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Establishing an Antimicrobial Stewardship Program in Long-Term Care

Dr. Jessica Cuppage MD CCFP COE
Apotex Centre, Jewish Home for the Aged
Baycrest Hospital, Toronto, ON

Baycrest

Conflicts of Interest

I have no conflicts of interest to disclose.

Objectives

By the end of this session, participants will be better able to:

1. Understand the risks related to antibiotic overuse in long-term care (LTC)
2. Recognize the importance of antimicrobial stewardship in LTC
3. Appreciate the opportunities and challenges of implementing an antimicrobial stewardship program (ASP) in LTC

Agenda

01 *Introduction*	02 *Goal*	03 *Activities*
04 *Impact*	05 *Challenges*	06 *Lessons Learned*

01

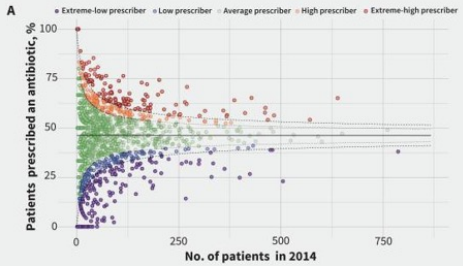
Introduction

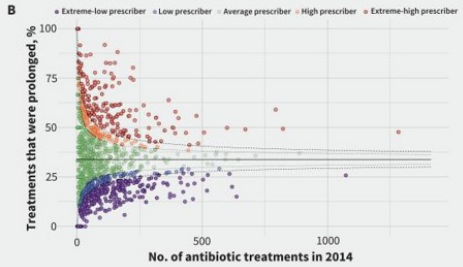
Apotex Centre, Jewish Home for the Aged

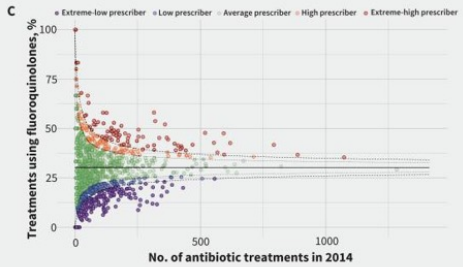
- **472-bed LTC home** in Toronto, ON
- Associated with **Baycrest Health Sciences**, a comprehensive campus of care for older adults, including independent living, assisted living, LTC, and post-acute care
- **Fully academically affiliated** with the University of Toronto
- Uses **PointClickCare** (PCC) electronic medical record (EMR) system with computerized physician order entry (CPOE)
- Pharmacy provider is **Medisystem** Pharmacy
- Lab provider is **Dynacare**
- Many of our providers are aware of Choosing Wisely Canada guidelines about asymptomatic bacteriuria

Antimicrobial Stewardship in LTC

- Older adults are at **risk of harms related to antibiotic overuse**, including adverse drug events, *Clostridioides difficile* infections, and infections with antimicrobial resistant organisms (Public Health Ontario [PHO], 2018).
- **Unique challenges exist in LTC** including atypical presentations of infections among older adults, cognitive impairment, and frequent hospitalizations (PHO, 2018).
- **ASPs are safe and effective** in reducing unnecessary antibiotic use (PHO, 2018).







Ontario Antibiotic Prescribing Patterns in LTC

Prescriber tendency to:

A. Start treatment with antibiotics as % of their unique patients in LTC
B. Use treatment durations that exceed 7 days as % of their overall antibiotic prescriptions to patients in LTC
C. Select fluoroquinolones as a % of their overall antibiotic prescriptions to patients in LTC

Daneman N, et al. (2017). Influences on the start, selection and duration of treatment with antibiotics in long-term care facilities. *CMAJ*. 189(25):E851-860.

02

Goal

Establish an antimicrobial stewardship program (ASP) to support appropriate prescribing and reduce unnecessary, harmful antibiotic use.

03

Activities

Activities

01 Cross-disciplinary working group established

02 Priority areas for action identified

03 Apotex urinary antibiogram developed

04 Hospital antibiotic guidelines reviewed

05 Electronic order templates updated

06 Educational sessions held with physicians and nurses

07 Impact of program measured

08 Experiences and learnings disseminated

Team & Priority Areas

Team

- Medical Director
- Two physicians
- Pharmacist
- Informatics support
- Quality specialist
- Infection Prevention & Control (ad hoc)

Priority Areas

- Education (physicians, nursing, and residents/families)
- Audit & feedback
- Monitoring & measurement
- Electronic order entry

Apotex Urinary Antibiogram

Apotex Jewish Home for the Aged, Antibiogram
January 1, 2022 – December 31, 2022

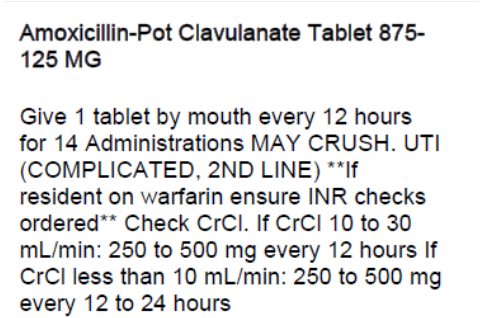
≥80% Susceptible 70-79% Susceptible ≤69% Susceptible	#	AMPICILLIN (AM)	AMOXICILLIN/CLAVULANIC ACI (CV)	NITROFURANTOIN (FU)	GENTAMICIN (GE)	TRIMETHOPRIM/SULFA (SE)	CIPROFLOXACIN (CI)	TOBRAMYCIN (TO)	FOSFOMYCIN (FO)	PIPERACILLIN/TAZOBACTAM (PT)	CEFTAZIDIME (CD)
GRAM NEGATIVE, URINE											
ENTEROBACTER CLOACAE COMPLEX	4	0	0	50	100	75	50	100			
ESCHERICHIA COLI	102	37	37	100	92	80	63	94	100		
KLEBSIELLA OXYTOCA	4	0	100	100	100	100	100	100			
KLEBSIELLA PNEUMONIAE	49	0	100	37	100	98	84	100			
PROTEUS MIRABILIS	27	59	88	0	85	74	67	89			
PROVIDENCIA STUARTII	6	0	0	0	0	100	100	83			
PSEUDOMONAS AERUGINOSA	6				100		100	100		83	83
GRAM POSITIVE, URINE											
ENTEROCOCCUS FAECALIS	18	100		94			33		100		

- Developed in partnership with Dynacare
- Most common organisms: *Escherichia coli* and *Klebsiella pneumoniae*
- Antibiogram suggests nitrofurantoin and trimethoprim/sulfa are reasonable first line choices

Activities

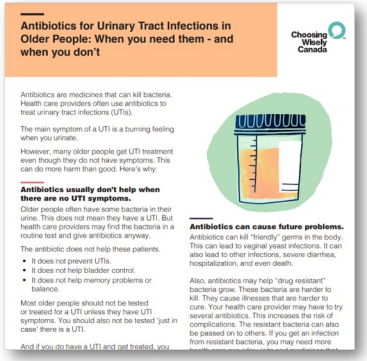
Guidelines

Baycrest Hospital antibiotic guidelines were updated per antibiogram



Order Templates

Electronic order templates were updated to match guidelines



Education

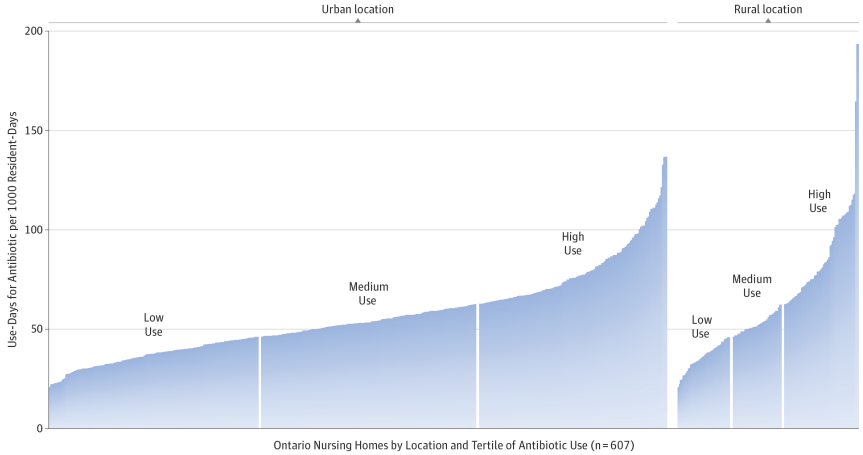
Sessions were held with physicians & nurses, family education pending

04

Impact

Measurement

- Chose to measure **Days of Therapy (DOT) / 1000 resident days**
- PHO suggests that **own data tracked and compared over time** will be the best method of benchmarking (PHO, 2018)
- Successful antimicrobial stewardship efforts can achieve **15-30% reduction in antibiotic use**
- Research data shows that antibiotic use in Ontario long-term care homes varied widely from **20 to 200 days per 1000 resident days** (Daneman et al., 2015)



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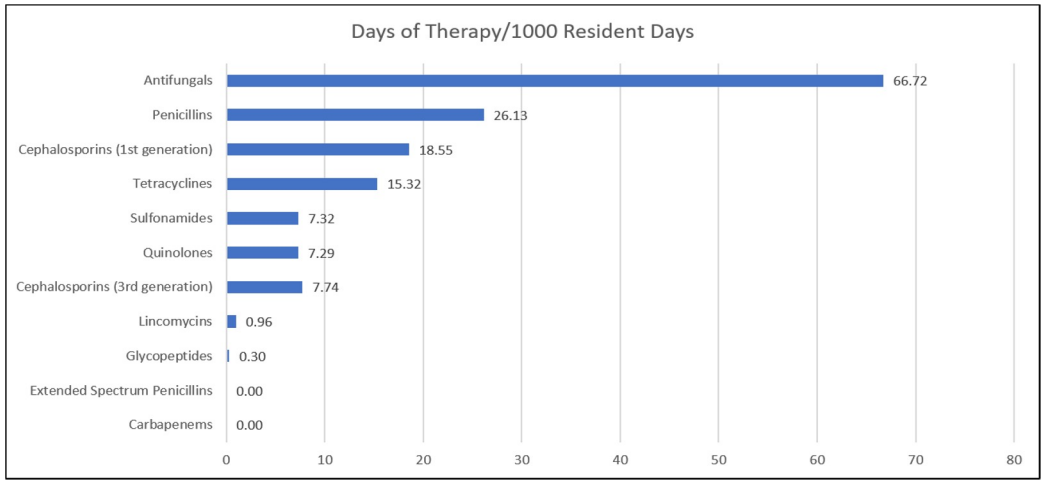
Days of Therapy



- Complete 2023 data available
- **Overall low DOT** for most antimicrobial categories
- **High rates of topical antifungal use** has led to targeted prescriber education in this area
- Will monitor performance over time

05

Challenges

Challenges

EMR Limitations

Unlike in our hospital EMR, PCC **lacked the ability to perform real-time audit and feedback** of antibiotic orders. The Infection Prevention and Control Module was explored, and was found to add substantial workload and so was not pursued.

Sustainability

Our ASP was newly established and supported by visible and vocal champions. As we transition to sustaining the program, we are still **exploring how to embed antimicrobial stewardship into routine processes**.

06

Lessons Learned

Lessons Learned

Culture Change

Regular education and feedback to prescribers is important to foster a culture of antimicrobial stewardship. Residents, families and caregivers play a key role as well.

EMR Tools

Electronic order templates with embedded clinical guidance can support appropriate prescribing. Challenges with EMR functionality can limit measurement strategies.

Persistence

It is a marathon, not a sprint. Measuring impact will take time, as trends in antibiotic prescribing are slow to change, but even preliminary data can identify opportunities.

Thanks!

Questions?

Dr. Jessica Cuppage

jcuppage@baycrest.org

References

1. Daneman N, et al. (2017). Influences on the start, selection and duration of treatment with antibiotics in long-term care facilities. CMAJ. 189(25):E851-860.
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3. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Antimicrobial stewardship essentials checklist in long-term care. Toronto, ON: Queen's Printer for Ontario; 2018.
4. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Antimicrobial stewardship essentials in long-term care. Toronto, ON: Queen’s Printer for Ontario; 2018.