POLL:

How do you determine the targets for your AD interventions?

- **A. By analyzing prescribing data from the system in which we work**
- **B. By understanding prevailing patterns of prescribing locally or nationally**
- **C. We do what we're told to do by our program sponsors**
- **D. We just wing it!**
- **E. I'm not sure.**

POLL:

What kind of data do you wish you had to help you plan & assess AD interventions?

- **Boston Participants:**
  - Take 60 seconds to chat with each other
  - Then we'll have you share on the mic!

- **Virtual Participants:**
  - You'll type in the chatbox and we'll call out answers!

“Interventional Pharmacoepidemiology”:

Maximizing the power of academic detailing

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Disclosures

- I do not consult for any pharmaceutical companies.
- Neither do any of the staff at Alosa Health, or the faculty in DoPE.
- Alosa accepts no support from any drug companies.
- Most of the research in DoPE is federally supported.
- I accept no payment for any of my academic detailing-related work.

Knowing is not enough, we must apply.

Willing is not enough, we must do.

– *Goethe*

What is interventional pharmacoepidemiology?

- Origins in the original academic detailing research, 1979-1980
- Too many care improvement interventions are like pre-modern pharmacology
  - the key role of randomized trials and actual ***data***
- In epi, computerized billing systems made everything possible
- Obtaining dozens of reels of 9-track tapes
  - to target the first intervention, ***and***
  - to measure its effectiveness
- Becoming a claims data hoarder.
  - Side stories: How this made it possible to study adverse events, comparative effectiveness, patient adherence, etc. etc.

So what is interventional pharmacoepi?

- The ***systematic review*** of ***detailed data*** on medication use in a target ***population*** of patients and prescribers, to measure the following and then act on that information:
  - which health care providers ***are prescribing what***
  - to what ***kinds of patients***
  - with what ***clinical outcomes***.
  - …and then ***evaluate*** outreach interventions based on this data.
- It can also be used to measure (and intervene on) ***patient adherence*** to their prescribed regimens.
- We can do this because everything is captured to facilitate billing.

Life without interventional pharmacoepi

- ….can be just fine.
- Many AD programs don’t use such data, or can’t get it.
  - That’s ok.
- Alternative approaches in data-challenged settings:
  - Identify clinical topics based on what’s already known.
    - Under-prescribing of buprenorphine
    - Overuse of out-patient antibiotics
    - Use of costly biologics when other meds work just as well
    - Undertreatment of osteoporosis, atrial fibrillation, PrEP, etc.
  - Then, hope/assume that a well-conducted program will have beneficial results.
- Much excellent academic detailing work is done in just this way.

But *if* you can get detailed prescribing data, it can make programs more powerful and efficient.

- Can prioritize clinical topics based on documented practice patterns in the population you're serving.
- Can target which prescribers could benefit most from educational outreach.
  - Can even tailor the clinical message to the details of a given clinician's prior medication use
    - e.g., still managing most patients with diabetes on just metformin, sulfonylureas, and DPP-4 inhibitors, even those at higher risk for cardiac or renal disease, with hardly any use of SGLT-2 inhibitors or GLP-1 agonists.
  - Such tailored messaging is exactly what the drug companies do, for different reasons.

...*and* you can use the data to assess program effects

- Measure changes in use of medications covered in the outreach program
  - It's not just about ***decreasing*** suboptimal prescribing; it's also about ***increasing*** needed prescribing.
- Determine which educators are performing well, and which need some coaching.
- Provide ***some*** data to justify program costs.....***BUT:***
  - These programs shouldn't be primarily about reducing expenditures.
  - Many clinical benefits (and savings) from better outcomes will not be seen for years.
  - Sometimes better prescribing might increase costs initially.
    - *[Take **that,** bean-counters!]*

The methodology can be challenging

- See the excellent Alexander et al paper in *American Journal of Epidemiology* 2024.
- It considers the methodological challenges that confront the evaluation of academic detailing programs:
- People don't know how vital randomization is.
  - Prescribers who sign up for AD programs may not be comparable to those who don't.
    - ***so don't compare them to each other!***
  - Beware of "as-treated" evaluations vs. "intention-to-treat" designs
  - Very analogous to design issues faced in drug trials.

Caleb Alexander et al, "Interventional Pharmacoepidemiology: Design and evaluation of interventions to improve prescribing." *American Journal of Epidemiology*, 2024; kwae109, https://doi.org/10.1093/aje/kwae109

As in clinical trials, people may resist random assignment to AD programs

- Can do so without permission, probably, as long as ITT (intention-to-treat) design is used and there are no ethical/political barriers.
- Pay attention to the unit of randomization:
  - Individual prescribers, vs. practices, vs. institutions (e.g., nursing homes)
  - Concerns about contamination
- "Stepped wedge" design identifies many practices, then randomly assigns them to eventually get the intervention at some point or another -- some sooner, some later.
  - Compare pre-intervention vs. post-intervention prescribing for each group, occurring at different points in time across different practices.
    - Everyone wins a prize.
  - Good example: Dreischulte et al, NEJM 2016.

Real-world program assessment

- Berwick et al on pragmatic evaluation and improvement of programs:
  - PLAN → DO → STUDY → ACT cycles.
  - More feasible and relevant than cumbersome meticulous RCTs, especially in operating health care delivery settings.
- Don't beat yourself up trying to prove eventual clinical outcomes, or the savings that they can bring!
  - Years of effort and billions of dollars have gone into RCTs showing statins are effective, PrEP works, anticoag in AF prevents strokes.
  - We know that, but sometimes these clinical benefits take years.
  - Insurers' churn rate can make showing such changes even more problematic.
  - Trust the clinical trial findings, and just strive to make the prescribing more appropriate.
  - Can sometimes try to *model* these outcomes.

Speaking of evaluation….

- The last systematic review of all the evaluations performed of academic detailing was published by the Cochrane Collaboration in 2007. It found that it worked.
- **An important development**: Several of us at Alosa Health and in DoPE, led by Ben Rome and Ellen Dancel, recently completed an updated review of the world literature on academic detailing since then, supported by the VA Academic Detailing Service. It has just been accepted for publication soon in ***JAMA Network Open.***
  - NaRCAD will provide a link as soon as it's out.
- Spoiler alert: We also found that it works! The paper also considers ways that AD can be combined with other modalities (such as audit & feedback) to maximize its effectiveness.

A poignant thought

- The pharmaceutical industry spends over ***$50 billion*** each year on promotion to change medication use to increase product sales.
- Those expenditures are folded into the prices of drugs that are charged to by patients, as well as to the government (= taxpayers), which covers about a half of all drug bills.
  - These expenditures on promotion are also tax deductions for the companies, as part of their cost of doing business.
  - So consumers get to pay twice.
- Why can't we pry loose just 5% of that amount (= $2.5 billion a year), or even 1% ($500 million a year) to support impartial, public-interest education about prescription drugs?

Conclusions

- Epidemiologic analysis of academic detailing interventions is vital, in order to:
  - identify prescribing issues in need of improvement in a particular system;
  - focus (“target”) interventions on prescribers most likely to benefit;
  - evaluate program effects, if appropriate methods are used;
  - justify our existence to administrators and funders.

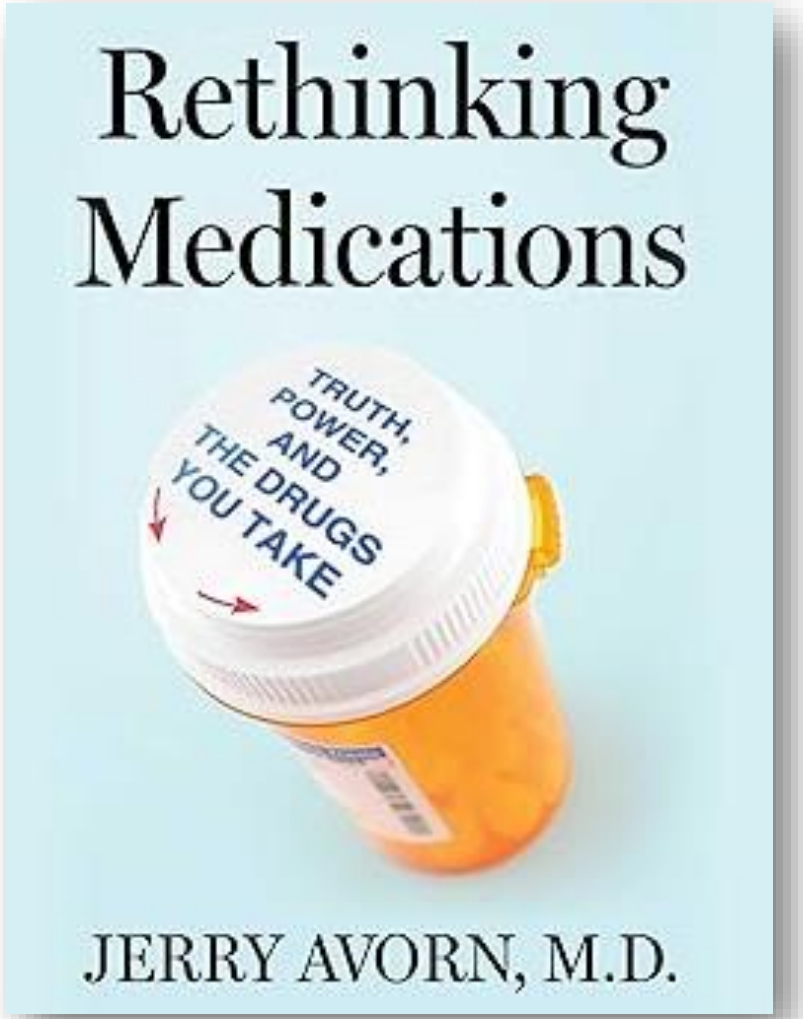
Some breaking news connections

Avorn J. **Interventional Pharmacoepidemiology: Origins, Current Status, and Future Possibilities**. *American Journal of Epidemiology 2024*. https://doi.org/10.1093/aje/kwae383 . Published 10 October 2024.

Rome BN et al. **Academic Detailing Interventions to Improve Evidence-Based Prescribing: A Systematic Review**. JAMA Netw Open (in press).

(NaRCAD will circulate these, along with the Alexander paper.)

My new book: **"Rethinking Medications: Truth, Power, and the Drugs You Take."**
Simon & Schuster, in press. (Available for *pre-order* now on Amazon.)
The last book: **"Powerful Medicines: The Benefits, Risks, and Costs of Prescription Drugs."** (Knopf) (*still* on Amazon.)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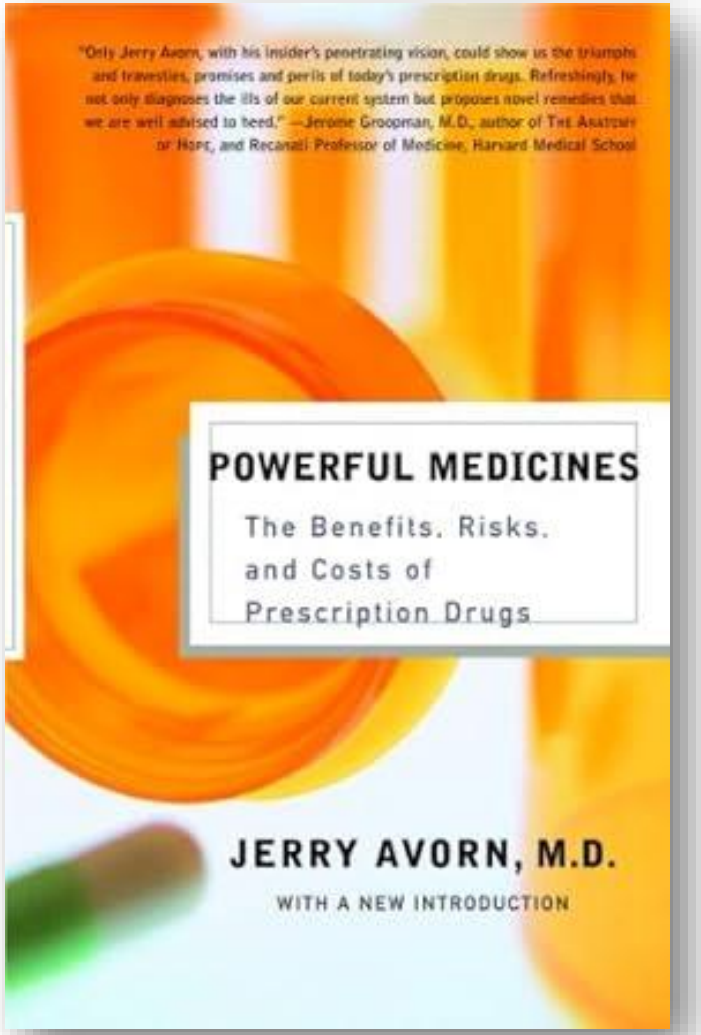
"Only Jerry Avorn, with his insider's penetrating vision, could show us the triumphs and travesties, promises and perils of today's prescription drugs. Refreshingly, he not only diagnoses the ills of our current system but proposes novel remedies that we are well advised to heed." —Jerome Groopman, M.D., author of The Anatomy of Hope, and Recanati Professor of Medicine, Harvard Medical School
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