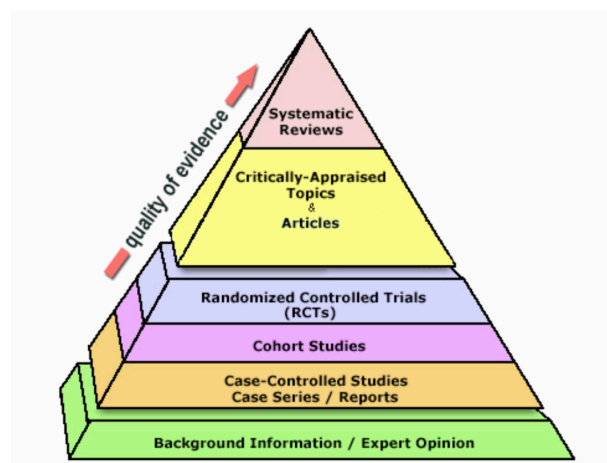


Evidence-based medicine meets evolutionary medicine

Joe Alcock MD
ISEMPH 2016
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Evidence Based Medicine



Evidence Based Medicine

Benefit
Harm

Evolutionary Medicine

Evidence Based Medicine

Benefit
Harm

Evolutionary Medicine

Antibiotics



Most prescribed medication

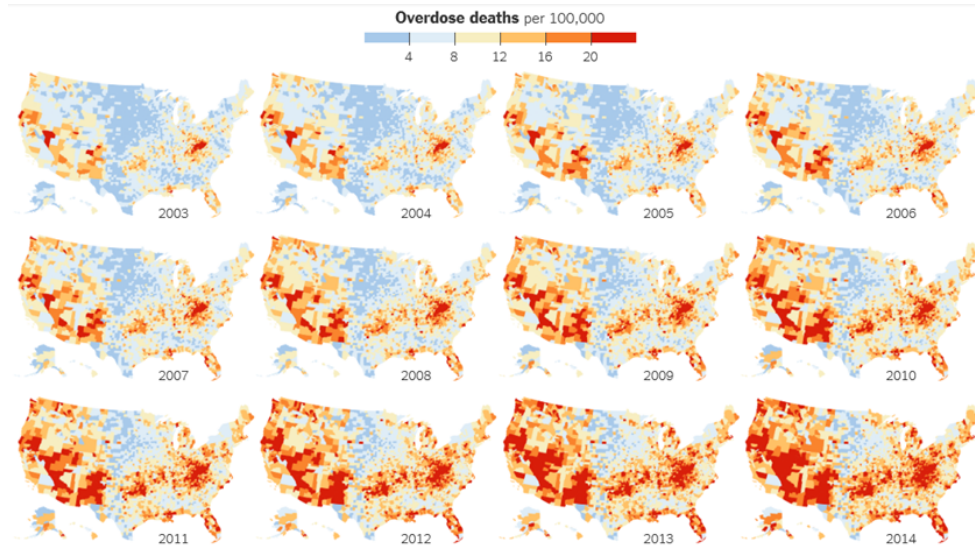


Medicare prescriber and beneficiary count, year 2013, Source: Centers for Medicare & Medicaid Services



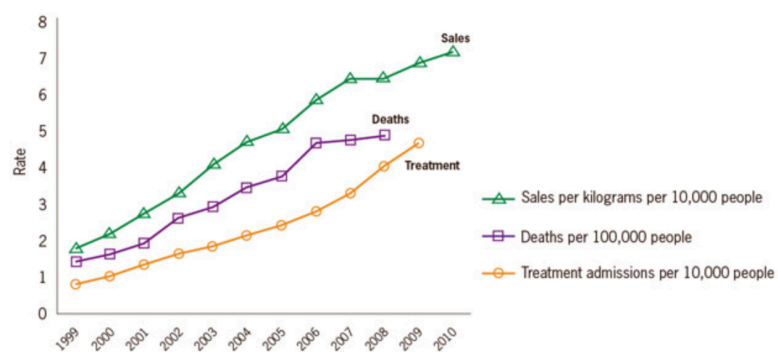
Nesse *Evol Hum Behav* 26.1 (2005): 88-105.





<http://www.nytimes.com/interactive/2016/01/07/us/drug-overdose-deaths-in-the-us.html?smid=fb-nytimes&smtyp=cur&r=2>

Rates of prescription painkiller sales, deaths and substance abuse treatment admissions (1999-2010)



[Read text version](#)

SOURCES: National Vital Statistics System, 1999-2008; Automation of Reports and Consolidated Orders System (ARCOS) of the Drug Enforcement Administration (DEA), 1999-2010; Treatment Episode Data Set, 1999-2009

ORIGINAL CONTRIBUTION

Rising Opioid Prescribing in Adult U.S. Emergency Department Visits: 2001–2010

Maryann Mazer-Amirshahi, PharmD, MD, Peter M. Mullins, MA, Irit Rasooly, John van den Anker, MD, PhD, and Jesse M. Pines, MD, MBA, MSCE

Original Investigation

Prescription of Long-Acting Opioids and Mortality in Patients With Chronic Noncancer Pain

Wayne A. Ray, PhD; Cecilia P. Chung, MD, MPH; Katherine T. Murray, MD; Kathi Hall, BS; C. Michael Stein, MB, ChB

Hazard Ratio death 1.64 in opioid group

HR 4.06 first 30 days

JAMA. 2016;315(22):2415-2423.

Opioids for musculoskeletal pain

- **No Benefit** vs. non-opioid/placebo (4 studies, n=146)
0.199 [95% CI, -0.49 to 0.11]; *p* 0.136)
- Aberrant medicine taking behavior in 24%

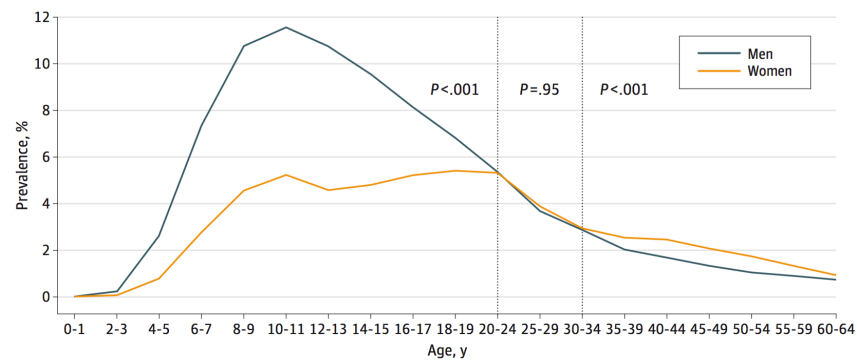
Martell et al. Ann Intern Med. 2007 Jan 16;146(2):116-27..

Number needed to harm

- 6.1% opioid abuse and dependence - new high dose Rx
- Number needed to harm = 16.7
- NNH 150, death by long acting opioids
- Addiction, drug seeking behavior, and diversion

Stimulant Medication Use

Figure. Percentage of Male and Female Populations With Stimulant Medication Use by Age, 2014



Burcu *et al.* *JAMA Psychiatry*. June 22, 2016.

Knowledge translation

- 10-17 year lag
- Evolutionary medicine lens – faster adoption of EBM

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Acetaminophen for Fever in Critically Ill Patients with Suspected Infection

Paul Young, M.D., Manoj Saxena, M.D., Rinaldo Bellomo, M.D.,