Excellence in Hospice Pharmaceutical Care: 
Right Drug, Right Dose, Right Now!

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Objectives

• Define pharmaceutical care.
• Explain the importance of pharmaceutical care in hospice per CoPs 2008 and updates.
• Understand the CMS perspective on hospice formulary management.
• Explain why hospices should utilize medication use criteria
• Define pharmacogenomics
• Explain the potential role of pharmacogenomics in hospice care

Pharmaceutical Care

• The direct, responsible provision of medication-related care for the purpose of achieving definite outcomes that improve a patient’s quality of life.
• The principal elements of pharmaceutical care are that care is directly provided to the patient, it is provided to produce definite outcomes, these outcomes are intended to improve the patient’s quality of life and the provider (pharmacist) accepts personal responsibility for the outcomes.

Reality of Medication Use

- If medication use were thought of as a disease, it would be the fourth leading cause of death in the U.S.
- Adverse drug events (ADEs) are a serious public health problem. It is estimated that:
  - 700,000 emergency department visits and 120,000 hospitalizations are due to ADEs annually
  - $3.5 billion is spent on extra medical costs of ADEs annually
  - At least 40% of costs of ambulatory (non-hospital settings) ADEs are estimated to be preventable


Pharmaceutical Care for Hospice

“Pharmaco-Therapeutic Support System”

- Hospice Clinical Pharmacist
- + Formulary Management
- + Hospice P&T Committee

Hospice CoPs and Pharmaceutical Care

- “Drugs” – appears 54 times...
- Every hospice needs a pharmacist – directly or indirectly to:
  - Review Rx, OTC, Herbs and alternative treatments that could affect drug therapy including:
    - Effectiveness of therapy
    - Side effects
    - Drug Interactions
    - Duplicate therapy
    - Drug therapy requiring monitoring
Formulary Management

July 2014 CMS: Hospice has the right to have a formulary...

Managed by the P&T Committee

By Symptom, by Drug....

Medication Use Criteria

Specific objective criteria developed by the hospice P&T committee to promote maximum medication efficacy and prevent the unnecessary use of medications in end-of-life care.

Application of these criteria must be on a case by case basis.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Criteria</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elavil® (amitriptyline)</td>
<td>Age &lt; 65 y.o.</td>
<td>CrCl &gt; 30 ml/min</td>
</tr>
<tr>
<td>Valium® (Diazepam)</td>
<td>Age &lt; 65 y.o.</td>
<td>CrCl &gt; 30 ml/min</td>
</tr>
<tr>
<td>Effert® (Fenugreek)</td>
<td>Clopidogrel allergy</td>
<td>Clopidogrel CYP2C19 poor</td>
</tr>
<tr>
<td>Inhalaers - all</td>
<td>PPS &gt; 40%</td>
<td>Inability to use nebulizer</td>
</tr>
<tr>
<td>Lantus®/Levemir® (Insulin)</td>
<td>Age &gt; 65</td>
<td>Intermediate insulin failure</td>
</tr>
<tr>
<td>Glucophage® (Metformin)</td>
<td>Sr Cr &lt; 1.5</td>
<td>CrCl &gt; 50 ml/min</td>
</tr>
<tr>
<td>Dicyclomine® (Dyclonine S8)</td>
<td>+ Renal Failure</td>
<td>Fentanyl &amp; Methadone CI</td>
</tr>
<tr>
<td>Xarelto® (Apixaban)</td>
<td>PE or DVT Tx only</td>
<td>Therapeutic alt for LMWH</td>
</tr>
<tr>
<td>Xifaxin® (Rifaximin)</td>
<td>Lactulose failure</td>
<td>Neomycin CI</td>
</tr>
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</table>
Pharmacogenomics for Hospice

“What if there were a way to know if a depressed patient would respond to an antidepressant? Or to predict a bleeding event from an antiplatelet agent?”

“Personalized Hospice MTM”

Patients will be presenting to hospice clinicians with known genetic variations in their medical record which will require an understanding of the implications of the drug-gene pair...

What is Pharmacogenomics?
• The study of genetic variations that influence individual response to drugs
• Combines traditional pharmacology with an understanding of common DNA variations in the human genome.

<table>
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<tr>
<th>Pharmacogenomics Providers</th>
<th>Clinical Decision Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing whether a patient carries a genetic variant can help personalize individual drug therapy</td>
<td>Can lead to an avoid decrease in health care costs by decreasing the following:</td>
</tr>
<tr>
<td>Decrease the chance for adverse drug events</td>
<td></td>
</tr>
<tr>
<td>Increase the effectiveness of Drugs</td>
<td></td>
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</tbody>
</table>

The FDA lists approved drugs with pharmacogenomic information in their labeling. Pharmacogenomic information can appear in different sections of the labeling depending on the action.

Clinical Pharmacogenetics Implementation Consortium (CPIC)  

CPIC guidelines are designed to help clinicians understand how available genetic test results should be used to optimize therapy, rather than whether tests should be ordered since clinicians will be faced with having patients’ genotypes available even if they have not explicitly ordered a test with a specific drug in mind.

What are the implications for hospice care?
Personalized Hospice Medicine

- A biological approach to patient treatment
- Example:
  - Oxycodone and CYP2D6
  - “Use an alternative drug rather than oxycodone (not codeine or tramadol) for CYP2D6 poor and intermediate metabolizer patients, or be alert to insufficient pain relief.
  - For CYP2D6 ultra metabolizer patients, use an alternative drug rather than oxycodone, or be alert to adverse drug events”

Haloperidol and CYP2D6

“Reduce haloperidol dose by 50% or select an alternative drug for CYP2D6 poor metabolizer genotype patients”

- Applicable to DI with methadone??
- Alternatives to haloperidol void of CYP2D6 recommendations include olanzapine and quetiapine....
Clopidogrel (Plavix®)

- CYP2C19 “poor metabolizers” may be poor responders to clopidogrel (Plavix®)...  
  - Knowing this allows the clinician to identify alternative therapy and validate why it is necessary  
  - Prasugrel (Effient®) may be a better option since per the FDA approved product label which states “there is no relevant effect of genetic variation in CYP2B6, CYP2C9, CYP2C19 or CYP3A5 on the pharmacogenetics of prasugrel’s active metabolite or its inhibition of platelet aggregation”.

FDA Table of Pharmacogenomics Biomarkers in Drug Labeling

http://www.fda.gov/Drugs/ScienceResearch/ResearchAreas/Pharmacogenetics/ucm083378.htm

Table of FDA-approved drugs with pharmacogenomic information in their labeling.

Per the FDA: Pharmacogenomics may play an important role in identifying responders and non-responders to medications, avoiding adverse events, and optimizing drug dose.

FDA approved labeling may contain information on specific action to be taken based on the biomarker information.

Remember:

“IT IS NEITHER IMMORAL NOR UNETHICAL TO THINK ABOUT THE COST OF THERAPY!”

Methadone Mary, 1998
Questions?
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DELTA CARE Rx
Hospice Pharmacy. Transformation.
www.deltacarerx.com

References

Abbasi J. Getting pharmacogenomics into the clinic, JAMA 2016 Published Online September 21, 2016
