Palliative Care in the ICU

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WRHA
Bottom Line

Lifetime Risk of Death (%)

Dawn of Time | Timeline | Today

Today: Dawn of Time
Outline

• Palliative Care
  • Definition
  • Scope
  • Palliative Care Approach

• End-of-Life in the ICU
  • Challenges
  • Burdens on patients/families/care staff
  • Integration of PC in the ICU setting

• Practical Matters
  • WRHA Palliative Care Program
  • Symptom management issues
What is Palliative Care?

Palliative Care is an **approach** to care which focuses on comfort and quality of life for those affected by life-limiting/life-threatening illness. Its goal is **much more than comfort in dying**; palliative care is about **living**, through **meticulous attention to control of pain and other symptoms, supporting emotional, spiritual, and cultural needs, and maximizing functional status**.

The spectrum of investigations and interventions consistent with a palliative approach is guided by the goals of patient and family, and by accepted standards of health care.

Mike Harlos, Medical Director, WRHA Palliative Care Program
What Is Palliative Care

• A Philosophy of Care Emphasizing Quality of Life
• Patient centred goals of care and quality communication
• Meticulous attention to Pain and other symptoms
• Maximize functional status
• Holistic care:
  • Physical
  • Spiritual
  • Emotional
  • Social
  • Financial

• Supports for Patient, Family, Health-Care Team
• Multidisciplinary
  • Physicians
  • Nurses
  • Social Work
  • Spiritual Care
  • Allied health….
• Living to the fullest

Palliative Care may be the main focus
OR
delivered concurrently with life-prolonging care
What Palliative Care is NOT

IT IS NOT

• A Place
• A Disposition
• Doing Nothing
• Euthanasia
• Failure
• Closing the door..
• The WRHA Palliative Care Program
<table>
<thead>
<tr>
<th>Common Symptoms at end of life</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Pain</td>
<td>80 - 90%</td>
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<tr>
<td>Fatigue/Asthenia</td>
<td>75 - 90%</td>
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<td>Constipation</td>
<td>70%</td>
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<tr>
<td>Dyspnea</td>
<td>60%</td>
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<tr>
<td>Nausea</td>
<td>50 - 60%</td>
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<tr>
<td>Vomiting</td>
<td>30%</td>
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<tr>
<td>Delirium</td>
<td>30 - 90%</td>
</tr>
<tr>
<td>Depression/suffering</td>
<td>40 - 60%</td>
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</tbody>
</table>
Palliative Care Delivery is a Challenge

- Burden of care is tremendous
- No “Palliative Care Program” big enough
- Only 10% of Canadians have specialty palliative care access
- Few physicians or nurses have even basic training
- Clinicians don’t intuitively know when they need advice…
  “We don’t know what they don’t know”
- The process & outcome are expected to be terrible… after all, it is death
- “Collateral suffering” among families and health-care teams
- No chance of feedback from patient “after the fact”
Effective care of the dying Requires

- Adequate knowledge base
- Attitude / Behavior / Philosophy
  - Active, aggressive management of suffering
  - Team approach
  - Recognizing death as a natural closure of life
  - Broadening your concept of “successful” care
“Active Treatment”

Palliative Care

Cure/Life-prolonging Intent

Palliative/Comfort Intent

DEATH

Bereavement
Potential Palliative Care Interventions

Palliative

Support
- Emotional
- Spiritual
- Psychosocial

Control of
- Pain
- Dyspnea
- Nausea
- Vomiting

Variable
- IV Fluids
- Transfusions
- Antibiotics
- Tx of Hypercalcemia
- Tube Feeding
- Dialysis
- Nephrostomy tubes
- Effective Communication

Generally Not Palliative
- CPR
- Ventilation
- Highly burdensome Interventions
Recipients of Palliative Care

Progressive life-limiting illness
- Incurable cancer
- Progressive, advanced organ failure (heart, lung, kidney, liver)
- Advanced neurodegenerative illness (ALS, MS, Parkinson’s)
- HIV/AIDS

Sudden fatal medical condition
- Acute stroke
- Withholding or withdrawing life-sustaining interventions (ventilation, dialysis, pressors, food/fluids...)
- Trauma – eg. head injury
- Ischemic limbs, gut
- Post-cardiac arrest ischemic encephalopathy
- ...
Where Can Palliative Care be Provided?

Anywhere
What About Intensive Care?
Death in Canada

- Institutionalized death is common
  - 73% of Canadians die in a hospital
  - 20% of hospital deaths occur in ICU or step-down
- ICU patients have a high mortality
  All ICU in Manitoba
  - 9% ICU mortality, 17% Hospital mortality
  Urban tertiary Care ICU
  - 20% ICU mortality, 26% Hospital mortality

Equipped or not, End-of-Life Care is already an intrinsic component of Critical Care Medicine

Heyland et al. J of Palliative Care; 2000; 16.
Garland et al. MCHP; 2012.
Survival of ICU patients in Manitoba

Garland et al.  Manitoba Center for Health Policy. 2012.
Challenges

• Treatment mismatch with achievable goals and individual preferences → distress for patients/family/caregivers
• Undertreated pain and symptoms
• Unmet family needs
• Inefficient use of resources
• Conflict
• Moral distress
• Burnout
Critical Illness Impacts more than just the patient

Patient

Patient’s Loved One

Health Care Team
Impact of Critical Illness on Families

- Significant caregiving and financial stresses
  - 34% patients require significant care from family
  - 20% of family members quit work or need to make another major life change to care for pt
  - 31% of families report loss of most or all of savings (US study)
- Stresses more significant in younger, poorer patients with lower functional status

Covinsky et al. JAMA; 1994:272(23), 1839–1844.
Impact of Critical Illness on Families

- Approximately 50% of families with suffer psychological burden following Critical illness
  - Anxiety
  - Depression
  - Post-traumatic Stress Disorder
    - Are common (34%)
    - More common if patient dies, communication is incomplete, and family involved with EOL decisions

Satisfaction with Care
WRHA ICU Family Satisfaction survey, 2011

- LEVEL of care provided
- Atmosphere in the ICU waiting room
- Atmosphere of the ICU
- Doctor's care of patient
- Communication
- Nursing care of patient
- Courtesy, respect and compassion of family
- The teamwork of all the ICU staff
- Provision of emotional support
- Interest in family's needs
- Assessment and treatment of agitation
- Assessment and treatment of breathlessness
- Assessment and treatment of pain
- Courtesy, respect and compassion of patient

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<th>Level</th>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Not applicable</th>
<th>Missing</th>
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</tbody>
</table>
Satisfaction with End of Life Care
WRHA ICU Family Satisfaction survey, 2011

I felt my family member's life was....... 
- Prolonged unnecessarily 
- Slightly prolonged unnecessarily 
- Not prolonged or shortened unnecessarily 
- Slightly shortened unnecessarily 
- Shortened Unnecessarily

During the final hours, I felt he/she was 
- Totally comfortable 
- Very Comfortable 
- Mostly Comfortable 
- Slightly uncomfortabl 
- Very uncomfortable

I felt _______ by the health care team 
- Very supported 
- Supported 
- Neither Abandoned Nor Supported 
- Abandoned 
- Very Abandoned
Burden on Health Care Team

- Conflict within teams
- Moral distress re: quality of care, suffering
- “Burnout Syndrome” among Nurses and MD’s
- Post-Traumatic Stress disorder

Poncet et al. J Resp crit care med, 2007; 175:7
Embriaco J Resp crit care med, 2007; 175:7
Mealer J Resp crit care med, 2007; 175:7
Critical Care needs to incorporate Palliative Care Principles and Expertise in order to provide optimal care.
Palliative Care Paradigm in the ICU

Am J Respir Crit Care Med 2008;177:912–27
Key Domains of ICU Palliative Care

1. Patient/Family Centred decision making
2. Communication within team and with patient/family
3. Continuity of Care
4. Emotional and Practical Support
5. Symptom management
6. Spiritual Support
7. Emotional/organizational support for ICU staff

What do Patients and Family Value?

- Communication
- Patient-focused decision making
  - Sense of control
- Care for the Patient
  - Symptom control
  - Dignity
  - Privacy
- Care for the family
  - Access
  - Interprofessional support
  - Bereavement support
- Avoiding inappropriate prolongation of dying

What else do Families Need in the ICU?

• Assurance of attentive care

• Proximity
  • Open visiting hours
  • Buzzer systems may be a hindrance

• Information
  • Information brochures
  • Patient progress
Decision Making at EOL

Health Care Team
Medical Knowledge (disease, prognosis, treatment options)

Patient/Family
Knowledge of Patients (beliefs, values, prior decisions)

Shared Decision Making
Shared Decision Making in the ICU

Default starting place of shared decision-making

1. Assess prognosis and certainty of prognosis
2. Assess family preference for role in decision-making
3. Adapt communication strategy based on patient and family factors and reassess regularly

Paternalism or Doctor Decides
Shared Decision-Making
Autonomy or Family Decides

The Way Decisions were Made
WRHA ICU Family Satisfaction survey, 2011

Did you feel you had control over the care of your family member

Did you feel supported during the decision making process

Did you feel involved in the decision making process

Adequate time to have your concerns/questions addressed

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree
- Not applicable
- Missing

- Yes
- No
- Blank
Communication Strategies to Improve Family and Patient Outcomes

- Early Family Conferences
- Private location for communication
- Provide consistent communication
- Listen
- Empathetic statements
- Identify commonly missed opportunities
  - Listen and respond to family members
  - Acknowledge and address family emotions
  - Explore and focus on patients values and treatment preferences
- Assure family that patient will not suffer
- Provide explicit support for decisions made by family

Curtis et al. Chest. 2008;134(4)
Models for Structuring An ICU-Palliative Care Initiative

Consultative Model
- Palliative Care Team
- Palliative Care Consultation
- Usual ICU Care By Critical Care Team

Integrative Model
- Palliative Care Principles/Interventions Embedded in Usual ICU Care
Consultative Model

- Most common
- Team usually composed of Nurse Specialist (CNS) and Palliative Physician
- PC team is consulted in specific cases
  - Patients at highest risk of poor outcomes
- At risk of Under Use
  - Lack of awareness of services
  - Dying and suffering patients may not be recognised in a timely fashion
  - Sense of self-sufficiency in ICU Staff
- May benefit from clinical “triggers”
Potential “Triggers” for PC consult

• Elderly
• Poor pre-hospital status
• Significant comorbidities
• Prolonged hospitalisation
• Recurrent ICU admissions
• Severe symptoms
• Difficulty addressing goals of care/conflict
• Specific diagnoses:
  • Catastrophic stroke/hemorrhage
  • Cardiac arrest with anoxic brain injury
  • Multisystem organ failure
  • Global cerebral ischemia
Integrative Model

Rationale:
• End-of-life care and symptom management issues pervade critical care units
• Virtually all critically ill patients/families have palliative needs

Response:
• Incorporate palliative care principles into the daily care of all ICU patients
• Requires enhanced clinical knowledge of PC principles and symptom management
• Systems approach and organized interventions
  • Bundled care
  • Protocols
• In some centres, PC team regularly attends ICU rounds
“Care and Communication Bundle”

ICU Day 1
1. Identify decision maker
2. Advance Directive status
3. CPR status
4. Distribute Info leaflet
5. Regular pain assessments
6. Pain management

Day 3
7. Social work consult
8. Spiritual care consult

Day 5
9. Interdisciplinary family meeting

Quality and Safety in Health Care 2006; 15:264–71
IPAL-ICU Project.  www.capc.org/ipal-icu
Benefits of Palliation in the ICU

- More rapid pain and symptom control
- Improved Patient and family satisfaction
- Patient-Centred care, consistent with patient preferences
- Lower prevalence of PTSD, anxiety, depression among survivors
- Improved Communication and understanding
- Reduced Conflict
- Professional gratification
- Shorter ICU Length of stay
- Fewer aggressive/nonbeneficial treatments
- Cost savings

IPAL-ICU Project. www.capc.org/ipal-icu
Practical Issues
WRHA Palliative care program
**PC Program**

- Regional under WRHA
- Team members:
  - MD
  - CNS
  - SW
  - Spiritual care
  - Pharmacy
- Mainly an outpatient program
- Inpatient Units
  - SBGH (15)
  - Riverview (30)
  - Grace Hospice (12)

**Who should be referred?**

- Terminal illness
- Prognosis < 6 months
- Accepting of palliative approach
  - DNAR
  - No Chemo
- Patients can receive PC in any location
- Transfer for difficult cases
Services Offered

1. Consultation
   - Patient need not have a terminal illness
   - Assistance with pain or other symptoms
   - Communication with patient/family
   - Discussing therapeutic options
   - Will follow with you

2. Referral to PC Program
   - Enrollment available for patients with life-limiting illness*
   - Will follow patient in any location
   - Benefits and supports for patients who are discharged
   - Must be referred to program before transfer to PCU can occur
3. Transfer of Care to PCU
   - 800 – 1000 patients enrolled in PC program
   - 45 Acute care Palliative care beds (St B and Riverview)
     - Crisis Stabilisation Units
   - Transfer may occur in cases with significant symptom control issues
     - Physical/emotional/social
   - Beds must be allocated on a priority basis
   - Patient should have reasonable expectation to survive transport.
   - Send Referral form please!
   - We do not have Vents or BiPap
How to Reach Us

PC contact line
• 247-2400

After hours or urgent issues
• St B Paging: 237-2053

MD to MD Calls
• St B Paging
Dying is supposed to hurt, right?
PAIN
BRING IT ON!!!
NOÇICEPTIVE

Somatic
bones, joints
connective tissues
muscles

Visceral
heart, liver,
pancreas, gut...

NEUROPATHIC

Central

Peripheral
“Describing pain only in terms of its intensity is like describing music only in terms of its loudness”

von Baeyer CL; Pain Research and Management 11(3) 2006; p.157-162
Pain Management

- Underlying Cause
- Non-Opioids
  - NSAIDS
  - Acetaminophen
- Opioids
- Adjuvants
  - Steroids
  - Topical Tx
  - Bisphosphonates
- Neuropathic Agents
- NonPharmacologic
Opioids

Infrequent dosing

- Toxicity
- Analgesia
- Pain

Effect

Time
Opioids

Adequate dosing

Toxicity

Analgesia

Pain

Effect

Time
## Commonly Used Opioids

<table>
<thead>
<tr>
<th>Opioid</th>
<th>PO</th>
<th>IV/SC/SL</th>
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<tbody>
<tr>
<td>Morphine</td>
<td>10 mg</td>
<td>5 mg</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>2 mg</td>
<td>1 mg</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>5 mg</td>
<td>-</td>
</tr>
<tr>
<td>Methadone</td>
<td>1 mg</td>
<td>-</td>
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<tr>
<td>Fentanyl</td>
<td>-</td>
<td>50 mcg</td>
</tr>
<tr>
<td>Sufentanil</td>
<td>-</td>
<td>5 mcg</td>
</tr>
<tr>
<td>Codeine*</td>
<td>100 mg</td>
<td>50 mg</td>
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</table>
Opioids: Starting points

- Morphine/Hydromorphone/Oxycodone:
  - Dose Interval: 4 hours
  - PRN: q1-2 hours, 10-20% total daily dose
  - IV/SQ dose = 50% of PO dose
    - 5mg IV morph = 10 mg PO
  - Typical starting doses ~ 2.5 – 10mg PO morphine

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<thead>
<tr>
<th></th>
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<tr>
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<tr>
<td>STEP INCREASE/DECREASE</td>
<td>q4h.</td>
<td>2.5 mg</td>
<td>5 mg</td>
<td>10 mg</td>
<td>15 mg</td>
<td>20 mg</td>
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<td></td>
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<td>30 mg</td>
<td>40 mg</td>
<td>60 mg</td>
<td>80 mg</td>
<td>100 mg</td>
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<td></td>
<td></td>
<td>130 mg</td>
<td>160 mg</td>
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<td>240 mg</td>
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<table>
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<th></th>
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<th>1 mg</th>
<th>2 mg</th>
<th>4 mg</th>
<th>6 mg</th>
<th>8 mg</th>
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<tr>
<td>DILAUDID (Hydromorphone)</td>
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<tr>
<td>STEP INCREASE/DECREASE</td>
<td>q4h.</td>
<td>0.5 mg</td>
<td>1 mg</td>
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<td>3 mg</td>
<td>4 mg</td>
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<td></td>
<td></td>
<td>6 mg</td>
<td>8 mg</td>
<td>12 mg</td>
<td>16 mg</td>
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<tr>
<td></td>
<td></td>
<td>26 mg</td>
<td>32 mg</td>
<td>40 mg</td>
<td>48 mg</td>
<td>56 mg</td>
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</table>
**Transdermal Fentanyl**

- Opioid Tolerant Patient
- Requires stable dosing
- > 45 mg PO Morph/day
- Never from codeine!
- Requires SQ fat layer
- Takes > 8 hours to kick in
- When converting, continue q4h opioid ~ 8 – 12 hrs
- Prn: ~10mg po/ 5mg IV morph per 25 mcg patch
# Fentanyl Patch

<table>
<thead>
<tr>
<th>Oral 24-hour morphine mg/day</th>
<th>DURAGESIC dose mcg/hr</th>
<th>Oral hydromorphone (mg/day)</th>
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<tr>
<td>45</td>
<td>12</td>
<td>11</td>
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<td>90</td>
<td>25</td>
<td>22.5</td>
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<td>135</td>
<td>25+12</td>
<td>34</td>
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<td>180</td>
<td>50</td>
<td>45</td>
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<tr>
<td>225</td>
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<td>270</td>
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<td>360</td>
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<td>90</td>
</tr>
<tr>
<td>405</td>
<td>100+12</td>
<td>101</td>
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</table>
Opioids: Side Effects

- Constipation
- Nausea/vomiting
- Urinary retention
- Itch/rash
- Dry mouth
- Respiratory depression
- Drug interactions
- OPIOID INDUCED NEUROTOXICITY (OIN)
Opioid Induced Neurotoxicity (OIN)

- Opioid tolerance
- Mild myoclonus (eg. with sleeping)
- Severe myoclonus, Seizures

Rapidly Escalating Opioids

- Delirium
- Agitation
- Opioids Increased
- Misinterpreted as Pain

- Hyperalgesia
- Opioids Increased
- Misinterpreted

Death
Opioid Induced Neurotoxicity

Treatment

Rotate Opioid

- Morphine $\rightarrow$ Hydromorph
- Hydromorph $\rightarrow$ Fentanyl Infusion

Hydrate

Benzos

- Neuromuscular excitation
- Seizures

Antipsychotics for Delirium

Call us
Opioid Rotation

1. Convert original opioid to PO morphine equivalents
2. Calculate “equivalent dose” of new drug by chosen route
3. Consider incomplete cross tolerance:
   • Pt will not have same degree of tolerance to new opioid.
   • Reduce dose by 25-50% and start there

Example:
Oxycodone PO 60 mg/day → Hydromorphone (HM) 60mg oxy PO = 120mg morph PO = 24 mg HM PO
x50% = 12mg/day HM or 2 mg PO q4h of HM
Incident Pain

- Sudden Onset
- Short Duration

Examples:
- Ambulation
- Dressing changes
- Neuropathic pain
- Bony mets
- Pain Crisis
Incident Pain - Management

- Rapid Onset
- Short Acting
- Fentanyl, Sufentanyl
- Routes:
  - IV
  - Sublingual (SL)
  - Intranasal (IN)
    - ($6 each)
- q10 - 15 min PRN

### SL / IN Doses

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (mcg)</th>
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<tr>
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<td>Sufentanyl</td>
<td>25</td>
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<td></td>
<td>50</td>
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**Opioids: General Considerations**

- NEVER start Fentanyl Patch on Opioid Naïve Pt
- NEVER switch from Codeine to Fentanyl Patch
- Hydromorphone preferred in
  - Elderly, Renal, Hepatic
- Bowel Regimen **Required**
- Anticipate Nausea
- Incomplete Cross-Tolerance
- Respiratory depression uncommon
- Tolerance Expected
- Inadequate pain control → “PseudoAddiction”
Neuropathic Pain Management

Opioids

Steroids
- Dexamethasone: 4-16mg/d

Anticonvulsants
- Gabapentin: 300-2400mg/d
- Valproate

TCAs
- Nortriptyline: 10-50 mg PO @ HS titrate slowly
Neuropathic Pain Management

Special Agents:

**NMDA receptor antagonists**
- Used early in PC
- Methadone
- Ketamine

**Anaesthetics**
- Lidocaine (IV)

**Alpha 2 agonists**
- Clonidine, Dexmedetomidine
Dyspnea
**Dyspnea**

**Direct Malignancy Effects**
- Tumor effects
- Lymphangitic carcinomatosis
- Effusions: pleural, pericardial
- SVC Syndrome
- Ascites
- Cachexia

**Other**
- Infections
- Pulmonary embolism
- Anemia
- CHF
- Sepsis
- Aspiration
- COPD/ Reactive airway
- Neuromuscular disease
- Electrolyte Disturbance
**Dyspnea - Management**

If reasonable, Treat the Cause:

- Antibiotics
- Diuretics
- Anticoagulation
- Radiation therapy
- Steroids effective for
  - obstruction: SVCO, airway
  - lymphangitic carcinomatosis
  - radiation pneumonitis
- Procedures:
  - Thoracentesis/chest tube
  - Paracentesis

("He's complaining of chest pain, shortness of breath, cramps and dizziness. Do you sell earplugs?")
Dyspnea – Pharmacologic Measures

Supplemental O2
- Prongs or Mask PRN
- O2 sat is not relevant
- Variably effective

Opioids!!!
- Mainstay of Therapy
- Dose as for Pain
- NOT contraindicated in
  - Hypoxemia
  - CHF
  - COPD
  - PE

Benzodiazepines
- Poor evidence
- Helpful for anxious pts

Fear to treat is a barrier to best care
Awake Ventilator Withdrawal

Awake person who may not survive
- Usually hope for some time for goodbyes
- Possibilities:
  - Immediate ↓ LOC and death
  - Ongoing survival for minutes/hours/days
  - Crisis vs Comfort
- Goals
  - Expectations & hopes of pt/family
  - Minimum discomfort
  - Control anxiety
  - Maximum LOC and interaction
Awake Ventilator Withdrawal

Optimize Prior to withdrawal
  • Dyspnea, anxiety, pain….

Anticipate symptoms at time of withdrawal
  • Dyspnea
  • Anxiety
  • Secretions

Prepare
  • IV access – Short tubing
  • Supplemental O2

Multiple Doses of:
  • Opioid
  • Anxiolytic
  • Sedative
  • Antisecretory
Awake Ventilator Withdrawal

Drugs

• Opioids
  • To control breathlessness and Pain
  • IV fentanyl an obvious choice
    • Fast on/fast off
  • Dose dependant on prior opioid needs, tolerance
  • Be prepared to provide frequent doses (q5-10 min) and rapid escalation

• Anxiety
  • Benzodiazepines most common (midazolam)
  • Administer small dose prior to removal and be prepared to repeat

• Sedative
  • Nozinan (sedating antipsychotic) or Midazolam
  • Useful if patient is expiring quickly or is in crisis post-removal

Have LOTS OF DRUGS READY!
Will all these drugs kill my patient??

NO!! Not it properly given

• Removal of Vent without symptom control will result in greatly increased O2 demands, ++sympathetic drive
  • → increased Work of Breathing and ++Dyspnea!

With Symptom control

• Diminished sympathetic drive
• Less Cardiopulmonary response
• Diminished O2 and metabolic demands
• Less Tissue Hypoxia
• Patients treated with opioids and sedative may in fact live longer!

Journal of Palliative Care; Winter 2005; 21, 4;299-302
Typical Scenario

- 71 y/o Female, vented for resp failure NYD found to have metastatic breast CA with lung/bony/brain mets, massive PE. Pt unweanable due to PE and lung mets. Patient is awake, CAM –ve, wishes for vent removal to say goodbye to her family (who are present) ACP-C

- Currently:
  - PSV 18 PEEP 10, FiO2 50%
  - Fentanyl 100mcg/hr for pain/dyspnea
  - Dexamethasone 8mg/day for bony pain, nausea
  - Haldol 0.5 mg q8h for nausea
  - Lorazepam 0.5 mg q8h anxiety
  - Reports 1/10 pain, 3/10 dyspnea, 5/10 anxiety prior to vent withdrawal but wants to proceed
Scenario

At Bedside

• ICU Nurse, RT, PC MD
• 10 doses fentanyl 100mcg
• 5 doses midazolam 1mg
• 5 doses nozinan 12.5 mg
• Scopolamine 0.6 mg

Prior to Extubation

• Family steps out of room (stays very close-by)
• Fentanyl 100 mcg and 0.5 mg midaz mg given – pt settled, awake

ETT withdrawn and O2 mask applied

• After initial coughing/sputtering pt reports dyspnea
• fent 100 mcg given post extubation.
• Family returns and has a good visit, then asks for more fentanyl and falls asleep
• Pt settles, lives for another 3 days and passes peacefully
Delirium
Waking Nightmare
Subtypes of Delirium

**Hypoactive**
- Psychomotor retardation
- Sedation
- Lethargy
- Reduced awareness
- Difficult to distinguish from obtundation, depression

**Examples:** Opioid intoxication, CO2 narcosis

**Hyperactive**
- Hyperarousal
- Agitated
- Restless
- Hallucinations/delusions
- Autonomic instability (↑BP, HR, Temp)
- Example: EtOH withdrawal/Delirium Tremens

**Mixed** – features of Hypo/Hyper. Very common

Breitbart et al, 2008
Precipitants of Delirium

- Drugs!
- Metabolic
- Organ failure
- Infection
- Malignancy
- CNS disorders
- “End of Life” Delirium
Delirium: Treatment

• Treat underlying Cause if Identified and Feasible
  • Drug toxicity
  • Dehydration
  • Infection
  • Electrolyte disturbance

• Minimise Medications

• Rotate Opioids
### Delirium: Symptom Management

#### Typical Neuroleptics
- Haloperidol (Haldol)
- Nozinan (Methotrimeprazine)
- Chlorpromazine
- **Sedating**
- **Reduce seizure threshold**
- **Extra Pyramidal Symptoms**
- **Avoid in EPS or Parkinsonism**
- **Increased mortality**

#### Atypical Neuroleptics
- Olanzapine (tabs or rapid dissolve)
- Risperidone
- Quetiapine (Seroquel)
- **Less EPS**
- **Less evidence**
- **More expensive**
Delirium: Symptom Management

- **Haldol:**
  - 1-2 mg PO/subcut q4-8h

- **Nozinan:**
  - 6.25-25 mg PO/subcut q4-6h

- **Olanzapine**
  - 5 – 10 mg po bid Tabs or zydis

- **Quetiapine**
  - 25 -100 mg/day

- **Benzodiazepines**
  - EtOH withdrawal or benzo addiction
  - Often worsens delirium
  - Midazolam for sedation only

- **Novel**
  - Clonidine
  - Dexmedetomidine

- **Olanzapine**
  - 5 – 10 mg po bid Tabs or zydis

- **Quetiapine**
  - 25 -100 mg/day
Secretions

The Death Rattle
Congestion at the end of life

- Positioning
- Antisecretory drugs:
  - Glycopyrrolate: 0.2 – 0.4 mg q2h prn
    - LESS sedating
    - LESS delirium
  - Scopolamine: 0.3 – 0.6 mg q1h prn
    - MORE sedating
    - ? MORE effective?

Who are you treating?
Nausea and Vomiting
A fate worse than pain
Cortex
- Sensory input
- Anxiety, memory
- Meningeal irritation
- Increased ICP

GI
- serotonin release from mucosal enterochromaffin cells
- obstruction
- stasis
- inflammation

Vestibular
- motion
- CNS lesions
- opioids
- aggravates most nausea

Vomiting Center (Central Pattern Generator)
- CTZ
- drugs, metabolic
- dorsal vagal complex

Receptors and Signaling Pathways:
- Muscarinic
- Neurokinin-1
- Histamine
- Serotonin
- Cannabinoid
- Dopamine
- 5HT$_2$
- 5HT$_3$
- D$_2$
- H$_1$
- CB$_1$
- NK$_1$
<table>
<thead>
<tr>
<th>Clinical Scenario</th>
<th>Mechanism</th>
<th>Typical Initial Treatment Approach</th>
</tr>
</thead>
</table>
| Chemotherapy Sepsis; metabolic; renal or hepatic failure | • $5\text{HT}_3$ released in gut  
• stimulation of CTZ | $5\text{HT}_3$ antagonists; metoclopramide; haloperidol; methotrimeprazine |
| Opioid-Induced                    | • constipation; decreased gut motility  
• stimulation of CTZ  
• vestibular | laxatives (lactulose, PEG); metoclopramide; haloperidol; methotrimeprazine |
| Bowel obstruction                 | • mechanical impasse  
• stimulation of CTZ  
• stimulation of gut stretch receptors, peripheral pathways | dexamethasone; octreotide; metoclopramide if incomplete obst; haloperidol |
| Radiation                         | • stimulation of peripheral pathways via $5\text{HT}_3$ released from enterochromaffin cells in gut | $5\text{HT}_3$ antagonists (Ondansetron, granisetron)                     |
| Brain tumor                       | • raised ICP  
• aggravated by movement | dexamethasone; dimenhydrinate                                           |
| Motion-related                    | • vestibular pathway                                                      | dimenhydrinate; scopolamine                                             |
# Examples of Antiemetic Use

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopamine Antagonists</td>
<td>• metoclopramide 10 - 20 mg po/iv/sq/pr q4-8h</td>
</tr>
<tr>
<td></td>
<td>• haloperidol 0.5 - 1 mg po/sq/iv q6-12h</td>
</tr>
<tr>
<td></td>
<td>• prochlorperazine 5 - 20 mg po/pr/iv q4-8h</td>
</tr>
<tr>
<td></td>
<td>• CPZ 25 - 50 mg po/pr/iv q6-8h</td>
</tr>
<tr>
<td></td>
<td>• olanzapine – start with 2.5 – 5 mg once/day</td>
</tr>
<tr>
<td></td>
<td>• methotrimeprazine 2.5 - 10 mg po/sl/sq/iv q4-8h</td>
</tr>
<tr>
<td></td>
<td>• domperidone 10 mg po q4-8h</td>
</tr>
<tr>
<td>Prokinetic</td>
<td>• metoclopramide 10 - 20 mg po/iv/sq/pr/ q4-8h</td>
</tr>
<tr>
<td></td>
<td>• domperidone 10 mg po q4-8h</td>
</tr>
<tr>
<td>Antimuscarinic</td>
<td>• scopolamine patch (Transderm-V®)</td>
</tr>
</tbody>
</table>
# Examples of Antiemetic Use

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
</tr>
</thead>
</table>
| **H1 Antagonists** | dimenhydrinate 25 - 100 mg po/iv/pr q4-8h (sq may cause irritation, including necrosis)  
|                  | promethazine 25 mg po/iv q4-6h (Not sq)                                 |
|                  | meclizine 25 mg po q6-12h                                               |
| **Serotonin Antagonists** | ondansetron 4 - 8 mg bid-tid po/sq/iv                                   |
|                  | granisetron 0.5 –1 mg po/sq/iv OD - bid                                 |
| **Cannabinoids**  | nabilone 1 – 2 mg po bid                                                 |
|                  | dronabinol 2.5 mg po bid, titrated up                                   |
| **Miscellaneous** | dexamethasone 2 - 4 mg po/sq/iv OD-qid                                  |
|                  | lorazepam 0.5 - 1 mg po/sl/iv q4-12h                                    |
Constipation

It's like trying to get a 5lb watermelon through a hole the size of a lemon.
Causes of Constipation

• **Malignancy Effects**
  - Obstruction
  - External compression
  - Neural damage

• **Electrolyte disturbances**
  - $\uparrow$Ca$^{++}$, $\downarrow$K$^+$

• **Concurrent Disease**

• **Medications!!!**

• **Miscellaneous**
  - poor oral intake
  - dehydration
  - weakness/inactivity

• **Environmental Factors**
Medications

• Opioids!!!

• Anticholinergics
  • phenothiazines
  • tricyclic antidepressants
  • antiparkinsonian agents
  • scopolamine

• Antacids

• Diuretics

• Anticonvulsants

• Antihypertensives

• 5-HT3 antagonists
  • Ondansetron

• Chemotherapy

• Iron supplements

• Calcium
Red Flags

• Marked Distention
• Absent or High Pitched Bowel Sounds
• Not Passing Gas
Bowel Management

• Prevention is Key!

• Scheduled Laxative for all pts on opioids
  • Sennakot 1-2 @ HS to start

• Constipation Diagnosed:

I. Consider underlying cause → Treat it if feasible
  • Rehydration
  • Change meds (not opioids)
  • Correct hypercalcemia

II. Stimulant PLUS Osmotic agent:
  • Sennakot (2-6 tabs/day)
  • Lactulose 15-30 mL up to QID, Miralax 15-30g OD to BID

III. Rectal suppository/Enema
  • Bisacodyl + glycerine supp (B+G)
  • Fleet Enema

IV. Consider MethylNaltrexone for Opioid Induced Constipation
## Summary of Recommendations

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulant laxatives</td>
<td>Senna, Bisacodyl</td>
<td>First line in prevention and treatment (Grade B)</td>
</tr>
<tr>
<td>Osmotic Laxatives</td>
<td>Lactulose, PEG</td>
<td>Recommended (Grade A)</td>
</tr>
<tr>
<td>Enemas, suppositories</td>
<td>Fleet, Bisacodyl/glycerine</td>
<td>For Refractory cases</td>
</tr>
<tr>
<td>Opioid receptor antagonists</td>
<td>MNTX</td>
<td>Recommended for <strong>Refractory OIC</strong></td>
</tr>
<tr>
<td>Bulk Producers</td>
<td>Psyllium</td>
<td>Not Recommended</td>
</tr>
<tr>
<td>Stool Softeners</td>
<td>Docusate sodium</td>
<td>Not Recommended alone</td>
</tr>
<tr>
<td>Oral Lubricants</td>
<td>Mineral oil</td>
<td>Not Recommended</td>
</tr>
</tbody>
</table>
# Laxatives In Palliative Care

<table>
<thead>
<tr>
<th>Laxative</th>
<th>Dose range</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stimulant laxatives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senna glycosides</td>
<td>8.6 – 68.8mg 1-8 tabs/day</td>
<td>Recommended as 1st line</td>
</tr>
<tr>
<td>(ex: Senokot®)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Osmotic laxatives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactulose</td>
<td>15-30 ml OL – QID 17-34g OD - BID</td>
<td>Recommended as 1st line</td>
</tr>
<tr>
<td>PEG 3350 (MiraLAX®, LaxADay™)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Suppositories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bisacodyl, Glycerin</td>
<td>Give together Q72h</td>
<td></td>
</tr>
<tr>
<td><strong>Enemas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphate</td>
<td>Max 1 in 24H Q72H prn</td>
<td>Risk of electrolyte disturbance with phosphate/saline</td>
</tr>
<tr>
<td>Saline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral Oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Selective Opioid Receptor Blocker</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylnaltrexone</td>
<td>8 – 12 mg subcut</td>
<td>For refractory Opioid Induced Constipation</td>
</tr>
<tr>
<td><strong>Stool Softeners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Docusate</td>
<td>100 – 200 mg PO OD</td>
<td>Do not use alone</td>
</tr>
<tr>
<td><strong>Fibre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psyllium</td>
<td>15-30 ml OD</td>
<td>Not Recommended in Palliative Care</td>
</tr>
</tbody>
</table>
Summary

• Palliative Care
  • Provides holistic care focused on quality of life
  • Palliative Care Approach requires knowledge, attitude, multidisciplinary team

• End-of-Life in the ICU
  • Palliative approach can be integrated into ICU care
  • It may offer benefits patients, families, staff

• Practical Matters
  • WRHA Palliative Care Program is available for assistance through consultation and/or referral
  • We would be happy to strengthen our relationship with critical care
“That's all Folks!”