

Methods of voluntary reporting medication administration errors among nurses in the University College Hospital, Ibadan, Nigeria

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Abstract

Background: Reporting medication administration error (MAEs) is a significant strategy to ensure patient safety. Literature had it that most of what is reported as errors of administration is just a tip of the iceberg, suggesting that a lot more go unreported. The methods of reporting medication administration errors in Nigeria have not been well explored. This study examined the methods of reporting MAEs by nurses in selected wards in the University College Hospital, Ibadan, Nigeria.

Methods: A cross sectional survey of 286 nurses, who were conveniently selected from Medical, Surgical and Accident and Emergency departments of the University College Hospital, Ibadan. Nurses who gave consent to participate completed a 42-item structured questionnaire on the methods and reasons for non-reporting MAEs.

Results: Among the study cohort, 162 (64.8%) admitted to have committed MAEs in the past, of which 137 (84.4%) voluntarily reported. Common methods included reporting to immediate supervisor (88; 34%), and confiding in a colleague 62 (24.8%). Only 39 (15.6%) documented and completed report forms. In addition, 183 (73.2%) believed that anonymous reporting enhances the rate of reporting errors. The major reason for non-reporting was the fear of being punished and labelled as incompetent practitioner (Mean 3.82, \pm 1.09).

Conclusion: Findings suggest that not all MAEs committed by the study cohort were reported, and the methods used differ with individuals and units of practice. There is therefore a need to create more awareness that disclosure of MAEs will help to identify the specific causes of errors, thereby fostering safe practice.

Keywords: *Medication error, incident reporting, patients' safety, quality care.*

Résumé

Contexte: Rappporter l'erreur d'administration des médicaments (MAEs) est une stratégie importante pour

assurer la sécurité des patients. La littérature l'avait que la plupart de ce qui est rapporté comme erreurs d'administration est juste une pointe de l'iceberg, suggérant que beaucoup plus ne sont pas signalés. Les méthodes de déclaration d'erreurs d'administration des médicaments au Nigeria ne sont pas bien explorées. Cette étude a examiné les méthodes de déclaration des MAEs par les infirmières dans des salles de services sélectionnés au Collège Hospitalier Universitaire d'Ibadan, Nigeria.

Méthodes: Une étude transversale de 286 infirmières, qui ont été commodément choisis parmi les départements de service médical, chirurgical et d'accidents et d'urgence du Collège Hospitalier Universitaire d'Ibadan. Les infirmières qui ont donné leurs consentements à participer rempli un questionnaire structuré à 42-points sur les méthodes et raisons pour la non-déclaration des MAEs.

Résultats: Parmi la cohorte de l'étude, 162 (64,8%) ont admis avoir commis des MAEs dans le passé, dont 137 (84,4%) ont volontairement déclarés. Les méthodes communes comprenaient des rapports au superviseur immédiat (88; 34%), et se confier dans un collègue 62 (24,8%). Seulement 39 (15,6%) ont documenté et complété les formulaires de rapport. En outre, 183 (73,2%) croyaient que le signalement anonyme améliore le taux de déclaration d'erreurs. La principale raison de la non-déclaration était la crainte d'être puni et étiquetés comme praticien incompetent (Moyenne de 3,82 \pm 1,09).

Conclusion: Les résultats suggèrent que pas tous les MAEs commises par la cohorte de l'étude ont été signalés, et les méthodes utilisées diffèrent avec les individus et les unités de pratique. Il est donc nécessaire de créer une plus grande sensibilisation que la divulgation des MAEs aidera à identifier les causes spécifiques des erreurs, ainsi favorisant une pratique sécuritaire.

Mots-clés: *Erreur de médication, rapports d'incident, sécurité des patients, soin de qualité.*

Introduction

Patient safety is an important component of quality care. Literature is consistent with the fact that medication administration errors (MAEs) constitute a significant threat to the safety of patients in the hospitals [1,2] with implications such as undue discomfort to the

patient, disability, prolonged days of hospitalization and increasing mortality rates [3]. This suggests that the rate of medication errors can be used as an index of patients' safety in hospitals.

In the year 2000, [4] an awareness was raised about human errors, and ever since then many attempts have been made to reduce medication errors [5]. Additionally, the National Institute of General Medical Sciences cited in a related study [6] reported MAEs as one of the five medical errors, based on the associated serious effects. Therefore to build safer systems, various recommendations have been made to enhance error detection and provide opportunities for quality improvement. Suggested tools include, but are not limited to chart review, computerized monitoring, incident reporting, direct observation, and voluntary reporting by doctors, nurses pharmacists, patients and others [7,8]. Although these strategies are effective, they are however not without limitations.

In the US [9], a medication error was defined as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice at individual or organizational levels, which climaxes into errors of prescribing, dispensing and administration. Several reasons have been adduced in the literature, ranging from poorly written prescriptions, wrong dosage calculation, errors of administration, inadequate documentation, insufficient knowledge about patient, nursing shortage and failure of devices such as infusion pump [6,10] resulting in errors of administration.

A critical evaluation of different definitions suggest that prescribing error was not considered a component of MAE. An example was that proposed by some authors [11-13] in which MAE was described as any deviation from the physician's medication order as written in the patient's chart. Expectedly, this definition is often employed by medical doctors, which needlessly leaves the nurse open to critique and censure. However, a more encompassing definition described MAEs as mistakes associated with drug and intravenous solutions [14], that are made during the processes of prescription, transcription, dispensing and administration phases of drug preparation and distribution. The error may be an act of omission or commission arising from any of the following: wrong drug, wrong route, wrong patient, wrong time of administration, a contra-indicated drug for a particular patient, wrong site, wrong drug

form, wrong infusion rate, expired date or prescription error [14,15]. It follows also that inappropriate documentation and use of inappropriate forms, which may be a system level problem, is also considered as MAE. In line with this opinion was the report of an Australian study [16], which confirmed that system factors such as team, task, individual, environmental, and patients contribute to MAEs.

Lehmann *et al.*, [18] stated that most medication errors were committed by nurses, being the largest therapeutic team, who spend about 40% of their work time on administration of medicines to patients. Consistent with this, was the outcome of a study in England on incidence of medication errors over a five year period in a pediatric hospital [19]. Findings showed a 15% error rate, of which 56% were committed by nurses who worked in medical units [19]. In addition, a US study which evaluated the rate and type of prescription and administration errors in one pediatric nephrology ward; concluded that 20.7% of MAEs occurred out of 511 prescriptions of 4,532 drugs. This represents 1.9% medication error rate per patient per day [10] with significant difference between computerized and handwritten prescriptions ($p < 0.0001$). In another prospective, blame-free study to assess types of errors in five medical-surgical wards in a French hospital [20]; the authors concluded that of 47 medication errors committed over a 6months period, 26 (60%) were related to prescriptions while 8 (17%) were administration errors [20]. An Australian study confirmed that medication errors contributed to 12% of all medication admissions and 20% to 30% admissions in persons over 65years [21].

Safety is central to quality of care in the current healthcare arenas, therefore a system of prompt reporting of MAE constitutes efforts that are geared towards reducing risk, accidents and incidents with associated negative patient outcome [22, 23]. This is an obligation, which if followed can assist to forestall avoidable incidences of MAE. Within the sphere of professional nursing practice, the International Council of Nurses (ICN) emphasized high standard and safe patient care as an ethical and legal obligation to patients [24]. To buttress this, some authors indicated that failure to report errors result in undermining nurse-patient fiduciary *ipsosfacto* breaching the principle of fidelity and non-maleficence [25]. It may be inferred therefore that, since administration of medicine forms the bulk of nurses' clinical procedures, the intellectual and physical skills of computation, preparation and administration is a priority competence [26].

There is a general consensus that the number of errors reported is only a 'tip of the iceberg', because many go unreported [27]. Voluntary reporting consists of a simple structured form to help reporting, analysis, feedback and implementation of corrective actions [28]. Therefore it is suggested that voluntary reporting be anonymous, confidential and blame-free [3] and used for near misses, and other MAEs [29]. Literature explained that an increasing number of MAE reports does not necessarily portend poor practice, rather it indicates an improvement in capturing events in an organization [3]. This implies that voluntary reporting ensures a timely discovery of active and latent system failures and enhance the correction of contributory factors [28,29]. Despite this understanding, nurses tend not to voluntarily report MAEs for reasons of fear of reprisal and reaction of colleagues [30].

Following an extensive literature search, we found one study [31]; which reported that MAE was frequently committed by nurses in public hospitals in Lagos, Nigeria. Furthermore, findings in that study showed that poor reporting was due to fear of intimidation or being punished. In addition 22% (n=50) in that study reported lack of policy on MAE in the hospitals. Suffice to say that there is a dearth of studies on the methods of reporting MAEs in Nigeria. The aim of this study was to examine the methods used by nurses to voluntarily report MAEs in selected medical, surgical and emergency department in the University College Hospital, Ibadan. It is hoped that the findings will provide an insight on voluntary reporting of MAEs in the setting and therefore serve as a drive for further studies in this important aspect of patient safety.

Materials and methods

This was a descriptive cross sectional study, which took place in selected medical and surgical wards and accident and emergency department of the University College Hospital, Ibadan. The nurses were conveniently selected by approaching them at every shift when they were less busy and during the overlapping periods of morning and afternoon shift duties.

The hospital comprises twenty seven (27) wards under the following units: medical, surgical, pediatric, obstetrics and gynecology, psychiatry and radiotherapy. A calculated sample size of 287 nurses from a total of 1000 nurses were selected. Although a proportional selection was not followed but eligibility criterion of having worked for over one year in the selected wards was considered.

A structured questionnaire based on literature review was used. It comprised four sections. Section I elicited demographic data. Section II were 21 items which examined perceived reasons for non-reporting, Section III, 9 items assessed the pattern of reporting and section IV described 6 clinical circumstances to measure nurses knowledge of MAEs, and what they would normally do in such situations (report or not). Test retest reliability was used to determine the reliability of the instrument (Cronbach's alpha coefficient 0.75). Findings led to restructuring and rewording of some items for clarity. For example, an item which read '*using a scale of 1-10, how often do you report medication administration error*' was restructured as '*If for example 10 incidences of MAEs occur in your practice, how many would you voluntarily report?*'

Approval was obtained from the University of Ibadan/University College Hospital (UI/UCH) research ethics board to conduct the study. Respondents' signed a consent form to participate in the study. The researcher approached each nurse at different shifts, at periods when they were less busy and questionnaires were distributed. Only nurses who met the inclusion criterion of having worked on the selected wards for not less than 1 year, were included. Completed questionnaires were retrieved on the spot.

Statistical analysis

Using the Statistical Package for Social Sciences version 16.0 (SPSS 16.0), data obtained were analyzed using descriptive statistics such as frequency tables, percentages and pie charts. Mean and standard deviation were also described.

Results

A total of 250 questionnaires were retrieved out of 287 distributed, giving a response rate of 87.1%. Majority (88%) were females. Those between ages 25 and 29 constituted 32.4%, while those between 30 and 34 constituted 31.2%. Of this, 114 (45.6%) were staff nurses (table 1), and 33.6% had worked for periods ranging from 6-10 years on the wards. The unit of practice indicated that 105 (42%) were working in the medical wards, 100 (40%) in surgical wards while only 43 (17.2%) of the respondents were working in the accident and emergency department.

Among the study cohort, 162 (64.8%) admitted to having committed MAEs in the past, of which 98 (39.2%) failed to report because they were afraid of

Table 1: The respondents socio-demographic characteristics

Variables	Frequency	Percentage	Total
<i>Age</i>			
20-24	15	6.0	250
25-29	81	32.4	
30-34	78	31.2	
35-39	46	18.4	
40-44	14	5.6	
45-49	10	4.0	
50 and above	6	2.4	
<i>Sex</i>			
Male	15	6.0	250
Female	235	94.0	
<i>Designation</i>			
Staff Nurse	47	18.2	250
NO	114	45.6	
SNO	42	16.8	
PNO	22	8.8	
CNO	19	7.6	
ADN	6	2.4	
<i>Working experience</i>			
1-5	93	37.2	250
6-10	84	33.6	
11-15	47	18.8	
16-20	16	6.4	
20 and above	10	4.0	
<i>Educational Qualification</i>			
Diploma in Nursing	145	58.0	250
B.Sc/BNSc.	99	39.6	
M.Sc.	4	1.6	
PhD	2	0.8	
Post Doctoral	-	-	
<i>Unit of Practice</i>			
Medical	105	42	250
Surgical	102	40	
A and E	43	17.2	

Key: NO: Nursing Officer; SNO: Senior Nursing Officer; PNO: Principal Nursing Officer; CNO: Chief Nursing Officer; AND: Assistant Director of Nursing. A&E: Accident and Emergency

disciplinary action (table 2). However, 158 (63.2%) reported all MAEs that occurred, including those they considered not serious. Possible reasons for non-reporting (table 3) included fear of being tagged as incompetent (mean=3.82, SD=1.09). This was followed by respondents' perception that when MAE occurs, the focus is always on individual rather than examining for system-related factors (mean=3.79, SD=1.13). Fear of disciplinary action from the authority (mean =3.58;

SD=1.13) was also identified as a perceived reason for not reporting MAEs.

Findings on methods of reporting indicated that 88 (34%) reported errors to their immediate supervisors, 62 (24.8%) confided in a colleague (Fig. 1). In the opinion of 183(73.2%) respondents, anonymous voluntary reporting will enhance reporting among nurses (table 4).

We also examined the methods of reporting MAEs in relation to the different units under study (table 5). For this item, only 137 (54.8%) response rate was obtained. Findings suggested that methods differed among nurses in different units within the hospital. For example in the surgical units, 29 (11.6%) nurses usually notified their supervisors, while only 10 (4.0%) use similar method in the A and E unit. In the surgical unit, 14 (5.6%) documented errors and completed any available forms, while only 4 (1.6%) solicited the physician's advice. We examined the number of errors that the study cohort would normally report out of 10 hypothetical MAEs committed in practice. Findings showed that 173 (69.2%) would report 1 to 3 incidences of 10 (figure 2). Finally, on clinical situations on MAEs showed that majority of the respondents did not consider dose omission as **error** and therefore not usually reported. Example in response to the clinical situation, where a patient missed a midday dose of ampicillin, because he was in X-ray (table 6), only 34 (13.6%) considered this a MAE to be reported, while majority (86.4%) would not report.

Discussion.

Medication error is a global problem and has been identified as one of the major threats to patient safety [5]. Therefore detecting and reporting such errors is a crucial step towards ameliorating adverse events, and identifying the causes for correction. It is obvious that administration of medicines is a common practice in healthcare facilities which when done effectively contributes significantly to positive outcomes. Worthy of note is that most of MAEs are preventable. Literature confirms that executing medication orders form a significant procedure carried out by nurses [32] and reporting MAE is an important quality concern. We examined the methods of reporting among nurses in the medical, surgical and the accident and emergency units in the University college hospital, Ibadan. These are very busy and demanding units which may be prone to MAEs.

Table 2: Ever committed and reported medication administration error

Items/Questions	Yes Freq. (%)	No Freq. (%)	Total Freq. (%)
Have you committed MAE before?	162 (64.8%)	88 (35.2)	250 (100)
Have you ever failed to report MAE because you did not think the error was serious to warrant reporting	92 (39.8%)	158 (63.2)	250 (100)
Have you ever failed to report a MAE because you were afraid you might be subject to disciplinary action or even lose your job.	98 (39.2)	152 (60.8)	250 (100)

Table 3: Perceived reasons for non-reporting of medication administration errors.

Items	Strongly Agree (Freq./%)	Agree (Freq./%)	Undecided (Freq./%)	Disagree (Freq./%)	Strongly Disagree (Freq./%)	Total	Mean	SD
Fear of being tagged as incompetent	122 (48.8%)	80 (35.6%)	7 (2.8%)	19 (7.6%)	13 (5.2%)	250	3.82	1.09
Fear of disciplinary action from those in authority e.g. suspension, dismissal etc.	131 (52.4%)	86 (34.4%)	5 (2%)	17 (6.8%)	11 (4.4%)	250	3.58	1.13
Fear of patient/family negative attitude	64 (25.6%)	126 (50.4%)	19 (7.6%)	33 (13.2%)	8 (3.2%)	250	2.18	1.26
Nurse's belief that the error does not warrant reporting	31 (12.4%)	65 (26%)	27 (10.8%)	78 (31.2%)	49 (19.6%)	250	3.20	1.35
Fear of defending a claim in court	100 (40%)	81 (32.4%)	11 (4.4%)	40 (16%)	18 (7.2%)	250	2.97	1.12
Inadequate knowledge of what constitutes an error	19 (7.6%)	42 (16.8%)	28 (11.2%)	97 (38.8%)	64 (25.6%)	250	2.11	1.23
Medication error is a normal occurrence	17 (6.8%)	24 (9.6%)	17 (6.8%)	129 (51.6%)	63 (25.2%)	250	1.85	1.13
Little or no harm to the patient	10 (4%)	31 (12.4%)	20 (8%)	121 (48.4%)	68 (27.2%)	250	3.31	1.17
To avoid the stress (time and effort) of filing a report	10 (4%)	71 (28.4%)	43 (17.2%)	83 (33.2%)	43 (17.2%)	250	1.77	1.08
Confusing reporting procedures or policies	23 (9.2%)	72 (28.8%)	65 (26%)	70 (28%)	20 (8%)	250	2.19	1.30
Fear of side effect of the drug	92 (36.8%)	85 (34%)	21 (8.4%)	39 (15.6%)	13 (5.2%)	250	2.88	1.26
Decreasing evaluation score	88 (35.2%)	69 (27.6%)	43 (17.2%)	33 (12.2%)	17 (6.8%)	250	2.18	1.26
Focus on individual rather than system factors in MAE	108 (43.2%)	59 (23.6%)	44 (17.6%)	25 (10.0%)	14 (5.6%)	250	3.79	1.13

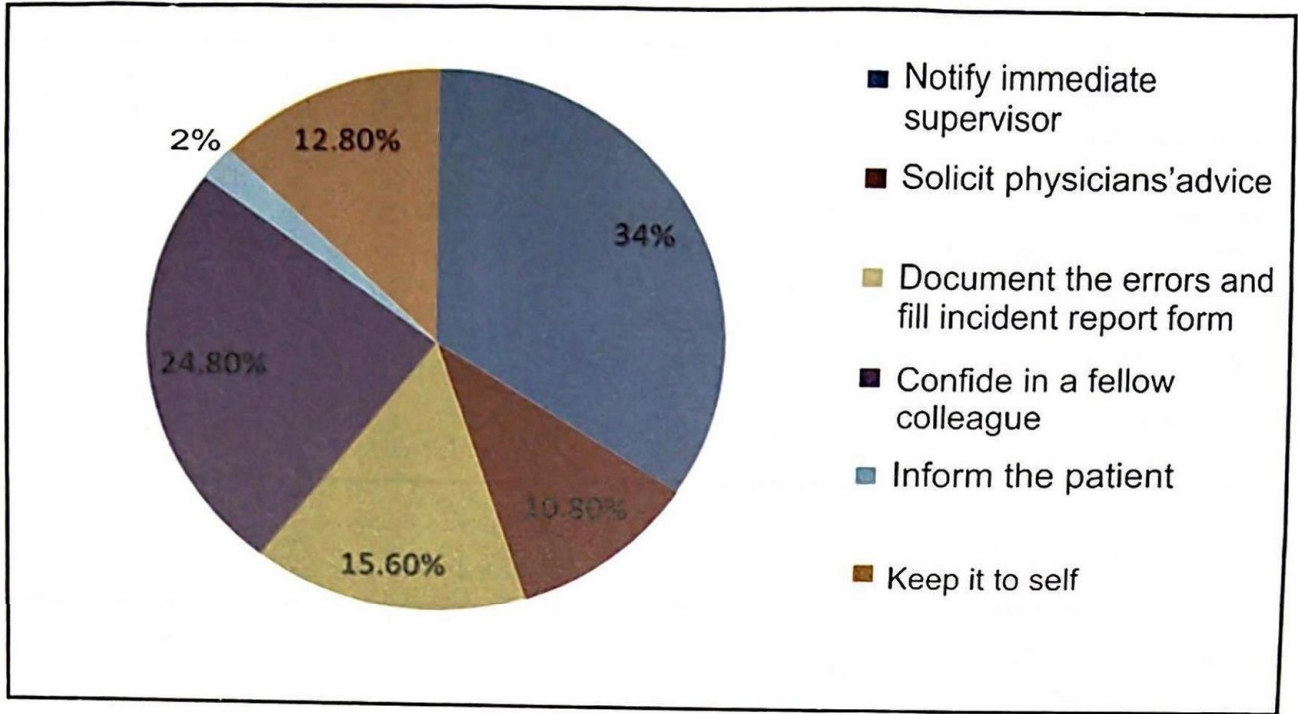


Fig. 1: Methods of ereporting medication administration errors did not conduct an audit review to either confirm or

Table 4: Respondents' opinion about reporting MAE among nurses

Question	Yes Freq. (%)	No Freq. (%)	Total
In your opinion anonymous reporting will enhance reporting MAEs among nurses	183 (73.2)	67 (26.8)	250 (100)
In your opinion since humans are bound to make mistakes, MAEs should be reported always.	246 (98.4)	4 (1.6)	250 (100)

From respondents' self-report, more than half of the population had committed MAEs and majority reported such errors. This seems to be inconsistent with previous reports that MAE are infrequently reported [33]. We

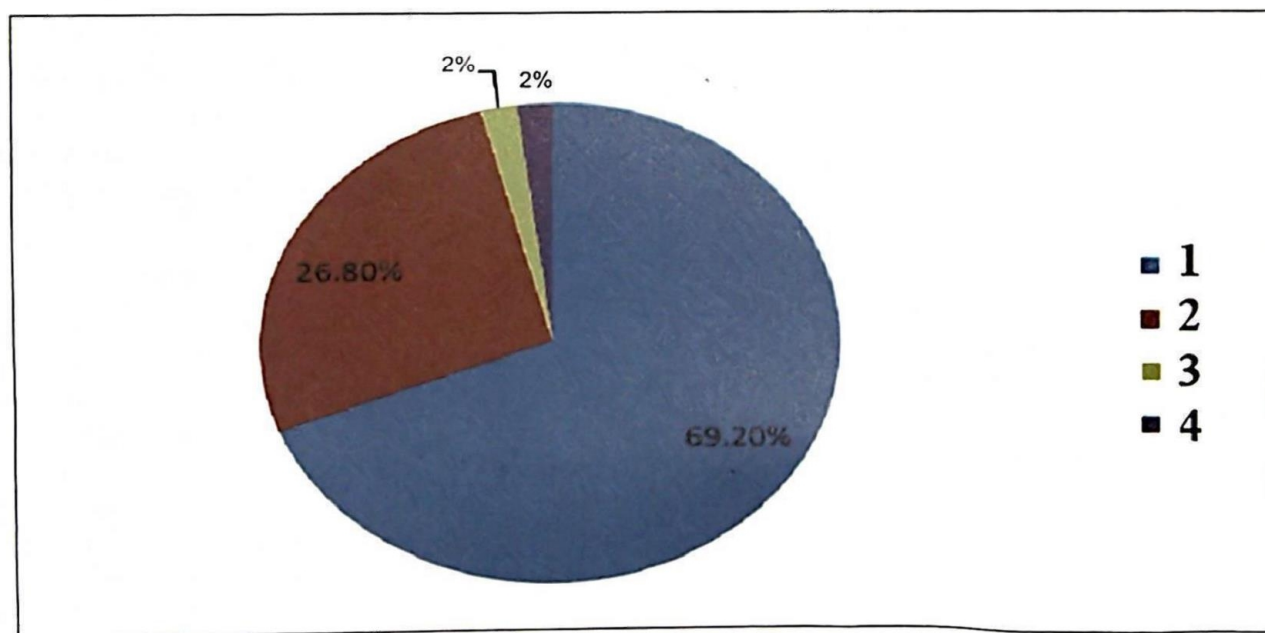
refute these findings; therefore it may be difficult to generalize. However, authors [34] believe that errors which are likely to cause harm and adverse events are more likely reported than near misses and those without

Table 5: Methods of reporting MAEs by units of practice.

	Unit Medical Freq. (%)	Surgical Freq. (%)	A & E Freq. (%)	Total Freq. (%)
Notify immediate supervisor	27 (10.8)	29 (11.6)	10 (4.0)	66 (26.4)
Solicit physician's advise	2 (0.8)	4 (1.6)	1 (0.4)	7 (2.8)
Document the error and fill available report form	5 (2.0)	14 (5.6)	5 (2.0)	24 (9.0)
Confide in a fellow colleague	21 (8.4)	8 (3.2)	6 (2.4)	35 (14.0)
Inform the patient	1 (0.4)	4 (1.6)	0 (0.0)	5 (2.0)
Total	56 (22.4)	59 (23.6)	22 (8.8)	137 (54.8)

Table 6: Clinical scenario of MAEs and Nurses' decision to report or not (N=250)

Clinical scenario	Considered MAE (Report necessary) Freq. (%)	Not MAE (Report not necessary) Freq. (%)
A patient misses his midday dose of oral ampicillin because he was in the X-ray for 36 hours	34 (13.6)	216 (82.4)
Four patients on a busy surgical ward receive their 6 pm dose of IV antibiotics 4 hours late	45 (18.0)	205 (82.0)
A patient receiving TPN feeding via an infusion pump is given 200ml/hr instead of 125ml/hr for the first 3 hours. The pump was reset to the correct rate after the change of shift at 7am, when the incoming nurse realized that the initial setting was correct	38 (15.2)	212 (84.8)
A patient admitted with status asthmaticus at 2am is prescribed Ventolin nebulizer every 4hours. The nurse omits 6am dose because the patient was asleep.	40 (16.0)	210 (84.0)
The physician orders oxycodone chloride and acetaminophen 1-2 tabs for post operative pain every 4hours. At 4pm, the patient complained of pain, requests a pill and is medicated. At 6.30pm, the patient request for a second pain pill and the nurse administers the pill.	47 (18.8)	203 (81.2)
A patient is receiving a routine 9am dose of digoxin every day. Yesterday, the blood digoxin level was 1.8 (high side of normal). At 6am today, a blood sample was drawn for digoxin level check. The nurse then withholds the 9am dose because the tab value is not yet available.	46 (18.4)	204 (81.6)



Key: 1 = 1 to 3 incidences; 2 = 4 to 6 incidences; 3 = 7 to 9 incidences; 4 = 10 incidences

Fig 2: Frequency of reporting medication errors out of 10 incidences

adverse events. In our study, responses to the clinical situations suggest that dose omissions were not considered serious MAEs and were therefore not reported by majority of our respondents.

Other factors which may contribute to inadequate reporting include a feeling of shame, fear of punishment, complicated reporting systems, fear of litigation and unsupportive culture towards medical errors within the organization [33]. Findings in our study corroborate this report as respondents perceived reasons for non-reporting included fear of disciplinary action and being tagged as incompetent practitioners. We presume that if the format for reporting changes to that which promotes anonymous reporting, with increased opportunities to discover system-related errors; this may enhance the reporting of MAEs when they occur. Another study of 315 health care practitioners (doctors, nurses and midwives) which compared the rate of reporting of mistakes and errors, concluded that nurses were more likely to report mistakes or violations of protocols to their superiors than doctors [34]. This according to the author reflects a professional culture among doctors that blowing the whistle is a taboo; thereby discouraging error reporting. Clearly, reporting mistakes is crucial to the process of error management; but practitioners with tort liability concerns and consciousness may be unwilling to disclose errors. This may therefore compromise patients' safety and quality care.

The rate of reporting may also be influenced by the area of practice. For example, a study which compared proportion of reporting between nurses in the pediatric unit and adult medical unit [35], indicated that a higher proportion of errors (67%) were reported by pediatric nurses, than the adult hospital nurses (57%), where the fear of reprimand was also given as the reason for non-reporting. Yet another report [36], noted that only 35% (n=775) nurses indicated they had not reported a medication error. In our study, participants were asked to rate how likely they were to report 10 incidences of MAEs that occurred in their practice.

Our findings showed that majority would report maximum of 3 out of 10 incidences; which is less than 50% of errors committed. It follows that over 60% incidences would go unreported. If substantiated, this will have implication for safety management; because without incidence report, improvement efforts may be hampered. Majority of our respondents would also prefer anonymous reporting rather than completing any form. Respondents were questioned on reasons for

non-reporting and the most prominent was fear of being blamed or tagged as being incompetent. This corresponds with one of the major themes reported in a qualitative study in which participants' related error reporting to the previous feedbacks from the authorities and colleagues [30]. It was emphasized that lack of support from authorities parallel to criminalization of nurses' mistakes increases fear; thereby encouraging under-reporting or a cover-up [30]. It is thus necessary that the damages and fears in the minds of health providers be replaced with efforts to encourage error reporting in a safe and blame-free environment.

Several causes of MAEs have been documented, but it appears that practitioners are always blamed for most errors of drug execution order that occur, despite the fact that complex contributing factors have been identified in the literature [16]. This suggests an unsupportive working culture for reporting MAE. Nurses appear more comfortable reporting to their colleagues when things go wrong. In our study a good number would either confide in a fellow colleague or notify immediate supervisor; than document and complete any form that would make identification easy. Nurse practitioners need to understand that reporting errors is crucial to the process of error management, as this will facilitate identifying the root causes and preventing repeat event in the future. We therefore recommend that nurses should focus more on the effect of errors on patients than on personal punitive measures that may arise when errors occur.

Limitations

The study was conducted in only three units in one hospital. The calculated sample size was not proportionally distributed by number of nurses in each unit. Despite these limitations, the findings of the study warrant consideration.

Conclusion

This study demonstrated that MAEs are usually not fully reported by nurses. Additionally, the methods for voluntary report differed across the units within the same hospital. It appears that individual nurses chose what method to use to report MAEs. There do not seem to be an existing policy in the units under study on the methods of reporting. Respondents seemed to express expectations of disciplinary actions if errors were reported; suggesting a work environment which focuses on individuals than identifying system errors when something goes wrong. In addition some respondents did not judge certain clinical actions/inactions as errors,

as such the need to report did not arise. Study findings suggest a need for more information through continuing education on the different types of MAEs and the significance of reporting. Furthermore, it is important to foster a culture to support voluntary reporting without fear of blame and disciplinary actions. Hospitals also need to establish clear protocols for reporting MAEs.

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