

## Safe Medication use in Frail and Homebound Older Adults

Amy Freedman MD<sup>1,2</sup>, Mary Beth DeRocher MD<sup>1,2</sup>, Lorna McDougall MSN, NP-PhC<sup>1</sup>, Jimmy Cyriac MSW, RSW<sup>3</sup>, Di Wang BScPhm, Pharm D, RPh<sup>1</sup>.

<sup>1</sup>Department of Family Medicine, St. Michael's Hospital, <sup>2</sup>Department of Family and Community Medicine, University of Toronto, <sup>3</sup>Toronto Central Community Care Access Centre

### BACKGROUND

- Hospitalizations and emergency visits attributable to drug related problems in the elderly are very common.
- A patient's number of medications is independently associated with an increased risk of emergency department use in Canada.
- It has been demonstrated that pharmacists can improve prescribing and patient outcomes in many chronic diseases.<sup>1</sup>
- The value of interdisciplinary medication reviews has been documented in several practice settings, however there is little literature and conflicting evidence on the value of home based medication reviews on patient outcomes.<sup>2,3</sup>

### QUESTIONS

- We are unaware of any studies looking at the impact of an interdisciplinary medication review in the home where the pharmacist is an integrated part of the home visiting team and has ongoing involvement with the care team.
- In addition, there is no research that we are aware of looking at the value of an interdisciplinary medication review when the recommendations are implemented through an interdisciplinary team in collaboration with community agencies providing care in the patients home.

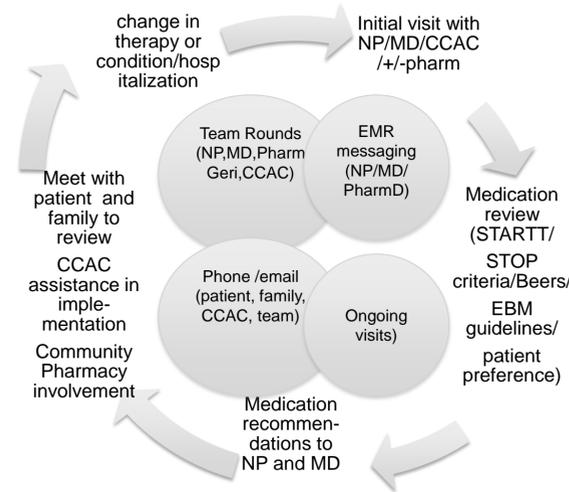
### PURPOSE

- To provide a description of the SMH FHT Bridges team model which integrates the pharmacist into the interdisciplinary home visiting team and the patients' ongoing care.
- To evaluate the impact of this model on the detection of drug related problems.
- To describe the drug related problems detected.
- To describe the interventions arising from the medication questions and reviews.

### THE SMH HOME VISITING TEAM MODEL

The St. Michael's Family Health Bridges Team is an interdisciplinary team delivering primary care to homebound frail elderly. The team is part of the larger Integrated Home-Based Primary Care Study (IHBPC). The IHBPC project is designed to integrate care by delivering home-based primary care services in partnership with Toronto Central Community Care Access Centre (TC CCAC) and Community Support Services (CSS) agencies in the Toronto Central LHIN. The SMH Team is composed of 2 family physicians, a nurse practitioner, a clinical pharmacist, a consulting geriatrician and a TC CCAC coordinator. The team serves a largely inner city population. The pharmacist is consulted on admission to the program, with a change in medication or post hospital discharge. The pharmacist works directly with the MDs, NP, community pharmacists, patients, families and representatives of TC CCAC. The FP or NP retains the lead role in diagnosing illness and prescribing medications to preserve the relationship and avoid fragmentation of care.<sup>3</sup>

### INTEGRATED ROLE OF THE PHARMACIST



### METHODOLOGY

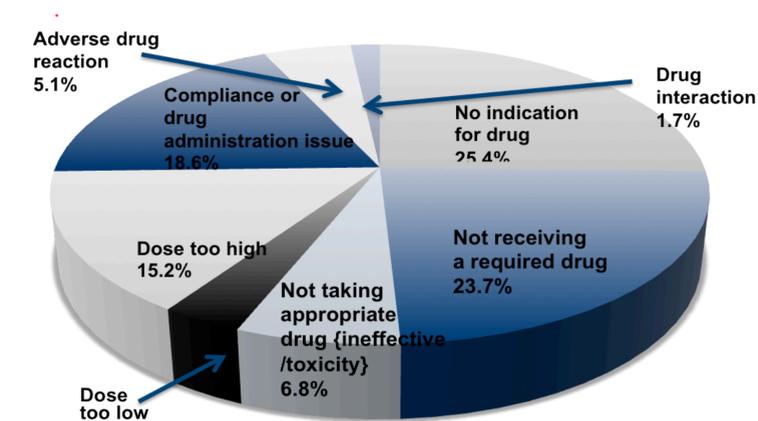
- A retrospective review of electronic medical records of all patients seen by the team between July 1, 2012 and July 1, 2013.
- Inclusion criteria: home visiting patients' charts with one or more notes created by the pharmacist.
- Pharmacotherapy problems were categorized using an adapted Hepler and Strand Drug Related Problem(DRP) classification system<sup>5</sup>
- DRPs and interventions were categorized by the consensus of the two team family physicians and the pharmacist.

### RESULTS

TABLE 1: DEMOGRAPHICS AND BASELINE DATA

Female	12 (70.6%)
Age	81.9 (65-92)
Mean number of medical conditions	9.8
Mean number of medications	12.6
Number of patients seen by team	21
Number of patients included in study (patients who had involvement with pharmacist)	17/21 (81%)

FIGURE 1. DRUG RELATED PROBLEMS IDENTIFIED



Total Number of DRP: 59

Mean Number of DRP per patient: 3.5

TABLE 2:NON-DRUG INTERVENTIONS RESULTING FROM MEDICATION REVIEWS AND QUERIES

	Number of interventions	% of total interventions (75)
CCAC involvement	10	13.3 %
Contact community pharmacy	9	12.9%
Caregiver education	7	9.3%
Lab test ordered	6	8.0%
Compliance packaging (new)	2	2.6%
Cupboard clean-up	1	1.3%
Other	2	2.6%

TABLE 3:DRUG INTERVENTIONS RESULTING FROM MEDICATION REVIEWS AND QUERIES

	Number of interventions	% of total interventions (75)
Discontinue Drug	14	18.7
Initiate new drug	7	10.3
Switch drug	6	8
Decrease dose	5	6
Increase dose	3	4
Change schedule	3	4

Mean number of interventions per patient: 4.4

### DISCUSSION

- The pharmacist in this model of care is available for home visits, ongoing consultation and is integrated into regular team rounds, developing a familiarity with patients and their social context. To the best of our knowledge, this is a novel practice in teams visiting homebound frail elders.
- Frail homebound elderly in this study have a high number of drug related problems. The number of DRP detected in this study (3.5) is higher than recently reported by a study of the Ontario Medication Check (1.4)<sup>5</sup> and slightly higher than reported in a meta-analysis of drug related problems detected in the elderly in a primary care or general medicine setting (3.2).<sup>6</sup>
- The most common drug related problem was the administration of a drug which was not indicated.
- The most common interventions arising from the pharmacist's review and collaboration with the team were the discontinuation of a drug, the involvement of CCAC in medication administration and the involvement of a community pharmacy.
- TC CCAC was involved in the implementation of recommendations in the home in over 50% of patients.

### CONCLUSIONS

- Integration of a pharmacist into an interdisciplinary primary care home visiting team which includes community care providers is a novel practice model.
- In this study of frail home bound seniors, a high number of drug related problems were detected. Community care providers were involved in the implementation of medication recommendations in a high proportion of patients.
- Further research is needed to determine whether this coordinated collaborative model of care will result in improved patient outcomes.

REFERENCES: 1.TTannenbaum C, Tsuyuki R. The expanding scope of pharmacists' practice: Implications for physicians. CMAJ 2013; 185:1228-1232. 2. Holland R, Lenaghan E, Harvey et al. Does home based medication review keep older people out of hospital? The HOMER randomized controlled trial BMJ 2005;330:293 3. Lenaghan E, Holland R, Brooks A Home-based medication review in a high risk elderly population in primary care—the POLYMED randomized controlled trial. Age Ageing (2007) 36 (3): 292-297 4.Dolovich L, Pottie K, Kaczorowski J, Farrell B, Austin Z, Rodriguez C, Gaebel K, Sellors C. Integrating family medicine and pharmacy to advance primary care therapeutics. Clin Pharmacol Ther 2008; 83(6):913-7 5. Strand LM, Morley PC, Cipolle RJ. Drug-related problems: their structure and function. Drug Intell Clin Pharm 1990;24:1093-7 6. Papastergiou J, Zervas J, Wilson L, Rajan A. Home medication reviews by community pharmacists. Can J Pharm J (Ott). 2013; 146 (3):139-42 7. Lau E, Dolovich L. Drug-related problems in elderly general practice patients receiving pharmaceutical care. Int J of Pharmacy Practice. 2005;13:165-177.