The Science of Patient Centered Decisions:
An ACCORDS Seminar Series

Please **sign in** and be sure to **fill out an evaluation** before you leave.

- Final talk in this series today:

3/19/2019	Ed2N 1206	Lightening the Load: Personalizing substantive, high-volume decisions in primary care with targeted,brief shared decisions making	Tanner Caverly, PhD

- **Behavioral Science in Health and Health Care:** An ACCORDS Seminar Series

3/21/2019	ED2S 2305	Developing Multi-level Change Capacity: Leveraging Physician Vanguards in Medical Home Transformation	Georges Potworoski, PhD
4/24/2018	ED2N 2307	Interdisciplinary Approaches to Physical Activity: Built Environment Research and Translation to Policy	Jim Sallis, PhD

Recorded seminars can be found on our website https://goo.gl/1q9nUx

Request a Planning or Support Consultation with the Education Program

Lightening the Load

Personalizing Substantive, Everyday Decisions

(like lung cancer screening)

Tanner Caverly, MD, MPH

Data Science to Patient Value Seminar Series

Room for one more?

A typical Jeepney ride in the Philippines

Lewis, CL et. al. “PSA Decision Support Interventions in Primary Care.” *JGIM*, 2015.

Tan ASL, Mazor KM, McDonald D, Lee SJ, McNeal D, Matlock DD, Glasgow RE. “Designing SDM Interventions for Dissemination and Sustainment.” *MDM P&P*, 2018.

Substantive everyday decisions

Lung cancer screening (LCS)

Start/stop statin?

Aspirin?

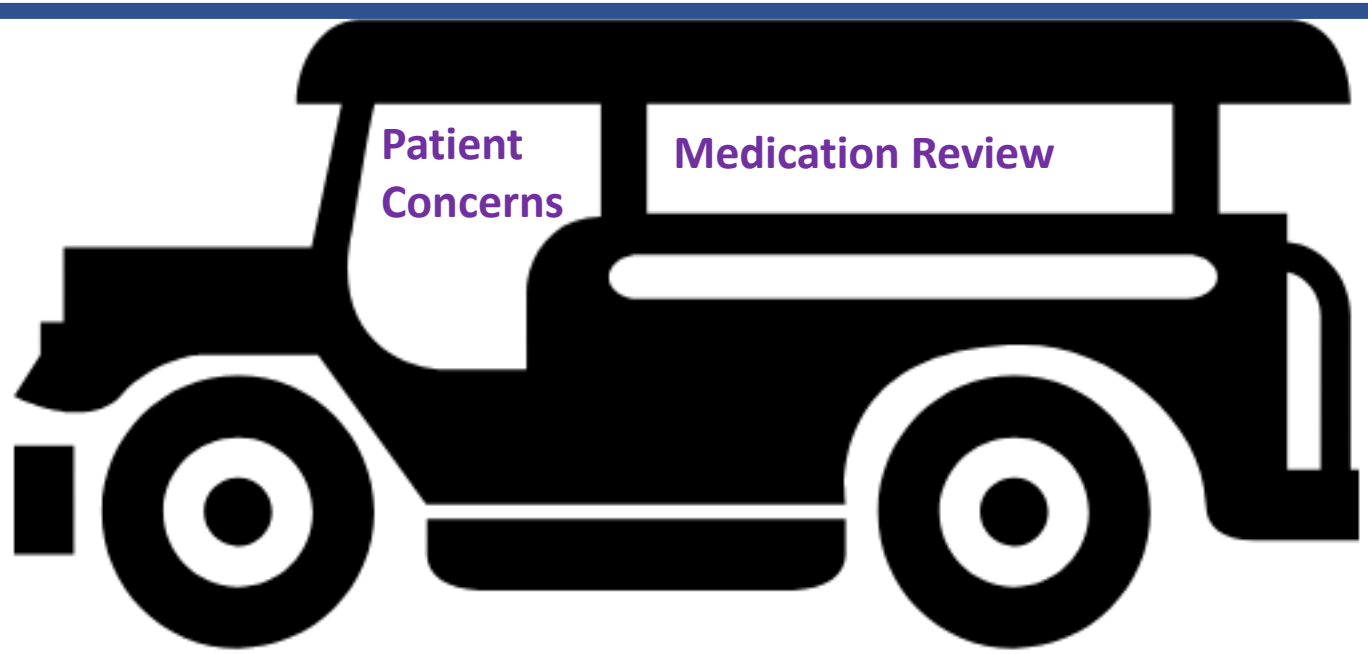
BP meds?

Cancer screening?

Other preventive services?

For whom…how frequently?

Chronic disease management



Routine Tasks:

- ETOH
- Tobacco
- Diet/Acitivity
- Depression
- Suicide
- Domestic violence
- Risky behaviors
- Cognitive decline
- Mobility
- Immunizations
- Advanced directives

Substantive, everyday decisions (like LCS)

Occur very frequently in primary care (on a daily basis)

Not major, but have important consequences

Personalizing these decisions can add a lot of value

But, they pop up very frequently in primary care and time for personalizing these decisions is scarce

Time is *very* scarce:
Among 1,000 clinicians with typical panels…

None could come close to discussing all highly-recommended preventive services (like LCS)

Applied even to those working long hours and carrying a smallish patient panel.

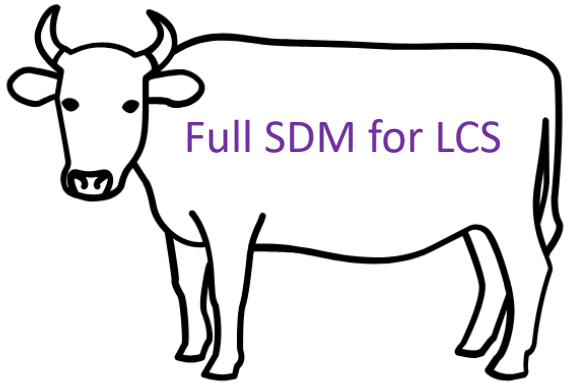
Clinicians fall 5.6 hours behind each day completing SDM for all highly-recommended preventive services

Caverly TJ, Hayward RA, Burke JF. *BMJ* 2018.

Much to do with nothing: microsimulation study on time management in primary care

Our VA research initiative:

Implementing Shared Decision Making (SDM) for Lung Cancer Screening (LCS)



Overview

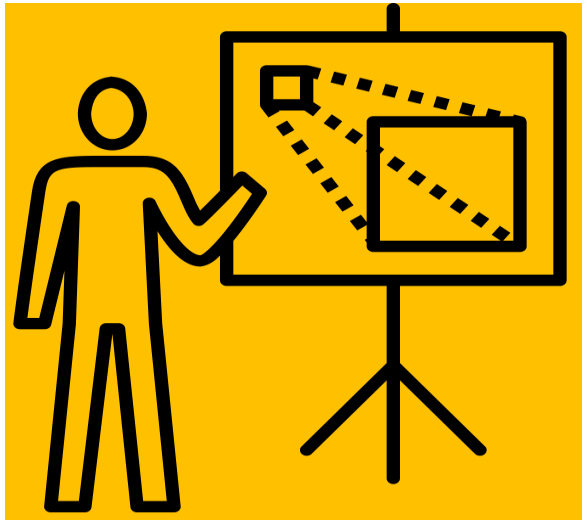
Lung cancer screening: a model to study personalized decision-making

3 things to enhance clinician's capacity to personalize

1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

Caveats

Lung Cancer Screening: A good model to study personalized decision-making



1. Strong evidence that it reduces the risk of total mortality
2. Mortality benefit varies dramatically across the population
3. False positive results carry major consequences
4. It is expensive
5. Current guidelines recommend and CMS payment require SDM

~2% of eligible screened in 2016

Eligible if:

Age 55-80
Smoked ≥ 30 pack-years
Current or former smoker quitting < 15 yrs ago
Healthy enough to get curative lung resection

Pham et al. JCO 2016.

Strong rationale for population screening for lung cancer

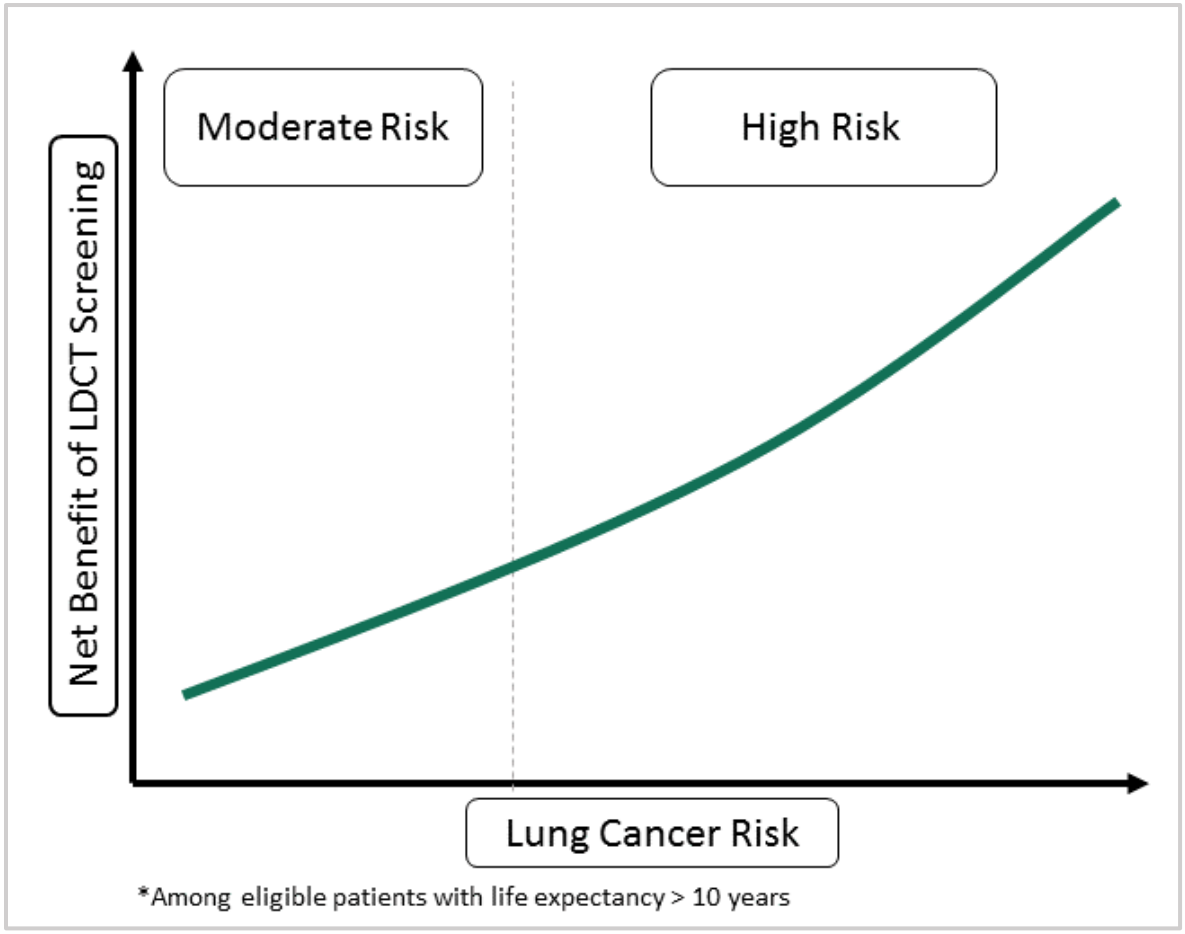
Most deadly solid tumor cancer in the US:

- 155,870 died from lung cancer in 2017
- More than colon, prostate, breast, and melanoma combined

Concentrated on a relatively small, easily identifiable high-risk group: heavy smokers

- Lower education, lower income, and higher incidence of mental illness

Strong evidence that screening helps some patients a great deal



For ideal candidates:

LCS >> mammography

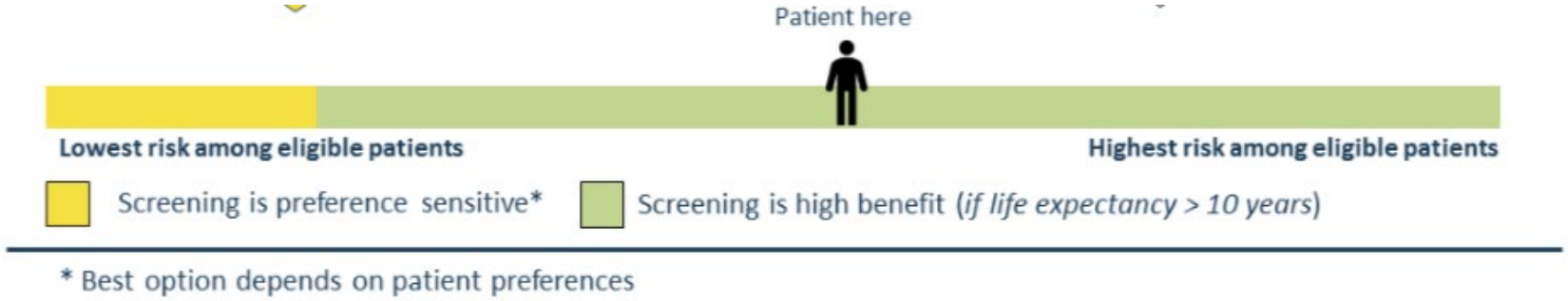
LCS ~ CRC screening

Caverly TJ, Cao P, Hayward RA, Meza R. *Annals of Internal Medicine.* 2018.

Lung Decision Precision

Web based tool developed as part of our initiative

Studying how to help screening coordinators and primary care teams personalize LCS at 8 VA sites



3 things to enhance our capacity to personalize

1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

Overview

Lung cancer screening as a good model to study personalized decision-making in primary care

3 things to enhance clinician capacity to personalize

1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

Caveats

Premise for our work:

Clinicians could use a practical approach that enhances their capacity to be skilled health advocates *and* strong supporters of autonomy

Enhance clinician capacity to be skilled health advocates

But, most patients are also *quite* uninterested in being told what to do

The goshawk: *Accipiter gentilis*

A species hawk found in many places including North America.

Accipiter is "hawk", from *accipere*, "to grasp”

gentilis is "noble”

genteel, refined, worldly-wise, & sophisticated

3 things to enhance our capacity to personalize

To see like a goshawk (skilled health advocate)

1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

Caveats

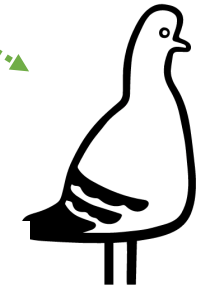
To be elegant and refined like a goshawk (skilled communicator)

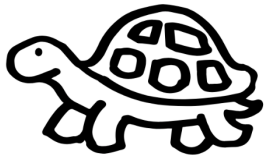
3 things to enhance our capacity to personalize

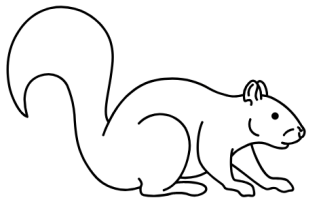
1) Individualized estimates of benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

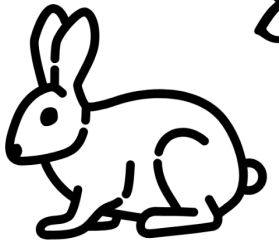
Caveats

The visual acuity to find, and the instincts to move directly toward, the most valuable targets

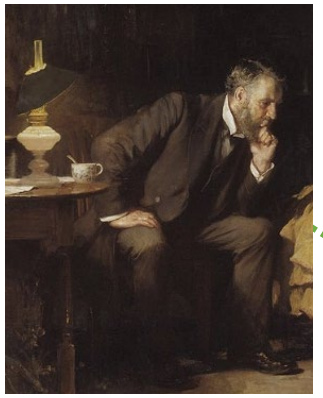








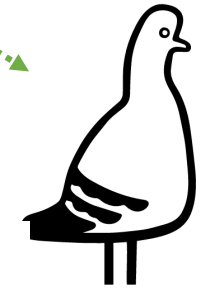
What's the most valuable thing for this patient?



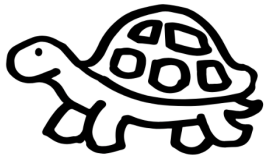
Prostate cancer screening

Start statin

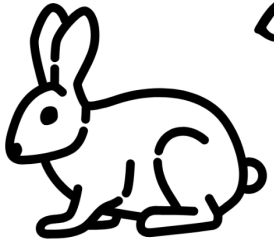
Lung cancer screening



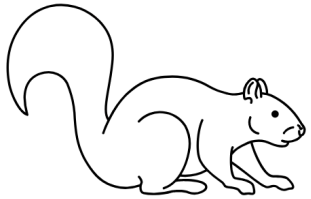
Stop glyburide



Colon cancer screening



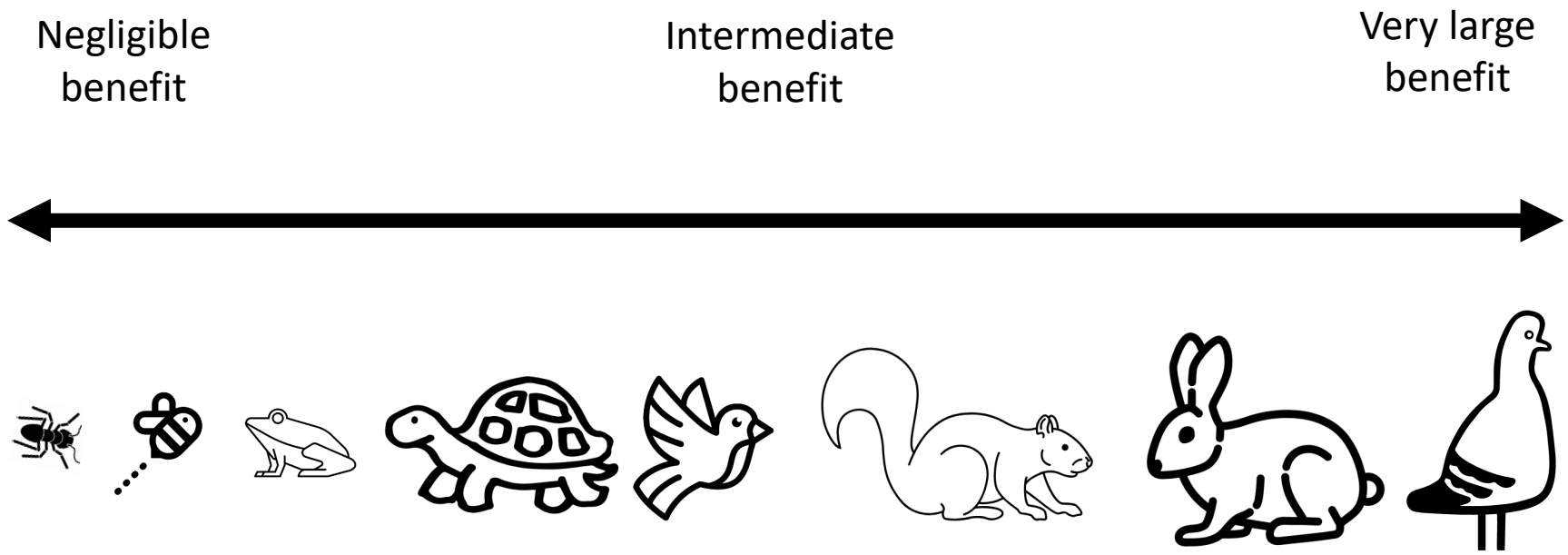
Add 2nd anti-hypertensive

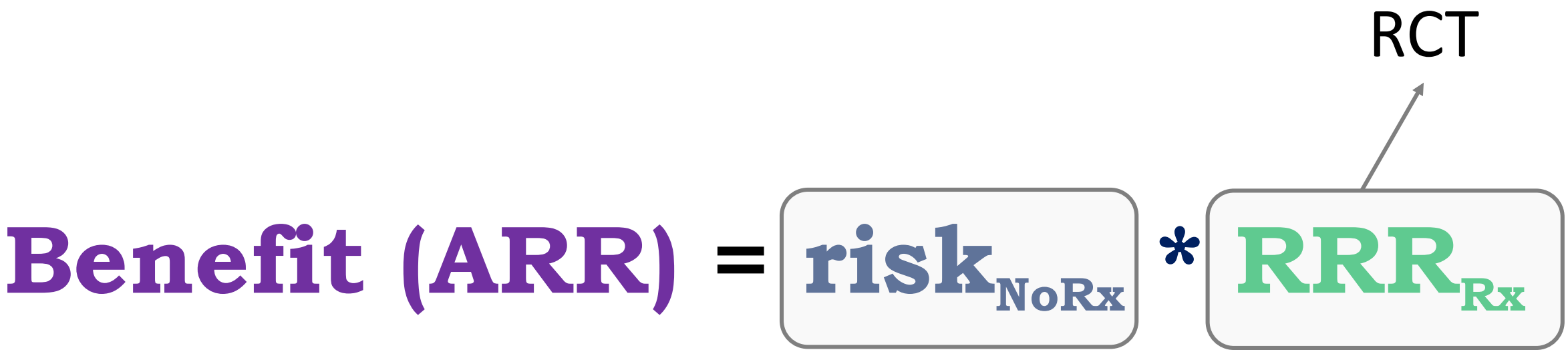


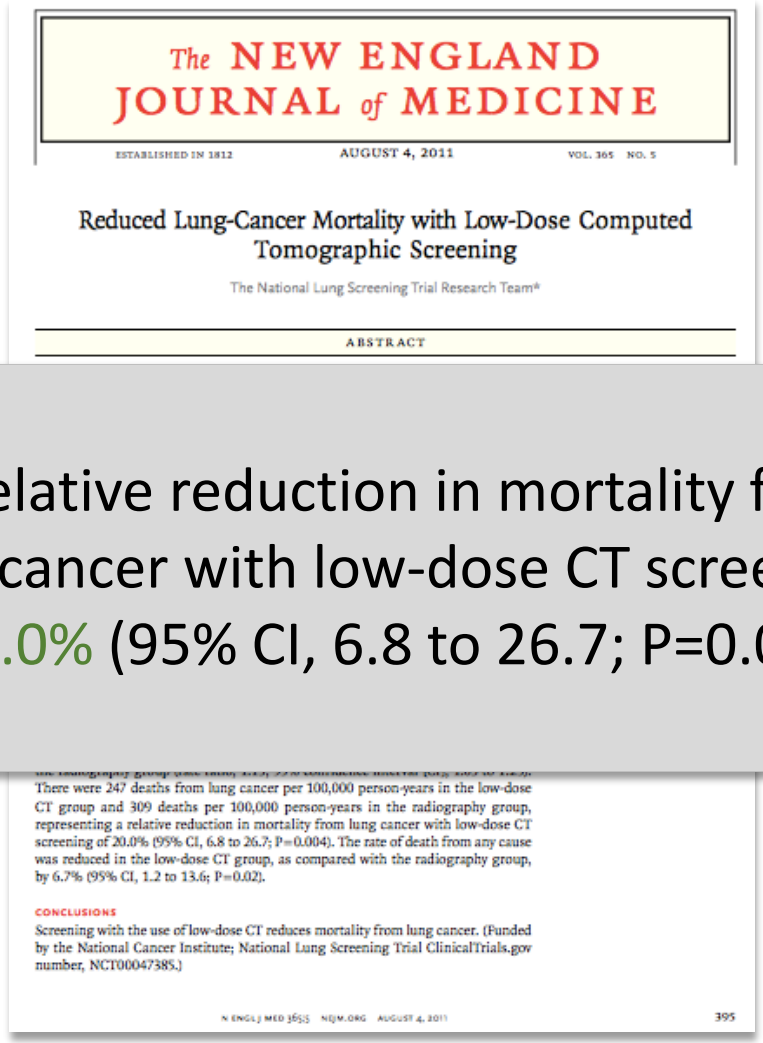
Start aspirin

AAA screening

Clinicians can use individualized estimates of benefit to see like a goshawk




RCT
Benefit (ARR) = risk NoRx * RRR Rx



The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 AUGUST 4, 2011 VOL. 365 NO. 5

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

ABSTRACT

There were 247 deaths from lung cancer per 100,000 person-years in the low-dose CT group and 309 deaths per 100,000 person-years in the radiography group, representing a relative reduction in mortality from lung cancer with low-dose CT screening of 20.0% (95% CI, 6.8 to 26.7; P=0.004). The rate of death from any cause was reduced in the low-dose CT group, as compared with the radiography group, by 6.7% (95% CI, 1.2 to 13.6; P=0.02).

CONCLUSIONS

Screening with the use of low-dose CT reduces mortality from lung cancer. (Funded by the National Cancer Institute; National Lung Screening Trial ClinicalTrials.gov number, NCT00047385.)

N ENGL J MED 365;5 NEJM.ORG AUGUST 4, 2011 395

"…relative reduction in mortality from lung cancer with low-dose CT screening of 20.0% (95% CI, 6.8 to 26.7; P=0.004)"

Estimated using validated prediction models from observational studies

$$\text{Benefit (ARR)} = \text{risk}_{\text{NoRx}} * \text{RRR}_{\text{Rx}}$$

4 models most accurately predict lung cancer risk across race/ethnicity groups

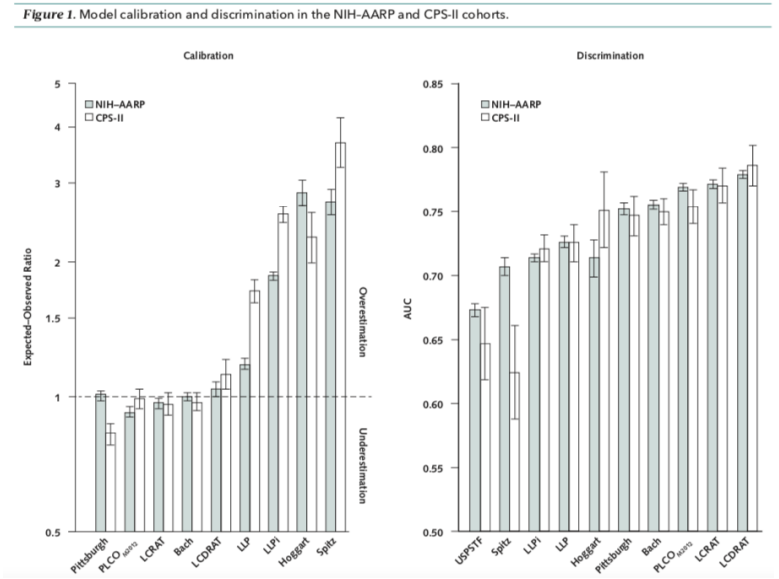
Best Models:

Bach model

$PLCO_{M2012}$

LCRAT

LCDRAT



Katki et. al. Annals of Internal Medicine 2018.

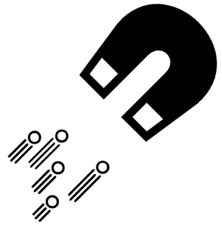
$$\text{Benefit (ARR)} = \text{risk}_{\text{NoRx}} * \text{RRR}_{\text{Rx}}$$

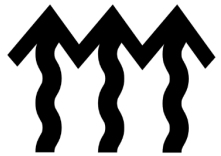
3 things to enhance our capacity to personalize

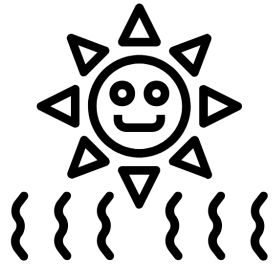
1) Individualized estimates of benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *Targeted, brief SDM*

Caveats

The difference between color vision and black & white







Human world

vs.

Goshawk world

Clinicians can use bounds on the preference-sensitive zone to see like a goshawk

Chance of benefit	< 0.05%	10%	>50%

Current model

A more realistic model

Uncertainty in benefits & harms
Variation in patient preferences

Green zone (Go, high benefit):

Benefit so large it clearly outweighs downsides

Red zone (Stop, net harm):

Benefit so small that treatment harms dominant

Everything else is yellow zone (Caution, uncertain):

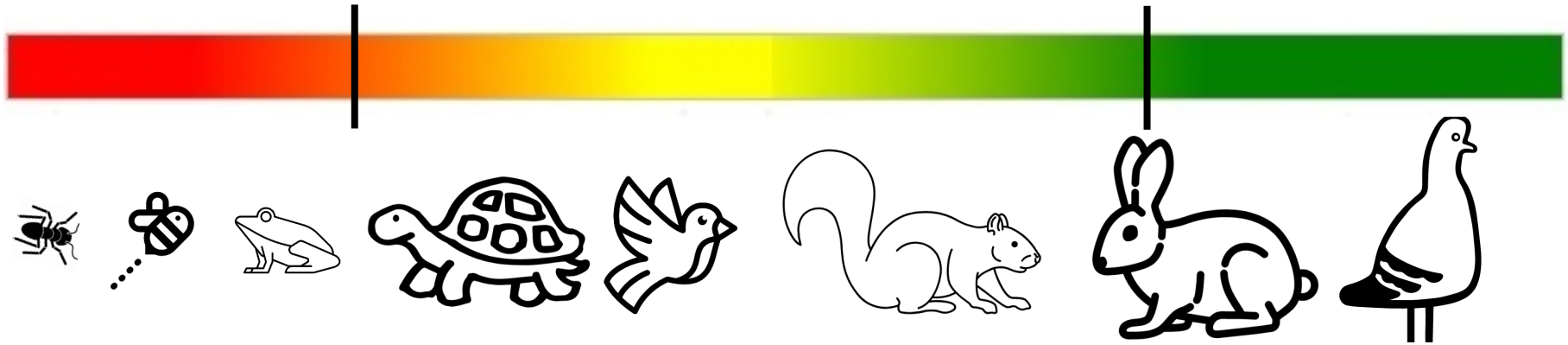
Benefit uncertain, depends on context/preferences

- [x] Individualized estimates of benefit
- [x] Clarity on likely preference-sensitive zone

Negligible benefit

Intermediate benefit

Very large benefit



3 things to enhance our capacity to personalize

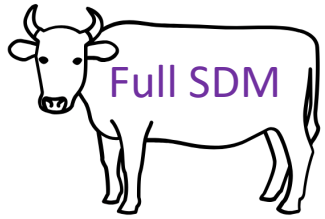
1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

Caveats

Clinicians need an efficient process for everyday decisions like LCS

Caverly TJ, Hayward RA, Burke JF. *BMJ* 2018.

And a way to make these decisions like LCS more patient-centered



Proposals that promote full SDM are not good fit for substantive, everyday decisions

Progress is unlikely until we have feasible alternatives

Without a feasible alternative to full SDM, clinicians will usually default to…

Lowest-Scoring Conversations
Physician: Because of the smoking history, um, I'd like to get a CT scan of the lungs and make sure there's nothing in there. Um, this is a new benefit now. Insurance companies are paying for it. Patient: Okay Physician: Okay? Now, I'll just get that set up and we'll move on.

Brenner AT, et. al. Evaluating Shared Decision Making for Lung Cancer Screening. JAMA IM 2018.

3 things to enhance our capacity to personalize

1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

To be refined, like a goshawk
(skilled communicator)

Preference-sensitive zone

Our approach: targeted, brief SDM

Make a personalized recommendation

Recommendation strength varies with evidence for and size of net benefit

- *Encourage high benefit care*
- *Discourage risky/trivial care*
- *Or inform about how the decision is preference-sensitive and how key factors can affect the decision*

Fully respect patient requests for more information or disagreement with your initial guidance

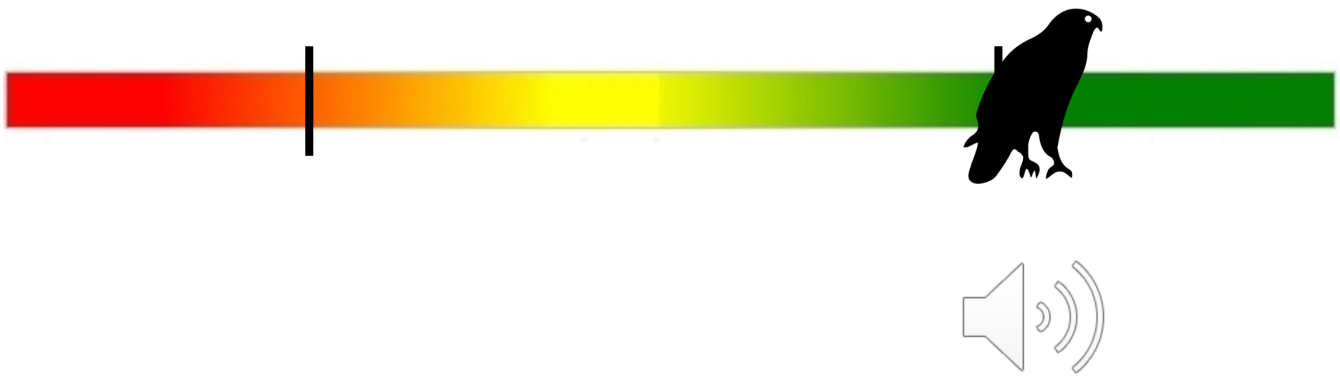
On request, ensure access to high-quality quantitative information

Fully support patient veto power

Initial approach in the preference-sensitive zone (1 min 7 seconds)

1.	**Make a personalized recommendation**	”you are a candidate”
	Inform the patient the decision is preference-sensitive	“for you it’s a tough decision” “little bit of benefit with a little bit of downside”
	Briefly present qualitative information about the most important factors affecting the decision	“if you’re the type of person that would feel…" **Recognizes tough decision without being ”wishy-washy”**
2.	**Fully respect patient requests for more information or disagreement**	
	Explicitly state there is a choice, and give patients permission to make the choice based on what matters most to them	“it’s really a personal choice between [the small chance of catching a lung cancer early] vs. the risk of false positives and unnecessary biopsies”

High-benefit



High-benefit (40 seconds)

1.	**Make a personalized recommendation**	“I think it’s a good idea for you” “overall I’d recommend"
	Strength varies with evidence for and magnitude of net benefit	“benefits are fairly high but there are some downsides” “I think this is worth it” “risk of lung cancer is pretty high”
2.	**Fully respect patient requests for more information or disagreement with your initial guidance**	“what are your thoughts about that?”

Very high-benefit

Very high benefit (43 seconds)

1	**Make a personalized recommendation**	“I would recommend that you get lung cancer screening”
	Strength	“ideal candidate” ”greatly improve your life-expectancy”
2.	**Fully respect patient requests for more information or disagreement with your initial guidance**	“unless you have strong objections”

Caveats

1) Individualized estimates of net benefit
2) Bounds on the preference-sensitive zone
3) Patient-centered, feasible process that works in routine care: *targeted, brief SDM*

Caveats

Substantive everyday decisions are not major decisions

For high stakes decisions like major surgery or LVAD:

A neutral (no rec) or "full SDM" approach seems completely justifiable if preference-sensitive

Thompson JS, Matlock DD, Morris MA, McIlvennan, CK, Allen LA. "D&I of Patient Decision Aids for LVADs." *MDM Policy & Practice,* 2018.

Neutral approach not suitable for SE decisions like LCS:

1. Time, time, time…and volume
2. Payors unlikely to pay non-PCPs
3. Patient willingness to engage in repeated full SDM

Where are the numbers?

No numbers initially

Isn’t time in the current system

Patients have difficulty processing numbers

Patients should have access to high-quality quantitative information if desired

Paternalism in disguise?

This approach is NOT about telling patients what to do

Reject unchecked paternalism AND reject the idea clinicians should be passive suppliers of probabilities

Good clinicians make a personalized recommendation and then happily support patients as the final decider

How to identify preference-sensitive zone?

Decreases the stakes of setting thresholds compared to current the screen/don't screen thresholds

Simulation analyses can put clinical outcomes and preferences together to help put bounds on P-S zone

Individual clinicians, expert panels, patients, how to incorporate modeling?

Best process still an open question

Caverly TJ, Cao P, Hayward RA, Meza R. *Annals of Internal Medicine.* 2018.

What's new here?

Moving past providing quantitative information and focusing on improving how recommendations are made

Acknowledge that chance of benefit exists on spectrum and there is a preference-sensitive zone

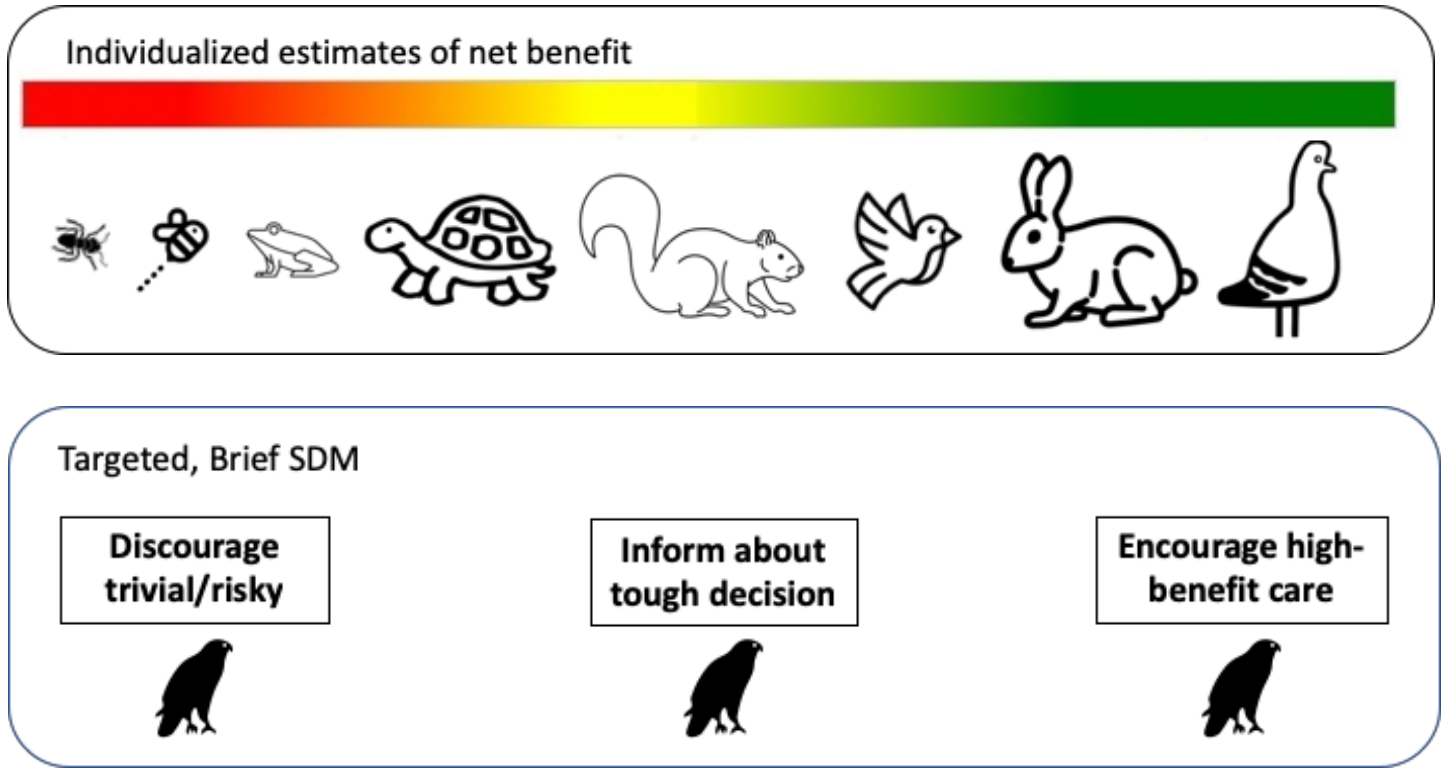
Focus on feasibility, this is doable!

Systematic approach to support the principles of SDM and meet the transparency standard of informed consent

Brody. "Transparency: Informed Consent in Primary Care." Hastings. 1989.

Conclusion

PCPs need a way to make SE decisions more patient-centered than what occurs now:



“I’ve thought about the degree of benefit for you specifically”

Strengthen the patient-clinician relationship

Most patients:

Want their doctor to care for them as individuals

Want information, a recommendation, and no-fault veto power

Fine with us being gentle health advocates as long as we fully respect their autonomy

Schneider, Carl E. *The Practice of Autonomy: Patients, Doctors, and Medical Decisions.* 1998.

The goshawk: *Accipiter gentilis*

Accipiter is "hawk", from *accipere*, "to grasp”

gentilis is "noble"

The hawk: fiercely independent

“a creature whose defining trait is the capacity to fly away”

Acknowledgements

Rod Hayward

Angie Fagerlin, Julie Lowery and the Prove QUERI team including:

- Sarah Skurla
- Jeff Dewitt
- Joe Leishman

Eve Kerr

Brian Zikmund–Fisher

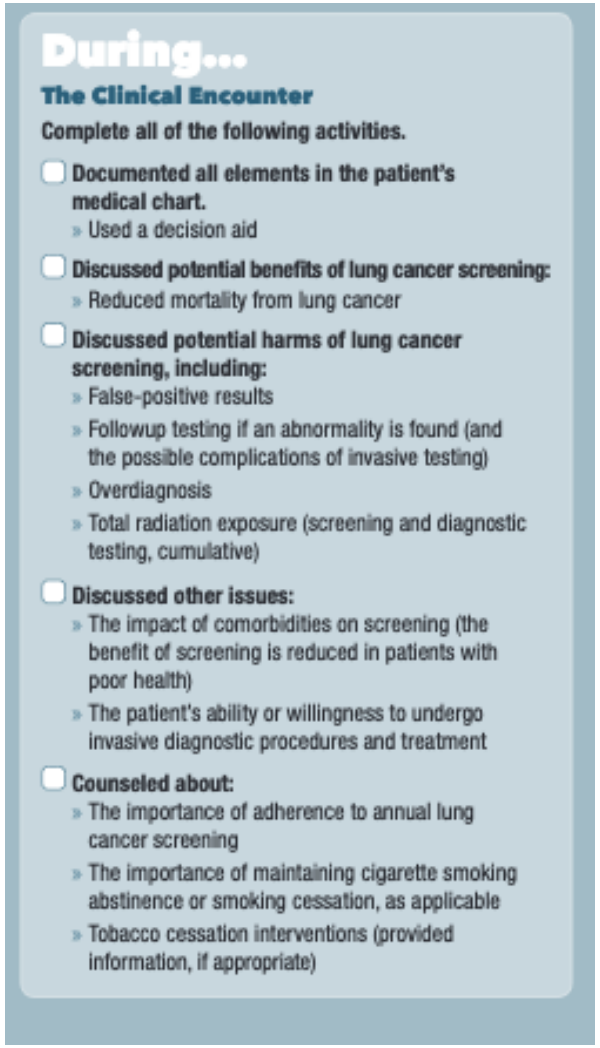
Laura Damschroder

Dan Matlock

Laura Scherer

The jeepney

AHRQ checklist for meeting CMS criteria for a LCS counseling and SDM visit



During...

The Clinical Encounter

Complete all of the following activities.

- ☐ **Documented all elements in the patient's medical chart.**
  - » Used a decision aid
- ☐ **Discussed potential benefits of lung cancer screening:**
  - » Reduced mortality from lung cancer
- ☐ **Discussed potential harms of lung cancer screening, including:**
  - » False-positive results
  - » Followup testing if an abnormality is found (and the possible complications of invasive testing)
  - » Overdiagnosis
  - » Total radiation exposure (screening and diagnostic testing, cumulative)
- ☐ **Discussed other issues:**
  - » The impact of comorbidities on screening (the benefit of screening is reduced in patients with poor health)
  - » The patient's ability or willingness to undergo invasive diagnostic procedures and treatment
- ☐ **Counseled about:**
  - » The importance of adherence to annual lung cancer screening
  - » The importance of maintaining cigarette smoking abstinence or smoking cessation, as applicable
  - » Tobacco cessation interventions (provided information, if appropriate)

Key feature:
The recommendation is not the final decision

Use language and tone to help communicate:

1. the strength of the recommendation
2. that the patient is makes the final decision and has no-fault veto power

Allows clinicians to continue being **health advocates** for their patients.

Adds **skilled communication**: clear distinction between the PCP rec and the patients final decision

Current one-size-fits all discussions (mean time: 59 seconds)

Highest-Scoring Conversations

Physician: Okay, so, [PATIENT NAME], one of the recommendations, now I just want to discuss this with you. You can decide. Um, one of the recommendations now is that if you have smoked more than 30 pack-years, which you have, and you've quit sometime within the last 15 y, which you have.
Patient: Yeah.
Physician: That you have a yearly chest CT. If you want to do that, I can make it available.
Patient: It's, it's a what?
Physician: A chest CT scan to look for cancer, early cancer. Um, before, we never had anything we could do. If you got lung cancer, bye.
Patient: Yeah.
Physician: Um, now we're finding that if we find these things really early by doing about a yearly CT scan on it, that we can actually intervene and do something about it. Are you interested in getting that done?
Patient: Yeah, yeah.
(later)
Physician: (to nurse) I need the code for the, um, smoker CT scan, please.

Brenner AT, et. al. Evaluating Shared Decision Making for Lung Cancer Screening. JAMA IM 2018.

Persistent wide gap between expectations for full SDM and clinical reality

Table 2. Presence of Shared Decision Making Communication Behaviors in Lung Cancer Screening Conversation

Shared Decision Making Communication Behavior Item by the Clinician (Abbreviated Item Name)	Mean Item Score (of 0-4) (Range)[b]
1. Draws attention to an identified problem as one that requires a decision making process (identifying problem)	0.43 (0-2)
2. States that there is more than one way to deal with the identified problem ("equipoise") (explaining equipoise)	0.79 (0-2)
3. Assesses patient's preferred approach to receiving information to assist decision making (eg, discussion in consultations, read printed material, assess graphical data, use videotapes or other media) (assessing preferred approach)	0
4. Lists options, which can include the choice of "no action" (listing options)	0.50 (0-2)
5. Explains the pros and cons of options to the patient (taking no action is an option) (explaining pros and cons)	0.14 (0-1)
6. Explores the patient's expectations (or ideas) about how the problem(s) are to be managed (exploring expectations)	0
7. Explores the patient's concerns (fears) about how problem(s) are to be managed (exploring concerns)	0
8. Checks that the patient has understood the information (checking understanding)	0.07 (0-1)
9. Offers the patient explicit opportunities to ask questions during the decision making process (offers opportunities for questions)	0.21 (0-2)
10. Elicits the patient's preferred level of involvement in decision making (eliciting preferred involvement)	0.43 (0-1)
11. Indicates the need for a decision making (or deferring) stage (indicating need for decision)	0.36 (0-1)
12. Indicates the need to review the decision (or deferment) (indicating need to review or defer)	0

Simple "rules of thumb" for personalizing LDCT screening discussions based on estimating a person's annual lung cancer risk*

Screening is likely to be high benefit if a person's… • annual lung cancer risk is greater than ~0.3% and less than ~1.3%
Screening is likely to be highly preference-sensitive if a person's… • annual lung cancer risk is less than ~0.3% OR • annual lung cancer risk is greater than ~1.3% (due to limited life-expectancy in this group) OR • life-expectancy is limited (< 10.5 years)
Exercise caution if a person's… • annual lung cancer risk is very low (e.g., less than ~0.3%) AND their life-expectancy is limited (< 10.5 years). Screening may have negligible benefit or even net harm for these persons.

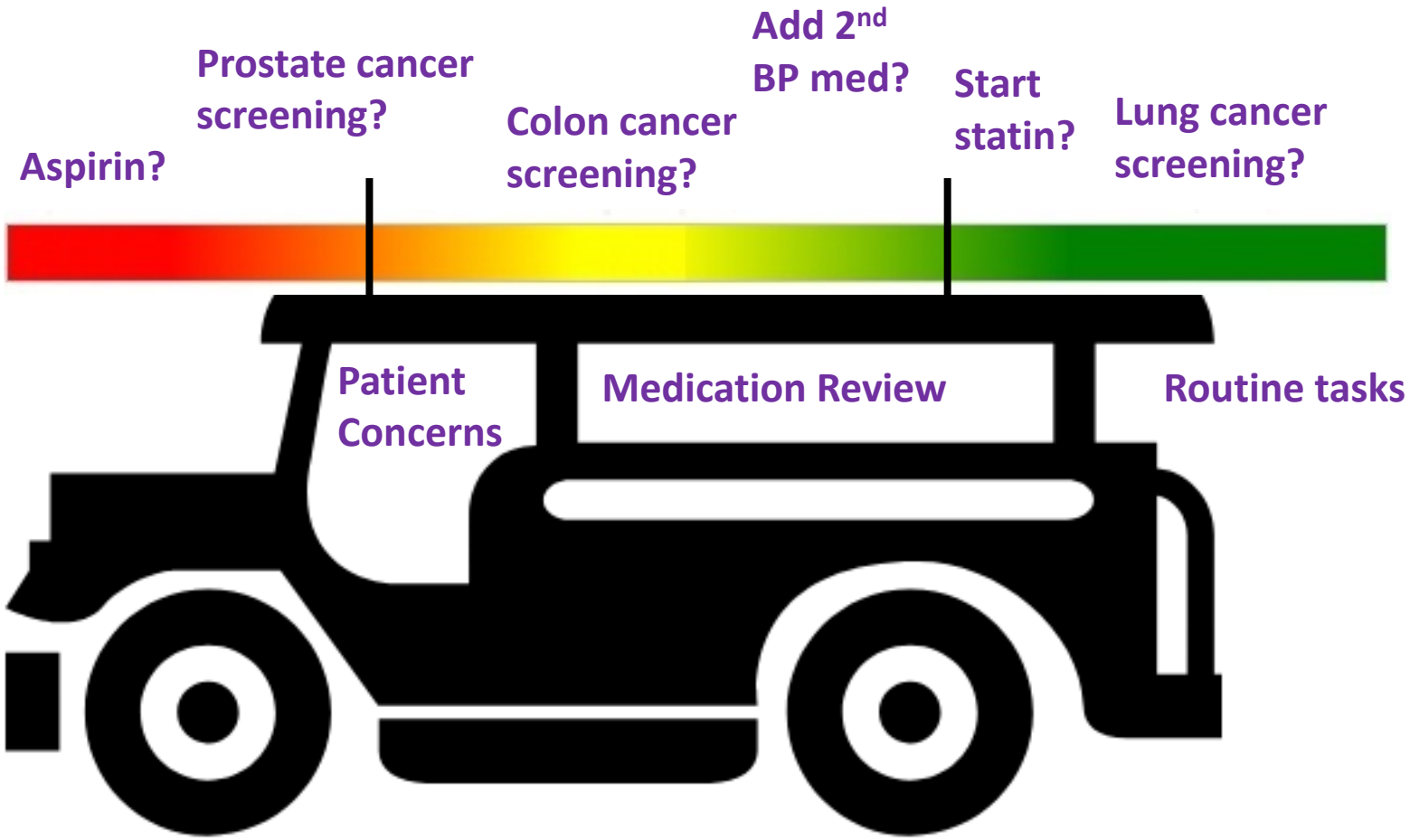
Caverly TJ, Cao P, Hayward RA, Meza R. *Annals of Internal Medicine* 2018.

Spectrum of benefit for lung cancer screening

Chance of benefit	< 0.05%	0.3%	>1%
Payoff	< 1 year		> 20 years

Red zone (30 seconds)

Prevention App:
Help PCPs personalize multiple SE decisions



ORIGINAL ARTICLE

Targeting of Low-Dose CT Screening According to the Risk of Lung-Cancer Death

Stephanie A. Kovalchik, Ph.D., Martin Tammemagi, Ph.D., Christine D. Berg, M.D., Neil E. Caporaso, M.D., Tom L. Riley, B.Sc., Mary Korch, M.Sc., Gerard A. Silvestri, M.D., Anil K. Chaturvedi, Ph.D., and Hormuzd A. Katki, Ph.D.