

Assessment of Efforts Made to Improve Patient Safety Related to Medication Safety, Infection Prevention and Quality Care among Addis Ababa Regional Hospitals, 2018

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Abstract

Background: Patient safety is a discipline that emphasizes safety in health care through the prevention, reduction, reporting, and analysis of medical error that often leads to adverse effects. Hospitalized patients face safety issues from different dimensions among those medication safety, infection prevention and quality of nursing care are most important once.

Objective: The main objective of this study was to assess patient safety related to medication safety, infection prevention and quality of care and to explore efforts made towards controlling patient safety efforts among Addis Ababa regional hospitals, 2018

Methods: A qualitative study was conducted to assess patient safety among Addis Ababa regional Hospitals in terms of medication safety, infection prevention and quality of nursing care. Twelve interviews were conducted by principal investigator three interviews in each hospital on purposefully selected health care staffs representing the hospitals pharmacies, infection prevention team members and Head Nurses of inpatient wards on October, 2018 over a one-month period. Interviews were recorded, transcribed and results were summarized based on topics.

Results and conclusions: Studies in Ethiopia showed that Patient safety related to Medication safety, infection prevention and Nursing care quality is not encouraging but still effective monitoring efforts aren't in practice among Addis Ababa regional hospitals even though recommended by the EHRIG (Ethiopian hospital reform implementation guideline, 2010).

Keywords: patient safety, medication safety, infection prevention, quality care.

Background

Patient safety is a discipline that emphasizes safety in health care through the prevention, reduction, reporting, and analysis of medical error that often leads to adverse effects. Hospitalized patients face safety issues from different dimensions among those medication safety, infection prevention and quality of nursing care are most important once.

Some of medication related patient safety risks include Adverse drug reactions (ADRs), medication prescription error and medication administration error.

Adverse drug reactions (ADRs) are one of the major causes of morbidity and mortality in the health care system. Studies conducted in Ethiopia showed that the magnitude of ADR related hospitalization among adult patients was 10.3 % (Angamo, Curtain, Chalmers, Yilma, & Bereznicki, 2017) and incidence was 9.2 % among hospitalized children with 9% caused death of the child. (Eshetie et al., 2015) . According to (Angamo et al., 2017) most of the ADRs were preventable (89.1%). Considering the magnitude of the problem in Ethiopia it is mandatory to track ADRs consistently and make the necessary changes to avoid the preventable ADRS.

Medication error could be in the form of medication prescription error or medication administration error. Medication prescribing errors in different parts of Ethiopia was with rate of 40% (Sada, Melkie, & Shibeshi, 2015) , 52% (Woldie, Agalu, Ayele, & Bedada, 2011), and 58% (Zelege, Chanie, & Woldie, 2014). Common prescribing errors were (42.89 %) omission errors , (28.13 %) wrong combination, (13.37 %) wrong abbreviation, (8.36 %) wrong dose, wrong frequency (5.01 %) and wrong indications (2.23 %). (Sada et al., 2015) Errors associated with antibiotics represented a major part of the medication prescribing errors (32.5%). (Woldie et al., 2011).

Studies in Ethiopia showed that the incidence of medication administration error was also high (56.4 %) with the majority (87.5 %) of it was due to documentation error, followed by administration technique error (73.1 %) and administration time error (53.6 %). (Feleke, Mulatu, & Yesmaw, 2015), (Dedefo, Mitike, & Angamo, 2016).

Level of client satisfaction with the pharmacy service showed that the overall mean score to satisfaction with the pharmaceutical services was 2.48 out of a 5.00 score with the lowest scored for information given to clients about the storage of medication (1.25), and explanations of possible side effects (1.27). (Surur et al., 2015).

In Ethiopia incidence rate of hospital acquired infection (HAI) was 28.15 per 1000 patient days with the overall prevalence of 19.41% and was associated with prolonged hospital stay and increased in hospital mortality. (Ali et al., 2018). Incidence of surgical site infections at surgical ward was (19.1%) and some of the predictors were age being greater than 40 years, preoperative hospital stay more than 7 days, duration of operation more than 1 hour, and administering antimicrobial prophylaxis before 1 hour of operation. (Legesse Laloto, Hiko Gameda, & Abdella, 2017) Standard precaution knowledge among health workers in Ethiopia also wasn't satisfactory with the overall knowledge score was only 54.6% .(Alemayehu, Worku, & Assefa, 2018).

Hand hygiene is recognized as the single most effective strategy for preventing health care associated infections. A study aimed to assess hand hygiene compliance among health-care workers in Ethiopia found an overall hand hygiene compliance of only 22. 0% with 2.4% before patient contact, 3.6% before an aseptic procedure and 3.3% after contact with patient surroundings , 75.8% after body fluid exposure and 42.8% after patient contact. (Kolola & Gezahegn, 2017).

Patient satisfaction survey showed that one of the most frequently identified cause of patient dissatisfaction in Ethiopia was lack of clean toilet in nearby the waiting areas (Berehe, Bekele, Yimer, & Lozza, 2018).

Nursing process is a framework used to provide an effective, coordinated, and organized quality care for patients. Effective implementation of this framework leads to improved quality of care and decreases potential complication, hospital length of stay, and the cost of care. studies in Ethiopia to assess implementation of nursing process showed that only 42.1% and 35% (Miskir & Emishaw, 2018), (Baraki et al., 2017) of nurses were implementing nursing process, Assessment and diagnosis were carried out only by 57 (56.9%) of nurses, planning by 46% of nurses, implementation by 38.2% of nurses, and evaluation by 36.2% of nurses. Among the hindering factors lack of knowledge (83.3%) and lack of in service training (75.5%) (Miskir & Emishaw, 2018) stressful atmosphere of the workplace (99%) , Level of education, consistent material supply (95.1%) were mentioned. (Baraki et al., 2017).

Studies conducted in Ethiopia showed that prevalence rate of pressure ulcer in hospitalized patients was as high as 14.9%. (Bereded, Salih, & Abebe, 2018), which is a one of the important predictor of quality of nursing care. The level of patient satisfaction with nursing care in Ethiopia was also below average (49.2%). (Sharew, Bizuneh, Assefa, & Habtewold, 2018).

The main objective of this study is to assess patient safety among Addis Ababa regional Hospitals in terms of medication safety, infection prevention and quality of nursing care.

Methods

Study settings, design and analysis

Addis Ababa is the capital city of Ethiopia, seat of the Ethiopian federal government. It has an estimated total population of 3,433,999 consisting of 1,624,999 male and 1,809,000 females. 100% of the population are urban dwellers (FDRE CSA population projection of Ethiopia for all regions 2014-2017). An estimated area of 526.99 square kilometers, this region has an estimated density of 5,535.8 people per square kilometer According to the 2016 Health and Health Related Indicators published by FMOH, Addis Ababa has 11 public hospitals which are under direct supervision of Addis Ababa Regional Health bureau and ministry of health in Ethiopia. (Health and Health related indicators, 2016) In Ethiopia Referral or specialized hospitals estimated to serve 5,000,000 population and general hospitals 1,500,000 population. Currently in Addis Ababa hospitals to population ratio is 312182. All the 11 public hospitals in Addis Ababa are referral hospitals serving patients from both Addis Ababa and other regions of the country through the referral system.

A qualitative study was conducted to assess patient safety among Addis Ababa regional Hospitals in terms of medication safety, infection prevention and quality of nursing care. Twelve interviews were conducted by principal investigator three interviews in each hospitals on purposefully selected health care staffs representing the hospitals pharmacies, infection prevention team members and Head Nurses of inpatient wards on October, 2018 over a one month period. Interviews were recorded, transcribed and results were summarized based on topics.

Result

Medication safety

Four pharmacists were interviewed to assess medication safety at the four Addis Ababa regional hospitals. They were asked if they recognize patient safety issues related to medication prescription, Administration, and Adverse drug reaction. All of the respondents were agreed that problems related to medication safety are major concerns in their respective Hospitals since didn't get enough attention considering the seriousness of the problems.

All of the respondents believe that adverse drug reaction is one of the most important patient safety risk that needs to be traced and managed in their respective hospitals. None of the hospitals under this study were trying to investigate the occurrence or magnitude of ADR's.

Ethiopian health reform implementation Guideline (EHRIG) recommended an Adverse drug reaction reporting format to report an adverse drug event to the Ethiopian drug administration. Ministry of health also required number of adverse drug reaction to be reported quarterly. according to the respondent's ADR's were never been reported since never been traced.

Another tool recommended by EHRIG which was help full to trace adverse drug reactions was Patient medication profile which is useful to assess compliance, effectiveness and safety of therapy and also to identify and refer patients if therapeutic modification is required. Patient medication profile forms were recommended to be used for every patient with chronic illness that needs medication refill in long term bases. but unfortunately, none of the pharmacies in the four hospitals interviewed were either using patient medication profile card (PMP) nor done any of its intended purposes like assessing compliance, effectiveness and safety of therapy or to identification and referral of patients if therapeutic modification is required.

The other area assessed regarding medication safety was medication prescription. According to respondents some efforts were made in all of the four hospitals specially on those pharmacies that implemented Auditable pharmaceutical transactions and services (APTS) system. But the prescription registration books at these pharmacies were intended to be used only for the purposes of tracking transactions and the formats provided by APTS didn't include the diagnosis of the patient. EHRIG also recommended a prescription registration book which has useful components to investigate medication prescription based on diagnosis, and also antimicrobial prescribing and use based on diagnosis. Based on the respondent's prescription registration book were not used in any of the hospitals assessed either to investigate prescription based on diagnosis or antimicrobial prescribing and use.

One important effort appreciated by respondents regarding medication safety were those pharmacies who implemented the Auditable pharmaceutical transactions and services (APTS) system have dedicated staff to evaluate prescribed medicine based on diagnosis before dispensing it and if found to be inappropriate prescriber will be communicated. They said they believe that this was an important beginning to minimize medication error specially if these pharmacies were able to register the prescriptions on the prescription registration book for the purpose of investigating prescription errors in their respective hospitals. The respondents also reported that APTS introduced an additional patient counseling windows to give patients required information on medication including administration method, duration and side effects which was a good beginning towards minimizing medication administration.

Considering work load of the pharmacies respondents suggested that electronic pharmacy systems could facilitate the process of investigating medication errors in terms of prescription, administration or adverse drug reactions.

Infection prevention

Health care workers who are members of Infection prevention team were interviewed to assess the status of the hospitals in terms of infection prevention efforts. Based on their responses three of the four hospitals have active team members of infection prevention and the fourth hospital is in the process of reestablishing the team.

Based on our observation all of the assessed hospitals have visible waste disposal containers of different colors labeled for dry, wet and sharp in most areas including inpatient rooms, outpatient waiting areas, Nursing stations, doctors' offices, corridors and inside the compound of the hospitals. Team members interviewed informed us that they try to enforce proper use of waste containers by giving patient education and staff awareness but inappropriate use of containers happened every day.

EHRIG recommended use of Health care acquired infection (HCAI) Prevalence study form which is used to assess prevalence of hospital acquired infection hospitals and surgical site infection surveillance form which is used to assess prevalence of surgical site infection in hospitals.

Based on respondents none of the hospitals infection prevention teams performed HCAI prevalence studies in general or surgical site infection prevalence in particular. Health care acquired infection rate was one of the indicators needed to be reported to the ministry quarterly but based on the respondents none of the hospitals were tracking HCAI rate.

EHRIG recommended the use Infection prevention check list to be used by infection prevention teams which is helpful to assess each case team that includes Hand hygiene, Environmental hygiene, Linens processing, Housekeeping, Transmission based precautions, waste disposal, Observation of single use Needles, scalpel Blades and other sharp objects, decontamination and cleaning, sterilization, high level disinfection, and worker's health and safety. According to the respondents none of the hospitals who have active members of infection prevention teams currently were using this form to monitor infection prevention activities in each case team. They reported that they simply observe proper use of waste containers and give patient education every now then on proper use of waste containers.

Hand hygiene monitoring form is also one of the recommendations of EHRIG which is used to monitor use of proper hand washing techniques and it includes checklists to monitor hand hygiene practice in areas of providing general medical services, invasive procedures, Medication administration, passing meal trays and phlebotomies. Based on observation hand hygiene techniques were posted next to hand washing sinks in all of the assessed hospitals but soaps were not available next to them specially in the toilets. Interviewed team members responded that even though they never used hand hygiene monitoring forms to formally assess hand washing practices they give patient education in inpatient wards emphasizing its use in infection prevention. They also mentioned that shortage of liquid soaps and uninterrupted availability of water are major hindrance to effectively implement hand washing techniques.

Quality of nursing care

Patient safety is the cornerstone of high-quality health care. Nurses play a major role in coordination of patient safety efforts and minimizing adverse events occurrence. quality of Nursing care could be a holistic approach care given to patient based on individualized need assessment. Most important tool recommended by EHRIG to ensure patients safety in regards of effective and personalized nursing care were Nursing assessment forms, Nursing diagnosis forms, Nursing care plan forms, Nursing progress forms. Head Nurses working at inpatient department of the assessed hospitals were interviewed to assess use of these forms.

Head Nurses working at the inpatient departments of the hospital were witnessed that use of Nursing assessment, diagnosis and care plan forms were rare and when used were not complete. The Head Nurses also witnessed that monitoring to enforce its use wasn't done so far.

pressure sore incident rate was one of the indicators to be reported quarterly to the ministry but according to the respondents never been assessed or reported.

Patient satisfaction towards the service provided by Nurses were one of the recommendations of EHRIG according to the respondents which was never practiced in their respective hospitals.

Discussions

Adverse drug reactions (ADRs) are one of the major causes of morbidity and mortality in the health care system. Studies conducted in Ethiopia showed that the magnitude of ADR related hospitalization among adult patients was 10.3 % (Angamo et al., 2017) and incidence was 9.2 % among hospitalized children with 9% caused death of the child. (Eshetie et al., 2015) . According to (Angamo et al., 2017) most of the ADRs were preventable (89.1%). Considering the magnitude of the problem in Ethiopia it is mandatory to track ADRs consistently and make the necessary changes to avoid the preventable ADRS. But the findings of our study showed that none of the hospitals assessed were using a consistent system to track or report ADR's even though a reporting format was prepared and recommended by EHRIG.

Medication error could be in the form of medication prescription error or medication administration error. Medication prescribing errors in different parts of Ethiopia was with rate of 40% (Sada et al., 2015) , 52% (Woldie et al., 2011), and 58% (Zelege et al., 2014). Common prescribing errors were (42.89 %) omission errors, (28.13 %) wrong combination, (13.37 %) wrong abbreviation, (8.36 %) wrong dose, wrong frequency (5.01 %) and wrong indications (2.23 %). (Sada et al., 2015) Errors associated with antibiotics represented a major part of the medication prescribing errors (32.5%). (Woldie et al., 2011) findings from these study showed that all of the pharmacies in the four hospitals assessed have medication prescription registration book but none used it for its intended purpose like investigating prescription based on diagnosis or antimicrobial prescribing and use.

Studies in Ethiopia also showed that the incidence of medication administration error was also high (56.4 %) in which the majority (87.5 %) of these was due to documentation error, followed by administration technique error (73.1 %) and time error (53.6 %). (Feleke et al., 2015), (Dedefo et al., 2016).

A study in Ethiopia found that the incidence rate of hospital acquired infection (HAI) was 28.15 per 1000 patient days with the overall prevalence of 19.41%, and it was associated with prolonged hospital stay and increased in hospital mortality. (Ali et al., 2018). The findings of our study showed that none of the hospital's infection prevention teams performed HCAI prevalence studies even though Health care acquired infection rate was one of the indicators needed to be reported to EMOH quarterly.

A study to determine incidence of surgical site infections at surgical wards found that (19.1%) of patients developed surgical site infections. (Legesse Laloto et al., 2017) but the findings of our assessment showed that none of the assessed hospitals were conducted prevalence studies to assess surgical site infection prevalence except those conducted by independent researchers even though the surveillance formats were prepared by EHRIG.

A study aimed to assess hand hygiene compliance among health-care workers in Ethiopia found an overall hand hygiene compliance of only 22.0% (Kolola & Gezahegn, 2017) Hand hygiene monitoring form was one of the recommendations of EHRIG but was never been used regularly by any of the hospitals infection prevention teams.

patient satisfaction survey in Ethiopia hospitals showed that one of the most frequently identified cause of patient dissatisfaction was lack of clean toilet in nearby the waiting areas (Berehe et al., 2018) .The surveillance teams of the assessed hospitals never conducted patient survey to assess degree of cleanliness of their respective hospitals.

Studies assessed implementation of nursing process showed that only 42.1% (Miskir & Emishaw, 2018), (35%) (Baraki et al., 2017) nurses were implementing nursing process. (Miskir & Emishaw, 2018) Based on the findings of this study, nursing assessment, diagnosis and care plan forms were rarely used and when used were not complete. They also witnessed that monitoring efforts to enforce their use wasn't in place.

According to studies in Ethiopia prevalence rate of pressure ulcer in hospitalized patients was 14.9%. (Bereded et al., 2018) The findings of this study showed that pressure ulcer prevalence was never been traced or reported.

Assessment of patient satisfaction towards the Nursing service was one of the recommendations of EHRIG but our findings showed that none of the hospitals were conducting Patient satisfaction survey even though a study conducted to assess the level of patient satisfaction with nursing care in Ethiopia found only 49.2% of patients were satisfied with nursing care. (Sharew et al., 2018)

Limitations of the study

In this study only health workers directly related to the areas being assessed were interviewed. Views of responsible parties from ministry of health in Ethiopia and Addis Ababa regional health bureau might help us to better understand the situation.

Conclusion

Studies in Ethiopia showed that Patient safety related to Medication safety, infection prevention and Nursing care quality is not encouraging but still effective monitoring efforts aren't in practice among Addis Ababa regional hospitals even though recommended by the EHRIG (Ethiopian hospital reform implementation guideline, 2010).

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