

Variability in Opioid Equivalence

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BACKGROUND

Statistics Regarding Pain & Opioid Analgesics

- About 1/3 of the U. S. population suffers from chronic, non-cancer pain
- Upwards of 80% of patients who fail treatment with one opioid experience a positive response after switching to an alternative opioid analgesic
- Opioid analgesics accounted for 16,651 or 75% of prescription drug overdose deaths in 2010
- Oxycodone, methadone, hydrocodone/ acetaminophen, fentanyl, and morphine account for 5 of the top 15 drugs that contribute to overdose fatalities
- According to a 2012 CDC report, methadone accounted for < 2% of opioids dispensed but was responsible for nearly 1/3 of opioid-related deaths

Problems with Equianalgesic Conversions

- Polymorphic variability, complex pharmacokinetics, and issues with mathematical calculations all make opioid conversions difficult
- Some sources attribute fatal or near-fatal opioid overdoses to inaccurate equianalgesic tables currently published in the literature

Rationale for Study

- A 2012 petition requested the FDA change labeling on opioid analgesics to restrict daily maximum dosing for non-cancer pain to 100mg morphine or its equivalent
- If a max dosage is placed on opioids, there is no official acceptable conversion
- To date, no one has quantified the variability among various conversion sources

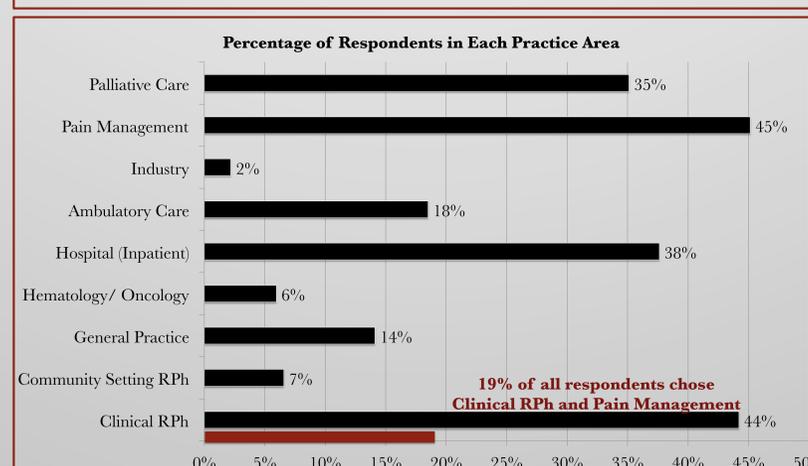
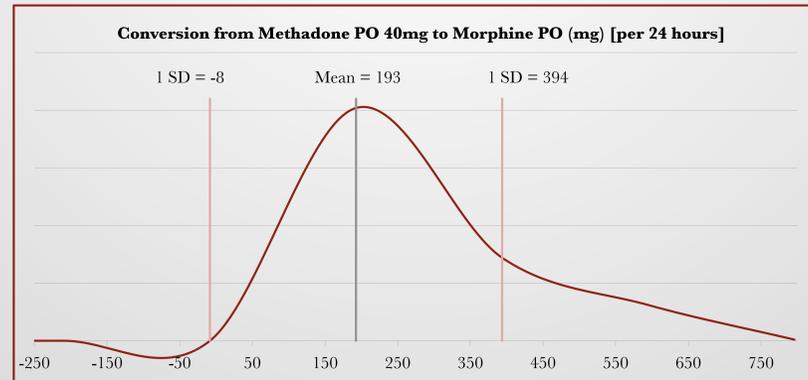
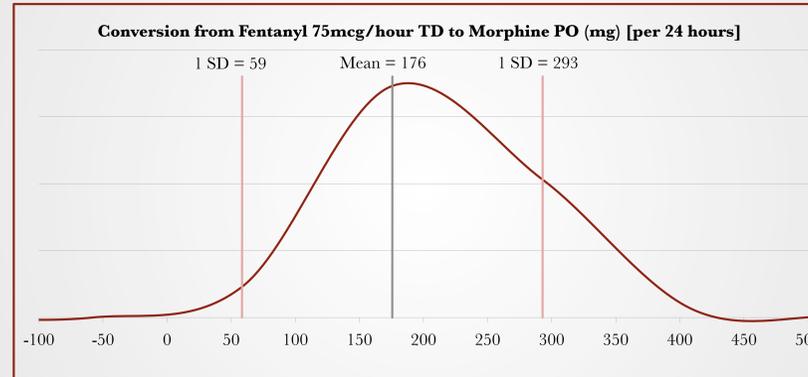
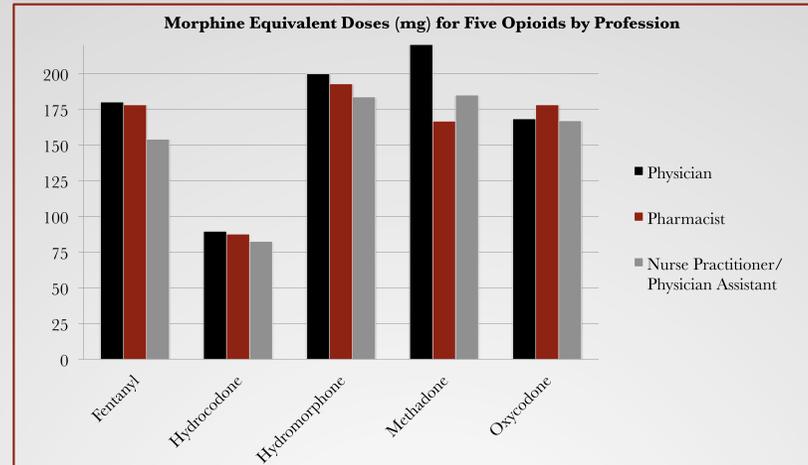
OBJECTIVES

- Determine whether each of three groups of clinicians (physicians, pharmacists, nurse practitioners/ physician assistants) provide varying dose conversions to morphine equivalents for five opioids at preselected doses:
 - Hydrocodone 80mg
 - Fentanyl transdermal patches 1800mcg (as 75mcg/hour)
 - Methadone 40mg
 - Oxycodone 120mg
 - Hydromorphone 48mg
- Compare overall variation, variation within each clinician type, and differences between the clinician types

METHODS

- A twelve-question survey was developed using Survey Monkey®
- Participation was solicited by providing a link to the survey via various media sources (e.g. Facebook, Twitter, listservs, etc.) and emailed to professional organizations for sharing with their members and followers
- Data collected in addition to answers to conversion problems include:
 - How respondents arrived at the survey link
 - Profession and practice area(s)
 - Board certifications in pain management and/ or palliative care
 - Year of licensure as a health care professional
 - Location of practice
 - Country of licensure if not in the United States
 - Resource(s) used to complete conversions
- Grant funding from the Albany College of Pharmacy and Health Sciences was used to purchase an advanced version of Survey Monkey® with the capability to collect an unlimited number of responses and transfer data into Microsoft® Excel

FIGURES

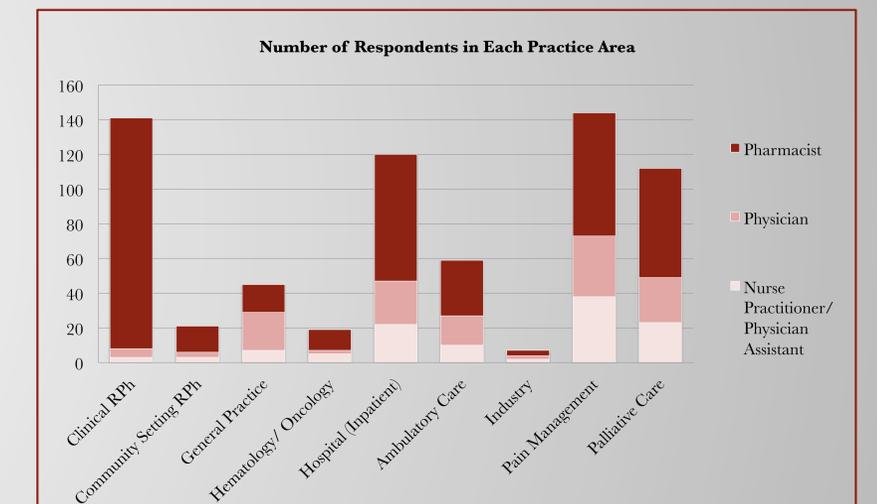


RESULTS

- Total respondents included in analysis = 319
 - Total from 9/13/13 until 11/4/13: 362
 - Number excluded from final analysis: 43
- Morphine equivalent doses (mg) for each opioid medication by profession(s):

	Physician	Pharmacist	NP/ PA	Overall
Fentanyl Avg ± SD (Median)	180 ± 122 (150)	178 ± 128 (150)	157 ± 68 (150)	176 ± 117 (150)
Hydrocodone Avg ± SD (Median)	91 ± 36 (80)	88 ± 43 (80)	83 ± 39 (80)	88 ± 42 (80)
Hydromorphone Avg ± SD (Median)	200 ± 69 (192)	193 ± 40 (192)	184 ± 69 (192)	192 ± 55 (192)
Methadone Avg ± SD (Median)	214 ± 142 (160)	171 ± 107 (160)	185 ± 129 (160)	193 ± 201 (160)
Oxycodone Avg ± SD (Median)	170 ± 41 (180)	178 ± 35 (180)	167 ± 39 (180)	173 ± 39 (180)

- Other groups were not included if respondents chose more than one profession



CONCLUSIONS

- Based on average responses and standard deviations alone, there appears to be significant variation in opioid conversions within each professional type
- Comparisons of average morphine equivalent doses between professions appears similar, with the exception of those identifying multiple professions and outliers
- No official method exists that allows each of the five studied opioids to be accurately converted to another opioid, i.e. morphine

DISCLOSURES

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

Amanda Rennick: Nothing to disclose

Timothy Atkinson: Nothing to disclose

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Jeffrey Fudin: Consultant to Practical Pain Management,

developer of online opioid conversion calculator

Mary Lynn McPherson: Nothing to disclose