



## Bilingual Pharmacy Technician Medication Reconciliation at Hospital Admission Reduces Omissions of Prescribed Medications

Kim Luong-Schwab, Pharm.D., BCPS  
Lara Gillian, Pharm.D.  
Ronald A. Floyd, Pharm.D., FCCP, BCPS  
Blair Frater, Pharm.D.  
Elaine Levy, Pharm.D.

**Sharp Chula Vista Medical Center**  
Chula Vista, California

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

The authors have nothing to disclose.

### Setting

Sharp Chula Vista Medical Center is a 330-bed hospital located five miles from the international border with México. Because of our location, many residents of México receive medical treatment at our institution. Sharp Chula Vista Medical Center is the most comprehensive hospital in the area and offers specialized services in emergency care, cardiology, outpatient surgery, back, joint and weight-loss surgery, as well as a cancer treatment program certified by the American College of Surgeons.

### Introduction and Purpose

Medication errors and patient harm can result when inadequate medication histories are taken upon hospital admission and are then used to generate medication regimens for hospitalized patients. Medication errors of omission that occur at admission can perpetuate throughout the hospital stay and continue through discharge.

We wanted to implement a systematic process to reconcile medications on admission and to clearly communicate with the large segment of our patients who use Spanish as their primary language.

The goal of our program was to reduce medication errors by using bilingual pharmacy technicians trained to collect medication histories using a standardized format which is reviewed by a pharmacist and placed into the medical record within 24 hours of admission.

To demonstrate that our goal could be attained we had to:

- compare physician, nurse and pharmacy technician medication reconciliation discrepancy rates
- track changes in medication orders after placement of the technician generated medication history into the chart

### Description of the Program

After receiving IRB approval for our study, we developed and piloted the procedure for medication reconciliation in June and July of 2005.

Pharmacy technicians were thoroughly trained to interview and collect data from:

- patients at the bedside
- patients' families
- primary care physicians
- attending physicians
- nurses
- outpatient pharmacies

### Exclusion criteria

- use of fewer than 4 medications
- 23 hour hold
- having a complete and legibly written medication list or medication bottles
- refused participation

### Medication History Interview

- performed within 24 hours of admission
- collected history of all prescription and nonprescription medications used by patient
- medication history form reviewed by a supervising clinical pharmacist
- medication history form added to the patient's medical record for physician use

### Experience with the Program

Between August, 2005 and March, 2006, 478 patients were enrolled; 152 patients met inclusion criteria and agreed to participate.

### Exclusions

We excluded 326 patients for:

- use of fewer than 4 medications, 137
- on 23 hour hold, 31
- having a complete and legibly written medication list or medication bottles, 53
- refused participation, 105

Medical records of all eligible patients were reviewed by a pharmacy resident for demographic data collection, quantification of medications that should have been listed on the admission medication history form, and discrepancies among those who collected medication histories.

### Patient Demographics

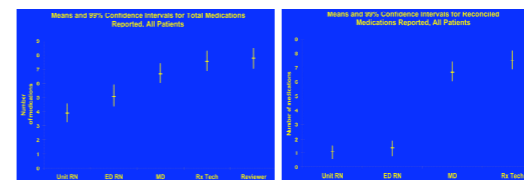
- average patient age was 68
- 86 were female
- Language
  - 55% listed English as their primary language
  - 41% listed Spanish
  - 6% listed Tagalog

### Results

The average total number of medications identified (ATNOMI) did not differ between unit nurses and emergency department (ED) nurses, 3.9 and 5.1, respectively.

The ATNOMI did not differ among the physicians, pharmacy technicians and pharmacist comparator at 6.7, 7.6 and 7.8, respectively.

The difference between the nursing groups and the physician and pharmacy groups was statistically significant. Differences between the average number of reconciled medications among the provider groups followed the same pattern and were also statistically significant.

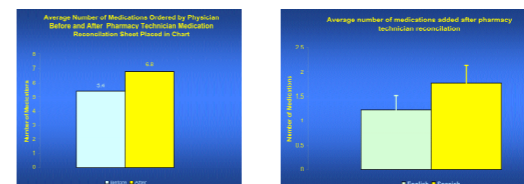


Figures 1 and 2

Another way to determine if the information generated by the pharmacy technician was useful is to track medications the physician ordered based on this history.

In our study, 48% of patients had at least one medication omitted which was later added.

- The average number of medications added by the physician after the pharmacy technician's medication history sheet became available was 1.4; statistically, this differed significantly from zero.
- When only Spanish-speaking patients were analyzed, the average number of added medications increased to 1.8.
- When only English-speaking patients were analyzed, the average increase was 1.2.



Figures 3 and 4

### Conclusion

Incorporation of bilingual pharmacy technicians trained in medication history collection into the routine patient admission process can result in the reduction of potential medication errors and adverse drug events.

This method of reducing medication errors of omission might be especially important for Spanish-speaking patients.

This cost effective method of medication reconciliation improves quality of care for patients and can potentially increase nursing and physician time available for other responsibilities.

### Selected References

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