

## A STUDY OF THE INCIDENCE OF MEDICATION ERRORS AND THE PROCEDURES VIOLATED OR EVENTS THAT PRECEDED THE COMMISSION OF MEDICATION ERRORS OF NURSING STUDENTS IN A COLLEGE OF NURSING IN ILOILO FROM THE SCHOOL YEAR 1976 to 1984\*

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This research investigated and analyzed the medication errors and the procedures violated or neglected or the incidents that preceded the commission of medication errors made by the nursing students under study while serving their internship at the base hospital. More specifically, it sought to answer the following questions:

1. What are common medication errors committed by nursing students of a College of Nursing in Iloilo from 1977 to 1984 as revealed in the incident report?
2. What are the procedures violated or incidents that preceded the commission of these medication errors?
3. What procedures violated or incidents that preceded the commission of medication errors that tend to be cited in connection with each error ?
4. Do the four-year program and the five-year program students differ significantly in:
  - a) the incidence of medication errors they committed?
  - b) in the procedures vio-

lated or incidents that preceded the commission of medication error that they cited in connection with each error?

The findings of this study may increase understanding about medication errors committed by nursing students. These will help in the formulation of curriculum for the training of nursing students and proper programming of affiliation work in order to minimize the errors.

The subjects of this study consisted of nine hundred ninety-three nursing students from class 1977 to class 1984, 578 students on the five-year program and 415 nursing students on the four-year program.

The method used in the gathering of data was the analysis of incident reports accomplished by these nursing students during their clinical training at the base hospital. The analysis of data for the school year 1976 to 1984 showed that out of 993 nursing students a total of 173 students from both groups committed medication errors.

Of the 173 medication errors committed by nursing students in both groups fifty-five or 13.25 per cent were made by the four-year program and one hundred eighteen or 20.42 per cent were committed by those in the five-year program.

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\*An abstract of a masteral thesis done at Central Philippine University in 1984 for the Master of Arts in Nursing degree.

The first five medication errors committed by the five-year group were also the first five errors of the four-year group. These were the following:

1. Omission of dose
2. Wrong dose
3. Wrong schedule
4. Wrong patient
5. Wrong medicine

*Omission of dose* was committed by eighteen or 32.72 per cent of the four-year group and by thirty-three or 19.07 per cent of the five-year group.

*Wrong dose* was committed by eight or 4.62 per cent of the four-year group and twenty-six or 15.02 per cent of the five-year erring students. Out of these thirty-four or 19.65 per cent, thirteen or 7.5 per cent were overdosage and twenty-one or 12.13 per cent were underdosage.

*Wrong schedule* was committed by ten or 5.78 per cent of the four-year group and twenty-three or 13.29 per cent of the five-year students.

*Wrong patient* was committed by six or 3.45 per cent of the four-year students and by seventeen or 9.82 per cent of the five-year students.

*Wrong medicine* was committed by ten or 5.78 per cent of the four-year group and nine or 5.20 per cent of the five-year group.

The errors committed infrequently (committed by no more than five in the combined group) are reported only for the whole group not for each group.

*Gave medicine which was temporarily withheld* was committed

by five students or 2.89 per cent in the whole group.

*Failure to record medicine given* committed by two students or 1.15 per cent.

*Incorporating additive to wrong infusion* committed by two students or 1.15 per cent both from the five-year program.

Each of the following errors was committed only by one student or .57 per cent of the whole group but not by the same student:

1. Wrong route
2. Giving medicine without observing precaution.
3. Giving medicine that has been discontinued.
4. Giving medicine not indicated.

### Conclusions

From the analysis of the data the following conclusions were made:

1. The most common errors committed, ranking one to five are:

- a) Omission of dose
- b) Wrong dose
- c) Wrong schedule
- d) Wrong patient
- e) Wrong medicine

2. The most common procedures violated or incidents that preceded the commission of medication errors are the following:

a) Before preparing or giving medicine check carefully doctor's order, kardex, medicine sheet, medicine card, medicine board and medicine box.

b) Re-check the patient's identity before giving the medicine.

c) Check the strength of the medicine before giving the medicine.

d) Check periodically the rate of intravenous infusion.

e) Gauge intravenous infusion carefully.

3. The procedures violated or incidents that preceded the commission of medication errors that tend to be cited in connection with:

a) Omission of dose

1. Before preparing or giving the medicine check carefully the doctor's order, kardex, medicine sheet, medicine card, medicine board and medicine box.

2. Always put patient's medicine in his medicine box.

3. Give full attention to the preparation of medicine.

b) Wrong dose

1. Check the strength of the medicine before giving the medicine.

2. Before preparing or giving medicine check carefully doctor's order, kardex, medicine sheet, medicine card, medicine board and medicine box.

3. Read medicine literature before preparing the medicine.

c) Wrong schedule

1. Before preparing or giving medicine check carefully doctor's order, kardex, medicine sheet, medicine card, medicine board and medicine box.

2. Gauge intravenous infusion carefully.

3. Check periodically the rate of intravenous infusion.

d) Wrong patient

1. Re-check the patient's identity before giving the medicine.

2. Before preparing or giving the medicine check carefully doctor's order, kardex, medicine sheet, medicine card, medicine board and medicine box.

e) Wrong medicine

1. Before preparing or giving medicine check carefully doctor's order, kardex, medicine sheet, medicine card, medicine board and medicine box. 2. Read label of medicine before preparing medicine. 3) Be sure the medicine issued by the pharmacist is not placed in wrong bottle.

4. The Spearman Rank Coefficient of Correlation was used to determine a) whether the ranking of the various medication errors in the five-year group is similar to that in the four-year and b) whether the ranking of incidents that preceded the errors in the five-year group is similar to that of the four-year group.

The null hypothesis was that there is no significant relationship between the ranking of various medication errors in the five-year group and that in the four-year group. The point of rejection at five per cent level of significance on one-tailed test is 1.64. Since the obtained rho is .674825 and its z-value of 2.238130 is more than 1.64, the decision is to accept the

alternative hypothesis that there is significant relationship between the ranking of various medication errors in the five-year group and the four-year group.

The other null hypothesis was that there is no significant relationship between the ranking of incidents that preceded the errors in the five-year group and that in the four-year group. The point of rejection at five per cent level of significance on one-tailed test is 1.64. Since the obtained rho is .26 and its z-value of .74 is less than 1.64, the decision is to retain the null hypothesis that there is no significant relationship between the ranking of incidents that preceded the errors in the five-year and of the four-year group.

5. There was less incidence of errors during the second year of the four-year group or the third year of the five-year group. A sudden increase of medication errors was observed in the third year of the four-year group or the fourth year of the five-year group. A sudden drop on the last year of internship.

### Recommendations

Based on the findings of the study the investigator recommends the following:

1. The following should be instituted in the nursing curriculum.

- a) A separate subject called Pharmacology and Therapeutics should be offered. It is very important that a separate subject be offered

to the students so that intricacies in the administration of medicine can be studied better.

- b) A longer period of hospital affiliation should be required and clinical instructors should give closer supervision of the students specially in the administration of medication.

2. Strengthen the orientation program for the nursing students on administration of medication before they fully assume the responsibility of medication nurse.

3. Conferences attended by the clinical instructors, hospital representatives and student representatives should be held to discuss medication errors and administration of medication.

4. Student nurses should be informed about the errors in medications committed in the clinical areas so that they may be forewarned and they can take precautionary measures to avoid similar errors.

5. Identification bands should be placed on the arms of the patients to avoid mistakes due to misidentification of patients.

6. More demonstrations should be given to the students on the computation of doses and the gauging of intravenous infusion to avoid errors in dosage.

7. Clinical instructors should always check the charts before they go off to be sure that the students have recorded the medicine given and those not given.

8. More careful follow-up should be done on students who have committed medication errors and precautionary measures be taken so that repetition of the errors will be prevented.

9. It is recommended that nursing audit should be devised particularly in administration of medicine with the idea of expanding to all other nursing departments when this is possible. The nursing audit could be used for appraisal of nursing performances and of the operational value of the system and as a basis for improvement.

10. A Drug, Pharmacy or Therapeutic Committee may be formed in the hospital. This committee is important because it would help formulate and recommend policies and practices which will ensure that the best use is made of available drugs and therapeutic agents in

terms of optimum utilization and minimal potential for harm to the patient.

11. There is a need for further study of the procedures violated/incidents that preceded medication errors so that similar situations in the clinical area will be avoided.

12. In order to lessen medication errors The Sally Thomas and Meriam Newton safety measures in administering medications should be adopted by the Colleges of Nursing.

13. Colleges of Nursing should adopt the Guide formulated by the ANSAP and PNA and the Guidelines Relative to the Safe Use of Medications in Hospital prepared by The Board of Trustees of the American Hospital Association and the Executive Committee of the American Society of Hospital Pharmacists.

### **An Experimental Study . .**

*(From page 35)*

On the basis of the above findings, the following recommendations are given:

1. Teachers' feedback should be used by the principals to improve their leadership performance.

2. More feedback studies should be conducted with different population groups, using sophisticated experimental designs and reliable measuring instruments to convince everyone that feedback is not only necessary but also beneficial.

### **Job Satisfaction . . .**

*(From page 24)*

senteeism and turnover. It is further recommended that the study be undertaken by the Research Committee of the Philippine Nurses Association local chapter, the Council of Administrators in Nursing Education (CANE) or even the Association of Deans/Principals of the Philippine Nursing Schools/Colleges.