

Pain and Symptom Management for Children with Serious Illness: Challenges and Opportunities in the Context of the Opioid Epidemic

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Children's
COMFORT
PROMISE

We will do everything possible
to prevent and treat pain.

Disclosure

- The views presented in this lecture are my own. No conflict of interest exists with my presentation
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Learning Objectives: “Opioid Epidemic”

- Explore, whether a 2016 CDC guideline for adults resulted in significant increase of suffering of infants, toddlers, children and adolescents in the United States
- “Opioid Epidemic” = “Polypharmacy Illicit Drug Epidemic”
- **What are pediatric challenges?**
- **Where are pediatric opportunities?**

Pediatric Representation in Current National Discussion

74.3 million children 0-17 years in USA

78%

22%

2016 CDC Guidelines for Prescribing Opioids for Chronic Pain:

- 0% pediatric content
- 0% pediatric evidence
- 0% pediatric specialists

Pediatric content today:

20 out of 395 minutes

95%

5%

Pediatric content today:
20 out of 395 minutes
95%


Pediatric Pain - Status Quo

- **Pain in children's hospitals is common, under recognized and under treated**
Friedrichsdorf SJ, Posner AC, Eull D, Potter L, Wiesner C, Campbell F. Pain outcomes in a US children's hospital: a prospective cross-sectional survey. *Hospital Pediatrics*. 2015; 5(1):18-28. Kaufman L, Kim-Spear S, Calamonte E, et al. Pain prevalence, intensity assessment and management in a hospitalized pediatric population. *Pain Management*. 2014; 5(1): 22-30. Taylor BR et al. Pain in hospitalized children: a prospective cross-sectional survey of pain prevalence, intensity assessment and management in a Canadian pediatric teaching hospital. *Pain Res Management*. 2008; 13: 25-32. <https://www.ncbi.nlm.nih.gov/pubmed/18250979>
- **Parents expect pain to be relieved**
Sorgoren PA, Finley GA, Amatox T. Pediatric pain prevalence and parents' attitudes at a cancer hospital in Jordan. *J Pain Symptom Manage*. 2006; 31(5):440-8.
- **Assumption: everything possible is done**
Amend-Landk 187; 1 (B522):243-8



Pediatric Pain - Status Quo

- USA: adults receive more than two - three times as many analgesic doses as children (with identical diagnoses)
(1) Elrod JM, Anderson JE: The experience of pain in children. In: Jones A (ed): Pain: A source book for nurses and other health care professionals. Boston: Little Brown & Co., 1977:43-78; (2) Beebe JE, DeGroot DE, Ashley LC, Russell GA: Patterns of postoperative analgesic use with adults and children following cardiac surgery. Pain. 1983 Sep;7(1):71-81; (3) Schuchman ML, Allen DA, Hanson K: Status of pediatric pain control: a comparison of hospital analgesic usage in children and adults. Pediatrics. 1986 Jan;77(1):1-5.
- Compared to adults, pediatric patients receive fewer and/or incorrectly dosed analgesics in daily routine
Ellis J, A. O'Connor, B.V. Cappelli, M. Goodman, J. Blouin, R. & Reid, C. W. (2002). Pain in hospitalized pediatric patients: How are we doing? Clinical Journal of Pain, 18, 262-269.
- The younger children are, the less likely they receive appropriate analgesia
Bromberg ME, Richman A, Hahn A, Alexander M: Pediatric pain practices: a national survey of medical professionals. J Pain Symptom Manage. 1996 May;11(5):312-20. Nilkanta E, Koda, H, Turekian K. Postoperative pain after adenotomomy in children. Br J Anaesth. 1999 Jan;82(4):686-9.



Ellis, J.A., O'Connor, B.V., Cappelli, M., Goodman, J., Blouin, R., & Reid, C.W. (2002). Pain in hospitalized pediatric patients: How are we doing? *Clinical Journal of Pain*, 18, 262-269.

appropriate analgesia Broome ME, Richtsmeier A, Mailer V, Alexander M. Pediatric pain practices: a national survey of health professionals. *J Pain Symptom Manage*. 1996 May;11(5):312-20. Nikanne E, Koldi H, Tuovinen K. Postoperative pain after adenoidectomy in children. *Br J Anaesth* 1999 Jun;82(6):886-9.



Inappropriate Analgesia:

Children with persistent pain suffer more physical symptoms in adult life, more anxiety and more depression

1946 Medical Research Council and 1958 National Child Development Study

Inadequate analgesia for initial procedures in children diminishes effect of adequate analgesia in subsequent procedures

Weisman SJ, Berzans B, Schechter NL. Consequences of inadequate analgesia during painful procedures in children. Arch Pediatr Adolesc Med. 1998; 152:147-9

NICU: increased morbidity & mortality

Arnsperg C, Barton BA, McMahon NL, Lagercrantz H, Nilsson E, Young TE, et al. Analgesia and sedation in preterm neonates who require ventilatory support: results from the NICOPAIN trial. Neonatal Outcome and Prolonged Analgesia in Neonates. Arch Pediatr Adolesc Med. 1999 Apr; 153(4):311-8



Trauma & post-traumatic stress disorder (PTSD)

Children with **injury** or **acute burns**: Higher doses Morphine was associated with lower levels of PTSD at follow-up months after major trauma

Nelson RC, Mahoney TJ, Ellis AA, Bar SA, Hanna A, McKinnon AC. Predictors of posttraumatic stress in children following injury: The influence of age, gender, heart rate, and morphine use. Behaviour research and therapy. 2010 Aug; 48(8): 816-5. Saw G, Goodford E, Courtney CL, Cunningham R, Chan A, N. Sheridan R, et al. Relationship between acute morphine and the course of PTSD in children with burns. Journal of the American Academy of Child and Adolescent Psychiatry. 2001 Aug; 40(8):915-21. Goodford TJ, Jr., Sorrentino EA, Caravaggio TA, Saw G, Murphy JN, Drake JE, et al. Preliminary evidence for the effects of morphine on posttraumatic stress disorder symptoms in one- to four-year-olds with burns. J Burn Care Res. 2009 Sep-Oct; 30(5):836-43.



More than 115 children die in the US every day...

More than 1 child every 15 minutes...



Osterman MJ, Kochanek KD, MacDorman MF, Strobino DM, Guyer B. Annual summary of vital statistics: 2012-2013. Pediatrics 2015; 135:1115-1125.



Boeing 747-400

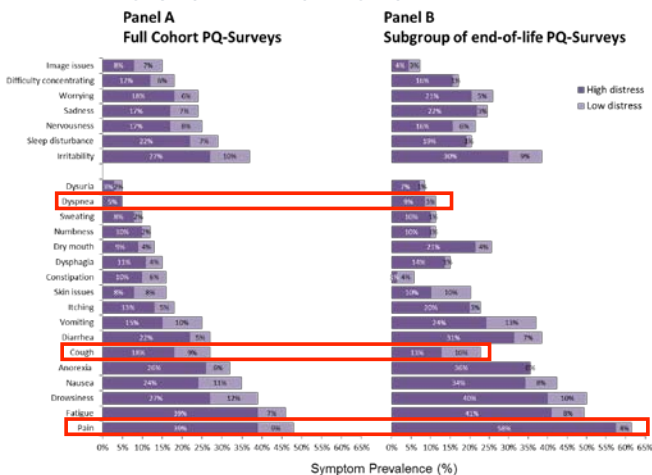
416 passengers

US Health Care System...?

- USA: (conservatively estimated)
- 237,000 children live with life-limiting conditions (LLC)
- 570 "Boeing 747"
- > 15,000 children 0-17 years die each year due to life-limiting conditions
- 36 "Boeing 747"
- one crash every 10 days



Distressing Symptoms Requiring Opioids?



Opioids

- Opioids are associated with many side effects and are potentially lethal
- But, no other analgesics equal in potency and effect have been discovered or developed to reduce suffering
- Opioids need to provide adequate treatment of pain and suffering after surgeries, burns, physical trauma, and medical illnesses such as sickle cell crisis, cancer, and pancreatitis etc.



Krane EJ, Weisman SJ, Walco GA. The National Opioid Epidemic and the Risk of Outpatient Opioids in Children. *Pediatrics*. 2018;142(2)

The one with the “opioid epidemic”...



Addiction

“Charlotte, I am worried about addiction. When children are in severe pain, it's best just to NOT give them any opioids, am I correct...?”

<https://www.youtube.com/watch?v=7C5udjyeu2W>

“Opioid Crisis” Media Attention



- **produced many experts, pundits, and politicians who offer simplistic blameworthy origins for the problem e.g.**
 - overprescription of opioids
 - deceptive marketing of opioids
 - The Joint Commission
 - and/or an inability of Americans to endure discomfort
- **as well as simplistic solutions, e.g.**
 - draconian restriction of prescribing
 - mandatory use of prescription drug monitoring programs
 - non-opioid alternatives to opioids: acupuncture, meditation, and/or yoga

Krane EJ, Weisman SJ, Walco GA. The National Opioid Epidemic and the Risk of Outpatient Opioids in Children. *Pediatrics*. 2018;142(2)

“Opioid Crisis” according to

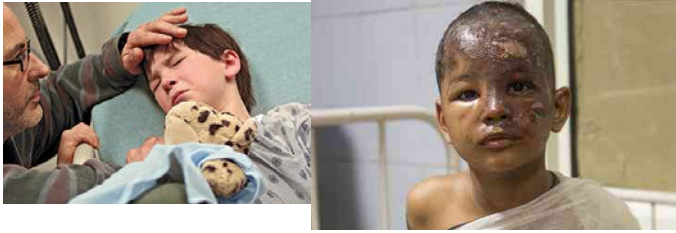


Analyzing “Opioid Epidemic”

Krane EJ, Weisman SJ, Walco GA. The National Opioid Epidemic and the Risk of Outpatient Opioids in Children. *Pediatrics*. 2018;142(2)

- Present problem much more one of deaths from **illicit drugs** than from prescription opioids
- more about deaths from **illicit use of prescriptions** than from medical use of prescription opioids
- We have an epidemic of **substance use disorder** (SUD) embedded in a complicated matrix of **despair** and **hopelessness** across the United States
- correlates closely with **socioeconomic factors** such as unemployment, poor education, availability of illicit street and diverted prescription opioids, genetic predisposition to SUD, and **psychiatric morbidity**
- Thus, there is **scant evidence to support existence of epidemic of deaths due to appropriate use of prescribed opioids**

“How many children have to suffer needlessly from pain to avoid one opioid death?”



simple
question



- Does prescribing opioids to children in pain result in increased risk of drug abuse in adulthood?

Substance use disorder



- Age 35: Multiple cohorts of nationally representative probability samples of U.S. high school seniors (n = 4072) McCabe SE, Volk R, Schulenberg JE. Adolescent context of exposure to prescription opioids and substance use disorder symptoms at age 35: a national longitudinal study. *Pain*. 2016;157(10):2175-8.

- **Appropriate medical use of prescription opioids in adolescence NOT associated with substance use disorder in adulthood**

- **Whereas any nonmedical use predicted substance use disorder symptoms**

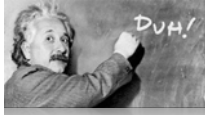
- Risk of substance use behaviors during adolescence substantially increased if adolescents reported any history of nonmedical use of prescription opioids, whereas appropriate medical use of prescription opioids did not seem to be associated with substance use behaviors McCabe SE, Boyd CJ, Young A. Medical and nonmedical use of prescription drugs among secondary school students. *J Adolescent Health*. 2007;40(2):48-55. McCabe SE, Volk R, Schulenberg JE, Boyd CJ. Medical use, medical history, and nonmedical use of prescription opioids: results from a longitudinal study. *PAIN*. 2013;154:768-75. McCabe SE, Volk R, Schulenberg JE, Boyd CJ. Medical and nonmedical use of prescription opioids among high school seniors in the United States. *Arch Pediatr Adolesc Med*. 2012;166:797-802.

Medical “Misuse”

- Two public school districts in Metro Detroit 2009-2010: 11% opioid use or misuse last year

McGee, S.E., & V. V. (2013). "Medical use, medical misuse and nonmedical use of prescription opioids: Results from a longitudinal study." *Pain* 154(5): 708-713.

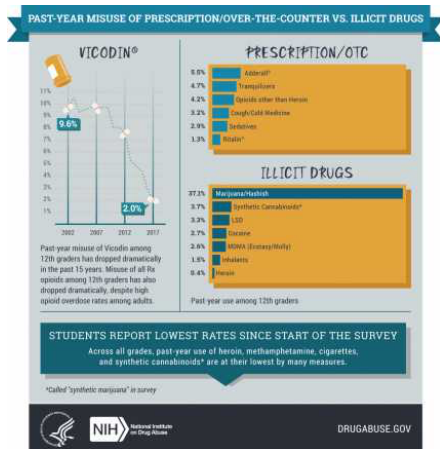
- 4 out of 5 adolescents (grade 7-11) used opioids as prescribed.
- 20% (n=95) reported misuse, of those:
 - 76% (n=72) “for pain relief only”



- 24% (n=23) “for non-pain relief” (because it gives me a high, because it counteracts the effects of other drugs, because of experimentation, because it is safer than street drugs, because it **helps me sleep**, because it **decreases anxiety**, because I am addicted)
- adolescents with physical pain, mental health, sleep problems were more likely to use and misuse opioids

Misuse of opioids among US 12th graders dropped dramatically despite high overdose rates among adults

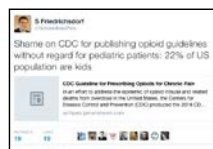
<https://www.drugabuse.gov/related-topics/trends-statistics/infographics/monitoring-future-2017-survey-results>



CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016

<http://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm>

- Scope: “patients aged ≥ 18 years with chronic pain outside of palliative and end-of-life care” and “treating patients with chronic pain (i.e., pain lasting >3 months or past the time of normal tissue healing) in outpatient settings”
- “recommendations do not address the use of opioid pain medication in children or adolescents aged <18 years”
- Yet... children are suffering TODAY because of this (and other guidelines / regulations) ...**

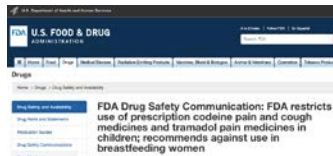


2016 CDC Guidelines for Prescribing Opioids for Chronic Pain:

- 0% pediatric content
- 0% pediatric evidence
- 0% pediatric specialists

2 of my Patients

- Sophia, 11 years
- Freya, 13 years



So, what amount of opioid prescribing is appropriate?



Multimodal analgesia

act synergistically for more effective pediatric pain control with fewer side effects than single analgesic or modality

- **Acute Pain**
 - Medications (Opioids, simple analgesia, Adjuvant medications)
 - Interventions (nerve block, epidural)
 - Rehabilitation (PT, OT)
 - Psychology (CBT)
 - Integrative ("non-pharmacological") modalities
- **Chronic Pain: Pediatric Pain Clinic**
 - Rehabilitation (PT, OT)
 - Integrative ("non-pharmacological") modalities
 - Psychology (CBT)
 - Normalizing Life (school, sleep etc.)
 - Opioids usually contraindicated





Pain Treatment

“Fluffy, do children in pain have access to a pediatric pain clinic with psychology, physical therapy and yoga in USA...? Do health insurers cover costs for those evidence-based treatments...?”

Pediatric Patients: Status-Quo

- Most pediatric patients do **NOT** have **access to** effective safe alternatives to opioids that are **covered by insurance (!)**
- **Designated Inpatient Pain Teams**
- **Interdisciplinary Pain Clinics**
 - Physical Therapy
 - Psychology
 - Integrative (non-medicine strategies)
- **Mental health services**
- **Drug treatment programs**

S Friedrichsdorf
@NoNeedlessPain

Major cause of opioid crisis are Health Insurers putting profit over patient care: a.k.a. "Pre-Authorization"





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@NoNeedlessPain

America has opioid crisis, but 2.5 million children in poor countries die without analgesia

[washingtonpost.com/national/2017/...](https://www.washingtonpost.com/national/2017/...)



Conclusions

- **Children in severe acute pain and during their end-of-life are suffering TODAY because adult “experts” made “adult guidelines” with NO consideration toward children (22% of our population)**
- Withholding evidence-based analgesia to children in pain not only unethical, but causes immediate and long-term harm
- Potential risks in safety of analgesics real, but manageable; cannot justify denying administration of opioids to pediatric patients with severe tissue injury / end-of-life
- Opioids contraindicated in chronic pain
- While prescription opioids continue to play part in the crisis, illicit drugs are driving forces behind the increase in unintentional overdose deaths in the United States

Opportunities....?

- **To avoid children, teenagers (and adults) dying of opioids and illicit polypharmacy: Pediatric patient need to have access to**
 - interdisciplinary outpatient pediatric pain clinics
 - inpatient pediatric pain services
 - mental health services
 - drug treatment programs
- **i.e. offered by health care systems...**
- **...and treatment must be covered by health insurance...**



Treating Pain & Suffering in Children “Keeping the Eye on the Ball ...?”



Children's
COMFORT
PROMISE

We will do everything possible
to prevent and treat pain.

Children's
MINNESOTA

Put the most amazing people to work.



Save the Date:

Contact: CIPPC@ChildrensMN.org

12th International Symposium on Pediatric Pain (ISPP)

• Basel, Switzerland, June 16-20, 2019 <http://www.ispp2019.org>

Education in Palliative & End-of-life Care [EPEC]: Become an EPEC-Peds Trainer Conference

- Pune, India, January, 19-20, 2019
- Sydney, Australia, March 8-9, 2019
- Minneapolis, MN, USA, Oct 2-4, 2019
- Curso de Capacitadores EPEC-Peds Latinoamérica (in Spanish): South America, Nov 2018
- **Professional Development Workshop**, Minneapolis, MN, USA, Oct 5, 2019

12th Pediatric Pain Master Class

• Minneapolis, Minnesota, USA | June 13-18, 2020

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