

Patient Safety, Language Barriers and CTT APP

Impact, Number of patients who could be treated in a safe way and Security (feeling that you {doctors, nurses} have done the right things)

1. Introduction

Patients' safety is an important global public health issue. It is estimated that the risk of medical accident which is preventable during healthcare is 1 in 300 patients (World Health Organization Fact sheets, 2019). The rate is not less in high income countries too. In high income countries 1 in 10 patients is harmed during the time of hospital care.

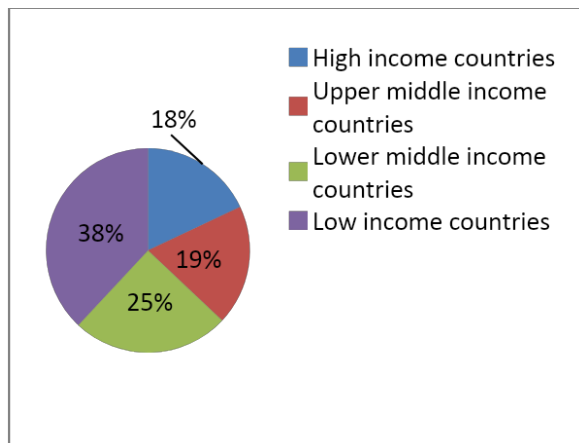


Fig 1: Pie chart showing the percentage of mortality and morbidity caused by adverse events in 2015 (Slawomirski et al., 2017).

Identifying Patient Safety as a global health priority World Health Assembly adopted a resolution and has been instrumentalized and shaped the patient safety agenda globally by focusing on improvements in some strategic areas. Those Strategies are:

- Providing global leadership and fostering collaboration between Member States and relevant stakeholders.
- Setting global priorities for action

- Developing guidelines and tools
- Providing technical support and building capacity of Member States
- Engaging patients and families for safer health care
- Monitoring improvements in patient safety
- Conducting research in the area

All of these strategies of WHO will aid to achieve the sustainable improvements in patient safety. The aims of WHO are to reduce risk and harm during health care, achieve better health outcomes and lower the costs (World Health Organization Fact sheets, 2019).

2. Patient Safety as a fundamental component of Universal Health Coverage:

Provision of safe and high quality health care is one of the prerequisites for augmenting health care systems and going towards effective and progressive universal health coverage under Sustainable Development Goal 3 (Hasan, S. A. W., 2019). The target 3.8 is directly related to UHC by reducing financial risk, ensuring quality essential health care services, ensuring access to safe, effective, quality medications and vaccine for all. Under the provision of UHC patient safety regarding harm and cost in a health care system is recognizable. The provision of safe services will lend a hand to restore communities trust in their health care system (Hasan, S. A. W., 2019).

2.1. Burden of harm regarding patient safety:

2.1.1. Errors during Healthcare:

Different types error happen during providing health care to the patients like medication errors, diagnostic errors etc. To find out the causes of these types of errors Al Shamsi et al. (2020) stated that language barrier is one of the most important causes of these errors. F. van Rosse et al. (2016) found that medication errors are great contributors of hospital adverse event and more prevalent in patients with a language barrier than those don't have a language barrier. F. van Rosse et al. (2016) also stated that during medication verbal confirmation about name and date of birth of the patient is very essential but if the patient is not able to do that due to language barrier then the administration overlooks the matter sometimes. Usually professional interpreter and ad hoc interpreter from family members are used to solve this problem. But unfortunately sometimes ad hoc interpreters are not familiar with the safety risk of medication and may

increase the medication errors (Boylen, et al., 2017). A cross-sectional study of nurses in America stated in Bowen et al. (2017) showed that 90% participants thought that proper communication during new medication was very necessary. 41% nurses believed that language barrier had negative effect on patient-nurse communication and they had felt low confidence that patients understood well how to manage their medication due to their linguistic barriers. A Dutch study described in F. van Rosse et al. (2016) showed that due to language barrier patient safety including medication administration, diagnostic error, pain and fluid management are endangered but detecting and reporting of language barrier was very limited. The study also reported that considering cost effectiveness, many Dutch hospitals did not avail professional interpreters. Thus the quality of care somehow is being affected.

2.1.2. Assessment and Management issues:

Language barrier may affect different aspects of care including assessment and management. To manage an illness accurately we need to assess it properly. For example, pain and distress management. In pain management patients teaching and communication is a crucial issue to understand the rating and scale of the pain. Inappropriate pain rating leads to overmedication and under-medication that may result in poor pain management. This event usually occurs due to miscommunication between patients and physicians due to language barrier. All these miscommunication have great impact on quality of care, cost-effectiveness and enormous sufferings of patients (Meuter et al., 2015). Like pain management, there are many health conditions need strict measurement such as urine, stool, and body fluid intake of patient. For appropriate measuring of intake and output, patients' knowledge of necessary instruments i.e. urinal or urine collection hat is essential. Inaccurate measuring leads to harmful impact on prescribed treatment and results on adverse outcomes like dehydration, kidney and heart failure. So, understanding of different aspects of treatment is very crucial for patients' overall health and quality of care (Rosse et al., 2016).

2.1.3. Treatment and follow-up issue:

Patients with language barrier may have high stressed level due to miss appointments, treatment and follow-up difficulty, difficulty in understanding their treatment regimen and weaken adherence (Ali & Watson, 2018). Meuter et al. (2015) state that if a patient does not receive

correct information about a new diagnosis or a health care professional does not able to provide a proper explanation about the related risk factors, the patients can not able to give informed decisions, that may be life threatening. Realizing complete medical information may be a challenge for a patient with language limitation and has a negative impact on patient's literacy and care (Murray, Elmer & Elkhair, 2018). The miscommunication between healthcare provider and patients may negatively affect the trust and reliability of patients that may affect the follow-up of the care too (Hu, 2018). Follow-up care is an important regimen of treatment but as due to miscommunication this is ignored that may lead to increased readmission rate and create huge burden in emergency care (Boylen et al., 2017). Goodwin, (2018) describes a statistics and shows that readmission rates are higher among the patients those have language barrier and there is a delay of care for them.

Length of stay if interpreter isn't used at admission or discharge	Increased (3 days)
30- day readmissions (among certain chronic diseases)	Increased risk (15%-25%)
Central line-associated bloodstream infections	Increased risk
Falls	Increased risk
Surgical site infections	Increased risk
Pressure injuries	Increased risk
Surgery delays	Increased risk
Medication management (for example, adherence, understanding discharge instructions)	Increased risk
Preventive screening	Decreased chance
Access to the health care system	Decreased chance

Fig 2: Evidence-based impact of language barriers on patient outcomes (Squires, 2018).

3. Tools to solve and reduce the language barrier and ensure patients' safety:



Fig 3: QUARUPLE AIM of using tools to reduce language barrier (Jacobs et al., 2004)

3.1. Professional interpreter:

Professional interpreters are used to reduce the burden of language barrier and improve the quality of health care. But most of the time the provision of professional interpreter services are neglected due to the financial burden imposed by the services (Jacobs, et al., 2004). The cost of interpretation services includes not only the direct cost like salaries, fringe benefits and overhead cost but also includes the cost of net changes due to the utilization of new service in health care system (Jacobos, et al., 2001). Due to this financial burden professional interpreting services are neglected where necessary though there are evidences show that professional interpretation services are useful and increased the quality of healthcare in the settings where language barrier is an important issue (Druss, et al., 2001). One of the drawbacks of the professional interpreter is the limited working hours because healthcare demands 24 hours and 7 days services. Scarcity of professional healthcare in many settings makes the scenario worst too (Panayiotou et al., 2020).

3.2. Mechanical Translator :

Google translator, Microsoft translator, Amazon translator are some mechanical translators and there are hundreds of machine translators are used to translate syntax from one language to another language instead of professional interpreters (Parker-Toulson, S., 2020). All of these translators have their advantages and drawbacks. One of the drawbacks of these translators is unable to identify literary or gradation of the texts. Google and Microsoft sometimes identify the language rules and relationship between words and sentence but

unable to understand how a metaphor is formulated, contextual meanings and proper use of synonyms. There was a case stated in translation portal that a Mexican man was arrested by police for carrying illegal narcotics. The man could not speak English and Google translator was used for communication and due to the lack of proper translation of legal word the case lost its validity (Parker-Toulson, S., 2020). Like the example healthcare is more sensitive to proper word for the accurate treatment of the patients. Panayiotou et al. (2020) states that some useful fixed- phrase apps are used in healthcare system of Australia instead of Google translator. CALD Assist, Talk to Me and xPrompt are few apps used in Australia. These fixed-phrases apps are well used to identify the proper context better than the translation apps that don't consider contextual aspects and one of the advantages of this app is cost effectiveness than the professional interpreter.

4.1. Care to Translate, a fixed-phrases app vs other tools on the provision of healthcare:

CTT is a fixed-Phrases medical translation app. Right now, one of the most used translation app in Swedish healthcare system. The app is navigating as a tool in the provision of Cost, Efficacy, Patient safety and Quality of care within Swedish healthcare system.

CTT App and cost:

CTT serves as a complement to professional and other types of human interpreters in healthcare. The app is available in 24 hours and 7 days in the smart device that is convenient and cost effective and less hazardous. This app also reduces the treatment cost presenting proper communication.

Efficacy of CTT app:

CTT is a fixed –phrases app. From Panayiotou et al. (2020) we know that fixed- phrases are more effective than other kind of translator like Google and Microsoft. Being fixed-phrases, this app is well enough to catch up the contextual aspects and gradation of the text. Thus, reduces the chance of misdiagnosis, malpractice and complications and prevents readmission and hospitalizations by providing accurate communication between patients and healthcare providers.

CTT and Patient safety: CTT safeguards patient safety and integrity. This app aids the patient to understand about the care providers, what is going on to them and why. According to Higginbottom, et al., (2016) it is very important to understand the information of care and concept of informed written concept. CTT provides the way of informing the patients why they need to wait or an interpreter is on the way etc., which assures that they are not abandoned or neglected on the provision of cares. Thus, CTT keeps patient integrity. Moreover, with proper communication CTT helps to reduce adverse events within healthcare system and preserves patient safety.

CTT and Quality of care:

Good communication is an important determinant of different components of Quality of care. Patient satisfaction, reduced adverse events, providers' satisfaction, lower cost of care are few basic components of Quality of care ((Jacobs et al., 2004). CTT app plays important role in every aspects of the quality of care granting good communication between healthcare providers and patients whenever necessary. Therefore, CTT is cooperating to maintain quality healthcare.