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A Review of Patient Safety in Thailand and Malaysia

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This review explores the significance of patient safety in the two ASEAN nations of Thailand and Malaysia. It discusses the implications of upholding patient safety in the context of health care and also for developing medical tourism in both the countries. The relevance of human factors in patient safety is examined from the multi-level perspective of individuals, teams and organizations, and the overall health care systems. The article examines the research work in patient safety; with a discussion about the indigenous researches from both the countries. Further research areas are recommended that maybe of importance to both health care practitioners and researchers.

Keywords: patient safety research in Thailand and Malaysia, human factors in patient safety, indigenous research in patient safety

Patient safety is a critical component of the quality in health care (Chen & Li, 2010; Sherwood & Zomorodi, 2014), and has been identified an important goal by the World Health Organization (World Health Organization [WHO], 2014) since 2004 when the WHO launched the patient safety program. The need for upholding patient safety in medical care has gained increasing significance over the last decade (Brickell & McLean, 2011); however there is a gap in knowledge about the implementation of patient safety and related research in the developing countries (Carpenter et al., 2010).

As concern for high quality medical care becomes of strategic importance globally, it becomes imperative to understand the concept of patient safety. This concept has immense significance from several perspectives- at the core being the patients and their families (Brickell & McLean, 2011; Schwappach, 2010); next being the health care providers and administrators (Sammer, Lykens, Singh, et al. (2010); and from the perspective of nations which have embraced the goal of quality healthcare. Espousing the goal of patient safety as a national policy has gained momentum with medical tourism being promoted as a measure of economic development in a nation. Thailand and Malaysia are the focus of this article's appraisal and both these countries have embraced patient safety (Supachutikul, 2008; Abd Hamid, 2012) as a measure of public health strategy, and more so with the proliferation of medical tourism as national economic development goal. The authors of this article aim to share the insights from both countries about the situation of patient safety in Thailand and Malaysia, discuss the meaning of patient safety and the human factors associated with it, the indigenous research in both the countries, and the future areas of research (the flowchart of information is shown in figure 1).

The Context

This article begins with a review of the current status of patient safety in the context of medical care provided in Thailand and Malaysia. Both these countries are member of

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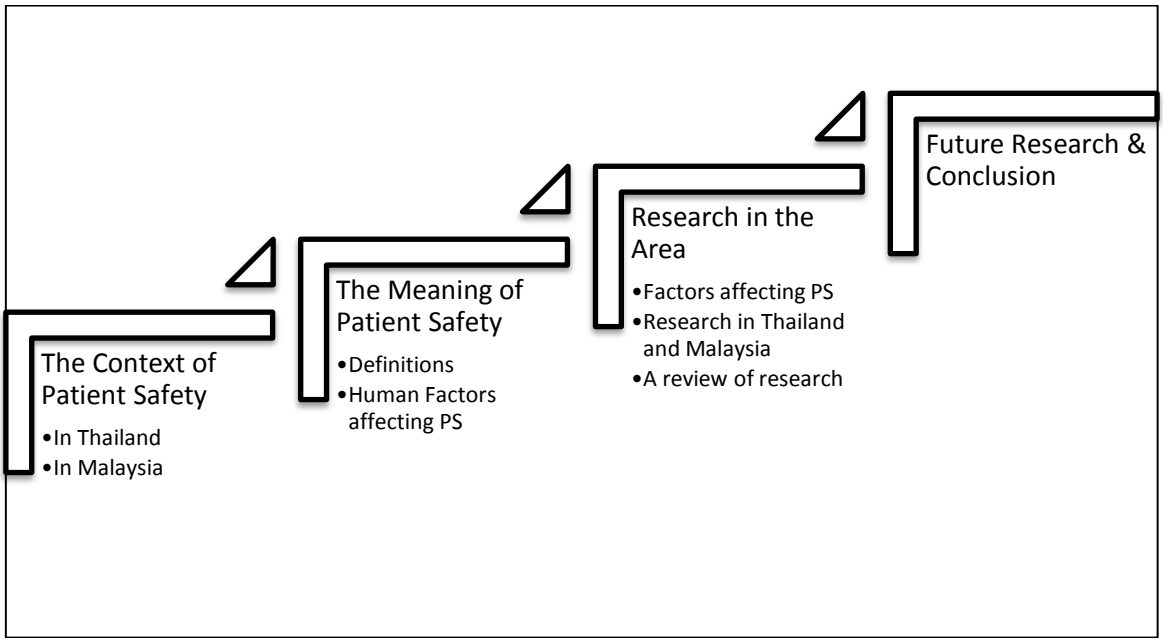

Figure 1. The Flow chart of the overview of Patient Safety.

ASEAN or the Association of Southeast Asian Nations which is gearing up to the goal of "ASEAN Economic Community" (AEC) coming into existence at the end of 2015 (ASEAN annual report, 2008). This heralds a deeper integration of health services and trade in health services is likely, especially since the health sector is one of the identified priority areas under the ASEAN Framework Agreement on Services (or the AFAS) (Thanh & Bartlett, 2006).

Situation of Patient Safety in Thailand

In Thailand the government has clear strategic goals to ensure patient safety and quality in the medical care that is provided. Furthermore, as noted by Mugrditchian (2009), in the South East Asia, there was consensus that accreditation offer a means to introduce patient safety goals into health care facilities in the region especially for the countries of Indonesia, Thailand and India. Thailand has been leading its peers in the region. According to Supachutikul (2008) the Institute of Hospital Quality Improvement and Accreditation (HA-Thailand) gathered patient safety practices from the WHO Global Patient Safety Challenges and Patient Safety Solutions to be the new "Patient Safety Goals" (SIMPLE) and these have now been widely applied in the Thai hospitals (Asavaroengchai, Sriratanaban, Hiransuthikul, & Supachutikul, 2009).

For ensuring the quality of health care in Thailand, hospitals get accreditation from the two bodies- Healthcare Accreditation (HA) Institute, Thailand, and/or by the international body called the Joint Commission International (JCI). The Thailand HA program is a movement in quality improvement for both the public and private hospitals in Thailand (http://www.ha.or.th/). The Joint Commission International (JCI) works to improve patient safety and quality of health care in the international community and Thailand has around 37 hospitals and medical care organizations that are listed as JCI-accredited organizations (Joint Commission International, 2014).

Situation of Patient Safety in Malaysia

An overview of patient safety in Malaysia was conducted by Abd Hamid (2012) and a summary is presented here. The governance of patient care is formalized by the establishment of the Malaysian Patient Safety Council (MPSC) in January 2003. The main tasks of the MPSC is setting goals and encouraging collaboration among local and international agencies. However, the MPSC does not include research promotion, regulation and monitoring as part of its task. Like in Thailand, hospitals in Malaysia participated in voluntary accreditation. There are 12 hospitals and one medical lab with JCI accreditation (Joint Commission International, 2014). Meanwhile, there are 106 public and private hospitals that are accredited by the Malaysian Society of Quality in Health (Malaysian Society for Quality in Health [MSQH], 2014). To encourage organizational learning, The Medical Error Reporting System (MERS) was developed by a committee under the MPSC that was led by the Pharmaceuticals Services Division. However, the operation of the system is still at its infancy and the data collected by the system is not widely made available.

As reflected in the situations in both Thailand and Malaysia, patient safety has been recognized as a vital part of health care system. Another factor adding impetus to the interest in good quality of health care is the increase in medical tourism.

Patient Safety and Medical Tourism

Globalization has lowered the barriers between nations and people can choose to travel to other countries for good quality and affordable health care. Most developing nations see medical tourism as an opportunity to generate more national income and therefore support it strongly (Chee, 2007; Pocock & Phua, 2011).

Thailand is gradually becoming a medical hub for the south Asia as private hospitals have realized that by focusing on quality in their world-class medical services they can fulfill the increase in demand from overseas patients (Hazarika, 2010). It is recognized as one of three major destinations for medical tourism in Asia (Asian Medical Tourism Analysis, 2008). Furthermore the Thai government is set to promote Thailand as medical hub for 2012-2016 (Policy of Developing Thailand into a Medical Hub in the Region, 2013).

In preparation for the ASEAN Economic Community, the Ministry of Public Health, Thailand is preparing to rearrange its medical service zones across the country in order to pool their resources to ensure optimum efficiency and reduce duplication of investment. For Thailand, medical tourism revenues were estimated to be around THB 70 billion (approximately USD 2.4 billion) in 2012, of which THB 2.5 billion (approximately USD 86.2 million) had come from ASEAN patients (Kasikorn Research, 2012).

On the other hand in Malaysia, foreign patients spent USD 90.5 million on medical services and items in 2008 (Chee, 2008). The number of healthcare travelers into Malaysia had increased by 125.66% between 2007 (341,288) and 2013 (770,134) (Malaysia Healthcare Travel Council, 2014).

As noted by Pocock and Phua (2011) the potential economic benefits of medical tourism make it an attractive option for governments as it contributes to wider economic development, which is strongly correlated with improved population health status as a whole,

for instance increased life expectancy, reduced child mortality rates. However, the impact of medical tourism must be evaluated in both benefits and costs to the nation.

Having shared the contexts of patient safety in both Thailand and Malaysia, this review focuses on the theoretical meaning of patient safety and the human factors that impact it.

The Meaning of Patient Safety

Patient safety has been defined as freedom from accidental injury during medical care or from medical errors has become a critical topic in medicine (Kohn, Corrigan, & Donaldson, 1999). It also means "Freedom from accidental injury," or "avoiding injuries or harm to patients from care that is intended to help them." Ensuring patient safety "involves the establishment of operational systems and processes that minimize the likelihood of errors and maximizes the likelihood of intercepting them when they occur (Institute of Medicine, 2004) According to WHO (2014), "*Patient safety is the absence of preventable harm to a patient during the process of health care. The discipline of patient safety is the coordinated efforts to prevent harm, caused by the process of health care itself, from occurring to patients. Over the past ten years, patient safety has been increasingly recognized as an issue of global importance, but much work remains to be done*".

The patient safety literature contains many overlapping terms to describe safety-related issues. Two key distinctions underlie most of the terminology are, first adverse events, defined as any injury or harm resulting from medical care. Second, because patients may experience harm from their medical care in the absence of any errors, the patient safety literature separates preventable adverse events from non-preventable ones, and most experts agree that patient safety should emphasis the preventable one. Another related concept is human errors. There are classifications of human errors as skill-based, rule-based, and knowledge-based; slip/lapse, mistake, violation (Simpson, Horberry, & Joy, 2009). However in patient safety literature safety commonly defined error as "an act of commission (doing something wrong) or omission (failing to do the right thing) leading to an undesirable outcome or significant potential for such an outcome" (Wachter, 2008).

Human Factors in Patient Safety

It has become common knowledge that human behavior dominates the risk to modern sociotechnical systems. Interdisciplinary research groups from the field of cognitive sciences, social psychology, organizational behavior, anthropology, sociology, and reliability engineering have been studying aspects of the way humans relate to the world around them with the vision that operational performance and safety in the work place will be improved through the application of an understanding of human factors in the design of equipment, systems, working methods, and training. The term "Human Factors" refers to environmental, organizational and job factor, and individual characteristics which influence behaviors at work in a way which can affect health and safety (HSG48, 1999), and physical or cognitive property of an individual that influences interaction with the environment and with social and technological systems.

In order to understand human factors and its implications for safety in a complex system, the following four levels of patient care with human-factors research were proposed by St. Pierre, Hofinger, Buerschaper, and Simon (2011).

1. The Individual level-

The individual level factors can be identified on the level of perception, information management, and decision-making, emotion and motivation. The cognitive principles relating to safety are:

- Behavior always follows the "psycho-logic" of action regulation. Yet, there is no such thing as a "purely rational" action.
- Humans do not perceive reality. Instead, humans "construct" their worldview.
- Humans tend to adjust information to fit their preferred mental model instead of challenging their current point of view. Data is selected and distorted to fit present assumptions.
- Humans try to defend their feeling of competence at nearly any cost. More important than the solution of a problem, as vital as it may be for the patient, will be the necessity of the feeling that the situation or a relevant aspect of it is under control.
- Problem-solving and decision-making are impaired by many factors.

This component of the healthcare system includes many individual attributes, skills, perceptions, and factors related to fitness, stress, and fatigue. Research shows many individual factors affected the performance of healthcare workers such as fatigue, defiant action, stress, situation awareness (Peters & Peters, 2008). When implementing individual factors in designing the safety system, one may differentiate between the changeable and unchangeable factor.

2. The Team level-

The team becomes an important factor of safety in healthcare system. Teams represent increased cognitive resources which can contribute a substantial amount of information, situational models, and proposed courses of action. In addition, workload can be shouldered by all team members. However the presence of unsuccessful team will lead to the followings.

- Team members tend to conform to their opinion to the majority in the team.
- Legitimate concerns are not articulated, and criticism is withheld due to perceived hierarchy, obsessive deference to authority, or when a team member is afraid to appear wrong.
- Misunderstanding may result from the use of ambiguous terminology.
- Groups tend to centralize information flow and decision-making when external pressure arises.

Team characteristics that affect safety were fixed versus fluid team and communication strategies of teams. The former was the combination of members in the team varied or fixed when they worked. Research showed that fixed team may be more dangerous. The latter was the ways leader used to communicate with the member of the team. Research showed that the effective team showed characteristics such as appropriate authority gradients and hierarchies that stimulate free flow of information, using effective introductions and debriefings, maintaining situational awareness even during crisis (Wachter, 2008).

3. The Organization level-

Organizations can influence the quantity and quality of healthcare by influencing the following variables, structure and processes, equipment and technologies, human resource management, teamwork and leadership, communication, and organizational culture. In the field of hospital safety there were 2 concepts applied in practice: organization safety culture and organization safety climate.

Cooper (2000) distinguishes between three interrelated aspects of safety culture, which are specifically: psychological aspects (often referred to as 'safety climate'), behavioral (or 'organizational') aspects, situational (or 'corporate') aspects. According to Robbins and Judge (2009), organizational culture is "a common perception held by the organization's members; a system of shared meaning". Reason and Hobbs (2003) point out that safety culture is a subset of organizational culture defined by the values and beliefs about health and safety evident in the way the organization operates. According to Reichers and Schneider (1990), climate and culture are interconnected; employees' values and beliefs (part of culture) influence their interpretations of organizational policies, practices, and procedures (climate).

Robbins and Judge (2009) have defined organizational climate as the "perceived attributes of an organization and its sub-systems as reflected in the way an organization deals with its members, groups and issues". Climate consists of shared employee perceptions relating to the practices, procedures and behaviors that get rewarded and supported in an organization (Schneider, White, & Paul, 1998). Research has shown that to develop and maintain proper patient safety climate includes changing management behaviors, safety systems and employee safety perceptions that directly influence healthcare professionals to choose proper behaviors that enhance patient safety (Colla, Bracken, Kinney, & Weeks, 2005; Fleming, 2005).

4. The Health Care System

Healthcare organizations operate within a political and legal framework that limits the scope for organizing patient care. The influence of these factors is more difficult to trace than individual or organizational factors, but some of the factors beyond the influence of healthcare organizations are:

- The increasing economic pressure on perceived high costs within healthcare
- The funding of healthcare systems (e.g., general taxation, social health insurance, voluntary or private health insurance)
- Working time directives
- Regulations enacted by federal governments
- Professional development and the cost associated with training healthcare providers

With a brief overview about the meaning of patient safety and the importance of understanding the human factors that impact it, the article moves on towards the review of research in this area.

Research in Patient Safety

The harmful impact of medical care appears to pose a substantial burden to the world's population and more so in the developing nations as highlighted in their research by Jha, Prasopa-Plaizier, Larizgoitia and Bates (2010). The research in patient safety aims to encourage the development of research based knowledge about the harmful impacts of patient safety, prevention of errors and so on; and also seeks to share this knowledge from the research with relevant individuals and organizations. "WHO Patient Safety" (formerly known as the World Alliance for Patient Safety) was established in 2004 to mobilize global efforts to improve the safety of healthcare for patients in all WHO Member States. Since 2005, the World Health Organization (WHO, 2014) launched research initiatives in the world in the area of patient safety (http://www.who.int/patientsafety/research/why_a_priority/en/).

Researchers in various fields have contributed to the growing data base about the safe practices that uphold patient safety (Mugrditchian, 2009). Jha et al. (2010) in their extensive review examined the available research on patient safety and focused specifically on 23 topics and have summarized the major consequences of unsafe care and its underlying causes. They recommend that future research should be aimed at understanding better definitions of the problem and on effective solutions that reduce harm in medical care.

Factors Affecting Patient Safety

Patient safety can be considered as antecedent as well as outcome variables. The following discussion provides an overview of the measurement of patient safety by focusing on two broad categories of measures: leading and lagging indicators. Leading indicators like safety climate are used to investigate potential weaknesses in the healthcare system that could lead to harms to the patients. On the other hands, lagging indicators focus on the patient outcomes such as adverse events.

Lagging Indicators.

Lagging indicators are used to measure the prevalence or level of safety violations and adverse events. In a simple term, these are counting of errors. They can provide a view of how safe or how unsafe an organization is. However, as argued by Dekker (2007), they offer little or misleading view on the causes of errors. Thus, their value in reducing future adverse events is questionable. Proponents of lagging indicators would point to the relative ease and affordability of such data for safety improvements.

The data on errors could be obtained from administrative data which include management of patients and insurance claims (Zhan & Miller, 2003). A measure that are used in research include the Patient Safety Indicators (PSIs) which is a tool developed by the Agency for Healthcare Research and Quality in the USA. It is an administrative data-based tool that can help with organizational learning for patient safety improvement. The PSIs are shown to be useful for patient safety screening (Rosen et al., 2005). Rivard, Rosen, and Carroll (2006) found the PSIs to be easy to use and able to provide reliable estimate of rates of adverse events. The PSIs seem to be suitable for international data even though some indicators do not show sufficient reliability (Drösler et al., 2009).

Indicators from other sources are available. McLoughlin et al. (2006) compiled indicators from various sources including those from Canada and Australia to produce a set of indicators for use in Organization for Economic Cooperation and Development (OECD)

countries. The final list of 21 proposed indicators were categorized under 5 groups namely hospital-acquired infection, obstetrics, sentinel events, operative and post-operative complications, and other care-related adverse events. Examples of the indicators are wound infection, decubitus ulcer, wrong site surgery, medication errors, and patient falls.

Leading Indicators.

Leading, or predictive, indicators are used to measure an organization's health or susceptibility to accidents. In healthcare, leading indicators could be used to examine the areas in which accidents or adverse events could originate from. Thus, data like safety training, risk factors, safety audit, and safety interventions can be used to gauge the safety of the organization. Another important group of data is employee and clients' perception: a group of measures known as safety climate and safety culture.

Safety climate is organizational members' shared perceptions about their work environments and organizational safety policies (Cabrera, Isla, & Vilela, 1997). Most of the scales measuring safety climate examine dimensions related to management, safety system and risk (Flin, Mearns, O'Connor, & Bryden, 2000). This is echoed in Yule's (2003) review where it was found that measures of safety climate examined the managerial factors, supervisory factor, workforce factors, and non-human system factors. On the other hand, The Agency for Healthcare Research and Quality describes safety culture "as the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of an organization's health and safety management" (Sexton et al., 2006, p. 2). Two important measures of safety culture are Safety Attitude Questionnaire (SAQ) by Sexton et al. (2006) and AHRQ Hospital Survey on Patient Safety Culture (HSOPSC) (Sorra & Nieva, 2007). Both of these measures had been translated and adapted to other cultures.

West, Topakas and Dawson (2014) noted that the distinction between safety climate and safety culture is not particularly clear in healthcare research. Furthermore, when cross-cultural issues are considered, the difficulty in using a standard definition as well a consistent measurement of safety culture becomes an important concern. Thus, more work need to be done to bring the field into a higher level of maturity.

Keeping in view the broad scope of research in the field of patient safety, the next section focuses on the research conducted in Thailand and Malaysia, along with analyses of an exploratory review of these research works, and recommendations for indigenization of future research.

State of the Art of Patient Safety Research in Thailand and Malaysia

Patient safety is increasingly becoming a global concern either for humanitarian or financial considerations. The negative effects of mismanagement of patients were well documented. The financial implications of patient safety are also increasingly gaining prominence with the increase in the size of healthcare market and medical tourism. Based on a worldwide study commissioned by WHO for developing and transitional countries, the top priority for patient safety research is the identification, development and testing of locally effective and affordable solutions (Bates, Larizgoitia, Prasopa-Plaizier, & Jha, 2009). These priority areas fit into Stage 1 and 2 of Battles and Lilford's (2003) proposed three stages of patient safety research.

The stages were also described in Abd Hamid (2012) with examples of topics for psychology-based research:

- (Stage 1) Identification of the risks and hazards
- (Stage 2) Design, implementation, and evaluation of patient safety practices
- (Stage 3) Maintaining vigilance to ensure that a safe environment continues and a patient safety culture remains in place.

An Exploratory Review of Research

Published evidence about patient safety is abundant. A short and exploratory review of the published literature on patient safety for Malaysia and Thailand was conducted for this article and the summary is presented in Table 1. It is meant to provide an overview of the works done on patient safety in both countries, primarily by the health care practitioners. The focus of the review is the behavioral and attitudinal aspects of patient safety. Thus, a literature search on Pubmed database was conducted using the keywords 'patient' 'safety' together with either 'Malaysia' or 'Thailand'. The search was meant to generate a list of empirical studies conducted in the respective countries. A total of 95 articles in Malaysia and 215 articles in Thailand were found. The resulting articles were further screened to exclude reviews, proposals, repeated papers (sub-analysis), and editorials. Articles reporting efficacy and safety profiles of drug, medical equipment and procedures were also excluded. These types of articles emphasized the clinical aspects where safety is one of the outcomes rather than a main variable. The authors (in Thailand and Malaysia) performed the screening procedure independently. After applying the screening, there were ten Malaysian and 22 Thai articles chosen for the analysis. The next sections examined the articles by looking at the articles according to stages of research and indigenization.

Summarizing the Stages of Research.

The classification described by Bates et al. (2009) was used to categorize the reviewed articles to examine the research progress in Malaysia and Thailand. Table 1 presents a summary of the findings. For Malaysian research, 70% of the research is Stage 1 research while the remaining 30% are Stage 3 research. Similarly, 68.2% of published research from Thailand is Stage 1 research, 18.2% are Stage 2 research, and 13.6% are Stage 3 research. The main difference lies in the availability of Stages 2-3 research.

It can be seen that the majority of the research in both countries are at the earlier stages of research for patient safety. This is in accordance with Bates et al. (2009) who gave suggestions for the priority of research to be focused in Stage 1 and 2. However, there are already attempts to monitor the interventions implemented for patient safety. Given the lag between research completion and publication of results, the true state of the art cannot be established conclusively. It could be the case that efforts are expanded on the higher Stages in the past 5 years, but the work has not been published yet. Additionally, the literature search was limited to English articles published and indexed by PubMed. Therefore, the outlook for patient safety research in Thailand and Malaysia is optimistic.

Indigenization of Research Efforts

The research from Malaysia does not reveal much evidence of indigenization efforts or what Bates et al. (2009) refer to as locally effective and affordable solutions. The papers report investigation into the effectiveness of interventions but did not spell out whether the

interventions were indeed locally derived or adapted from other countries. For example, Nasarudin, Saiboon, and Ismail (2013) studied the effectiveness of an emergency department short-stay ward for the management of dengue fever. They found that the ward reduced the need to admit patient into the in-patient wards by 45.6%. The ward was also functioning as a safety net for the patients in terms of correct admission/discharge decisions.

Table 1

Stages of research of the reviewed articles

Research Stage	Country	
	Malaysia	*Thailand*
Stage 1	1. Al Aqqad, Chen, Shafie, Hassali, and Tangiisuran (2014) 2. Khoo et al. (2012) 3. Nasarudin et al. (2013) 4. Hassali et al. (2013) 5. Bandekar, Anwikar, and Kshirsagar (2010) 6. Wong and Sam (2010) 7. Chua, Hassali, Shafie, and Awaisu (2010)	1. Sirikamonsathian, Sriratanaban, Hiransuthikul, and Lertmaharit (2013) 2. Rattanarojsakul and Thawesaengskulthai (2013) 3. Apisarnthanarak et al. (2013) 4. Sornmayura et al. (2010) 5. Chau-in et al. (2010) 6. Tansriprapasiri and Speedie (2007) 7. Thungjaroenkul, Kunaviktikul, Jacobs, Cummings, and Akkadechanunt (2008) 8. Laitanantpong (2006) 9. Jirapaet, Jirapaet, and Sopajaree (2006) 10. Jarernsiripornkul et al. (2003) 11. Thatreenaranon (2011) 12. Tripidok (2008) 13. Kaeotawee and Wongkittithaworn, (2010) 14. Nantsupawat et al. (2011) 15. Panak and Wirakarat (2009)
Stage 2		1. Chaudhary, Das, Ojha, Khetan, and Sonker (2010) 2. Kasatpibal, Nørgaard, and Jamulitrat (2009) 3. Boonmee and Makloy (2011) 4. Sinluksanathip et al. (2011)
Stage 3	1. Wan Mat et al. (2014) 2. Peikari, Zakaria, Yasin, Shah, and Elhissi (2013) 3. Neoh, Hassali, Shafie, Awaisu, and Tambyappa (2009)	1. Riratanapong, Sroihin, Kotepat, and Volrathongchai (2013) 2. Kasatpibal et al. (2012) 3. Prapunwattana et al. (2004)

Another example is the study on computerized physician order entry (CPOE) conducted by Peikari et al. (2013). Users of the CPOE were surveyed on the usability of the system. It was found that the usability of the system is perceived to reduce prescribing errors. The examination of user experiences with a medical information system, which has a potentially high impact on safety, is a commendable effort at adapting the system for local

use. Along similar line, Khoo et al. (2012) reported the prevalence of diagnostic inaccuracies and management errors. The frequency of management errors was highest for medication error (41.1%) compared to investigation error (21.7%) and decision making errors (14.5%). This information can be used to produce a locally-derived intervention to reduce errors with the right focus.

Indigenization efforts are at the same level as in Malaysia as the reviewed articles would suggest. Imported solutions were adopted first and then were evaluated. For example, the study by Kasatpibal et al. (2012) examined the compliance with the World Health Organization checklist for surgical safety. There is a lack of explicitly local solutions that were developed and studied. The most direct effort is one reported by Tansriprapasiri and Speedie (2007). They mentioned a medication error reporting system that was developed at Chiang Rai Prachanukroh Hospital in Thailand that had the desired impact on quality improvement in the hospital. Another relevant effort is one by Rattanarojsakul and Thawesaengskulthai (2013). Using a survey (which is based on an American institute's questionnaires), the authors proposed a medication safety model for Thai private hospitals. While this is a step in the right direction, the resulting model may still reflect the bias of the original American questionnaires.

Of particular interest are three articles reporting the barriers to safe practices. Jirapaet et al. (2006) reported barriers faced by nurses' in complying with safety processes. The barriers are further exacerbated by factors such as understaffing and multiple assignments. Similarly, workload, confidentiality and a lack of supporting factors were reported as the barriers for effective usage of medication error reporting system among pharmacists (Tansriprapasiri & Speedie, 2007). The third study reported the barriers perceived for infection prevention, which include the lack of infection control champion from amongst the physicians and the burden of updating oneself with evidence-based recommendations (Apisarnthanarak et al., 2012)

Applications of Patient Safety Measures

Health care professionals and medical councils have recognized patient safety as integral to their mandate of protecting the health of the public especially in the South Asian region. Educating patients, developing leadership in the area have significant impacts. Accreditation is proving to be an effective mechanism for introducing patient safety goals in healthcare facilities. Furthermore, safety can be enhanced even where resources are limited, as has been demonstrated in the accreditation of public hospitals in Gujarat in India, as noted by Mugrditchian (2009).

A review of some research in Thailand about the patient safety practices show that though it is embraced as a significant part of the health and medical care, yet there is some more learning to do to facilitate effective implementation of patient safety guidelines. Some of the researches are shared herewith:

1. Kasatpibal et al. (2012) reviewed the compliance in a Thai hospital about the World Health Organization (WHO) surgical safety checklist that may reduce preventable adverse events. He found that compliance was difficult to implement in Thailand in the cultural settings and there was more need to educate as well as adopt strict adherence to the checklist.
2. In a survey to evaluate the anesthesia service in Thailand, Charuluxananana et al. (2010), suggested the need to develop strategies for achieving quality and patient

safety. These include improvement in the researched anesthesia service focused on increasing personnel, increasing 24-hour recovery room, improvement of supervision, improvement of communication, compliance to guidelines and improvement of nurse anesthetist's training.

3. Asavaroengchai et al. (2009) recounted that in Thailand the hospital incidence reporting systems might result in underreporting of adverse events. Therefore they tested the feasibility of the global trigger tool for detecting adverse events in a developing country and found more adverse events than reported previously. However the researchers recommended that the validity of the instrument should be tested further before being adopted in Thai context.

Future Research

The literature has a lot of materials from which the practitioners and researchers can learn. Future research should add to this corpus to continually improve healthcare delivery. For Malaysia and Thailand, the existing study reveals a limitation in terms of the research method: the survey method is used in 80% of the Malaysian studies reported in the first section while the remaining 20% used medical records. Among the Thai studies, the medical record method is more prominent (57.1%) followed by survey (28.6%) and interview (14.3%). No experiment and randomized control trial were reported. The methodological limitation poses a question on the robustness of the findings. Beyond using a more convincing method, future research should be geared to topics that are relevant to the respective countries. This remaining of this section outlines the directions for future research by focusing on the indigenization efforts.

The indigenization of research in patient safety for Malaysia and Thailand is important for at least two reasons: addressing local needs, and addressing local understanding of patient safety. To optimize the resources and capacity for research, as well as maximizing the impacts of research, priorities should be set according to local needs. Research should be done in areas that have a higher degree of implications to the local populations, perhaps in terms of the sheer number of people affected or the cost incurred. For Malaysia, the "maqasid syariah" (objectives of the Islamic laws) can be used as a guide to determine the appropriate area for research investment.

The focus on local needs would be a welcome effort at establishing evidence-based and outcome-based interventions. Characteristics of diseases, the healthcare systems and the people involved that are unique to both countries provide a rich opportunity for researchers to improve patient care. Research on the safety profile of drugs, procedures and medical equipment represent a strand of endeavors to support medical practice with empirical evidence. The same interest and efforts should be invested in other aspects of healthcare. For example, the handover process among different healthcare professionals is influenced by local culture and communication preferences. Evidence needs to be obtained to design the best practice for handover.

By focusing on local needs, the wider implications of the research may not be lost. For example, by developing efficient and safe way for managing patients affected by dengue fever (more common in Malaysia and Thailand than in Europe), lessons could be learned and be applied to manage diseases more common somewhere else. Thus, the focus on local needs

should not be seen as a practitioner-oriented exercise only: it would benefit the scientists and theorists too.

The way that people think about safety may influence their perception and behavior regarding safety behavior. Given that both Malaysia and Thailand have population with strong religious affinity, the religious and spiritual dimensions of safety cannot be ignored. At the individual level, the very conceptualization of 'safety' may be strongly tinged with religious sentiment, considering the word 'Islam' itself includes safety as a meaning. It would be worthwhile to investigate how construal of safety as an integral part of existence influence safe behaviors and attitude. Comparison can be made to the Buddhist teachings of avoiding harm and living a balanced life. This investigation should be conducted for both the care givers and the patients.

Conclusion

In conclusion it can be summarized that patient safety is not only of great value to patients and health care givers and administrators but also to the development of nations. A wide range of research opportunities exist for both practitioners and scientists interested to improve safety in healthcare. Turning the countries into developed nations should include serious consideration about the quality and safety of healthcare services. As noted by other researchers such as Carpenter et al. (2010), investigation of patient safety in developing countries has been "infrequent and limited in scope". Indigenous research efforts in this area that are shared among developing countries like Thailand and Malaysia could create knowledge source that could be useful for the region.

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