Reducing Polypharmacy in PACE: Guidance for De-Prescribing

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Disclosure

• Campbell: None to Report
• Bain: None to Report
• D’Souza: None to Report
Objectives

(1) Describe a theoretical framework for reducing polypharmacy in the elderly

(2) Articulate a systematic approach for de-prescribing in PACE, addressing polypharmacy

(3) Apply the principles and systematic approach to PACE participant case scenarios
Targeting Medications with Adverse Cognitive Effects

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Definition of De-Prescribing

• The systematic process of identifying and discontinuing drugs in which existing or potential harms outweigh existing or potential benefits within the context of an individual patient’s care goals, current level of functioning, life expectancy, values, and preferences.

• De-prescribing is not about denying effective treatment. It is a positive, patient-centered intervention…and requires the same good prescribing principles that apply when drug therapy is initiated.

The “Why”

- Align medication regimen with standards of care
- Prevent harm from current adverse event
- Prevent harm from future adverse event
- Avoid ineffective medications
- Address patient complaint of “too many…”
Theoretical Framework 1

Theoretical Framework 2

Shortcomings of Current Framework

- Fails to recognize prescribing, medication use as long-standing behaviors
- Fails to accommodate lack of feedback
- Fails to identify stakeholders
- Fails to recognize limitations in current decision making (personalized prescribing; shared decision making)
When to De-Prescribe

- New presentation of symptom possibly representing adverse event
- Advanced disease, terminal illness (dementia)
- Any high-risk drug
- Preventative benefit retained (bisphosphonates)
- Poor adherence

General Evidence

General Evidence

• Good Palliative-Geriatric Practice:
  ➢ Among 70 community-dwelling older adults enrolled:
    ▪ Baseline mean of 7.7 medications
    ▪ Followed for a mean of 19 months
  ➢ Results:
    ▪ 91% of subjects eligible for discontinuation of at least 1 med
    ▪ 58% of all meds were eligible for discontinuation (n=311)
    ▪ 81% of drugs were discontinued successfully
    ▪ 88% of subjects reported global improvement in health

Pump the Brakes

• Adverse drug withdrawal events in 30%
  ➢ 88% exacerbation of underlying disease
    ▪ Cardiovascular
    ▪ CNS
  ➢ 1/3 resulted in urgent visit (urgent care, ED, hospitalization)
    ▪ Median time to ADWE: 35 days, range up to 4 months

❖ No consistent taper schedule employed

De-Prescribing in Aging Brain

De-Prescribing Targets

EMPOWER

Patient

Physician

Pharmacist

Policy

Pharmacy

Caregiver/Social Network

CPOE CDS

Consult Reviews

Collaborative Reviews

Consult Reviews
De-Prescribing Interventions

• Attempted:
  - Computerized decision support
  - Human decision support (MD consult)
  - Patient-focused decision aids

• In development
  - Pharmacist consult/consult service
  - Mobile applications (patient-focused)
  - Decision aids (patient or provider-focused)
  - New decision aids (nudges – contextual awareness)
Theory Exchange

- **Messenger**: We are heavily influenced by who communicates information.
- **Incentives**: Our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses.
- **Norms**: We are strongly influenced by what others do.
- **Defaults**: We "go with the flow" of pre-set options.
- **Salience**: Our attention is drawn to what is novel and seems relevant to us.
- **Priming**: Our acts are often influenced by sub-conscious cues.
- **Affect**: Our emotional associations can powerfully shape our actions.
- **Commitments**: We seek to be consistent with our public promises, and reciprocate acts.
- **Ego**: We act in ways that make us feel better about ourselves.

Implementing a Systematic De-Prescribing Approach in PACE

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General Content

• Systematic approach used by a national PACE pharmacy

• Outcomes from the approach
  ➢ Individual vs. Population
De-Prescribing Targets

EMPOWER

Patient

Caregiver/ Social Network

Policy

Physician

Pharmacist

Pharmacy

CPOE CDS

Consult Reviews

Collaborative Reviews

Consult Reviews
Targeting the Prescriber

• CPOE CDS
  - Algorithms & rules embedded into a CPOE pharmacy system to identify high-risk drugs
    ▪ Point of prescribing (e.g., cumulative risks)
    ▪ Participant drug regimen (e.g., individual risks)

• Collaborative reviews
  - Pharmacist participation in polypharmacy calls
  - Resident participation in IDT meetings

Identify opportunities for de-prescribing
Targeting the Pharmacist

- Consult reviews
  - Comprehensive medication reviews
    - New enrollees
    - Participants up for re-evaluation
  - Targeted medication reviews
    - Upon request (e.g., falls)

- Pharmacogenomic test & consult
  - Drug-related problems (e.g., intolerability, poor effectiveness)
  - All new enrollees (ROI)
Systematic De-Prescribing Approach

1. Recognize a Reason
2. Identify & Prioritize
3. Plan, Communicate, & Coordinate
4. Monitor

ADWEs and/or Improvement
Abrupt or Gradual Discontinuation
De-Prescribing Techniques

Abrupt Discontinuation

Gradual Discontinuation

Stop Slow as you Go Low !!
Adverse Drug Withdrawal Events

• Defined as any noxious, unintended, and undesired effect of discontinuing a medication

• Clinical manifestations of an ADWE:
  ➢ Physiological withdrawal
  ➢ Exacerbation of underlying condition
  ➢ New set of symptoms
Systematic Approach Example
High-Risk Drugs

1. Identify anticholinergic burden
2. Avoid use or de-prescribe
3. Plan & Coordinate Care
4. Monitor

Cognitive function and/or ADWEs
Abrupt or Gradual Withdrawal
2. Avoid use or de-prescribe
Change to alternative or discontinue drug
Individual drug and cumulative

1. Identify anticholinergic burden
Systematic Approach Example

Recognize

- Pharmacist identifies drug(s) with high anticholinergic burden
  - Aided by computerized decision support

<table>
<thead>
<tr>
<th></th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam</td>
<td>Carbamazepine</td>
<td>Amitriptyline</td>
<td></td>
</tr>
<tr>
<td>Bupropion</td>
<td>Cyproheptadine</td>
<td>Oxybutynin</td>
<td></td>
</tr>
<tr>
<td>Ranitidine</td>
<td>Meperidine</td>
<td>Olanzapine / Quetiapine</td>
<td></td>
</tr>
<tr>
<td>Risperidone</td>
<td>Oxcarbazepine</td>
<td>Tolterodine</td>
<td></td>
</tr>
</tbody>
</table>
Systematic Approach Example

Prioritize

• Pharmacist makes recommendation to prescriber to change to alternative drug or discontinue

  ➢ What is the drug & indication?
    ▪ Amitriptyline
      – Depression: sertraline, citalopram, escitalopram, bupropion, duloxetine
      – Neuropathic pain: duloxetine, gabapentin, pregabalin, capsaicin, lidocaine
      – Insomnia: trazodone
    ▪ Oxybutynin
      – Incontinence: non-pharmacologic interventions (e.g., scheduled toileting)
Systematic Approach Example
Plan & Monitor

- Pharmacist provides recommendation for de-prescribing technique(s)
  - Amitriptyline 50mg at bedtime for insomnia
    - Reduce dose by 10-25mg every 5-7 days
    - Monitor symptoms +/- need for alternative drug
  - Oxybutynin 10mg twice daily for incontinence
    - Start scheduled toileting and diary
    - Reduce dose by 50% & evaluate for 72 hours
    - Discontinue drug after 72 hours, if feasible
    - Monitor success of non-pharmacologic intervention
Outcomes
Individual Example

• PACE physician discussed the negative anticholinergic effects of the drugs with Mrs. Doe
• De-prescribing was initiated
• Follow-up visit 1 week later indicated successful management of UI & insomnia
  ➢ Plan to complete discontinuation of oxybutynin & continue reduction of amitriptyline
• By 3 months later, Mrs. Doe’s MMSE score increased from 20 to 23
  ➢ Her anticholinergic cognitive burden score was 2, which was a decrease from 8
Outcomes

Population Example

Start of Pharmacy Service for Centers
"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."
Barriers to De-Prescribing and Real World Cases

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Objectives

(1) Describe a theoretical framework for reducing polypharmacy in the elderly

(2) Articulate a systematic approach for de-prescribing in PACE, addressing polypharmacy

(3) Apply the principles and systematic approach to PACE participant case scenarios
Barriers not accounted for by theoretical framework...

Figure. Algorithm for Deciding Order and Mode in Which Drug Use Could Be Discontinued

1. No benefit
   Significant toxicity OR no indication OR obvious contraindication OR cascade prescribing?
   Yes
   No

2. Harm outweighs benefit
   Adverse effects outweigh symptomatic effect or potential future benefits?
   Yes
   No

3. Symptom or disease drugs
   Symptoms stable or nonexistent?
   Yes
   No

4. Preventive drugs
   Potential benefit unlikely to be realized because of limited life expectancy?
   Yes
   No

Continue drug therapy

Withdrawal symptoms or disease recurrence likely if drug therapy discontinued?

Yes
   Taper dose and monitor for adverse drug withdrawal effects
   Symptoms stable or nonexistent?
   Yes
   No
   Restart drug therapy

Discontinue drug therapy
Barriers to De-prescribing

- Unreliable medication reconciliation / accurate med list
- Incomplete information (on past rationales for, and patient tolerance of, drugs)
- Don’t want to change specialist Rx
- Limited consultation time and follow-up
- Addictive behavior

Barriers to De-prescribing

- High levels of clinical complexity
- Ambiguous or changing care goals
- Uncertainty about benefits and harms of med changes; fear of adverse drug withdrawal effects
- Pressure to prescribe from clinical guidelines
- Community and professional attitudes towards more rather than less use of drugs

Case #1: Prioritizing Participant QOL Goals

- **HPI:** 86 year old separated Puerto Rican woman with Alzheimer’s’s dementia, presenting for initial assessment (new enrollee) with daughter. Participant moved in with daughter 5 years ago, who provides hands-on assistance for bathing, dressing and grooming, as well as all IADLs.

- **Goals:** “management of leg pain” (per daughter)
Case #1: History, continued

- **Allergies:** tramadol

- **PMH / Geriatric Syndromes:**
  Mixed Alzheimer’s/vascular dementia with behav. disturbance
  CAD (stent 1984, cath 2011 non-obstructive)
  Gait impairment (poor balance, no falls, no asst device)
  Type II DM Chronic low back pain
  Hypertension Urinary incontinence
  Osteoarthritis, knees Atypical chest pain
Case #1: Vitals, labs, tests

- Pertinent data:
  BP 146/65, HR 82, RR 16, O2 sat 96%
  MMSE 14/30
  HgbA1c 6.0 %
  Cr 0.7

Review of outside records:
  7/16/13 Bilat LE duplex: Mild bilateral PAD affecting distal arteries.
Case #1: Current Medications

1. Metformin 1000mg BID
2. Celebrex 200mg daily
3. Seroquel 25mg qhs
4. Sertraline 50mg daily
5. Namenda 10mg bid
6. Oxybutynin 10mg ER daily
7. Lisinopril 20mg daily
8. Coreg 25mg bid
9. MVI daily
10. Omeprazole 20mg MWF
11. Vitamin D3 1000 IU daily
12. ASA dc’d by prior PCP

1 mo. prior to enrollment; daughter denies bleeding
Case #1: Current Medications

1. Metformin 1000mg BID
2. Celebrex 200mg daily
3. Seroquel 25mg qhs
4. Sertraline 50mg daily
5. Namenda 10mg bid
6. Oxybutynin 10mg ER daily
7. Lisinopril 20mg daily
8. Coreg 25mg bid
9. MVI daily
10. Omeprazole 20mg MWF
11. Vitamin D3 1000 IU daily
12. ASA dc’d by prior PCP 1 mo. prior to enrollment; no details available
Case #1: Assessment and Recommendations

1. Caregiver’s goal: Leg and back pain
2. Adverse effects: Seroquel and sertraline causing hallucinations, per daughter (recently initiated).
3. Symptom/disease drugs:
   - urinary incontinence
   - Type II DM
4. Preventive drugs: Multivitamin and pill burden
Case #1: Current Medications

1. Metformin 1000mg daily (decreased from BID)
2. NEW: Tylenol 1000mg tid (replaced celebrex)
3. NEW: Remeron 15mg qhs (depression/dementia behav)
4. RESUMED: ASA 81mg daily (for suspected PAD)
5. Namenda 10mg bid
6. Lisinopril 20mg daily
7. Coreg 25mg bid
8. Omeprazole 20mg daily (increased from MWF, due to ASA)
9. Vitamin D3 1000 IU daily

Discontinued: celebrex, oxybutynin, seroquel, sertraline, MVI
Case #2: Prioritizing Brain Health in De-Prescribing Interventions

• **HPI:** SJ is a 63yo Caucasian female being seen for memory loss, slurred speech, and word-finding difficulty. Her husband and son report that over the past 12 months, she has trouble recalling recent events, repeats questions and stories, has difficulty maintaining attention to TV, and is occasionally difficult to arouse from sleep/napping. She has a 14-year education and managed the family horse farm until 6 years ago. Her husband provides assistance with all ADLs and IADLs, except feeding, ambulation and using the phone.
Case #2: History, continued

- She notes a history of an acoustic neuroma removed in 2000; per family, she returned to baseline for ~7 yrs after this, but point to it as the cause of her recurrent nausea, which she manages with multiple meds. MRI revealed no significant findings or white matter disease.

- She reports constant nausea responsive to promethazine, with meclizine as breakthrough. Lorazepam was initiated during a hospital stay several yrs ago and help with neck tightness, nausea, “noise,” and anxiety. Participant and family note that she is motivated to attempt changes in order to improve her brain health, however, she fears untreated nausea.
Case #2: History, continued

- **Allergies:** NKDA
- **PMH:**
  - Type II DM
  - Osteoarthritis
  - Depression
  - Hypertension
  - Sleep apnea
  - H/o stroke
  - Hyperlipidemia
  - Obesity
  - Insomnia
  - H/o delirium with prior surgeries
  - Acoustic neuroma removal, 2000
  - Chronic sinusitis, with multiple surgeries
  - History of multiple falls (no fractures)
Case #2: Vitals, labs, assessment scores

- Pertinent Data:
  - BP (sit): 108/62
  - BP (stand): 99/64
  - Weight: 102 kg
  - TSH 1.19
  - HgbA1c: 7.1
  - ACB Score: 15
  - HR (sit): 100
  - HR (stand): 114
  - Pain: 8
  - B12: 433
  - CBC, BMP: wnl
  - MMSE: 16/30
### Case #2: Current Medications

<table>
<thead>
<tr>
<th>No.</th>
<th>Medication</th>
<th>Dose/Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Baclofen</td>
<td>10mg TID prn spasms</td>
</tr>
<tr>
<td>2.</td>
<td>Buspirone</td>
<td>10mg TID</td>
</tr>
<tr>
<td>3.</td>
<td>Celecoxib</td>
<td>200mg daily</td>
</tr>
<tr>
<td>4.</td>
<td>Cetirizine</td>
<td>10mg qhs</td>
</tr>
<tr>
<td>5.</td>
<td>Colesevelam</td>
<td>625mg daily</td>
</tr>
<tr>
<td>6.</td>
<td>Diphenhydramine</td>
<td>25mg prn allergies</td>
</tr>
<tr>
<td>7.</td>
<td>Escitalopram</td>
<td>30mg daily</td>
</tr>
<tr>
<td>8.</td>
<td>Fentanyl infusion (spinal cath)</td>
<td>275 mcg/day (~11.4 mcg/hr)</td>
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<tr>
<td>9.</td>
<td>Gabapentin</td>
<td>400mg TID</td>
</tr>
<tr>
<td>10.</td>
<td>Ibuprofen</td>
<td>400mg prn pain</td>
</tr>
<tr>
<td>11.</td>
<td>Linaclotide</td>
<td>290mcg daily</td>
</tr>
<tr>
<td>12.</td>
<td>Linagliptin</td>
<td>5mg daily</td>
</tr>
<tr>
<td>13.</td>
<td>Lorazepam</td>
<td>1mg QID</td>
</tr>
<tr>
<td>14.</td>
<td>Losartan</td>
<td>12.5mg daily</td>
</tr>
<tr>
<td>15.</td>
<td>Magnesium oxide</td>
<td>400mg daily</td>
</tr>
<tr>
<td>16.</td>
<td>Meclizine</td>
<td>25mg BID prn nausea (used 5x/week)</td>
</tr>
<tr>
<td>17.</td>
<td>Metformin</td>
<td>1000mg BID</td>
</tr>
<tr>
<td>18.</td>
<td>Metoprolol ER</td>
<td>50mg prn rapid HR</td>
</tr>
<tr>
<td>19.</td>
<td>Ondansetron</td>
<td>4mg prn nausea</td>
</tr>
<tr>
<td>20.</td>
<td>Oxybutynin</td>
<td>5mg daily</td>
</tr>
<tr>
<td>21.</td>
<td>Pramipexole</td>
<td>0.5mg BID</td>
</tr>
<tr>
<td>22.</td>
<td>Promethazine</td>
<td>25mg TID</td>
</tr>
<tr>
<td>23.</td>
<td>Vitamin B12</td>
<td>5000mcg po daily</td>
</tr>
<tr>
<td>24.</td>
<td>Zolpidem XR</td>
<td>12.5mg qhs</td>
</tr>
</tbody>
</table>
Case #2: Assessment and Plan

• **Assessment/Plan:**
  SJ is a 63yo female with significant impairment in multiple cognitive domains, an extensive medical history and a complicated medication regimen, with high ACB score and presence of two benzos, a narcotic, and an antiepileptic. Family is committed to a personalized de-prescribing plan in order to evaluate her true cognitive abilities.

How do you prioritize medication changes?
**Theoretical Framework 2**

**Figure. Algorithm for Deciding Order and Mode in Which Drug Use Could Be Discontinued**

1. **No benefit**  
   - Significant toxicity OR no indication OR obvious contraindication OR cascade prescribing?  
     - Yes → **Withdrawal symptoms or disease recurrence likely if drug therapy discontinued?**  
     - No → Continue drug therapy

2. **Harm outweighs benefit**  
   - Adverse effects outweigh symptomatic effect or potential future benefits?  
     - Yes → Taper dose and monitor for adverse drug withdrawal effects  
     - No → Symptoms stable or nonexistent?  
       - Yes → **Taper dose and monitor for adverse drug withdrawal effects**  
       - No → Restart drug therapy

3. **Symptom or disease drugs**  
   - Symptoms stable or nonexistent?  
     - Yes → **Taper dose and monitor for adverse drug withdrawal effects**  
     - No → Restart drug therapy

4. **Preventive drugs**  
   - Potential benefit unlikely to be realized because of limited life expectancy?  
     - Yes → Taper dose and monitor for adverse drug withdrawal effects  
     - No → Restart drug therapy

Case #2: Identify Medications with Adverse Cognitive Effects

• Current Meds: NINE with adverse cognitive effects

1. Baclofen 10mg TID prn spasms
2. Buspirone 10mg TID
3. Celecoxib 200mg daily
4. Cetirizine 10mg qhs
5. Colesevelam 625mg daily
6. Diphenhydramine 25mg prn allergies
7. Escitalopram 30mg daily
8. Fentanyl infusion (spinal cath) 275 mcg/day (~11.4 mcg/hr)
9. Gabapentin 400mg TID
10. Ibuprofen 400mg prn pain
11. Linaclotide 290mcg daily
12. Linagliptin 5mg daily
13. Lorazepam 1mg QID
14. Losartan 12.5mg daily
15. Magnesium oxide 400mg daily
16. Meclizine 25mg BID prn nausea (used 5x/week)
17. Metformin 1000mg BID
18. Metoprolol ER 50mg prn rapid HR
19. Ondansetron 4mg prn nausea
20. Oxybutynin 5mg daily
21. Pramipexole 0.5mg BID
22. Promethazine 25mg TID
23. Vitamin B12 5000mcg po daily
24. Zolpidem XR 12.5mg qhs
Case #2: Discussion of Recommendations

1. Identify medications with adverse cognitive effects
2. Benzodiazepine de-prescribing
3. Diabetes
4. Restless legs syndrome
5. Monitoring/Assessment Plan
Unique to PACE

Challenges:
- Competing priorities
- Challenging EHRs
- PACE population

Opportunities:
- Less fragmentation; primary care in control
- Infrastructure and support for QI
- Care plan to aid structured interventions and follow-up
- Team resources: PharmD, RNs, behavioral health, etc.
Audience Discussion

• Your experiences?
• Challenges?
• Successes?
• Standardized care plan interventions?
• Tools or strategies to increase participant buy-in?