Malta on 10–13 September, where more than 300 representatives of the 53 Member States in the WHO European Region participated.

High-profile participants included WHO Director-General, Margaret Chan; WHO Regional Director for Europe, Zsuzsanna Jakab; health ministers and other high-ranking health decision-makers from the WHO Europe Region. Further attendees included Mr Lawrence Gonzi, Prime Minister of Malta; Her Royal Highness, Crown Princess Mary of Denmark (who is Patron of the WHO Regional Office for Europe); Mr John Dalli, European Commissioner for Health and Consumer Policy; and Mr Yves Leterme, Deputy Secretary-General of the Organisation for Economic Co-operation and Development (OECD). Finally, there were also participants from more than 30 NGOs in official relations with WHO Europe, including the delegation from the International HPH Secretariat.

## Main outcomes

Among the main outcomes of the Regional Committee was the adoption of the region's overarching new health policy, *Health 2020*. The policy focuses on the main health challenges in the 53 countries, such as tackling inequities, cutting expenditures and improving efforts related to noncommunicable diseases (NCDs), including obesity, cancer and heart disease. The policy recommends that European countries address population health through whole-of-society and whole-of-government approaches – something which naturally includes HPH as an important component.



(Photo: visitmalta.com)



## News from the International HPH Network

Health 2020 is built on four core priorities:

- investing in health via a life-course approach and via empowerment
- tackling noncommunicable and communicable diseases
- strengthening people-centred health systems, public health capacities and emergency, preparedness, surveillance and response
- creating resilient communities and supportive environments

### Other key outcome were:

- the adaptation of the new European Action Plan for Strengthening Public Health Capacities and Services, which is an integral part of the Health 2020 process
- the adaptation of the new strategy and action plan on healthy ageing in Europe, 2012–2020, aiming to promote healthy behaviour and ensure age-friendly environments for all populations and age groups (the Regional Office's first ever strategic document on this important topic)
- the Regional Office's new strategy on relations with countries and policy on its geographically dispersed offices, designed to improve WHO's collaboration with Member States
- the WHO reform for a healthy future, including discussion by Member States' representatives of the WHO programme budget and how it can be adjusted to the requirements for the Organization's reform.

### HPH plays important part

The International HPH Secretariat at the WHO-CC, Clinical Health Promotion Centre in Copenhagen took

part in the Regional Committee and represented the HPH Network. HPH attended as an NGO in official relations with WHO - an official relation underpinned by the 2010 Memorandum of Understanding between WHO and HPH.

HPH delivered statements for the Regional Committee on how to achieve better health gain for patients, staff and communities. As tangible and practical examples, HPH had also contributed with background materials and case reports to Health 2020 and the European Action Plan for Strengthening Public Health Capacities and Services.

Throughout, HPH has placed its main emphasis on the point that, just like national and local governments, hospitals too have important roles to play in promoting health and preventing disease – and HPH is truly a testament to the fact that there is more than ample will, evidence and interest. By scaling up ongoing efforts, the statements point out, HPH can help bridge public health with primary and secondary health sector as well as health sector and social sector.

HPH finally urged all ministries and delegates to take this message home, to look at what can be done to strengthen practical efforts at hospitals and health services in their countries and, of course, to support the European HPH networks in making their vital difference towards improving health promotion deliverables for the benefit of patients, staff and communities.

## Up-coming HPH events

**WHO HPH Autumn School - Bandung Indonesia (Oct 29 – Nov 1, 2012)**

**WHO HPH Summer School - Gothenburg Sweden (May 20 – 21, 2013):**  
Two events: HPH workplaces & N/R coordinators Workshop

**International HPH Conference 2013 - Gothenburg Sweden (May 22 – 24, 2013)**

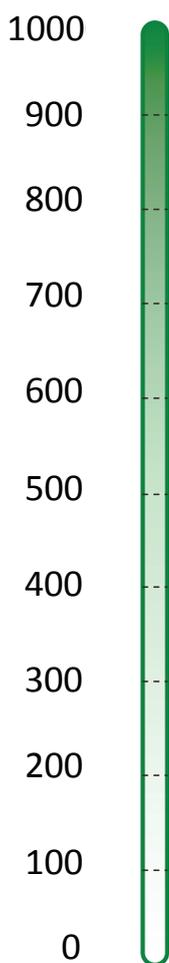
**HPH Newcomers' Workshop - Gothenburg Sweden (May 25, 2013)**

**WHO HPH Management School - Copenhagen & Malmö (May 15-16, 2013)**  
(A visit to WHO Europe is included)

*Sign-up and further information is available at [www.hphnet.org](http://www.hphnet.org)*



## News from the International HPH Network



# HPH Member update

### The International HPH Network now totals 895 members

The growth-related goal of the Global HPH Strategy 2011-2013 is to reach member number 1000 in 2013.

If your hospital or health service is interested in joining the International HPH Network, go to [HPHnet.org](http://HPHnet.org) and find more information about what HPH can do for your organisation and why health promotion in Hospitals and Health Services is vital for the improvement of health for patients, staff and community.

In the 'Members' section at [HPHnet.org](http://HPHnet.org) you will find all information required for membership.

For further questions about the HPH Network, feel free to contact the secretariat: [info@hphnet.org](mailto:info@hphnet.org).

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## International Master of Clinical Health Promotion

Several esteemed universities have joined forces with The WHO-CC, Clinical Health Promotion Centre to offer a new International Master of Clinical Health Promotion with courses starting in September 2013.

The master programme is aimed at patients, staff and community and has a strong focus on interdisciplinarity. The goal of clinical health promotion is a better health gain by integrating health promotion in the patient programmes, in the hospitals and health services, and in the local community - adapted to local conditions.

*Students will engage in*

- Clinical Research Methods
- Concepts and Perspectives of Clinical Health Promotion in the Patient Pathway
- Clinical Health Promotion Practice
- Healthy Workplace in Hospitals and Health Services Implementation
- Quality Management and Continuity
- and much more

For more information about the new International Master of Clinical Health Promotion, please sign up for the newsletter by sending an e-mail with your full name and e-mail address to:

**[internationalmaster@whocc.org](mailto:internationalmaster@whocc.org)**

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