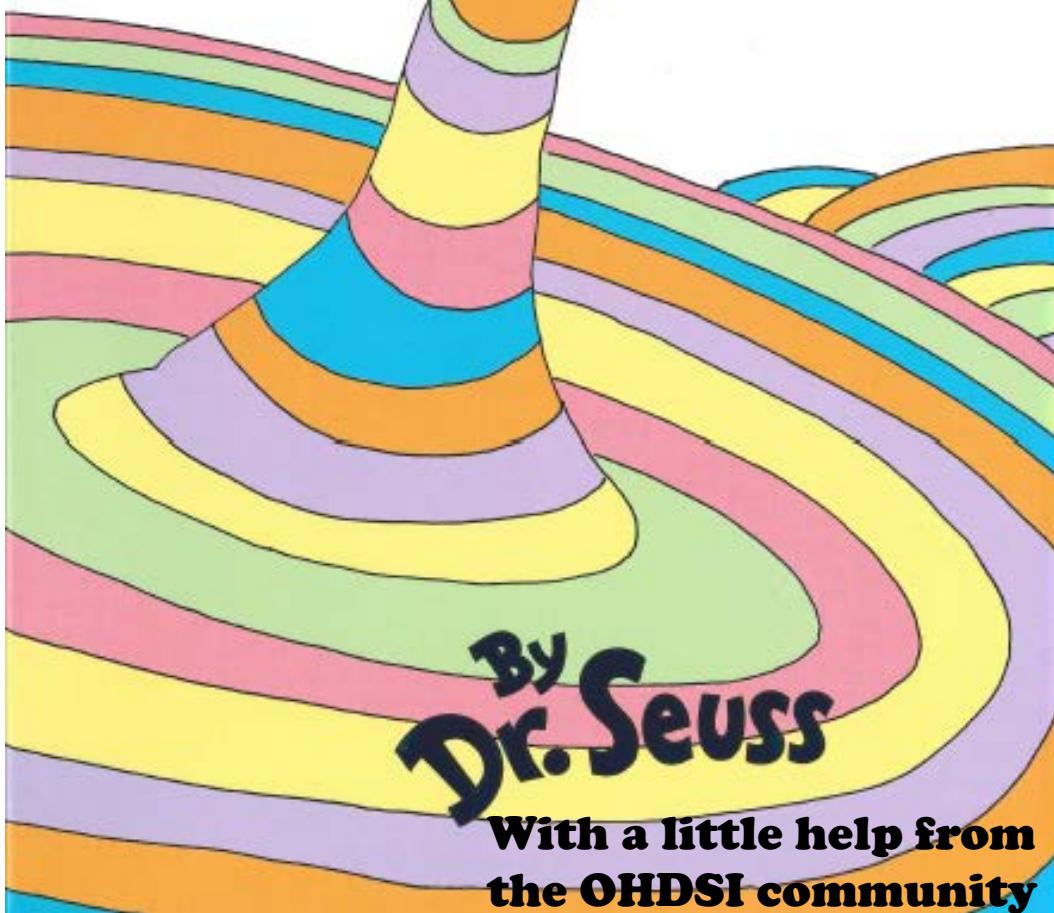




OHDSI Symposium 2016

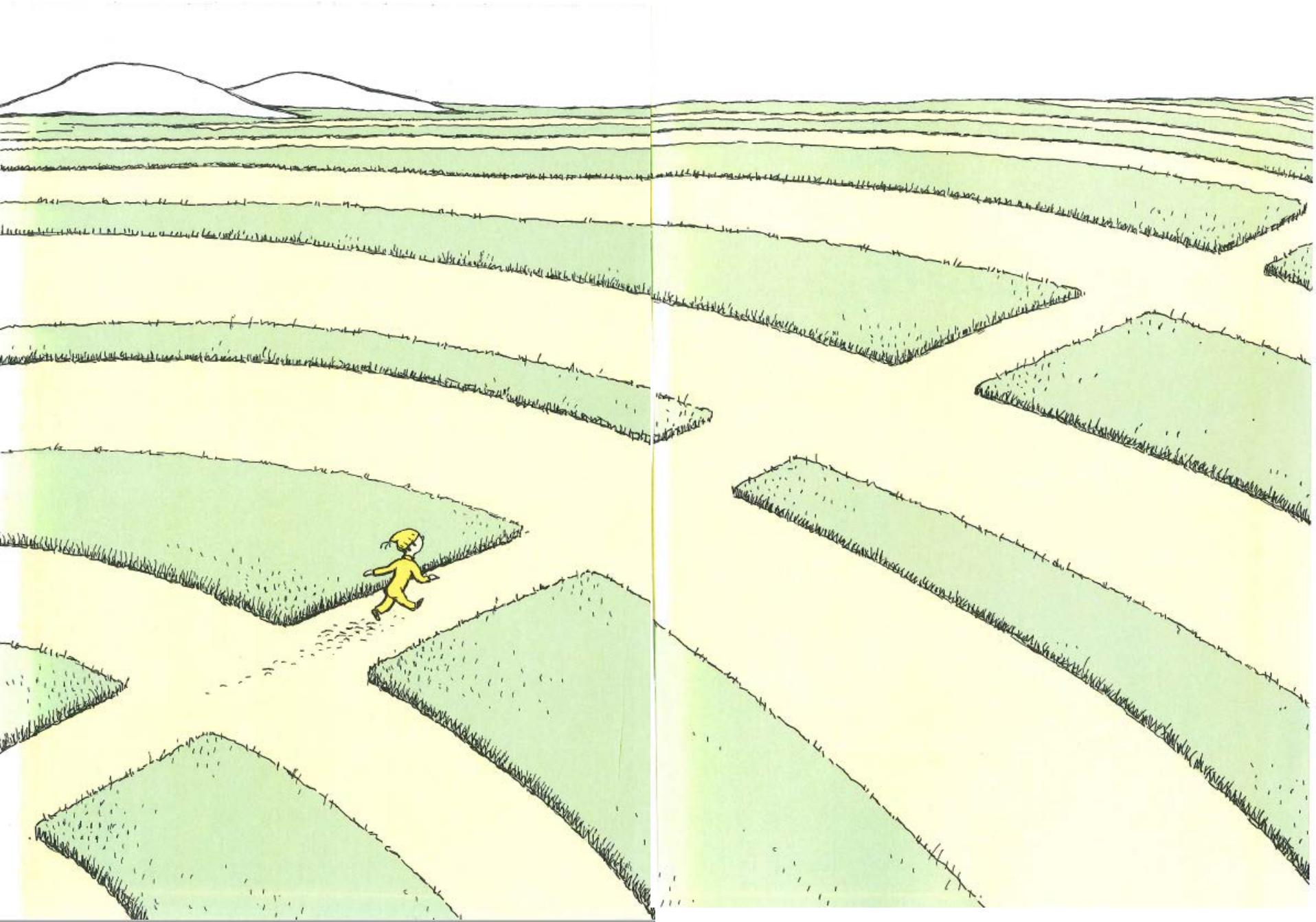
Patrick Ryan

Oh, the Places We'll Go!



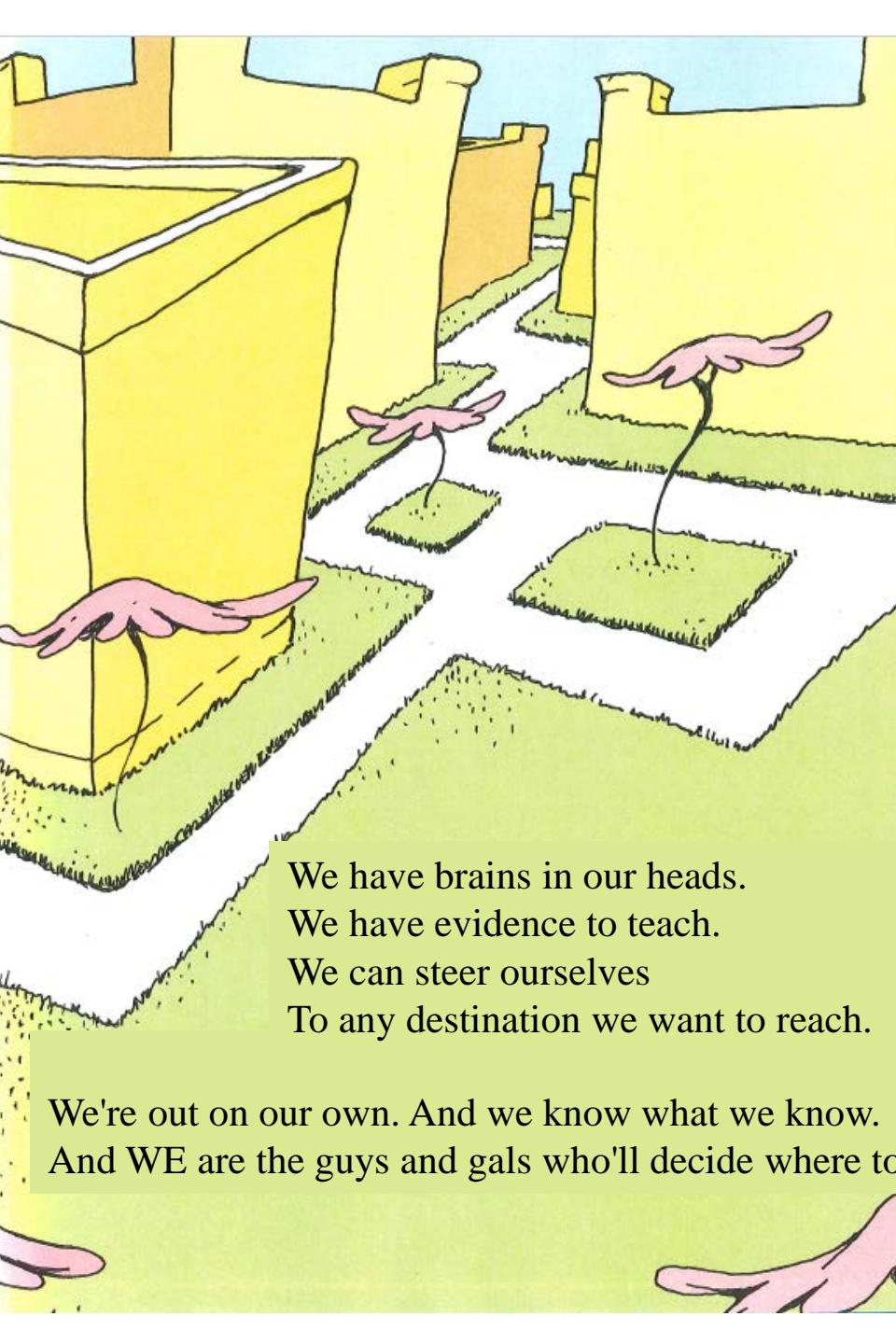
By
Dr. Seuss

With a little help from
the OHDSI community

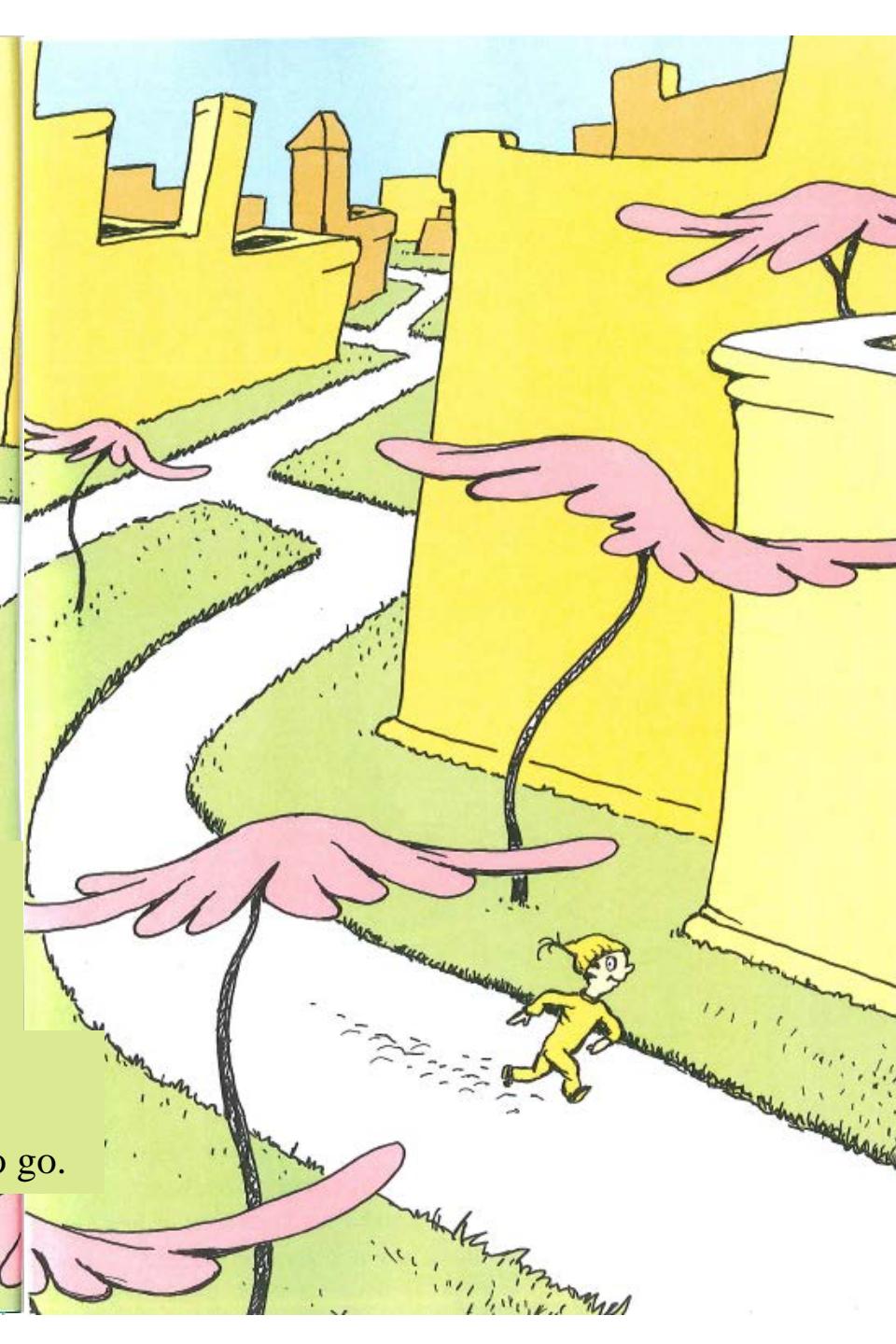


Congratulations!
Today is **our** day.
We're off to Great Places!
We're off and away!

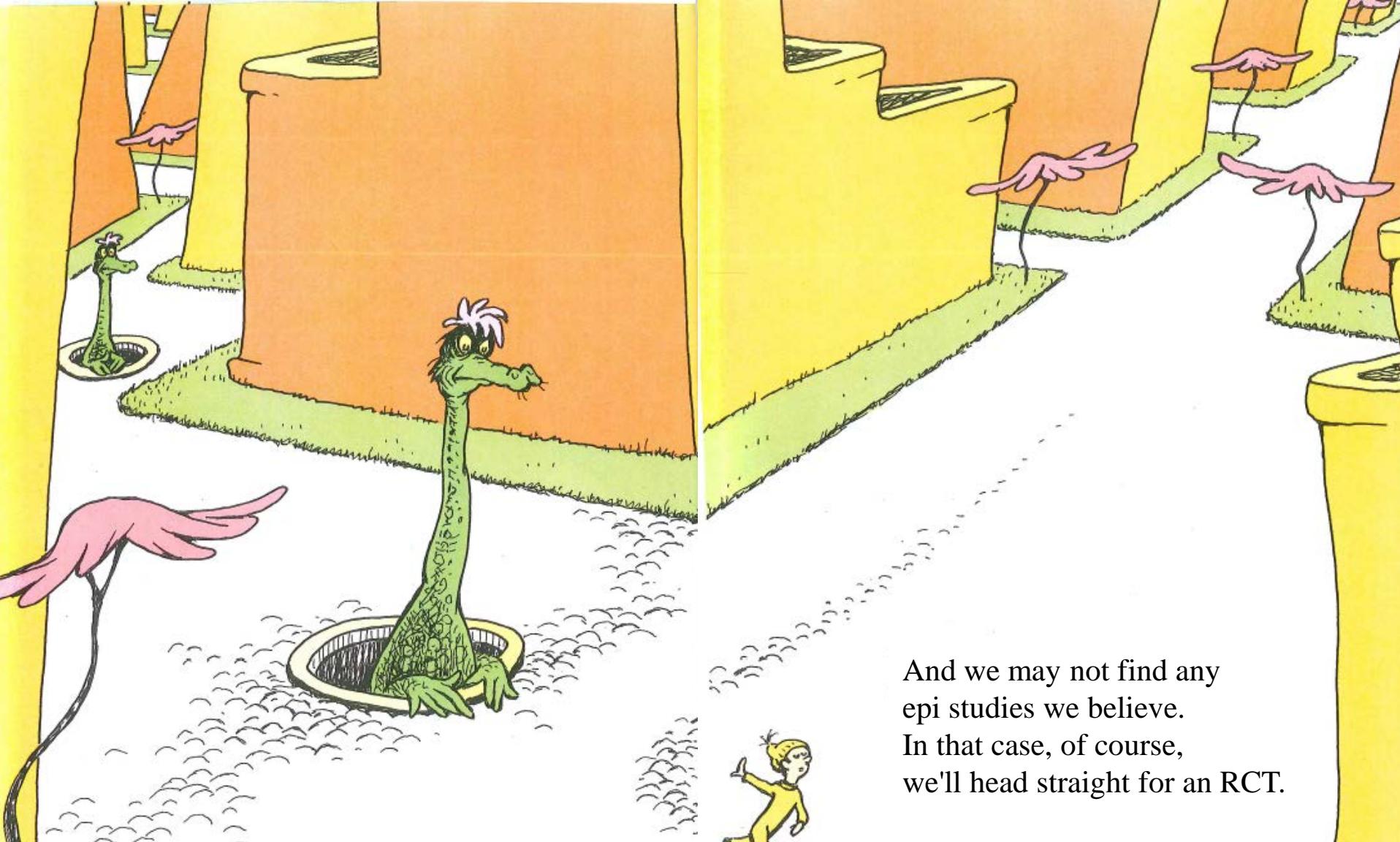




We have brains in our heads.
We have evidence to teach.
We can steer ourselves
To any destination we want to reach.

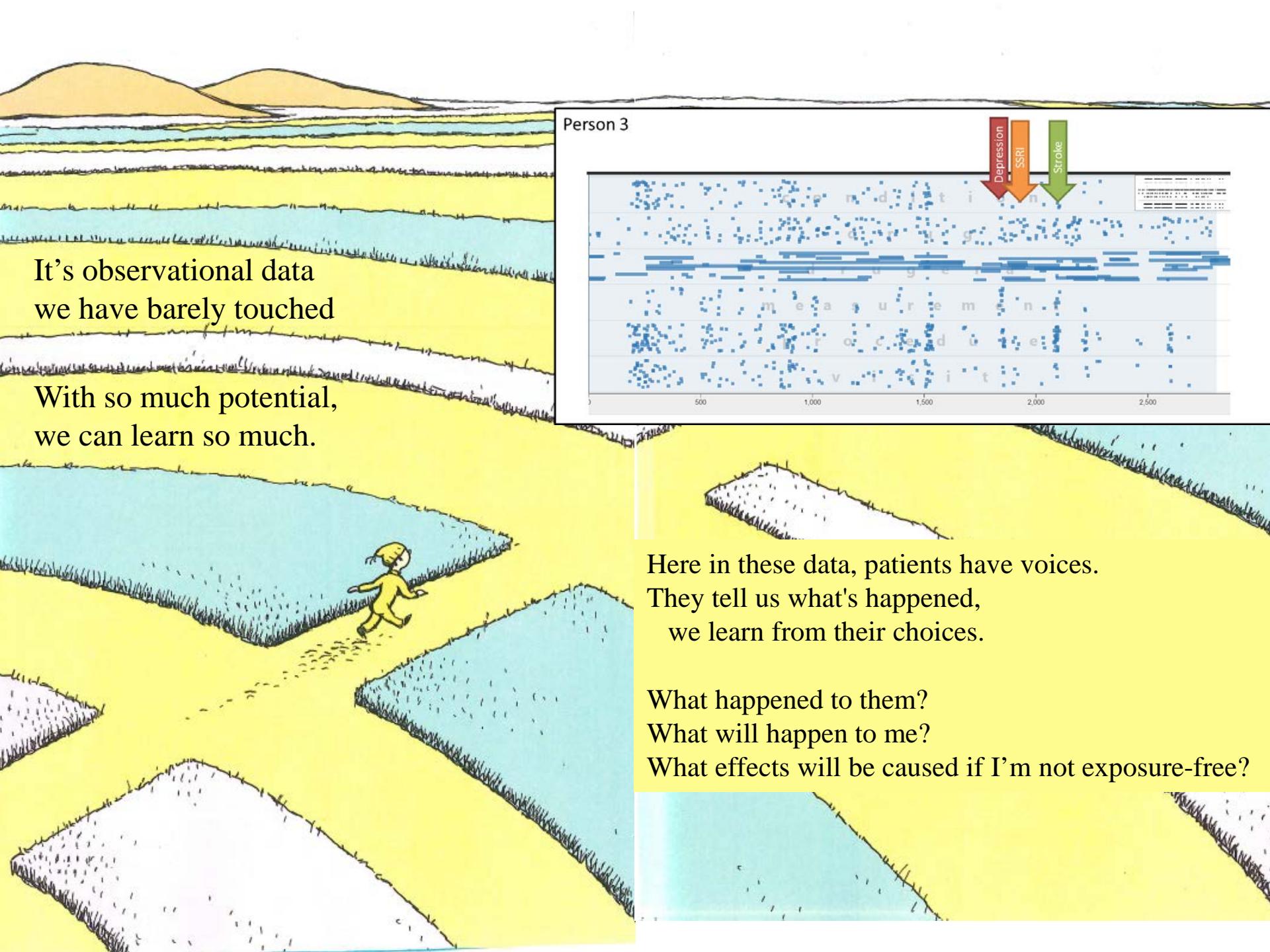


We're out on our own. And we know what we know.
And WE are the guys and gals who'll decide where to go.



And we may not find any
epi studies we believe.
In that case, of course,
we'll head straight for an RCT.

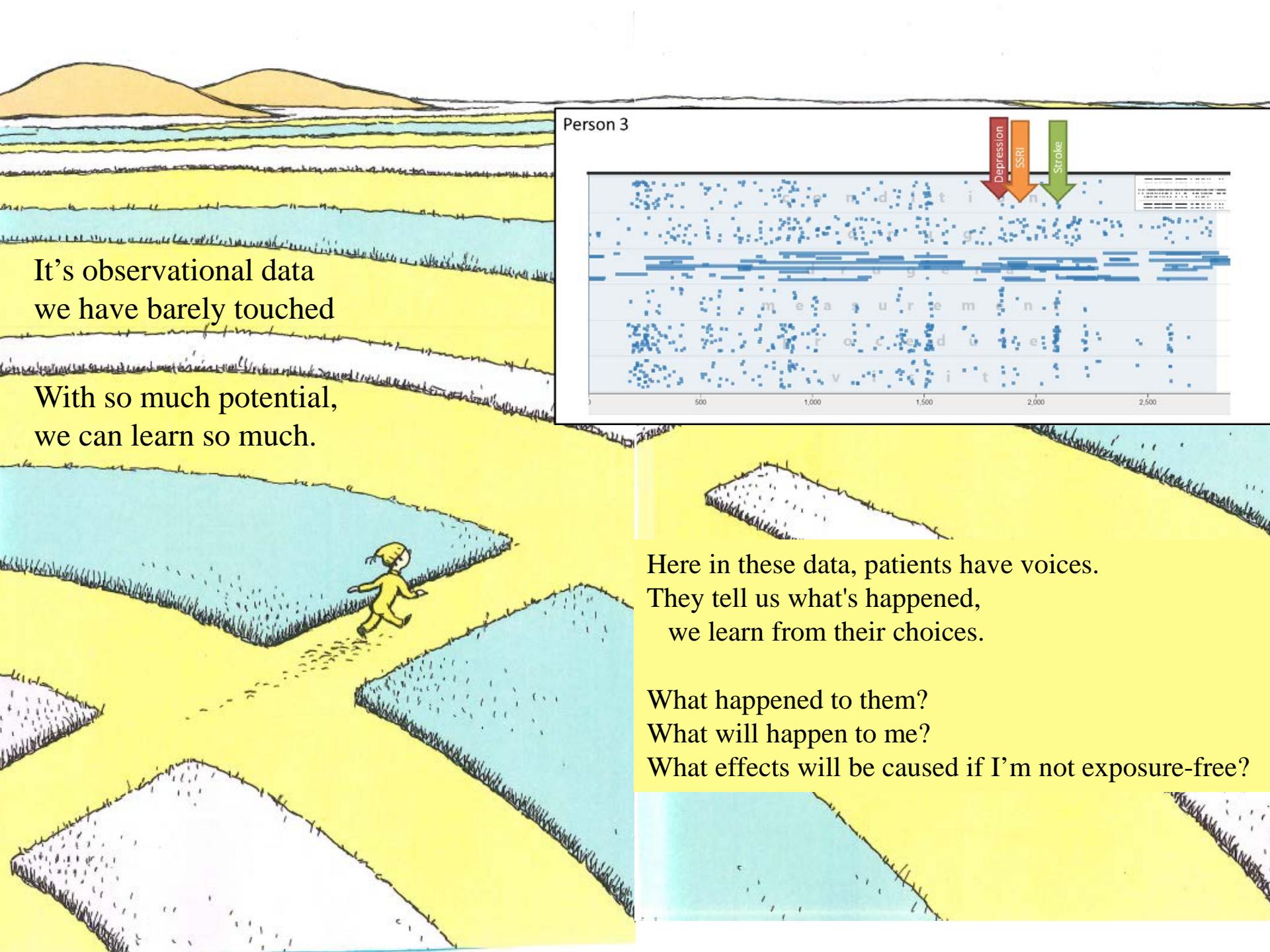
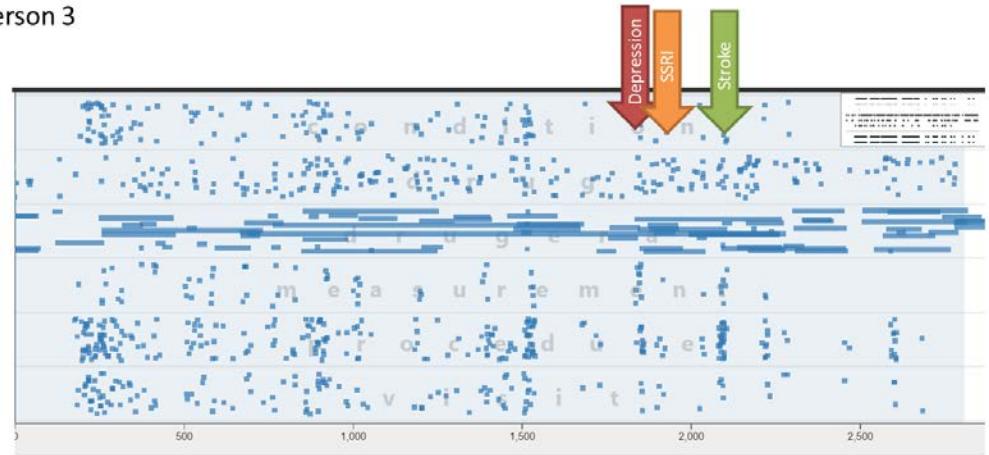
We'll look up and down methods. Look 'em over with care.
About some we will say, "I don't choose to go there."
With our head full of brains and our hands full of data,
we're too smart to chase down unevaluated betas.



It's observational data
we have barely touched

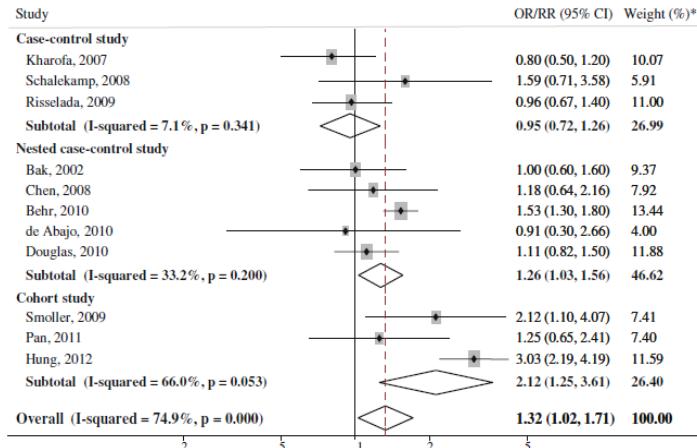
With so much potential,
we can learn so much.

Person 3



Here in these data, patients have voices.
They tell us what's happened,
we learn from their choices.

What happened to them?
What will happen to me?
What effects will be caused if I'm not exposure-free?



Shin et al, J Neurol 2014:
Different designs and different data yield different answers to the same question

JAMA®

BMJ

RESEARCH

Exposure to Oral Bisphosphonates and Risk of Esophageal Cancer

August 2010: “Among patients in the UK General Practice Research Database, the use of oral bisphosphonates was not significantly associated with incident esophageal or gastric cancer”

Sept 2010: “In this large nested case-control study within a UK cohort [General Practice Research Database], we found a significantly increased risk of oesophageal cancer in people with previous prescriptions for oral bisphosphonates”

*Weighted mean hazard ratio (HR) and 95% confidence interval (CI). HR > 1 indicates increased risk; HR < 1 indicates decreased risk.

Abstract
OBJECTIVE To examine the hypothesis that at-risk-of-cancer patients with Barrett's esophagus have an increased risk of esophageal cancer after oral bisphosphonate use.

Design Nested case-control analysis within a primary care cohort.

Setting General practices in the UK.

Participants Among patients in the UK General Practice Research Database who had a prescription for oral bisphosphonates between 1990 and 2005, those with Barrett's esophagus were identified and matched with controls without Barrett's esophagus.

Exposures Previous oral bisphosphonate use.

Outcomes and Measures Hazard ratio for the risk of cancer in the bisphosphonate users compared with the baseline hazard for nonusers.

Results The follow-up was 4.5 and 4.4 years for the cohorts, respectively. Excluding users, there were 41 826 members in each cohort (91% were men). The mean age was 61.4 years and 61.7 years in the bisphosphonate cohort and 15.6% were women. The incidence of esophageal and gastric cancer was 0.36 per 1000 person-years in the bisphosphonate cohort and 0.44 per 1000 person-years of risk, respectively. The hazard ratio for esophageal cancer in the bisphosphonate cohort was 1.14 (95% confidence interval [CI], 1.04-1.24), and the hazard ratio for gastric cancer was 1.11 (95% CI, 1.01-1.21).

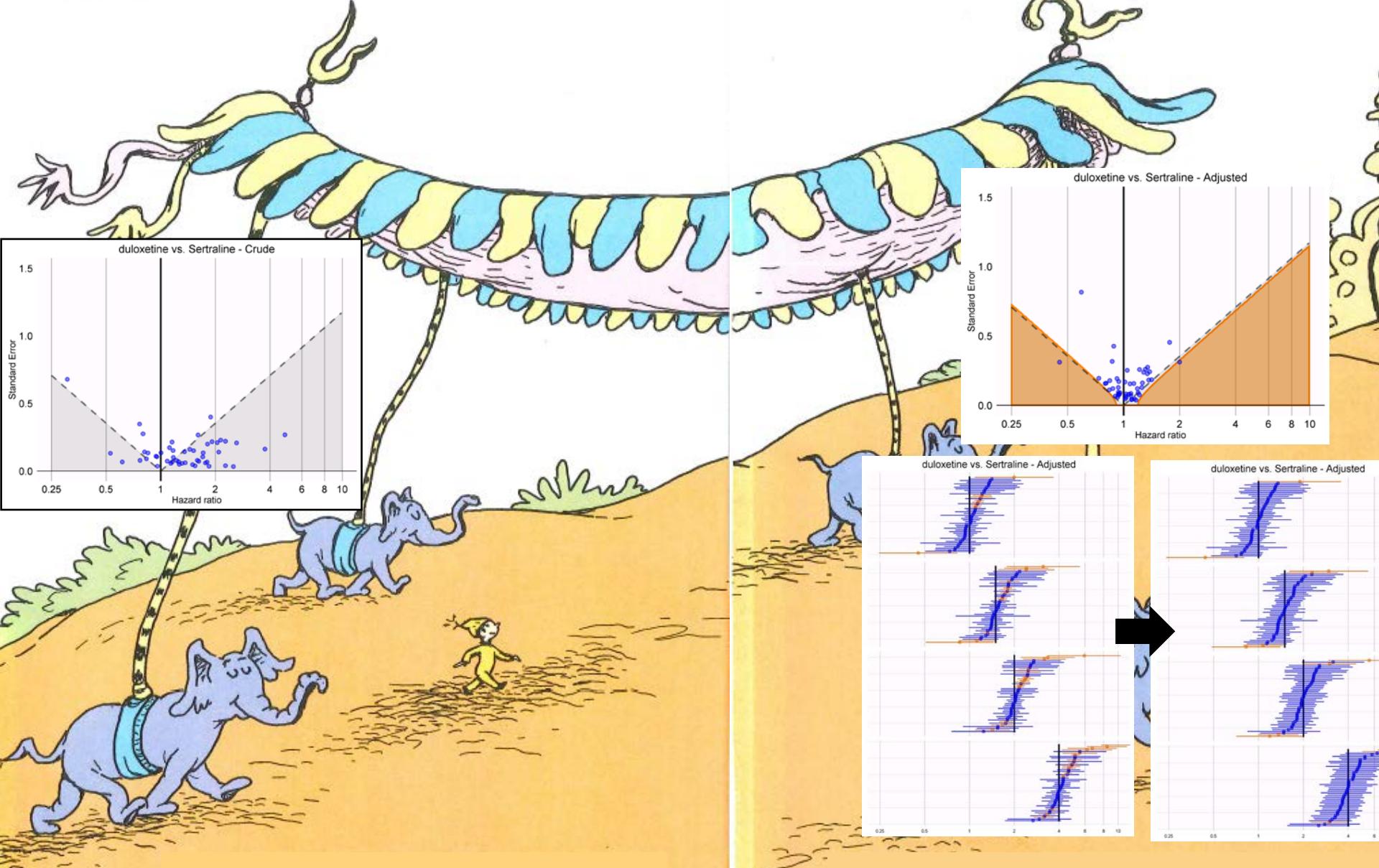
Conclusion Among patients in the UK General Practice Research Database, the use of oral bisphosphonates was not associated with an increased risk of esophageal or gastric cancer.

It's these questions we have, and their answers we seek.
But sometimes what we find can seem rather bleak.

We all try our darnest to gin up responses,
But sometimes it feels like we're spewing out nonsense.

Despite the brightest of minds and the best of intentions,
Why do we keep giving patients confusing answers to
straight-forward questions?





Bias and errors can happen
and frequently do
even to people as brainy
and empirical as you.

But when these things start to happen,
don't worry. Don't stew.
Calibration will guide you
to know what to do.

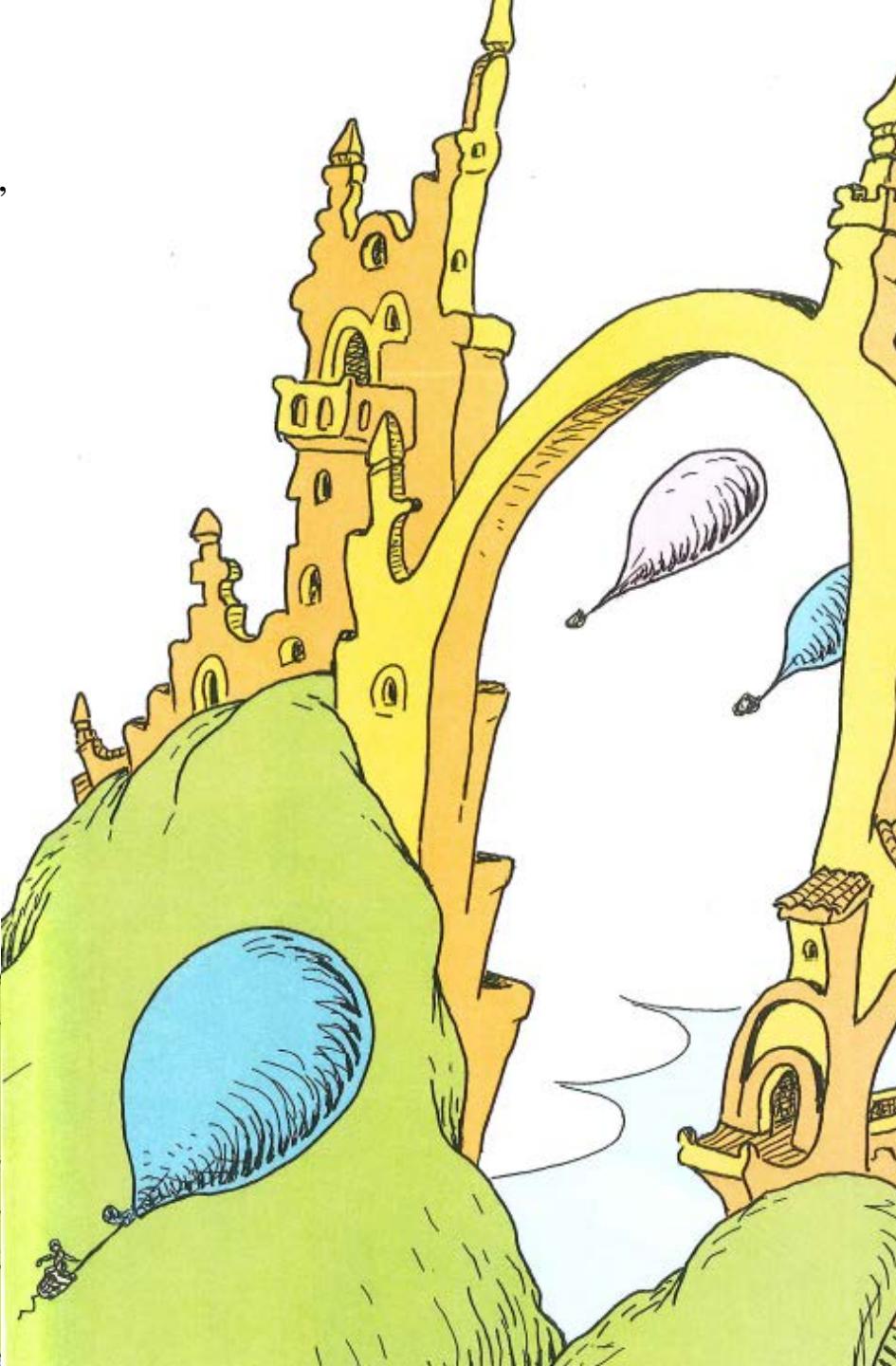
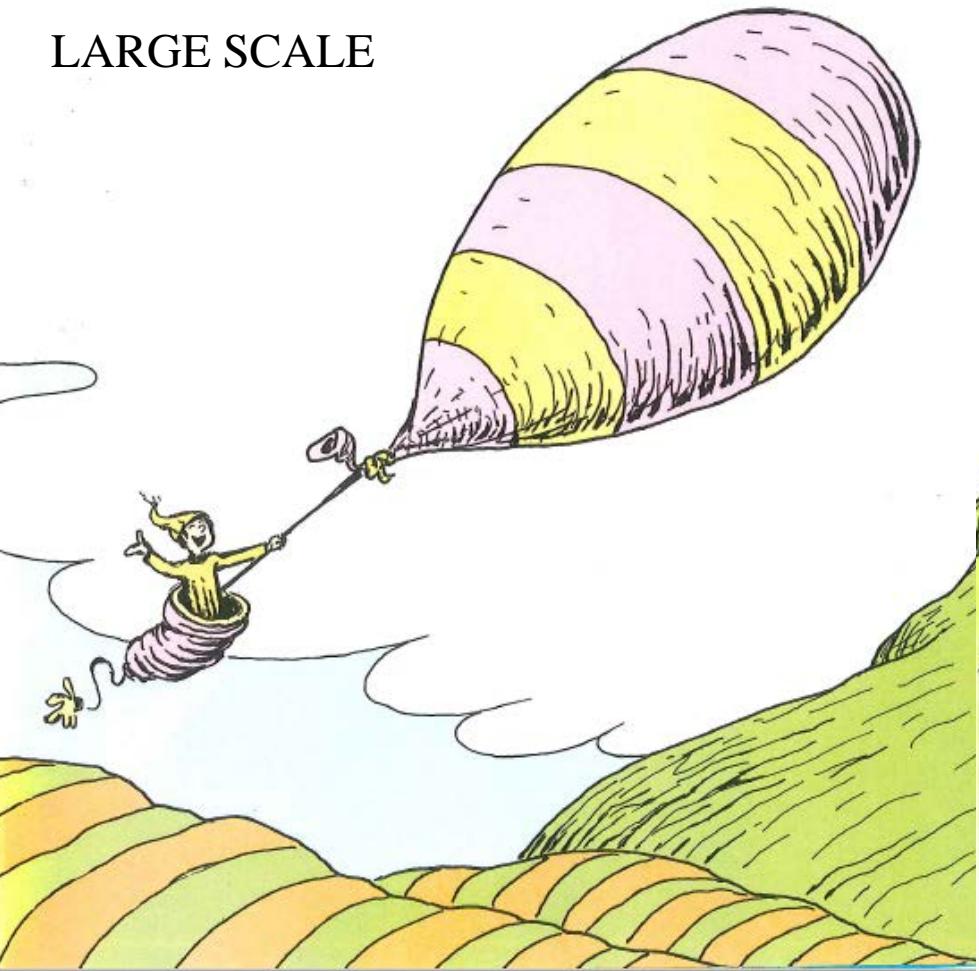


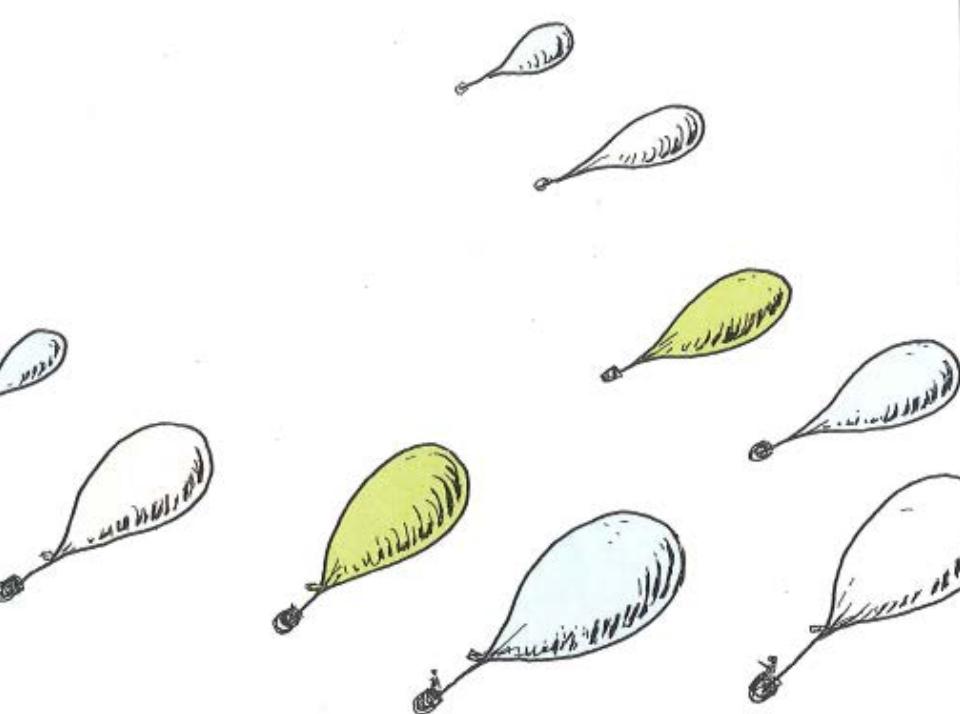
The background of the image is a vibrant, abstract illustration. It features large, stylized human legs and feet in various colors (orange, white, pink, blue) and patterns (stripes, solid). The legs are arranged in a dynamic, overlapping composition that suggests movement. The floor is a stark black, providing a strong contrast to the colorful legs. In the lower center, there is a small, yellow, cartoonish figure of a person with arms raised, walking towards the right. The overall style is whimsical and artistic.

*OH!
THE PLACES WE'LL GO!*

We'll research new methods, develop best practice.
We won't let distractions or distractors distract us.
When we know the approach that makes the most sense,
We'll build open-source software to make it immense.
With the community collaborating each having a say,
We'll generate evidence the OHDSI way....

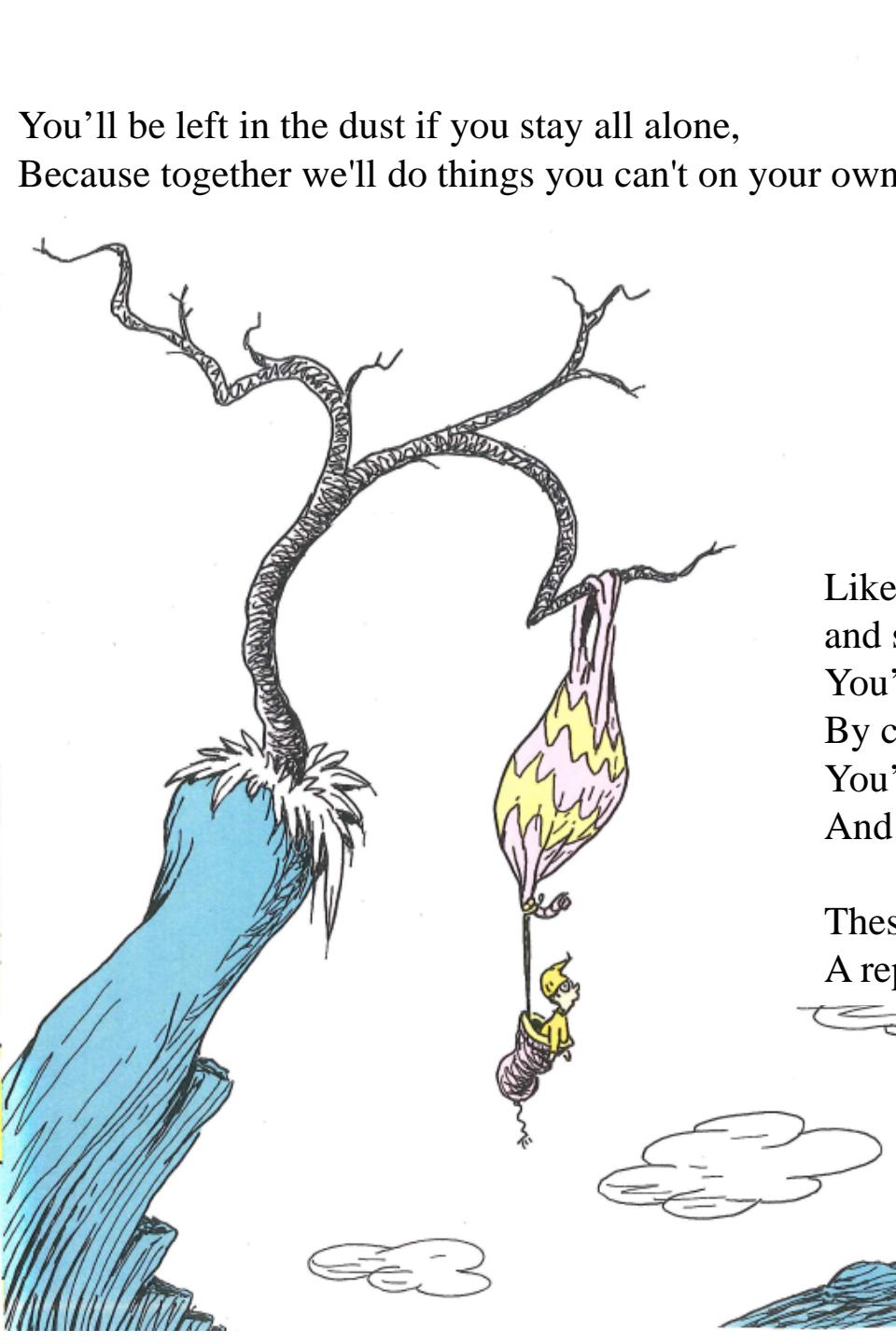
LARGE SCALE





If you're new to the community,
Don't worry, Don't fret.
You won't lag behind, we'll bring you along.
To standardize data, to study disease,
to hack open-source software,
to estimate risks in a breeze.

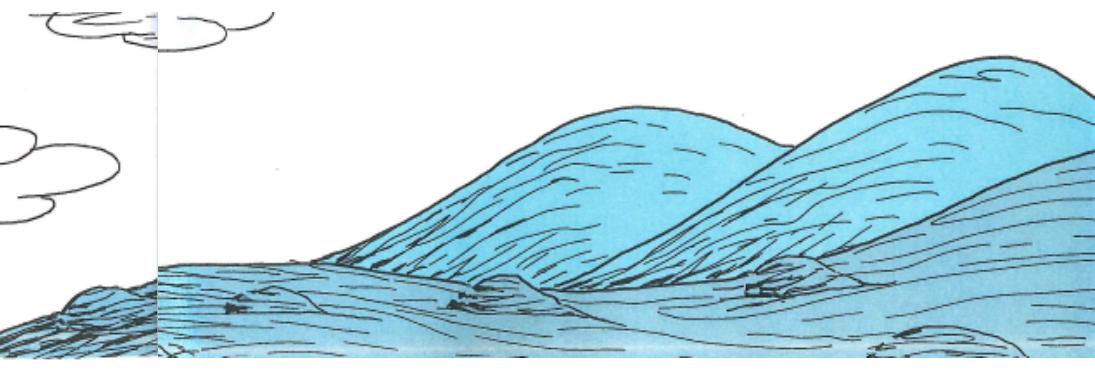




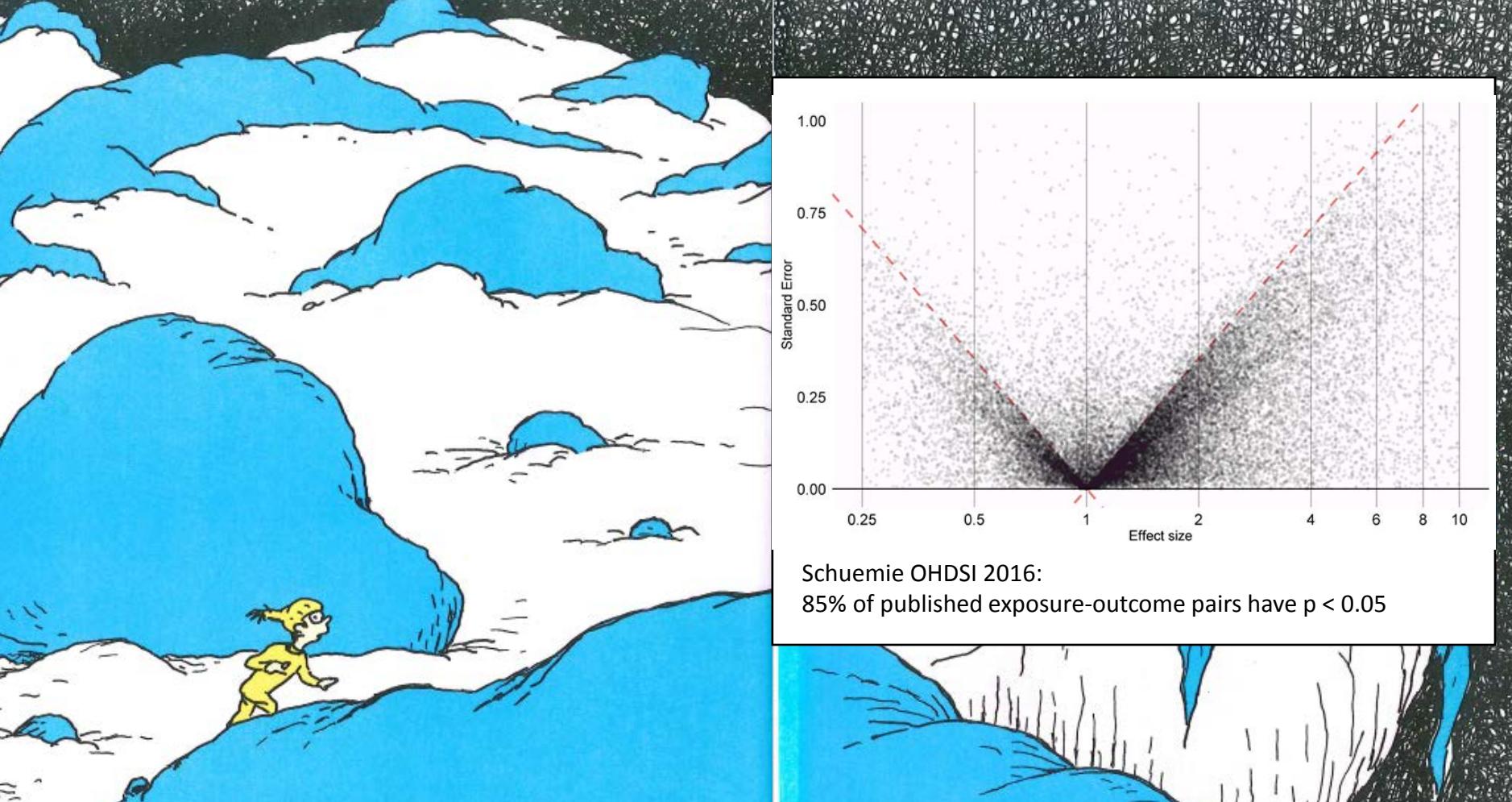
You'll be left in the dust if you stay all alone,
Because together we'll do things you can't on your own.



Like collaborating on best practices, standards and rules,
and sharing in the design of open-source tools,
You'll generate evidence that can actually be trusted
By comparing with others to see its not busted
You'll evaluate your evidence to know its reliable
And you'll disseminate openly to be verifiable.



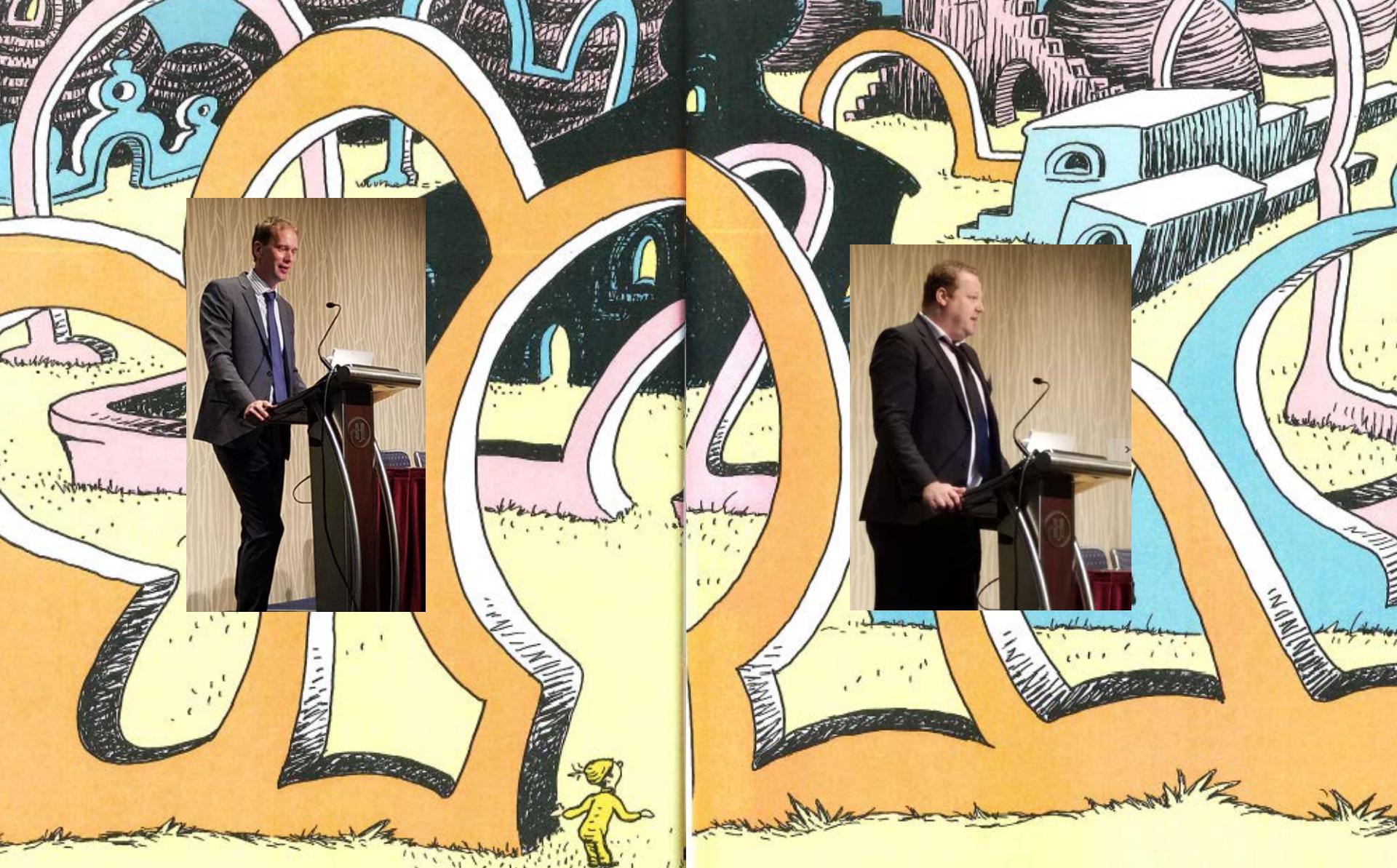
These steps are a process that can be well-defined.
A reproducible science, if y'all don't mind...



We'll be tempted to keep doing things as its been done.
Because changing behavior is never fun.

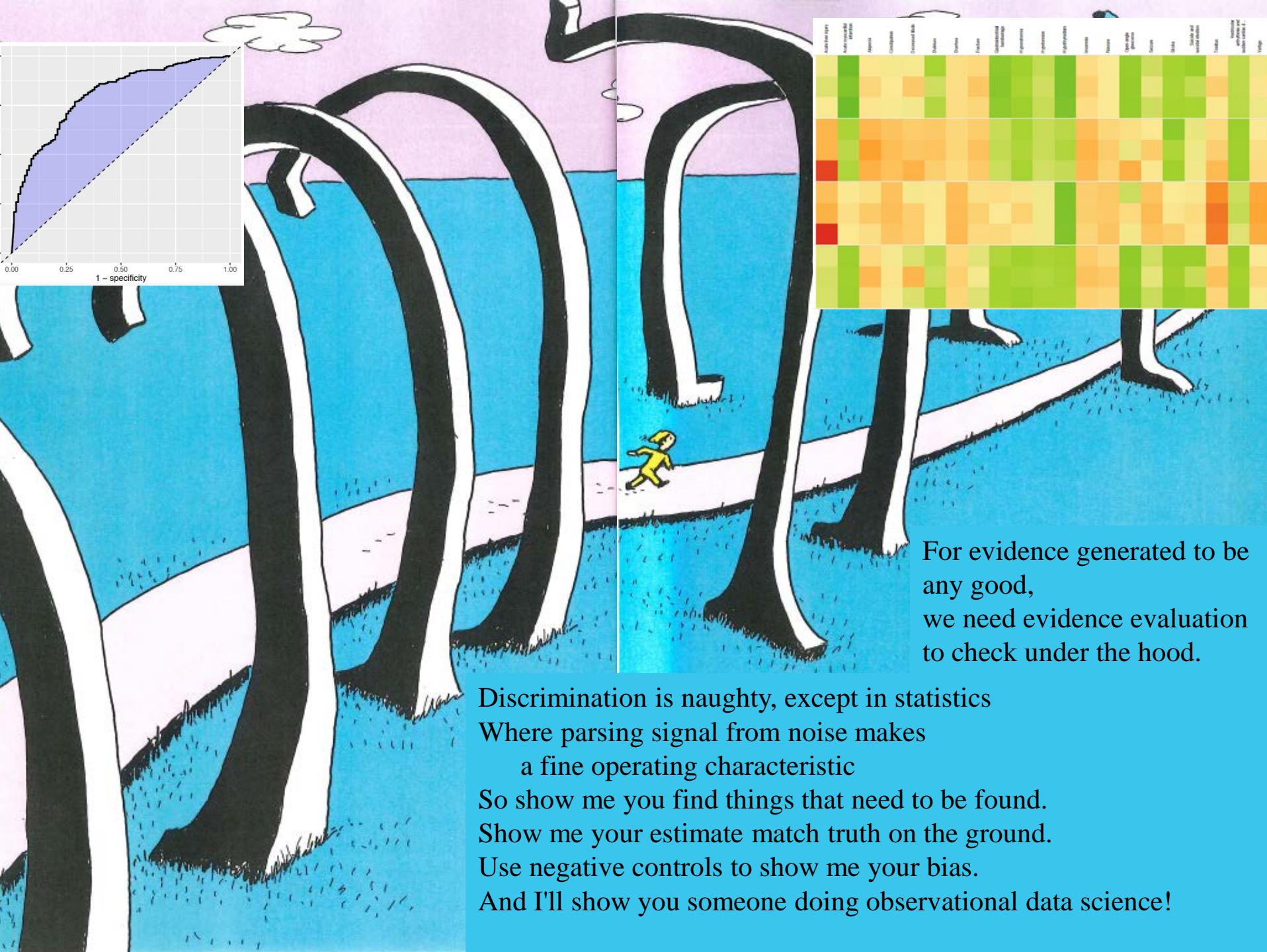
But there's danger to keeping the status quo.
Because we now know we don't know what thought we had known.

Publication bias and p-hacking have caused quite a pickle.
No wonder reviewers can be so darn fickle.



There's a different path forward that we can now take.
One outlined by Schuemie and Peter Rijnbeek.

For reliable Evidence Generation to work and succeed,
openness and transparency must be our common creed.
Sharing your protocol, posting your code,
reproducible in every step of the workflow



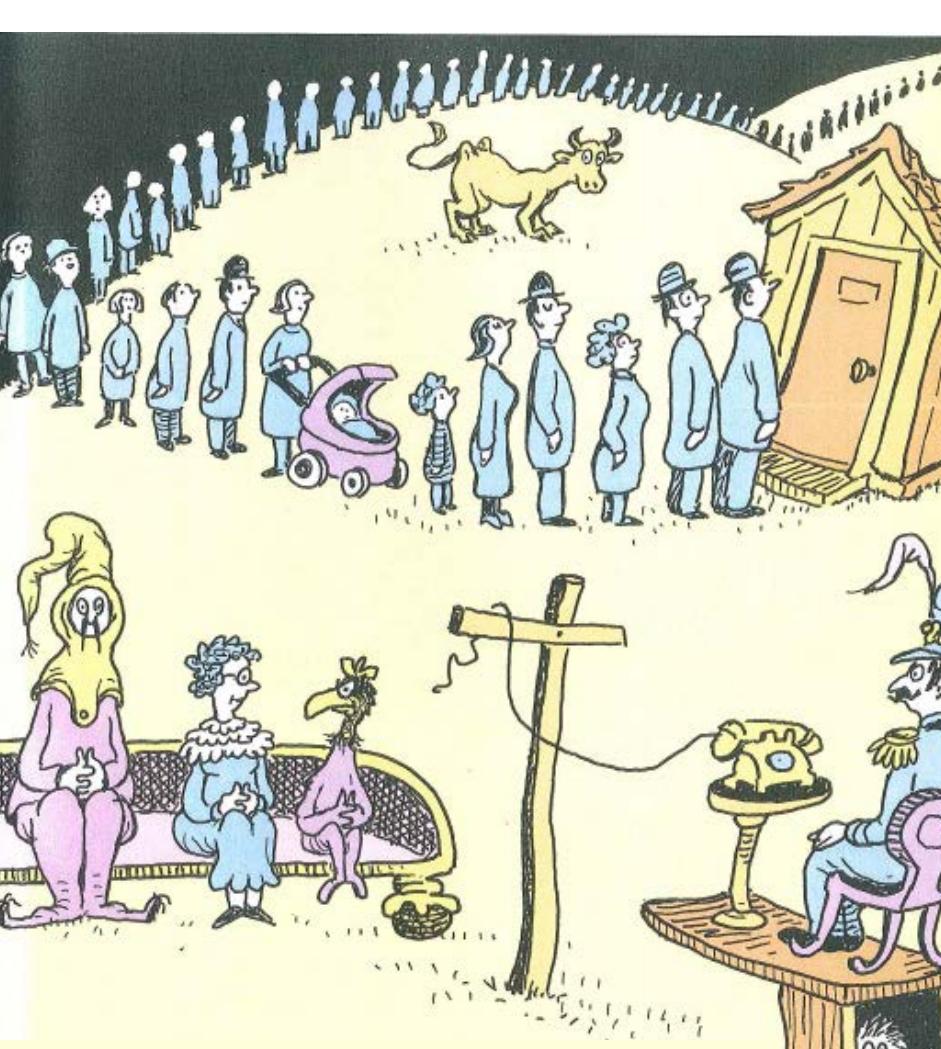
For evidence generated to be
any good,
we need evidence evaluation
to check under the hood.

Discrimination is naughty, except in statistics
Where parsing signal from noise makes
a fine operating characteristic
So show me you find things that need to be found.
Show me your estimate match truth on the ground.
Use negative controls to show me your bias.
And I'll show you someone doing observational data science!



And patients are waiting.

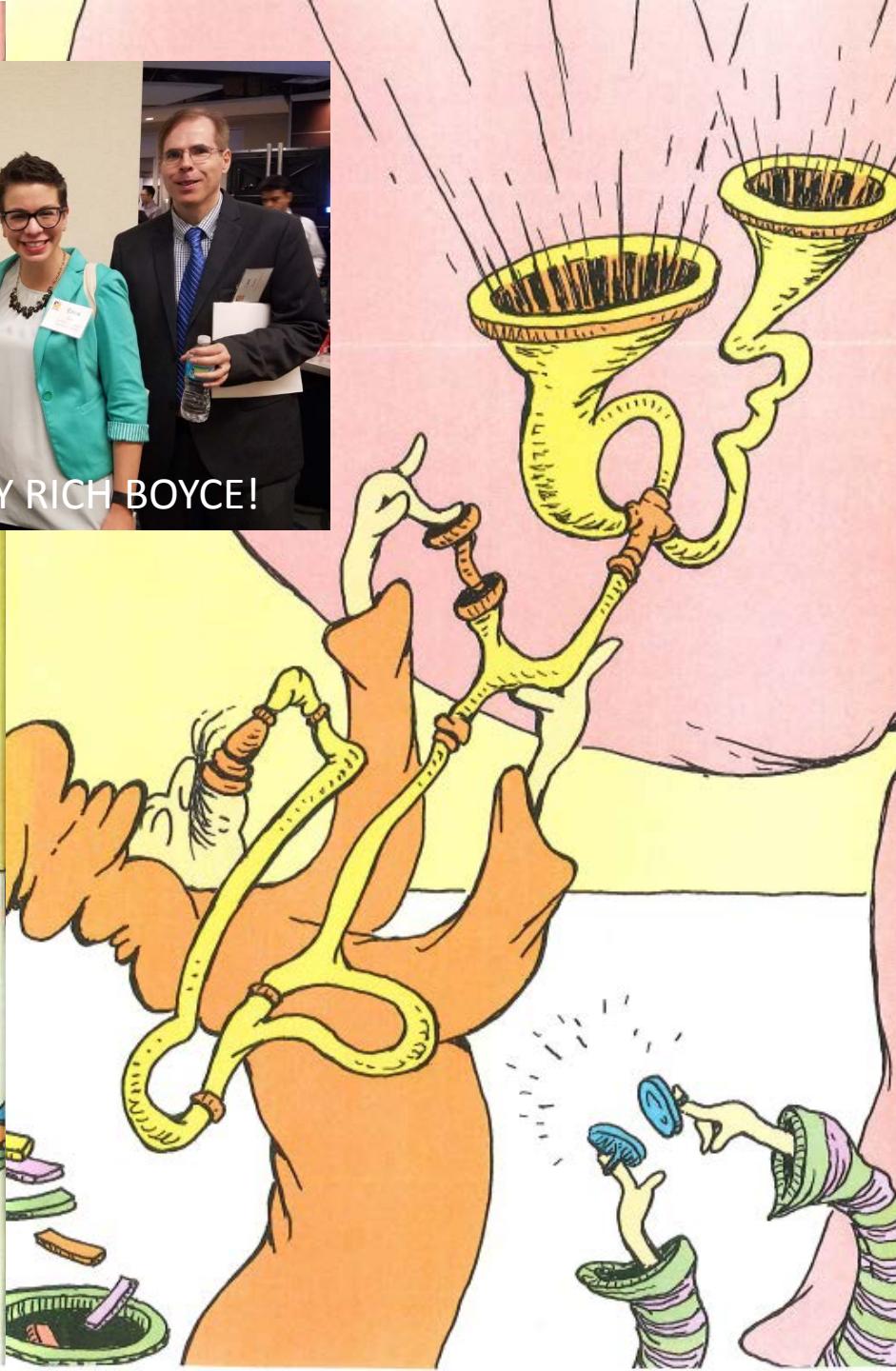
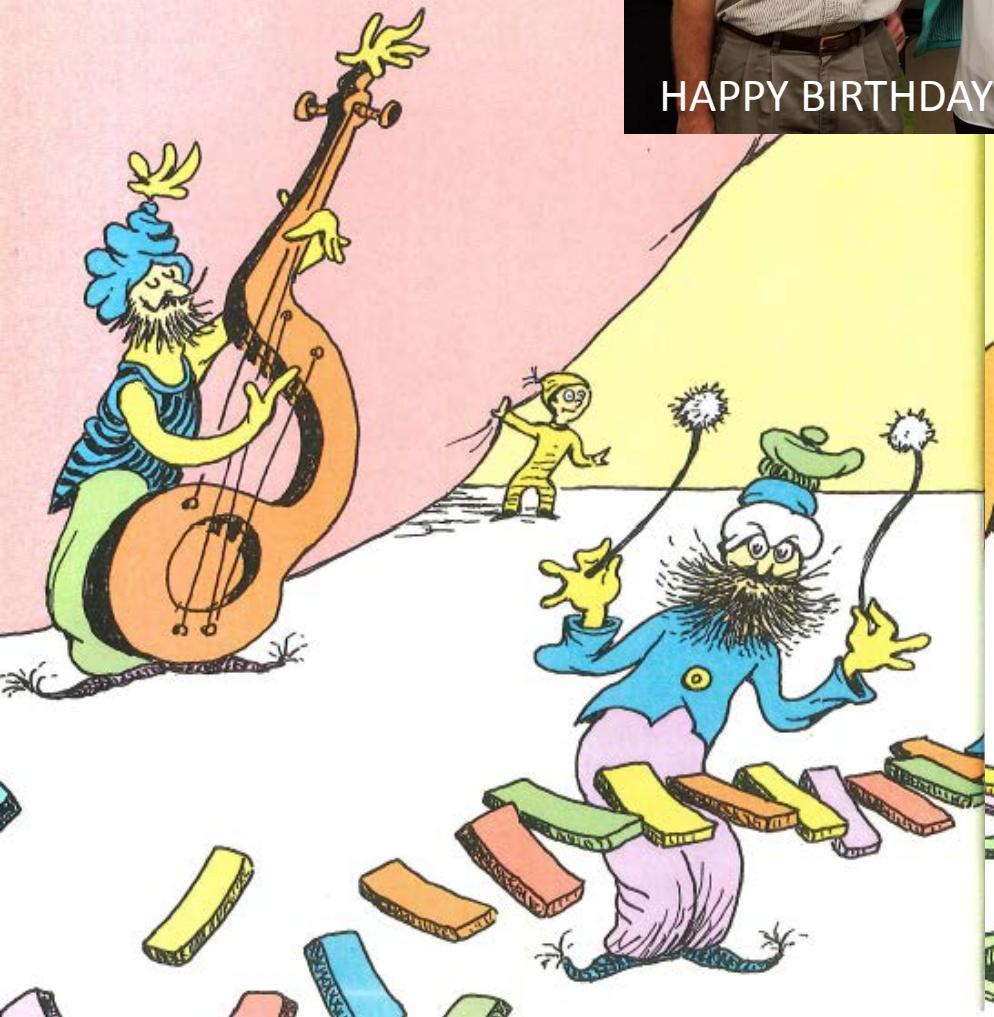
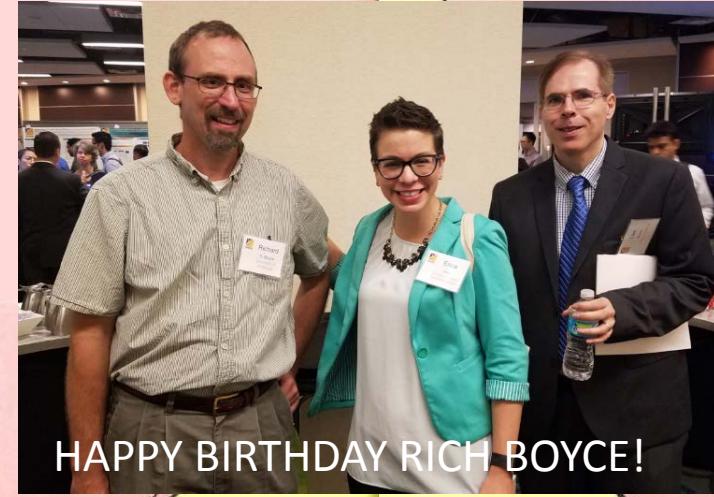
Waiting to know ‘what happened to others?’
Waiting to know ‘what will happen to me?’
Waiting to know ‘what causes what?’
Waiting for evidence to get them
out of their rut.

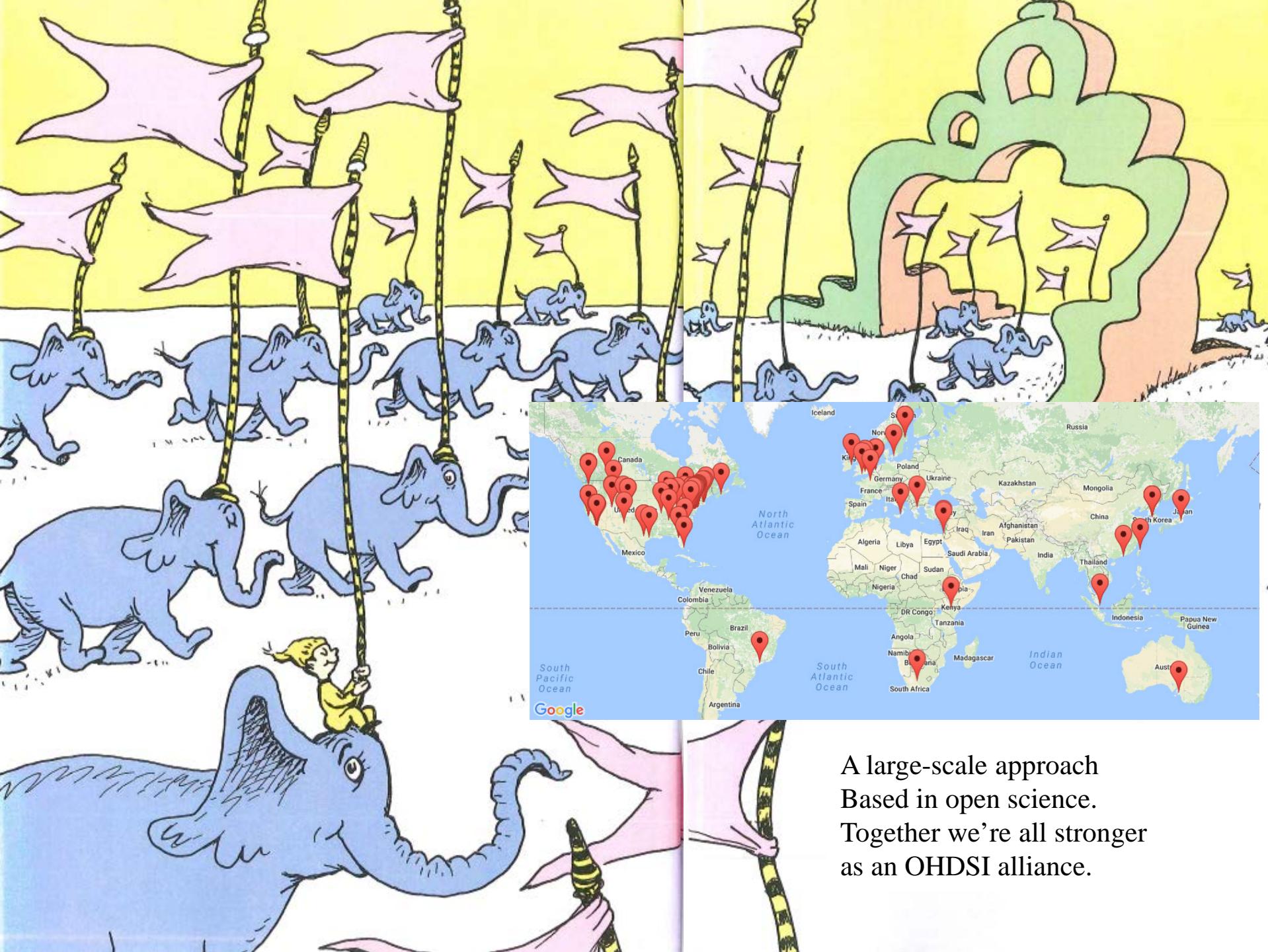


Patients are waiting for us!

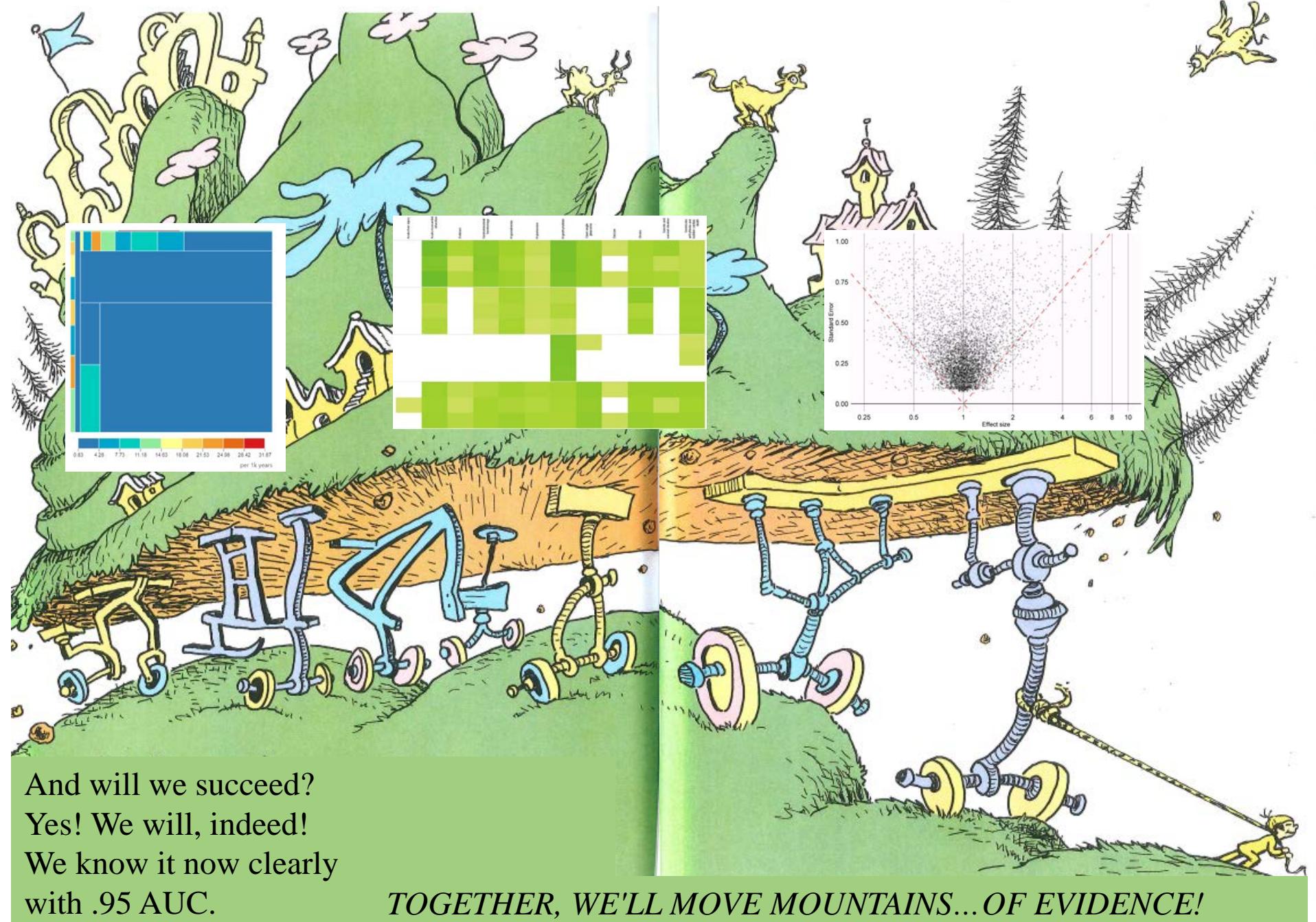
Waiting for us to do what needs to be done
To transform our data and get on the run
To stop do studies one at a time
And start turning around evidence
right on a dime.

Somehow we must escape
All this waiting and staying.
And find a new music
we all feel like playing.





A large-scale approach
Based in open science.
Together we're all stronger
as an OHDSI alliance.

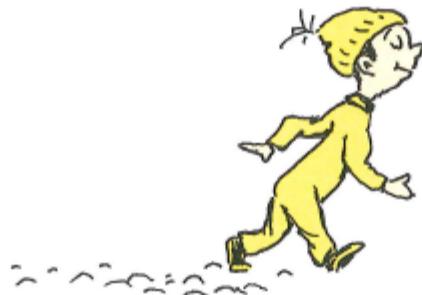


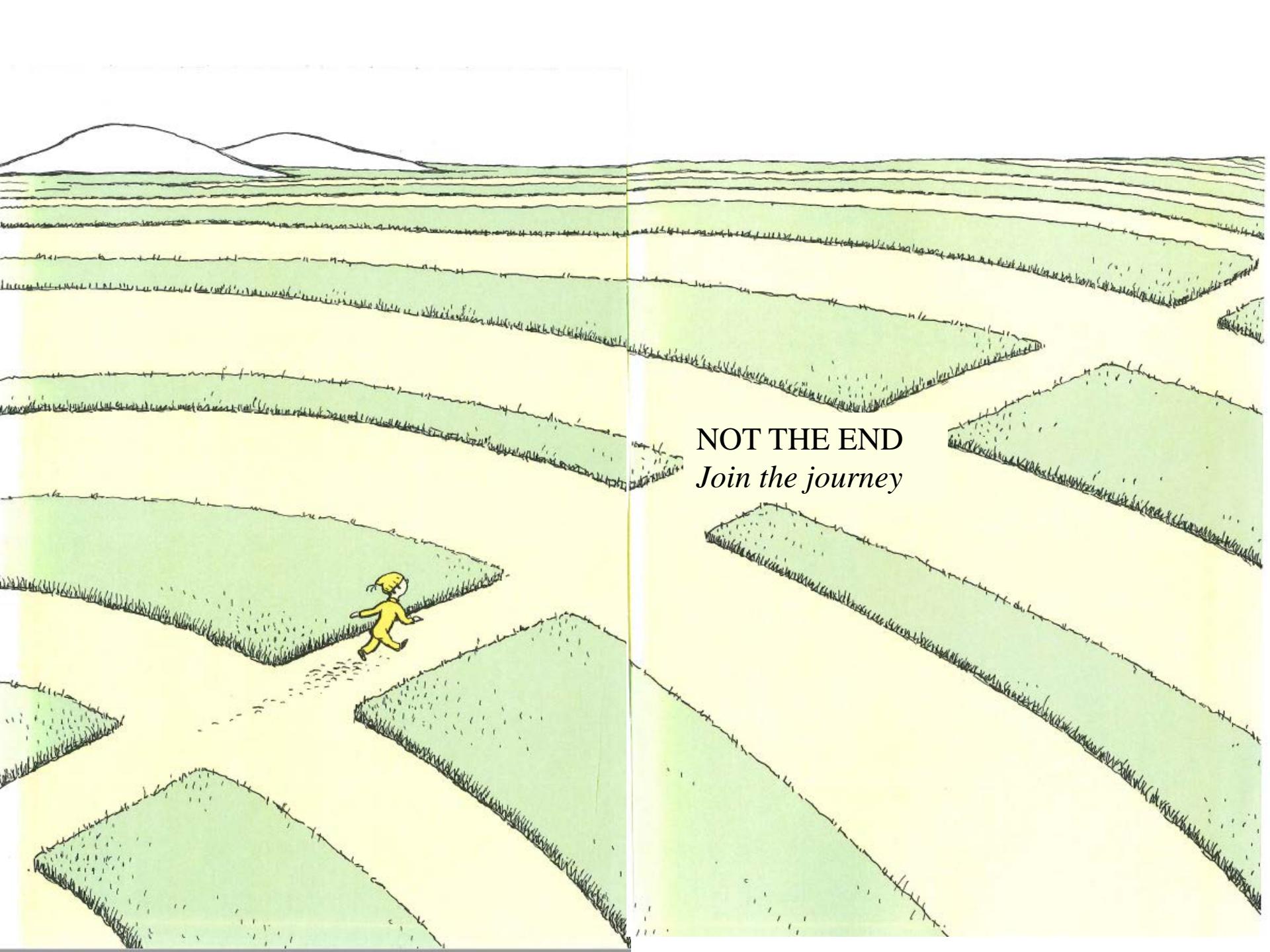


So....

be your name Vojtech or Adler or Feeney
or Christian Reich or Michael Matheny
or Schilling or Schuemie Or Szarfman Or Shah
or Hripcsak or Rijnbeek, whoever you are

We're off to Great Places!
Today is **our** day!
Our mountain is waiting.
So...let's get on our way!





NOT THE END
Join the journey

Thank you for your support!

**Patient-Centered Outcomes Research Institute
(PCORI)
Eugene Washington Engagement Award**

Thank you for your sponsorship!

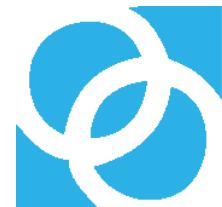


Science For A Better Life



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JAYNE KOSKINAS
TED GIOVANIS

Foundation for
Health and Policy

Thank you exhibitors!



Thank you OHDSI tutorial faculty!



CDM/ETL: Rimma Belenkaya, Karthik Natarajan, Mark Velez, Erica Voss



Technology stack: Taha Abdul-Basser, Lee Evans, Karthik Natarajan, Mark Velez



Cohort definition: Juan Banda, Jon Duke, Chris Knoll, Nigam Shah



Vocabulary:

Frank DeFalco, George Hripcsak, Christian Reich



Population-level estimation:

David Madigan, Martijn Schuemie, Marc Suchard

Thank you OHDSI organizing committee!

Kristin Feeney

Jon Duke

Lisa Schilling

Christophe Lambert

Steph Reisinger

Don O'Hara

Vojtech Huser

Ana Szarfman

Gregory Fusco

Andrew Williams

Matt Levine

Thank you OHDSI collaborators!

Thank you Maura!





OHDSI Symposium 2016

Join the journey!