Clinical Pearls from the Society of Rural Physician Conference

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Name of Talk: Easily missed serious orthopedic injuries

Dr. Matthew Petrie

1. No major fracture ≠ no major injury: Scapholunate dissociation is one of the most common ligamentous injuries in FOOSH (note - normal distance btw scaphoid and lunate bones is 1-2 mm; abnormal > 3mm).
2. X-rays are not perfect: Plain films are only 70% sensitive for scaphoid fracture. Therefore, with high clinical suspicion, apply a thumb-spica cast and get another x-ray in 10 days. Alternatively, if you are in a center with more resources you may choose to CT at initial presentation.
3. If a patient presents with foot pain after a high fall, it is important to keep in mind the possibility of Lisfranc injury, which is a fracture dislocation of tarsometatarsal bones. Use weight-bearing films, look at alignment of TMT joints and consider CT.
4. 10-20 % of calcaneus fractures are missed. These are often missed in cases of multiple traumas. Be wary with high-speed axial loads and falls from height. Use Bohler's Angle as a radiographic clue.
5. In elbow injuries, remember that a posterior fat pad never normal, but a small anterior one can be normal on xray. Also, in elbow xrays, use radiocapitellar and anterior humeral lines to evaluate if the xray is normal or abnormal.
6. In shoulders, a posterior dislocation is less common and easy to miss. When in doubt, order an axillary view x-ray.

Name of Talk: "Wow, Your ACLS Actually Worked!! Now What??"

Dr. Frank Ackerman

1. Do a chest x-ray to check ETT placement and for complications of arrest (to rule-out pneumothorax).
2. For unconscious and intubated patients: aim for SpO_2 of 95% and use small tidal volumes (6-8 cc/kg) to minimize lung injury, and avoid hyperventilation. Also, elevate head of bed to 30 degrees. Use an OG rather than than NG, and sedate without paralytics.
3. Support the cardiovascular system: Half of codes are precipitated by an acute coronary event. Early recognition (stat ECG) and treatment of ACS is key (with ASA, heparin, thrombolytics, as is early

1 Please note that these notes were created by residents and the presenters of the talks were not involved whatsoever in the creation of the summaries. The information contained within the summaries should be correlated with other sources of evidence and cannot replace clinical judgment.

transfer to PCI centre). Aim for sBP >90mmHg or MAP >65mmHg with fluids and/or pressors (norepinephrine is the best choice).

4. Optimize neurological outcomes: Therapeutic hypothermia for 24 hours post-arrest has been shown to improve neurological outcomes in selected patients (those <6 hours from ROSC, GCS <8 or unable to obey verbal commands, aggressive treatment desired by patient or family and no life-threatening infection or bleeding). Achieve this through cold saline infusions (up to 30-40cc/kg), ice packs to groin and axillae with goal of 32-34 degrees centigrade using an esophageal probe. Use propofol or midazolam to prevent shivering and use an insulin protocol to ensure euglycemia. Get labs (ABGs, lactate, electrolytes, glucose) q4-6h.
5. Reference (AHA Post-cardiac arrest care): http://CIRC.AHAJOURNALS.ORG/content/122/18_suppl_3/S768/F1.expansion.html

Name of Talk: "And One Little B'y got it Right in the Eye" - Fishhooks and Corneas

Dr. Robert Forsey

1. When examining corneas, irrigate liberally, anesthetize, stain with fluoroscein, and examine conjunctivae, particularly the upper lid.
2. If there is a foreign body, you can use an 18-g needle to remove it with tangential approach (preferred by most present over burr).
3. For rust rings, use a burr for removal. 80% removal is adequate. Leaving it for 24-48 hours can soften the ring and facilitate removal.
4. Always consider tetanus prophylaxis.
5. If you see cascading fluroscein over the cornea on exam, it's called Seidel's sign, representing aqueous humour oozing from a corneal laceration (which requires specialist consultation).

Name of Talk: Practical problems in ENT

Dr Lindsay Duval

1. Use Ciprodex for otitis externa if there is any concern for TM perforation. In recurrent otitis externa, you can use diluted vinegar to inhibit Psuedomonas growth (found in tap water).
2. Persistent TM holes after T-tubes in 1-5% of patients. 70% heal spontaneously. Keep ears dry.
3. In a broken nose, check for septal hematoma. Often not painful. Needs to be drained and packed to prevent septum perforation.
4. Ethmoid sinusitis can present with preorbiltal cellulitis. If suspected, investigate and treat aggressively to save vision.

Name of Talk: Dental In the Rural Setting

Dr. Rob Myers

1. Pain = infection. Initiate antibiotics, tramadol, dental block and f/u dentist ASAP.
2. Dental blocks for upper teeth – inject above most painful tooth. Insert needle to bone, pull back slightly, inject 2-4cc of 2% lidocaine with epinephrine using a 30G needle.

Name of Talk: Evidence-Based Rural Emergency Medicine

Dr. K. Milne

1. For wound care, tap water as effective as sterile or normal saline. Basic suturing can be done as a clean, not sterile, procedure. Use lidocaine with epinephrine anywhere with confidence.
2. "The NNT" is a helpful resource if you have a very specific question about a clinical decision that you'd like answered (in the PICO format – population, intervention, +/- comparison, outcome). http://www.thennt.com/

Name of Talk: You've Intubated…Now What?

Dr. Ryan Foster

1. With ventilator settings, you need to choose a mode: control mode (means you are in charge, choose between volume vs pressure control) vs. support mode (means patient in charge).

2. To improve oxygenation, increasing PEEP is better than FiO_2, in general. It recruits more alveoli and prevents free radical damage.
3. In head trauma, the goal is to prevent secondary injury by improving oxygenation and preventing hypotension. Keep sBP > 90 always (even a single event below = worse outcomes). Meeting MAP and SpO_2 goals is more important than worrying about ICP (especially since most will not have access to measurement). Keep PEEP ~ 5 cm H_20, keep a low normal CO_2, and elevate HOB. Hyperventilation should only be done only when definitive care (neurosurgery) is nearby.

Name of Talk: The New Tobacco Dependency – New Approaches and New Tools

Dr. John Sader

1. There are considerable psychiatric comorbidities in many people who smoke. 88% of people with schizophrenia, 68% of people with bipolar disorders, 49% of people with depressive disorders, 47% of people with anxiety disorders and 46% of people with adjustment disorders smoke compared to 30% of controls.
2. Smoking is often being used as a self-treatment as it has many effects, which counteract many of the neurobiological changes in ADHD, anxiety, depression and schizophrenia.
3. Don't forget that with the current population of smokers, ANY method of smoking cessation can cause a potentially major psychiatric comorbidity to emerge.
4. If bupropion (Zyban) causes a lot of anxiety, consider possible underlying anxiety disorder.
5. Make sure difficult stages of smoking cessation do not coincide with the premenstrual week. Young women have been found to smoke more during premenstrual timeframe.
6. Cut back on coffee as caffeine levels rise in the absence of smoking-induced cytochrome P450, causing insomnia, nervousness and relapse. Many times psych symptoms are presumed to be withdrawal symptoms. The same is seen with caffeine: because smoking changes the cytochrome p450, it blunts caffeine's effects. Have patients cut down their caffeine intake by 15% prior to quitting, as the effects of caffeine will seem doubles once they quit smoking.
7. Insulin resistance diminishes with smoking cessation. Therefore, watch for hypoglycemia in people with type II diabetes taking insulin or a sulfonylurea.
8. In patients with an unequivocal psychiatric history, consider treating the psychiatric problem BEFORE attempting smoking cessation. Otherwise, monitor symptoms closely and treat if clinically indicated. In some patients you may with to consider maintaining nicotine replacement therapy.
9. Patients need to take up other activities/hobbies or find other forms of pleasures to substitute the effects of nicotine and smoking.

Name of Talk: Secondary prevention of MI

Dr. Hector Baillie

1. One has a 36% reduction in mortality over 5 years with smoking cessation post MI, and a 32% reduced risk of recurrent MI.
2. For secondary prevention, promote smoking cessation, treat hypertension, treat dyslipidemia, treat DM, and promote a NON-sedentary lifestyle.
3. Five modifiable risk factors for recurrent MI: 1) Lack of engagement, 2) Lack of understanding, 3) Lack of adherence, 4) Lack of participation, and 5) Lack of follow-up.

Name of Talk: High Risk TIAs

Dr. Devin Harris.

1. Shift of paradigm of TIA management: "TIA is the unstable angina of the brain".
2. If patient presents with TIA, think about using anti-platelet therapy, consider possible atrial fibrillation and carotid stenosis. Investigate appropriately.
3. Patients with suspected acute stroke or transient ischemic attack should undergo brain imaging (MRI or CT) immediately. Vascular imaging of the brain and neck arteries should also be done as soon as possible carotid and vertebral arteries by duplex ultrasonography, CT angiography (CTA) ASAP of a transient ischemic attack or ischemic stroke (aim at doing endarterectomy within 2 weeks after stroke or TIA).

4. TIAs are high risk (highest in the first 7 days post TIA) and should be thought of as an unstable event!
5. We need a better risk stratification tool. There are problems with the ABCD2 tool: 1) It was validated with retrospective/database studies, 2) It misses young patients, those with posterior circulation events and dissection, 3) It predicts SEVERITY vs. RECURRENT events.
6. NNT for primary prevention in stroke are huge, but this is where primary care practitioners can exert change. Note that in the INTERSTROKE study 80% of stroke was caused by five modifiable risk factors: smoking, hypertension, diet, exercise and waist circumference.
7. www.strokebestpractices.ca

Name of Talk: Procedural Sedation: Principles and Practice

Dr. G. Andolfatto

1. Treatment for recovery agitation in ketamine sedation is midazolam
2. "Ketofol" (Ketamine + Propofol) is better when combined than when both agents are used alone, as Ketamine provides analgesia to make up for Propofol's lack of analgesia. Also, propofol stops recovery agitation and is an antinauseant to balance ketamine's effects. Ketamine has minimal cardiovascular effects to counteract hypotension caused by propofol.
3. When given with ketamine, the antiemetic effect of propofol is equal to ondansetron.

Name of Talk: Diagnosis and Treatment of Soft Tissue Conditions and Injuries of the MSK.

Dr. Chris Parfitt

1. A Stener's lesion is a “skier's thumb” with full tear of the ulnar collateral ligament wherein the proximal ligament retracts and lays on top of the adductor aponeurosis. Mentioning this injury can get the orthopod to see the patient very soon.
2. Hook sign is a highly sensitive and specific test for distal head of the biceps avulsion (try to hook the biceps tendon with your index finger from the lateral side).

Name of Talk: Heart to Heart: from the rural to the cardiac centre.

Dr. Steven Hodge

1. Two new antiplatelet therapy medications are Prasugrel and Ticagrelor. They are superior to Plavix but has increased risk of bleeding and are expensive.
2. Upcoming popular stents are called Genour endothelial precursor infused stents, which only need 7 days of dual antiplatelet therapy and absorbable stents.
3. Restenosis peaks at 6-9 months for bare metal stents.

Name of Talk: Toxicology

Dr. Matthew Petrie

1. Be careful with Bupropion XL overdoses as these have a delayed seizure risk from 4-48 hours (require admission for observation).
2. When suspecting overdose don’t get stuck on one path (e.g. the patient may not be ‘just drunk’)! Always look for signs of trauma and infection, check temperature, consider co-ingestion, etc.
3. Beware of assuming someone is “just drunk” – toxic alcohols such as ethylene glycol and methanol, also cause intoxication. Check AG and osmolality on all who appear intoxicated.
4. Sympathomimetic overdose patients should have an ECG and troponins done. Do not treat with beta selective beta blockers – uninhibited alpha blockade can cause malignant hypertension.
5. In cholinergic overdoses, avoid succinylcholine in intubation.
6. In opioid overdose, you can use narcan dose of 0.1-4 mg. Make sure to titrate up, as you can always give more, but you can’t take it away.

Name of Talk: Shoulder dislocations – The sexiest and most gratifying condition you will ever get to treat

Dr. Bruce Mohr

1. The shoulder is the most mobile joint in the body and the most common joint dislocation (95-97% anterior, 2-4% posterior, 0.5% luxation erecta)

2. There may be a clinically important fracture associated with shoulder dislocation IF: 1) Age > 40 OR 2) high energy mechanism (fall > 1 flight of stairs, assault, MVA). This confers: sensitivity 98%, specificity 23%, negative predictive value 97% (Emond Acad Emerg Med 2004).
3. 96% of shoulder dislocations are anterior. Shown to be safe to diagnose without an Xray if experienced physician believes its dislocated. Can use "Quebec Decision Rules".
4. Relaxation is KEY to reduction! Painless reductions of anterior shoulder dislocations are possible without anesthesia. There are many techniques. None are 100%, therefore must learn multiple options, ie: Forward elevation, Milch, Spaso, External rotation, Scapular Manipulation.
5. References: https://emergencycare.nhmrc.gov.au/gateway/forum/files/decision%20rule%20for%20radiography%20in%20shoulder%20dislocation.pdf.pdf

Name of Talk: Accessing the endometrial cavity: Endometrial biopsy and IUD/IUDs insertion

Dr. Dan Reilly; dreilly@mcmaster.ca; www.danreilly.ca

1. The risk of infection with insertion of IUD is very small. The Cochrane collaboration finds there is no benefit of prophylactic antibiotics.
2. Some choose to use ripening agents for the cervix; however, the literature is debatable as to whether there is true benefit with this.
3. There may be a small benefit from NSAIDs, topical lidocaine gel or paracervical block for pain control; however, no method consistently eliminates pain.
4. Videos of Endometrial Biopsy and Copper IUD insertion are available online via NEJM

Name of Talk: Safe and Effective use of Opioid Analgesics

Dr. Galt Wilson:

1. Clearly distinguish between acute, cancer/end if life, and chronic non-cancer pain before prescribing narcotics – goals are different.
2. Try to be the “in control physician” when patients are requesting narcotics – screen for substance addiction/dependence, call pharmacies when possible, do a urine drug screen, and then make a clinical decision – don’t let compassion and trust trump caution.
3. Always consider, What is the diagnosis? Will opioid therapy be effective? Predetermine functional goals. Taper and stop benzo, make it a prescribing RULE, “not allowed to give anything else that will depress your brain”

Name of Talk: Motherhood in Rural Medicine

Dr. Mary Johnston

1. This session was an interactive discussion about concerns about planning pregnancy in your career and then balancing a family with a career in rural medicine. Concerns were discussed and those who have families shared things that worked for them.
2. You don’t need anyone’s permission to start/have a family: have your children when you want to have them because there is rarely a perfect time.
3. Even though you might be busier when you are still training/early in your career, you might still have more energy than waiting until later to start a family.
4. There was a suggestion that health authorities may/should start to look at childcare in their recruitment of rural physicians as almost 70% of family medicine residents are female. When applying/looking for jobs post residency, ask about this.
5. Specifics that some have found helpful in balancing work and family:
    a. When on call, over the dinner hours/early post-partum go in for CTAS level 1 or 2 only, so that you get to have dinner with your family/time you need to recover.
    b. Arrange for someone to be available for child care when on call over night so not worrying about family and can concentrate on work when needed – can be hard to do, but a retainer seemed to work for some, i.e. $300/month just to be available plus an hourly rate when called.

Name of Talk: Palliative Care Issues in Rural Areas

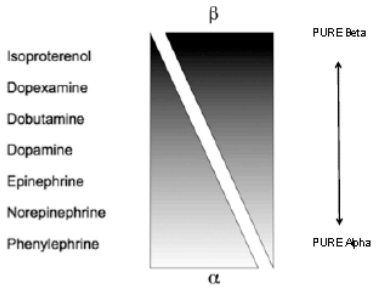
Dr. Mary Wall:

1. Good tools and resources are available to use in assessing and managing patients: Brief pain inventory, palliative performance scale, Pallium Palliative Care Pocketbook, Victoria Hospice.
2. BC provincial hotline for Palliative care consultation 24/7: 1-877-711-5757. Similar services are available in other provinces.
3. Start with the most distressing symptom first.

Name of Talk: Pressors and Inotropes – A Review

Dr. Ryan Foster, dr.ryan.foster@interiorhealth.ca

1. Shock is a state of inadequate perfusion to the end organ tissues, not a number. You can think of lactate as the troponin of shock, to tell you about end organ perfusion.
2. Inotropes increase cardiac contractility. Chronotropes increase cardiac rate. Vasopressors increase peripheral squeeze or diastolic pressure.....but most drugs have overlap between these categories and relative effects may change with increasing doses.
3. Catecholamines:
    a. Alpha 1 adrenergic = vasoconstriction
    b. Beta 1 adrenergic = mostly myocardial, positive chronotropy, positive inotropy
    c. Beta 2 adrenergic = mostly peripheral, vasodilation = "feeds oxygen to muscle".



4. Vasopressors (SOAP II Study)
    a. 1st line = norepinephrine, probably safest for most shock (Epi for anaphylactic)
    b. Dopamine may have increased risk dysrythmias and mortality in cardiogenic shock
5. 2nd line vasopressor after norepinephrine if you want more peripheral squeeze (alpha stimulation) is vasopressin. Also increases peripheral sensitivity to norepinephrine to further augment effects.

Name of Talk: Dealing With Fetal Alcohol Spectrum Disorder in Native Communities

Allan Mountford, mountfrd@allstream.net

1. Of all the substances of abuse including heroin, cocaine and marijuana, alcohol produces by far the most serious neurobehavioral effects in the fetus. It is under diagnosed by physicians, often mislabeled as ADHD. This is due to stigma and lack of provider education an awareness.
1. CT studies have found corpus callosum disturbances in the full range of FASD – i.e. difficulty with the integration and transfer of information is a hallmark of the cognitive difficulties in this spectrum, regardless of phenotypic features. Phenotypic features only occur if alcohol is consumed between days 18-28, but alcohol effects occur throughout gestation.
3. A multidisciplinary, community model, such as that seen in the Lakeland community is effective for diagnosis and management of this condition, applicable to rural communities.
4. McFarlane, A. Hasmukhlal, R. Rural FASD Diagnostic Services Model: Lakeland Centre For Fetal Alcohol Spectrum Disorder. Can J Pharmacol Vol 14(3) Fall 2007:e301-e306

Name of Talk: Herbs: What Family Physicians Need to Know

Dr. Fred Janke

1. "Natural does not always mean safe". Since 2004, the natural health registration act has been in effect, meaning herbals need a license to be sold in Canada. To be licensed, some evidence for claims

made need to be shown. Often this is achieved by making few official claims. Add ins are often uncontrolled; e.g. Many weight loss products often contain diuretics.
2. Gingko Biloba, Saw Palmetto, Black Cohosh, Cold Fx have very little supporting evidence in large studies and meta analyses.
3. Echinacea: Evidence exists that it may decrease duration of cold symptoms by 10-30%, but no effective for prophylaxis. It's a safe herbal medication, but it may have drug interactions with Warfarin and Plavix.
4. St. John's Wort: Cochrane review showed that it is at least as effective as standard antidepressants for mild to moderate depression.
5. Valerian root: Cochrane review showed significant improvement in sleep.
6. Probiotics: Evidence of effectiveness in travel and antibiotic induced diarrhea.

Name of Talk: Heart to Heart: Care From the Rural to the Cardiac Centre

Dr. Steven Hodge

1. PCI is better than thrombolytic therapy, but if in a rural area more than 90 minutes away from cardiac care center, thrombolytics should be given. Do not withhold thrombolytics in hopes of getting PCI, unless an absolute contraindication to thrombolytics.
2. Pharmacoinvasive study – "drip and ship", found that starting thrombolytics and shipping for PCI within 6 hours of a large infarcts reduced the risk of future CHF, reinfarction and death. Slight increase in risk of bleeding with PCI after thrombolytics.
3. Smaller infarcts in a rural centre should be given thrombolytics and and repeat ECG at 90 minutes, if not > 50% resolution of ST segment changes, should have PCI – call cardiac center.
4. No benefit to repeated thrombolytic therapy.

Name of Talk: Is There an App for That?

Dr. Ian Wagg

A list of useful medical applications for mobile devices was discussed:

- Evernote: communicates with PC Evernote. Can take a picture of a note (even handwritten) and search by key terms.
- RX Files: $45/year, easier to read than the paper copy.
- Diagnosaurus: 0.99$. A good differential diagnosis tool.
- Pepid: free with CMA membership.
- Pedi Stat: 2.99$: has an Interactive Broslow Tape.
- Med Calc: free, large list of medical calculators
- ECG Challenge: practice ECG tutorials
- Blood Gas: free, blood gas information
- Acid Plus: interprets blood gases
- American Board of Family Physician Exam Prep: Question bank, useful for LMCC or quizzing medical students/ learners.
- Diagnosis your Prognosis: interactive case scenarios.
- Scat 2: concussion assessment tool.
- Sound builder: heart sounds teacher.
- Ahrqepss – American guidelines for prevention based clinical visits.
- NEJM – free journal access.
- Sanford guide to antimicrobials.

Name of Talk: Is Your Granny on Drugs? Tackling Polypharmacy in Long Term Care

Dr. Keith White

1. Polypharmacy itself should be considered a health risk factor. It is an independent risk factor for decreased cognitive function and increased risk of falls as well as correlation with decreased quality of life.
2. The average number of medications a residential care resident in BC is on is 9! Many of those medications are prescribed to treat the side effects of another medication.

3. Antipsychotics are known to cause a confusional state. Often used to treat the same. 52% of residential care residents are on an antipsychotic, often inappropriately.

Name of Talk: Slapsticks and Cast Covers and Everything Else About Casting

Dr. Christopher Parfitt

1. Use minimal padding in all casting.
2. Use a guard during cast removal to prevent injury.
3. No need to cast entire thumb in scaphoid fracture. Immobilize the base, leaving the rest free for pincer grasp.

Name of Talk: EKGs and Syncope

Dr. Robb Sebastian

1. Hypertrophic Cardiomyopathy on EKG: 1) Voltage criteria for LVH, 2) Left ventricular strain may demonstrate deep T waves; 3) Q-waves in the lateral and inferior leads are the MOST SPECIFIC (these are NARROW, vs. usually post MI they are at least one block wide).
2. Brugada on EKG: 1) Incomplete RBBB, 2) ST elevation V1 and V2 (sometimes V3) which is a coved pattern. Type B Brugada shows scalloped ST elevation. The risk associated with Brugada is Polymorphic VTach and VFib Arrest. Thus, if you pick up an asymptomatic Brugada you may save a life!
3. WPW on EKG: 1) Delta wave, 2) Short PR interval, 3) sometimes see inverted T waves.
4. Wellens Criteria = T waves in V1-V4 which are usually biphasic OR deep Twave inversion. This indicates a critical lesion in the LAD.
5. PE on EKG: 18% of EKGs will be normal. Sinus tachycardia is present in 44%, atrial tachyarrhythmia present in 8%, complete/incomplete RBBB in 18%, RV strain in 34%, Right axis deviation in 16% and S1Q3T3 pattern in 20%. TWave inversion in inferior leads and right precordial leads with sinus tachycardia was 99% specific in one study but this would be associated only with large PEs in order to cause this strain pattern.

Name of Talk: Shoulder Joint Injections

Dr David Howe

1. Consider cardiac, gallbladder and cervical spine causes of shoulder pain first!
2. For all shoulder injections, use sterile technique, 25 gauge 1.5 inch needle and 40mg depomedrol with lidocaine.
3. Suggested resource: Cyriax's Illustrated Manual of Orthopaedic Medicine, published by Butterworth-Heinemann Ltd., Linacre House, Jordan HIll, Oxford OX2 8DP, UK.

Name of Talk: Gynecological Emergencies

Dr Shiraz Moola

1. Always, always examine the patient and do a pregnancy test.
2. PID: low threshold for diagnosis because of chronic pain and infertility. Emphasize compliance with current recommended treatments.
3. Vaginal bleeding: always rule out abuse and ectopics. Estrogen IV/PO can be used first line. Consider Tranexamic acid. Foley for tamponade if desperate.
4. Ovarian Torsion: rare diagnosis, but identifying it can save fertility. Acute, severe, intermittent pains. Often presented with large ovaries from cysts or pregnancy.
5. Ectopic: discriminatory threshold is NOT SET IN STONE. Rule in normal pregnancy with ultrasound and serial beta-hCG q48-72hours. Document and treat Rh appropriately.

Name of Talk: Palliative Care in the Emergency Department

Dr David Williscroft

1. Terminal bleeds: Use green/red blankets. Establish goals of care. Consider TXA, octaplex or octreotide.
2. Acute cord compression: back pain, increased reflexes, sensory level and urinary hesitancy. Most

commonly thoracic. Steroids, surgery and radiation can be tried.

3. Constipation: always consider diagnosis before treating... options: Senna, lactulose, docusate, opioid rotation, fleet enema, PEG 3350.
4. Methylnatrexone (Relestore) option for severe opioid induced constipation. Works within an hour, does not precipitate pain crisis. Avoid if concerned about obstruction. Given 0.15mg/kg SC daily for three days.