



# Policy Brief

Addressing Medical  
Errors in the Lebanese  
Healthcare System

K2P Policy Briefs bring together global research evidence, local evidence and context-specific knowledge to inform deliberations about health policies and programmes. It is prepared by synthesising and contextualizing the best available evidence about the problem and viable solutions through the involvement of content experts, policymakers and stakeholders.



# Policy Brief

+ Included



Description of a health system problem



Viable options for addressing this problem



Strategies for implementing these options

× Not Included



Does not make recommendations



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**K2P Policy Brief- Full report**

# Addressing Medical Errors in the Lebanese Healthcare System

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# Key Messages

# Key Messages

## **What's the problem?**

While there has been an increase in the incidence and reporting of medical errors in Lebanon, the associated implications and debates about causes, responsibilities and accountabilities are ill-informed, and in many cases, not leading to real improvement in patient safety practices. Problems at the system, organizational and professional levels are contributing to the incidence of medical errors and the associated suboptimal responses.

## **What do we know about four elements of an approach to addressing the problem?**

**Element 1** ▶ Enhance clinical governance through the integration of evidence-based clinical guidelines, education and training of providers, and conducting audits and performance appraisals

### **Evidence-based clinical guidelines**

.....▶ Eight systematic reviews supported the implementation of evidence-based practices for higher quality of care since they significantly improve skills, knowledge and attitudes of providers.

### **Education and training of providers**

.....▶ Four systematic reviews found that the inclusion of quality improvement and patient safety education in curricula of trainees and medical students enhanced their knowledge, skills and attitudes towards quality improvement and patient safety as well as improved their engagement in quality improvement projects.

.....▶ An overview of 39 systematic reviews found that continuing medical education (ranging from educational meetings to more expansive learning activities) improves physicians' knowledge, attitudes, behaviors and performances as well as patient health outcomes.

.....▶ An overview of 26 systematic reviews on continuing medical educational techniques found that interactive methods (audit/feedback, interactive education, academic detailing and reminders) were the most effective at improving performance and patient health outcomes, followed by clinical practice guidelines.

- ..... Four systematic reviews found that team-training can meaningfully improve providers' knowledge and attitudes, teamwork processes, clinical care processes and patient outcomes, including adverse events, mortality and morbidity.
- ..... Two systematic reviews found that leadership walk rounds, interdisciplinary rounding, and comprehensive unit-based safety program (CUSP) had the most positive impact on improving patient safety climate and patient outcomes.

### **Audit and feedback**

- ..... An overview of systematic reviews, a meta-analysis, a systematic review and a critical review of the literature found that audit and feedback is an effective tool to improve clinical performance of healthcare providers.
- ..... One systematic review found that audit and feedback can improve quality of care by 10%.
- ..... Two systematic reviews and 1 meta-analysis specified that feedback is most effective if provided by a supervisor or a colleague, delivered more than once (preferably in written format), frequent, individualized and includes specific goals and action plans.

### **Performance appraisal**

- ..... Seven systematic reviews found that multi-source feedback (MSF) (or 360 degree evaluation) enhances physician performance and reflects on where change is required in their practices. Another 8 systematic reviews found that MSF also enhances non-technical competencies such as communication, interpersonal, collegiality, humanism and professionalism skills.
- ..... Two systematic reviews found that MSF is the most appropriate and practical method to adopt in terms of time and cost-effectiveness.
- ..... One systematic review and 4 primary studies found that performance appraisal improves quality of care and ensures continuous education of healthcare providers.
- ..... Several single studies found an association between provider re-certification and improved clinical outcomes and quality of care.

**Element 2**› Develop and implement policies that promote anonymous incident reporting at the organizational and national level

- .....› At organizational level: 1 systematic review and 2 primary studies found that non-punitive reporting of adverse events and near misses significantly encourages increased reporting of adverse events and helps healthcare organizations focus more on errors at the system level rather than blaming individuals.
- .....› One systematic review and 9 studies found that non-punitive reporting of adverse events helps organizations learn from their incidents and failures in the delivery of care and forms part of a loop that encourages investigation and continuous monitoring.
- .....› At national level: 3 primary studies found that anonymous national incident reporting systems can improve delivery of care and patient safety.

**Element 3**› Revise and update current accreditation systems to ensure patient safety goals, indicators and training requirement are explicit in the standards and integrated in the contractual arrangements

- .....› Five systematic reviews found evidence that health care accreditation promotes change and professional development, increases staff engagement and communication, improves organizational efficiency, encourages multidisciplinary team building, promotes positive changes in organizational culture, and enhances leadership and staff awareness about continuous quality improvement.
- .....› Four systematic reviews found that relying on performance indicators, that are supposed to be collected when auditing for compliance with accreditation standards, improves the overall patient safety and quality of care delivered.
- .....› Eleven systematic reviews concluded that pay for performance (P4P) strategies lead to moderate enhancements in quality.

**Element 4**› Empower patients to enhance quality of care and patient safety

- .....› Four systematic reviews found that patient empowerment fosters an increase in shared decision-making and increases the efficiency of the healthcare system.

- ..... Five systematic reviews found that involving patients improves healthcare organization performance and patient safety.
- ..... Eight primary studies found that forming patient advisories and ombudsman programs empower patients.

**What implementation considerations need to be kept in mind?**

- ..... Insufficient expertise and resources, lack of information on instructions and data collection, and technical issues like setting sustainable standards may hinder implementation of audit and feedback in healthcare organizations.
- ..... Ability of providers to give feedback and degree of trust in the formative nature of assessment may hinder attainment of positive behavioral changes
- ..... Availability of expert faculty, competing curricular/service demands, and institutional culture may affect implementation of patient safety and quality improvement in medical curriculum.
- ..... Healthcare providers' workload, poorly designed incident reporting systems, and a "punitive" environment may discourage filling of incident reports.
- ..... Lack of national quality and patient safety policies that set out goals for quality and patient safety, clarify roles and responsibilities and identify incentives and non-incentives may hinder implementation of initiatives across healthcare systems
- ..... Selection of performance indicators that are valid, reliable, applicable and relevant to accreditation, standardization of the methods of collection and reporting systems and establishment of systems to counter data manipulations
- ..... Costs of training employees, hiring new personnel and involving patients in quality improvement and patient safety initiatives
- ..... Patients' refusal to be involved in shared decision making and quality improvement

# Policy Brief Summary

# K2P Policy Brief Summary

## The Problem

While there has been an increase in the incidence and reporting of medical errors in Lebanon, the associated implications and debates about causes, responsibilities and accountabilities are ill-informed, and in many cases, not leading to real improvement in patient safety practices. Problems at the system, organizational and professional levels are contributing to the incidence of medical errors and the associated suboptimal responses.

## Size of the Problem

In Lebanon, data regarding the exact number of reported errors is missing. However, in the past few years, media started to play a role in shedding light on some of the medical errors and sentinel events in Lebanese healthcare organizations. A study conducted by El-Jardali et al., 2015,

found that between 2012 and 2013, media topics related to patient safety and medical errors mostly reported stories of patients' deaths due to medical errors during or after surgeries, deaths due to healthcare organizations' refusal to admit patients who are not financially covered, deaths because organizations lack appropriate equipment or do not have enough beds to accommodate emergency patients and deaths due to the weak dispatch system to transfer patients from one organization to another (El-Jardali et al., 2015).

Another study found that between 1996 and 2013, more than a thousand complaints related to medical malpractice were filed to the Order of Physicians (Al-Salim, 2014). Investigations conducted by the Order of Physicians focused mostly on physicians as the main actors in preventable medical errors (Al-Salim, 2014), whereas majority of errors occur as the result of failures of complex healthcare systems and not individual negligence or incompetence, as emphasized by the Institute of Medicine (Kohn et al., 2000).

Staffing, punitive responses to error and communication breakdown have been found to be major factors influencing patient safety in Lebanon (El-Jardali et al., 2014a; Hamdan & Saleem, 2013; Alahmadi, 2010; El-Jardali et al., 2010; Bodur & Filiz, 2009).

*“Medical error is defined as the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim. Errors can include problems in practice, products, procedures and systems.”*  
(Smeby et al, 2015; QulC, 2000)

### **Underlying Factors**

The underlying factors of the problem stem from the health system arrangements in place.

At the **governance level**, and despite the presence of accreditation, there is still no explicit national policy for quality improvement and patient safety that sets out goals and indicators, clarifies roles and responsibilities and identifies incentives and non-incentives across the entire healthcare spectrum (El-Jardali and Fadlallah, 2015). In addition, there are no legislative requirements for healthcare organizations to implement specific quality improvement systems (such as incident reporting systems) or report on a national set of standardized performance indicators (El-Jardali and Fadlallah, 2015).

Despite the success of the accreditation system in Lebanon, particularly for hospitals and primary health care centers, still the accreditation program does not cover other providers of care such as polyclinics, long-term care, diagnostic facilities and laboratories and mental health institutes (both in public and private sector). The current hospital accreditation process has some gaps including outdated standards, non-renewal of accreditation “status” on a regular basis, absence of mechanisms to ensure quality is sustained post-accreditation and lack of certified national auditors. Having said this, the MOPH is currently revising the hospital accreditation program with plans in place to revamp the accreditation standards and update them.

Within health care organizations, there are gaps and dysfunctions in the area of clinical governance, specifically clinical audit, education and training of providers in quality improvement and patient safety, and performance appraisals.

Clinical auditing and documentation are not adequately performed in the Lebanese healthcare sector with no accurate assessment of performances and processes (Jamali et al., 2010). Also, the use of evidence-based clinical practice in healthcare organizations is still limited (Maroun et al., 2010).

Training of healthcare providers in quality improvement and patient safety in healthcare organizations is not optimal (El-Jardali et al., 2012). In addition, Continuing Medical Education (CME) is not as effective as it should be. For instance, although the Order of Physicians advises physicians to seek CME, physicians rarely undertake any kind of CME (Assaad-Khalil et al., 2013). When it comes to implementing new practices that are introduced at CMEs, resources to do so are often not available. Another challenge concerns the curriculum of medical students which focuses mostly on disease diagnosis and management, and less on proper management of healthcare systems and quality improvement (Natafqi et al., 2011). In addition, re-licensing of providers is not required by the MoPH. This is exacerbated by the absence of

systems for performance appraisal in both national and clinical governance bodies (El-Jardali et al., 2009).

Finally, it is important to note that patients lack knowledge about their rights when it comes to medical errors (Morcos, 2015a), and it is sometimes difficult for them to prove that they have been the victim of a medical error.

At the **financing level**, incentive systems that link contractual agreement, regulations, accreditation status, and performance indicators are still underutilized in Lebanon (El-Jardali and Fadlallah, 2015). These are important in order to encourage health care organizations (both public and private sector) and health personnel to engage in quality improvement and patient safety initiatives (El-Jardali and Fadlallah, 2015).

Up till 2014, contractual agreement by the MOPH linked reimbursement solely to accreditation status, which was unfair since hospitals that were placed in the same accreditation category were reimbursed the same even if they were not homogeneous (Ammar et al, 2013). In April 2014, the MOPH declared the establishment of a new financing arrangement for services provided by contracted private and public hospitals (MOPH, 2014). However, the new arrangement does not include measures and outcomes that reflect hospitals' actual performances (El-Jardali et al, in-preparation).

While accreditation of hospitals is a pre-requisite for contracting and financial reimbursement by MOPH (El- Jardali et al., 2011), other third party payers do not link contractual agreements with healthcare organizations to accreditation status or attainment of specific quality and patient safety indicators.

At the level of primary healthcare (PHC), a performance-based contracting system which includes centers that pass accreditation is being developed (El-Jardali and Fadlallah, 2015). The latter is important to encourage implementation of accreditation standards in PHC centers, which in turn has positive implications on quality of care.

At the **delivery level**, a patient safety culture is still not instilled in the day to day operations of healthcare organizations. This is promoting a punitive environment within health organizations, and is the reason why healthcare providers hesitate to report medical errors (El-Jardali et al., 2011; Sirriyeh et al., 2010). In addition, training of providers on how to lead, implement and follow up on quality improvement and patient safety initiatives is not optimal in health care organizations (El-Jardali and Fadlallah, 2015). For instance, ensuring hands-on skills on how to apply patient safety standards and goals remains a main challenge (El-Jardali et al., 2012; El-Jardali et al., 2011). This is exacerbated by the absence of explicit accreditation standards for training of providers in quality improvement and patient safety (El-Jardali et al., 2012).

Another challenge relates to shortages in staffing and work overload, both of which negatively affect patient outcomes and safety (El-Jardali et al., 2010). Finally, miscommunication within and across healthcare institutions is leading to adverse events especially when it comes to handoffs and reporting on medical errors (El-Jardali et al., 2010). This is due to problems at the organizational level such as poor teamwork, unclear instructions of procedures and lack of central information repositories (Foster & Manser, 2012; Segall et al., 2012; Baldwin et al., 2011; Riesenber, 2009).

**Elements of a comprehensive approach to address the problem**

**Element 1** Enhance clinical governance through the integration of evidence-based clinical guidelines, education and training of providers, and conducting audits and performance appraisals

Evidence-based clinical guidelines, education and training of providers, audits and performance appraisals are key components of clinical governance. Compelling evidence from numerous systematic reviews has demonstrated the effectiveness of each of these interventions in improving quality of care and patient safety in health care organizations. Key findings from systematic reviews are presented in the table below.

Table 1 **Key findings from systematic reviews**

Category of finding	Element 1
<b>Benefits</b>	<p data-bbox="453 1279 767 1305"><b>Evidence-based guidelines</b></p> <p data-bbox="453 1339 1176 1599">8 systematic reviews encourage the implementation of evidence-based practices for higher quality of care since they significantly improve skills, knowledge and attitudes of providers (Scurlock-Evans et al., 2014; Ubbink et al., 2013; Dizon et al., 2012; Flodgren et al., 2012; Lugtenberg et al., 2009; Menon et al., 2009; Flores-Mateo &amp; Argimon, 2007; Bahtsevani et al., 2004).</p> <p data-bbox="453 1630 719 1657"><b>Education and training</b></p> <p data-bbox="453 1688 1176 1948">4 systematic reviews found that inclusion of quality improvement (QI) and patient safety educations in curricula of trainees and medical students were well received by learners, and enhanced their knowledge, skills and attitudes towards quality improvement and patient safety as well as improved their engagement in quality improvement projects (Kirkman, 2015; Wong 2010; Nie et al, 2011; Boonyasai, 2007).</p> <p data-bbox="453 1980 1144 2007">An overview of 39 systematic reviews found that continuing</p>

Category of finding	Element 1
	<p>medical education (CME) does improve physician performance and patient health outcomes, with more reliably positive effects on physician performance than on patient health outcomes. CME activities that are more interactive, use more methods, are longer, involve multiple exposures, and are focused on outcomes considered important by physicians lead to more positive outcomes (Cervero et al, 2015).</p> <p>An overview of 26 systematic reviews on educational techniques found that interactive methods (audit/feedback, interactive education, academic detailing and reminders) were the most effective at improving performance and patient health outcomes followed by clinical practice guidelines. (Bloom, 2005).</p> <p>2 systematic reviews examined strategies to promote culture of patient safety and found that leadership walk rounds, interdisciplinary rounding, and comprehensive unit-based safety program (CUSP) had the most positive impact on patient safety climate and patient outcome (Morello et al, 2012; Weaver et al, 2013a).</p> <p>4 systematic reviews found that team-training can meaningfully improve participant knowledge or attitudes, teamwork processes, clinical care processes and even patient outcomes, including adverse events, mortality and morbidity across a range of clinical contexts (Weaver et al, 2013b; Schmutz and Manser, 2013; Buljac-Samardzic et al, 2010; Weaver et al, 2010). Reported effect sizes were larger for bundled team-training interventions that incorporated tools and organizational changes to support sustainment and transfer of teamwork competencies into daily practice (Weaver et al, 2013b).</p> <p><b>Audit and feedback</b></p> <p>An overview of systematic reviews, a meta-analysis, a systematic review and a critical review of the literature found that audit and feedback is an effective tool to improve clinical performance of healthcare providers (Johnson &amp; May, 2015; Ivers et al., 2012; Hysong, 2009; Lu et al., 2008).</p> <p>1 systematic review found that audit and feedback can improve quality of care by 10 % (Ivers et al., 2014).</p> <p>2 systematic reviews and 1 meta-analysis specified that feedback is most effective when baseline adherence to recommended practice is low, it is provided by a supervisor or a colleague, delivered intensively and more than once (preferably in written form), individualized, and includes</p>

Category of finding	Element 1
	<p>specific goals and action plans (Ivers et al., 2014; Ivers et al., 2012; Hysong, 2009).</p> <p><b>Performance appraisal</b></p> <p>7 systematic reviews found that the Multisource Feedback (MSF) or 360 degree evaluation tool enhances physician performance and reflects on where change is required in their practice (Donnon et al., 2014; Ferguson et al., 2014; Al Khalifa et al., 2013; Saedon et al., 2012; Miller &amp; Archer, 2010; Wilkinson et al., 2009; Overeem et al., 2007). In MSF, physicians usually complete a self-evaluation instrument and receive feedback from a number of sources including medical colleagues, preceptors or supervisors and non-physician coworkers (e.g. pharmacists, nurses) as well as their patients.</p> <p>8 systematic reviews found that MSF also enhances non-technical competencies, e.g. communication, interpersonal and professionalism skills (Donnon et al., 2014; Ferguson et al., 2014; Al Khalifa et al., 2013; Saedon et al., 2012; Miller &amp; Archer, 2010; Wilkinson et al., 2009; Overeem et al., 2007; Jamtvedt et al., 2006).</p> <p>1 systematic review found that provider performance appraisal enhances quality of care, patient safety, and continuous performance development through continuing education of employees, helping employees develop new skills, attracting and retaining appropriate and qualified providers, and creating trust and better communication between providers and management (Hamilton et al., 2007).</p> <p>Several single studies found an association between provider re-certification and improved clinical outcomes and quality of care (Gallagher et al., 2014; Hawkins et al., 2013; Nora, 2013; WHO, 2008). In addition, two systematic reviews found that multisource feedback (MSF) can be used to support re-licensing (Ferguson et al., 2014; Al Khalifa et al., 2013), and suggested that CME credits can be linked to re-certification (Bloom, 2005).</p>
<p><b>Potential harms</b></p>	<p>1 systematic review found that evidence-based practice is thought to decrease therapeutic autonomy and thus reduce motivation to implement it (Scurlock-Evans et al., 2014).</p> <p>1 systematic review found that even when evidence-based practice is implemented, it does not always mean that high quality evidence is being used, which may affect the quality of care provided (Scurlock-Evans et al., 2014).</p> <p>1 systematic review found that lack of training in providing</p>

Category of finding	Element 1
	<p>feedback and lack of trust in the formative nature of assessment had a negative effect on behavioural change in physician's performance (Saedon et al., 2012).</p> <p>1 systematic review found that provider performance appraisal is sometimes viewed by providers as a threat to sorting out poor performance which creates fear in the working environment; thus support by managers is necessary to create a culture that encourages performance appraisal (Hamilton et al., 2007).</p> <p>1 systematic review found that multisource feedback lacks rigor, effectiveness and overall utility (Ferguson et al., 2014).</p>
<p><b>Cost</b> and/ or cost effectiveness in relation to the status quo</p>	<p>1 systematic review and 5 studies found that implementing evidence-based practices reduces cost on healthcare organizations (Black et al., 2015; Pedro-Gomez et al., 2012; Considine &amp; McGillivray, 2010; Peterson et al., 2008; Fineout-Overholt et al., 2005; Bahtsevani et al., 2004).</p> <p>2 systematic reviews found that use of multisource feedback is the most appropriate and practical method to adopt in terms of time and cost effectiveness (Ferguson et al., 2014; Overeem et al., 2007).</p> <p>1 study found that performance appraisal incurs high costs on smaller firms; however this can be solved if larger firms provide them with the appraisal tools and resources needed (De Kok &amp; Uhlaner, 2001).</p>
<p><b>Uncertainty</b> regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)</p>	<p>2 systematic reviews found that even though evidence-based practice is embraced by healthcare workers and organizations, its implementation is still scarce (Scurlock-Evans et al., 2014; Ubbink et al., 2013).</p> <p>1 systematic review found that the effects of audit and feedback vary widely from an apparent negative to very large positive effect (Jamtvedt et al., 2006).</p> <p>2 systematic reviews and 1 overview of systematic reviews found that studies are not always clear about the effectiveness of audit and feedback (Johnson &amp; May, 2015; Ferguson et al., 2014; Ivers et al., 2014). 2 systematic reviews mentioned that MSF alone did not always result in performance change since physicians do not always know how to assess and analyze data collected from feedbacks (Ferguson et al., 2014; Saedon et al., 2012).</p> <p>1 systematic review supported the use of MSF as a tool for performance improvement, but reported difficulties in</p>

Category of finding	Element 1
	<p>identifying its long term impact and effectiveness on education and quality of care (Overeem et al., 2007).</p> <p>1 systematic review mentioned that although MSF leads to performance improvement, many factors such as individual factors, the context of feedback, and the presence (or absence) of facilitation have effects on the magnitude of the response (Miller &amp; Archer, 2010).</p>

**Element 2**› Develop and implement policies that promote anonymous incident reporting at the organizational and national level

Incident reporting can be implemented within healthcare organizations and at a national level. One systematic review found that when an incident reporting system is introduced at the organizational level, there is significant increase in the number of reported adverse events and near misses (Parmelli et al., 2012). Another systematic review found that non-punitive reporting of adverse events and near misses helps organizations learn from their incidents and failures in the delivery of care and encourages investigation and continuous monitoring (Seys et al., 2012).

Three studies found that national anonymous incident reporting systems played a great role in detecting errors at the micro level to improve delivery of care and patient safety at the national level such as raising awareness, doing research, audits, training initiatives, curriculum changes, and developing specific guidelines (Warm & Edwards, 2012; Mahajan, 2010; Hutchinson et al., 2009). The Malaysian national incident reporting system was created to provide information regarding patient safety for improvement, learning and system redesign purposes. The system allows the reporting of mandatory “must-report” incidents and of other voluntary incidents, generates alerts, disseminates lessons learnt from investigation of adverse events and generates best practices from the recommendations provided (Bin Abdul Rahman et al., 2013).

The evidence in the literature suggest that a national quality policy would influence the implementation of quality improvement (QI) strategies and systems in healthcare organizations, especially if they were specific enough and provide information on the quality activities that are needed for an integral system (Legido-Quigley et al, 2008; Lombarts, 2009; Spencer and Walshe, 2009). In a survey of 24 European countries, the existence of a statutory legal requirement to implement QI strategies for healthcare systems and organizations was reported as being the most important incentive for

supporting progress in the development of QI initiatives (Spencer and Walshe, 2009).

Table 2 **Key findings** from systematic reviews and single

studies	
Category of finding	Element 2
<b>Benefits</b>	<p><b>Incident reporting within healthcare organizations</b></p> <p>A systematic review found that, when an incident reporting system is introduced, there is significant increase in the number of reported adverse events and near misses (Parmelli et al., 2012).</p> <p>A systematic review and 9 studies found that non-punitive reporting of adverse events and near misses helps organizations learn from their incidents and failures in the delivery of care and encourages investigation and continuous monitoring (Seys et al., 2012; Warm &amp; Edwards, 2012; Bigham et al., 2011; Mahajan, 2010; Conway et al., 2010; Conway et al., 2009; Smith, 2007; Olsen et al., 2007; La Pietra et al., 2005; Rothschild et al., 2005; Lawton &amp; Parker, 2002).</p> <p>2 studies reported that incident reporting focuses less on the individual who makes the error and more on the organizational factors that set up the conditions for an error to occur (Mahajan, 2010; Meurier, 2000).</p> <p>A systematic review found that incident reporting is most used and most efficient to determine trends (Manias, 2013).</p> <p><b>National incident reporting</b></p> <p>3 studies on national anonymous incident reporting systems, such as those available in England and Wales, found that these systems play a great role in detecting errors at the micro level to improve the delivery of care and patient safety at the national level such as raising awareness, doing research, audits, training initiatives, curriculum changes, and developing specific guidelines. These health information frameworks also help in the development and the prioritization of preventive and corrective strategies (Warm &amp; Edwards, 2012; Mahajan, 2010; Hutchinson et al., 2009).</p> <p>A study found that the Vermont Oxford Network, an internet-based system for sharing data about outcomes and care in neonatal division by healthcare providers and patients' families, helped strengthen inter-hospital relations and provide a glimpse into the complex cause of error, which can help improve quality of care and reduce error when assessed at a systems level (Suresh et al., 2004).</p>
<b>Potential harms</b>	Not reported by any of the systematic reviews

Category of finding	Element 2
<b>Cost</b> and/ or cost effectiveness in relation to the status quo	1 study concluded that reporting systems are cost-effective (Barach & Small, 2000)
<b>Uncertainty</b> regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)	1 systematic review and 2 studies found that detection rates of errors remain low, even when health professionals receive regular trainings about the importance of submitting incident reports (Manias, 2013; Olsen et al., 2007; Sari et al., 2007).  1 systematic review indicated that once an incident is reported, there is a need for organizations to develop schemes that protect their providers (the one who committed the error and the frontline providers) and provide them with emotional support to overcome the impact of the event (Seys et al., 2012).

**Element 3** ➤ Revise and update current accreditation systems to ensure patient safety goals, indicators, and training requirement are explicit in the standards and integrated in the contractual arrangements.

Health care accreditation has emerged as one of the most influential mechanisms for assessing performance of healthcare organizations and improving quality and safety of health care services (Hirose et al, 2003; Jovanovic, 2005). Five systematic reviews found that health care accreditation promotes change and professional development, increases staff engagement and communication, improves organizational efficiency, encourages multidisciplinary team building, promotes positive changes in organizational culture and enhances leadership and staff awareness about continuous quality improvement (Ng et al, 2013; Greensfield et al, 2012 Hinchcliff, 2012; Alkhenizan et al, 2011; Greenfield, 2008).

Linking the accreditation status to incentives such as access to public funding, preferential re-imburement, health insurance benefits, contractual agreements, or designation as a medical travel destination has been shown to be an effective mechanism for making the business case for accreditation (Mate et al, 2014; Shaw, 2004). In India, Brazil and Costa Rica, insurers and employers are increasingly relying on accreditation award as a prerequisite for provider participation in their health care reimbursement programs (Mate et al, 2014).

Similarly, there has been a rising trend in the adoption of performance measures to ensure quality and patient safety in healthcare systems (Kerr and Fleming, 2007; García-Altés et al., 2006). Four systematic reviews reported that relying on performance indicators improved the overall patient safety and quality of care delivered (Gillam et al., 2012; Alshamshan et al., 2010; Van Herk et al., 2010; Fung et al., 2008).

Revising the accreditation programs in Lebanon and creating a system of incentives that links contractual agreement, regulations, accreditation status and performance indicators is important in order to encourage health care organizations (both public and private sector) and health personnel to engage in quality improvement and patient safety initiatives. The revision of the accreditation system and contractual agreement could encompass the following:

- Develop a new governance model for the accreditation program which includes renewal of accreditation status on a regular basis; certification and re-certification of national auditors; and the presence of mechanisms to ensure quality is sustained post-accreditation
- Ensure patient safety goals, indicators and training requirement are explicit in the accreditation standards of hospital and primary healthcare accreditation programs
- Scale up accreditation to cover all providers of care in the country (primary care, long term care, mental health, clinics, polyclinics, diagnostic facilities and laboratories)
- Encourage public and private third party payers to link incentives and contractual agreements to accreditation status or attainment of specific quality and patient safety indicators
- Further improve the new re-imburement formula for hospitals by including measures and outcomes indicators that reflect hospital's actual performance measures
- Design and implement a financial arrangement for PHC (i.e. performance contracting system) that includes centers that pass accreditation.
- Establish a national set of standardized and applicable performance indicators for mandatory reporting that is specific for hospitals and primary healthcare and link to incentives

**Table 3 Key findings from systematic reviews and primary studies**

<b>Category of finding</b>	<b>Element 3</b>
Benefits	5 systematic reviews found evidence that health care

Category of finding	Element 3
	<p>accreditation promotes change and professional development, increases staff engagement and communication, improves organizational efficiency, encourages multidisciplinary team building, promotes positive changes in organizational culture and enhances leadership and staff awareness about continuous quality improvement (Ng et al, 2013; Greensfield et al, 2012 Hinchcliff, 2012; Alkhenizan et al, 2011; Greenfield, 2008).</p> <p>1 systematic review found consistent evidence from several studies to support a positive impact of general accreditation programs on different specific clinical outcomes, including the management of acute myocardial infarction, trauma, ambulatory surgical care, infection control and pain management (Alkhenizan et al, 2011).</p> <p>1 systematic review highlighted potential relationships among accreditation programs, high quality organizational processes and safe clinical care, though the authors noted that the literature is limited in terms of level of evidence and quality of studies (hinchcliff, 2012)</p> <p>4 systematic reviews mentioned that relying on performance indicators that are supposed to be collected when auditing for compliance with accreditation standards, as a mean for reimbursement, improves the overall patient safety and quality of care delivered (Gillam et al., 2012; Alshamshan et al., 2010; Van Herk et al., 2010; Fung et al., 2008).</p> <p>11 systematic reviews concluded that pay for performance (P4P) strategies lead to moderate enhancements in quality (Eldridge &amp; Palmer; 2009 , So &amp; Wright, 2012; Scott, 2009; Christianson et al., 2008; Gillam et al., 2012; Huang et al.,2013; Al-Shamsan et al., 2010; Petersen et al., 2006; van Herck et al., 2010; Mehrotra et al., 2009; and Emmert et al., 2012).</p> <p>2 systematic review of P4P programs found that P4P seemed to be more effective when measures that have more room for improvement and are easy to track were used; incentives were targeted at individual physicians or small groups; approaches relied on purely positive incentives rather than winners and losers, rewards were based on absolute performance of providers; the program was designed in collaboration with providers; and larger payments were involved (Eijkenaar et al., 2013; So &amp; Wright 2012).</p>
Potential harms	Not reported by any of the systematic reviews
Cost	1 systematic review found that accreditation generates higher

Category of finding	Element 3
and/ or cost effectiveness in relation to the status quo	<p>costs on healthcare organizations due to the need for provider trainings, hiring additional providers, maintenance of infrastructure and buying or upgrading equipment (Greenfield &amp; Braithwaite, 2008).</p> <p>4 single studies found that centers that are accredited have lower mean lengths of stay and lower charges, which results in lower cost on both the patient and the organizations (Morton et al., 2014; Kwon et al., 2013; Jafari et al., 2013; Nguyen et al., 2012).</p>
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)	<p>2 systematic reviews reported consistent findings for the effect of accreditation programs on promoting change, professional development and improving organizational efficiency and staff circumstances. However, inconsistent findings (with both improvements and a lack of measurable effects) were reported for professions' attitudes to accreditation, organizational impact, financial impact, quality measures and program assessment (Greenfield, 2008, Greensfield et al, 2012).</p> <p>1 systematic review concluded that the lack of conclusive effect of accreditation programs on patient outcomes may simply mean that, due to the heterogeneity of study design and methods, much uncertainty remains regarding its putative effects. The complexity of hospital organizations and their heterogeneous components further add to the methodological challenge (Brubakk et al, 2015).</p>

**Element 4** ➤ Empower patients to enhance quality of care and patient safety.

Four systematic reviews found that patient empowerment reduces the knowledge gap between healthcare providers and consumers, fosters an increase in agreement and shared decision-making about the use of health services and increases the efficiency of the healthcare system (Tempfer & Nowak, 2011; O'Connor et al., 2009; Nilsen et al., 2006; Crawford et al., 2002).

One way to empower patients is through educating them and their families. Two systematic reviews found that patient education material helps patients adhere and comply with clinical guidelines, improves quality of care and reduces error and readmission rates (Bes et al., 2011; McPherson et al., 2001).

Eight primary studies encouraged forming patient advisories and ombudsman programs as well as tools to empower patients (Hollister & Estes,

2013; John, 2011; Wachter, 2010; Huss et al., 2010; Persson, 2008; Bismark et al., 2006; Entwistle et al., 2005; Wagner et al., 2001).

Table 4 **Key findings from systematic reviews and single studies**

Category of finding	Element 4
<b>Benefits</b>	<p>4 systematic review and 10 studies found that patient empowerment reduces the knowledge gap between healthcare providers and consumers, which fosters an increase in agreement and shared decision-making between the two parties about health services, strategies and policies as well as broadens the acceptance of healthcare and increases the efficiency of the healthcare system and patient safety (Boivin et al., 2014; Groene et al., 2014; Davis et al., 2011; Légaré et al., 2011; Tempfer &amp; Nowak, 2011; O'Connor et al., 2009; Davis et al., 2007; Coulter et al., 2006; Davies et al., 2006; Nilsen et al., 2006; Koutantji et al., 2005; Chambers, 2003; Abelson et al., 2003; Crawford et al., 2002).</p> <p>5 systematic reviews found that engaging and educating family members in shared decision-making improves quality of care since they will be taking care of the patient later on and, thus, reduces the possibility of adverse events and enhances patient safety due to their ability to identify medical errors that occur at healthcare organizations (Kripalani et al., 2007; Gaston &amp; Mitchell, 2005; Nose &amp; Barbui, 2003; Sarkisian et al., 2003; McDonald et al., 2002).</p> <p>2 systematic reviews found that patient education is important specifically in preventing adverse drug events and hospital re-admissions (Spinewine et al., 2013; Miller et al., 2007)</p> <p>2 systematic reviews found that patient education material helps patients adhere and comply with clinical guidelines, improves quality of care and reduces error and readmission rates (Bes et al., 2011; McPherson et al., 2001).</p> <p>2 studies found that forming advisories to help patients when medical errors or patient safety mishaps occur, ensures that the voices of patients and their families are considered as policies are being developed (Wachter, 2010), and helps reduce medical errors (Entwistle et al., 2005). Advisories also divert patients away from news media coverage which is their main source of information and provides them with more accurate patient education (Entwistle et al., 2005).</p>
	<p>Another way to empower patients is through developing</p>

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ombudsmen programs:

1 study found that ombudsman programs empower patients and their families through supporting family councils, by providing them with information and support, as well as suggested strategies, techniques, and approaches to use in addressing council concerns (Persson, 2008).

2 studies found that ombudsman programs help in continuous improvement of clinical governance issues, and in proposing new institutional reforms (Huss et al., 2010; Bismark et al., 2006).

3 studies found that ombudsman programs can have an impact on patient outcomes, where complaints are used to improve patient safety (Hollister & Estes, 2013; Bismark et al., 2006; Wagner et al., 2001).

A study found that ombudsman programs play a role when governments do not act properly or fairly or provide poor services after patients have filed complaints (John, 2011). They also help law enforcement obtain the evidence needed whenever an error occurs, and provide healthcare organizations and state governments with efficient ways to meet patients' needs, as well as reduce regulatory agencies' visits (Hollister & Estes, 2013).

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<b>Potential harms</b>	A cluster randomized trial found that lack of patients' understanding of scientific literature or resource implications could lead to unrealistic decisions, and that unbalanced recruitment of patients to be involved in decision-making may under represent the views of vulnerable patients with complex conditions or those from disadvantaged socio-economic groups (Boivin et al., 2014)
<b>Cost</b> and/ or cost effectiveness in relation to the status quo	2 systematic reviews found that patient involvement increased cost on healthcare organizations, mainly due to cost of compensation for their time, meal, travel expenses, coordination of patient recruitment and hiring facilitators (Domecq et al., 2014; Nilsen et al., 2006).
<b>Uncertainty</b> regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)	1 systematic review and 2 studies were not capable of generating a general assessment as well as a comparative analysis of the various published methods of consumer involvement in healthcare (Tempfer & Nowak, 2011; Boivin et al., 2011; Crawford et al., 2002). 2 systematic reviews found it difficult to assess the effectiveness of patient empowerment on improving health care and safety because different studies yielded different results (Tempfer & Nowak, 2011; Schwappach, 2009).

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2 systematic reviews and 1 study indicated that there is no any study evaluating the impact of integration of patient involvement in healthcare services improvement (Mockford et al., 2012; Brett et al., 2011; Crawford et al., 2002).  
 1 systematic review pointed out that no one study evaluated the effectiveness of patient education campaigns (Schwappach, 2009).

### Implementation considerations

Barriers to implementation are at the patient, professional, organizational and system levels.

Level	Barriers	Counterstrategies
<b>Patient</b>	Patients refusal to be involved in shared decision making and quality improvement due to their low health literacy rate and the lack of encouragement by healthcare workers to be involved (Davis et al., 2011; Wallace & Sembi, 2008; Marella et al., 2007; Waterman et al., 2006; Hibbard et al., 2005)	Develop a program, like the United Kingdom’s INLVOLVE program (INVOLVE 2015). Conduct campaigns such as the “speak up” and “it’s ok to ask” campaigns (The Joint Commission, 2015; National Institute for Health Research, 2015).
<b>Professional</b>	Resistance of providers to adopt guidelines due to lack of agreement with recommendations, lack of time, knowledge and financial incentives as well as a reluctance to change practice (Brusamento et al, 2012)  Resistance from practitioners who are skeptical about validity and usefulness of performance evaluation data (Lizarondo et al, 2014)	Reduce complexity of guideline recommendations; ensure robust and active dissemination strategies that target practitioner’s attitudes; promote interactive educational meeting together with reminders and educational outreach (Spallek et al, 2010; Brusamento et al, 2012) Ensure support by managers to create a culture that encourages performance appraisal (Luse, 2013; Rout & Roberts, 2008). Secure presence of a facilitator to provide physicians with guidance on how to improve (Ferguson et al., 2014; Saedon et al., 2012).
<b>Organizational</b>	Cost of training employees, employing new personnel and involving patients (Boivin et al., 2014; Domecq et al., 2014; Aggarwal et al., 2010; Wachter, 2010)  Availability of expert faculty, competing curricular/service demands, and institutional culture	Allocate specific funds for patient safety in general and specifically for trainings, staffing and patient empowerment (Wachter, 2010; Devers et al., 2004).  Quality improvement teaching programs should make the time required for trainee work-hour rules,

	<p>may affect implementation of patient safety and quality improvement in medical curriculum (Jones et al., 2015).</p> <p>Insufficient expertise and resources, lack of information on instructions and data collection, lack of managerial support and organizational commitment and technical issues like setting sustainable standards may hinder implementation of appraisals and audits (Vahidi et al., 2013)</p> <p>Punitive environment in health organizations and workload discourages professionals from reporting of medical errors (Sirriyeh et al., 2010; Evans et al., 2006).</p>	<p>competing demands and for faculty involvement clear. Also, dedicate a selected number of faculty staff to provide curriculum requirement (Jones et al., 2015).</p> <p>Intensive feedback mechanisms, effective training programs, high capacity for quality improvement, instructional support, participation of local ownership, resource commitment and rational basis for allocation and evidence-based researches for setting standards promote effectiveness of audit programs (Vahidi et al., 2013)</p> <p>Promote a non-punitive environment (El-Jardali et al., 2011). Simplify incidents reports and provide feedback on data (Mahajan, 2010; Evans et al., 2006).</p>
<b>System</b>	<p>Accountability and clarity of responsibilities and roles related to implementation of quality improvement and patient safety initiatives (El-Jardali and Fadlallah, 2015).</p> <p>Selection of performance indicators that are valid, reliable, applicable, and relevant to accreditation, standardization of methods of collection and reporting systems and establishment of systems to counter data manipulations</p>	<p>Establish national quality and patient safety policies that set out goals, indicators, clarify roles and responsibilities and identify incentives and non-incentives (El-Jardali and Fadlallah, 2015).</p> <p>Use risk adjustment to even out the playing field across providers regarding severity of patient mix, supply data via an online tool to enable auditing and checks to control “gaming” behavior, and impose penalties on hospitals failing to submit accurate data (So &amp; Wright 2012).</p> <p>Consider establishing through public/private partnerships a national institution for measuring, monitoring and benchmarking of quality and providing guidance and support to healthcare organizations (El-Jardali et al, 2011a)</p>

# Content

# K2P Policy Brief- Full report

## The Problem

While there has been an increase in the incidence and reporting of medical errors in Lebanon, the associated implications and debates about causes, responsibilities and accountabilities are ill-informed and in many cases not leading to real improvement in patient safety practices. Problems at the system, organizational and professional levels are contributing to the incidence of medical errors and the associated suboptimal responses.

## Size of the Problem

### National Level

In Lebanon, data regarding the exact number of reported errors is missing. However, in the past few years, media started to play a role in shedding light on some of the medical errors and sentinel events in Lebanese healthcare organizations. A study conducted by El-Jardali et al., 2015, found that between 2012 and 2013, the second most recurrent health topic in the print media was related to patient safety and medical errors. This topic mostly reported stories related to the death of patients due to medical errors during or after surgeries, deaths due to healthcare organizations' refusal to admit patients who are not financially covered, deaths because organizations lack appropriate equipment or do not have enough beds to accommodate emergency patients and deaths due to the weak dispatch system to transfer patients from one organization to another.

Another study mentioned that between 1996 and 2013, more than a thousand complaints related to medical malpractice were filed to the Order of Physicians (Al-Salim, 2014). Of these, 400 complaints were referred to the disciplinary council and about 300 disciplinary rulings and penalties were issued in accordance with the law. Most rulings however focused on physicians only, whereas the majority of preventable errors occur as the result of failures of complex healthcare systems and not individual negligence or incompetence, as emphasized by the Institute of Medicine (Kohn et

## Background to Policy Brief

*A K2P Policy Brief brings together global research evidence, local evidence and context-specific knowledge to inform deliberations about health policies and programs. It is prepared by synthesizing and contextualizing the best available evidence about the problem and viable solutions and options through the involvement of content experts, policymakers and stakeholders.*

### The preparation of the Policy Brief involved the following steps:

- 1) *Selecting a priority topic according to K2P criteria*
- 2) *Selecting a working team who deliberates to develop an outline for the policy brief and oversee the litmus testing phase.*
- 3) *Developing and refining the outline, particularly the framing of the problem and the viable elements*
- 4) *Litmus testing by conducting one to one interviews with up to 15 selected policymakers and stakeholders to frame the problem and make sure all aspects are addressed.*
- 5) *Identifying, appraising and synthesizing relevant research evidence about the problem, elements, and implementation considerations*
- 6) *Drafting the brief in such a way as to present concisely and in accessible language the global and local research evidence.*
- 7) *Undergoing merit review*
- 8) *Finalizing the Policy Brief based on the input of merit reviewers, translating into Arabic, validating translation, and disseminating through policy dialogues and other mechanisms.*

al., 2000). From the 300 issued rulings, 50 resulted in physicians being suspended from work for a period of time ranging between 2 and 6 months and only one physician was permanently banned from practicing medicine (Al-Salim, 2014).

Recently, the incident involving Ella Tannous became the highlight of the Lebanese media. The patient, who was 8 months old at the time, was admitted to the hospital due to high fever and ended up leaving a month later with a quadruple limb amputation (see Appendix 1 for more details on the timeline of events). A complaint was filed to the Order of Physicians against Ella's physician to further investigate whether the adverse event was the result of a medical error. In January 2016, a report of 220 pages regarding the investigation was issued and addressed the reasons behind Ella's adverse event. It was found that the responsibilities are dispersed and systematic and involved parties at the system, organizational and provider levels. The report indicated that multiple stakeholders including hospital directors and physicians are to be held accountable for the medical error (LBC International, 2016).

Following Ella Tannous' incident, several cases were reported by media regarding medical errors. One of the reported events involved the issuance of a warrant by the Ministry of Public Health to temporarily stop contracting with a hospital after one of its patients died due to a medical error (Assafir, 2015a). Another event involved banning of a physician from practicing after confirming his responsibility for a medical error. A third incident related to the patient Hussein Msheik who went into coma after having a surgery; consequently, his parents filed a complaint to the Syndicate of Private Hospitals. However, the report attributed such incidence to the result of complications and not a medical error. Yet, several gaps in the system were pointed out, including one of an unlicensed physician practicing medicine and the possibility that procedures performed did not comply with medical and surgical standards (Lebanon files, 2015a). A fourth story was that of a patient who had an accident and was transferred to the closest hospital by the Red Cross. Upon their arrival to the hospital, the patient was declined admission due to lack of beds in the intensive care unit, which resulted in the patient's death (Assafir, 2015b). Following this incident, the MoPH decided to stop its contract with the hospital (except for the coverage of dialysis patients), which resulted in the community protesting against the ministry's decision (Assafir, 2015c). In January, 2016, a 2-months old patient at a hospital developed complications because the intravenous serum was misplaced. The parents spread the news over social media, accusing the hospital of being negligent. The hospital, however, declined the incidence to be a medical error and quickly formed a committee to implement new policies and assess the incident to prevent future similar events (Assafir, 2016).

In November 2015, the MoPH reached an understanding with private hospitals to develop a fast response mechanism, where a private telecommunication company is hired to receive patient complaints 24 hours a day. Once the complaint is received, the telecommunication company contacts private hospitals to resolve the most urgent complaints. Whenever a solution is not found, or the people in charge from private hospitals are not available, the MoPH is contacted (Lebanon files, 2015b).

### **Regional Level**

In 2002, the World Health Assembly made the first global approach to deal with patient safety urging the WHO to pay attention to the problem of patient safety specifically in the Eastern Mediterranean Region (EMR) (Wilson et al., 2012). The WHO World Alliance for Patient Safety in collaboration with the Ministries of Health in Egypt, Jordan, Kenya, Morocco, South Africa, Sudan, Tunisia, and Yemen and the WHO Eastern Mediterranean and African Regions (Wilson et al., 2012) developed the Patient Safety Friendly Hospital Initiative in 2007 to tackle the enormous patient safety issues in the EMR and African regions (Siddiqi et al., 2012). This initiative requires periodic assessment of safety culture at participating hospitals (WHO, 2015b; Hamdan & Saleem, 2013).

A retrospective study done in the eight countries participating in the Patient Safety Friendly Hospital Initiative found that in 2005, the average adverse events rate was 8.2%, ranging from 2.5% to 18.4% (Wilson et al., 2012). The proportion of adverse events associated with death was 30% and the percentage of preventable events was 83% (Wilson et al., 2012). Studies in other countries of the EMR, such as Saudi Arabia, Palestine, Oman and Turkey found that the main reasons behind adverse events and medical errors included: staffing, whether shortage of healthcare providers, lack of training or lack of available professional staff, and work overload whereby most providers work more than 40 hours per week. Another reason related to the prevalent blaming culture which is associated with underreporting of errors or near misses (El-Jardali et al., 2014a; Hamdan & Saleem, 2013; Alahmadi, 2010; El-Jardali et al., 2010; Bodur & Filiz, 2009; Al-Mandhari et al., 2008).

Similarly, studies conducted in Lebanon, Palestine, Saudi Arabia, and Turkey showed that staffing, non-punitive response to error, and communication needed improvement in order to enhance patient safety culture and reduce medical errors (El-Jardali et al., 2014a; Hamdan & Saleem, 2013; Alahmadi, 2010; El-Jardali et al., 2010; Bodur & Filiz, 2009).

## **International Level**

Worldwide, adverse outcomes occur in 10% of hospitals (WHO, 2015). Studies report the occurrence of adverse events in 4% to 17% of admitted cases, of which 5% to 21% result in death (WHO, 2015), while 50% of these cases could have been prevented (WHO, 2015; Siddiqi et al., 2012).

In developed countries, as concluded by a systematic review, adverse events happen in 9.2% of cases admitted to hospitals (De Vries et al., 2008). The World Health Organization (WHO) revealed that one in ten patients is harmed during hospitalization (WHO, 2015). According to the Institute of Medicine Report, around 44,000 to 98,000 patients die annually in America as a result of medical errors, with one medication error occurring per hospitalized patient per day, and 7,000 deaths per year resulting from medication errors. This exceeds the number of deaths from highway accidents, breast cancer, or AIDS (Kohn et al, 2000). In addition, the rate of self-reported medical error ranges from 12% to 20% in a study conducted in seven developed countries, with the lowest rate being in Germany and the highest in Australia (O'Hagan et al., 2009).

## **Underlying Factors**

The following section focuses on the underlying factors at the governance, financial and delivery arrangement levels of the health system.

### **Governance**

While the Ministry of Public Health (MoPH) and health care organizations in Lebanon have been putting efforts to enhance quality and patient safety, much work is needed to ensure quality and patient safety are embedded in the day to day operations of healthcare organizations.

At present, the MOPH runs two separate national accreditation programs; one for hospitals and one for primary healthcare centers (the latter initially implemented in collaboration with Accreditation Canada International (ACI)). Despite the presence of accreditation, there is still no explicit national policy for quality improvement and patient safety in Lebanon. The development of such policy is important as it would 1) set out the main objectives of government to assure quality and patient safety in healthcare and to continuously improve the care provided, 2) identify and clarify the roles, responsibilities and relationships between the different entities involved in quality improvement and patient safety and 3) identify meaningful and sustainable incentives (the right combination of non-monetary and monetary incentives) and non-incentives as well as establish consequences of performance (Shaw, 2004).

In addition, there are no legislative requirements for healthcare organizations to implement specific quality improvement systems; such as incident reporting systems, or to report on a national set of standardized performance indicators for benchmarking and quality improvement across both private and public sector (El-Jardali and Fadlallah, 2015).

The accreditation system in Lebanon serves as an important tool to regulate and improve quality of care in healthcare organizations (Ammar et al. 2007). So far, the MOPH has implemented three national hospital accreditation surveys, with plans underway to launch the first national primary healthcare accreditation survey (El-Jardali et al, 2012; Saleh et al, 2013). Despite the success of the accreditation system in Lebanon, particularly for hospitals and primary health care centers, still the accreditation program does not cover other providers of care such as polyclinics, long-term care, diagnostic facilities and laboratories and mental health institutes (both in public and private sector). In addition, the current hospital accreditation process has several gaps. For instance, the accreditation standards are outdated and do not meet the International Society for Quality in Health Care (ISQua) requirements. Also, the accreditation “status” is not renewed on a regular basis (e.g. every 3 years) which risks healthcare organizations losing the momentum for quality improvement. Moreover, there are no mechanisms in place to ensure quality is maintained and sustained in healthcare organizations post-accreditation. Finally, there are no certified national auditors or any requirement in place for periodic re-certification (El-Jardali and Fadlallah, 2015).

Acknowledging some of the shortcomings, the MOPH is currently revising the hospital accreditation program with plans in place to revamp the accreditation standards and update them based on ISQua-requirements.

Within healthcare organizations, there are gaps and dysfunctions in the area of clinical governance, specifically clinical audits, performance appraisals, and education and training of providers in quality improvement and patient safety.

Clinical auditing and documentation are not adequately performed in the Lebanese healthcare sector with no accurate assessment of performances and processes (Jamali et al., 2010), which makes it difficult to enhance or evaluate performance and patient safety. In addition, the use of evidence-based clinical practice in healthcare organizations is still limited (Maroun et al., 2010), though teaching hospitals were reportedly more likely to

*Clinical governance is “a system through which health organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish” (Braithwaite and Travaglia, 2008; Scally & Donaldson, 1998)*

use clinical guidelines to establish clinical protocols (Natafqi et al., 2011). This is exacerbated by the fact that physicians in Lebanon are not hospital employees since they are not full timers and do not work for a single hospital; making it difficult for them to adhere to specific guidelines and policies, since they are not standardized and differ from one organization to another.

Gaps in training and education are related to providers' training, continuing Medical Education (CME) and providers' curriculum.

Training of health care providers in quality improvement and patient safety in healthcare organizations is not optimal; for example, a study conducted in 2012 found that hospitals in two of the busiest regions in Lebanon (Beirut and Mount Lebanon) did not receive adequate training on patient safety (El-Jardali et al., 2012). This is mainly due to the fact that there is no clear policy that requires training or continuing medical education within healthcare organizations.

While the Order of Physicians advises physicians to seek Continuing Medical Education (CME), physicians rarely undertake any kind of CME (Assaad-Khalil et al., 2013). Even when CME is provided, no proper monitoring is done to make sure physicians complete their required 50 hours per week (as mandated by the Order of Physicians). When it comes to implementing new practices that are introduced at CMEs, resources to do so are often limited and little monitoring is done to assess the effectiveness of CMEs.

Additionally, CME is not a requirement for healthcare providers to maintain their licenses to practice (Kassak et al., 2006). Licensing of healthcare providers is only done once at the beginning of their career and the MoPH does not require re-licensing. This is exacerbated by the absence of systems for performance appraisal in both the national and clinical governance bodies (El-Jardali et al., 2009), which makes it difficult to assess whether providers are qualified and competent.

Another challenge concerns the curriculum of medical students which focuses mostly on disease diagnosis and management, and less on proper management of healthcare systems and quality improvement. In fact, a study showed that 85% of medical students did not receive any course related to quality improvement, while 93% acknowledged the need to be taught such material (Natafqi et al., 2011). The insufficient acquaintance with patient safety concepts may hinder the capabilities of future physicians to detect, prevent or communicate medical errors, thus affecting patient outcomes. And while patient safety concepts remain absent from physician's education in Lebanon, these concepts were integrated into the curriculum of Lebanese nursing schools through a collaborative effort between the Syndicate of Private Hospitals and the Ministry of Education in 2008 (Haroun, 2008). Yet, not all

nursing schools teach the same curricula, and no monitoring is done to ensure patient safety knowledge is being taught.

There are other barriers that contribute to the problem at the governance arrangement level. First, the Disciplinary Order, which is in charge of the final verdict of a physician who performs a medical error, usually fails to take action. Second, the report submitted to the Disciplinary Order by the Professional Investigation Committee focuses mostly on the final events that occur right before the adverse event, instead of investigating the underlying system and infrastructure factors which may have had a greater impact on the final event and are not necessarily directly related to the physician's performance alone (Al-Salim, 2014). Third, the law which holds healthcare organization's management accountable for its healthcare providers' competencies, and therefore, responsible whenever a medical error occurs (De Mar Youssef, 2010), is not always necessarily translated in practice.

Finally, patients lack knowledge about their rights when it comes to medical errors (Morcos, 2015a), and it is sometimes difficult for them to prove that they have been the victims of a medical error. This is due to many factors such as patients' lack of knowledge in medical practices, the lack of standardized medical records, organizations' capability of potentially manipulating patient records, and the complexity of the system where the error might have occurred (Morcos, 2015b).

### **Financing**

Incentive systems that link contractual agreement, regulations, accreditation status, and performance indicators are still underutilized in Lebanon (El-Jardali and Fadlallah, 2015). These are important in order to encourage health care organizations (both public and private sector) and health personnel to engage in quality improvement and patient safety initiatives (El-Jardali and Fadlallah, 2015).

Up till 2014, contractual agreement by MOPH linked reimbursement solely to accreditation status. However, the results of a recent study revealed that contracting based on the current accreditation system was unfair, since hospitals that were placed in the same accreditation category were reimbursed the same even if they were not homogeneous in terms of performance or in complexity and risk of cases they admit (Ammar et al, 2013). Thus, in April 2014 the MOPH declared the establishment of a new financing arrangement in ministerial decision no 802/1 that is based on a combination of factors for use in setting tariffs for the services provided by the contracted private and public hospitals. A contracting score is calculated for each hospital using the following formula: 40% Accreditation + 10% Patient Satisfaction + 35% Case Mix Index (CMI) + 5% Intensive Care Unit (ICU)

proportion + 5% Surgical/Medical proportion + 5% Deduction proportion by MOPH auditing for inappropriate billing (MOPH, 2014).

However, the new re-imbusement formula does not include measures that reflect hospital's actual performance. The addition of outcome measures such as mortality index, complications index, and cash flow margins can allow for the monitoring of the actual performance of hospitals (Griffith et al., 2002) in addition to the CMI, ICU and Surgical/Medical proportions which may serve as indicators for risk adjustment but are inadequate on their own for monitoring actual performance (El-Jardali et al, in-preparation).

While accreditation of hospitals is a pre-requisite for contracting and financial reimbursement by the MOPH (El- Jardali et al., 2011), other public and private third party payers do not link contractual agreements with healthcare organizations to accreditation status or attainment of specific quality and patient safety indicators. In India, Brazil, and Costa Rica, insurers and employers are increasingly relying on accreditation award as a prerequisite for provider participation in their health care reimbursement programs (Mate et al, 2014). In Australia, the Netherlands and some US settings, accredited practices received higher fee-for-service and support from insurance companies (O'Beirne et al, 2012).

At the level of primary healthcare (PHC), a performance-based contracting system which includes centers that pass accreditation is being developed (El-Jardali and Fadlallah, 2015).The latter is important to encourage implementation of accreditation standards in PHC centers, which in turn has positive implications on quality of care.

Modes of physician reimbursement also have an impact on patient safety since they affect the type of services delivered by physicians. Specifically physicians will be prompted to focus on providing more of the services that are compensable and less on the non-compensable ones, which may have negative implications on quality of care and patient outcomes (McLeod et al., 2012; Hurley, 2010).

### **Delivery**

In Lebanon, the concept of a patient safety culture is still not instilled in the day to day operations of their healthcare organizations. This is promoting a punitive environment within health organizations, and is the reason why healthcare providers hesitate to report medical errors (El-Jardali et al., 2011; Sirriyeh et al., 2010). Between 2010 and 2011, 6,807 healthcare providers from different Lebanese hospitals were surveyed regarding the patient safety culture in their institution. Results revealed that 81.7% of the participants felt that their mistakes, if reported, will affect them negatively and will be held against them. 82.3% were concerned that mistakes occurring, even if related to problems at the organization's system, will be kept in their

personal files instead of being used for performance improvement (El-Jardali et al., 2010). These perceptions can help explain why 60% of employees stated that they have refrained from reporting medical errors and near misses in the past year (El-Jardali et al., 2010). A main barrier behind underreporting of errors is the presence of a punitive environment which creates fear of reporting and humiliation as well as a lack of strong leadership and management to promote a patient safety culture (El-Jardali et al., 2011; Sirriyeh et al., 2010).

Another challenge relates to the suboptimal training of providers on how to lead, implement and follow up on quality improvement and patient safety initiatives in health care organizations (El-Jardali & Fadlallah, 2015). For instance, ensuring hands-on skills on how to apply patient safety standards and goals remains a main challenge (El-Jardali et al., 2012; El-Jardali et al., 2011). The latter is exacerbated by the absence of explicit accreditation standards for training of providers in quality improvement and patient safety (El-Jardali et al., 2012). And while some improvement has been noted in providing health personnel with protected time to participate in quality improvement and patient safety activities, this has not been systematically applied across healthcare organizations. For example, training and capacity building activities at PHC centers often occur after working hours to avoid interrupting the workflow (El-Jardali and Fadlallah, 2015). Similarly, there is a need for more training of personnel on how to evaluate and improve their own performances and that of their health care organizations beyond compliance to accreditation standards (El-Jardali and Fadlallah, 2015).

Additionally, it was found that training on patient safety varies by the size of the healthcare organizations. Smaller organizations have a stronger patient safety culture as employees receive more training related to patient safety and share similar values (El-Jardali et al., 2012; El-Jardali et al., 2011; El-Jardali et al., 2010). Larger organizations, with more complicated systems, find it harder to train their employees and integrate patient safety into their culture (El-Jardali et al., 2011; El-Jardali et al., 2010).

Another challenge relates to shortages in staffing and work overload, both of which negatively affect patient outcomes and safety. In a study conducted in Lebanon, 40% of participants recognized that they suffer from a shortage in human resources, 66.9% suffered from long work hours and 72.7% admitted the need to execute tasks at a fast pace due to pressure (El-Jardali et al., 2010). The long working hours and shortage in staffing are directly related to medical errors (Baldwin et al., 2011; Fletcher et al., 2011). This is because providers become frustrated, anxious, stressed and depressed (Toh et al., 2012; El-Jardali et al., 2010). Shortage in staffing also limits the time physicians have to assess and complete patients' medical records (El-Jardali et al., 2014b), which affects patient safety.

The limited presence of clinical pharmacists in hospitals is another area of staffing problem that many Lebanese hospitals face. The presence of clinical pharmacists reduces the chance of developing adverse drug event and other dosage and drug related preventable errors (Kaboli et al., 2006). The latter is further exacerbated by the absence of the culture of multidisciplinary team approach to provide appropriate care to patients, which may enhance communication and reduce the occurrence of preventable medical errors (Gurses & Xiao, 2006).

Communication within and across healthcare institutions is another major problem, especially when it comes to handoffs and reporting on medical errors. Miscommunication during handoffs contributes to an increase in medical errors (El-Jardali et al., 2010). Miscommunication is due to problems at the organizational level such as poor teamwork, unclear instructions of procedures and lack of central information repositories (Foster & Manser, 2012; Segall et al., 2012; Baldwin et al., 2011; Riesenberg, 2009). Although improvements can be seen with the integration of a standardized sheet that is to be filled during handoffs, no single form is available, standardized and validated to be used among different organizations (El-Jardali et al., 2013). At the same time, it should be noted that to be able to properly use a centralized information system or readily available charts, training of providers is necessary; yet in Lebanon training is still not a requirement at the national or organizational levels (El-Jardali et al., 2012; El-Jardali et al., 2011). In addition, poor documentation of medical records is a catalyst for healthcare providers to perform errors. A study conducted by El-Jardali et al., 2013, found that in primary healthcare centers, 71.3% of respondents did not place a summary of the service provided to the patients into their medical records in a timely manner (El-Jardali et al., 2013).

Another communication-problem relates to the poor establishment and use of informed consents in Lebanese hospitals which, in turn, is creating information asymmetry between patients and providers. Informed consents protect patients' and healthcare workers' rights (Brink et al., 2012), and play a role in guiding and educating patients about the procedures they will be undergoing and adverse events that may potentially occur (Mavroudis et al., 2014).

## **Elements of a policy approach to address the problem**

The following four elements form part of a comprehensive approach to tackle the issue of medical error, and therefore can be adopted either independently or could complement one another.

**Element 1**› Enhance clinical governance through the integration of evidence-based clinical guidelines, education and training of providers, and conducting audits and performance appraisals

**Element 2**› Develop and implement policies that promote anonymous incident reporting at the organizational and national level

**Element 3**› Revise and update current accreditation systems to ensure patient safety goals, indicators and training requirements are explicit in the standards and integrated in the contractual arrangements

**Element 4**› Empower patients to enhance quality of care and patient safety

# Elements

# Policy Elements and Implementation Considerations

## Element 1

*Enhance clinical governance through the integration of evidence-based clinical guidelines, education and training of providers, and conducting audits and performance appraisals*

Evidence-based clinical guidelines, education and training of providers, and conducting audits and performance appraisals are key constituents of clinical governance. Compelling evidence from systematic reviews has demonstrated the effectiveness of each of these interventions in improving quality and patient safety in health care organizations. These are discussed in details below.

### Evidence-based guidelines

The importance of using evidence-based practices is well recognized by the literature. Eight systematic reviews found that evidence-based practices lead to higher quality of care since they significantly improve skills, knowledge and attitudes of providers (Scurlock-Evans et al., 2014; Ubbink et al., 2013; Dizon et al., 2012; Flodgren et al., 2012; Lugtenberg et al., 2009; Menon et al., 2009; Flores-Mateo & Argimon, 2007; Bahtsevani et al., 2004). In addition, 1 systematic review and 5 studies found that implementing evidence-based practices reduces costs on healthcare organizations (Black et al., 2015; Pedro-Gomez et al., 2012; Considine & McGillivray, 2010; Peterson et al., 2008; Fineout-Overholt et al., 2005; Bahtsevani et al., 2004). However, 2 systematic reviews noted that their implementation is still scarce even though they are embraced by healthcare workers and organizations (Scurlock-Evans et al., 2014; Ubbink et al., 2013).

### Education and training of providers

There has been increased interest in education and training in patient safety and quality improvement over the past few years (Kirkman et al, 2015). For example, the Association of American Medical Colleges (AAMC) has endorsed the introduction of formal quality improvement education, from medical school through to postgraduate training and continuing medical education. Similarly, the Accreditation Council for Graduate Medical Education (ACGME) has incorporated essential competencies relating to quality and

## S U M M A R Y

### Element 1

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### Element 2

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### Element 3

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### Element 4

Empower patients to enhance quality of care and patient safety

safety in the residency training programs for medical professionals (Accreditation Council for Graduate Medical Education, 2013; Association of American Medical Colleges, 2001). In 2009, the World Health Organization (WHO) published the “WHO Patient Safety Curriculum Guide for Medical Schools” to help medical schools introduce and promote patient safety education in the fields of medicine, dentistry, nursing, pharmacy and other related health-care professions (WHO, 2009).

Four systematic reviews found that the inclusion of quality improvement (QI) and patient safety educations in the curricula of trainees and medical students was well received by learners and enhanced their knowledge, skills and attitudes towards quality improvement and patient safety as well as improved their engagement in quality improvement projects (Kirkman, 2015; Wong 2010; Nie et al, 2011; Boonyasai, 2007). In one review, it was noted that curricula associated with beneficial clinical outcomes included those with QI tools and coaching on QI methods, access to clinical performance data and implementing interventions via small tests of change (Boonyasai, 2007). Two systematic reviews reported that the availability of expert faculty, competing curricular/service demands, and institutional culture were important factors affecting implementation (Kirkman et al, 2015; Wong et al, 2010).

Four systematic reviews found that team-training can meaningfully improve providers’ knowledge and attitudes, teamwork processes, clinical care processes and patient outcomes, including adverse events, mortality and morbidity (Weaver et al, 2013b; Schmutz and Manser, 2013; Buljac-Samardzic et al, 2010; Weaver et al, 2010). Reported effect sizes were larger for bundled team-training interventions that included tools and organizational changes to support sustainment and transfer of teamwork competencies into daily practice (Weaver et al, 2013b).

Two systematic reviews examined strategies to promote a culture of patient safety and found that leadership walk rounds (which allow executives and clinical leaders to break down patient safety barriers through direct communication), interdisciplinary rounding, and comprehensive unit-based safety programs that use structured frameworks to address patient safety defects, had the most positive impact on patient safety climate and patient outcome (Morello et al, 2012; Weaver et al, 2013a).

An overview of 39 systematic reviews found that continuing medical education (CME) improves physicians’ knowledge, attitudes, behaviors and performances as well as patient health outcomes. CME activities that are more interactive, are longer, involve multiple exposures, use more methods, and are focused on outcomes considered important by physicians lead to more positive outcomes (Cervero et al, 2015). Another overview of 26 systematic reviews on CME techniques found that interactive methods (audit/feedback, interactive education, academic detailing, and reminders)

were the most effective at improving performance and patient health outcomes followed by clinical practice guidelines (Bloom, 2005).

### **Audit and feedback**

Audit and feedback has been highlighted as one of the most effective techniques to improve performance and patient health outcomes (Cervero et al, 2015). An overview of systematic reviews, a meta-analysis, a systematic review and a critical review of the literature found that audit and feedback is an effective tool to improve clinical performance of healthcare providers. In one systematic review, audit and feedback improved quality of care by 10%. Two systematic reviews and 1 meta-analysis found that feedback is most effective if provided by a supervisor or a colleague, delivered more than once (preferably in written format), frequent, individualized and includes specific goals and action plans (Ivers et al., 2014; Ivers et al., 2012; Hysong, 2009).

Some uncertainties were also noted. For instance, in 1 systematic review, the effects of audit and feedback varied widely from an apparent negative to very large positive effect (Jamtvedt et al., 2006). Two systematic reviews and 1 overview of systematic reviews also found that studies are not always clear about the effectiveness of audit and feedback (Johnson & May, 2015; Ferguson et al., 2014; Ivers et al., 2014). Nonetheless, intensive feedback mechanisms, effective training programs, high capacity for quality improvement, instructional support, participation of local ownership, resource commitment and rational basis for allocation, and evidence-based researches for setting standards were highlighted as key factors to promote effectiveness of audit programs (Vahidi et al., 2013).

### **Performance appraisal**

Performance appraisal is important in healthcare organizations to increase quality of care and ensure continuous education of providers (Choudhary & Puranik; 2014; Gould et al., 2007; Hamilton et al., 2007; Narayanasamy, & Narayanasamy, 2007; Cowan et al., 2005).

One of the most widely used tools for physicians' performance appraisal is Multisource Feedback (MSF) (or 360 degree evaluation). In MSF, physicians usually complete a self-evaluation instrument and receive feedback from a number of sources including medical colleagues, preceptors or supervisors and non-physician coworkers (e.g. pharmacists, nurses) as well as their patients. Different respondents focus on characteristics of the physician they are capable of assessing and together provide a more comprehensive evaluation than what could have been derived by any one source alone (Donnon et al., 2014).

Seven systematic reviews found that MSF enhances physician performance and reflects on where change is required in their practices

(Donnon et al., 2014; Ferguson et al., 2014; Al Khalifa et al., 2013; Saedon et al., 2012; Miller & Archer, 2010; Wilkinson et al., 2009; Overeem et al., 2007). Eight systematic reviews also found that MSF enhances non-technical competencies such as communication, interpersonal, collegiality, humanism and professionalism skills (Donnon et al., 2014; Ferguson et al., 2014; Al Khalifa et al., 2013; Saedon et al., 2012; Miller & Archer, 2010; Wilkinson et al., 2009; Overeem et al., 2007; Jamtvedt et al., 2006). In addition, 2 systematic reviews found that MSF is the most appropriate and practical method to adopt in terms of time and cost effectiveness (Ferguson et al., 2014; Overeem et al., 2007).

Although MSF leads to performance improvement, 1 systematic review reported that many factors such as individual factors, the context of feedback, and the presence (or absence) of facilitation have effects on the magnitude of the response (Miller & Archer, 2010).

Re-certification or re-licensing of providers is another critical approach to ensure physicians and other providers remain competent (WHO, 2008). The findings from one systematic review suggested that performance of physicians decline over time for all patient health outcomes measured (Choudhry et al., 2005). Although no systematic reviews were identified regarding re-certification or re-licensing, several single studies found an association between provider re-certification and improved clinical outcomes and quality of care (Gallagher et al., 2014; Hawkins et al., 2013; Nora, 2013; WHO, 2008). Evidence to support re-certification can come from several sources, including: clinical auditing, knowledge tests, patient feedback, employer appraisal, continuing professional development and observation of practice (WHO, 2008). Two systematic reviews mentioned that MSF can be used for continuous evidence of ongoing performance by licensing bodies to re-license physicians (Ferguson et al., 2014; Al Khalifa et al., 2013). In addition, one overview of systematic reviews on CME, suggested that CME credits can be linked to re-certification (Bloom, 2005).

**Table 1 Key findings from systematic reviews and single studies**

<b>Category of finding</b>	<b>Element 1</b>
<b>Benefits</b>	<p><b>Evidence-based guidelines</b></p> <p>8 systematic reviews encourage the implementation of evidence-based practices for higher quality of care since they significantly improve skills, knowledge and attitude of providers (Scurlock-Evans et al., 2014; Ubbink et al., 2013; Dizon et al., 2012; Flodgren et al., 2012; Lugtenberg et al., 2009; Menon et al., 2009; Flores-Mateo &amp; Argimon, 2007; Bahtsevani et al., 2004).</p>

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## **Education and training**

4 systematic reviews found that inclusion of quality improvement (QI) and patient safety educations in curricula of trainees and medical students was well received by learners, and enhanced their knowledge, skills and attitudes towards quality improvement and patient safety as well as improved their engagement in quality improvement projects (Kirkman, 2015; Wong 2010; Nie et al, 2011; Boonyasai, 2007).

An overview of 39 systematic reviews found that continuing medical education (CME) (ranging from educational meetings to more expansive learning activities) improves physicians' knowledge, attitudes, behaviors and performances as well as patient health outcomes, with more reliably positive effects on physician performance than on patient health outcomes. CME activities that are more interactive, use more methods, are longer, involve multiple exposures, and are focused on outcomes considered important by physicians lead to more positive outcomes (Cervero et al, 2015).

An overview of 26 systematic reviews on educational techniques found that interactive methods (audit/feedback, interactive education, academic detailing, and reminders) were the most effective at improving performance and patient health outcomes followed by clinical practice guidelines and opinion leaders. Printed materials alone had little or no beneficial effect (Bloom, 2005).

2 systematic reviews examined strategies to promote culture of patient safety and found that leadership walk rounds, interdisciplinary rounding, and comprehensive unit-based safety program (CUSP) had the most positive impact on patient safety climate and patient outcome (Morello et al, 2012; Weaver et al, 2013).

4 systematic reviews found that team-training can meaningfully improve participant knowledge or attitudes, teamwork processes, clinical care processes and even patient outcomes including adverse events, mortality and morbidity across a range of clinical contexts (Weaver et al, 2014; Schmutz J, Manser, 2013; Buljac-Samardzic et al, 2010; Weaver et al, 2010). Reported effect sizes were larger for bundled team-training interventions that included tools and organizational changes to support sustainment and transfer of teamwork competencies into daily practice (Weaver et al, 2014).

## **Audit and feedback**

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An overview of systematic reviews, a meta-analysis, a systematic review and a critical review of the literature found that audit and feedback is an effective tool to improve clinical performance of healthcare providers (Johnson & May, 2015; Ivers et al., 2012; Hysong, 2009; Lu et al., 2008).

1 systematic review found that audit and feedback can improve quality of care by 10 % (Ivers et al., 2014).

2 systematic reviews and a meta-analysis specified that feedback is most effective when baseline adherence to recommended practice is low, it is provided by a supervisor or a colleague, delivered intensively and more than once (preferably in written form), individualized, and includes specific goals and action plans (Ivers et al., 2014;; Ivers et al., 2012; Hysong, 2009)

3 systematic reviews found that MSF was more effective when used in certain departments such as family medicine, surgery and internal medicine (Donnon et al., 2014; Al Khalifa et al., 2013; Miller & Archer, 2010).

### **Performance appraisal**

7 systematic reviews found that the Multisource Feedback (MSF) or 360 degree evaluation tool enhances physician performance and reflects on where change is required in their practice (Donnon et al., 2014; Ferguson et al., 2014; Al Khalifa et al., 2013; Saedon et al., 2012; Miller & Archer, 2010; Wilkinson et al., 2009; Overeem et al., 2007).

8 systematic reviews found that MSF also enhances non-technical competencies, e.g. communication, interpersonal and professionalism skills (Donnon et al., 2014; Ferguson et al., 2014; Al Khalifa et al., 2013; Saedon et al., 2012; Miller & Archer, 2010; Wilkinson et al., 2009; Overeem et al., 2007; Jamtvedt et al., 2006).

1 systematic review and 4 studies found that provider performance appraisal enhances quality of care, patient safety, and continuous performance development through continuing education of employees, helping employees develop new skills, attracting and retaining appropriate and qualified providers, and creating trust and better communication between providers and management (Choudhary & Puranik; 2014; Gould et al., 2007; Hamilton et al., 2007; Narayanasamy, & Narayanasamy, 2007; Cowan et al., 2005).

Several single studies found an association between provider re-certification and improved clinical outcomes and quality of

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	<p>care (Gallagher et al., 2014; Hawkins et al., 2013; Nora, 2013; WHO, 2008). In addition, systematic reviews found that multisource feedback (MSF) can be used to support re-licensing (Ferguson et al., 2014; Al Khalifa et al., 2013), and suggested that CME credits can be linked to re-certification (Bloom, 2005).</p>
<p><b>Potential harms</b></p>	<p>1 systematic review found that evidence-based practice is thought to decrease therapeutic autonomy and thus reduce motivation to implement it (Scurlock-Evans et al., 2014).</p> <p>1 systematic review found that even when evidence-based practice is implemented, it does not always mean that high quality evidence is being used, which may affect the quality of care provided (Scurlock-Evans et al., 2014).</p> <p>1 systematic review found that the lack of training in providing feedback and lack of trust in the formative nature of assessment had a negative effect on behavioral change in physician’s performance (Saedon et al., 2012).</p> <p>1 systematic review found that multisource feedback lacks rigor, effectiveness and overall utility (Ferguson et al., 2014).</p> <p>1 systematic review found that provider performance appraisal is sometimes viewed by providers as a threat to sorting out poor performance which creates fear in the working environment; thus support by managers is necessary to create a culture that encourages performance appraisal (Hamilton et al., 2007)</p> <p>2 studies found that provider performance appraisal is time consuming, and requires the whole team to be trained on how to perform it (Gould et al., 2007; Narayanasamy, &amp; Narayanasamy, 2007).</p>
<p><b>Cost and/ or cost effectiveness in relation to the status quo</b></p>	<p>1 systematic review and 5 studies found that implementing evidence-based practices reduces cost on healthcare organizations (Black et al., 2015; Pedro-Gomez et al., 2012; Considine &amp; McGillivray, 2010; Peterson et al., 2008; Fineout-Overholt et al., 2005; Bahtsevani et al., 2004).</p> <p>2 systematic reviews found that MSF is the most appropriate and practical method to adopt in terms of time and cost-effectiveness (Ferguson et al., 2014; Overeem et al., 2007).</p> <p>1 study found that performance appraisal incurs high costs on smaller firms, however this can be solved if larger firms provide them with the appraisal tools and resources needed (De Kok &amp; Uhlaner, 2001).</p>

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<p><b>Uncertainty</b> regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)</p>	<p>2 systematic reviews found that even though evidence-based practice is embraced by healthcare workers and organizations, its implementation is still scarce (Scurlock-Evans et al., 2014; Ubbink et al., 2013).</p> <p>2 systematic reviews found that the effectiveness of feedback and its ability to lead learning and change performance is not always clear. Its effectiveness is greater when baseline adherence to recommended practice is low and when feedback is delivered intensively (Ferguson et al., 2014; Jamtvedt et al., 2006).</p> <p>2 systematic reviews and 1 overview of systematic reviews found that studies are not always clear about the effectiveness of audit and feedback (Johnson &amp; May, 2015; Ferguson et al., 2014; Ivers et al., 2014). In another systematic review, the effects of audit and feedback varied widely from an apparent negative to very large positive effect (Jamtvedt et al., 2006).</p> <p>1 systematic review supported the use of multisource feedback (MSF) as a tool for performance improvement; at the same time, it reported that it had difficulties in identifying its long-term impact and effectiveness on education and quality of care (Overeem et al., 2007).</p> <p>1 systematic review mentioned that, although MSF leads to performance improvement, still many factors such as individual factors, the context of feedback, and the presence (or absence) of facilitation have effects on the magnitude of the response (Miller &amp; Archer, 2010).</p> <p>3 systematic reviews found that utilizing MSF alone is not as indicative about provider performance as when used with other assessment tools that measure clinical practices of physicians (Al Khalifa et al., 2013; Wilkinson et al., 2009; Overeem et al., 2007): Two programs meet this requirement and are found in the United Kingdom; one combines portfolio assessment and MSF while the other is comprised of feedback from audit of medical records, direct observation and portfolio for underperforming doctors (Overeem et al., 2007).</p> <p>2 systematic reviews mentioned that MSF alone did not always result in performance change, since physicians do not always know how to assess and analyze the data collected from the feedbacks; therefore there is a need for a facilitator to provide physicians with guidance on how to improve (Ferguson et al., 2014; Saedon et al., 2012).</p>
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## **Element 2**

### *Develop and implement policies that promote anonymous incident reporting at the organizational and national level*

Incident reporting can be implemented within healthcare organizations and at a national level.

#### **At the organizational level**

One systematic review and 9 studies found that non-punitive reporting of adverse events and near misses helps organizations learn from incidents and failures in delivery of care and forms part of a loop that encourages investigation and continuous monitoring (Seys et al., 2012; Warm & Edwards, 2012; Bigham et al., 2011; Mahajan, 2010; Conway et al., 2010; Conway et al., 2009; Smith, 2007; Olsen et al., 2007; La Pietra et al., 2005; Rothschild et al., 2005; Lawton & Parker, 2002). Another systematic review found that when an anonymous incident reporting system is introduced, there is significant increase in the number of adverse event and near misses reported (Parmelli et al., 2012) and that, according to 2 studies, the focus becomes less on individuals who made the error and more on the organizational factors that set up the conditions for an error to occur (Mahajan, 2010; Meurier, 2000). Incident reporting has also been reported to be a cost-effective tool (Barach & Small, 2000). Also, as found by one systematic review, it is the most used and most efficient tool to determine trends (Manias, 2013).

Nonetheless, one systematic review and two studies found that detection rates of errors remain low even when health professionals receive regular trainings about the importance of submitting incident reports (Manias, 2013; Olsen et al., 2007; Sari et al., 2007).

#### **At the national level**

National anonymous incident reporting systems such as those available in England and Wales play an important role in detecting errors at the micro level to improve delivery of care and patient safety at the national level such as raising awareness, doing research, audits, training initiatives, curriculum changes and developing specific guidelines. These health information frameworks also help healthcare organizations learn from each other and encourage them to develop and prioritize preventive and corrective strategies (Warm & Edwards, 2012; Mahajan, 2010; Hutchinson et al., 2009).

In Malaysia, an anonymous national incident reporting system was created to provide information regarding patient safety for improvement, learning and system redesign purposes. The system consists of a list of mandatory “must report” incidents such as serious injuries or adverse

events, and of other voluntary incidents such as near misses, hazards and other incidents that are not mentioned in the “must report” mandatory list. The national reporting system consists of a combination of structured and narrative description of events, which allows the provision of insights into the underlying system defects that caused the incidence. When an incident occurs, the healthcare organization forms a committee to analyze the underlying causes, conduct root-cause analysis and provide recommendations for system redesign and performance improvement. Investigation of the incident is then reported to the Ministry of Health. The anonymous national incident reporting allows the generation of alerts (for example identifying new hazards such as complications of a new drug), the dissemination of lessons learnt from the investigation of adverse events, and the generation of best practices from the recommendations provided. The system also helps in identifying themes, reducing variation, facilitating sharing best practice and simulating system-wide improvements (Bin Abdul Rahman et al, 2013).

The evidence in the literature suggest that a national quality policy would influence implementation of quality improvement (QI) strategies and systems in healthcare organizations, especially if they were specific enough and provide information on the quality activities needed for an integral system (Legido-Quigley et al, 2008; Lombarts et al, 2009; Spencer and Walshe, 2009). In a survey of 24 European countries, the existence of a statutory legal requirement to implement QI strategies for healthcare systems and organizations was reported as being the most important incentive for supporting progress in the development of QI initiatives (Spencer and Walshe, 2009).

Table 2 **Key findings** from systematic reviews and single studies

Category of finding	Element 2
<b>Benefits</b>	<p>A systematic review and 9 studies found that non-punitive reporting of adverse events and near misses helps organizations learn from their incidents and failures in the delivery of care, and forms part of a loop that encourages investigation and continuous monitoring (Seys et al., 2012; Warm &amp; Edwards, 2012; Bigham et al., 2011; Mahajan, 2010; Conway et al., 2010; Conway et al., 2009; Smith, 2007; Olsen et al., 2007; La Pietra et al., 2005; Rothschild et al., 2005; Lawton &amp; Parker, 2002).</p> <p>A systematic review found that, when an incident reporting system is introduced, there is significant increase in the number of adverse event and near misses reported (Parmelli et al., 2012)</p> <p>2 studies reported that incident reporting focuses less on the individual who makes the error and more on the organizational factors that set up the conditions for an error to occur (Mahajan,</p>

Category of finding	Element 2
	<p>2010; Meurier, 2000).</p> <p>A systematic review found that incident reporting is the most used and most efficient to determine trends (Manias, 2013).</p> <p>A study concluded that incident reporting plays a role in developing safer health information technologies, since the errors detected help on improving systems for performance improvement (Warm &amp; Edwards, 2012).</p> <p>A study found that the Vermont Oxford Network, an internet based system for sharing data about outcomes and care in the neonatal division by healthcare providers and patients' families, helped in strengthening inter-hospitals relations and providing a glimpse into the complex causes of error, which in turn help in improving the quality of care and reducing error when the latter is assessed at a system wide level (Suresh et al., 2004).</p>
<b>Potential harms</b>	<p>2 studies, found that physicians are reluctant to report because they think it is a threat to their autonomy, especially due to the legal rules which allow attorney to access the information (La Pietra et al., 2005; Lawton &amp; Parker, 2002).</p>
<b>Cost</b> and/ or cost effectiveness in relation to the status quo	<p>A study looked at cost-benefit analyses of incident reporting from other industries and concluded that reporting systems are cost-effective and benefit the organization more than they cost it (Barach &amp; Small, 2000).</p>
<b>Uncertainty</b> regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)	<p>A systematic review and 2 studies found that, even though incident reporting is the most extensively used method, detection rates of errors remain low, even when health professionals receive regular trainings about the importance of submitting incident reports (Manias, 2013; Olsen et al., 2007; Sari et al., 2007).</p> <p>3 studies indicated that reporting should be done in a reliable and consistent manner or else the data collected will be of poor quality and it will not be beneficial to the organization (Mahajan, 2010; Lawton &amp; Parker, 2002; Meurier, 2000).</p>

### **Element 3**

*Revise and update current accreditation systems to ensure patient safety goals, indicators and training requirements are explicit in the standards and integrated in the contractual arrangements*

Health care accreditation has emerged as one of the most influential mechanisms for assessing performance of healthcare organizations and improving quality and safety of health care services (Hirose et al, 2003; Jovanovic, 2005).

Five systematic reviews found evidence that health care accreditation promotes change and professional development, increases staff engagement and communication, improves organizational efficiency, encourages multidisciplinary team building, promotes positive changes in organizational culture and enhances leadership and staff awareness about continuous quality improvement (Ng et al, 2013; Greensfield et al, 2012 Hinchcliff, 2012; Alkhenizan et al, 2011; Greenfield, 2008). One systematic review also found consistent evidence to support a positive impact of general accreditation programs on different specific clinical outcomes, including the management of acute myocardial infarction, trauma, ambulatory surgical care, infection control and pain management (Alkhenizan et al, 2011). However, 2 systematic reviews reported inconsistent findings (with both improvements and a lack of measurable effects) for professions' attitudes to accreditation, organizational impact, financial impact, quality measures and program assessment (Greenfield, 2008, Greensfield et al, 2012).

Linking accreditation status to incentives such as access to public funding, preferential re-imburement, health insurance benefits, contractual agreements, or designation as a medical travel destination has been shown to be an effective mechanism for making the business case for accreditation (Mate et al, 2014; Shaw, 2004). In India, Brazil and Costa Rica, insurers and employers are increasingly relying on accreditation award as a prerequisite for provider participation in their health care reimbursement programs (Mate et al, 2014).

Similarly, there has been a rising trend in the adoption of performance measures to ensure quality and patient safety in healthcare systems (Kerr and Fleming, 2007; García-Altés et al., 2006). Four systematic reviews reported that relying on performance indicators that are supposed to be collected when auditing for compliance with accreditation standards, improved overall patient safety and quality of care delivered (Gillam et al., 2012; Alshamshan et al., 2010; Van Herk et al., 2010; Fung et al., 2008).

In addition, 11 systematic reviews concluded that pay for performance (P4P) strategies lead to moderate enhancements in quality (Eldridge & Palmer; 2009, So & Wright, 2012; Scott, 2009; Christianson et al., 2008; Gillam et al., 2012; Huang et al., 2013; Al-Shamsan et al., 2010; Petersen et al., 2006; van Herck et al., 2010; Mehrotra et al., 2009; and Emmert et al., 2012). However, the effectiveness of P4P programs was shown to be highly dependent on the design of the scheme and the context in which it was implemented. In 2 systematic reviews of P4P programs conducted across different countries, P4P seemed to be more effective when measures that have more room for improvement and are easy to track were used; incentives were targeted at individual physicians or small groups; approaches relied on purely positive incentives rather than winners and losers, rewards were based on absolute performance of providers; the program was designed in collaboration with providers; and larger payments were involved (Eijkenaar et al., 2011; So & Wright 2012).

Several studies have noted improvement in quality and performance following implementation of national performance indicators (Mainz et al, 2009; Kerr and Fleming, 2007; Chiu et al, 2006). In New Zealand, national reporting of patient safety indicators developed by the Agency for Healthcare Research and Quality helped in promoting ongoing quality improvement of hospitals (Hider et al., 2014). In Taiwan, the successful reporting system that reports to 139 indicators in Taiwanese hospitals led the Bureau of National Health Insurance to consider the usage of this system as a reimbursement method for hospitals (Chiu et al, 2006). In Germany, a national system for medical performance measurement was established to provide the 2,200 German hospitals with quality measurement tools for medical benchmarking (Legido-Quigley, 2008). In 2016, Qatar will be mandating a set of key performance indicators (25 indicators for hospitals and 15 indicators for PHC) for both public and private sector as part of the Health Services Performance Agreement (HSPA) initiative.

Revising the accreditation programs in Lebanon and creating a system of incentives that links contractual agreement, regulations, accreditation status and performance indicators is important in order to encourage health care organizations (both public and private sector) and health personnel to engage in quality improvement and patient safety initiatives. The revision of the accreditation system and contractual agreement could encompass the following:

- Develop a new governance model for the accreditation program which includes renewal of accreditation status on a regular basis; certification and re-certification of national auditors; and the presence of mechanisms to ensure quality is sustained post-accreditation

- Ensure patient safety goals, indicators and training requirement are explicit in the accreditation standards of hospital and primary healthcare accreditation programs
- Scale up accreditation to cover all providers of care in the country (primary care, long term care, mental health, clinics, polyclinics, diagnostic facilities and laboratories)
- Encourage public and private third party payers to link incentives and contractual agreements to accreditation status or attainment of specific quality and patient safety indicators
- Further improve the new re-imbursement formula for hospitals by including measures and outcomes indicators that reflect hospital's actual performance measures
- Design and implement a financial arrangement for PHC (i.e. performance contracting system) that includes centers that pass accreditation.
- Establish a national set of standardized, valid and applicable performance indicators for mandatory reporting that is specific for hospitals and primary healthcare and link to incentives. Publication of results could be utilized at a later stage, once the system's capacity is built with respect to valid and reliable reporting and a culture of trust is fostered among stakeholders.

To minimize challenges related to gaming the system and lag in information technology systems, some suggestions include using risk adjustment to even out the playing field across providers with respect to severity of patient mix, supplying data via an online tool to enable auditing and checks to control “gaming” behavior, and imposing penalties on hospitals failing to submit accurate data (El-Jardali et al, in preparation).

Table 3 **Key findings from systematic reviews and primary studies**

Category of finding	Element 3
Benefits	<p>5 systematic reviews found evidence that health care accreditation promotes change and professional development, increases staff engagement and communication, improves organizational efficiency, encourages multidisciplinary team building, promotes positive changes in organizational culture and enhances leadership and staff awareness about continuous quality improvement (Ng et al, 2013; Greensfield et al, 2012 Hinchcliff, 2012; Alkhenizan et al, 2011; Greenfield, 2008).</p> <p>1 systematic review found consistent evidence to support a positive impact of general accreditation programs on different specific clinical outcomes, including the management of AMI,</p>

Category of finding	Element 3
	<p>trauma, ambulatory surgical care, infection control and pain management (Alkhenizan et al, 2011).</p> <p>1 systematic review highlighted potential relationships among accreditation programs, high quality organizational processes and safe clinical care, though the authors noted that the literature is limited in terms of level of evidence and quality of studies (Hinchcliff, 2012).</p> <p>11 high quality primary studies reported that accreditation systems ensure the integration of a patient safety culture and enhance quality of care (Ho et al., 2014; Morton et al., 2014; Shaw et al., 2014; Kwon et al., 2013; Al-Awa et al., 2012; Morris, 2012; Nguyen et al., 2012; Teng et al., 2012; Schwengel et al., 2011; Kohn et al., 2010; Pomey et al., 2004).</p> <p>4 systematic reviews mentioned that relying on performance indicators, that are supposed to be collected when auditing for compliance with accreditation standards, as a mean for reimbursement improves the overall patient safety and quality of care delivered (Gillam et al., 2012; Alshamshan et al., 2010; Van Herk et al., 2010; Fung et al., 2008).</p> <p>11 systematic reviews concluded that pay for performance (P4P) strategies lead to moderate enhancements in quality (Eldridge &amp; Palmer; 2009 , So &amp; Wright, 2012; Scott, 2009; Christianson et al., 2008; Gillam et al., 2012; Huang et al.,2013; Al-Shamsan et al., 2010; Petersen et al., 2006; van Herck et al., 2010; Mehrotra et al., 2009; and Emmert et al., 2012).</p> <p>2 systematic review of P4P programs found that P4P seemed to be more effective when measures that have more room for improvement and are easy to track were used; incentives were targeted at individual physicians or small groups; approaches relied on purely positive incentives rather than winners and losers, rewards were based on absolute performance of providers; program was designed in collaboration with providers; and larger payments were involved (Eijkenaar et al., 201; So &amp; Wright 2012).</p>
Potential harms	<p>3 studies found that the larger the healthcare organization, the more difficult it is to integrate and abide to accreditation standards, which affects the quality of the services provided (Al-Awa et al., 2012, El-Jardali 2011; El-Jardali et al., 2012).</p> <p>1 study found that international accreditation programs should take into consideration cultural differences since they are resulting in unintended negative effects on quality and medical education, such as decreasing clinical learning opportunities, increasing workload and violating professional integrity (Ho et al.,</p>

Category of finding	Element 3
	2014).
Cost and/ or cost effectiveness in relation to the status quo	<p>1 systematic review and 3 studies found that accreditation generates higher costs on healthcare organizations due to the need for provider trainings, hiring additional providers, maintenance of infrastructure and buying or upgrading equipment (Saleh et al., 2013; Greenfield &amp; Braithwaite, 2008; Mihalik et al., 2003; Rockwell et al, 1993).</p> <p>4 studies found that accredited organizations have lower mean length of stay and lower charges, which results in lower cost on both patients and organizations (Morton et al., 2014; Kwon et al., 2013; Jafari et al., 2013; Nguyen et al., 2012).</p>
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)	<p>2 systematic reviews reported consistent findings for the effect of accreditation on promoting change, professional development and improving organizational efficiency and staff circumstances; however, inconsistent findings were reported for professions' attitudes to accreditation, organizational impact, financial impact, quality measures and program assessment (Greenfield; 2008, Greensfield et al, 2012).</p> <p>1 systematic review concluded that the lack of conclusive effect of accreditation programs on patient outcomes may simply mean that, due to heterogeneity of study design and methods, much uncertainty remains regarding its putative effects. The complexity of hospital organizations and their heterogeneous components further add to the methodological challenge (Brubakk et al, 2015).</p>

#### Element 4

### *Empower patients to enhance quality of care and patient safety*

According to 4 systematic reviews and 10 studies, patient empowerment reduces the knowledge gap between healthcare providers and consumers. This fosters an increase in agreement and shared decision-making regarding health services, the development of strategies and policies between the two parties, broadening the acceptance of healthcare, an increase in the efficiency of the healthcare system and improvements in patient safety and satisfaction, while also enhancing the quality of services provided (Boivin et al., 2014; Groene et al., 2014; Davis et al., 2011; Légaré et al., 2011; Tempfer & Nowak, 2011; O'Connor et al., 2009; Davis et al., 2007; Coulter et al., 2006; Davies et al., 2006; Nilsen et al., 2006; Koutantji et al., 2005; Chambers ,

2003; Abelson et al., 2003; Crawford et al., 2002). The UK National Health Services has a policy that encourages patient's involvement. This policy was found to promote patients to exert control over their healthcare and improve health service (Fudge et al., 2008).

The first step to involve and empower patients is through education aimed at enhancing patients' health literacy (Coulter & Ellins, 2007). Developing patient education material such as flyers and brochures, helps patients adhere and comply with clinical guidelines, improves quality of care and reduces error and readmission rates (Bes et al., 2011; McPherson et al., 2001). Education is important in preventing adverse drug events and hospital re-admissions as per 2 systematic reviews (Spinewine et al., 2013; Miller et al., 2007). According to 5 systematic reviews, educating and engaging family member in shared decision-making, improves quality of care, reduces the possibility of adverse events, and enhances patient safety, due to their ability to identify medical errors (Kripalani et al., 2007; Gaston & Mitchell, 2005; Nose & Barbui, 2003; Sarkisian et al., 2003; McDonald et al., 2002). However, improper education may result in taking unrealistic decisions by patients and their families (Boivin et al., 2014; Legare et al., 2011).

Although involvement plays a great role in enhancing quality, 2 systematic reviews and 2 studies found that patient involvement increases cost on healthcare organizations, which is mainly due to cost of compensation for their time, meal, travel expenses, coordination of patient recruitment, and hiring facilitators (Boivin et al., 2014; Domecq et al., 2014; Wachter, 2010; Nilsen et al., 2006).

Another way to empower patients is through forming advisories. According to 2 studies, advisories ensure listening to the voice of patients and their families when policies are developed, and help reduce medical errors (Wachter, 2010; Entwistle et al., 2005). Advisories also divert patients from media coverage, which are the main source of health information to provide them with more accurate patient education (Entwistle et al., 2005). However, a study found that advisories are not always doing the right job in increasing public understanding of safety issues in health care. They sometimes tend to leave patients unaware of policies and practices that could offer them reassurance, and they don't explain properly that some adverse outcomes in health care are unpreventable (Entwistle et al., 2005).

Ombudsman programs (watchdog/regulator programs) can also play a role in empowering patients and their families. This can be achieved through assisting family councils, by providing them with information and support; they can also provide families with suggested strategies, techniques, and approaches that can be used in addressing council concerns (Persson, 2008). Such programs help in continuous improvement of issues related to clinical governance, in proposing new institutional reforms (Huss et al., 2010;

Bismark et al., 2006), improving patient safety (Hollister & Estes, 2013; Bismark et al., 2006; Wagner et al., 2001), and providing lawyers with the evidence needed when an error occurs for further investigation (Hollister & Estes, 2013). In England ombudsman programs are effective when the National Health Services do not act properly or fairly and when they provide poor services (John, 2011). It was also found that in England the ombudsman programs were able to secure almost £50 000 for patients to help remedy injustice caused by poor care or poor complaint handling (John, 2011). However, patients perceived ombudsman in England to take too much time to communicate and thus extending the process to last a year, overlook some of the evidence that have led to the medical error, and provide ineffective recommendations (Tingle, 2015). The lack of funding and volunteers negatively affect these programs as well, and do not allow the program to meet the required standards (Estes et al., 2004).

Table 4 **Key findings from systematic reviews and single studies**

<b>Category of finding</b>	<b>Element 4</b>
<b>Benefits</b>	<p>4 systematic review and 10 studies found that patient empowerment reduces the knowledge gap between healthcare providers and consumers, which fosters an increase in agreement and shared decision-making between the two parties about health services, strategies and policies as well as broadens the acceptance of healthcare and increases the efficiency of the healthcare system and patient safety (Boivin et al., 2014; Groene et al., 2014; Davis et al., 2011; Légaré et al., 2011; Tempfer &amp; Nowak, 2011; O'Connor et al., 2009; Davis et al., 2007; Coulter et al., 2006; Davies et al., 2006; Nilsen et al., 2006; Koutantji et al., 2005; Chambers, 2003; Abelson et al., 2003; Crawford et al., 2002).</p> <p>Patient empowerment can be done through education and forming advisories and ombudsman programs:</p> <p><b>Patient education</b></p> <p>2 systematic reviews found that patient education is important specifically in preventing adverse drug events and hospital re-admissions (Spinewine et al., 2013; Miller et al., 2007)</p> <p>5 systematic reviews found that engaging and educating family members in shared decision making, improves quality of care, since they will be taking care of the patient later on and thus reduce the possibility of adverse events, and enhances patient safety due to their ability to identify medical errors that occur at the healthcare organizations (Kripalani et</p>

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al., 2007; Gaston & Mitchell. 2005; Nose & Barbui, 2003; Sarkisian et al., 2003; McDonald et al., 2002).

2 systematic reviews found that patient education material helps patients adhere and comply with clinical guidelines, improves quality of care and reduces error and readmission rates (Bes et al., 2011; McPherson et al., 2001).

### **Advisories**

2 studies found that forming advisories to help patients when medical error or patient safety mishaps occur ensure that the voices of patients and their families are considered as policies are being developed, and help reduce medical errors (Wachter, 2010; Entwistle et al., 2005).

### **Ombudsmen programs**

5 studies found ombudsman programs to be helpful in patient empowerment and in improving health services. Ombudsman programs empower patients and their families through supporting family councils by providing them with information and support as well as suggested strategies, techniques and approaches that can be use when addressing council concerns (Persson, 2008). They can as well help law enforcements obtain evidence needed whenever an error occurs, and provide healthcare organizations and state governments with efficient ways to meet patients' needs (Hollister & Estes, 2013). Such programs also help in continuous improvement of clinical governance, in proposing new institutional reforms (Huss et al., 2010; Bismark et al., 2006), and in improving patient safety through delivering patients' complaints to healthcare organizations (Hollister & Estes, 2013; Bismark et al., 2006; Wagner et al., 2001).

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### **Potential harms**

2 studies found that lack of patients' understanding of scientific literature or resource implications could lead to unrealistic decisions (Boivin et al., 2014; Legare et al., 2011)

A study found that advisories are not always doing the right job in increasing public understanding of safety issues in health care; they sometimes tend to leave patients unaware of policies and practices that could offer them some grounds for reassurance, and they don't explained that some adverse outcomes in health care that many lawsuits stem are not preventable (Entwistle et al., 2005).

2 studies found ombudsman programs to be ineffective, either due to the lack of funding and volunteers (Estes et al., 2004),

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	<p>or because as reported in England, ombudsman programs take too much time to communicate, and the process might last a year, overlook some of the evidence that have led to the medical error and provide ineffective recommendations (Tingle, 2015).</p>
<p><b>Cost</b> and/ or cost effectiveness in relation to the status quo</p>	<p>2 systematic reviews and 2 studies found that patient involvement increased cost on healthcare organizations, this is mainly due to cost of compensation for their time, meal, travel expenses, coordination of patient recruitment, and hiring facilitators (Boivin et al., 2014; Domecq et al., 2014; Wachter, 2010; Nilsen et al., 2006).</p> <p>A study found that in England the ombudsman programs were able to secure almost £50 000 for patients to help remedy injustice caused by poor care or poor complaint handling (John, 2011).</p>
<p><b>Uncertainty</b> regarding benefits and potential harms (so monitoring and evaluation could be warranted if the approach element were pursued)</p>	<p>2 systematic reviews and 8 studies found it difficult to assess the effectiveness of patient empowerment on improving health care and safety because different studies yield different results (Boivin et al., 2014; Legare et al., 2011; Tempfer &amp; Nowak, 2011; Abelson et al., 2010; Mitton et al., 2009; Schwappach, 2009; Nilsen et al., 2006; Florin &amp; Dixon, 2004; Abelson et al., 2003; Crawford et al., 2002).</p> <p>2 systematic reviews and 1 study indicated that there is no any study evaluating the impact of the integration of patient involvement in healthcare services improvement (Mockford et al., 2012; Brett et al., 2011; Crawford et al., 2002).</p> <p>1 systematic review pointed out that no one study evaluated the effectiveness of patient education campaigns (Schwappach, 2009).</p> <p>6 studies found that patients appeared willing to ask general questions about their healthcare management, but less willing to undertake more challenging actions, and that healthcare workers play a great role in influencing patient Involvement once they encourage them to do so (Davis et al., 2011; Wallace &amp; Sembi, 2008; Marella et al., 2007; Waterman et al., 2006; Hibbard et al., 2005; Levinson et al., 2005).</p>

## Implementation considerations and counterstrategies

Barriers to implementation of the four elements are at the patient, professional, organizational and system levels. Counterstrategies to overcome these barriers are suggested and are retrieved from evidence and experiences of other countries.

Level	Barriers	Element(s)	Counterstrategies
Patient	Patients refusal to be involved in shared decision-making and quality improvement due to their low health literacy rate and the lack of encouragement by healthcare workers to be involved (Davis et al., 2011; Wallace & Sembi, 2008; Marella et al., 2007; Waterman et al., 2006; Hibbard et al., 2005; Levinson et al., 2005).	4	<p>Develop a program, like the United Kingdom’s INVOLVE program, to guide patients and encourage them to get involved in health research for quality and safety improvements, and guide research centers on how to involve patients (INVOLVE, 2015).</p> <p>Train healthcare workers on how to encourage patient empowerment (Davis et al., 2011; Levinson et al., 2005).</p> <p>Launch campaigns such as The Joint Commission “speak up” (The Joint Commission, 2015) and the National Health Services “it’s ok to ask” (National Institute for Health Research, 2015) campaigns to encourage patients’ involvement in error detection.</p> <p>Use informed consent to encourage healthcare workers to provide accurate information to patients so that they are involved in the decision-making process (Siegal et al., 2012).</p>

Professional	Resistance of providers to adopt guidelines due to lack of agreement with recommendations, lack of time, knowledge and financial incentives as well as a reluctance to change practice (Brusamento et al, 2012)	1	Reduce complexity of guideline recommendations; ensure robust and active dissemination strategies that target practitioner's attitudes; promote interactive educational meeting together with reminders and educational outreach (Spallek et al, 2010; Brusamento et al, 2012)
	Resistance from practitioners who are skeptical about validity and usefulness of performance evaluation data (Lizarondo et al, 2014)	1	Ensure support by managers to create a culture that encourages performance appraisal (Luse, 2013; Rout & Roberts, 2008). Secure presence of a facilitator to provide physicians with guidance on how to improve (Ferguson et al., 2014; Saedon et al., 2012).
	Resistance to change will be faced by healthcare workers and managers to any new project integrated into the healthcare system, be it the integration of new accreditation standards, reporting incidents, doing performance appraisal or even empowering patients. Healthcare workers are busy and overworked; therefore changing their routine will be difficult (LeTourneau, 2004).	1, 2 ,3 & 4	Apply change management to explain the reason why change is being implemented and the benefits of change (Ford & Ford, 2009; Self & Schraeder, 2009)
	Overworked healthcare providers might find filling incident reports time consuming, which may be a drawback to report on incidents or near misses even when the reports are anonymous (Evans et al., 2006; Kingston et al., 2004).	2	Simplify incident report forms so that they are easily and rapidly filled and provide feedback so that those reporting know that reporting is coming into an effect (Mahajan, 2010; Evans et al., 2006; Anderson & Webster, 2001).  Develop a system on a national level, where reporting is done, viewed by other healthcare organizations, and feedback is provided to create a teaching

			<p>environment and encouraging healthcare workers to report errors and near misses. Such systems have been implemented in Germany, Switzerland, the UK, Denmark and others (Smith &amp; Mahajan, 2009).</p> <p>Implement continuing medical education using various interactive tools, audit and feedback to engage healthcare workers in new practices in patient safety and to improve the quality of healthcare outcomes (Reeves et al., 2013; Ivers et al., 2012; Forsetlund et al., 2009).</p>
	Physicians may perceive re-credentialing as an inefficient and logistically difficult activity (Cook et al., 2015)	1	Ensure re-certification provides inherent value for physicians and their patients, is integrated with clinical practice, its instructional and assessment approaches are effective, coherent and relevance to individual needs. Also ensure support for physicians and simplification of activities (Cook et al., 2015).
Organizational	Time and cost of training healthcare providers on how to fill in incident reports, implement new standards do performance appraisal and involve patients (Aggarwal et al., 2010; Wachter, 2010; Devers et a., 2004; Bukonda et al., 2002).	1, 2 ,3 & 4	Allocate specific funds for patient safety in general and specifically for trainings, staffing and patient empowerment (Wachter, 2010; Devers et al., 2004)
	The cost of either employing new personnel or training the already available personnel on how to collect data and analyze them for continuous improvement and change, and the need of the management to be supportive of the change suggested to be able to implement it and improve to learn from errors and enhance patient safety (Needleman et al., 2006; Devers et al., 2004)	1 & 3	Allocate specific funds for patient safety in general and specifically for trainings, staffing and patient empowerment (Wachter, 2010; Devers et al., 2004)
	Cost of involving patients is high (Boivin et al., 2014; Domecq et al.,	4	Allocate specific funds for patient safety in general and specifically

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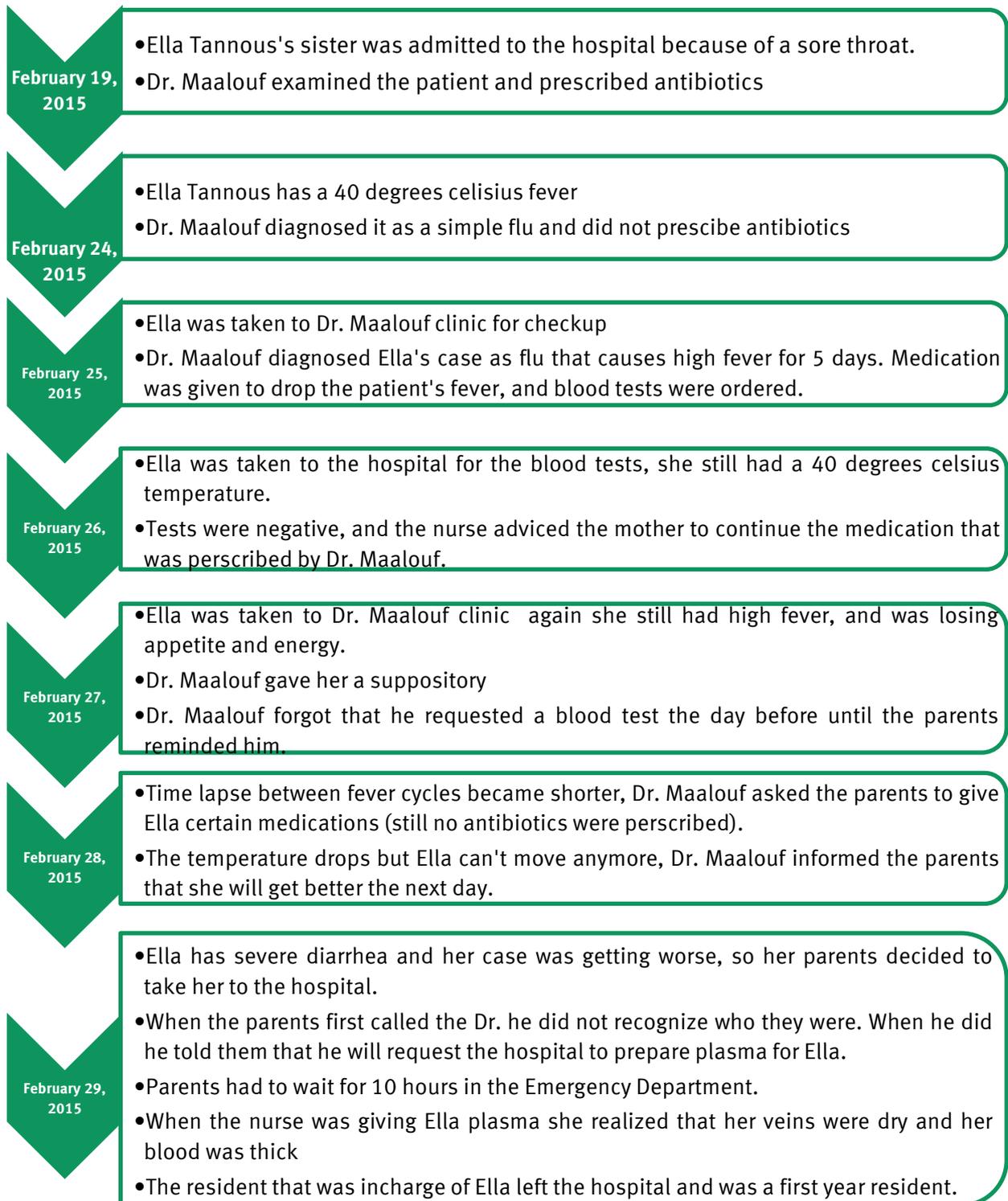
2014; Wachter, 2010; Nilsen et al., 2006)		for trainings, staffing and patient empowerment (Wachter, 2010; Devers et al., 2004).
Availability of expert faculty, competing curricular/service demands, and institutional culture may affect implementation of patient safety and quality improvement in medical curriculum (Jones et al., 2015).	1	Implement quality improvement teaching programs that make the time required for trainee work-hour rules, competing demands and faculty involvement clear. Also, dedicate a selected number of faculty staff to provide curriculum requirement (Jones et al., 2015).
Insufficient expertise and resources, lack of information on instructions and data collection, lack of managerial support and organizational commitment and technical issues like setting sustainable standards may hinder implementation of appraisals and audits (Vahidi et al., 2013)	1	Promote effectiveness of audit programs through: intensive feedback mechanisms, effective training programs, high capacity for quality improvement, instructional support, participation of local ownership, resource commitment and rational basis for allocation and evidence-based researches for setting standards (Vahidi et al., 2013)
Punitive environment in health organizations and workload discourages professionals from reporting of medical errors (Sirriyeh et al., 2010; Evans et al., 2006).	2	Promote a non-punitive environment (El-Jardali et al., 2011). Simplify incidents reports and provide feedback on data (Mahajan, 2010; Evans et al., 2006).

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System	Accountability and clarity of responsibilities and roles related to implementation of quality improvement and patient safety initiatives (El-Jardali and Fadlallah, 2015).	3	Establish national quality and patient safety policies that set out goals, indicators, clarify roles and responsibilities and identify incentives and non-incentives (El-Jardali and Fadlallah, 2015).
	Selection of performance indicators that are valid, reliable, applicable, and relevant to accreditation, standardization of methods of collection and reporting systems and establishment of systems to counter data manipulations	3	<p>Use risk adjustment to even out the playing field across providers regarding severity of patient mix, supply data via an online tool to enable auditing and checks to control “gaming” behavior, and impose penalties on hospitals failing to submit accurate data (So &amp; Wright 2012).</p> <p>Consider establishing through public/private partnerships a national institution for measuring, monitoring and benchmarking of quality and providing guidance and support to healthcare organizations (El-Jardali et al, 2011a).</p>

# Appendix

Timeline of Ella Tannous case events as reported by media



March 1, 2015

- The resident moved the Ella to the pediatrics section, however Ella needed better supervision since she was still unable to urinate.
- Dr. Maalouf prescribed antibiotics.
- Ella had polypnea (rapid breathing), the nurse informed the resident who ordered surveillance.
- No one checked on Ella that night

March 2, 2015

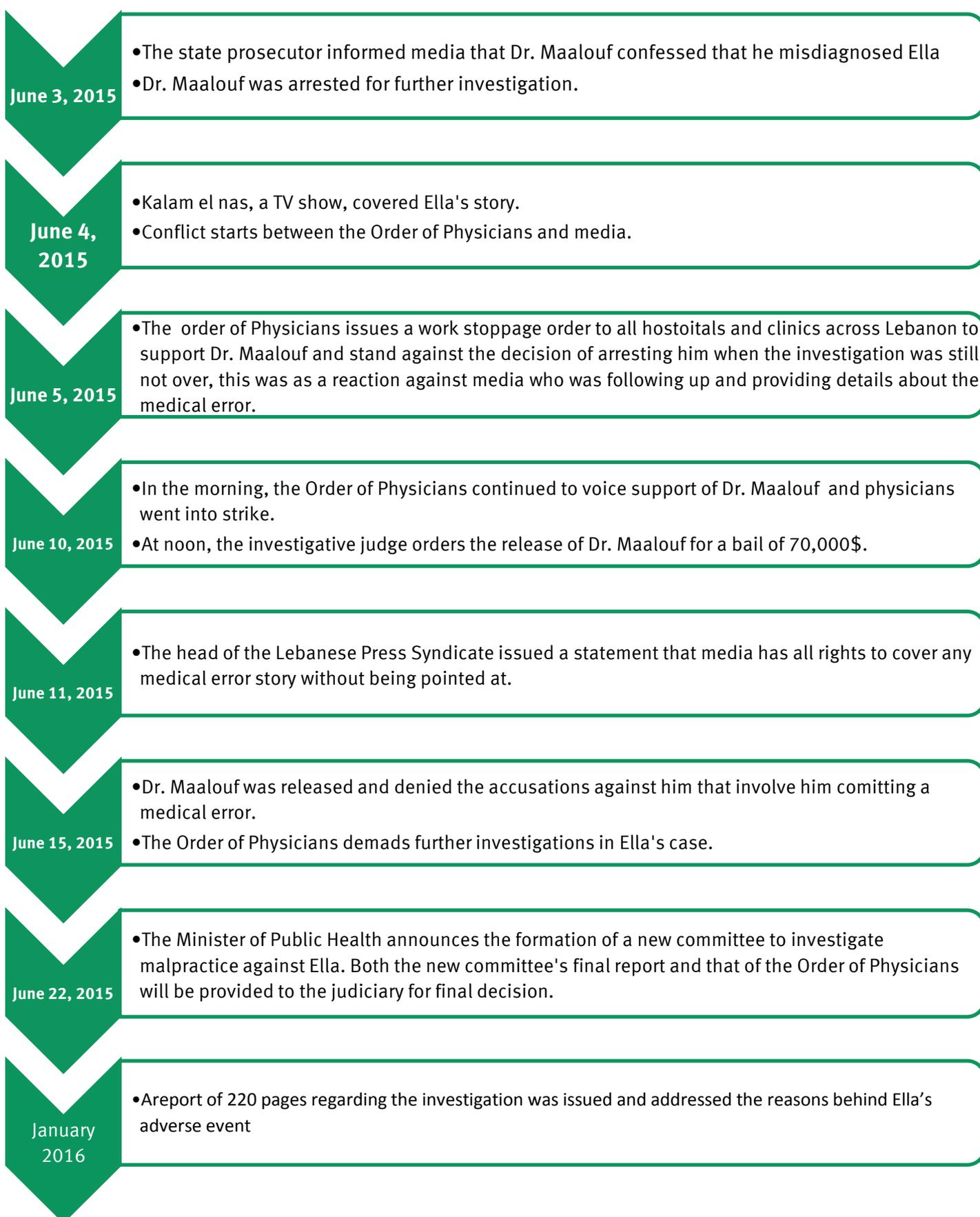
- In the morning, Ella has high fever again, her blood pressure was low, had allergy all over her body and the bottom of her feet were turning blue. Dr. Maalouf prescribes antibiotics, and diagnosed her blue limbs as a reaction to high fever. The nurse gave her medication for her allergy.
- At noon, Ella started to have kidney failure, X-Ray showed that her lungs were filled with water. Dr. Maalouf requested transferring Ella to hospitals with special care. Parents found a bed in St George hospital for the next day, however her case was too critical to allow transfer. Other hospitals such as the AUB-MC were difficult to reach, and Hotel-Dieu had no empty beds in its ICU. In addition, there were difficulties in getting Ella a car from either the Red Cross or the hospital. After negotiation, Ella's parents transferred her in their own car with the assistance of a third year resident.
- In the afternoon, Ella reached the AUB-MC and was going into septic shock

March 20- 27, 2015

- Medical tests and diagnosis revealed that Ella was infected with Streptococcus A, which led to the patient developing parallel gangrene.
- Ella had to undergo quadruple amputation
- The Order of Physicians and the parents filed a complaint to the Ministry of Public Health against Dr. Maalouf
- The professional Investigations Committee starts investigating Ella's case, to come with a clear description of the events.
- The Order of Physicians informs the media that Dr. Maalouf will be referred to the Order Council on June 29.

June 2, 2015

- The Minister of Public Health requests the Order of Physicians to refer Ella's case to the Order Council where he asked for the verdict to take place instead of waiting for the case to reach disciplinary order where the court ruling might take years to be adjourned.
- The Minister also noticed that the Professional investigation Committee's report was still ambiguous and missed details and facts in its investigation.



\*the previous information was retrieved from Almada (2015).

# Next Steps

## Next Steps

The aim of this policy brief is to foster dialogue informed by the best available evidence. The intention is not to advocate specific policy options/elements or close off discussion. Further actions will flow from the deliberations that the policy brief is intended to inform. These may include:

- Deliberation amongst policymakers and stakeholders regarding the policy elements described in this policy brief.
- Refining elements, for example by incorporating, removing or modifying some components

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