Shed MEDS: A Patient-Centered Deprescribing Trial

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Disclosure

• No conflicts of interest or disclosures
Objectives

1. Background
   a. CMS Healthcare Innovation Award
   b. Pilot Deprescribing Study
   c. Knowledge Gaps

2. Shed MEDS
   a. Study methods
   b. Lessons learned
   c. Next steps
Background
CMS Healthcare Innovation Award (HCIA)

Primary Aim: Reduce 30-day hospital readmissions

Diagram:
- Hospital
- Emergency Room
- Post Acute Care
- Home/Assisted Living/Long-Term Care
CMS HCIA Transition Model

- Improve quality and accuracy of clinical information via standardized process and use of dedicated transition advocate (RN) and pharmacist

- Systematic identification of geriatric syndromes

- Medication Reconciliation at hospital discharge

- Advance care planning

- Re-hospitalization review
CMS HCIA Takeaways

• Only modest improvement in 30-day readmission rate

• High prevalence of polypharmacy & geriatric syndromes

Polypharmacy among VUMC Patients Discharged to SNF

- 98% meet criteria for polypharmacy
- 83% meet criteria for hyper-polypharmacy
- Average number at hospital discharge = 14 per patient
- Average number at SNF discharge = 15 per patient
  - Mean of 5 changes during the SNF stay

<table>
<thead>
<tr>
<th>Potentially Inappropriate Meds (PIMs)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission</td>
<td>2.2 (2.2)</td>
</tr>
<tr>
<td>Started in Hospital</td>
<td>1.2 (1.3)</td>
</tr>
<tr>
<td>Hospital Discharge</td>
<td>2.2 (2.1)</td>
</tr>
</tbody>
</table>
Well, the white pill lowers my blood pressure but makes my legs swell, the yellow pill lowers the swelling but causes me to pee, the blue pill stops me from peeing but makes me confused, the tan pill improves my memory but makes my nose run, the pink pill stops my nose from running but makes me sleepy, the orange pill wakes me up but increases my blood pressure, so the white pill lowers my blood pressure but...
Pilot Deprescribing Study

- Non-randomized w/ historical control pilot
- Medicare patients d/c to SNF
- Intervention: Pilot Deprescribing Protocol (N = 20)
  - Pharmacist / Advanced Practice Provider Led
  - Intervention ends at Hospital Discharge
- Control: Usual Care & Gold Standard Medication reconciliation (N=20)

1. **Medication History Confirmed**
2. **Evaluate Medications For Deprescribing**
3. **Decide with the Patient**
4. **Synthesize & Communicate Recommendations**

Pilot Deprescribing Study
Conclusions

• Deprescribing to reduce polypharmacy is feasible in the hospital setting
• Patient engagement is a key element in the process
• Role of post-acute care may be key
• Laid the groundwork to assess effects of deprescribing on patient outcomes

What deprescribing interventions exist?
What are the knowledge gaps?
What Deprescribing Interventions Exist?

- Mostly in primary care settings
- Application of Beers or STOPP criteria
- Focused on specific drug classes or disease states
What are the knowledge gaps?

• Fewer studies conducted in acute or post-acute care settings
• Impact on outcomes or effects of deprescribing is unclear
• Lack of generalizability
• Assessment of barriers and facilitators

Vasilevskis EE, et al., BMC HSR. 2019
Focus for R01 Study

- Safe and holistic deprescribing

- Patient-centered approach

- Not focused on single disease state or specific drugs
Shed MEDS: A Patient-Centered Trial of Deprescribing
"I feel a lot better since I ran out of those pills you gave me."
Shed MEDS

• 5-year Randomized Controlled Trial
  – Enrollment began March, 2017 and continues through October, 2020

• Aims
  – Reduce the number of medications patients are prescribed at both VUMC hospital and SNF discharge
  – Document intervention effects on geriatric syndromes, patient adherence to medications and functional health status
Shed MEDS Patient Population

- Hospitalized Patients
  - > 50-years of age
  - > 5 pre-hospital medications
  - Discharged to one of 22 “partner” SNFs
  - Home residence in 9 county area (Home Visit)
  - Non-hospice
  - Admitted from community setting (includes ALF)
  - Self Consent or Surrogate Available for Consent
# Shed MEDS Patient Population

*332 Participants enrolled as of December 2019*

<table>
<thead>
<tr>
<th>Baseline Characteristics</th>
<th>N (%) or Mean (±SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>205 (61.7)</td>
</tr>
<tr>
<td>Non-Hispanic or Latino</td>
<td>328 (98.8)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>282 (84.9)</td>
</tr>
<tr>
<td>African American</td>
<td>48 (14.5)</td>
</tr>
<tr>
<td>Age</td>
<td>76.3 (10.7)</td>
</tr>
<tr>
<td>More than 10 pre-hospital medications</td>
<td>328 (98.8)</td>
</tr>
<tr>
<td>Charlson Comorbidity Index</td>
<td>6.9 (3.0)</td>
</tr>
</tbody>
</table>

*preliminary, unpublished data*
Continuity: Our Regional Partnership

• Why SNFs?
  – 33% of hospitalized Medicare patients receive post-acute care services
  – Monitoring and continuity of deprescribing

• 22 partner SNFs & IPRs
Shed MEDS Study Timeline

Phase 1
- Patient Consent Baseline Interview

Phase 1 (Randomized)
- Control
- Intervention

Phase 2
- Standard Hospital Care
- Patient Preference Interview Hospital Deprescribing

Phase 3
- Standard SNF Care
- SNF Deprescribing Provider Follow-up

Phase 4 (Follow Up)
- 7d Phone Interview
- 60d Phone Interview
- 90d Home/Institution Visit

Timeline:
- Admitted to Hospital
- Hospital Stay (1-3d post admission)
- Skilled Nursing Facility (SNF) (6-8d post admission)
- Home or Other Institution (1-90d post SNF admission)
- End of Participation (1-114d post SNF discharge)
### Medication & Safety Measures

#### Medication Measures
- **Medication Details**
  - Name, Route, Dose, Frequency
- **MAGS**
- **PIMs**
- **Drug Burden Index (DBI)**

#### Safety Measures
- **Drug Related Adverse Events**
- **ED visits**
- **Hospital Utilization**
- **Mortality**
# Geriatric Syndrome & Other Measures

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium</td>
<td>Brief CAM (bCAM)</td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td>Brief Interview for Mental Status (BIMS)</td>
</tr>
<tr>
<td>Depressive Symptoms</td>
<td>Patient Health Questionnaire 9 (PHQ-9)</td>
</tr>
<tr>
<td>Urinary Incontinence</td>
<td>ICIQ- Urinary Incontinence</td>
</tr>
<tr>
<td>Weight Loss</td>
<td>DETERMINE</td>
</tr>
<tr>
<td>Pain</td>
<td>Brief Pain Inventory (BPI) – Short Form</td>
</tr>
<tr>
<td>Pressure Ulcers</td>
<td>Chart Review</td>
</tr>
<tr>
<td>Falls</td>
<td>Last Month (per patient/surrogate interview)</td>
</tr>
<tr>
<td>Functional Health Status</td>
<td>Vulnerable Elders Survey (VES-13)</td>
</tr>
<tr>
<td>Medication Adherence</td>
<td>Adherence to Refills and Medications Scale 14 (ARMS)</td>
</tr>
<tr>
<td>Deprescribing Attitudes</td>
<td>Patients' attitudes towards deprescribing (PATD)</td>
</tr>
</tbody>
</table>
Shed MEDS Deprescribing Framework

Patient and Disease Factors
- Goals of Care
- Risk/Benefit
- Cost
- Adherence
- Appropriate Treatment Targets

Medication Specific Factors
- Drug Safety Profiles
- Drug-drug Interactions
- Drug-disease interactions
- Drug Withdrawal
Shed MEDS: Deprescribing Steps

1. Baseline Patient Interview
2. Clinician Pre-Review Meds
3. Patient Preference Interview
4. Provider Discussions
5. Hospital Deprescribing Action
6. SNF Deprescribing & Monitoring

Vasilevskis EE, et al., BMC HSR. 2019
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Baseline Patient Interview

Accurate Admission Medication History

- Pre-Admission List from Medical Record
- Over-the-Counter Supplement Use
- Outside Medical Records
- Pharmacy Refill History and CSMD Review
- Pharmacies Utilized

Beyond the Pre-admission Med List

Identified via pharmacy refill history/CSMD (N = 205) 1.1 (±1.7)

Identified via patient/surrogate 1.0 (±1.5)

Identified via other medical records 0.4 (1.5)

Shah AS, et al. –GSA 2019
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Clinician Deprescribing Pre-Review

A. No indication for medication / Indication not clear

B. Wrong dose or directions for medication

C. Inappropriate for current indication

D. Medication is ineffective as evidenced by no change in symptom or condition

E. Duplicate medication for same indication

Vasilevskis EE, et al., BMC HSR. 2019
Clinician Deprescribing Pre-Review

F. High risk medication based on:

1. Potential drug-drug interaction

2. Potential drug-disease interaction
   (e.g. associated with geriatric syndrome)

3. On Explicit list of PIMs (i.e., Beer’s list, STOPP list, and/or RASP list)

- Drugs with frequent interactions
- Chronic Kidney Disease / Chronic Liver Disease
- Medications Associated with Geriatric Syndromes
Clinician Deprescribing Pre-Review

F. High risk medication based on:
   1. Potential drug-drug interaction
   2. Potential drug-disease interaction (e.g. associated with geriatric syndrome)
   3. On Explicit list of PIMs (i.e., Beer’s list, STOPP list, and/or RASP list)

Vasilevskis EE, et al., BMC HSR. 2019
Clinician Deprescribing Pre-Review

G. Medications are inconsistent with goals of care

H. Risk > benefit given patients limited life expectancy

I. Evidence of poor adherence or high risk of poor adherence (directions impractical, high cost)

J. Medication currently indicated, however is time-limited & expect indication to resolve

Vasilevskis EE, et al., BMC HSR. 2019
What are disease-specific benefit–harm thresholds that may support treatment discontinuation?

- Receiving preventive drugs in scenarios where drug can be safely discontinued
  - Bisphosphonate
  - ASA
  - Statins
- BP Targets
- A1C Targets
- Stage of disease
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Patient Preference Interview: Intervention Only

- Medication knowledge
- Medication adherence
- Medication side effects
- Preferences for stopping specific medications
- Willingness to decrease dose for specific medications

Patient-driven deprescribing decisions
Patient Preference Interview

### Part A

<table>
<thead>
<tr>
<th>How much problem or concern are you having in the following areas?</th>
<th>None</th>
<th>A Little</th>
<th>A Lot</th>
<th>Medicine:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. My medicine causes side effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. It is hard to remember all the doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. It is hard to pay for the medicine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. It is hard to open the container</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. It is hard to get my refill on time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. It is hard to read the print on the container</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. The dosage times are inconvenient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. My medicine causes other problems or concerns. If yes, please explain the problem or concern:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Brief Medication Questionnaire -1
# Patient Preference Interview

## Part B: Medicines Targeted for Deprescribing

In preparation for the interview, list targeted medications in the table in order of ranking on the deprescribing tool (highest priority to lowest priority). If the patient has mentioned a medicine in Part A that isn’t listed below, please add to the chart with an asterisk next to it.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>For what reason are/were you taking it?</th>
<th>How well does this medicine work for you? (1=very well, 2=somewhat well, 3=not at all well, 4=don’t know)</th>
<th>How much does it bother you? (0=none, 1=a little, 2=a lot)</th>
<th>Have you missed taking it in the last 3 months?</th>
<th>Have you stopped taking it (on your own) in the last 3 months?</th>
<th>If yes, for what reason? (Better, Worse, No Different, Don’t Know)</th>
<th>If yes, how did you feel? (Better, Worse, No Different, Don’t Know)</th>
<th>Are you okay with stopping this medicine or reducing the dosage?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Appropriateness</td>
<td>□ Process</td>
</tr>
<tr>
<td>□ Influences</td>
<td>□ Fear</td>
</tr>
<tr>
<td>□ Pragmatic</td>
<td>□ Appropriateness</td>
</tr>
<tr>
<td></td>
<td>□ Process</td>
</tr>
<tr>
<td></td>
<td>□ Dislike</td>
</tr>
</tbody>
</table>

Adapted from Brief Medication Questionnaire -1
Shed MEDS: Deprescribing Steps

Baseline Patient Interview
Clinician Pre-Review Meds
Patient Preference Interview
Provider Discussions
Hospital Deprescribing Action
SNF Deprescribing & Monitoring
Provider Discussions

**Circle One:** INPATIENT // OUTPATIENT

Provider Name: ____________________________

Contact Info: ____________________________

<table>
<thead>
<tr>
<th>Medication/Rationale</th>
<th>Provider/Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Agree**
- **Disagree**

<table>
<thead>
<tr>
<th>BARRIER</th>
<th>ENABLER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>Awareness</td>
</tr>
<tr>
<td>Inertia</td>
<td>Inertia</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>Self-Efficacy</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Feasibility</td>
</tr>
</tbody>
</table>

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Shed MEDS: Deprescribing Steps

1. Baseline Patient Interview
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5. Hospital Deprescribing Action
6. SNF Deprescribing & Monitoring
Deprescribing Actions

Deprescribing

- Stop now/ at hospital discharge
- Stop & Monitor in SNF
- Stop Later (specify time)
- Titrate down to stop & monitor in SNF
- Decrease dose
- Decrease dose & monitor in SNF

Non-Deprescribing

- Continue Medication
- New (add medication)
- Currently on hold (to be restarted as outpatient)

Vasilevskis EE, et al., BMC HSR. 2019
Shed MEDS: Deprescribing Steps

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SNF Deprescribing & Monitoring

• Warm Handoff with SNF provider
  – Ensure correct medication list
  – Communicate deprescribing recommendations, actions, and monitoring instructions

• Weekly calls with SNF provider
  – Review MAR for medication changes
  – Discuss symptoms and medication changes
Intervention Wrap-up

• Creating a comprehensive medication list that is shared with all outpatient providers
  – Includes details on deprescribing and adherence issues
  – Provides future deprescribing recommendations

• Canceling refills of stopped medications
Lessons Learned

• Enrollment Challenges

• Implementation Considerations
Enrollment Challenges

- Screened 7865 hospitalized patients
  - 35% met initial inclusion criteria

<table>
<thead>
<tr>
<th>Initial Reasons for Ineligibility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of 9 County Area</td>
<td>73%</td>
</tr>
<tr>
<td>&lt; 6 months mortality</td>
<td>13%</td>
</tr>
<tr>
<td>&lt; 5 medications</td>
<td>6%</td>
</tr>
<tr>
<td>Admitted from LTC</td>
<td>3%</td>
</tr>
<tr>
<td>Homeless</td>
<td>3%</td>
</tr>
<tr>
<td>Other (non-English speaking, incarcerated, drug trial participant)</td>
<td>2%</td>
</tr>
</tbody>
</table>
Enrollment Challenges

• Patients were later deemed ineligible due to their final discharge disposition
  – Discharged to non-partner SNF (38%)
  – Discharged to home (29%)
  – Discharged < 48 hours (23%)
  – Other: non-partner IPR, LTAC, other hospital (10%)
Enrollment Challenges

• 1125 patients met all inclusion criteria
  – 95% approached for participation

• 31% Consent Rate

• Reasons for non-consent
  – Patient or Family Refused (71%)
  – Patient undecided at time of discharge (19%)
  – Patient unable to consent & no surrogate available (10%)
Enrollment Challenges

Reasons Patients Refuse Participation

- I'm too overwhelmed
- I am comfortable w/my meds & don't want to make changes
- I'm not interested in participating in any research
- Surrogate uncomfortable making med changes on patient's behalf
- I only want my doctor changing my medications
- My doctor has already reduced the medications I take
- The time to (or timing of) participating is not convenient
- Other

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Future Directions

- Clinical Decision Support
- Framing of Deprescribing
- Setting
- Care Transitions
Shed MEDS Team

- Principle Investigators:
  - Sandra Simmons, PhD
  - Eduard Vasilevskis, MD, MPH

- Project Coordinators:
  - Emily Hollingsworth, MSW
  - Avantika Shah, MPH

- Geriatric Nurse Practitioners:
  - Carole Bartoo, AGNP-BC, GS-C
  - Jennifer Kim, DNP, GNP-BC, GS-C
  - Kanah Lewallen, DNP, AGPCNP-BC

- Geriatric Pharmacist:
  - Jessica Lovell, PharmD

- Research Staff:
  - Joanna Gupta, M.Ed.
  - Susan Lincoln, BS
Thank You


• Shah A, Hollingsworth E, Narramore W, Simmons S, Vasilevskis E. Multipronged approach to obtain a Medication History for Older Adults in the Acute Care Setting. Innovation in Aging. 2018 Nov;2(suppl_1):493-.

References


Appendix Slides
Patient Barriers & Enablers

WILLINGNESS TO DEPRESCRIBE

BARRIERS

ENABLERS

Appropriateness of cessation
- e.g. medication is necessary, hope for future benefit
- e.g. lack of effectiveness, fear of side effects

Fear
- e.g. psychological issues related to cessation, fear of return of condition, fear of withdrawal effects

Influences
- e.g. physician, family, media, past experiences

Process of Cessation
- e.g. lack of GP support/time, unsure how to stop
- e.g. can restart medication, support available

Dislike of Medications
- e.g. inconvenience (including cost), medications are unnatural

Observed relationships
Hypothesized relationships

Reeve, E., et.al. Drugs & Aging. 2013