WHO country mission to support the implementation of the WHO Patient Safety Curriculum Guide in undergraduate studies in Saudi Arabia

13–16 May, 2024

Riyadh, Saudi Arabia

Mission report

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Executive summary

Conducting a situational analysis is crucial to identifying the current state of patient safety, recognizing gaps, and understanding the perspectives of various stakeholders. In the context of Saudi Arabia, the situational analysis conducted during this series of workshops was designed to consider and assess insights from academic institutions and health care specialties with regard to patient safety education. This comprehensive approach ensures that the interventions designed are fit for purpose and address the gaps in patient safety from multiple perspectives, with a specific focus on education. Adding key stakeholders including patients and decision makers may offer new insights aligned with the proposed recommendations, and inform which interventions need priority.

Arising from the work undertaken within the different focus groups and the subsequent data gleaned, the next steps include the consideration of future actions to improve the culture of patient safety within academic institutions and medical clinics in Saudi Arabia. This involves careful reflection on the proposed recommendations as collated from the situational analysis and organising them based on their impact and feasibility. This is a significant endeavour, and it is essential to address the most pressing issues first and allocate resources efficiently.

Based upon the findings and identified actions, there are several recommended steps for consideration. Interventions within the education sector is proposed to promote a better culture of patient safety amongst health and care workers and all associated stakeholders. Patient safety should be embedded across all levels of health education, from undergraduate courses to continuing professional development. Simulation-based learning and reflective journals may be incorporated to enhance practical understanding and skills. Emerging leaders' programmes, with emphasis on patient safety, will privy students of all health professions to the essential topics of patient safety, and successful interventions that may be considered for the Saudi context.

Along with integrating patient safety within different curricula, developing advocacy initiatives and awareness campaigns is another step to consider improving awareness of patient safety among patients, health and care workers, and the public. Collaborating with national and international organizations will garner further support for these campaigns. Additionally, a clear focus on policy development is recommended to enforce national patient safety standards and guidelines. The establishment of reporting systems for safety incidents and near misses across different health care facilities will promote transparency and continuous improvement.

A further proposal includes the incorporation of interprofessional education within health care curricula to prepare future health and care workers for effective teamwork which, in turn, leads to more effective patient safety and care. Finally, the establishment of research centres focused primarily on patient safety will drive innovation and evaluate the effectiveness of implemented interventions. Addressing and improving how patient safety is taught and practiced is an ambitious undertaking. By considering the aforementioned steps and recognising those that are within a faculty's or an organization's remit, stakeholders can collectively work towards creating a safer health care environment, ultimately improving patient outcomes and fostering a culture of patient safety across the kingdom of Saudi Arabia.

1. Background

On the 13–16 May, 2024, three partnering organizations came together to augment the patient safety education agenda across Saudi Arabia. The WHO Regional Office facilitated the mission in close collaboration with the WHO country office, with onsite support from the Saudi Commission for Health Specialties and the Saudi Patient Safety Centre provided. Health educators and the deans and vice-deans of health colleges in universities, as well as academic university hospitals, represented the specialties of dentistry, nursing, pharmacy and allied health specialties. Health students took part in online interviews to gauge their perspectives on current activities in patient safety during their education.

The objective of this country's mission was to conduct a situational analysis of current patient safety practices on the ground, at medical facilities and academic institutions across Saudi Arabia. From this analysis, the facilitators and leaders from the aforementioned organizations further investigated the gaps and potential solutions for implementation.

This report offers an analysis of the data collected during the mission using facilitated focus groups and workshops. The resulting recommendations reflect key findings and align to examples of implemented solutions from different contexts that may be used as a roadmap to facilitate implementation for advocacy organizations, academic institutions and health education providers.

2. Introduction

For health and care workers, patient safety should be paramount; it should lie at the core of their daily practice. Yet, patient safety has not always received the deserved attention from political, educational and scientific agendas. Patient safety is described as the prevention of harm to patients *(1)*, that focuses on a system of care that involves reducing errors, learning from mistakes, and creating a culture of safety in which health care workers, the facility, and the patient participate *(2)*. Patient safety is a complex and multifaceted responsibility which is informed and influenced by a string of factors, including interprofessional education (IPE), interprofessional collaboration (IPC), effective communication, and professional behaviours *(3*). Health and care workers should strive to create and maintain an environment where patients receive safe, high-quality care that minimises the risk of harm and reduces exposure to mistakes and near misses during the delivery of health care services.

Investing in patient safety positively impacts health outcomes, reduces costs related to patient harm, improves system efficiency, and helps in reassuring communities and restoring their trust in health care systems *(4*). The recognition and implementation of patient safety measures in health care is crucial for several reasons. On a fundamental level, it saves lives. By implementing safety measures, health and care workers can significantly reduce the incidence of preventable injuries and fatalities. Additionally, with a clear focus on patient safety, the overall quality of care is improved, ensuring that health care services are delivered correctly and efficiently.

Along with quality and patient safety measures, a relationship based on trust and confidence is built and maintained between health care provider and patient which in turn can enhance patient engagement and compliance with treatment plans. Patients are more likely to have faith in the health care system when they feel comfortable and secure during their health care experience *(5)*. On an administrative level, when effective patient safety measures are employed and adhered to, health care costs are reduced, and legal and regulatory requirements are complied with. Notably, when patient

safety is at the forefront within the health care system, professional satisfaction is enhanced with health and care workers experiencing greater job satisfaction as a direct result of working within a safe environment where errors are minimised *(6)*. Similarly, adherence to patient safety results in increased patient satisfaction with their overall health care experience.

Overall, emphasizing patient safety fosters a culture of continuous improvement and accountability within health care organizations. This culture encourages health and care workers to learn from possible mistakes and to strive for excellence. On the whole, patient safety education is integral to delivering high-quality health care, maintaining public trust, and ensuring the well-being of both patients and health care providers.

Patient safety is re-emerging on health leaders' agendas

Patient safety education has surged to the forefront of health leaders' agendas due to a confluence of factors. High-profile cases and research studies have underscored the alarming prevalence and severity of medical errors, revealing them as a leading cause of death and a critical issue demanding immediate attention *(7)*. The substantial financial burden these errors impose on health care systems further elevates the urgency to address patient safety, as reducing such errors promises significant cost savings. Technological advancements, including electronic health records, big data analytics, and artificial intelligence, provide new, powerful tools to enhance patient safety, compelling leaders to leverage these innovations and to train a new generation of health and care workers to implement these innovations in future practice. Additionally, increasing regulatory and accreditation pressures mandate stringent patient safety standards and reporting requirements, necessitating a leadership focus on compliance. Public and media scrutiny, driven by greater transparency and demand for accountability, heightens the reputational risks associated with medical errors, urging leaders to prioritize patient safety, and more specifically patient safety education. WHO is perfectly placed to advocate for improved patient safety practices globally that may influence national policies and align leadership agendas with these international standards.

WHO patient safety curriculum guide

The WHO patient safety curriculum guide: multi-professional edition is a comprehensive resource designed to enhance patient safety education in health care academic institutions worldwide, with a particular focus on undergraduate health education. It has been developed with input from international experts across various health professions, including dentistry, medicine, midwifery, nursing, and pharmacy in a bid to support a global perspective, aiming to foster a universal culture of patient safety in health care. Recognizing the growing importance of patient safety due to the inherent risks in modern medical practices, the guide promotes both a proactive and collaborative approach to patient safety, aiming to prepare future health and care workers to deliver safer and more patient-centred care.

This guide is comprised of several key components and is divided into two main parts. Within Part A, a comprehensive teacher's guide introduces essential patient safety concepts and principles, offering guidance on how to effectively teach these topics (Fig. 1). Eleven patient safety topics are explored within Part B. Each topic provides detailed educational frameworks, teaching methods, and assessment strategies, tailored for adaptability to various educational contexts and resource availability.

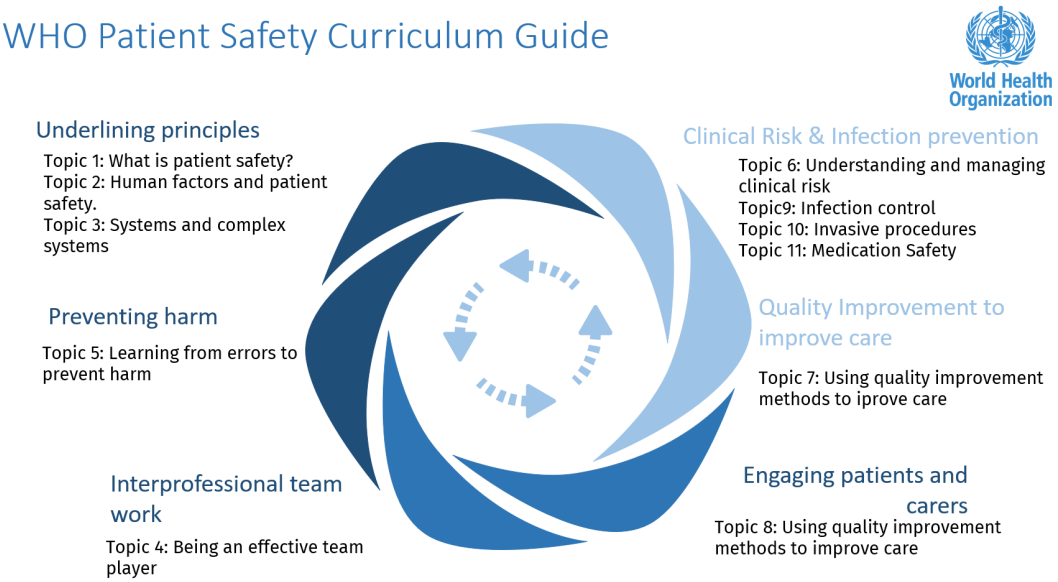

Fig. 1. Essential patient safety concepts and principles

Regarding educational principles, the guide emphasizes competency-based learning, interdisciplinary collaboration, and a systems approach to patient safety. It encourages integration of patient safety into existing curricula, allowing for flexibility to meet local needs and contexts.

In terms of implementation and adaptation, it has been designed for ease of integration into various health care education programmes. The guide allows for gradual implementation and provides case studies and practical examples to facilitate learning and application. The "WHO Patient Safety Curriculum Guide" serves as an informational tool to assess current gaps in practice, consider priority areas aligned to specific context, and plan interventions for implementation, promoting a safer, more effective global health care system.

Global interventions to improve patient safety

Ensuring that patient safety measures are recognised, understood and adhered to requires continued, in-depth focus on effective strategies, particularly within the health education sector. Education and training of health and care workers emerge as the cornerstones of fortifying systems, equipping them with the skills and mindset to ensure patient safety through collaboration and transparent communication *(5)*. The importance of patient safety education needs to be emphasized to improve patient safety in the undergraduate curriculum for training health care personnel *(8)*.

Assessing patient safety and how best to improve it within health care systems is a constant source of research. Kutaimy et al. outline how integrating patient safety concepts within an existing foundational science course has resulted in overall improvement in patient safety, knowledge and attitudes *(9)*. Additionally, a study undertaken by Ji et al. (2021) that focused on the education of nurses in Korea, demonstrated that patient safety topics should be dealt with in both theoretical and practical settings across the entire nursing curriculum in line with the principles of education. In another study on improving patient safety, Moon and Chang (2024) focused on implementing newer education methodologies, outlining the effectiveness of Design Thinking, a new teaching method which allows for nursing students to take a creative and human-centred problem-solving approach to patient safety *(8)*.

While it is widely recognised as an integral component within medicine, interventions intended to improve and support patient safety are often difficult to measure and implement within both health education and day-to-day practice. It is the role of the health educator and practitioner; however, to do their utmost to strive to create and maintain an environment where patient safety is at the forefront. In spite of challenges and obstacles such as weak organizational culture, issues with communication and resource limitations, the importance of patient safety remains paramount, aligned with improved health outcomes, trust, cost reduction, continuous improvement, and compliance with regulations *(5)*.

The "Global action plan on patient safety 2021–2030" was launched as an initiative from a recalling WHO resolution in 2019 to 'pay the closest attention to the problem of patient safety, and to establish and strengthen science-based systems, necessary for improving patient's safety and quality of health care', recognising that patient safety cannot be ensured without access to a skilled and committed health workforce' *(10)*. Health and care worker education, skills and safety is mentioned as a specific objective, outlining an implementation framework targeting universities, academic institutions, educational centres and other international and national training and capacity-building institutions.

Patient safety as a priority agenda for Saudi Arabia

For Saudia Arabia, patient safety has long been a key priority in the continued drive for the development of a more efficient and safer health care system for all stakeholders, from both a national as well as a global perspective. Launched at the 4th Global Ministerial Patient Safety Summit in 2019, the Jeddah Declaration for Patient Safety provides a series of actionable items and recommendations in a bid to maintain the momentum of the global patient safety movement. The Declaration itself "signals a strong global commitment to shape truly safer systems for generations to come" *(11)*.

Even before the outbreak of COVID-19, patient safety was a key item on the agenda during the G20 presidency under the Kingdom of Saudi Arabia in 2020 *(12)*. As outlined at the summit in November 2020, the Global Patient Safety Leader's Group was established, elevating patient safety to ministerial agendas, with the focused commitment of bridging implementation gaps through both system-level solutions as well as locally applicable innovative solutions *(13)*.

As part of the Health Sector Transformation Program in alignment with the objectives of Vision 2030, there is a focused drive to restructure and improve the delivery of health care in Saudi Arabia *(14)*. Patient safety is the crucial x-factor requiring focused attention, and the glue for which all other components of a health system will bind together.

3. Methods

Design

Qualitative focus groups and facilitated workshops were delivered over the course of four days, following a prepared question route, guided by activities, open discussions, and moderated workshops (Appendix). Consistency across focus groups was maintained by ensuring the question route guided the same discussions. This qualitative research investigated current perspectives of patient safety education for academic faculty, educators, and policy organizations, with the objective to identify the perceived gaps and possible solutions to improve patient safety education in Saudi Arabia.

Participants and facilitators

Targeted participants included representatives from the following specialties: medical specialities, dentistry, nursing, pharmacy, allied health, applied sciences and health educators. Participants were

invited from academic faculties across the country. All health colleges in Saudi universities were represented. Two facilitators representing WHO, moderated the activities and data collection, supported by colleagues from the Saudi Patient Safety Centre and SCFHS. Members of the team were assigned different roles for specific sessions, including moderators, co-moderators, note-takers, and content experts.

Data collection, summary of days

13 May 2024

On the 13 May, presenters from the Saudi Patient Safety Centre, Saudi Commission for Health Specialties and WHO, delivered a series of short presentations outlining the importance of patient safety in the context of patient safety education in academic institutions. International experiences on patient safety education within undergraduate programme s were shared to develop a clear understanding of how patient safety is addressed within undergraduate studies in Saudi Arabia. Potential areas of improvement were recognised and explored. The WHO Patient Safety Curriculum Guide was introduced as a guide from which to consider and address interventions to health education.

Data collection: One focus group discussion with health educators was facilitated on 13 May.

14 May 2024

On the second day, a series of facilitated focus groups, both in-person and online, were conducted with participants representing the different colleges of health care specialities (Medical specialities, Dentistry, Nursing, Pharmacy, Allied Health, Applied Sciences as well as 6 groups of health students).

A visit to the Saudi Patient Safety Centre was organised where participants attended a presentation delivered by the Saudi Patient Safety Centre team on the scope of activities.

Data collection: Six focus group discussions with specialty disciplines were facilitated. Discussions with medical students were facilitated online.

15 May 2024

A number of lectures were delivered, focusing on potential approaches on how to integrate the basic patient safety concepts, principles, and topics outlined in the WHO Patient Safety Curriculum Guide into existing curricula across various health care disciplines.

Each group was comprised of participants from their own health discipline (medical sciences, dentistry, pharmacy, nursing and allied health sciences) The groups were presented with a series of questions and tasked with examining the current status of patient safety education within their respective curricula. The questions posed included:

Question 1: How has patient safety been addressed in your existing curricula?

Question 2: Based on the WHO Patient Safety Curriculum Guide, what are the current gaps in curricula?

Question 3: In your opinion, how would you include new patient safety topic areas in your existing curricula?

Data collection: The working groups presented their findings and proposed possible recommendations on how best to support patient safety education within existing curricula. The main researcher took notes during the session.

16th May 2024

On the final day, working groups were further tasked with identifying gaps in the implementation and delivery of patient safety education in current curricula. During the final group work session, participants focused on an action plan on scaling up patient safety education nationwide. Members were divided into four working groups:

Working Group 1 was tasked with identifying solutions to address the ***gaps*** in the implementation of patient safety topics within the curriculum. They focused on how to integrate proposed ***solutions***, examined resources and management along with organizational commitment and training workshops.

Working Group 2 focused on ***advocacy*** and how best to raise awareness with policy makers for both resource allocations and policy changes.

Working Group 3 looked at the role of ***stakeholders*** in building national and international partnerships and establishing patient safety as a priority topic area in health education. They considered how different stakeholders might help foster collaborations and learning on patient safety education.

Working Group 4 was responsible for assessing ***interprofessional education*** and how to integrate it within existing curricula. They assessed how best to coordinate interprofessional education as well as how to develop CPE workshops.

Data collection: The working groups presented their findings. The main research took notes during the session.

Analysis of findings

The data were collected onsite using a mix of video, photographs of visual results, audio-recordings of specific discussions, and note-taking. All data was shared with the WHO moderator, who organized the data. The data were analysed, guided by the steps of thematic analysis *(15)*. After familiarizing with the notes and transcripts of audio-recordings, codes and patterns were organized, related to the question route. Final thematic areas were determined where topic areas were significantly covered in discussions across different focus groups.

4. Results

Targeted participants included representatives from the following specialties, medical specialties n=10, dentistry n=8, nursing n=9, pharmacy n=X, allied health n=X, applied sciences n=7, medical students n=20, medical educators n=6. In total, x=male and x=female participants took part in the onsite meeting.

14 May Results of the focus group discussions

Data was analysed following the steps of thematic analysis. Five overarching themes were found, presented as gaps and challenges, and potential solutions.

Theme 1. Patient safety is not explicit across curricula

Gaps: Considering the discipline of patient safety and its standing within different curricula, one of the central themes that emerged from group discussion is that patient safety, as an educational topic is not explicit. "*Most aspects of patient safety are learnt by students when they go to the hospital but not at an educational level."* This point was echoed by participants within the student focus group, highlighting that the concept of patient safety was learnt after graduating as opposed to during their training. While most participants from the allied health group reported that patient safety concepts are certainly taught within their respective curricula, they insisted that the way in which the topic is addressed lacks clarity and focus. One member's quote echoed the perspectives of many discussions that patient safety topics are delivered in "*bits and pieces*" or "*scattered*" while others highlighted that *"the culture, the structured units, the info (whether explicit or embedded) it is there, but we need to link all the related personnel, faculty members, the students and administrative members. We need to have it structured, explicitly addressing the patient safety topics related to students, faculty members…we have to have it within the curriculum but extra-curricular activities as well."*

Participants within the nursing focus group highlighted that while patient safety is embedded within all practical and theoretical topics, the effectiveness of patient safety education is not measured and there is no assessment of competency in patient safety at a national level.

Proposed Solutions: Participants recommended that patient safety be explicitly tagged and labelled within curricula. It should crosscut different strands of the curriculum with many calling for it to be covered as a stand-alone module or programme within the foundation year, as well as including it within assessment.

A number of participants from the student focus group called for more focus on patient safety for each year of training.

Some participants argued that a clear focus on patient safety modules would be better situated within clinical settings as opposed to the foundational year. One participant stated that "*each speciality has their own ways and clinical ideologies. I don't think that it will be effective enough to teach this course in the first year, they are not familiar…it is quite early for them… I would address it in clinical practices courses…We need to make it explicit. We may need to implement the patient safety topics in the assessment of clinical practice courses. You can show them errors in the clinical settings*."

Theme 2. Interprofessional education/collaboration

Gaps: During discussions, the development and improvement of interprofessional education and collaboration within health care teams was identified as an objective that if fully undertaken, would greatly improve patient safety within the curriculum. At present, for both the allied health and care workers and those working in dentistry, patient safety topics are segregated within the curriculum based upon the different specialities. Participants from the dentistry workshop recognised teamwork and collaboration as a priority area in improving patient safety. Some participants identified the challenge of working within a multi-cultural team and the issues that might arise due to differing cultural and health backgrounds.

While participants recognised the importance of interprofessional collaboration within education, some made the point that within every profession or field, *"you have to protect the patient in a different way."* As such, while there is a place for general, collaborative efforts within the curriculum, it is difficult to generalise patient safety and each course should also include and teach its own specific learning objectives.

Proposed solutions: Some institutions are already focusing on bettering interprofessional education within their respective course. A participant from the dentistry workshop highlighted how they are trying to implement an interprofessional education module in an assimilation centre within their academic institution "*where a dentist, medical doctor, pharmacist, all from different health colleges, given learning outcomes for a case and how each deals with the situation. The grading will be done by each college instructor, four colleges, four instructors*.

Another participant from the AHPs workshop highlighted how they collaborate with the Ministry of Health stipulating that "*we have the capacity, the people, the creative minds, we just have to reach them and give them our message."*

Participants within the nursing focus group advocated for including patient safety as an interprofessional course.

Theme 3. Advocacy and awareness on patient safety

Gaps: During group discussion, participants deemed patients' awareness on their safety to be a significant cause for concern when assessing the efficacy of the delivery of patient safety education within the curriculum. Patient safety in the curriculum is *"not designed towards patients' rights. Very important, the right to ask the right questions, the right to complain if any errors. Lacking in our culture, patient safety is in the back seat and whatever you deliver and convey, they just take it and go home."* Participants within the student focus group noted how they recognised the human factor in medicine but did not associate it with patient safety.

Proposed solutions: Raising awareness amongst the public is critical in building upon a sense of patient empowerment. Creating campaigns to empower patients through increased knowledge along with targeted education interventions is one step towards more positive patient advocacy. One participant outlined the importance of building awareness within society *"to be your own advocate, how to ask the right questions, how to get involved in the treatment plans and all of that. A missing point in not only the curriculum but also our understanding as a culture."*

Another participant offered information regarding the measures being undertaken by their department to nurture and promote a better culture surrounding the rights of the patient. They outlined how they are addressing an inadequacy in four key competencies. "*Within these four competences, we're building courses. They are going to be designed for patient safety which is the essential course, the basic that everyone should at least have some kind of knowledge. We're also building an advanced course for people who have been on the job for a while….and then we have the Patient Safety Officer Program. And we're also offering the Patient Empowerment Program, the RCA for more in-depth clinical practice"* The "Choosing Wisely" initiative was also referenced as being embedded within the curriculum. This is a values-based campaign designed to promote better communication between patient and clinician in a bid to improve patient outcomes.

Theme 4. Safety culture

Gaps: Another significant issue experienced by participants in their respective fields is the culture surrounding reporting incidents, errors and near misses. Lack of support along with an unwillingness to disclose has led to a culture that is inadvertently threatening patient safety. This was addressed by participants within the student focus group who recognised a need to focus on the way incidents are reported. Additionally, the culture of effective communication needs addressing, with participants labelling miscommunication as one of the main causes of errors and near misses in clinical settings.

Proposed solution: As outlined by a representative from the Patient Safety Centre, *"with culture, everything else will come. When we focus on that, we focus on the beliefs, the attitudes, then we can get everything else on board, the empowerment, the effective communication, the openness, the disclosure, the ability to communicate with one another in a clear manner, that's what matters to us. Most of the errors happen due to miscommunication"* By working on more effective, open communication, the foundation for a better culture surrounding patient safety will be set in place.

One participant called for "*creating a culture of reporting, from the beginning, in training and all the way through.".* Along with educational interventions, leadership is key in building the foundation for a culture that promotes openness when recording incidents if and when they happen.

Theme 5. Leadership

Gaps: Leadership and its place in steering patient safety education emerged as a noteworthy theme during group discussion. The role that effective leadership plays is integral in moulding safety attitudes and nurturing a patient safety culture *(16)*. In terms of patient safety, when discussing the gaps within curricula, participants from the dentistry workshop recognised poor leadership as one such gap, stating that "we need leaders including the faculty and the students, how to lead about these matters and how to contribute." Participants within the student group highlighted poor leadership qualities that directly impacted patient safety in a negative way. Participants also recognised and considered the different perspectives of leadership, including emerging leaders, and the leadership of students.

Proposed solution: Participants recognised the need for not only better management leadership to promote a healthier culture of patient safety but also called upon all health and care workers to assume a sense of leadership in their quest for better patient safety. One participant also recognised gaps within policy as an area of concern when addressing patient safety.

This thematic area of leadership will require a multifaceted approach to fully integrate patient safety across KSA. It was proposed to develop an interprofessional, multi-stakeholder group, to lead patient safety initiatives and to act as a platform to share experiences and identify complementing activities.

15 May: Results of working group sessions

Participants reported their group responses in a plenary session. Notes from the sessions were analysed and summarized by research question.

Question 1: How has patient safety been addressed in your existing curricula?

Patient safety education is currently fragmented across the various curricula, lacking consistent and explicit integration. In most specialties, relevant topics are dispersed throughout the training period. While nursing education includes a comprehensive approach using lectures, problem-based learning, clinical skills, flipped learning, and tutorials, other disciplines do not consistently cover patient safety early or uniformly. Approaches such as standalone courses, open discussions based on case scenarios, skills-based training, small group learning, and team-based learning are utilized. Nursing education uniquely introduces all students to human factors and patient safety fundamentals early in their curriculum, which is not necessarily mirrored in other specialties.

Question 2: Based on the "WHO Patient Safety Curriculum Guide", what are the current gaps in curricula?

There is a need for foundational patient safety principles and concepts to be introduced earlier in the curriculum, preferably in the first or second year. Emphasis on quality improvement is lacking and requires greater focus across all disciplines. Interprofessional learning of patient safety topics is identified as an area needing improvement, especially within nursing and health specialties. Integration of patient safety topics within knowledge-based assessments and skills rubrics is inconsistent across different fields. Enhancing the linkage between patient safety theory and practical application through improved use of case scenarios is necessary.

Question 3: In your opinion, how would you include new patient safety topic areas in your existing curricula?

To include new patient safety topic areas, participants suggested employing a variety of teaching methods, including practical skills-based training through role play and simulation exercises. Effective communication training and interprofessional education were highlighted as critical components for fostering collaboration and teamwork among health and care workers. Reflective journals were proposed as a tool to facilitate student learning and self-assessment on patient safety topics. Integrating these methods would ensure a more comprehensive and practical understanding of patient safety across disciplines. These approaches aim to enhance the overall effectiveness of patient safety education by making it more interactive, reflective, and interprofessional.

16 May: Results of working group sessions

Participants were tasked to discuss assigned topics in working group sessions including: 1. gaps and proposed solutions, 2. consider advocacy actions, 3. the role of stakeholders and 4. interprofessional education.

Gaps and proposed solutions

The working groups were tasked with identifying solutions to specific gaps in patient safety and discussed several key points. They emphasized that a common goal across all specialties should be to increase awareness of patient safety and reduce patient errors and near misses. Patient safety needs to be explicit in health specialties curricula to facilitate the aligned planning and implementation of teaching, learning, and assessment activities in key patient safety topic areas. Specific solutions included establishing targeted policies to safeguard patients and aligning standards with qualifications and accreditation criteria. The group also proposed the creation of centres of excellence in patient safety as a means to elevate the overall quality of patient care, serving as hubs for best practices, innovation, and continuous improvement in patient safety.

Advocacy actions

Participants discussed advocacy interventions required to improve patient safety by promoting awareness, securing resources, and influencing policy changes. Reducing the burden of avoidable errors and near misses must be strategically placed on policy agendas across Saudi Arabia. The Ministry of Health, the Saudi Patient Safety Centre, as well as WHO, and other stakeholders can support specific advocacy initiatives. Achievable interventions presented during the workshop include:

- Patient safety outreach programmes
- Creating and facilitating networks and collaboration across different stakeholders
- Outreach to patients and public raising awareness on patient safety
- Strengthening advocacy through science, sharing success stories
- Consider budget and financing, and cost of errors
- Create and communicate a patient safety action plan
- Create indicators for success

The role of stakeholders

Participants discussed the role of partnerships at national and international levels. Partnerships across specialties may facilitate a wider outreach of existing courses, learning activities, and assessment practices across specialties. Creating strategic partnerships may help to build a better patient safety culture. Specific actions for partners may include implementing or improving upon recording practices of errors and near misses. Creating train-the-trainer programmes and strong leadership will be needed for the continued sustainability of scaled patient safety interventions.

Interprofessional education/collaboration

Participants discussed the role of interprofessional collaboration interventions, deeming it essential to improve patient safety by fostering teamwork and communication among health and care workers. Utilizing simulation-based learning allows health care teams to practice and refine their collaborative skills in realistic scenarios. Conducting interprofessional rounds, where diverse health and care workers discuss patient cases together, ensures comprehensive care planning and decision-making. Establishing collaborative practice agreements clearly defines roles and responsibilities, promoting effective teamwork. Additionally, incorporating interprofessional education into health care curricula ensures that future health and care workers are trained to work cohesively from the start of their careers. These interventions collectively enhance the quality of care, reduce errors, and improve patient outcomes by leveraging the strengths of a diverse health care team.

5. Recommendations

Following this qualitative evaluation, the presented findings advise evidence-informed recommendations for next steps following a modified framework for collective action *(17)*. This framework informs where a recommendation best fits to the responsibilities of different stakeholders (*Fig 2).* It also builds upon data collected during the workshops. Reflecting on the resultant themes, targeted education interventions, together with advocacy campaigns founded on scientific findings organise specific tasks for educators, advocates and researchers.

Reflection before action

Perhaps the greatest challenge to implementation will be to consider which recommendations need to be prioritized. This country mission informed a situational analysis from the perspectives of multiple stakeholders, particularly from academic institutions and the health specialties. Yet, it is worth reflecting on representatives from different stakeholder groups that did not inform these recommendations including patients, advocates, and policymakers as examples. Careful consideration of the perspective of these stakeholders to inform targeted, fit-for-purpose interventions is required. A carefully planned needs assessment can provide critical information and feedback providing a true understanding of the gaps in patient safety from multiple perspectives *(18)*.

Fig 2. Framework for collective action (adapted) *(17)*

Each recommendation is presented with the following domains, particularly highlighting proposed actions for different stakeholders, informed by the framework for collective action.

Present as:

- Thematic area/recommendation theme
- Action by target group
- Possible solutions
- Evidence-based examples
- Key action area (education, science or policy/advocacy).

Arising from the situational analysis and the feedback gathered and assessed, a series of targeted recommendations are proposed including:

- integrating patient safety as a topic area across all curricula
- improving interprofessional education and collaboration across professions
- conducting advocacy – improving awareness surrounding patient safety
- creating a culture of patient safety.

- improving leadership in patient safety.

Recommendation 1: Integrate patient safety as a topic area across all curricula. **Thematic area 1:** Patient safety is not explicit in education curricula			
Action needed by target group	**Possible solutions**	**Evidence-based examples**	**Framework for collaborative action**
Education providers **Health and care workers**	• Establish patient-safety as a track across curricula*[1]. • Tag patient-safety knowledge, skills and attitudes across • education curricula. • Identify curricula gaps, and integrate new knowledge, skills, attitudes and behaviours on patient safety within curricula. • Ensure patient safety is fully covered throughout curricula, from undergraduate courses to skills-based training and assessment activities including simulation and portfolios and Entrustable Professional Activities (EPAs). • Include additional topics such as complex systems and quality improvement. • Leverage technology and Artificial Intelligence for patient safety in screening, diagnosis and treatment of patients	*(19)* *(20)* *(9, 21, 22)* *(9)* *(23)* *(24)* *(25, 26)*	***EDUCATION***
Academic institutions	• Investigate effectiveness of education interventions on patient safety • Share / communicate stories, successes and failures, to health care teams, for example the *horror room*, study	*(27, 28)* *(29)*	***SCIENCE***

Country mission findings: During the mission, topics of patient safety, as covered within the *WHO Patient Safety Curriculum Guide*, are scattered across curricula. Participants from different specialties explained that certain areas are well-covered, mentioned as learning from errors and preventing harm, infection prevention and control, patient safety in invasive procedures and medication safety. Participants report that by making patient-safety more explicit across the curricula, and enhancing education activities, awareness of the importance of the topic for students will improve, and in turn improve patient safety practices. These findings align to published evidence reporting that education on patient safety at medical and health education levels can prevent medical errors *(30)*.

Evidence-informed implementation: A tiered approach to education implementation is necessary to ensure leadership and a comprehensive understanding of patient safety principles at all levels of health care practice *(31)*. This approach involves establishing foundational knowledge at the undergraduate level, building upon this foundation with more advanced concepts and practical applications in post-graduate training, and reinforcing these principles through ongoing professional development. Embedding patient safety education throughout the continuum of a health care professional's health and care worker's career can foster a culture of safety, reduce the incidence of errors, and improve patient outcomes *(32)*.

A framework for implementation: Evidence-based examples of education interventions in patient safety can inform the design, planning, development, and implementation for the Saudi context. Following the curriculum design framework, purported by Kern *(33)*, ***patient safety may be integrated using a logical flow of defined steps:***

[1] Medical curricula refer to curricula for all health and care worker occupations.

1. Complete a curriculum mapping of patient safety topic areas within existing curricula *(9).*
2. Tag curricula topic areas aligned to the *WHO Patient Safety Curriculum Guide (34).*
3. Identify specific gaps, and adding explicit learning outcomes, defining the knowledge, skills and attitudes for patient safety topic areas.
4. Identify existing teaching activities, where patient safety topics may be included.
5. Add patient safety as a mandatory interprofessional course for undergraduate studies *(3*).
6. Establish patient safety within assessments including knowledge and skills-based assessment activities, simulation checklists, and portfolios (21, 35).

Recommendation 2: Improve interprofessional education and collaboration across professions Thematic Area 2: Interprofessional education/collaboration			
Action needed by target group	Possible solutions	Evidence-based examples	Key action area
Education providers Health and care workers Medical students	• Strengthen interprofessional collaboration and integrated care for patients. • Use simulation-based exercises and scenarios to practice interprofessional communication and collaboration in patient safety. • Collaborative practice agreements assure clear lines of responsibility, to elevate safety in patient care. • Interprofessional continuing education to bring together occupations to learn from different disciplines. • students have an important role to play in preventing harm	*(36)* *(37)* *(38)* (39) (39)	*EDUCATION*
Academic institutions	• Investigate association of collaborative practice and interprofessional learning on patient safety	*(40)*	*SCIENCE*

Country mission findings: During the mission, the role of interprofessional learning and practical cooperation was considered essential to the improvement of quality and safety in patient care. Although health and care workers function interdependently, typically members of the health care team are trained by specialty area. This approach to learning and practice in health care is widely referenced *(41–43*). Collaborative and interprofessional care positively affects the quality of care (44), improving patient outcomes *(42)* and quality of life for patients *(45)*.

Evidence-informed implementation: Improving interprofessional, collaborative care across health care teams will require consideration and possible action on several levels.

1. Team-based care requires all members of the health care team to work collaboratively strengthening an integrated care approach for patients *(46)*.
2. While health and care workers must work independently, they are also interdependent on other professions. Role clarity is essential to ensure all members of the team are aware of their own responsibilities with respect to patient care, and in this context patient safety *(47)*.
3. Shared decision-making is the collective responsibility of team members, patients and their families to consider treatment and management options that fit the patient's needs and wishes *(48)*.
4. Communication models can facilitate better communication across teams and professions to improve (49).

A framework for implementation: TeamSTEPPS is an instructional framework for team strategies and tools to enhance performance and patient safety *(50)*.

Phase 1: Assessment will require assessing the level of awareness about patient safety issues, evaluating different patient safety interventions, and consider widening the scope of the target audience for existing programmes to a wider interprofessional team.
Phase 2: Planning, training and implementation will require planning of specific interventions to targeted audiences. Building an infrastructure for interprofessional care will require interprofessional learning and assessment activities that may be built into curricula.
Phase 3: Sustainability will require leadership and a national support network, integrating tools into daily practice activities.

Recommendation 3: Advocacy **Thematic Area 3:** Improve awareness on patient safety, particularly to patients			
Action needed by target group	**Possible solutions**	**Evidence-based examples**	**Key action area**
Education providers Health and care workers	• Develop education programmes for students, residents and practising health and care workers, to advocate on the topic of patient safety. • Support health and care workers to adopt an advocacy role, to inform and educate patients around patient safety, aligned to accepted guidelines and protocols.	*(51, 52)* *(53)*	*EDUCATION*
Academic Institutions	• Leverage scientific findings as a basis to advocate for patient safety policies. • Use scientific findings to push awareness and communication campaigns.	*(54)* *(55)*	*SCIENCE*
Saudi Patient Safety Centre , Saudi Commission for Health Specialties , MoH, other advocacy and policy organizations.	• Create awareness campaigns and initiatives to raise awareness of patient safety for patients and public, advocates, policymakers, and health and care workers. • Ensure robust laws and policy to protect patients' rights. • Foster collaboration between regulatory bodies, patient advocacy groups and health care providers to develop safety policies.	*(56, 57)*	*POLICY*

Country mission findings: During group discussions, participants highlighted a significant concern about the lack of focus on patients' rights in patient safety education, emphasizing the need for patient empowerment. Raising public awareness through campaigns and targeted education interventions is essential to encourage patients to advocate for themselves. Additionally, one department is developing comprehensive courses, including basic and advanced patient safety, a Patient Safety Officer Program, and a Patient Empowerment Program, along with embedding the "Choosing Wisely" initiative to improve patient-clinician communication and outcomes. Policy and advocacy efforts provide the regulatory framework and incentives needed to prioritize safety. Educational initiatives ensure that health and care workers and patients are equipped with the necessary knowledge and skills. Scientific research drives innovation and evidence-based practices that continually improve safety standards. Together, these approaches can significantly enhance patient safety in health care settings.

Evidence informed implementation: Using research and data can guide validated strategies towards advocacy actions to promote safety in health care settings. This approach ensures that interventions are based on proven practices and are likely to be effective.

Perspectives on advocacy

A patient's perspective: "Engaging Patients for Patient Safety" WHO advocacy brief (2023) emphasizes the critical role of involving patients and their families in safety efforts to enhance health care outcomes. It outlines strategies for empowering patients through education, transparent communication, and active participation in safety initiatives. The brief also highlights the need for health care systems to create supportive environments that prioritize patient engagement and collaboration.

Health and care workers perspective: Health and care workers and health system leaders have a role to advocate to patients within their context, to inform and educate patients about patient safety and their rights as a patient. Successful interventions, particularly the role of nurses, can inform and guide interventions for implementation *(53)*.

Public health perspective: Health advocacy organizations can extend the reach to the broader public that may improve awareness, and indirectly improve quality of care. Examples of similar interventions have been successfully published *(56, 58)*.

Recommendation 4: Create a culture of patient safety, focus on education **Thematic area 4:** Culture			
Action needed by target group	*Possible Solutions*	*Evidence-based examples*	*Key action area*
health Educators **Health and care workers**	• Equip health and care workers with the knowledge, skills and behaviours to educate patients about patient safety. • Ensure safety and well-being of staff • Provide continuous professional development opportunities for education leaders, to foster understanding and a culture of safe reporting for residents and students. • Create accreditation programmes for health care organizations showcasing 'centres for excellence' in patient safety.	*(5)* *(59)* *(60)* *(61)*	*EDUCATION*
Academic Institutions	• Provide funding opportunities for research focused on identifying causes of medical errors, developing innovative safety solutions and evaluating effectiveness. • Implement evidence-based practices, that are proven to improve patient safety, using checklists, standardised protocols and hand hygiene practices as examples. • Utilizing big data and advanced analytics to monitor safety trends, predict potential safety risks and identify areas of improvement. • Establish patient safety research centres that may foster research collaboration among scientists, health care providers and policymakers.	*(62)* *(63)* *(64)* *(65)*	*SCIENCE*
Saudi Patient Safety Centre, Ministry of Health, other advocacy and policy organizations.	• Create a national action plan for patient safety, that could be aligned to KSA Vision2030. • Establish national safety standards and guidelines that health facilities must adhere to • Mandate reporting systems, systematic across health facilities, in primary, secondary and tertiary care settings. • Create incentive programmes or accreditation programmes for health care organizations.	*US Context* *(66)* *(67)* *(61)*	*POLICY*

Country mission findings: Improving a culture of patient safety requires a multifaceted approach that addresses education, scientific research, policy and advocacy.

Evidence informed implementation: Having an incident reporting system in place is only worthwhile if all practicing health and care workers are confident, encouraged and empowered to report incidents and near misses. Incident reporting systems are in place to protect patients, as well as health and care workers. Globally, studies continue to be published indicating a high rate of preventable medical errors *(34)*, many of which continue to be underreported *(46)*. Efficient hospital management relies upon patient safety improvement, facilitated through incident reporting systems and pursuing education. Patient safety education interventions must target undergraduate through to continuing professional development, to strive towards high-quality patient safety services. Targeted interventions for advocacy, science and education, is needed to improve an overarching culture of patient safety, at all medical institutions serving patients and their families *(68)*.

A framework for implementation: The framework for collective action serves as a guide to establish complementary activities to establish best-practice informed by contextually relevant scientific findings, to raise awareness through advocacy campaigns, and facilitate implementation through fit-for-purpose education interventions. There is no overarching framework to tackle culture given that it requires such a multifaceted approach, however published examples of best practices and practical guides can offer some guidance *(69)*.

Recommendation 5: Leadership Thematic Area 5: Improve leadership for patient safety			
Action needed by target group	**Possible solutions**	**Evidence-based examples**	**Key action area**
Health educators, Medical students Health and care workers	• Create work environments that promote patient safety. • Establish leadership programmes for management on safety and quality topics. • Clinical leaders are in a position to enable a culture of safety, leadership development • Health educators have a role to create a teamwork climate, safe working conditions and stress recognition. • An approach to leadership development and identify formation of medical students in the context of patient safety. • Create mentorship programmes for emerging leaders • Ensure protected time for engagement in patient safety activities.	*(70)* *(71)* *(72, 73)* *(16)* *(74)* *(75)* *(76)*	*EDUCATION*
Academic institutions	• Promote safety first principles and guidelines, developed on evidence-based investigations. • Support patient-safety research initiatives and actively disseminate research findings through conferences, journals and online platforms.	*(77)* *(78)*	*SCIENCE*
Saudi Patient Safety Centre, Ministry of Health, other advocacy and policy organizations.	• Create a collaborative patient safety leadership team to oversee patient safety initiatives that is multifaceted and represented by advocacy representatives as well as academic and health educators. • Bring patient safety as a key topic area to governance agendas • Empower patients with different strategies and tools to raise awareness of patient safety.	*(79)* *(80)* *(81)*	*POLICY*

Country mission findings: Effective leadership in patient safety education is crucial for fostering a healthy safety culture, yet gaps in leadership were noted. To address this, participants called for better management and health and care worker leadership, new policy possibilities, and proposed creating an interprofessional, multi-stakeholder groups to lead patient safety initiatives and share best practices across Saudi Arabia.

Evidence-informed implementation: Tracking change in patient safety over time is also useful to monitor and evaluate progress, setting specific benchmarks and targets for deliverables. The role of leadership is essential to create a culture of patient safety across institutions *(16)*. It has been reported that high-performing hospitals, explained as hospitals ranking highly on objective measures and quality metrics, were more likely to have board members who were skilled in quality and safety issues, and devoted time in different hospital initiatives to such topics *(71)*. More literary attention is also refocusing leadership of medical students as future drivers for change in quality improvement and patient safety *(82)* and proposing an approach to leadership development for pre-clinical medical students *(74)*, Empowering medical students with the knowledge, skills and attitudes on topics of patient safety, will serve to positively influence attitudes to patient safety among future health and care workers *(83)*.

A framework for implementation

Health and care workers, particularly at a leadership level, must follow best practices to create environments conducive to the provision of safe care *(84)*;

1. Balancing production efficiency with safety and reliability
2. Building and maintaining trust across the organization
3. Proactively managing the change process
4. Engaging workers in decision-making regarding work design and workflow
5. Implementing knowledge management practices to foster a culture of continuous learning within the organization

Patients: Patient leadership and sharing stories is a powerful tool to raise awareness, and to empower patients and families to be engaged in their own care *(24)*. Advocacy organizations can support interventions that focus on elevating the voice of patients.

Advocacy organizations: Advocacy organizations play a crucial role in leading patient safety initiatives by influencing policy development, promoting best practices, and fostering a culture of transparency and accountability within health care systems. They also provide resources, education, and support to health care providers and institutions, empowering them to implement effective safety measures and improve patient outcomes.

Actions to implementation

Consideration of specific and targeted interventions will require planning, design, development, implementation and evaluation of each intervention. A first potential step is to establish a patient safety action task force; a team of multiprofessional stakeholders that represent policy, education, and science, as well as patients and public. A first task will be to consider recommendations, to prioritize actions based on needs and plan timelines. The plan-do-study-act model provides a process to manage change and improve practice performance *(85)*.

6. Conclusion

In conclusion, the situational analysis conducted during this mission has provided invaluable insights into the existing gaps in patient safety and has helped to identify targeted solutions to address these challenges. By leveraging the collective expertise for collective action of all participants and potential

stakeholders, this report outlines actionable strategies that can be implemented across various health care settings to enhance patient safety. Moving forward, it is imperative that momentum for action remains. Leveraging political support to action specific patient safety interventions will *not only* improve the lives of patients living in Saudi Arabia but will also recognize Saudi Arabia as a global leader in patient safety.

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Annex 1 Focus group questions

Question 1. What are the current priorities and goals for patient safety education at your institution?
In your opinion, what topics are covered within patient safety?
How do you apply patient safety in your dealings with patients?

Question 2: What are your expectations for patient safety education at your institution?
Based on the WHO Patient Safety Curriculum Guide, what are the current gaps in your teaching?

Question 3: Do you teach patient safety, and if yes – how?
Is there a stand-alone patient safety curriculum?
or
Do you have a culture of patient safety? How would you describe it?

Question 4: What might be the challenges for implementation of patient safety into the current curricular content?
What is your greatest threat/need? And what are the priority areas?
Resistance to change? If so, at what level?
Resources (financial, human)?

Questions 5. What are the opportunities for successful implementation of patient safety education?

Question 6: What support would the faculty need to successfully integrate patient safety in educational curricula?

Back up questions: Evaluation and effectiveness
Do you measure the effectiveness of patient safety education in your hospital? If so, how?
How do you assess student understanding and competency in patient safety practices?

Question route students

1. What can you tell us about patient safety?
2. In your opinion, what topics are covered within patient safety?
3. Do you think patients are safe when they come to a practice setting?
4. On a scale of 1 to 10 can you rate how safe patients are in a clinical setting? (1 extremely unimportant, 10 = extremely important)
5. Have you had any patient safety across your learning journey?
6. Have you had any exposure to patient safety incidences? Can you explain?
7. How do you apply patient safety in your dealings with patients?
8. How important would you rate patient safety as a topic area in your learning?
9. What competencies related to patient safety would you like to improve?

10. What education activities do you think are most important to improve your knowledge, skills and behaviours about patient safety?