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Health Promoting Hospitals and Health Services Development and Achievements in Taiwan

Supplement by the Health Promotion Administration, Taiwan

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Sweden

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The Official Journal of

The International Network of Health Promoting Hospitals and Health Services

Editorial

Health Promoting Hospitals and Health Services Development and Achievements in Taiwan

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In 2006, Taiwan became the first Asian member of The International Network of Health Promoting Hospitals & Health Services (HPH Network). Through the efforts of government, NGO groups and pilot institutions, the Health Promotion Administration (HPA) of Taiwan began to encourage medical facilities around the nation to join in the international network. The primary goal is to transform medical facilities from the traditional treatment-based service model to a health-improving and total-care-promoting one. The vision is to encourage medical institutions to improve the health gain of patients, family members, community, and staffs. In the past 13 years, 142 medical institutions (including 139 hospitals, 2 health centers, and 1 long-term care institution) have been certified by the HPH Network, making Taiwan the biggest regional network entity under the International HPH Network.

The HPA and the Editorial Office of Clinical Health Promotion collaborate to publish this special issue titled "HPH Development and Achievements in Taiwan", to consolidate the diversified results of the flourishing development in each of the health-promoting issues after the HPH certification was introduced. There are a total of 14 topics, including prevention and control of cigarette smoking, age-friendly environment, healthy workplace, climate-smart, health literacy.

Through this specific issue, we wish to exchange knowledge and experience with medical institutions and policy makers from other parts of the world.

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Research and Best Pratice

From Universal Health Coverage to Universal Health Gains - Mainstreaming HPH for Healthcare Delivery Reform in Taiwan

Shu-Ti Chiou

Abstract

The Health promoting hospital (HPH) initiative applied setting-based strategies to promote health gains for patients, staff, communities and organizations. Taiwan's HPH movement emerged in 2002 as "healthy hospitals" in Healthy Taipei City Project. In 2006, Taiwan established the first HPH network in Asia and grew beyond 160 members in 10 years. During 2010 to 2015, the Taiwanese government mainstreamed HPH as a tool for healthcare delivery reform to promote universal health gains in and by healthcare settings with a set of comprehensive enabling policies. HPH initiative underwent diversification and proliferation into different priority issues across life course. Such partnership between HPH and governments facilitated the achievements of ambitious population health targets. After 2016, a new set of consolidated standards and new rules were launched. The size slightly dropped to 142 members, but the number of age-friendly health services grew beyond 450 with expansion to public health centers and long-term care institutions. Published studies showed that HPH membership was associated with hospitals' participation in health promotion projects, higher breastfeeding rate, higher cancer screening rate, lower prevalence of workplace violence, and higher physical activity among staff. Insights and recommendations based on Taiwan's experience are provided.

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Introduction

As defined by World Health Organization (WHO), a health promoting hospital or health service (HPH) is an organization that aims to improve health gain for its stakeholders by developing structures, cultures, decisions and processes. (1). It has a firm grounding in WHO's setting-based strategies for health promotion as listed in the Ottawa Charter for Health Promotion (2), and WHO's healthcare reform strategies that address the contribution of health services towards the achievement of the health system goals (1;3). Recently, along with Sustainable Development Goal (SDG) 3.8 to achieve universal health coverage (UHC) for financial risk protection and universal access to health-care services for all in UN's 2030 Agenda for Sustainable Development, WHO has developed the "framework on integrated, people-centred health services". It was adopted by the 69th World Health Assembly in 2016, with the aim to reform health service delivery "towards a future in which all people have equal access to quality health services that are co-produced in a way that meets their life course needs and respects their preferences, and are coordinated across the continuum of care and are comprehensive, safe, effective, timely, efficient, and acceptable, and all carers are motivated, skilled and operate in a supportive environment" (4). This framework reiterates the shared vision and strategies as addressed by HPH initiative, and is a sign of the urgency for healthcare delivery reform in regard to supporting all countries and communities to achieve universal health gains and well-being for all at all ages as listed in SDG 3.

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Established in 2006, the HPH Network of Taiwan was the first network in Asia. It rapidly grew to become the largest network in the International Network in 2012 (5), was the first winner of International HPH Award for Outstanding Fulfilment of HPH Strategy among networks, and has been the network with highest number of accepted abstracts and delegation to the annual international HPH conferences since 2010 (6). While the number of HPH members seemed stagnant in the International Network and many networks, further understanding to the strategies behind the development of Taiwan's HPH Network might offer some useful insights.

Phases of HPH development in Taiwan

The development of HPH initiative in Taiwan could be divided into 4 phases, as shown in Figure 1. It emerged in 2002 as "healthy hospitals" in Healthy Taipei City Project, and established the network and bylaws to promote HPH recognition in 2006 and grew rapidly from 5 to 61 members by 2009. It mainstreamed healthcare delivery reform to promote universal health gains in and by healthcare settings under the support of comprehensive enabling policies from government and experienced diversification and proliferation into different priority issues across life course from 2010 to 2015, with the size growing beyond 160 members. Afterwards, it came to a consolidating phase with a new set of standards merging several issues for healthy hospitals and the size slightly dropped to 142 members. Main activities and impacts in each phase were described below and summarized in Table 1.

The emerging phase - healthy hospitals in healthy city movement

The concept of HPH first emerged as "healthy hospitals" in 2002 while the Department of Health of Taipei City implemented its Healthy Taipei City Project. This project tackled obesity prevention, healthy eating and active living as its theme after profiling the citizens' health problems, and applied setting-based approach with the five strategies (i.e. building healthy public policy, creating supportive environments, strengthening community action, developing personal skills and reorienting health services) in Ottawa Charter as its implementation framework across levels of governments and all types of settings, such as workplaces, schools, health services, communities, etc. Furthermore, the

Figure 1. Phases of development and growth in members of health promoting hospitals and health services in Taiwan

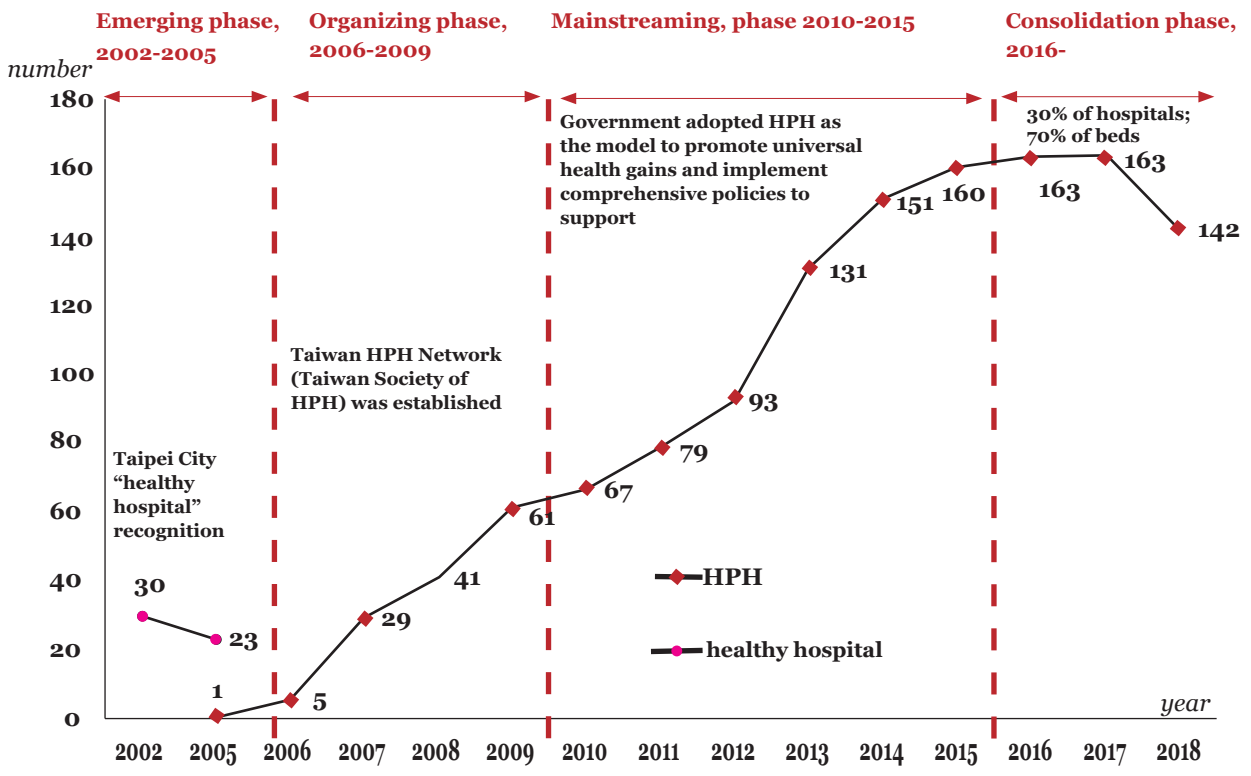

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Table 1. Main activities and progresses in different phases of development

Phase	Milestones	Progresses and impact
Emerging phase, 2002-2005	Taipei City launched "healthy hospital" recognition in its healthy city initiative	• City Health Department developed a set of recognition standards for "healthy hospitals", looking at planning and management at hospital-level, development of supportive environments for patients and staff, provision of services and activities, overall participation, changes and innovations. • In 2002, among 53 hospitals in Taipei, 30 were recognized as healthy hospitals. • Survey showed high agreement on the effectiveness of this city-wide program (80%) and the recognition mechanism (85.7%) in facilitating their implementation. • Wanfang Hospital became the first HPH member is Asia.
Organizing phase, 2006-2009	Taiwan HPH Network (Taiwan Society of HPH) was established	• Taiwan Network was established as the first in Asia. Members grew from 5 to 61. • "WHO HPH Standards" was used for recognition to become members. • Social marketing was delivered in a culturally adoptable way. • Standard 4 (Promoting a Healthy Workplace) was identified as the weakest among all standards in the network and selected as the priority focus for improvement. • Advocacy campaign on smoking cessation and elimination of trans fats gained high participation and led to policy changes.
Mainstreaming phase, 2009-2015	Government adopted HPH as the tool to promote universal health gains and implemented comprehensive policies to support	• Health promotion agency set ambitious targets and applied HPH model to transform healthcare delivery. • Government launched policies in payments, financing, accreditation, clinical reminding system and measurement to strengthen and sustain HPH implementation. • HPH initiative diversified and proliferated into high-impact priority health issues across life course. Members grew from 61 to 160. • Local governments were engaged to coordinate HPH projects. • Taiwan participated in global trial on HPH recognition. • Taiwan hosted the first International HPH Conference outside Europe in 2012. • Taiwan established 2 Task Forces in the International Network and was elected as Vice Chair and Chair of the Governance Board in 2010 & 2012, respectively.
Consolidation phase, 2016-	Government developed an "N in 1" new set of standards for healthy hospitals	• A new set of recognition standards for "healthy hospitals" combing different issues and WHO's draft new HPH standards were developed with four "layers" of texts. • The target of age-friendly healthcare recognition was shifted to public health centers and long-term care institutions. That for hospitals was terminated. • HPH members dropped to 142 in 2018, but the number of age-friendly health services grew beyond 450.

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Department of Health saw hospitals as the key professional partner to support the development of healthy settings, and developed a set of recognition standards for "healthy hospitals", looking at planning and management at hospital-level, development of supportive environments for physical activity and healthy eating (for patients and staff), provision of services and activities, overall participation and changes made by staff, patients and community partners, and creativity and innovations of the program, to guide hospitals in their efforts to become a healthier organization. It also emphasized the leadership buy-in and leading-by-example from the superintendents and high-level managers of hospitals. By the end of 2002, the Department of Health dispatched trained surveyors to visit all 53 hospitals in Taipei City (most of them being private hospitals) among which 30 were recognized as healthy hospitals. Similar site visits were conducted again in 2005 and 23 hospitals earned the recognition. A questionnaire survey was done to the coordinators of these hospitals and showed high agreement on the effectiveness of this city-wide program (80%) and the recognition mechanism (85.7%) in facilitating their implementation. However, in this phase, the healthy hospital program was more issue-oriented and not yet a total organizational transformation of the hospitals (7).

In 2003, Taiwan experienced outbreak of Severe Acute Respiratory Syndrome (SARS) with several episodes of nosocomial infection involving patients, staff and visitors. Overmedicalization, profit orientation, and neglect of prevention and public health functions were raised as major concerns on Taiwan's healthcare system. Community-oriented health system and person-centered holistic care became the goals of reform. Meanwhile, the Bureau of Health Promotion (the predecessor of Health Promotion Administration) was promoting healthy city, healthy community and healthy settings initiatives. Such context, like that in Taipei City, provided good opportunities to build partnerships between hospitals, primary care services and the communities.

A conference on health promoting hospitals was held in 2005, existence of the WHO HPH Network was introduced. Taipei Municipal Wanfang Hospital made the application and became the first HPH member in Asia. Then, Bureau of Health Promotion supported another 4 hospitals to join. After Professor Hanne Tonnesen's visit to Taipei, Dr. Shu-Ti Chiou initiated and coordinated the establishment of HPH Network of Taiwan in 2006 as the first network in Asia.

The organizing phase - establishment of HPH Network and its bylaws

Translating HPH into local conditions

In this phase, with the timely publication of WHO Manual and Self-Assessment Forms (8), "HPH" was applied as an organizational quality management tool for hospitals and health services to upgrade into a proactive health promoting organization for the community beyond merely reacting to illnesses. The Chinese philosophy that "the supreme level of medicine takes care of the whole country (or community), the middle level of medicine takes care of the whole person, while the lowest level of medicine takes care of only diseases" (in Chinese: 上醫醫國，中醫醫人，下醫醫病) was used to translate HPH movement in a culturally adoptable way. In addition, the benefit of implementing HPH model was communicated as a win-win-win approach that addressed the needs of different stakeholders. For government and society, HPH facilitated post-SARS healthcare delivery reform towards community-oriented health system and better provision of person-centered holistic care. For Taiwan's health insurance system, supporting health promotion and prevention helped improve its value and sustainability. For hospitals, HPH improved competitive edge by improving patient satisfaction, community engagement and social image. For staff, HPH directed efforts to evidence-based predictable outcomes and it promoted staff participation and staff health promotion which were traditionally neglected in healthcare workplaces.

Joining HPH by fulfilling the WHO HPH Standards

Widespread and consistent use of WHO HPH standards is the icon of this phase. The prerequisite to become a network member is to achieve recognition. Such requirement carried the value of a learning process which met the quality expectation of hospital leaders who are typically busy and only spend time and resources on things worthy of investment with expectable outcomes. This set of standards served as the framework for quality assurance and continuous quality improvement in implementation, recognition and award selection. Benchmarking and competition created momentum for mutual learning. The Continuous Quality Improvement (CQI) cycle of the HPH initiative was illustrated in Figure 2. Political leaders were invited to the annual conference to acknowledge hospital leaders for being the champions and pioneers in saving more lives and improving well-being. Such connection reinforced commitment from both sides- the politicians and the hospital leaders. Number of HPH members rapidly grew to 61 by 2009.

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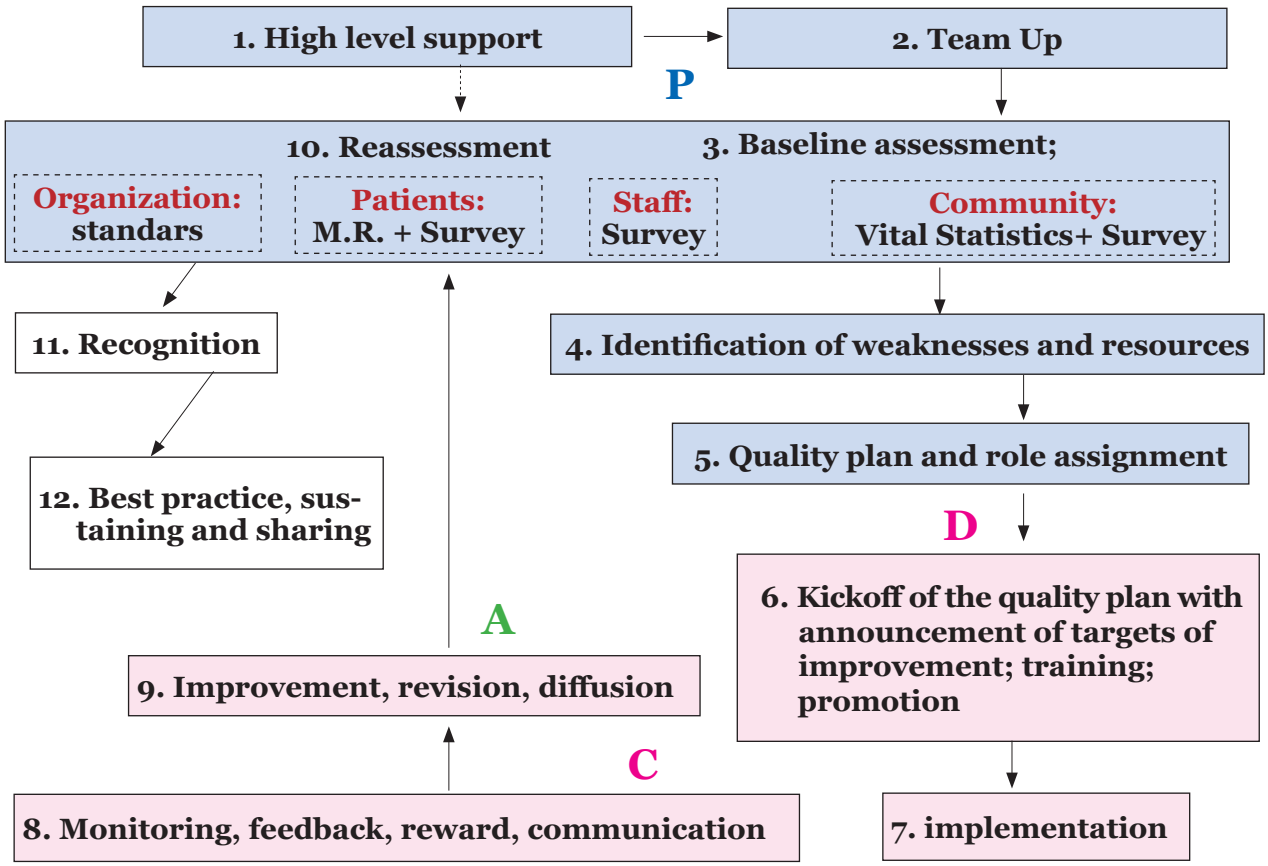
Figure 2. CQI cycle of the HPH initiative



HPH as a learning organization

The network developed bylaws and activities to make itself a continuous learning organization. Certain amount of continuing education credits was required for membership renewal. The network provided training activities to meet members' needs, including experience sharing that tackled the common weaknesses identified from self-assessment and recognition (such as lack of staff health promotion program, clinical process renovation, evaluation program), experiences of connecting HPH results with hospital accreditation items, etc.

Collective actions were taken to realize "the supreme level of medicine" in taking care of the whole country (or community) via collaborative projects. These turned out to be highly welcomed by member- and non-member- hospitals, although they did not bring any income to the hospitals. For example, in 2009, the year that expanded smoking ban came into effect, Taiwan HPH Network launched a "1 million yes-I-do smoking cessation advocacy campaign" to advocate for smoking cessation attempt (by smokers), interventions (by health professionals) and support (by family and friends). This campaign attracted 116 hospitals to participate, including 55 non-HPH hospitals, accounting for 45% of total hospital beds in Taiwan located throughout all 25 administrative areas, and successfully collected more than 1 million signed "yes-I-do" cards within one year. This scaleup campaign laid the foundation for the introduction of tobacco-free hospital initiative and new payment scheme to support smoking cessation after 2010. Another example was the "Say no to trans fats" project. Five hospitals participated and used the package of comprehensive intervention tools. Some results have been presented to the international conference. Their efforts led to better understanding of the harms of artificial trans fats and the feasibility of eliminating them, which in turn enabled the government's decision to pass the ban in 2015, effective in 2018.

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Evidence-based health promotion

The HPH Network in Taiwan emphasized and supported scientific progresses in its evidence-based approach to HPH initiative and health promotion programs. Several efforts were made by the network: a) during the site visit for recognition, hospitals reported three health promotion programs, then the survey team gave advices on their design, implementation and evaluation, and encouraged submissions to the international HPH conference as well as the annual contest on outstanding fulfillment of programs; b) the network held annual contest and set a detailed format to facilitate organized design and evaluation of health promotion programs, indicating what contents to include in the background part, selection of objectives, indicators and measurements, description of the strategies & progresses using the 5 strategies in Ottawa Charter, description of results on leadership and participation, reach, and changes, and conclusion with comments on innovation, meaning of the findings, generalizability and implications on future development; c) the network held training activities on writing of scientific reports and abstracts; d) the network worked with the government and hospital leaders to support attendance to the International HPH Conference. Number of accepted abstracts and participants increased to dozens by 2009, became the top submitter in 2010, and accounted for more than 50% of abstracts in 2012 and since after 2015. Number of publications in scientific journals also grew rapidly.

The mainstreaming phase - comprehensive policies to strengthen and sustain universal health gains

Due to budget constraint in Taiwan's universal health insurance and the broader public health as well, many programs and cost-effective preventive services were not covered or financed. At the same time, despite of high satisfaction rate and widespread global recognition, Taiwan's universal health coverage didn't bring about sustaining health gains, especially after 2000. In 2008, Health Minister Ching-chuan Yeh raised the level of ear-marked tobacco tax as an intervention to reduce smoking rate, and increased the proportion allocated for health promotion and prevention to combat such challenges. In 2009, Dr. Shu-Ti Chiou was appointed as the Director-General of Bureau of Health Promotion, and a series of policies and implementation plans for noncommunicable diseases (NCD) prevention and control followed. "Health in healthcare setting" was one among the "health-in-all-policies" of whole-of-society approach. With comprehensive enabling policies and environments, HPH mainstreamed healthcare delivery reform to promote universal health gains in this period.

Political priorities

The government identified health problems with greatest impact and available cost-effective interventions as priorities, such as exclusive breastfeeding, obesity prevention and healthy living, tobacco control, disease-management and self-management for patients with chronic conditions, cancer screening and comprehensive cancer management plan, climate action, healthy workplaces, and age-friendly city and health care. With the new support from Minister Yeh and the following Health Ministers, payments for cost-effective preventive interventions were reviewed and expanded to cover counseling and health education, case management, organized screening for breast, colon and oral cancers, smoking cessation, etc., coupled with pay for performance mechanism to combat severe underuse of these effective measures.

The hospital accreditation standards were updated to include person-centered needs assessment & care planning for patients, staffing, staff welfare and health promotion, and community-oriented health promotion, so that no matter a hospital is an HPH member or not, these are encouraged to be built into hospital routines.

The list of national healthcare quality indicators was also updated to include performance on preventive interventions, disease management and outcomes in noncommunicable diseases for continuous monitoring and improvement.

Improving practices

However, the ongoing HPH recognition and the new standards in hospital accreditation are overall quality management efforts for health promotion and the penetration and diffusion into frontline practices was still far from being satisfactory. To strengthen the participation and practices across different departments and different services, the government promoted issue-specific recognitions for those high impact priorities, such as recognition for tobacco-free hospitals, baby-friendly hospitals, cancer prevention and management hospitals, age-friendly hospitals and health services, environment-friendly hospitals, etc. All recognitions emphasized similar strategies with HPH, such ass management policy and supportive environments, process re-engineering, continuity and coordination of care, staff training, and measurement and improvement. Furthermore, they provided opportunities for in-depth learning of specific core knowledge and skills for each

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issue by different departments and professions. Applying for these recognitions is generally voluntary but is highly encouraged via the support of project grants, public reporting and award competition. In addition, undergoing these recognitions is a learning process for healthcare organizations and their staff towards better performance on those priority measures with new payments, and thus brings multiple benefits to the hospitals and health services.

During this period from 2009 to 2015, number of members grew from 61 to 160 including 146 hospitals (accounting for 30% of hospitals and 70% of hospital beds in Taiwan), 13 public health centers and 1 long-term care institution. In addition, there were 182 baby-friendly hospitals, 209 tobacco-free hospitals, 231 cancer prevention and management hospitals, 211 age-friendly hospitals and health services (including 153 hospitals, 25 public health centers and 33 long-term care institutions), and 174 environment-friendly hospitals. Although not all HPH members participated in all these priority projects and not all healthcare organizations participating in these projects were HPH members, an analysis done in 2013 (Table 2) did show statistically much higher participation rates among HPH members in all these projects. Such widespread diversification and proliferation in application of HPH strategies supported the achievement of almost doubling of exclusive breastfeeding rate under 6 months (from 24% in 2004 to 45.4% in 2015), 3.6 folds growth in utilization of clinical smoking cessation services (2015 vs. 2011),3.3 folds growth in screening volume for breast, colon and oral cancers (2014 vs. 2009), achievement of national cancer screening targets, promotion of healthy living and active aging, and reduction of carbon footprints from healthcare sector.

Increasing engagement in the International HPH Network

Meanwhile, Taiwan Network also played significant roles in the International Network. Its coordinator (Dr. Chiou) was elected as the Vice Chair and Chair of the Governance Board in 2010 and 2012, respectively. Among the 4 currently operating international HPH task forces, two are established and coordinated by Taiwan,i.e. the Task Force on Health Promoting Hospitals and Age-friendly Health Care, and the Task Force on HPH and Environment. Taiwan participated in the Randomized Controlled Trial of HPH Recognition Project and accounted for more than 50% of random-

Table 2. HPH as a strong partner of public health*

	Total= 515		HPH= 117 (hospital only)		Non-HPH= 398		
	All Hospitals	Participation rate (%)	HPH	Participation rate (%)	Non-HPH	Participation rate (%)	P value
Age-friendly	38	7.4%	34	29.0%	4	1.0%	<.0001
Tobacco- free	147	28.5%	90	76.9%	57	14.3%	<.0001
Cancer screening	230	44.7%	113	96.6%	117	29.4%	<.0001
Baby-friendly	163	31.7%	73	62.4%	90	22.6%	<.0001
Low- carbon	160	31.1%	111	94.8%	6	1.5%	<.0001
Obesity prevention	164	31.8%	115	98.3%	49	12.6%	<.0001
Diabetes care certification	194	37.7%	96	82.1%	98	24.8%	<.0001
Healthy communities	59	11.5%	36	30.8%	23	5.8%	<.0001

*: Data in August 2013 was used for analysis

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ized departments in the trial (9). These active participations not only contributed to the global HPH development, but also reinforced domestic development in these areas.

Taiwan hosted the first International HPH Conference outside Europe in 2012 which hit historically highest numbers of participants (1,370) and accepted abstracts (744). Taiwan continued to be the largest delegation to the annual international conference since 2010. Members of Taiwan Network are the constant winners of annual HPH award for fulfilment of WHO Standards, gold award for tobacco-free hospitals and health services, and best posters. Competition on global awards and publications stimulated quality improvement and scientific progresses among Taiwanese members.

The consolidating phase - a new set of combined standards as entrance recognition

In 2016, the coordinator of Taiwan's HPH Network changed together with the political change of government. The new government developed a new set of recognition standards for "healthy hospitals" (basic level). Though based on WHO's draft of new HPH standards, the new set in Taiwan has four"layers"of texts for each of the 38 measurable elements (ME), including description of ME, title of scoring, implementation rules, and definition criteria for different levels of fulfillment, making the interpretation of each ME quite complicated and less flexible. It applied a "patient-focused method" (like the tracer method of Joint Commission International) during site visit to check compliance, though the time to do so is only 1 hour. It combined some age-friendly, tobacco-free and environment-friendly items with the WHO HPH Standards, plus one ME on shared decision making and one ME on health-literacy-friendly strategies, to formulate this set of healthy hospital recognition standards (basic level) as an "N in one"consolidated version, to serve as the entrance recognition to future advanced-level recognition specialized in NCDs, cancer, maternal and child health and smoke-free programs.

At the same time, the target of age-friendly healthcare recognition was shifted to public health centers and long-term care institutions, while that for hospitals, where patients are prone to highest risks of deterioration and complication, was terminated. There was some concern that this might create a gap in learning and understanding of age-friendly culture and practices between different types of health services which might in turn hamper the development of an integrated, older people-centered health system with shared vision and quality standards in the future. Number of HPH members slightly dropped from 163 to 142 between 2016 and 2018, while the number of age-friendly health services grew beyond 450 with expansion to public health centers and long-term care institutions.

Scientific evaluation on Taiwan's HPH initiative

A review of the publications on the effectiveness of Taiwan's HPH initiative examined its impact on the health of patients, staff, communities and organizations (10). In the aspect of prompting patients' health, HPH member status was associated with higher participation in patient health promotion projects and was associated with better quality of care in diabetes (10). In another study, births taking place in baby-friendly hospitals (one type of issue-specific HPH recognition), was associated with higher breastfeeding rate (11). Comparing the periods before and after promotion of HPH strategies for cancer screening, colon cancer screening rate significantly increased in all levels of hospitals in the latter period together with improved quality of the screening program (12).The WHO randomized controlled trial on HPH recognition in which more than 50% of participating departments were from Taiwan showed higher documentation of lifestyle risk (81% versus 60%, $p < 0.01$), higher documented provision of related information, short intervention and intensive intervention (54% versus 39%, $p < 0.01$ and 43% versus 25%, $p < 0.01$, respectively), and higher compliance with standards (95% versus 80%, $p = 0.02$) in the intervention group, although no health differences between groups were found at present (9).

Promoting a healthy workplace

Staff health promotion in healthcare workplaces has long been a neglected aspect worldwide. So was the case in Taiwan before 2006. Standard 4-Promoting a Healthy Workplace was identified as the weakest among all standards in the initial assessment of the earliest network members joining in 2006 and 2007. This became the focus of action. Dr. Shu-Ti Chiou developed the questionnaire "Health and Safety Needs of Hospital Staffs Survey" to assess the needs, expectations, utilizations and changes in staff health and tested it among all full-time employees in 5 hospitals in 2007, followed by a nationwide survey in 100 hospitals in 2011 and repeated in 113 hospitals in 2014. This is by far the biggest-scaled study on health issues of hospital staff. Several reports have been published. The analysis

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showed staff of HPHs had significantly more days exceeding 30-minutes physical activity than those of non-HPH hospitals, although no significant difference was observed for five portions of fruits/vegetables a day or stress adaptation (13). Nurses working in HPHs had higher rate of undertaking Pap smear screening (14), and nurses working in an outstanding HPH had a significantly lower risk of experiencing workplace violence (15). Some analysis has identified inequalities of health between professions and between nurses working in different units (16-18). However, no evidence is available yet regarding whether HPH would help reduce the gap. Analysis on factors associated with nurses' and physicians' intention to leave a hospital found both individual factors and organizational factors might play significant roles and offered direction for further research and interventions to improve workforce sustainability (19;20), although again, it's still early to conclude whether HPH would have direct benefit on this issue.

Facilitators and barriers at organizational level

Taiwan's research has explored organizational aspect of its HPH initiative (10;21-25). Both transformational and transactional organizational capacity for health promotion such as leadership, organizational culture, and mission and strategies have been observed following the HPH initiative. In addition, the HPH initiative also contributed positively to capacity building of workplace health promotion strategies and staff participation among hospitals in Taiwan (21-23). The commonly cited enablers for HPH initiative were leadership support, HP-inclusive hospital development mission and goals, government funding, establishment of an HP-related committee, resources and health policies. The most commonly reported barriers were inadequate national health insurance coverage of HP, lack of strong staff involvement, incoherent government policies, weak integration across different sectors, and resistance to change (24). Improved organizational capacity building was associated with fewer barriers and more enablers (10).

Conclusions - insider's insights from Taiwan's HPH development

Taiwan's HPH development is an example of "globalization" which bears global perspective and is strongly embedded to the local developmental needs of healthy cities/healthy society, positioned as a professional partner, guided by a set of recognition standards and assessment/evaluation, supported by government policies, and reinforced by local and international learning activities.

As a founder of Taiwan's HPH Network, the author would like to share the following insights:

1. It took both top-down and bottom-up efforts.
2. It counted on effective development of multilateral partnerships among healthcare sector, public health, academia, communities and media.
3. Having a coordinator and a coordinating institution/organization that are highly motivated without direct competitive interests with any healthcare organization and can facilitate communication with public sector might be helpful.
4. Shared problems should be identified as the cue for changes. Value of HPH should be visualized. Decision makers should be strongly engaged at all stages of development.
5. Recognizing the inherent "silent" nature of health promotion and prevention, HPH would have little chance to survive if presented as just another extra work item. The chance might be higher if HPH is presented and mainstreamed as the solution to a big problem.
6. Frame it wisely. Communicate the value of HPH from users' perspectives. Don't make HPH an alien from the planet of public health to invade the planet of healthcare. It is a shared integral element of healthcare quality of all levels and all types of hospitals and health services which has been seriously underused.
7. Target precisely on leadership and organizational changes. Apply Ottawa Charter and evidence-based recognition standards to make sure partners can do it right at the first time. Success is the best award.
8. Scaling up will make changes easier. Together, we are stronger. Create positive competition.
9. Learning is a process that takes time and frontline buy-in.
10. Supportive policies and enabling environments are the key to sustain healthcare delivery reform.
11. Data talks. What's measured gets done. What's measured gets fund.

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Development of the Taiwan Healthy Hospital Creativity Competition Plan

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Health promotion is a continuous practice which enables generation of different health topics at different stages. It can be challenging to promote health without interruption and to maintain people's health awareness. The Taiwan Health Promotion Administration of the Ministry of Health and Welfare has been conducting competitions for health hospital creativity plans since 2008. The competition aims to encourage and improve hospital health promotion management policies, to develop innovative projects, to maintain the hospital staff's enthusiasm for health promotion, and promote innovative ideas within related services to ultimately enable the staff, patients, family members, and community to be healthier. The winner is provided with a money award and a trophy for encouragement.

Creativity combined with local performance: an uninterrupted health promotion

The creativity competition plan will follow the five action areas of The Ottawa Charter for Health Promotion, to strive for "health promotion" to become a part of hospital culture and put into effect a health promotional method that adapts to local conditions by combining local resources and cultures in hospitals of various regions. In addition, we will exemplify creative ideas with respect to a single health issue through a single project, with the aim to improve and to facilitate the health of staff, patients and their family members, and to allow for continuous progress of health promotion. We hope that it can be promoted to other hospitals in the future and used in other extended healthcare service applications.

Diversified development with unlimited creativity

Each hospital can exemplify innovation in different fields by utilizing the diverse categories of creative plans. From the smoking cessation promotion category in 2009, to the ecological sustainability category in 2013, and to the health affirmation category in 2014, etc., it has expanded to 11 categories in 2018, including the following categories: workplace health promotion, cigarettes/betel nuts/alcohol prevention, interdisciplinary cooperation, health literacy, low carbon and sustainability, community cooperation, regular exercise, healthy diet, age-friendly, diversified health information, and others such as gender-friendly, young-adults friendly. There are several fields attracting hundreds of competing projects every year, and the competition for the winning prize is very intense.

The creativity plan for each year is adjusted according to different developmental focuses with the primary purpose to incorporate the concept and value of "health promotion" into a hospital organization's culture and daily work to affect staff, patients, and family members, and further expand into the communities and societies. In coordination with the ever changing technology, the creative plans in 2017 and 2018 also added the diversified health information category, allowing for creativity to be stimulated by combining with information technology, for health to keep up with the times, and for easier health promotion. Table 1 shows the number of projects submitted for the competition within each category in the recent two years.

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Table 1. 2017–2018 list of projects submitted for the health hospital creative plan competition

Category	Number of competing projects in 2017	Number of winning prizes in 2017	Selection ratio	Number of competing projects in 2018	Number of winning prizes in 2018	Selection ratio
Staff occupational health	22	11	50.0%	23	7	30.4%
Interdisciplinary cooperation	10	4	40.0%	8	4	50.0%
Community cooperation	11	2	18.2%	14	2	14.3%
Cigarette/betel nut/ alcohol prevention	14	7	50.0%	13	4	30.8%
Regular exercise	10	2	20.0%	9	4	44.4%
Healthy diet	8	4	50.0%	8	4	50.0%
Elderly friendly	13	4	30.8%	14	7	50.0%
Health literacy	3	0	0.0%	8	4	50.0%
Diversified health information	1	1	100%	–	–	–
Low carbon and sustainability	–	–	–	3	1	33.3%
Others	16	6	37.5%	17	8	47.1%
Total	108	41	38.0%	117	45	38.5%

Project achievement and value

Since the initiation of the Health Promotion Creativity Plan Competition by the Health Promotion Administration, it has received enthusiastic and active participation from hospitals from all over the nation, including hospitals of different levels. Of the winning prizes from 2015–2018, those by medical centers accounted for 38%; regional hospitals accounted for 52%; local hospitals accounted for 5%, and others accounted for 4%. All institutions strived for health promotion. The creative ideas come from the various issues within the hospital and are intended to physically, mentally, and spiritually benefit the medical staff, administration staff, patients, and family members in the hospital environment. For example, the "Utilizing the human factors concept and medical sophistication to improve workplace safety and efficiency on duty" topic by the Kaohsiung Municipal Siaogang Hospital used "information technology improvement to decrease transmission error," "education improvement to improve staff knowledge," "facility improvement to improve delivery efficiency," "policy improvement to improve delivery safety," "staff encouragement activities," etc, to effectively decrease the duty load. It received support from the hospital for its creativity, overall evaluation, and good promotion ability.

Additional analysis of the categories in which the hospitals participated in revealed that the categories of age-friendly (13%), occupational health (11%), and cigarette/betel nut/alcohol prevention (11%) accounted for the majority of categories, followed by the categories of health affirmation (7%) and exercise (7%). It is evident that various hospitals are actively facing the challenges of aging society, and are producing all kinds of creative challenges in response. The Health Promotion Administration will continue to conduct creativity competitions in the future and will invite the winners to share their creativities in presentation conferences, to encourage more opportunities for their staff members to continue the efforts of health promotion in hospitals, and to make full use of the values of these creative plans. In addition, this will allow the hospitals to share and learn from each other through creative benchmarking to continuously refine and maintain the quality of health promotion.

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Research and Best Pratice

The Development of Health Promoting Hospital Networks in Taiwan

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Abstract

Taiwan joined the International Network of Health Promoting Hospitals and Health Services (HPH) at the end of 2006. Since then, the Taiwan HPH Network has become the largest HPH network within the HPH with 142 member hospitals and health services. In addition, the Taiwan HPH Network has the largest number of participants as well as submitted abstracts to the annual International HPH Conference. In 2017, the first Asian HPH Forum was initiated to improve the communication and cooperation in health promotion services among Asian countries. In the future, the wish is to strengthen the relationship among Asian countries further and to provide high-quality health promotion services in the Asia Pacific Region.

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The development of the Taiwan HPH Network

The International Network of Health Promoting Hospitals and Health Services (HPH) was established in 1990 in Europe. Today, the HPH Network has around 600 members world-wide and is represented in more than 30 countries. Taiwan joined the International HPH Network at the end of 2006. Today, the coordination and development of the Taiwanese HPH Network is organized by two organizations: the Taiwan Health Promotion Administration at the Ministry of Health and Welfare and the Taiwan Society of Health Promoting Hospitals.

The main health promotion activities comprise:

- Recruitment of new members and renew HPH certificates of registered members.
- Advocating the concept and strategy of HPH.
- Organizing HPH-related workshops and conferences.

The Self-Assessment Forms for Implementing Health Promotion in Hospitals published by the World Health Organization and on-site visits to review hospitals are key elements for the Taiwanese HPH Network. In addition, benchmark and innovative health promotion project contests are organized each year to encourage member hospitals to continue promoting health in a creative way.

The achievements of the Taiwan HPH Network

The main achievements of the Taiwan HPH Network over the past decade include:

- The biggest participating group at the International HPH Conference annually with regard to both attendees and papers presented at the meeting.
- Most of the Taiwanese HPH members are using smart IT systems to promote health and improve quality of care.
- A comprehensive Taiwan HPH Network with multi-dimensional and diverse task forces has been established to care for both people and the environment.
- Taiwan HPH member hospitals have won the International HPH Award for Outstanding Fulfilment of WHO HPH Standards for seven consecutive years.

However, there have also been a few obstacles in promoting HPH in Taiwan. The most challenging issue has been the lack of a linkage between our health promotion services and the National Health Insurance

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Table 1. Taiwan HPH Network participation in the International HPH Network and annual International HPH Conferences

Year	Number of participants from Taiwan	Number of papers presented by Taiwan HPH Network			
		Oral	Mini Oral	Poster	Total
2008	24	8	–	19	27
2009	34	15	–	38	53
2010	38	21	–	47	68
2011	106	15	28	60	112
2012	1,050	–	598	–	598
2013	180	17	22	217	256
2014	270	15	16	377	408
2015	209	24	29	309	362
2016	250	31	41	314	386
2017	250	56	68	369	493
2018	270	52	51	361	464

Table 2. The development of HPH Networks in Asian countries

Network Name	Year of Establishment	Number of Current Network Members
Taiwan	**2006**	142
Japan	2015	98
Republic of Korea	2011	31
Hong Kong	2012	7
Hunan (China)	2017	3

Reimbursement. More financial support and policy-oriented initiatives from the government are also needed in the future.

The development of HPH Networks in Asian countries

Today, there are seven HPH networks in Asia. The Taiwan HPH Network was the first member in Asia and the largest HPH Network in the world. At present, Taiwan's 142 HPH member hospitals and health services is the highest number of members, followed by 98 in Japan and 31 in the Republic of Korea.

Conclusions

In the future, the Taiwan HPH Network wish to strengthen the relationship among Asian countries to provide high-quality health promotion services in the Asia Pacific Region. To accomplish this objective, the following areas are in focus:

- Establishment of evidence-based health promotion practices.
- Advocating HPH in Asia through sharing and dissemination of Taiwanese experience and knowledge.
- Proactively interaction with other Asian HPH networks as well as countries without HPH members.

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Position, Future, and Challenges of a Smoke-free Hospital in Taiwan

Kuang-Chieh Hsueh

Abstract

Introduction Cigarette smoking is the most important preventable cause to public health in the world. More than 7 million people died from smoking-related diseases per year. Evidences revealed that stopping smoking is one of the most cost-effective medical interventions for those morbidity and mortality and smoke-free hospital is the most appropriate campus to provide comprehensive stop smoking services and smoke-free environment for both inpatients, outpatients, their families, community citizens and people in different workplaces.

Discussion Smoke-free hospitals in Taiwan provide comprehensive stop smoking services (smoking cessation clinic, personal consultation, smoking cessation group therapy, cessation medicine and smoking cessation service in workplace), not all hospitals provide every kind of smoking cessation services or medicines, but smoke-free hospitals provide a systemic and effective network, integrating schools, communities, workplace and army to make Smoke-free Taiwan a bio-ecosystem to fight against tobacco companies.

Conclusion The experience of Taiwan's smoke-free hospitals can help other developing countries that just started to regulate the use of tobacco and help smokers to quit. In the future, the usage of e-cigarette and heated tobacco product (ex: IQOS) will be a huge challenge in tobacco control.

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Position of smoke-free hospital

According to the statistics of the Health Promotion Administration (HPA) of Taiwan, at least 27,000 deaths are caused by tobacco smoking every year. The direct and indirect costs (medical expenses) and productivity losses caused by smoking are up to NT$109.6 billion (USD 3.5 billion) annually (1). Tobacco use is a major risk factorin public health and preventive medicine. Smoking is associated with almost all chronic diseases (cancer, cardiovascular disease, pneumonia, stroke, and diabetes) and the life expectancy of smokers is reduced by >10 years on average (2;3). Besides the serious harm to smokers, the damage from second- and third-hand smoke is also well-established and recognized (4). Moreover, tobacco harm to vulnerable populations, such as adolescents and youths, should not be neglected (5;6). Therefore, preventing harm from tobacco use is an urgent priority in the national public health policy.

The World Health Organization (WHO) has published six cost-effective measures — the MPOWER approach — to assist countries worldwide in promoting the Framework Convention on Tobacco Control (FCTC). The MPOWER approach (M: monitor tobacco use and prevention policies; P: protect people from tobacco smoke; O: offer help to quit tobacco use; W: warn about the dangers of tobacco; E: enforce bans on tobacco advertising, promotion and sponsorship; R: Raise taxes on tobacco) has been considered the most effective method so far (7).

In Taiwan, besides the implementation of the new tobacco control laws in 2009, the HPA has been vigorously promoting smoke-free hospitals since 2002. Taiwan supports all the MPOWER measures, and as an example of the "O" part (offering cessation assistance), Taiwan has supported one of the most comprehensive cessation services with world-leading results (8). Thousands of hospitals have joined the program of smoke-free hospitals to provide cessation treatment, and the smoking population decreased by 1,260,000 since 2009, with the adult smoking rate decreasing from 21.9% in

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2008 to 14.5% in 2017 (9). Given the importance of smoke-free hospitals implementation, we will take the actual implementation of smoke-free hospitals in Taiwan as an example to introduce and discuss the practice of smoke-free hospitals.

Smoke-free environment - Taiwan's smoke-free hospitals

According to Taiwan's tobacco control regulation, it is explicitly stipulated that all hospitals must be entirely smoke-free with complete ban on smoking, including e-cigarettes.

All shops in hospitals are not allowed to sell conventional cigarettes and e-cigarettes. Smoke free signs must be displayed in the hospitals, including the entrance areas. In addition, smoke-free environments should be constantly promoted through continuous broadcasting, video wall broadcasting, electronic display screen, health education leaflets, or hospital publications. Anyone who smokes in the hospital is subject to a penalty from NT$2,000 to $10,000 (USD 65 to 325), and the hospital will be fined from NT$10,000 to $50,000 (USD 325 to 1,625) for providing smoking-related items such as ashtray.

Smoke-free hospitals in Taiwan provide comprehensive services for smoking cessation treatment

In addition to providing a good smoke-free environment, hospitals in Taiwan are classified into different levels based on their scale and training capacities. Hospitals can provide cessation treatments according to their own conditions. Currently, the smoking cessation treatment services provided by Taiwan's medical centers has been regarded as role model to learn from.

1. Cessation clinics: Physicians who have received training in smoking cessation therapy provide cessation services to patients who come to their clinics or would open a specialized cessation service. Each case of smoking cessation receives smoking cessation education or counseling at the least. Physicians provide smoking cessation-related medicines to smokers, as required, or to those who do not meet the standards for the HPA's medication subsidy application. Currently, Taiwan provides an 8-week treatment in out patient cessation clinics. Smokers are subsidized for two courses per year. The cost of cessation medicines if prescribed, is less than NT$200 (USD 7) per visit with the subsidies.

2. Cessation consultation: Instructors trained to provide smoking cessation educationcan provide immediate and effective cessation counseling to smokers. Cessation education is the best option for those who do not meet the cessation medicines treatment requirements (ex: patients aged <18 years; FTND (The Fagerström Test for Nicotine Dependence) <4; smoking <10 cigarettes per day; or pregnant women) or do not temporarily want to use cessation medicines. The HPA intends to provide two consultation courses (up to eight consultation sessions) per year. Smoking education or consultation for smoking cessation is free of charge.

3. Smoking cessation medicines: Smoking cessation clinics in Taiwan's smoke-free hospital provide smoking cessation medicines. Drug profiles are as follows (not all smoking cessation medicines are provided by every hospital):

   (1) Nicotine replacement therapy (NRT): Various nicotine-containing smoking cessation medicines including transdermal patch, gum, inhaler, nasal spray, lozenge, and microtab, are prescribed. Empirical medical studies have shown that NRT can increase the success rate of smoking cessation by nearly 200% (10).

   (2) Non-nicotine medicine: There are two types of non-nicotine medicines, which must be prescribed by the physicians.

      [1] Sustained-release bupropion SR: It is the only antidepressant drug recognized for its efficacy in smoking cessation, which is like that of a single type of nicotine (11); common side effects are insomnia and dry mouth.

      [2] Varenicline: It is a partial agonist of nicotine α4β2 acetylcholine receptor. It binds to nicotine receptors in the brain, thereby reducing the pleasure of smoking and discourages smoking. It stimulates dopamine secretion, which alleviates nicotine craving and uncomfortable withdrawal symptoms, and is currently the mono-drug with the best smoking cessation effect (12).

4. Inpatient Smoking cessation: Regarding inpatient smokers, it is an excellent opportunity to quit smoking during their stay in the hospital. Taiwan's smoke-free hospitals initiated the second-generation cessation services in March 2012, providing smoking cessation services for inpatients

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and emergency patients. Generally, inpatient smokers are having more severe health conditions than outpatient smokers, therefore, often have stronger cessation motivation. Regardless of inpatient or outpatient smoking cessation, most smoke-free hospitals in Taiwan offer health education and drug treatment services for smoking cessation as well as follow-up phonecalls after services. The success rate of smoking cessation is improved in smokers for which smoking cessation start when they stay in the hospitals (13).

5. Smoking cessation group: Smoking cessation group is a behavioral therapy proven to be effective (14). However, it normally requires more time than outpatient clinics. Generally, smoking cessation classes last for 10–12 hours and are subdivided into 4–6 classes and, requires a higher level of cooperation. The contents of the classes include (1) harm of smoking for body; (2) the correct method of smoking cessation; (3) nutrition and exercise during smoking cessation (obesity prevention); (4) stress management during smoking cessation; (5) behavioral changes during smoking cessation; (6) prevention of smoking relapse and story sharing. In addition to these, the classes can be combined with drug treatment, which may lead to more effective results (15).

6. Smoking cessation in the workplace: After reporting to the local health authorities, the smoking cessation teams of smoke-free hospitals can provide smoking cessation health education and treatment (smoking cessation clinics and smoking cessation drug prescriptions) in workplaces so the workers who cannot take a leave are also able to use smoking cessation resources. Since this would involve the transformation of smoking cessation treatment location, close cooperation between medical units and workplaces is required to ensure smooth progress. Medicine prescriptions may be difficult to carry out; therefore, prior communication, planning of clinical space, medical records and registration of individual smokers, preparation of medicine, and internet connection between workplaces and hospital information system should betaken into account.

Smoke-free hospitals are an important force for the promotion of smoke-free environments

Smoke-free hospitals are completely smoke-free areas and the mainfacilities for smoking cessation treatment and health education. Therefore, they play a very important role in generating network of smoke-free environments. Currently, many hospitals in Taiwan have good and frequent interactions with their neighboring communities. Medical institutions play an invisible role in health promotion. They continue to conduct lectures on smoking cessation or health promotion in communities and improve their awareness of hazards of tobacco products, which is an important part (W) of the MPOWER approach. People's awareness is more conducive to promote smoke-free environments and protect the health of themselves and their families. Such propaganda can be carried outin schools, workplaces, and even in the army and prisons.

With the implementation of the laws for tobacco prevention and control, smoking is completely banned at secondary vocational schools or other schools for younger students in Taiwan. Although colleges and universitiescan set up smoking areas in their campus, as consequences ofthe promotional campaign carried out by the HPA and the Ministry of Education, many colleges and universities have joined the smoke-free program. Smoke-free education and smoking cessation treatment can be integrated in the schools, which may lead to a better understanding of damages of smoking among teachers and students and favor the implementation of smoke-free campus. This concept has been gradually implemented in smoke-free workplaces, army, and prisons.

Future and challenges of smoke-free hospitals

The smoke-free concept has extended from hospitals in Taiwan to other places outside the hospitals such as the workplaces, communities, military, and prisons. This concept has been integrated into international medical care, leading to the implementation of smoking cessation services in many countries. Currently, 180 countries have signed the WHO FCTC. In many developing countries, the overwhelming abuse of tobacco may be caused by the lack of comprehensive regulations or laws on tobacco control or awareness of damages of tobacco products. Meanwhile, health care resources in developing countries are often severely limited or inadequate. Therefore, public health and preventive medicine, including smoking cessation, vaccination, and infectious diseases prevention, will be the most effective strategy; thus, it is worth vigorously promoting.

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Future challenges for smoke-free hospitals include the following: (1) The lack of regulations of new tobacco-related products such as e-cigarettes in Taiwan. Although e-cigarettes are not legal in Taiwan, there are many e-cigarette vendors. According to a recent report, although e-cigarettes can help quit smoking somehow (16;17), new problems such as e-cigarette addiction could occur in a near future. Moreover, e-cigarettes are not completely safe, they contain heavy metals, volatile substances, and even carcinogens, in addition to the risk of explosion. However, for teenagers who do not receive effective smoking cessation medicines, the appearances and different flavors of e-cigarettes are extremely attractive (2). Tobacco products in Taiwan are very cheap, which cannot create necessary economic pressure to smokers (3). Finally, many hospitals are reluctant to invest in full-time staff as the subsidies to hospitals for smoking cessation treatment are low. The incoherent implementation and execution of quality improvement of smoking cessation program has caused the outflow of talents every year, which will be a big challenge for Taiwan's smoke-free hospitals.

Conclusion

Taiwan's smoke-free hospitals offer comprehensive tobacco cessation treatments. According to the MPOWER approach proposed by WHO, the scope of smoke-free hospitals should include monitoring of smoking prevalence (national or hospital base); implementation and promotion of smoke-free environment and policies to protect people from second-hand smoke; radio announcements and educational campaigns of damages of smoking; total ban on tobacco advertising, promotion, and sponsorship, along with the selling of all tobacco products. Therefore, the role of smoke-free hospitals in tobacco control is crucial. Although there are many challenges, these will be overcome one by one, ultimately Taiwan's smoke-free hospitals will become a global role model.

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Toward "Climate-Smart" Hospitals: Taiwanese Experience

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Abstract

Hospitals must become "climate-smart" in the era of extreme climate patterns because they generate massive and harmful environmental footprints that worsen climate change; and they need to avoid interrupted health services at a time when it is crucially needed. The alarming climate crisis calls for urgent actions to mitigate carbon and a collective state-wide and regional response. This paper presents a series of green hospital initiatives and the preliminary results of an 11-year cohort study of Taiwan's Health Promoting Hospitals (HPH) Network. In 2017, 72 HPH member hospitals collectively reduced 6% of total carbon emissions per hospital bed compared to baseline year 2007.

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Introduction

In light of the increasing recurrence and magnitude of extreme weather events, human-induced climate change presents an unprecedented global challenge that poses serious social and health risks (1-4). Hospitals are one of the greatest emitters of greenhouse gases (GHGs). Their massive energy consumption often lead to dangerous levels of pollution (5-8). In addressing these issues, the World Bank and Health Care Without Harm developed the "Climate-smart Healthcare" concept in 2017 that urges hospitals to become part of the solution by increasing climate awareness and fostering low-carbon health services (9). Noteworthy initiatives have been implemented by individual hospitals (10-13), but evidence on "climate-smart" initiatives at national and regional levels remains limited. This paper aimed to investigate the feasibility and potential impact of the concept by examining available evidence from Taiwan's Health Promoting Hospitals Network, which has adopted a series of low-carbon hospital initiatives for more than a decade.

Climate health risk and hospital adaptation

Similar to other island states, Taiwan is facing alarming climate health risks (14;15). Hospitals that offer critical resources are also massive resource users that have become a public health concern (16–18). According to the 2018 Global Climate Risk Index (CRI) (19), Taiwan ranked seventh in vulnerability when facing climate-related disasters. Evidence showed an increase in outbreaks of dengue, leptospirosis, and melioidosis after typhoons, and mental health and psychosocial consequences of disasters (20). Moreover, healthcare institutions represented approximately 4%–10% of country's total national GHG emissions in England, Australia and United States, (5;6) that cause a detrimental impact on health, impelling an urgent multi-level response in the era of climate change.

Globally, international organizations and the health-related network support the adoption of mitigation strategies by hospitals worldwide to reduce energy consumption associated with carbon emissions. Global Green and Healthy Hospitals advocates for renewable energy, plant-based diet, sustainable procurement, and better waste management. The World Health Organization initiated

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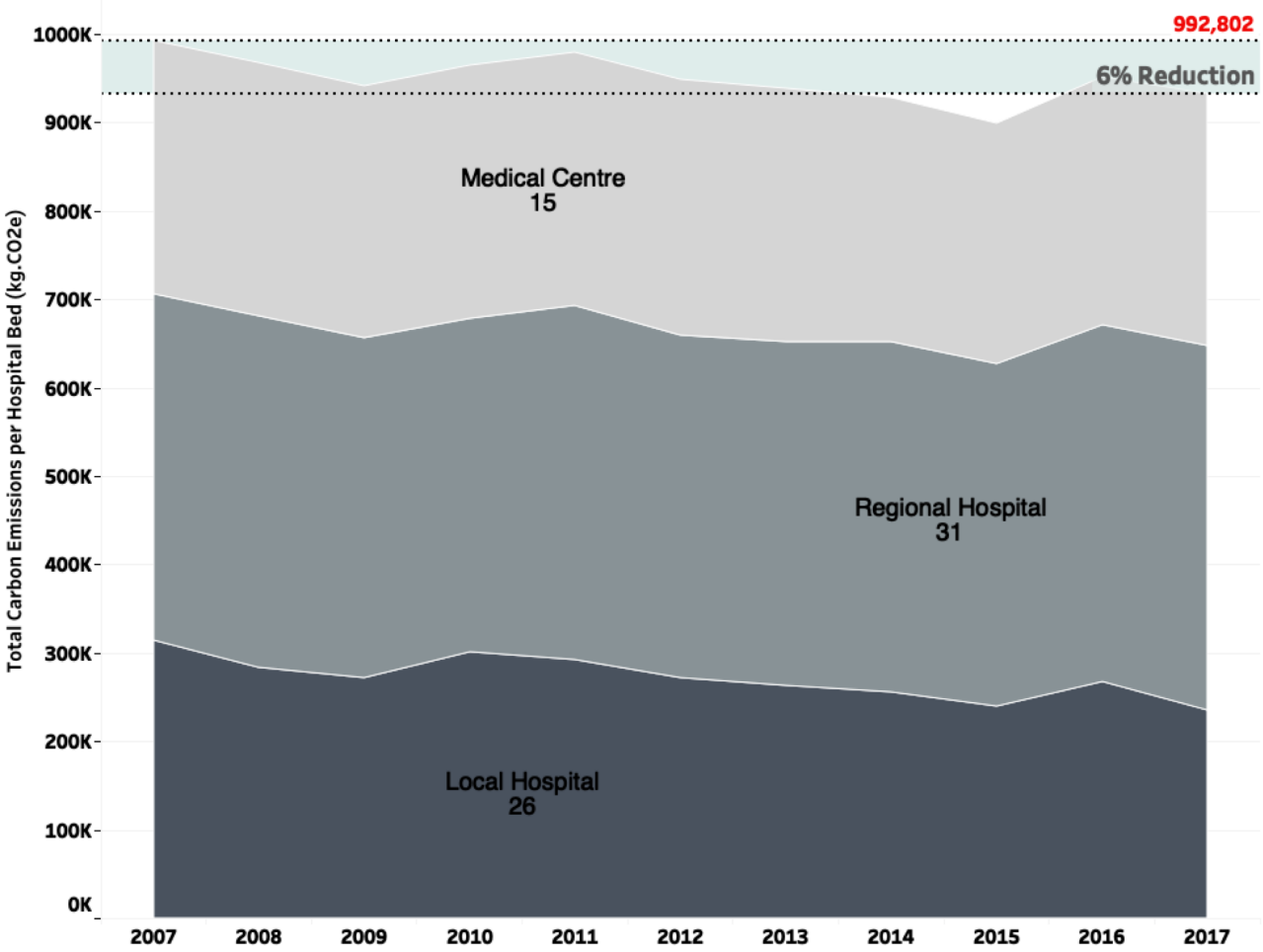
"Network of Health Promoting Hospitals and Health Services"(HPH) as a settings-based approach to holistically and sustainably implement preventive strategies (21–24). In its regional network, Taiwan has had the largest number of member hospitals since 2005 and currently chairs the Task Force on HPH and Environment,which is dedicated to addressing the climate crisis from a healthcare setting perspective.

Addressing climate change in hospital setting

Since 2009, the Task Force on HPH and Environment has initiated a series of interventions to facilitate the process of greening hospitals. Policymakers and researchers have worked together to develop guidelines and self-assessment tools for hospitals to prioritize climate and health issues under the HPH model. The "International Environment-Friendly Hospital Teamwork Best Practice Award" recognizes best practices and facilitates an experience sharing network among participating hospitals. The project entitled "Health Promotion in Healthcare Facilities" strengthens the link between low-carbon projects and other health promotion programs to create sustainable change. For the first time, the integrated hospital accreditation model incorporates eco-friendly indicators including green purchasing, waste management, and energy efficiency to serve as guiding standards toward sustainable development for hospitals.

With supportive government policy, more than one-quarter (n=174) of Taiwanese hospitals pledged to achieve 13% reduction of total carbon emissions relative to the baseline year of 2007 by 2020. Figure 1 shows a preliminary analysis of 72 self-reported total carbon emissions including annual electricity, water, fuel consumptions; generated general and infectious

Figure 1. Total carbon emissions per hospital bed (kg.CO2e) between year 2007 to 2017



Total of carbon emissions per hospital bed from year 2007 (992,802kg.CO2e) to 2017 (933,055 kg.CO2e) of 72 hospitals.

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waste per hospital bed (kg.CO2e) consecutively between year 2007 to 2017. This cohort includes three types of hospitals with a total of 2,511 beds on average per year. The consolidated results show promising projections toward lower carbon emissions, but further examination and higher quality data are needed to verify precise evidence in practice.

For further facilitating the development of "climate-smart" hospitals, government bodies established a climate-smart working group in 2018 to analyze ground practices that include hospital corporate social responsibility, green building certification, and disaster preparedness. Through a series of public forums and opportunities to engage stakeholder, the working group drafted and introduced the Taiwan Climate-Smart Framework with associated guidelines. Through this initiative, HPH-accredited hospitals are encouraged to participate in the pilot project to generate practice-based evidence that will be inserted into the policy formulation process.

Conclusion

On the basis of this Taiwanese experience, hospitals have demonstrated a collective effort to reduce 6% of total carbon emissions per hospital bed relative to baseline year. The findings revealed their promising capability for enhancing carbon emissions management for reducing environmental impact in a warming world. Hospital "greening" initiatives often may feel like a low priority among the numerous pressures in a busy hospital setting, but these efforts could be hospitals' most vital contribution to patients' health. As the harmful impact of climate change becomes apparent, hospitals indeed play a vital leadership role by achieving "climate-smart healthcare" and develop towards a sustainable future.

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Love Your Neighbor: The Community Health Plan in a Health Promoting Hospital in Taiwan

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Introduction

With the belief of "Healthy hospital, healthy community," the community health center at Mackay Memorial Hospital designed "The Community Health Plan." This team aided in setting up health service stations in the community, assessing health service needs, designing health promoting classes, holding preventive health care activities, and analyzing results for effectiveness evaluation. By being a "good partner of the community," Mackay Memorial Hospital was able to accomplish the goal of "making health a part of life and making life a part of health."

The hospital is situated in a metropolitan area; 46 health service stations have been set up in the nearby community based on community needs and characteristics. Health promoting topics included smoking cessation, chronic disease management, obesity prevention, workplace health promotion, healthy nutrition, physical activity promotion, and age-friendly care.

The Community Health Plan

The four community health projects and health-promoting activities held from 2014 to 2018 are described below.

1. "Mackay Energy 2K" programs (1)

The goal of the "Mackay Energy 2K" program was to encourage community residents to build healthy lifestyles, properly maintain self-health, and achieve effective body weight control. There were four stages in this series of activities: 1st stage: "Mackay Energy 2K plan" route selection, which involved planning fitness walking routes around the hospital that could be completed within 30 min or included 2000–2500 steps; 2nd stage: "Mackay Walking for Health," which encouraged staff members to join the activity by walking along the first-placed trail route; 3rd stage: "Everyone Walk Together," wherein families of staff members or community residents were invited to join the fitness walking activity, thereby scaling up the program; and 4th stage: "Healthy weight reduction," which promoted motivation for weight reduction through group competition.

2. Weight management using lifestyle modification education model (2)

This goal of this project was to improve awareness of weight control and achieve body weight reduction or maintain healthy body weight through education on lifestyle modification. Educational sessions on diet and exercise were provided during fairs, classes, and health stations that had been set up in the communities. Body height, weight, and waist circumference were measured after joining this program. Phone interviews were conducted afterwards to track changes in the anthropometric measurements, understand one's consumption of vegetables and fruits and exercise routine, and provide counseling on healthy diet and exercise.

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3. A smoking cessation activity for taxi drivers in conjunction with the "Quit and Win" contest (3)

This project sought to analyze the effect on smoking cessation of taxi drivers belonging to the "Taiwan Taxi Company" through efforts by the Mackay smoking-cessation team during the "Quit and Win" contest period. The smoking-cessation team comprised doctors, nurses, and pharmacists, who worked with the John Tung Foundation to provide counseling and medication to taxi drivers during the "Quit and Win" contest period.

4. The health promotion services for community elderly (4)

These services aimed to encourage the elderly to participate in community activities and increase health promotion behaviors. By collaborating with the elderly meal service program of Zhongshan District and Datong District, promoting health activities were delivered through consultation and lectures, including topics of prevention and management of common physiological or psychological problems in the elderly.

All the community health plans were well-received by the community. (1) "Mackay Energy 2K" programs: there were 49 groups and up to 3,489 participants in this series of activities. This strategy promoted motivation to exercise in the community, and also helped participants pay more attention to their health. (2) Lifestyle modification education model: Over the period of 4 years, there were a total of 4,176 participants, achieving a total loss of 15,169 kg. Most participants increased their vegetable intake and started to exercise regularly. (3) Smoking cessation activity: the point success rate at 3-month among taxi drivers was much higher than that of general smokers at the smoking cessation clinics (55.3% vs 38.0%). This plan allowed taxi drivers to take the first step to quitting smoking. (4) Health promotion service: A total of 123 health promotion activities were conducted with 3,252 participants. Health instructions and referral information were given to participants with abnormal reports by healthcare staffs who also monitored their condition.

Table 1. Health-promoting activities (2014–2018) of The Community Health Plan in a health promoting hospital

Activities	No. of activities	No. of people served
Psychological health	1,486	70,593
Safe community	293	20,002
Volunteer training	65	1,691
Community epidemic prevention	444	20,806
Health literacy	1,108	58,920
Healthy diet	910	17,616
Health fitness	256	11,831
Tobacco hazards prevention	142	8,169
Cancer prevention	400	18,965
Elderly care	1,917	20,286

Conclusion

A multidisciplinary team, comprising staff members from all departments in the hospital, worked together to successfully execute the "Community Health Plan." The support of the hospital and the trust of the community people are the keys to success. Mackay Memorial Hospital will continue to provide services wherever needed to promote comprehensive care for patients, families, and the community.

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Age-Friendly Hospital Development and Achievements – Yonghe Cardinal Tien Hospital, Taiwan

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In 2015, New Taipei city's Yonghe district has entered to an aged society. At the end of 2017, the proportion of elders aged ≥65 years reached 16.52% (1). With increased age, the need for medical and life care has increased. Therefore, the Yonghe Cardinal Tien Hospital has established many programs to promote and provide age-friendly care.

First, to reach a consensus, the topic for the annual hospital supervisor consensus training camp was set as "We are all elderly." The supervisors wore actual aged simulation set and participated in group competitions and simulated real-life situations to experience the daily life of elders. With this experience, Yonghe Cardinal Tien Hospital wished the supervisors to gain better understanding for the elderly patients, so they could provide friendly service in their respective professional fields.

In our hospital, all hardware facilities were built under the premise of age-friendliness and many subtle but caring details were also included; for instance, when the guard notice a disabled elderly individual getting off the car, he would actively assist and bring a wheelchair for the individual and if necessary, volunteers would accompany the elder to the clinic room. The information desk was set up with reading glasses for presbyopia, and there are volunteers to assist them in filling out the forms. The clinic rooms were equipped with communication aids for elders with hearing loss.

To make the entire medical treatment process more age-friendly, we have convened a meeting with departments of Registration, Outpatient, Laboratory, Radiology, and Pharmacy to collaboratively design a "caring sticker" for aged elders. Wearing this sticker would allow staff to quickly identify elders aged ≥85 years in need and give them priority in care and services. For elders aged ≥90 years, after being recognized by the outpatient registration machine, they would be allowed to have top priority to visit the doctor.

Other than medical care, we also have noticed home care issues faced by hospitalized disabled elders. Therefore, during the hospitalization, a discharge planning service was offered. We have had discharge cases studies every week with the multidisciplinary team, which was hosted by our president and the team included relevant doctors, nurses, therapists, dietitians, social workers, pastoral staff, long-term care case managers, and home service supervisors. These professionals jointly discussed the medical and life care required for each patient since hospitalization and after discharge. Our team actively discussed and explained to the patient and family members and helped them to apply for long-term care resources and aids from the long-term care managing center during the hospitalization. We have taken all the action in the hope that after

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discharge, the patients' care needs could be satisfied at home in the shortest time. Currently, our team has obtained almost all the qualifications for long-term care and also has established a home medical care team. Therefore, we are capable of providing medical and life care, also long-term rehabilitation. All professionals would communicate horizontally in order to make changes and provided the medical or life care according to patients' needs. Home medical care could decrease admission rate and ER visits rate and has received high recognition from patients and family members. Therefore, our "Integrated home medical care and life support service program" has had the honor to receive the certification of SNQ (Symbol of National Quality) of Taiwan.

Aging is accompanied by the development of disability and dementia, which requires medical care and rehabilitation to delay disease progression. We have also integrated the local community's medical team and ours to provide complete care for individuals with disability and dementia, including screenings, diagnosis and treatment. We not only have set up courses on disability and dementia for patients to delay the disease progression, but also lessons for their family members to understand better about dementia to support the patients. Because of these innovative lectures and integrated care procedures, this "Integrated community health care network for active aging" of our hospital has also received the certification of SNQ of Taiwan.

With the hospital as our foundation and focused on the community, under the concept of prevention is better than cure, we have started the community health care stations program since 2016. Volunteers from each neighborhood were trained to establish community health stations. These stations provide blood pressure measurements periodically, health promotion and long-term care information, frailty/dementia screenings and referral services. Our team has supported to give lectures periodically to enhance community health literacy. We have also provided assistive devices for free to the health stations to help people in need. Until the end of March 2019, we have assisted to establish 16 community health stations and are actively communicating with other communities to set up more.

The elders are the treasures of our society. The Yonghe Cardinal Tien Hospital Team hopes to assist elders in the community to have healthy mind and body to enjoy life as they wish. Even if they would need medical and life care, with our support, we hope that the elders can still live with their family and enjoy the last journey of their life.

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Age-Friendly Primary Healthcare Development and Achievements in Taiwan

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Introduction

In 2018, Taiwan's elderly population reached 14.56%, turning Taiwan into an aged society (1). In response to the increasing aging population, starting in 2009, the Health Promotion Administration began promoting the accreditation ofage-friendlyhealthcare institutions nationwide, and further expanded this in 2012 to public health centers/health service centers, local clinics, long-term care institutions, etc.

National response led by the government

The Taiwanese medical institutions have greatly supported the efforts and initiative from the Taiwanese Administration to promote accreditation of age-friendly healthcare institutions. Of these institutions, public health centers/health service centers are distributed throughout Taiwan. This highlights the importance of the age-friendly issue at primary health care, in particular in rural/remote townships with lack of medical resources and massive outward migrations of their young adult populations. Therefore, to create a localized age-friendly environment and with the government's policies in lead, the accreditation coverage rate is as high as 89.1% (2).

Spare no efforts to raise the level of professional knowledge

During the process of promoting age-friendlyhealthcareinstitutions,theHealth Promotion Administration continuously provided public health centers/health service centers with opportunities to raise the level of professional knowledge through educative training sessions in the respective regions of north, central, south, and east Taiwan. For example, in 2018, there were a total of six educative training sessions held in Taiwan, which included a total of 822 participants. During the evaluation of the difference in knowledge before and after these training sessions, all participants showed significant increase in the level of understanding for contents of the five accreditation domains and the core classes such as geriatric syndrome, comprehensive geriatric assessment, multiple comorbidities and health literacy on age-friendly care (Table 1 and Table 2) (3). In addition to demonstrating that the topics and contents of these educative training sessions were well planned, it also strengthened the care knowledge of primary care professionals on age-friendly healthcare and greatly increased the ability of the elderly and their families to monitor their own health and care.

Conclusion

Promoting the accreditation of age-friendly healthcare institutions can facilitate changing healthcare institutions at the primary care level. Filial piety and respect for the elderly are elements assimilated within the accreditation provisions, and this promotes the integration of even more meticulous friendly care for the elderly along with strengthening of age-friendly healthcare strategies. With health promotion as a basis, the establishment of long-term

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Table 1. Analysis on the differences in knowledge before and after the certification seminar and educative training sessions (Taitung event) n=160

Question	Pre-test	Post-test	SD	95% C.I.	p-value[a]
1. What is your level of understanding on the "certification work process of elderly friendly healthcare institutions"?	2.77	4.02	0.90	1.02 to 1.47	<0.001
2. What is your level of understanding on basis standard 4 (health promotion)?	2.91	3.98	0.92	0.85 to 1.30	<0.001
3. What is your level of understanding on basis standard 5 (community service and referral)?	2.68	4.00	0.85	1.11 to 1.54	<0.001
4. What is your level of understanding on basis standard 3 (friendly environment)?	2.83	4.02	1.07	0.92 to 1.45	<0.001
5. Do you understand "community environments" that harm elders?	2.82	4.02	0.96	0.98 to 1.42	<0.001
6. What is your level of understanding on basis standard 1 (policy management)?	2.72	3.97	0.97	1.02 to 1.47	<0.001
7. What is your level of understanding on basis standard 2 (information intervention and communication)?	2.60	4.02	0.83	1.22 to 1.61	<0.001

[a] t-test between pre-test and post-test
SD = standard deviation
C.I.=Confidence Interval
p-value is based on the t-test
Significant is at the 5% level

Table 2. Analysis on the differences in knowledge before and after core training classes (Taitung event) n=160

Question	Pre-test	Post-test	SD	95% C.I.	p-value
1. Do you understand "geriatric syndrome and comprehensive geriatric assessment"?	2.70	4.01	0.91	1.11 to 1.51	<0.001
2. Do you understand the "multiple comorbidities and complex requirements" of the elderly?	2.76	3.97	0.93	1.00 to 1.43	<0.001
3. Do you understand the meaning of "health literacy"?	2.89	3.97	0.97	0.86 to 1.31	<0.001

[a] t-test between pre-test and post-test
SD = Standard Deviation
C.I.=Confidence Interval
p-value is based on the t-test
Significant is at the 5% level

caring relationships allows the elderly to age and reside locally in healthier places and is a strategy worthwhile for other nations to follow.

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The Keys to a Health- and Safety-Oriented Workplace: From the Perspective of Taiwan

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Abstract

Background Patient-centered care has long been advocated worldwide, but workplace health and safety remain an emerging issue drawing attention in Taiwan. The healthcare industry is a high risk workplace, hospital employees are possibly in an extremely vulnerable situation. Thus, collective efforts and joint forces are required to safeguard workplace safety and health. The Taiwan government is striving to form a friendly workplace in all industries, particularly in the healthcare sector. In fact, several hospitals are aware about the importance of putting a significant amount of work into this matter.

Methods The authors reviewed several studies concerning health- and safety-oriented workplace. In this review, we used an integrative approach as a starting point and combined the contextual factors of an organization, i.e., perceived organizational support, safety climate, and social influence, to address this issue from the perspective of Taiwan.

Discussions This review also indicated that these contextual factors influence health and safety of a workplace. Subsequently, the implication of these factors on achieving a sound work place in terms of health and safety was studied. We hope this review will provide some insights and foresights to practitioners and researchers to better understand the importance of these issues.

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Introduction

Occupational safety and health (OSH) is generally defined as "the science of anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment" (1). The primary goal of OHS programs is to foster a safe and healthy work environment (2). In addition, OSH may protect coworkers, family members, employers, customers, and other related individuals possibly affected by work environment (3).In occupational health, the main focus is on three objectives: (i) maintenance and promotion of employee health and working capacity; (ii) improvement of work environment conducive to safety and health; and (iii) development of organizational cultures in a direction that supports healthy workplace and promotion of a positive social climate and smooth operation, which may enhance productivity in undertakings. In this context, the concept of work culture is intended to imply a reflection of the essential value systems adopted by the concerned authority. Such a culture is reflected in practice in the managerial systems, personnel policies, principles for participation, training policies, and quality management of the undertaking (4). Although work provides several benefits such as economic benefits, a wide array of workplace hazards present risks to the health and safety of individuals at work. These hazards include, but are not limited to, "chemicals, biological agents, physical factors, adverse ergonomic conditions, and allergens, representing a complex network of safety risks" and a broad range of psychosocial risk factors . Accordingly, personal protective equipment can facilitate protection against many of these hazards (5).

The World Health Organization (WHO) has revealed that approximately 122 million people die annually of noncommunicable diseases (1). Most of these people live in developing countries and are of working age (i.e., 15–64 years). Work-related health problems cause economic loss of approximately 4%–6% of the gross domestic product in most countries. Some

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occupational risks such as injuries, noise, and exposure to carcinogenic substances and anthropogenic risk factors are the primary causes of chronic diseases: 37%low back pain; 16%hearing loss; 13% chronic obstructive pulmonary disease; 11% asthma; 8% injuries; 9% lung cancer; 2% leukemia; and 8% depression (4). Hence, considerable attention needs to be paid to workplace safety and the overall well-being of workers while transforming and developing Taiwan's economy by government agencies and business enterprises.

The starting point of this study was OSH. First, we investigated the concept of safety climate, which is a particular form of organizational climate. Essentially, it refers to employees' perceptions of safety-related policies, procedures, practices, and rewards in a workplace (6;7). In recent years, an increasing number of reports have stated that safety climate is the key antecedent of safety performance and its significance is self-evident (8;9).

On a personal level, the workplace is not only a physical environment but also includes the social environment in which employee behaviors are governed by special norms (10). Therefore, social influences can predict the establishment of a friendly and high-quality work environment and contribute to socialization among employees. On the other hand, input from employees may influence the administration process of implementing OSH-related management such as regulations and operations. Rome was not built in a day; an environment with excellent occupational safety cannot be created within a short time. Business operators and managers must strive to establish policies and allocate resources to support innovative and transformative opinions and practices. For example, it is often considered helpful for the staff to follow managers to get hands-on experience in an industry. Additionally, such new ideas and practices should be incorporated during policy implementation, thereby forming social norms and safety climate integrated into daily routines. Taken together, this information defines organizational support (11).

Based on the mentioned perspectives, the authors reviewed several studies concerning OSH, safety climate, social influence, and perceived organizational support (1-11). Also, we addressed the effects of critical factors such as perceived organizational support, safety climate, and social influence on OSH-related preventive actions and employee satisfaction related to safety. We hope this review can serve as a reference to practitioners and researchers in related fields, hospital executives, and work unit managers.

Occupational safety and health

The International Occupational Hygiene Association defines OSH as "the science of anticipating, recognizing, evaluating, and controlling health hazards in work environment" and consider the potential effects of these hazards on the work environment (12). The White House National Security Council suggested that effective occupational safety measures include elimination or control of recognized occupational hazards to an acceptable risk level to increase the well-being of workers. Optimal occupational safety is established through a constant responsive process that involves anticipating, identifying, designing, implementing, and evaluating risk-reduction practices (13).

Amponsah-Tawiah suggested that OSH relates not only to employees' overall well-being at work but also to their overall physiological, psychological, and sociopsychological safety and well-being (14). The WHO uses the term "healthy workplace" to describe OSH and defined it as a workplace in which improvements are continually made to ensure workers' safety, health, and well-being. The sustainability of workplace is closely related to capital and labor; work safety and health, health resources in the workplace, and community participation measures are necessary to improve the health of all workers (15).

The factors affecting OSH are not limited to deadly hazards but include all vulnerable conditions in hospitals. By anticipating and recognizing hazards and evaluating and controlling operations, practices, and preventive measures in hospitals, the goal of constant improvement of workers' safety, health, and well-being can be achieved. Therefore, the Joint Commission of Taiwan launched a policy to supervise WHS and stipulate measurable elements in hospital accreditation. On the other hand, increasing industrial disputes in Taiwan have enabled several hospitals to focus on OSH-related issues. The Taiwan government is striving to implement stern measures to prevent occupational injuries and provide high-quality patient service. In Taiwan, improvement of the morale of medical teams is an emerging issue that needs to be addressed to increase employee productivity. Several healthcare institutions pledge to acquire ISO 45001 (OHSAS 18001) certification to oversee workplaces through a trusted and credited third party. On the contrary, the Health Promotion Administration in Taiwan has revised the HPH standards and integrated age-friendly, smoke-free, and low-carbon policies to establish an initiative for health hospitals to follow. In fact, Taiwan has prepared collective efforts to make the country a benchmark in terms of WHS worldwide.

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Safety climate

The safety climate concept was proposed by Zohar who considered safety climate to be a specific form of organizational climate. Essentially, work climate can be regarded as employees sharing their overall perceptions of work environment. In addition to the factors and dimensions of safety climate, the relationship between safety climate and its outcome variables is the current focus of research. Griffin and Neal found that workplace safety climate directly influences workplace safety motivation, which indirectly influences safety behavior (16).

Several studies have revealed that safety climate affects various crucial outcomes including the performance of safety-related work practices, success of safety-related behavior, accident frequency, and injury incidence. Most hospitals attempt deflecting industrial disputes on priority and ensuring a stronger workforce power. Indeed, the organizational climate affects work adjustment at a psychological level through work design; reciprocally, psychological work adjustment has been attributed to work satisfaction and stress, organizational commitment, and effectiveness (17). Hofmann and Mark suggested that safety climate affects satisfaction among nursing staff in healthcare sectors (7). Cheah et al. investigated the hospital staff in Sabah (Malaysia) and found that the hospitals' OSH management practices (preventive action) had positive effects on safety satisfaction and feedback among the nursing staff (8). Forging of an ambience of WHS that employees may perceive and enjoy is of utmost importance. Increasingly, employees are becoming aware of the issue's importance and consider it a process to protect themselves. In Taiwan, hospital accreditation involving following of regulations and processes is a stern challenge for healthcare services. Recently, a number of fire disasters in healthcare facilities sparked outrage in Taiwan and took a heavy toll. These incidences promoted a heightened awareness of risk management, particularly of the development of safety climate within institutions. Hospital staff must be educated on risk management techniques for firefighting through education, training, and exercises using a fire drill.

Social influence

Behavioral intention is determined by personal attitude and subjective norms regarding the behavior. For example, if employees do not believe that managers and colleagues are concerned about OSH, they are extremely unlikely to believe the importance of safety. An empirical study on the subjective norms that influence safety behavior revealed that safety behavior is significantly affected by the attitudes and subjective norms of employees (18). Therefore, social influence has a positive effect on safety satisfaction, which may create a good organizational citizenship.

In Taiwan, rampant accreditation, external auditing, and on-site survey have been noted, which are considered inconvenient by hospitals and create an imbalance of job strain among hospital employees. The Taiwan government is well-informed about the existence of this complicated situation in the healthcare industry and is attempting to ease work strain and reduce workload to obtain higher employee satisfaction and eventually generate higher productivity. On a global level, a high-tension work environment may result in exhaustion among employees, incurring flaws in some processes. The government is facing the dilemma of loosening healthcare-related regulation or maintaining higher standards of healthcare. Evidently, these two aspects are contradictory. However, some hospitals are scrambling to pursue the Joint Commission International (JCI) accreditation on account of social influence and recognition, which addresses healthcare without harm using several measurable elements.

Workplace safety and the health of the employee are crucial for an institution to accomplish its responsibility. Without safety and health, quality is just rhetoric. Furthermore, an increasing number of hospitals in Taiwan consider issuing of a report about a corporate social responsibility and sustainable development goal based on the BSI (British Standards Institution) standards.

Perceived organizational support

The perceived organizational support theory uses the perspective of social exchange theory and the norm of reciprocity to explain the relationship between employees and organizations (19). Social exchange tends to be intangible or symbolic, and its timeframe and future returns are uncertain. Thus, exchange of party returns is favorable in accordance with the norm of reciprocity (18). According to this theory, employees' perceived organizational support is higher among employees who tend to personify their organization. The favorable or unfavorable treatment that an employee receives is a sign of their organization's preference or non-preference for them. Spontaneous organizational support is highly valued by employees because it indicates that the organization has genuine respect for its employees and honors their contributions (19).

Studies have suggested, that a perception of support and concern from manager results in higher job satisfaction,

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they have higher job satisfaction and more pro-social behaviors including safety behaviors (20). Workers with positive perceived organizational support may contribute to the building of a positive workplace safety climate. Rhoades and Eisenberger observed that perceived organizational support increases employees' affective commitment by satisfying their socioemotional needs such as a sense of belonging and emotional support (21). This process of satisfying needs produces a strong sense of belonging to an organization including the integration of organizational and social identities. Therefore, perceived organizational support exerts the following influences: hospitals truly value employee contribution and it helps in creating good organizational citizenship behavior. Further, it results in collaborative efforts of employees and hospitals on this matter. Perceived organizational support essentially promotes social influence due to organizational identity (22).

Safety climate is an antecedent variable of the crucial indicators of sound performance. Therefore, managers must proactively modify and improve safety climate. Regarding medical institutions, an incidental report would be an important mechanism and protocol to deal with workplace safety issues. Subsequently, approaches for effective and constructive response to errors should be included. It is important to have guidelines and regulations for how to comply with safety regulations.

In the domain of healthcare, social influence has been emphasized as a useful approach to healthcare, as it involves patient safety (22). Studies have verified that social influence or norms are the key factors that affect the safety behavior of medical staff toward patients (23). In accordance with organizational norms, organizations must advocate occupational and patient safety and operation standards or guidance for each department and unit to follow by providing relevant education, training, and intervention. Hospitals can hold cross-division, cross-institution workshops or create a social networking with peers to share experiences. Moreover, several hospitals in Taiwan encourage their staff to take actions to follow health policies. Some good examples are as follows:

1. Female staff is encouraged to undergo breast ultrasound or mammography annually or biannually without charge.
2. A low-dose CT for early lung cancer detection is particularly offered to high-risk medical staff for free.
3. Pregnant women are exempted from night shifts.
4. Hospital-wide surveillance of the physical fitness of the staff is provided.

In this review, perceived organizational support was identified as the antecedent variable of two variables: safety climate and social influence. According to the perspective of reciprocity norms, when employees perceive that their organization supports relevant activities, values their contribution, and is concerned about their well-being, their obligation is triggered to conduct pro-social behaviors. Accordingly, when the high-level managers of an organization put greater emphasis on plans related to occupational safety and social influence and provide the necessary resources, rewards, and assistance, employees tend to value these measures. Subsequently, hospital employees would go an extra mile to safeguard the organization.

Conclusion

Hospitals have a highly complex structure and processes to serve people as their target who are more important than any other industrial products. To fulfill their social responsibility and ensure sustainable development, hospitals ought to emphasize WHS while providing high-quality services. Employees are the greatest assets of institutions who can pay the greatest attention to patients' health and safety. Hospital staffs are daily exposed to biological, chemical, and radioactive hazardous substances; thus, OSH represents the fundamentals of the environment that cannot be ignored. Meanwhile, medical staff should consider strategies for OSH and have proactive implemented behavioral habits. A good organizational approach for health and safety will form a cycle of team norms and organizational climate to create a favorable environment, achieving the goal of protecting patients and staffs and promoting health for all. Hospital should create a healthy workplace to achieve job satisfaction and organizational identification among employees. This would exert a synergistic effect on the empowerment of employees with the concept of safety and health, and it surely ushers in a brighter future.

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Research and Best Pratice

Medical Personnel Working in Health-Promoting Hospitals Have Better Physical Activity and Colon Cancer Screening Behaviors

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Abstract

Background Whether health-promoting hospital (HPH) standards improve health-related behaviors among employees remains unclear. This study aimed to investigate whether medical personnel working in certified HPHs have better physical activity and colon cancer screening behaviors than those in non-HPHs.

Methods In 2014, we conducted a cross-sectional questionnaire survey of 43,474 medical personnel working in 104 hospitals (83 HPH and 21 non-HPH) in Taiwan. A generalized linear model and multinomial logistic regression were used to examine the association between HPH status and frequencies of physical activity and colon cancer screening, controlling for socio-demographics and work characteristics.

Results Overall, the participant-reported frequency of physical activity (walking for ≥30 min) was 2.34 days (SD = 1.14) in a week; 47.8% participants had never received a fecal occult blood test and 33.2% had received the test ≥2 years ago. Medical personnel working in an HPH walked for ≥30 min on more days per week (β = 0.05, 95% CI 0.01–0.08). Working in an HPH was positively associated with receiving a fecal occult blood test (during the past 2 years [OR 2.06, 95% CI 1.87–2.26] and ≥2 years ago [OR 1.11, 95% CI 1.01–1.23]).

Conclusions Medical personnel working in an HPH have improved physical activity and colon cancer screening behaviors. However, most personnel do not meet the recommendation of physical activity and colon cancer screening yet.

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Introduction

Medical personnel serve an important role in implementing health promotion in hospitals. In addition to providing holistic care for their patients, medical personnel are actively involved in health-promoting activities and modeling healthy behaviors for their patients (1-3). A systematic review indicated that higher levels of personal physical activity among doctors and nurses were associated with higher physical activity-promoting practices, and that health professionals with positive attitudes toward physical activity were more likely to promote physical activity to their clients (4).

However, medical personnel may not practice sufficient health-promoting behaviors. Loef, van der Beek, Holtermann, Hulsegge, van Baarle and Proper (5) analyzed physical activities and found that hospital workers spent more than half of their leisure and working time in sedentary behavior, followed by standing (26%–38%), and walking (<12%). Taking nursing staff as an example, long work hours may cause a lack of health-promoting lifestyle habits due to insufficient time (6). Shift-work and job stress are barriers to engaging in physical activity among nurses (7). This evidence indicated that the work environment serves a critical role in influencing health behaviors among medical personnel(8).

The World Health Organization (3) asserted that Health Promoting Hospitals (HPHs) have the responsibility to follow the HPH standard of promoting a healthy workplace. HPH standards demand hospital management to support establishment of a healthy and safe workplace, to ensure the availability of developing and maintaining staff awareness on health

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issues, and to support health-promoting activities for staff. HPH standards demand that staff make aware of the health promotion policy. General health-promoting activities in an HPH include staff engagement in health screening and health-related behaviors (3).

The HPH is responsible for enabling and empowering staff to improve their health (2). Increasing healthy behaviors and cancer screening behaviors among hospital staff are important indicators for primary and secondary prevention in hospitals (3). Despite this, whether HPH standards can lead to improve health behavior among employees remains unclear. Description and discussion of the benefits of acquiring and sustaining HPH membership were important priorities of HPH global strategies between 2016 and 2018 (9). There is a need to understand whether HPH initiatives have led to improve health behaviors among employees. This study aimed to investigate whether medical personnel working in certified HPHs have better physical activity and colon cancer screening behaviors than those who work in non-HPHs.

Methods

Design and participants

A national cross-sectional questionnaire survey of full-time staff working in healthcare settings was conducted in 2014. We distributed an anonymized, self-administered, structured questionnaire to full-time staff. The data came from 43,474 medical personnel who worked in 104 hospitals (83 HPH (79.8%) vs 21 (20.2%) non-HPH) in Taiwan. The study ethics were reviewed and approved by the Institutional Review Board at the Bureau of Health Promotion (Taiwan; BHP investigation no. EC1030308-F-W). The study design details were as described previously (10).

Measurements

The study variables included socio-demographics (sex, marital status, educational level, and age), work characteristics (health professions and accredited hospital level), HPH status, and health-related behaviors (physical activity and colon cancer screening).
Physical activity was measured by a question asking how many days a week they spent ≥30 min walking or equivalent physical activity based on a 5-point Likert scale (0 day, 1–2 days, 3–4 days, 5–6 days, and 7 days). Colon cancer screening was measured by the question "When was the most recent time that you received a fecal occult blood test?" with the answer options of <2 years, ≥ 2 years, and never.

Data analysis

The study variables were described using frequency, percentages, means, and standard deviations (SDs). The chi-squared test was used to examine whether physical activity and colon cancer screening differed according to HPH status. Multinomial logistic regression was used to examine the association between HPH status (yes or no) and colon cancer screening (<2 years, ≥2 years, or never). The generalized linear model was used to examine the association between HPH status and physical activity. We controlled for socio-demographics and work characteristics in the regression models. In all analyses, a two-sided significance level of 0.05 was used. Statistical analyses were performed using IBM SPSS Statistics version 21.0 (IBM Corp., Armonk, New York, USA).

Results

Sample characteristics

The 43,474 medical personnel's characteristics are presented in Table 1. Almost 90% were female, and 58% had an educational level of university or higher. The medical personnel had a mean age of 33.5 (SD = 8.5) years, and most were 26–35 years of age. Most of them were nurses (62.4%), and only few were physicians (4.8%). Over half worked in regional hospitals (53.1%). Almost half of the medical personnel had never received a fecal occult blood test (47.8%); 33.2% reported receiving the test ≥2 years previously, and 19% reported receiving the test in the last 2 years. Their average reported frequency of physical activity (walking for ≥30 min) was 2.34 (SD = 1.14) in a week, and only 36% reported frequency of more than 3 days.

The chi-squared test showed that sex, marital status, education level, work characteristics, and health behaviors were significantly different between HPH statuses (Table 1). Medical personnel working in HPHs had a higher rate of fecal occult blood tests during the last two years (21.8%), relative to those in non-HPHs (9.6%). More medical personnel in non-HPHs reported having no days of physical activity of ≥30 min walking in a week (25.3%) compared to those working in HPHs (24.0%).

Colon cancer screening by fecal occult blood test

The multinomial logistic regression (Table 2) showed that compared to those who had never had a fecal occult blood test, medical personnel who worked in HPHs were more likely to have a test <2 years ago (OR 2.06, 95% CI 1.87–2.26) than those who worked

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Table 1. Study participant characteristics (n=43,474)

Variables	All (n = 43,474)	HPH (n= 32,967)	Non-HPH (n = 10,507)	p-value
	n (%)	n (%)	n (%)	
Sex				0.003
Men	3785 (11.9)	3061 (12.1)	724 (10.8)	
Women	28132 (88.1)	22155 (87.9)	5977 (89.2)	
Marital status				
Married	16662 (43.8)	12545 (43.5)	4117 (44.8)	<.001
Unmarried	16652 (43.8)	13339 (46.2)	3313 (36)	
Divorced/Separated/Widowed	4743 (12.4)	2976 (10.3)	1767 (19.2)	
Educational level				<.001
University or higher	22904 (57.8)	18127 (60.7)	4777 (48.8)	
Vocational school or less	16745 (42.2)	11740 (39.3)	5005 (51.2)	
Age (years)				0.864
≥46	2903 (10.2)	2348 (10.2)	555 (10.4)	
36–45	6903 (24.4)	5627 (24.5)	1276 (24)	
26–35	13415 (47.4)	10879 (47.3)	2536 (47.6)	
<26	5090 (18)	4132 (18)	958 (18)	
Health profession				<.001
Physician	2087 (4.8)	1747 (5.3)	340 (3.2)	
Dentist	1975 (4.5)	1356 (4.1)	619 (5.9)	
Nurse	27108 (62.4)	20631 (62.6)	6477 (61.6)	
Pharmacist	5221 (12)	3670 (11.1)	1551 (14.8)	
Other health professional	7083 (16.3)	5563 (16.9)	1520 (14.5)	
Accredited hospital level				<.001
Medical center	15969 (36.7)	10595 (32.1)	5374 (51.1)	
Regional hospital	23062 (53.1)	18083 (54.9)	4979 (47.4)	
District hospital	4443 (10.2)	4289 (13)	154 (1.5)	
Colon cancer screening				<.001
Never	19030 (47.8)	14717 (47.8)	4313 (47.5)	
≥2 years	13236 (33.2)	9344 (30.4)	3892 (42.9)	
<2 years	7579 (19)	6707 (21.8)	872 (9.6)	
Days of ≥30 min walking in a week				0.048
0 day	10267 (24.3)	7676 (24)	2591 (25.3)	
1–2 days	16799 (39.7)	12823 (40)	3976 (38.8)	
3–4 days	8364 (19.8)	6340 (19.8)	2024 (19.8)	
5–6 days	4138 (9.8)	3157 (9.9)	981 (9.6)	
7 days	2697 (6.4)	2029 (6.3)	668 (6.5)	

Note: Percentages were calculated based on total number of non-missing cases. HPH, health-promoting hospital.

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in non-HPHs. Working in medical centers (OR 1.74, 95% CI 1.62–1.87) or district hospitals (OR 1.67, 95% CI 1.52–1.83),> 26 years of age, and being a physician (OR 1.31, 95% CI 1.12–1.54), a pharmacist (OR 1.14, 95% CI 1–1.3), or other health professionals (OR 1.33, 95% CI 1.22–1.45) were associated with an increased likelihood of having a fecal occult blood test during the last two years, compared to working in regional hospitals, <26 years old, and nurses, respectively.

In terms of having a test ≥2 years ago (Table 2), compared to those who had never received a fecal occult blood test, medical personnel who worked in HPHs were more likely to have received the test (OR 1.11, 95% CI 1.01–1.23). Working in medical centers (OR 1.32, 95% CI 1.21–1.43), being divorced, separated, or widowed (OR 1.3, 95% CI 1.02–1.65), having an educational level of university or higher (OR 1.13, 95% CI 1.02–1.24), >26 years of age, and being a pharmacist (OR 1.2, 95% CI 1.03–1.39) or other health professionals (OR 1.38, 95% CI 1.25–1.52) were more likely to have received that test ≥2 years ago, compared to working in regional hospitals, married, vocational school or less, <26 years old, and nurses, respectively.

Physical activity

The generalized linear model for days of ≥30 min walking per week was presented in Table 3. The results showed that medical personnel who worked in HPHs had more days of ≥30 min walking in a week (β = 0.05, 95% CI 0.01–0.08). Working in medical centers (β = 0.06, 95% CI 0.02–0.09), >46 years of age (β = 0.18, 95% CI 0.12–0.24), and being pharmacists (β = 0.12, 95% CI 0.06–0.18) or other health professionals (β = 0.2, 95% CI 0.16–0.24) were associated with

Table 2. Multinominal logistic regression model for colon cancer screening (n=43,474)

Variable	<2 years	≥2 years
	Adjusted OR (95% CI)	Adjusted OR (95% CI)
HPH	2.06 (1.87–2.26)**	1.11 (1.01–1.23)*
Sex (Female)	0.91 (0.81–1.01)	0.9 (0.8–1.02)
Marital status		
Unmarried	0.93 (0.87–1.01)	1.06 (0.97–1.15)
Divorced/Separated/Widowed	1.16 (0.95–1.43)	1.3 (1.02–1.65)*
Educational level		
University or higher	1.08 (1–1.17)	1.13 (1.02–1.24)*
Age (years)		
≥46	6.37 (5.53–7.33)**	4.7 (3.94–5.61)**
36–45	1.74 (1.55–1.95)**	2.54 (2.2–2.92)**
26–35	1.2 (1.09–1.32)**	1.65 (1.46–1.86)**
Health profession		
Physician	1.31 (1.12–1.54)*	1.19 (0.98–1.44)
Dentist	0.81 (0.57–1.17)	0.77 (0.49–1.21)
Pharmacist	1.14 (1–1.3)*	1.2 (1.03–1.39)*
Other health professional	1.33 (1.22–1.45)**	1.38 (1.25–1.52)**
Accredited hospital level		
Medical center	1.74 (1.62–1.87)**	1.32 (1.21–1.43)**
District hospital	1.67 (1.52–1.83)**	0.98 (0.87–1.1)

Note: p<0.05*; p<0.001**; OR = odds ratio; 95% CI = 95% confidence interval.
Reference group was never having colon cancer screening.
Reference for variables were non-HPH, male, married, vocational school or less, age <26 years old, nurses, and regional hospital. HPH, health-promoting hospital.

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more days of ≥30 min walking in a week, compared to working in regional hospitals, <26 years old, and nurses, respectively.Women and married medical personnel had fewer days of ≥30 min walking in a week.

Discussion

Our results revealed that medical personnel working in HPHs were more likely to have received colon cancer screening in the last 2 years or ≥2 years ago. In addition, medical personnel who worked in HPHs reported more days of ≥30 min walking (or equivalent physical activity) in a week compared to those working in non-HPHs. These findings supported HPH initiatives' effectiveness at increasing colon cancer screening and physical activity among medical personnel working in HPHs.

In Taiwan, an HPH is certified based on implementing the five WHO standards for health promotion in hospitals (3). In addition to patients and relatives, the aim is to improve health outcomes among staff. The fourth standard aims to support establishing a healthy and safe workplace and supporting health promotion activities for staff (3). Therefore, medical personnel who work in HPHs may receive more health-promoting activities and resources, which, in turn, facilitates improvement in their health-related behaviors (1). Pelikan, Dietscher, Schmied and Röthlin (11) analyzed 35 national/regional HPH networks and found that certified HPH member hospitals widely met the criteria of implementing staff-oriented HPH strategies. Therefore, certified HPHs increase health awareness and capacity among staff, and provide

Table 3. Generalized linear model for days of ≥30 min walking per week (n=43, 474)

Variable	Days of ≥30 min walking per week	
	Adjusted estimate	95% CI
Certified HPH	0.05*	0.01 to 0.08
Sex (Female)	−0.3 **	−0.35 to−0.25
Marital status		
Unmarried	0.11 **	0.07 to0.14
Divorced/Separated/Widowed	0.14 *	0.05 to0.24
Educational level		
University or higher	−0.01	−0.05 to0.02
Age (years)		
≥46	0.18 **	0.12 to0.24
36–45	−0.04	−0.09 to0.01
26–35	−0.05*	−0.09 to−0.01
Health professions		
Physicians	0.06	−0.01 to0.14
Dentists	−0.07	−0.24 to0.09
Pharmacists	0.12**	0.06 to0.18
Other health professions	0.2 **	0.16 to0.24
Accredited hospital level		
Medical center	0.06 *	0.02 to0.09
District hospital	0.04	−0.001 to0.08

Note: p <0.05*; p<0.001**; 95% CI = 95% confidence interval.
References were non-HPH, male, married, vocational school or less, age <26 years old, nurses, and regional hospital. HPH, health-promoting hospital

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health-promoting activities for staff (2;3), which may account for the improved health-related behaviors among medical personnel working in HPHs. However, this study included only two health-related behaviors and did not include health outcomes. Further investigation is required to support the HPH initiative's efficacy in improving health outcomes and different health-related behaviors.

Despite the higher frequencies of colon cancer screening and physical activity among medical personnel working in HPHs, the overall rate of the two behaviors did not meet the recommended level. The Healthy People 2020 initiative set the targets for colon cancer screening and aerobic physical activity of at least 150 min/week at 70.5% and 47.9% among adults, respectively (12;13). Previous studies have shown that a lack of time, long work hours, and shift-work were barriers to physical activity (7;14;15) and fecal occult blood tests (16;17). In Taiwan, the average work hours among clinical nurses and physicians was 47.4 h and 59.8 h per week, respectively; ≥70% of physicians and nurses worked >48 h and >40 h per week, respectively (10;18). Long work hours and job stress may reduce the time available for health-related behaviors among healthcare workers (6;19).

Effective strategies to increase colon cancer screening include increasing the perceived susceptibility, severity, and benefits in relation to colon cancer (20), using client reminders, providing one-to-one education to encourage and motivate clients, and providing incentives (21). Organizational strategies for increasing physical activity and reducing sedentary behavior in hospital settings include support to use the stairs, establish walking/exercise groups, maintain distance of printers, and hand-out pedometers and set step targets (22-25). Taken together, hospital administration may consider decreasing work hours and job stress, and incorporating the above-mentioned strategies to promote colon cancer screening and physical activity among medical personnel.

Working in medical centers was associated with improved colon cancer screening and physical activity frequency. Medical centers may have more resources and superior systems to conduct health-promoting activities. Of the health professions, pharmacists and other health professionals had better colon cancer screening and physical activity frequencies than nurses. A previous study showed that nurses reported the lowest level of physical activity and stress adaptation of all occupational groups working in hospitals (26).

Colon cancer is the most prevalent cancer in Taiwan and the number of persons with colon cancer has increased rapidly during the past few years (27). Fecal occult blood test every 1 to 2 years is the most effective measure to decrease colon cancer-associated mortality (28). Though the Taiwan Health Promotion Administration only provided free fecal occult blood test for individuals between 50 through 74 years of age (27), yet recent studies suggested the need of colon cancer screening for younger adults (29-33). Since the expenses for fecal occult blood test was cheap (300 New Taiwan dollars or 9.73 US dollars) and the service was readily available for medical personnel working in hospitals, we decided to include colon cancer screening behavior for medical personnel of all age group in the study. Hospital-based health promotion programs for health professionals is required, with a particular emphasis on nurses.

Bias and Limitations

Since the present study relied on a cross-sectional survey, causal relationships between HPH and health behaviors cannot be established. Physical activity was measured by a single question. In future investigations, more accurate measurements may be used, such as metabolic equivalent values, to increase precision. Since the present study results were based on self-reported questionnaires, incorporating objective indicators could be considered in future studies. Participation to the study was voluntary, therefore, generalizability may be a concern. The study only focused on physical activity and colon cancer screening behaviors, whether HPH is associated with an increase in other health behaviors among medical personnel merit further study. This study was conducted in the context of Taiwan, the results may not be generalizable to other cultural context, thus further study in different country is needed.

Conclusions

The study results indicate that medical personnel working in HPHs have better physical activity and colon cancer screening behaviors than those working in non-HPHs. However, most medical personnel did not have sufficient levels of physical activity or colon cancer screening behaviors. Therefore, hospital-based health-promoting programs for medical personnel are required.

Acknowledgments

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Research and Best Pratice

The Development of a Practical Guidebook for Promoting Health Literate Health Care Organizations in Taiwan

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Abstract

Background To promote organizational health literacy in health services, a guidebook with practical guidelines is needed. However, very few guidebooks on health literate health care organizations exist at present. The objective of this study was to develop a Practical Guidebook for Health Literate Organizations to be used in healthcare services in Taiwan.

Methods The Vienna Model of Health Literate Healthcare Organization (V-HLO) was adopted as the framework for the guidebook. Three focus-group discussions with health care practitioners were conducted to understand their health literacy practices and to collect data for developing the practical examples in the guidebook. Both qualitative and quantitative methods were adopted to collect user opinions on the guidebook.

Results The Practical Guidebook for Health Literate Organizations contains 9 standards of V-HLO and 52 examples. All the examples are from health care organizations in Taiwan and are suitable for local medical environments and culture, which increases the applicability of this guidebook. The user evaluation results indicated that the usability of the guidebook is acceptable.

Conclusion We recommend this guidebook as a tool for self-assessment of organizational health literacy in health care services and as educational training material for medical personnel. In the future, the standards and items in this guidebook can serve as reference for the rating of organizational health literacy for hospital accreditation or certification.

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Introduction

Health literacy refers to an individual's motivation and ability to obtain, understand, appraise, and use health information to promote and maintain good health (1). A large amount of empirical research has shown that health literacy is a critical determinant of health (2;3). Inadequate health literacy can lead to poorer health behaviors and health outcomes, lower utilization of preventive health services but higher utilization of acute medical care (2;4;5), greater medical expenses (6), and less engagement and empowerment in health (7). Differences in health literacy create inequality in health opportunities, which might affect a society's sustainable development (3). From the point of health equality, limitations on personal health literacy should not become an obstacle to gaining health. At the 9th Global Conference on Health Promotion, the World Health Organization (WHO) declared health literacy to be a vital agenda in empowering and driving health equity for sustainable development (3).

Health literacy is not just a personal capacity and responsibility, but a relational concept relating personal abilities to situational complexity and demands, where health related decisions and actions have to be taken (8). Therefore, health literacy can be measured and improved at the personal as well at the organizational level. Thus, change must begin with the health care and service providers. This gave birth to the concept of health literate health care organizations, which emphasizes that health care organizations should be committed to helping people to easily obtain, understand, and use health information and services to take care of their health (9;10). The Agency for Healthcare Research and Quality (AHRQ) proposed the concept of health literacy universal pre-

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cautions (11) to encourage health care organizations to provide services suitable to people of all health literacy levels, thereby allowing people to fully and effectively access and use health information and services regardless of their health literacy level.

Based on the Ten Attributes of a Health Literate Health Care Organization proposed by Institute of Medicine (IOM) (9), different tools to measure health literate organizations or organizational health literacy were offered, of which the Vienna Model of Health Literate Healthcare Organization (V-HLO) is the most comprehensive example, explicitly related to health promotion and its settings approach, as well as to quality philosophy and methodology and using a comprehensive definition of health literacy (12;13).

In 2017, the Health Promotion Administration under the Ministry of Health and Welfare in Taiwan began including health literacy items as part of the accreditation standards for health promoting hospitals, and officially added health literacy to the list of essential tasks of health promoting hospitals. To promote organizational health literacy effectively, a guidebook detailing practical guidelines is needed for medical personnel. However, very few guidebooks on health literate health care organizations exist at present, and the few that do exist were written in western countries (14). The examples within them may not be suitable for the health care environments or medical cultures of other regions. Thus, a health literate organization guidebook, suitable for the local culture, must be developed to assist personnel at health care organizations in practicing organizational health literacy.

Against this background, the objective of this study was to develop a Practical Guidebook for Health Literate Organizations with a solid theoretical basis and practical examples for reference. This paper describes the development process of the guidebook and presents the user evaluation results.

Methods

Phase 1: Setting the target audiences

The target audiences of this guidebook comprise of the management and medical personnel of health care organizations. Suitable health care organizations include, but are not limited to, community hospitals, regional hospitals and medical centers.

Phase 2: Determining the framework

The Vienna Model of Health Literate Healthcare Organization (V-HLO) proposed by Pelikan and Dietscher was adopted as the framework for the guidebook (12). The V-HLO self-assessment tool comprises 9 standards and 23 sub-standards (Table 1) and was first piloted in 9 Austrian hospitals. There were several reasons for adopting V-HLO for our framework. Firstly, it offers wide aspect coverage; it expands on the Ten Attributes of Health Literate Organizations (9) and considers the 18 core strategies and 5 standards proposed by WHO for health promoting hospitals (15;16). Secondly, it incorporates health literacy into the comprehensive strategies of health promoting hospitals. Thirdly, by being developed using the International Society for Quality in Healthcare (ISQua) standards (17), it is compatible with quality philosophy and methodology in health care. Lastly, the V-HLO self-assessment tool has concrete and detailed items that can offer principled provisions as well as practical methods for implementation.

Taiwan has been supporting health promoting hospitals for many years now, so the health care organizations in Taiwan are mostly familiar with the concepts and execution strategies of health promoting hospitals. The V-HLO self-assessment tool has been translated into Mandarin and has been already used in a pilot study of 68 hospitals in Taiwan (18). Furthermore, since 2017 Taiwan is also represented in an international working group on Health Promoting Hospitals and Health Literate Organizations of the International Network of Health Promoting Hospitals and Health Services (HPH) which will provide an international version of the V-HLO concept and tool.

Phase 3: Focus-group discussions with health providers

To collect data for developing the examples in the guidebook, three focus-group discussions were conducted with the aim to understand the health literacy practices used by health care organizations in Taiwan. The participants comprised 20 accomplished executives from accredited health promoting hospitals in Taiwan. They were divided according to the level of their organizations: medical center, regional hospital, or community hospital, and therefore formed three focus groups. The topics of the discussions included actual health literacy implementing measures and experiences at their hospitals, which included hospital policies, quality management, environments, documents, software/hardware design, and activities. The analysis of the discussions revealed 167 health literacy implementation measures.

Phase 4: Collecting materials for the examples

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Table 1 The Standards and sub-standards of V-HLO Included in the Guidebook

Standards	Sub-standards
1.Organizational health literacy is integrated into organizational structures, processes, culture and assessment of the health care organization.	1.1 The leadership / management of the organization is committed to monitoring and improving organizational health literacy.
	1.2 The organization accepts health literacy as an organizational responsibility.
	1.3. The organization ensures the quality of organizational health literacy interventions by quality management measurement.
2. The organization involves relevant patient and staff groups by active participation in development and evaluation of specific documents, materials and its services related to promoting organizational health literacy.	2.1. The organization involves patients in the development and evaluation of patient-oriented documents, materials and its services.
	2.2. The organization involves staff in the development and evaluation of staff oriented documents, materials and services.
3. Health literacy is part of staff development. The organization has curricula for basic and continuous staff training in patient communication following principles of health literacy.	3.1. Health literacy is understood as an essential professional competence for all the staff working in the organization. This is confirmed by documents such as job advertisements, staff development plans etc.
4. The organization is designed with features that help people find their way and uses language, symbols and signage that is easy to understand also by users with low levels of (health) literacy.	4.1. The organization enables first contact via website navigation and telephone.
	4.2. The organization provides the information necessary for arrival and hospital stay.
	4.3. Support is available at the main entrances to help patients and visitors.
	4.4. The navigation system of the organization is clear and easy-to-understand.
	4.5. Health information for patients and visitors is available for free.
5. Patient communication follows health literacy best practices.	5.1. Spoken communication with patients is easy-to-understand and act on.
	5.2. Design and distribution of written materials are easy-to-understand and act on.
	5.3. Design and distribution of computer applications and new media are easy-to-understand and act on.
	5.4. Information and communication in native language is offered by specific, trained personnel and material resources.
	5.5. Easy-to-understand and act on communication, also in high-risk situations, is seen as a necessary safety measure.
6. The organization promotes health literacy of patients and their relatives beyond stay in the hospital.	6.1. The organization supports patients in gaining and improving their health literacy with regard to their disease-specific self-management.
	6.2. The organization supports patients in gaining and improving their health literacy with regard to development of more healthy lifestyles.
7. The organization promotes health literacy of staff both with regard to the self-management of occupational health and safety risks and with regard to healthy lifestyles.	7.1. The organization supports staff in developing and improving their own health literacy for self-management of occupational health and safety risks.
	7.2. The organization supports staff in developing and improving their health literacy for healthy lifestyles.
8. When discharged, patients are well informed about their future treatment and recuperation process. The organization is publicly engaged, and collaborates with others to improve population health.	8.1. The organization promotes continuous and integrated care.
	8.2. The organization contributes to the improvement of health literacy of the local population within the realm of its possibilities.
9. The organization actively supports and promotes the implementation of organizational health literacy practices beyond its boundaries in the region.	9.1. The organization supports the dissemination and further development of health literacy in the region and beyond.

Note: The original V-HLO self-assessment tool contained 22 sub-standards (11). The one used in this paper is based on an unpublished manuscript provided by Pelikan JM, and includes an additional sub-standard 1.3, so it has 23 sub-standards in total.

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The above 167 health literacy measures were examined to assess how they corresponded with the V-HLO standards and concern their uniqueness and creativity. Similar measures were regarded as one single measure, therefore resulted in a total of 52 measures to serve as examples. We collected data from hospitals regarding these measures to serve as materials for examples to be included in the guidebook.

Phase 5: Drafting a prototype

The authors drafted a prototype using the V-HLO self-assessment tool as a frame and integrated the example materials.

Phase 6: Usability evaluation

Both qualitative and quantitative methods were adopted to collect user opinions on the prototype of the guidebook. The participants included 23 supervisors or personnel in charge of health promoting hospitals. They belonged to 8 medical centers, 7 regional hospitals, and 8 community hospitals.

The qualitative method involved mailing the guidebook prototype to the participants and having them read the prototype. Then, they gave their feedback and opinions on the wording, content, structure, figure/text configuration, and layout design in the form of revision notes made directly on the guidebook pages.

The quantitative method involved using a structured questionnaire to collect usability evaluations for the prototype. The System Usability Scale (19) was slightly revised to fit the context of this study. The questionnaire items included effectiveness, efficiency, and satisfaction responses with regard to the guidebook, and used a five-point scale ranging from "strongly agree" to "strongly disagree." The questionnaire contained 10 items and had a Cronbach's α of 0.86 for internal consistency reliability. The sum score ranged from 0 to 100, and scores less than 50, 50 to 70, and 70 or higher mean "not acceptable," "marginal," and "acceptable," respectively (20).

Phase 7: Completion

The authors revised the guidebook based on the usability feedback from the users, and then completed the final version.

Results

Guidebook description

The *Practical Guidebook for Health Literate Organizations* (21) contains 10 chapters in all. Chapter 1 introduces the background of health literacy and V-HLO. Chapters 2 to 10 explain the 9 standards of V-HLO. One sub-standard forms one unit, and each unit contains sessions of rationale, items, glossary, and examples (Table 2).

There are two appendices in this guidebook. Appendix 1 presents the V-HLO Self-Assessment Tool. When organizations create a health literacy improvement plan, they can firstly use the self-assessment tool to understand their actual performance in the various standards and then identify which goals are priorities. Appendix 2 presents the web addresses of health literacy resources that readers can use to find more resources on implementing health literacy improvement measures.

Usability evaluation

Table 3 displays the quantitative usability evaluation results. The average sum score of the usability scale was 79.02 (SD = 12.24), which indicates that the usability of the guidebook is acceptable (score ≥ 70) (19). The adjective ratings fall between good (score = 73) and excellent (score = 85) (20). The items that received higher scores involved usefulness, confident

Table 2. Brief description of each unit (sub-standard) in the guidebook

Sessions	Description
Rationale	Explains the objectives and connotations of the sub-standard, its relation to health literacy, and its importance.
Items	Introduces the items under the sub-standard, of which there are 141 in total in the guidebook.
Glossary	Explains important terms to give readers a more precise understanding of the meaning of the text.
Examples	Actual examples that can demonstrate the sub-standard. Aside from describing the methods, each example clearly indicates the items that are included to help readers understand why the example demonstrates health literacy practices and where it fits into the V-HLO framework. This guidebook contains a total of 52 examples, all of which were actual experiences of health care organizations in Taiwan. They are practical and feasible as well as creative; readers can find inspiration and develop more ideas from these examples for their own context.

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recommendation to other medical personnel, be willing to use this guidebook in their work, and ease of use. The items that received lower scores involved cumbersomeness, complexity, and the necessity of learning other information before usage.

Discussion

This paper describes the development process of the Practical Guidebook for Health Literate Organizations and presents the user evaluation results. The V-HLO served as the theoretical foundation of this guidebook. Abundant examples were included in the guidebook to make it more practical and inspirable. Moreover, the examples all come from health care organizations in Taiwan and are suitable for local medical environments and culture, which increases the applicability of this guidebook.

Table 3 The result of quantitative usability evaluation (n = 23)

Items	Mean[a]	SD
1. I think I would like to use this guidebook in my work.	4.48	0.59
2. I found this guidebook unnecessarily complex.[b]	3.91	0.79
3. I thought this guidebook was easy to use.	4.30	0.64
4. I think I would need assistance in using this guidebook.[b]	4.09	0.60
5. I found this guidebook to be useful.	4.57	0.59
6. I thought there were too many inconsistencies in this guidebook.[b]	4.00	0.60
7. I believe that other medical personnel will learn to use this guidebook very quickly.	4.13	0.92
8. I found the guidebook cumbersome to use.[b]	3.65	0.98
9. I felt very confident recommending this guidebook to other medical personnel.	4.52	0.59
10. I needed to learn some things before I could get going with this guidebook.[b]	3.96	0.88
Sum (0-100)[c]	79.02	12.24

[a] All items are scored 1 to 5.
[b] A negatively worded question; the scores for these items have already been converted.
[c] The sum scores were calculated as done by Brooke (1996) (19).

Participatory approaches are crucial for health literacy and can ensure that the information and services, which are developed, can meet the needs of the target audiences. The development process of this guidebook made full use of user participation. Focus-group discussions with health providers, actual examples from organizations, and user evaluation were all different participatory approaches. This is possibly the reason why users felt that this guidebook was beneficial and easy to use and why they would be confident in using it.

The user evaluation results also revealed that users found that the guidebook was a little unnecessarily complex and required prior knowledge to be understood. We speculate that this may be because health literacy is a relatively abstract concept. Furthermore, the V-HLO has a very comprehensive framework, which possibly makes it a little difficult for users to fully grasp it in a short amount of time. After hearing these opinions, the authors made some revisions. We replaced some of the more abstruse language with plain language, added necessary terms to the glossary to make them easier to understand, changed the layout, and added more figures to aid understanding.

Basically, the V-HLO is suitable for any type of health care organization from community hospitals to medical centers. However, the complexity of the environment and the situations that may be encountered may vary with the level and scale of the hospital. Medical centers and regional hospitals face greater scale, complexity, and involved aspects, so they are comprehensively suitable for the V-HLO. They also have more resources, which makes it easier for them to reach various standards. In contrast, community hospitals are smaller in scale. Some standards or items may not seem necessary to them or may be more difficult to meet (e.g., offering foreign language translation). Thus, multiple versions of the guidebook, tailored to hospitals on different scales, would meet hospitals' needs even more.

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For future research, we suggest that researchers can follow medical personnel who have been using this guidebook in order to observe the actual influence of the guidebook on their implementation of organizational health literacy. We also suggest that different versions of the guidebook could be developed for hospitals on different scales, and that it should be expanded to primary health care clinics.

In practice, we recommend this guidebook for self-assessment of organizational health literacy in health care services and as educational training material for medical personnel. In fact, the Health Promotion Administration under the Ministry of Health and Welfare in Taiwan has already held two health literacy training courses for medical personnel using this guidebook as the primary learning material, and received trainee's positive responses and training effects. In the future, the standards and items used in this guidebook can serve as references for rating of organizational health literacy standards for hospital accreditation or certification.

Authorship Credit

MHW: Conception and design, data collection and analysis, drafting, revising and final approving of the article.
MCC: Assistance in data collection.
JGH: Assistance in data collection.
JMP: Advice on V-HLO framework andrevising the article.
YWW: Conception, team coordination and guidance.

Permissions

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Conflicts of interests

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Health Literate Organizations: A Synoptic Overview and Experiences from Taiwan

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Abstract

Introduction Health literate organizations have been regarded as important to supply individuals with all information corresponding to their health literacy in an easy-to-understand way. However, research related to institutional health literacy remains limited. Our article aimed to conduct a synoptic overview of the existing literature to better understand the evidence concerning the characteristics and influencing factors about health literate organizations.

Methods We searched the databases of MEDLINE (January 1966 - May 2019), Web of Science (1992 – 2019) and the Cochrane Library Database for information on health literate organizations. Materials were selected by two review authors independently. Quality and extracted data also assessed by the authors.

Results Although the experience of promoting health literate organizations was positive, the efficacy of the instructions has yet to be verified. Studies indicated that health literate organizations regarded as necessary for establishing strong social accountability at medical care institutions. Regardless, to increase the efficacy of clinical care, medical care institutions should create a health literacy-friendly environment able to cultivate good relationships with patients. In Taiwan, the Health Promotion Administration had built policies for the development of health literate organizations since 2015. More than 80% of medical care institutions already had health literacy plans. From the results of accreditation in 2017, hospitals containing 500 beds or more reported higher scores than smaller hospitals for standards regarding providing a supportive environment.

Discussion Health literate organizations can enhance the effectiveness and quality of health care and reduce health inequalities. Experience from Taiwan can be used as a reference by other countries to develop the policy to promote health literate organizations.

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Introduction

Insufficient health literacy can significantly affect an individual's degree of health-related understanding, method of treatment, and appropriate treatment propagation, thereby affecting their health status (1). Many studies have reported that insufficient health literacy affects individuals' health behaviors (2;3), which in turn increases medical care-associated expenses (4). Studies have also indicated that improving health literacy is essential for achieving health goals (5). However, although increases in personal health literacy can effectively decrease health inequalities, achieving precise and definite benefits in actual practice relies on a combination of different factors, including policy, education, and social class mobility; further, the costs and time required for medical care cannot be immediately determined.

The direction of health literacy-related promotion in the medical care field is beginning to shift. Health policies no longer place emphasis only on increasing personal health literacy, but on increasing the health literacy of healthcare providers and friendly service at care institutions. To achieve health goals, the US national health policy "Healthy People 2010" highlighted the need for medical institutions and personnel able to provide services conforming to health literacy (6). The "Healthy People 2010 Final Report," published in 2012, further emphasized the new goal for health literacy in medical care: for healthcare providers to supply individuals with all information corresponding to their health literacy in an easy-to-understand way (7).

In 2012, the round table on health literacy by the US Institute of Medicine first proposed the concept of "health literate

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organizations," indicating organizations that allow individuals to more easily seek, understand, and utilize health information and services (8). However, research related to institutional health literacy environments and the ability of medical care providers to provide health literate communication remains limited (9). This study thus aimed to conduct a synoptic overview of the existing literature to better understand the evidence concerning the characteristics of medical institutions, health literate environments, health care providers' health literacy service abilities, and individuals' health literacy levels.

Method

We searched the databases of MEDLINE (January 1966 - May 2019), Web of Science (1992 – 2019) and the Cochrane Library Database for information on health literate organizations. The search strategy included the use of terms such as health literate organizations, organizational health literacy, health literate health services, and combined search terms with health literacy and organizations. Related articles and references were also hand searched. Our inclusion criteria were articles with a bright observational design, and any types of studies, interventions, and outcome measures in English included. Materials were selected by two review authors independently. Quality and extracted data also assessed by the authors.

Effects of health literate organizations on health care

Health literacy interventions can effectively increase the efficacy of medical services if they are conducted at the level of the institutional health literate environment. Fumagalli et al. conducted an intervention to improve individuals' understanding of medical decisions, enhance their motivation to engage in decision-making, and endow them with the right to make medical decisions, resulting in easier decision-making regarding their medical options (10). In fact, changes in communication methods not only strengthen patients' understanding, but are also more likely to create the environment and conditions necessary for patients to make decisions, thereby allowing them to feel the potential for change via the empowerment model and to proceed in the correct direction. Ernstmann et al. also confirmed this concept through a study on cancer patients treated at medical facilities (11). Hung et al., in a study specific to patients with type 2 diabetes, conducted an intervention regarding hospital policies to strengthen the communication model of health literacy, utilizing graphics in communication to improve health education methods. As a result, all intervention participants demonstrated significant improvements in glycated hemoglobin, fasting blood sugar, and post-prandial blood sugar levels (12). Another study on patients hospitalized for heart disease, which applied integrated health literacy interventions at the hospital level by pharmacists verifying drugs, found that altering health education methods and observational feedback on health behavior during hospitalization effectively decreased patients' readmission rates (13).

Health literate organizations have been regarded as important for establishing strong social accountability at medical care institutions. First, they not only emphasize the biological determinants of disease but also pay more considerable attention to personal health needs, and they use the patient-centered care method to provide patients with more support, increasing their satisfaction. Second, they allow medical care providers to establish more comfortable, reliable communication with patients, in turn achieving better health results and even decreasing staff turnover owing to low work satisfaction. Overall, if medical institutions can improve health literacy service abilities, they can overcome health inequalities caused by social factors, as in a study by Tavakoly Sany et al. that attempted to enhance interactive communication methods with mothers of low socioeconomic status and showed that the health status of these mothers' children was indeed increased (14).

The current promotion of health literate organizations

The "Healthy People 2010 Final Report" emphasized that medical care providers must use easy-to-understand communication methods to provide individuals with medical information related to their health literacy. However, current research on health literacy remains focused on factors influencing patients' health literacy, with few mentions of the current status of health literacy services at medical care institutions. Since establishment of the "health literate organization" concept in 2012, the number of studies concerning institutional health literacy environments has increased; however, most of these have focused on the design and establishment of a structure for friendly service at medical care institutions. Discussion of the current status of promotion of health literate organizations and the efficacy of implementation remains limited (15;16).

Farmanova et al. conducted a study in Ontario, Canada, and reported that although 20% of the people

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in the region spoke primarily French when seeking medical attention, only a few hospitals were able to guarantee accessible and comprehensive services in French. The 12 care institutions that participated in the investigation achieved a mean score of only 77 out of 100 points during evaluation (17). Another study conducted in the same province used a questionnaire to evaluate whether hospitals in the region could provide discharge preparation services conforming to health literacy; only 46% of the evaluated hospitals could (18).

Medical care institutions encounter several obstacles in providing health literate care services. A notable example is lack of vision for or understanding of health literacy services, along with corresponding determination from leadership; others include lack of transformation and innovative culture, and so forth (16). Regardless, to increase the efficacy of clinical care, medical care institutions should establish a health literacy-friendly environment able to cultivate good relationships with patients (19).

Brown et al. reported that approximately one-third of all medical care providers are unclear about the concepts related to health literacy and do not understand the potential effects of health literacy on patient care (20). Lukoschek et al. interviewed doctors and visiting patients to assess discrepancies in their understanding of the information communicated during the visiting process. The results revealed only 59% mutual understanding of the delivered content between doctor and patient. Even more prominent discrepancies in understanding were observed in as many as 23% of cases (21). Overall, doctors are likely to overestimate patients' health literacy, resulting in misunderstanding of the communicated content (22). Another study conducted on pediatric doctors found that approximately 50% were unable to recognize misunderstanding during medical communication with a patient (23).

In studies of medical care providers' health literacy knowledge and abilities, many existing problems that require urgent solutions were identified. Rajah et al. specifically investigated the health literacy of doctors, pharmacists, and nurses in hospitals through interviews and found that 34.2% had inadequate health literacy knowledge (24). In an investigation of pediatric doctors in the US, Turner et al. found that only 20% could achieve teaching responses and provide easy-to-read materials (23). This ratio was even lower for plastic surgeons, among whom only 8.1% used teaching response techniques during the health education process (22). Of particular note, approximately 50% of interviewed medical care providers held a negative opinion of health literacy (24); this result should be reflected in terms of promotional policies regarding health literacy care in hospitals as well as the availability of educative training and other resources to assist medical care providers.

Factors influencing institutional development of health literacy-friendly environments

Health literacy is traditionally regarded as a personal-level characteristic involving patients' capacity to obtain, process, and understand health information so as to improve their personal health status. Therefore, focus on health literate environments at the organizational or institutional level is low, and may explain the scarcity of studies exploring how medical care institutions can effectively satisfy the health requirements of people with different levels of health literacy. Discussion of the factors influencing institutional health literate environments is similarly limited. In 2016, Palumbo conducted a systematic literature review of 69 studies on health literate care institutions and reported that the majority discussed only the medical care institutions' use of different tools to satisfy the "communication needs" of patients with low health literacy (9). In a 2018 retrospective study involving 48 studies on institutional health literacy, Farmanova et al. reported that only 15 studies mentioned an institutional health literacy theory and practice structure; 20 proposed specifications to act as guidelines for implementation of institutional health literacy, and 13 utilized the guidelines' content for interventions to promote institutional health literacy. However, although the experience of their use was positive, the efficacy of the instructions has yet to be verified; further, no evidence of clinical effectiveness has been reported.

The information provided by these retrospective studies indicates that most interventions implemented by institutions to promote health literacy directly apply the theoretical framework or use methods that are considered empirically adequate, and thus the effectiveness of the interventions has not been verified. Naturally, studies related to influencing factors cannot be conducted; in other words, how to further advance the development of institutional health literacy and establish a secure empirical connection between vision and actual implementation remains a topic for future study.

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Existing studies on the health literacy service abilities of medical care providers indicate that age, profession, and health literacy educational training are important influencing factors. A study published by Rajah et al. in 2017, which explored health literacy service abilities in doctors, nurses, and pharmacists, reported that age and years of professional experience were both essential contributing factors; professional medical care providers who were over 40 years old and had more than 10 years of professional experience were reported to have significantly better health literacy service abilities than those under 40 years old and having less than 10 years of experience (24). Coleman et al. reported similar results with doctors as their study subjects; those with more than 3.5 years of experience reportedly had better health literacy service abilities than those with less (25).

Health literacy educational training is also an important influencing factor. Even if a medical provider's professional education involved communication skills, the benefits of health literacy training could directly reflect on health literacy techniques used during communication with patients (26). Other characteristics of medical care providers, such as sex or race, were not shown to significantly influence their health literacy service abilities (24;25).

Developing health literate organizations in Taiwan

Starting in 2015, Taiwan's Health Promotion Administration conducted a four-year health literate organization project that included an investigation of health literacy among both patients and health care providers (27); this project marked the beginning of Taiwan's health literate organization development. The study investigated 100 institutions, including 12 medical centers, 52 regional hospitals, 30 local hospitals, and 6 health centers and other institutions, 50% of which were public and the other 50% private. The results indicated that over 75.9% of the institutions possessed health literacy promotion teams, and 80.5%-89.7% had health literacy plans. Significant differences between the various levels of medical institutions were investigated with respect to the following indices: "Human resources and information equipment," "Clear guidelines and mobile convenience in guiding personnel," and "Friendly behavior and effective communicative skills." In 2017, 90 hospitals that participated in the Health Promoting Hospital accreditation program were recruited to participate in a self-assessment exercise. Overall, 68 hospitals completed the self-assessment questionnaire. Among all hospital characteristics, number of beds was the only item to be significantly associated with the Vienna Health Literate Organizations Instrument (V-HLO-I) self-assessment score. Bigger hospitals, such as those containing 500 beds, reported higher scores than smaller hospitals for standards regarding providing a supportive environment.

Conclusion

Previous studies have revealed that health literate organizations can enhance the effectiveness and quality of health care and reduce health inequalities. Promotion of health literate organizations in Taiwan has been implemented from the government level, and accreditation criteria have been developed for health literate organizations. This experience can be used as a reference by other countries to develop health literate organizations.

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An Integrative Model of Health Promoting Hospitals in Taiwan

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The health system in Taiwan faces compounding challenges from the increasing prevalence of non-communicable diseases, quickly aging population, less-than-healthy healthcare workers, and energy shortages. Hospitals are a suitable setting to implement health promotion for patients, staff and surrounding communities, and to create low-carbon environments. The hospitals have a high access to patients, they consumed 45.6% of the health expenditure budget in 2017; 20.9% for inpatient and 24.7% for outpatient services (1) and they have a relatively high use of imported energy; i.e.14.9% of energy consumption among non-manufacturing industries in 2017 (2).

The certification of management systems is a strategy for improving quality of care through health organization structures and service delivery practices. To ensure the implementation of health promotion in hospitals, Taiwan's Health Promotion Administration (HPA) has instituted a series of health promotion certifications in hospitals, including HPH since 2007, environment-friendly healthcare since 2010, and age-friendly healthcare and smoking-free healthcare since 2011 (3). However, the certifications contained duplication and overlapping. Furthermore, certification/accreditation could constitute significant paperwork for hospital staffs (4), but a review revealed that the benefits of an integrated approach outweighed those of individual management systems operating separately (5).

To address this, Taiwan's HPA launched an integrative certification model and proposed seven standard and 46 substandard self-assessment tools for certification integration of HPH (iHPH hereafter) at the end of 2016. A self-assessment form have shown to be a useful instrument for standardizing health promotions in hospitals (6;7). Accordingly, the HPA developed the iHPH self-assessment through expert validity tests, feedback from expert opinion surveys, expert consensus workshops, and satisfaction surveys in the hospitals that participated in a pilot certification process using the new tool (8). The iHPH standards include seven domains (Table 1); policy and leadership, patient assessment, patient information and intervention, healthy workplace and capacity for clinical health promotion (CHP), implementation and monitoring, age-friendly healthcare, and environment-friendly healthcare. The iHPH self-assessment tool refers to the draft of updated HPH standards (9), the WHO HPH standards (10), the Tobacco Free Healthcare Services standards (11), and Age-Friendly Health Care (12;13). The iHPH standards further highlighted aspects of shared decision making as advocated by the New Haven Recommendations (14) and organizational health literacy (15).

The integrative HPH certification has prompted hospitals to extend cross-disciplinary teams, integrate relevant HP task forces, and request more attention and support from high-level managers (16). By the end of 2018, 184 of 477 hospitals had received iHPH certificates, including 22 medical centers, 83 regional hospitals, and 79 district hospitals. Figure 1 compares the standardized scores of the seven standards among the 184 iHPH certificated hospitals by hospital

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level. Medical centers had the highest compliance scores and district hospitals had the lowest scores in all seven standards. Regardless of hospital levels, the iHPH-certified hospitals had the highest compliance scores in the environment-friendliness domain. Medical centers and district hospitals had lowest scores in patient assessment; and regional hospitals had lowest scores in healthy workplace and capacity for CHP. To sustain the momentum of health promotion in hospitals, Taiwan's HPA also subsidized 90 iHPH-certified hospitals in early 2019 to implement age-friendly healthcare, health literacy, climate-smart hospitals, or other health promotion issues related to the themes included in the 27th International Conferences of Health Promoting Hospitals and Health Services (17).

Conclusion

The integrative certification model, facilitated with an iHPH self-assessment tool, created an extensive cross-disciplinary platform for hospitals to coordinate relevant health promotion tasks. The integrative model combines health of patients and staff, age-friendliness, and environment-friendliness to be a sustainable strategy for hospitals to implement health promotion in a world of multi-faceted challenges.

Table 1. iHPH standards and sub-standards in Taiwan

Standards and Sub-Standards
Standard 1: Policy and Leadership
1.1.1 The hospital has a CHP policy that encompasses patients, family members, communities, and staff.
1.1.2 Hospital staff are involved in the formulation, auditing, and review of the policy.
1.1.3 The hospital includes CHP in its current quality and management plans.
1.1.4 The hospital prohibits the acceptance of donations and/or sponsorships from tobacco vendors and the sales of tobacco or e-cigarette products.
1.2.1 Hospital executives value the health plans and demands of the surrounding communities and are involved in interdepartmental and intradepartmental collaboration projects.
1.2.2 The hospital can provide a roster of health and social care resources and partners.
1.2.3 The hospital has written cooperation plans with its healthcare partners to improve the continuity of patient care.
Standard 2:Patient Assessment
2.1.1 The hospital has clinical guidelines and procedures to identify the smoking/betel nut consumption/alcohol consumption history, activity level, nutritional status, and psycho-socioeconomic status of patients on first admission or visit. These guidelines or procedures are implemented and reviewed/amended annually.
2.1.2 The assessment of patients' health promotion needs is written into their medical records.
2.1.3 Patients' sociocultural preferences are detailed in their medical records to facilitate the provision of specialized care.
2.1.4 Patients' referring physicians or other relevant sources are detailed in their medical records.
2.2.1 The hospital has clinical guidelines or procedures for reassessing patients' health promotion needs at discharge or at the end of clinical intervention. These guidelines or procedures are reviewed/amended, and improvement measures are implemented annually.
Standard 3:Patient Information and Intervention
3.1.1 General health information and information concerning high-risk diseases are provided to the patient.
3.1.2 Information of patients' self-supporting organizations is available.
3.1.3 Work protocols (procedures and guidelines) developed by multidisciplinary teams (MDT) are in place.
3.1.4 The hospital has clinical guidelines or procedures for providing information, suggestions, and preliminary intervention services or measures for particular health issues (e.g., smoking, betel nut consumption, alcohol consumption, physical activity, nutrition, and psycho-socio-economic problems). These guidelines or procedures are reviewed/amended, and improvement measures are implemented annually.
3.1.5 The health promotion information and services provided to patients are documented in their medical records.
3.1.6 The health promotion activities, intervention services, rehabilitation/follow-up treatment provided to patients, and the expected outcomes and evaluations are documented in their medical records.
3.1.7 The hospital promotes a shared decision making plan and provides a favorable communication environment for patients and their family members to obtain information, thereby fostering their ability and safeguarding their right to make decisions concerning care services.

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3.2.1 The hospital has clinical guidelines or procedures for the provision of intensive intervention services, rehabilitation, or treatment for particular issues (e.g., smoking, betel nut consumption, alcohol consumption, physical activity, nutrition, and psycho-socio-economic). These guidelines or procedures are reviewed/amended, and improvement measures are implemented annually.

3.2.2 Patients (or their family members) are provided with easy-to-understand follow-up advice at out patient visits, referrals, or discharge.

3.2.3 The receiving hospital promptly provides patients with written summaries concerning their conditions, health needs, and intervention and clearly defines its role and the roles of its partners in their medical records (e.g., rehabilitation plan).

3.2.4 The hospital has a health literacy promoting plan that aims to help patients obtain, comprehend, and apply information and services to improve their health and the provision of care.

Standard 4: Promoting a Healthy Workplace and Ensuring Capacity for CHP

4.1.1 Staff comply with health and safety requirements and all risk factors in the workplace are identified.

4.1.2 Staff have health promotion options, such as smoking cessation, betel nut cessation, alcohol abstinence, nutrition, vaccinations, mental health in the workplace, and physical activities.

4.1.3 Annual staff surveys are conducted. Survey content should encompass assessments on personal health, understanding of relevant services and policies, and utilization of health promotion activities.

4.2.1 Staff are offered CHP training and professional development programs.

Standard 5: Implementation and Monitoring

5.1.1 The hospital has designated staff member(s) responsible for coordinating health promotion activities.

5.1.2 The hospital has a budget for funding health promotion services.

5.1.3 The hospital has space or facilities (i.e., resources, space, and equipment) to accommodate health promotion.

5.1.4 The hospital includes health promotion services in its operating procedures (e.g., clinical guidelines or pathways) and makes them available to all clinical departments.

5.2.1 The hospital routinely collects health promotion intervention information and makes it available to staff for evaluation.

5.2.2 The hospital has a quality control protocol for organizing health promotion activities.

5.2.3 The hospital is involved in the research and development of health promotion.

5.2.4 The hospital performs satisfaction surveys on the information it provides to its patients and uses the feedback to improve its quality management system.

Standard 6: Age-Friendly Healthcare

6.1.1 Accessible facilities are available for people with mobility restrictions.

6.1.2 Environments adopt universal designs.

6.1.3 A healthy environment which takes into account the physical and mental impairments of elderly patients.

6.2.1 The administrative procedures are adjusted to take into account of the special needs of the elderly (patients or family members)

6.2.2 A favorable communication environment is established so that elderly patients and relatives can obtain information, thereby ensuring that older adults have the ability and the right to make their own medical decisions.

6.2.3 Assistance is provided to elders with financial difficulties, or make referrals so that elders (patients and family members) can receive suitable medical/care records and follow-up services.

6.2.4 A volunteer plan is available and effectively implemented to assist elders.

Standard 7: Environment-Friendly Healthcare

7.1.1 Plans and records on annual energy and water conservation are available.

7.1.2 Plans and records on annual medical waste reduction are available.

7.1.3 Plans and records on annual green procurement are available.

7.1.4 Periodically reviews the progress and proposes improvement plans.

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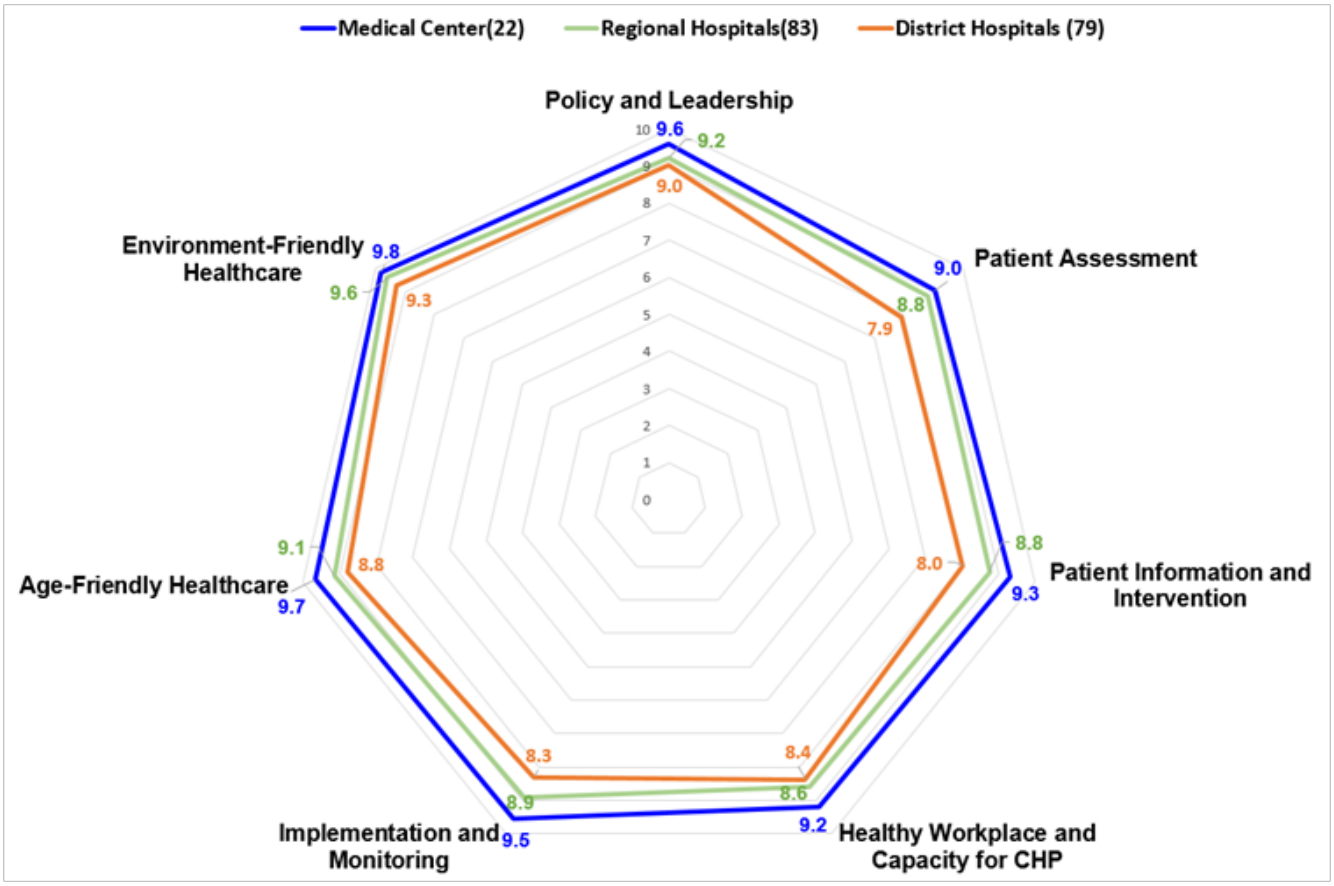
Figure 1. Radial plot graph of the standard compliance among iHPHs by hospital level



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Research and Best Pratice

Health Promotion Initiative in Long-Term Care Facilities for People with Disabilities

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Abstract

The settings approach to health promotion consists of analyzing factors that affect health, effectively evaluating personal health skills, strengthening the health motive of care facilities, and establishing a healthy supporting environment. With the establishment of health promotion policies and promotional plans, these can particularly promote the health of people with disabilities. This study took the example of Taiwan's first long-term care facility for people with disabilities, which has joined the WHO Network of Health Promoting Hospitals and Health Service, and analyzed in particular its health promotion initiatives. We hope that this study will be used as a reference for groups dedicated to raising the quality of life and human rights of people with disabilities.

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Introduction

Health is a basic human right. Every country should attempt to accommodate its citizens' basic health requirements irrespective of their color, race, place of residence, economic status, or whether or not they are disabled. The tenth additional article in the constitution of the Republic of China states that "The State shall guarantee insurance, medical care, obstacle-free environments, education and training, vocational guidance, and support and assistance in everyday life for physically and mentally handicapped people and shall also assist them to attain independence and to develop." (1). Because of their congenital or acquired physical or mental defects, people with disabilities have higher prevalence rates for disease compared with general people, leading to premature aging and risk of secondary obstacles. Therefore, higher medical needs and health costs are implied for this population (2;3). Establishing a healthy, safe, and lively long-term care facility for people with disabilities is an effective health promotion initiative strategy (4;5). With the settings approach to health promotion, analyzing factors that affect health, evaluating personal health skills, strengthening the health motive of care facilities, and establishing a healthy supporting environment, as well as health promotion policies and promotional plans, can particularly promote the health of people with disabilities. The decision of Taiwan's first long-term care facility for people with disabilities to join the WHO Network of Health Promoting Hospitals and Health Services was used as an example in this study. Furthermore, the progress on health promotion initiatives was analyzed.

Health promotion approach

The Chunhui Center for persons with intellectual disabilities was established in 1984 by the Chung-Hua Foundation for persons with intellectual disabilities. In the spirit of God-given human rights, this center advocates for people with intellectual disabilities to enjoy equal citizen participation rights within society and fit in at workplaces and in the society. This center has been dedicated to the education, training, and counseling of adults with intellectual disabilities and provides them with professional skills training as well as offers consultation on their employment, advocating for their enjoyment of a healthy life in the society. Presently, the center is serving and caring for 42 day-time persons and 137 whole-day persons, with 63% of them being severely or extremely severely disabled, 83% of them having been admitted for

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over 10 years, and over 28% of them being aged 45 years or above. With the health facility's building plan, it is hoped that these persons will be able to maintain their self-reliance and self-care capacities, healthy aging, prevent and delay total disability.

Since 2007, the Chunhui Center for persons with intellectual disabilities began to systemically promote the establishment of health facilities and officially joined the WHO Network of Health Promoting Hospitals and Health Services in 2016, becoming Taiwan's first and only member of the network as a welfare institution for the physically and mentally disabled. The course for its establishment of health promoting facilities include establishing a health promotion organization, nutrition education program, oral health care, healthy fitness plan, rehabilitation and occupational therapy service, and to initiate healthy aging plan, and they will be elaborated as described in the following.

Establishing the "Health promotion initiative committee"

In 2007, the center began conducting discussions on the concept of health promotion for the staff members, providing explanation and communication of concepts during parental group meetings, and designed a health management booklet for the Chunhui Center for persons with intellectual disabilities. They also began collecting and analyzing basic health data of the disabled. The center is serving and determined the priority order of intervention based on implementation difficulty, and has continuously promoted health plans on an annual basis.

Nutritional heath education

Before the center established the health facility for the mentally challenged, it had been conducting nutritional health educational classes for many years. However, the efficacy outcome was not apparent, so the health promotion initiative group decided to intervene. They instilled healthy dietary concepts in people with intellectual disabilities using images, videos, and actual pastry making and changed the kitchen's oil usage amount, providing dietary information, such as using less oil, less sodium, and more vegetables.

Oral health care

Since 2007, the center has been promoting teeth cleaning exercises to teach the importance of teeth cleaning and taught the severely and extremely severe intellectually disabled to brush their own teeth in a stepwise manner. In 2008, two dentists were introduced to the facility to perform dental procedures, and the people with intellectual disabilities presently receive around two teeth cleaning and oral health check services annually. To overcome the resistance among people with intellectual disabilities to visit the dentist, beginning in 2012, an annual tooth cleaning competition is held to continuously strengthen the patients' independent oral health care ability.

Healthy fitness plan

Fitness has always been one of the most valued classes since the establishment of the institution. In 2009, fitness course materials designed by the Ministry of Education for special education high school development was introduced, which included exercises for cardiopulmonary endurance, muscular endurance, flexibility and stretch, etc. Individuals with intellectual disabilities were taught to be more effective to reach an exercising intensity, and a "standardized fitness examination for the people with intellectual disabilities" was developed to assess the efficacy of the intervention of the fitness exercises. Modifications were made to the content of the fitness classes based on the examinations to help them increase their fitness and protect their health.

Rehabilitation and occupational therapy

In 2010, professional staff of the rehabilitation department of the local hospital (Enchu Kong Hospital) signed a cooperative agreement accepting the center to recruit rehabilitation doctors, physical therapists, and occupational therapists and perform rehabilitative evaluation of the patients. Rehabilitative treatment courses were then conducted, and approximately 50 patients were enrolled into this plan after evaluation. Through the assistance of medical professionalism, the disabled promoted the body and living functions, decreased their reliance on the caregivers, and increased and maintained their independent ability. Since 2013, it had progressively developed into rehabilitative motions operated in the spaces of daily life, summarized to be the "functional teaching." Using the concept of rehabilitation, the disabled were counseled on and fixed their daily living functions, to improve their quality of life.

Healthy aging plan

As the disabled grow older, in 2016, the healthy aging plan was initiated and was conducted on their aged 45 years or above (the age of premature aging for people with intellectual disabilities). Classes such as nutrition supply design, leisure gardening, pressure relief massage, lively fitness, festival holidays, etc. were

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initiated under the guidance of the health promotion care facility to allow the middle-aged and elderly persons to age healthily and maintain healthy human rights.

Conclusion

In 2016, the Chunhui Center for persons with intellectual disabilities began promoting a comprehensive health promotion initiative plan, particularly in the previous 10 years, and applied for certification to be a "healthcare facility" in April 2016. Under the instructions of the Taiwan Society of Health Promoting Hospitals, the implementation results were analyzed on all aspects, including health management policies, client' information assessment, health information access and intervention, promotion of a healthy work environment for the work staff, and continuous commitment of the competent authority to maintain working-partnership relationships with the clients' family members, etc. The center received the accreditation site review in May 2016, and in addition to presenting the past implementation results, the center promised to continuously promote the healthy aging of the elders, lively healthy aerobic exercises, and establishment of a no-smoking environment. After instructions and evaluation by the site review specialist, the HPH accreditation was passed, allowing the center to be Taiwan's first long-term disability facility to be certified by the WHO Network of Health Promoting Hospitals and Health Services. It is our hope that the Taiwan Society of Health Promoting Hospitals can continuously communicate with the network to persevere in promotion and growth.

Through this article's description of the experience of the Chunhui Center for persons with intellectual disabilities in promoting healthy facility creation in Taiwan's field of service for people with disabilities, we hope that this study becomes a reference for groups dedicated to raising the quality of life and human rights of people with intellectual disabilities.

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