PC3I PENN CENTER *for* CANCER CARE INNOVATION

FOUNDED AT THE ABRAMSON CANCER CENTER AT PENN MEDICINE

NATIONAL CANCER POLICY FORUM

Using the EHR to “nudge” evidence-based cancer care

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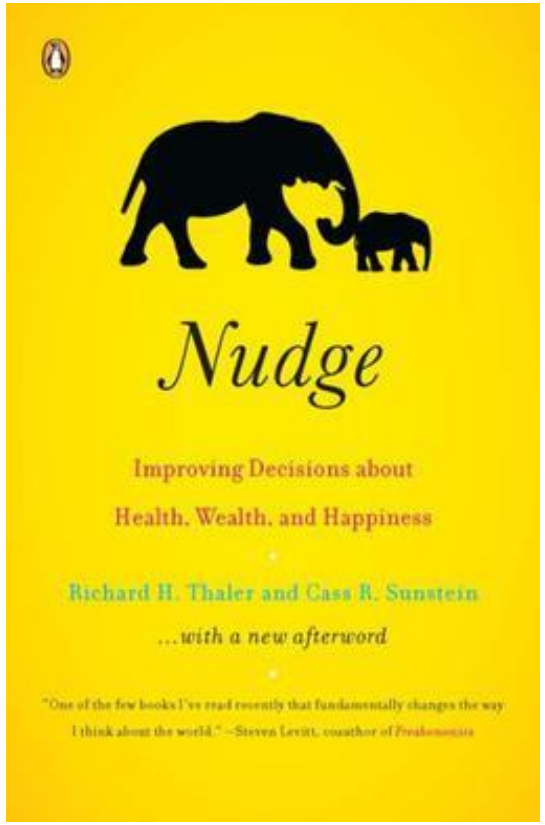
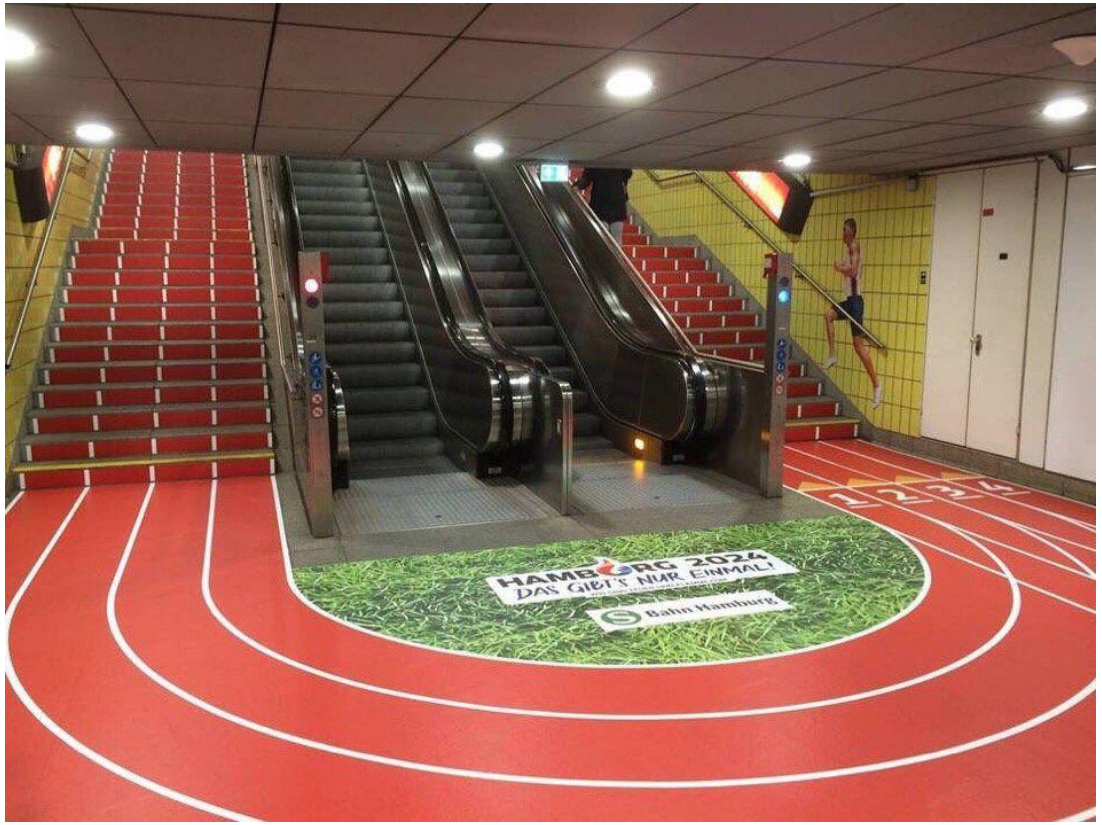
Background

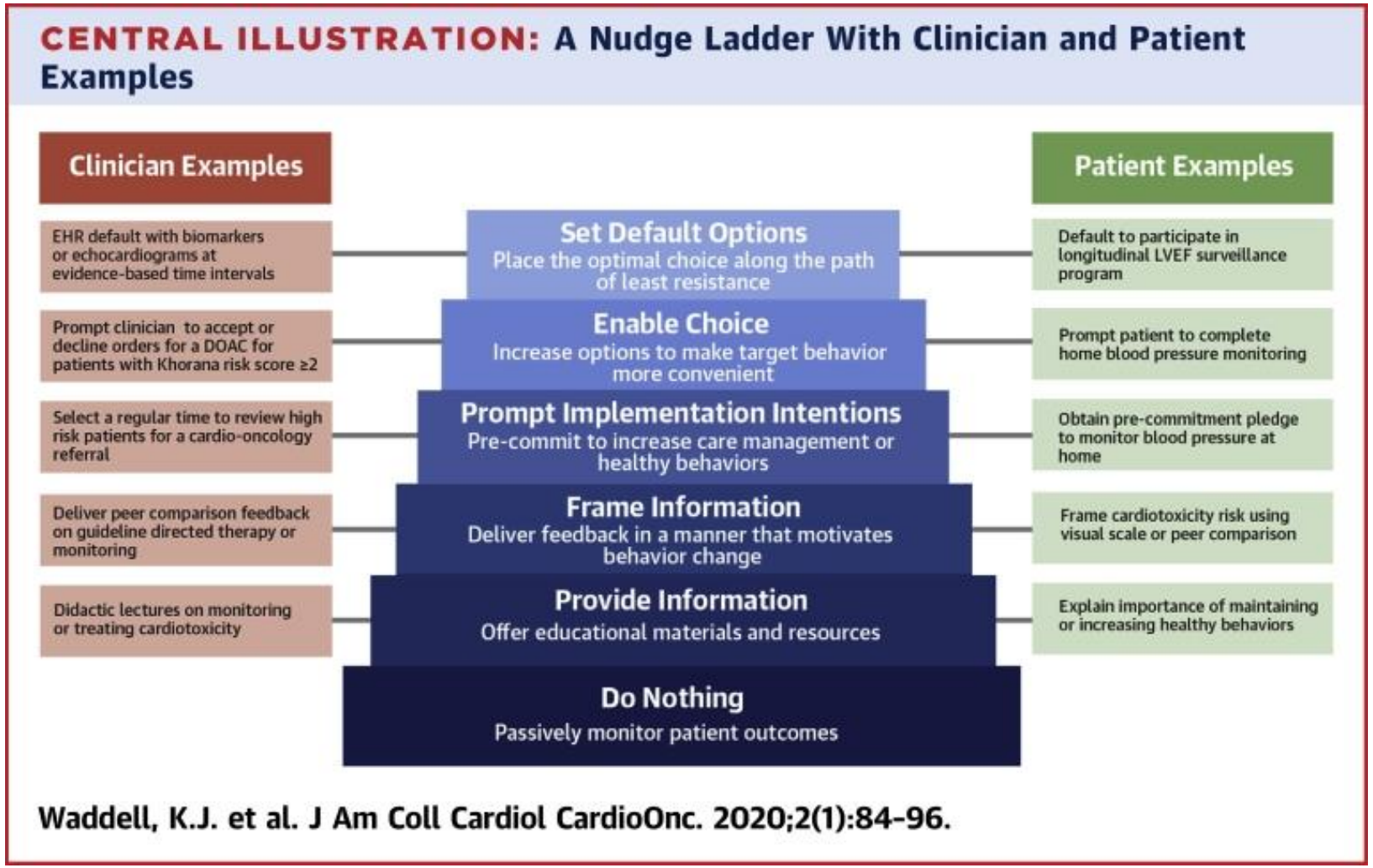
- A **nudge** is a change in the way choices are presented that alters behavior predictably *without restricting choice*



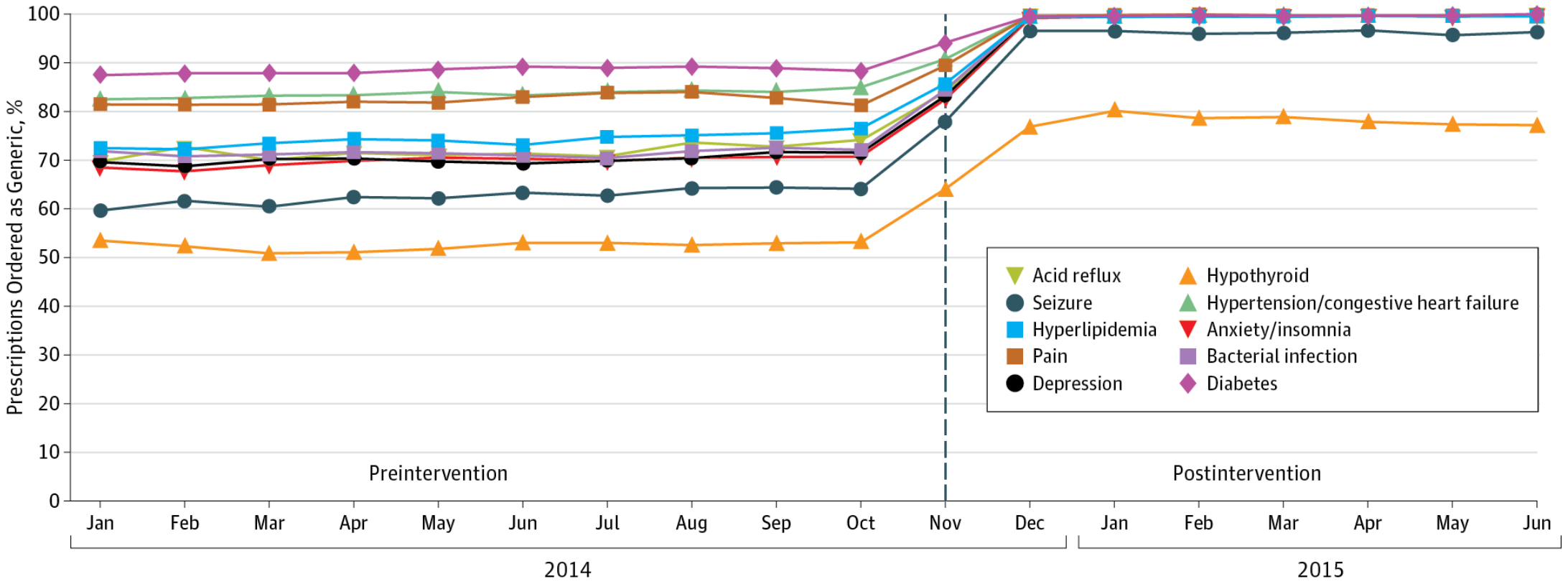


The Nudge Unit

Background


CENTRAL ILLUSTRATION: A Nudge Ladder With Clinician and Patient Examples
Clinician Examples
Patient Examples
EHR default with biomarkers or echocardiograms at evidence-based time intervals
Set Default Options
Place the optimal choice along the path of least resistance
Default to participate in longitudinal LVEF surveillance program
Prompt clinician to accept or decline orders for a DOAC for patients with Khorana risk score ≥2
Enable Choice
Increase options to make target behavior more convenient
Prompt patient to complete home blood pressure monitoring
Select a regular time to review high risk patients for a cardio-oncology referral
Prompt Implementation Intentions
Pre-commit to increase care management or healthy behaviors
Obtain pre-commitment pledge to monitor blood pressure at home
Deliver peer comparison feedback on guideline directed therapy or monitoring
Frame Information
Deliver feedback in a manner that motivates behavior change
Frame cardiotoxicity risk using visual scale or peer comparison
Didactic lectures on monitoring or treating cardiotoxicity
Provide Information
Offer educational materials and resources
Explain importance of maintaining or increasing healthy behaviors
Do Nothing
Passively monitor patient outcomes
Waddell, K.J. et al. J Am Coll Cardiol CardioOnc. 2020;2(1):84-96.

Nudging high-value prescribing in primary care



Patel et al., JAMA Int Med 2016

The Nudge Unit

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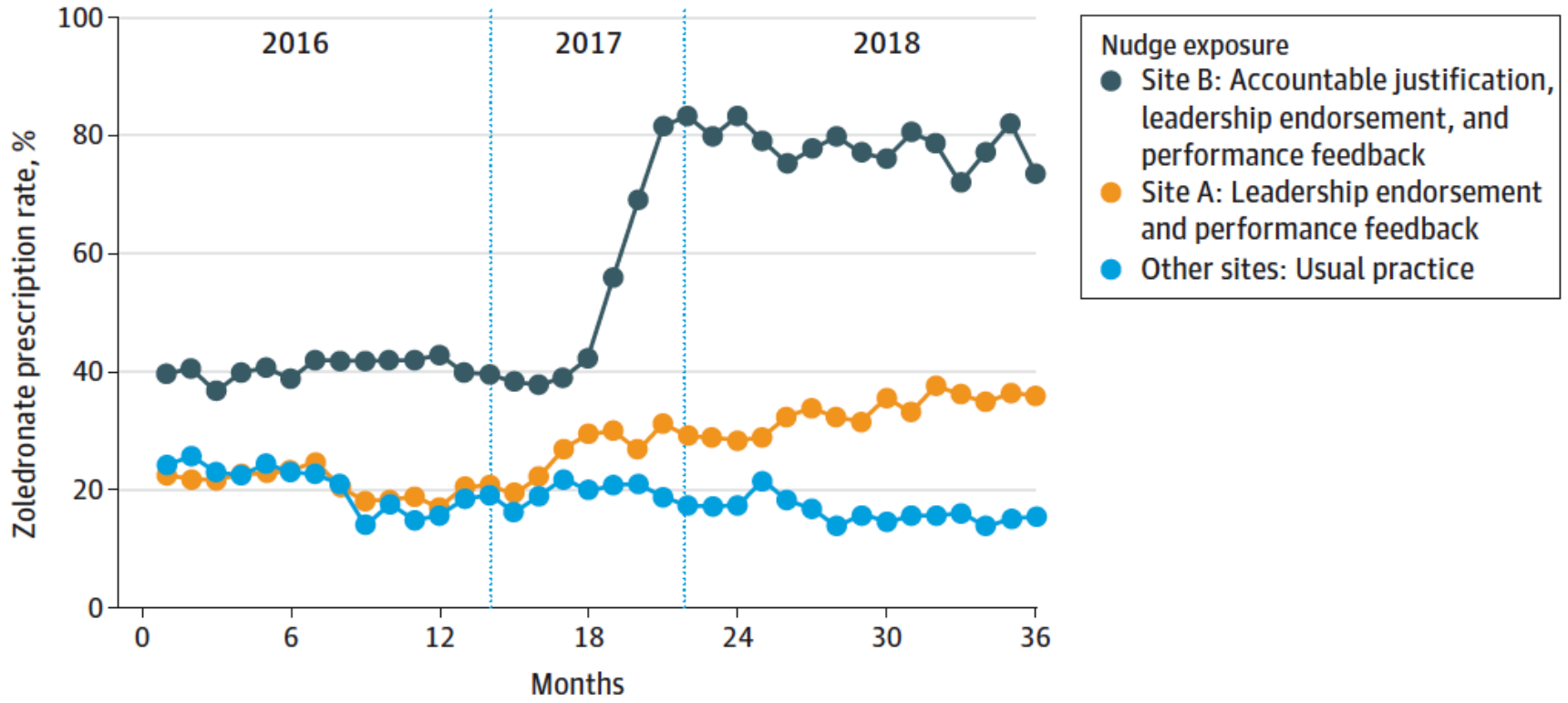
Nudging high-value prescribing in oncology

Figure. Unadjusted Trends in Zoledronate Prescription by Nudge Exposure



Takvorian et al., JAMA Oncol 2020

Patient-facing example

- Serious illness conversations (SICs) are an evidence-based approach to eliciting patients' values, goals, and care preferences
- Early SICs improve patient outcomes and are recommended by national guidelines
- But most patients with cancer die without a documented SIC

- Clinician-focused strategy alone → near 4x increase in SIC documentation for high-risk pts… but still not reaching *over half* of high-risk pts

Wright JAMA 2008, Mack JCO 2010, Detering BMJ 2010, Bernacki JAMA Int Med 2019, Paladino JAMA Oncol 2019, Bickel JOP 2016, Bernacki JAMA Int Med 2014, Manz JAMA Oncol 2020

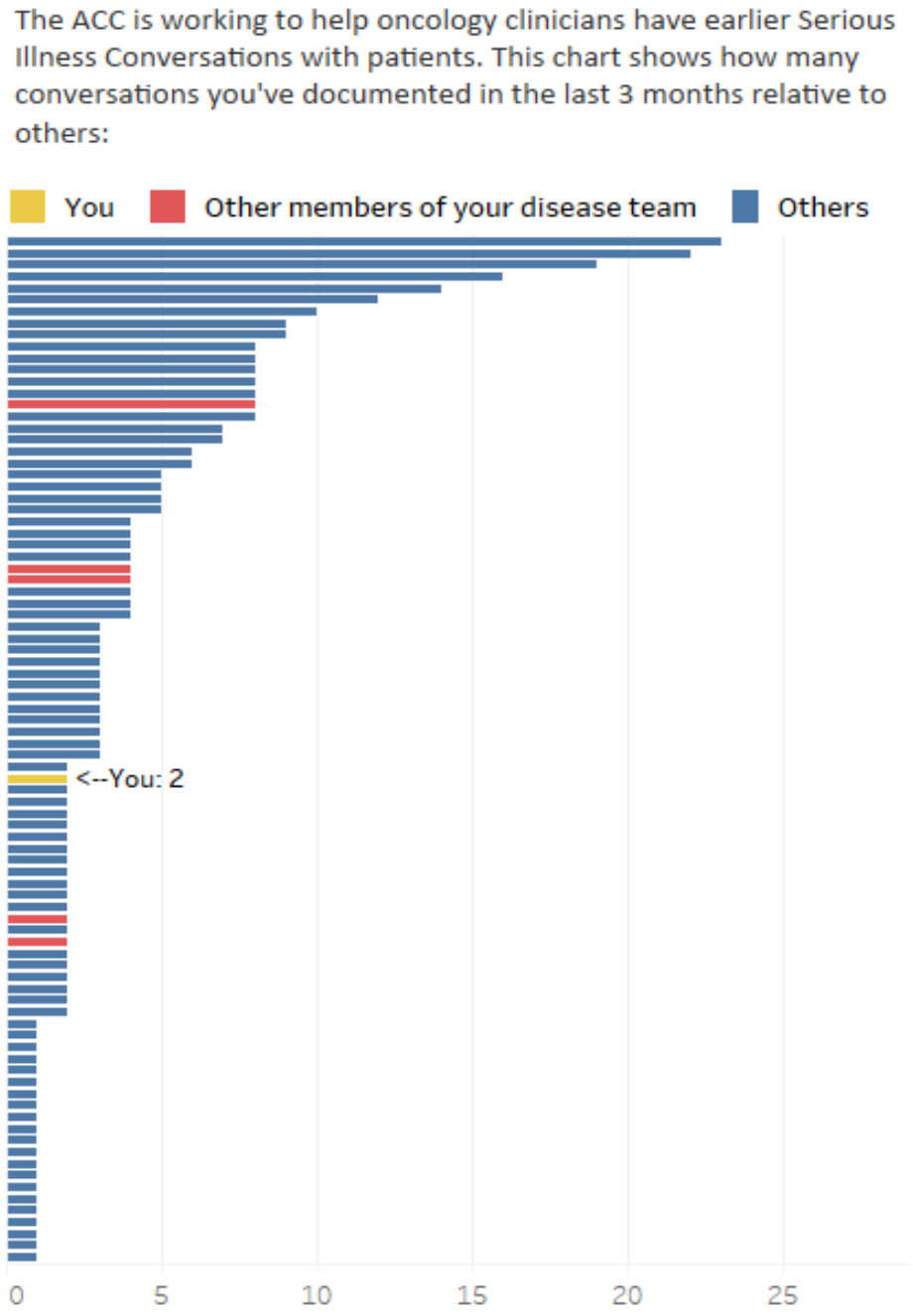
Pragmatic study

Patient nudge	Clinician nudge: No nudge	Clinician nudge: Nudge
No nudge	Arm 1: Usual practice	Arm 3: Clinician nudge alone
Nudge	Arm 2: Patient nudge alone	Arm 4: Clinician + Patient nudge

Takvorian et al., Imp Sci 2021

Clinician strategy

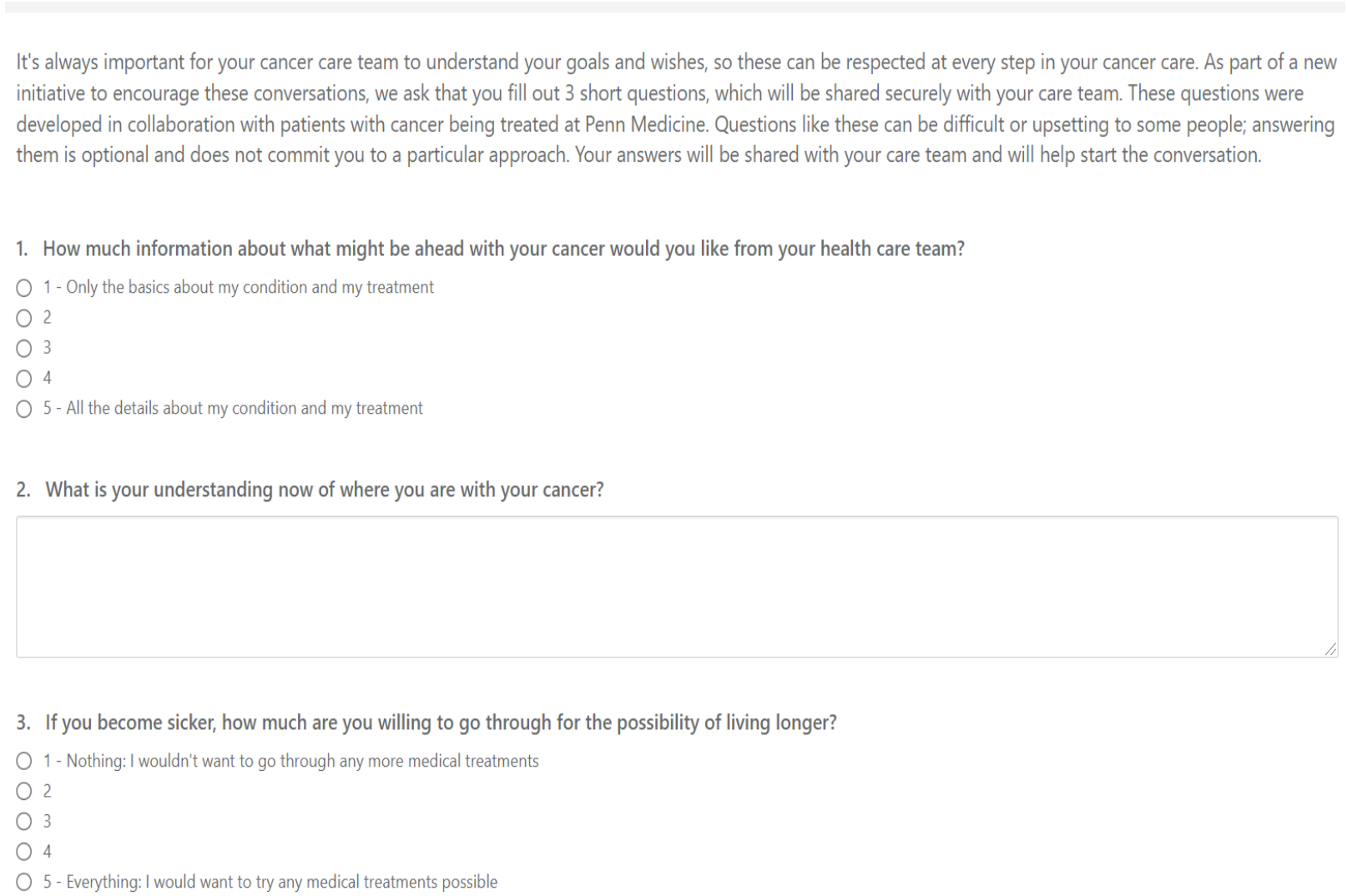
- Identification of high-risk patients
- Performance feedback
- Peer comparison



Takvorian et al., Imp Sci 2021

Patient strategy

- Normalizing message
- Priming questionnaire
  - Maps to SIC domains
  - Shared with clinicians in real time



It's always important for your cancer care team to understand your goals and wishes, so these can be respected at every step in your cancer care. As part of a new initiative to encourage these conversations, we ask that you fill out 3 short questions, which will be shared securely with your care team. These questions were developed in collaboration with patients with cancer being treated at Penn Medicine. Questions like these can be difficult or upsetting to some people; answering them is optional and does not commit you to a particular approach. Your answers will be shared with your care team and will help start the conversation.

1. How much information about what might be ahead with your cancer would you like from your health care team?

- ○ 1 - Only the basics about my condition and my treatment
- ○ 2
- ○ 3
- ○ 4
- ○ 5 - All the details about my condition and my treatment

2. What is your understanding now of where you are with your cancer?

3. If you become sicker, how much are you willing to go through for the possibility of living longer?

- ○ 1 - Nothing: I wouldn't want to go through any more medical treatments
- ○ 2
- ○ 3
- ○ 4
- ○ 5 - Everything: I would want to try any medical treatments possible

Takvorian et al., Imp Sci 2021

Conclusions

- Design of EHR (and its patient-facing applications) affects clinician and patient behaviors
- Altering the way information is framed and choices are presented can predictably change behavior without restricting choice → opportunity to nudge high-value, evidence-based care
- Rigorous evaluation of intended and unintended impact is critical – then refine!
- EHR enables rapid, large-scale, pragmatic evaluation of design elements

Acknowledgements

- Penn Medicine Nudge Unit
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Penn Medicine