

# Trustworthy Doctors, Communication Tools, and Healthy Routines

Jan K. Woike, Dr. phil., Research Scientist

Udo Fischer, PhD, CEO of Duolark

# Doctors as seen by a cancer patient

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“The first doctor gave her six months to live. The second and third said chemotherapy would buy more time, but surgery would not. A fourth offered to operate.”

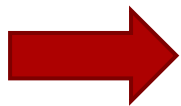
“It’s patchwork, and frustrating that there’s not one person taking care of me who I can look to as my champion”

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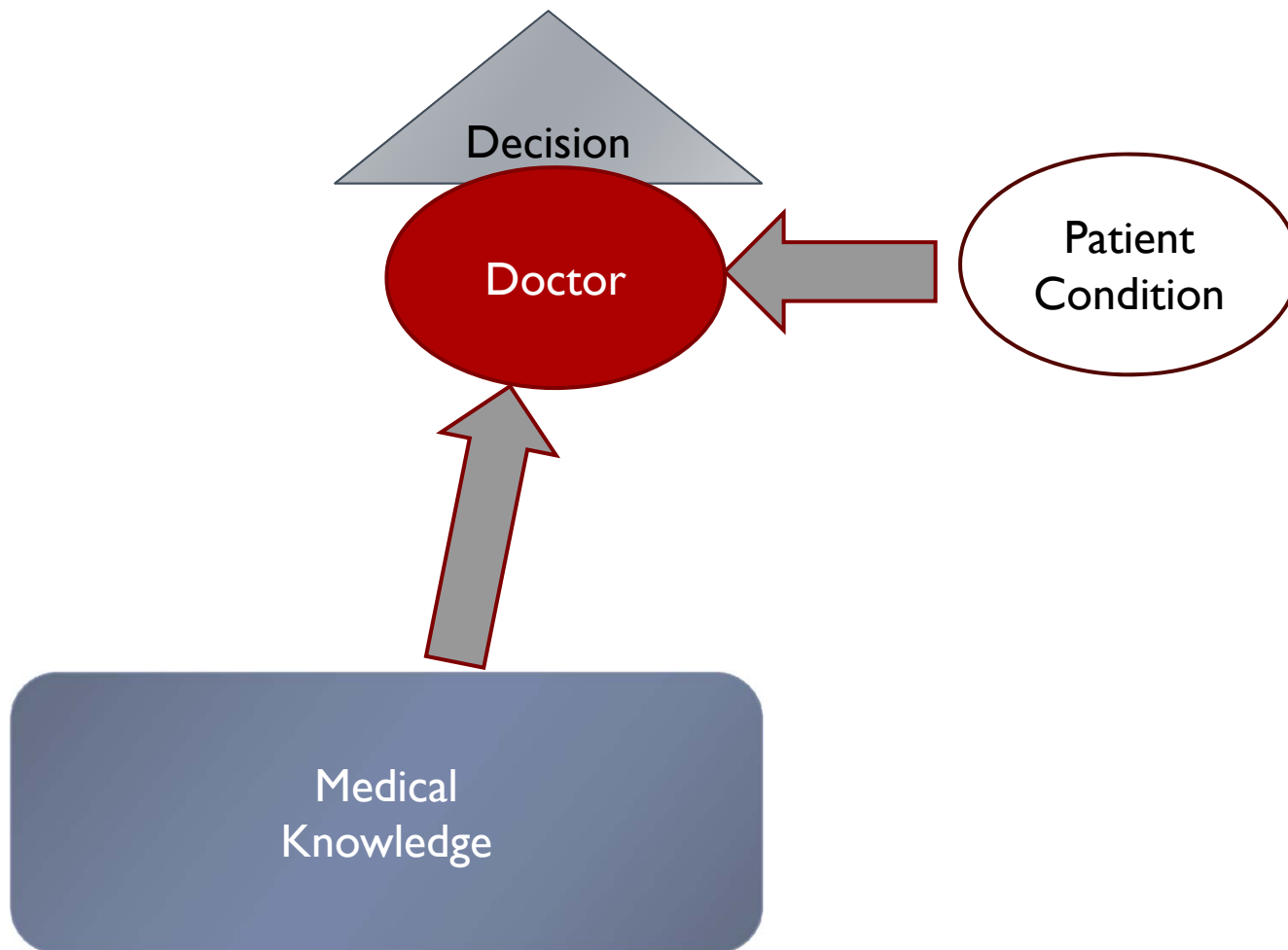
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## Patient-Centered Care and Shared Decision Making

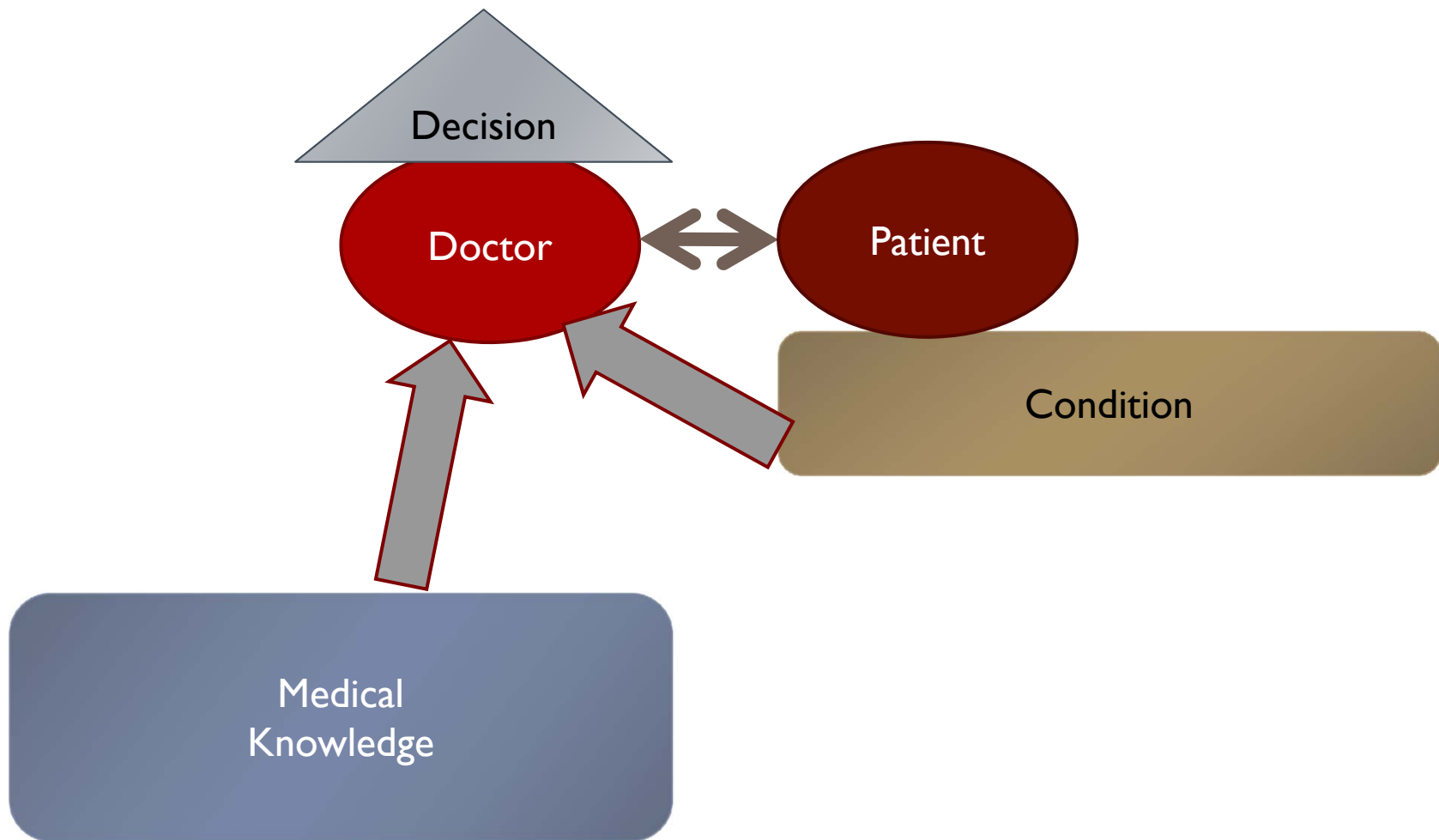
# Non-Shared Medical Decision Making I

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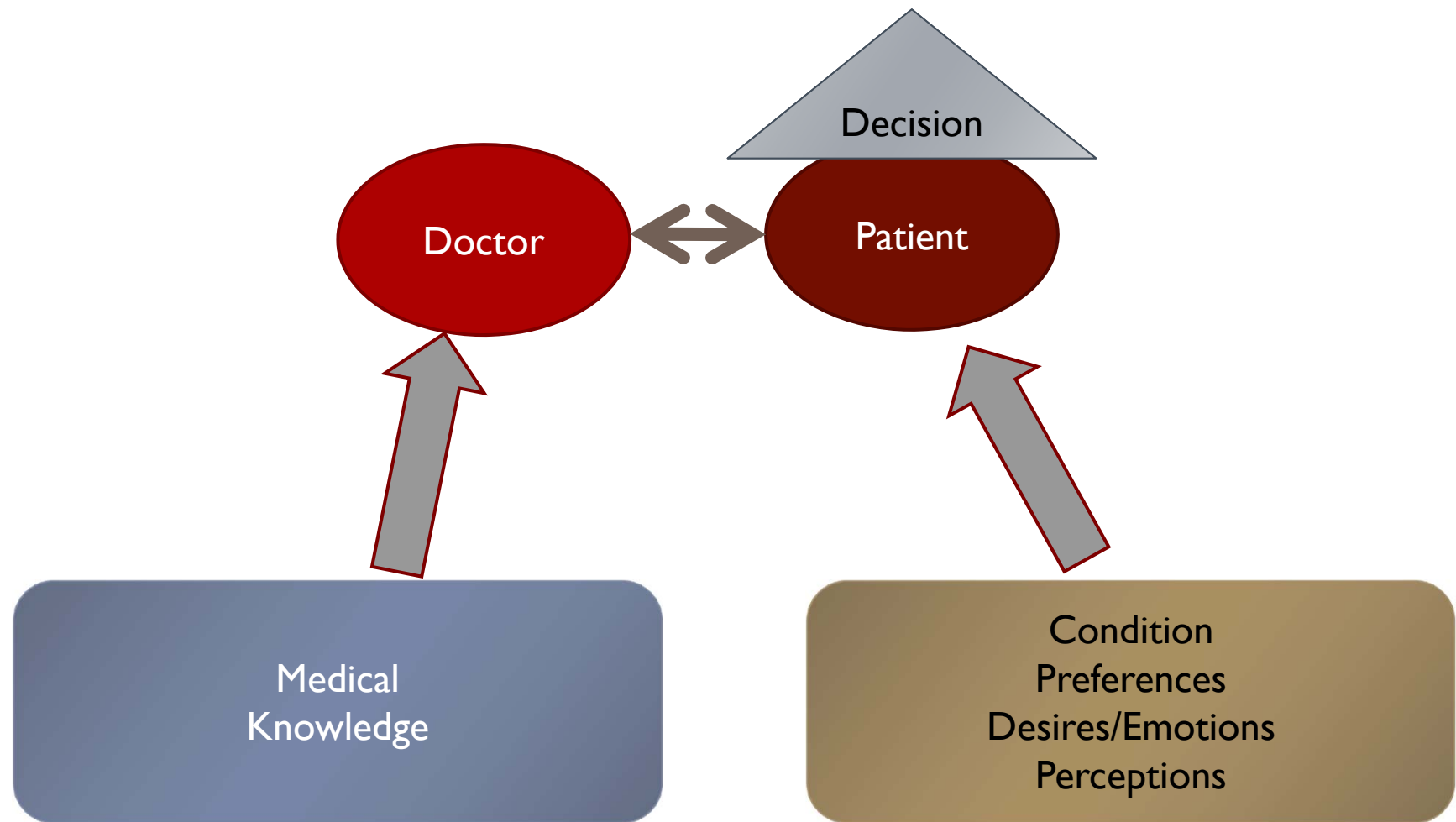
# Non-Shared Medical Decision Making II

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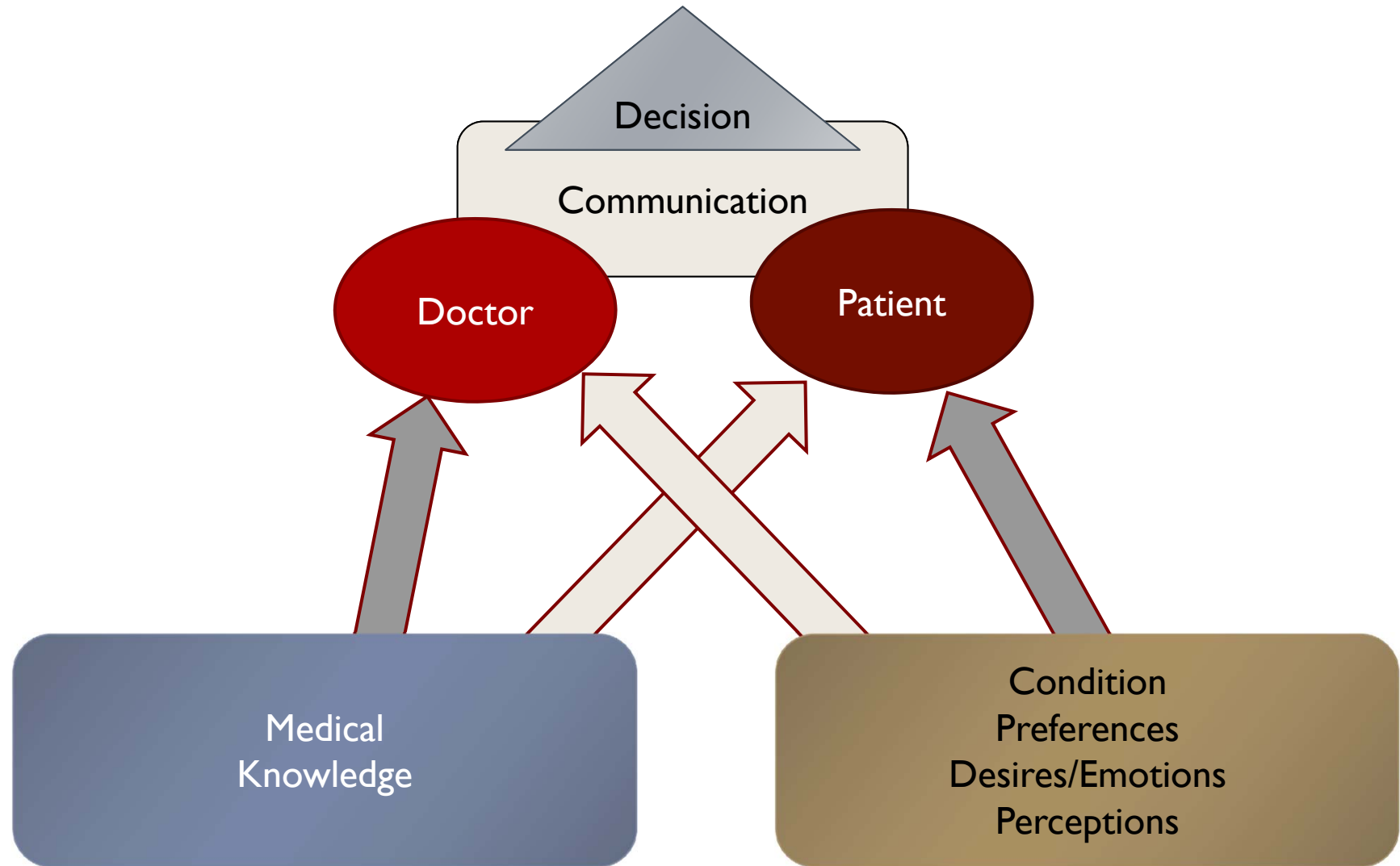
# Non-Shared Medical Decision Making III

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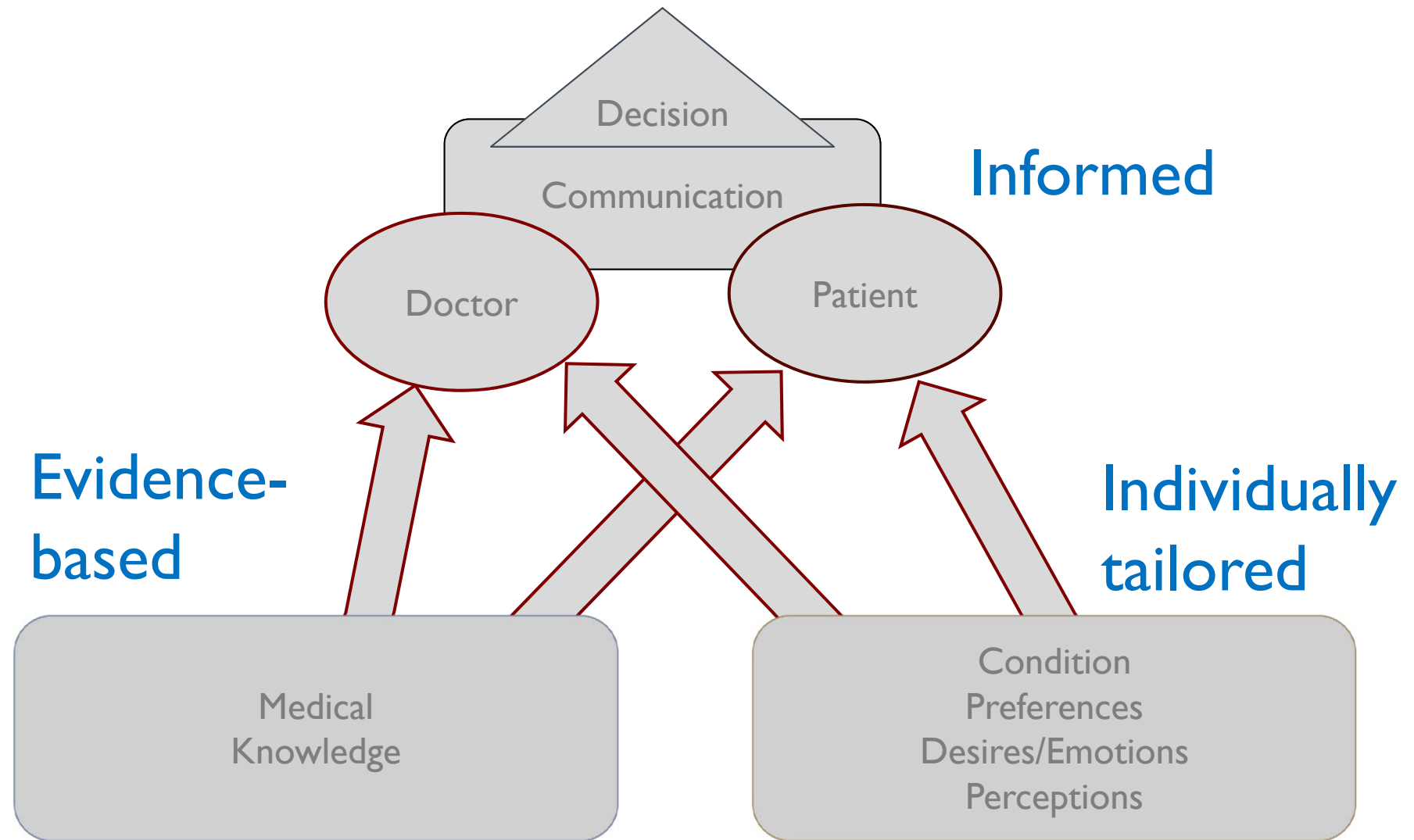
# Shared Medical Decision Making

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# Shared Medical Decision Making in theory

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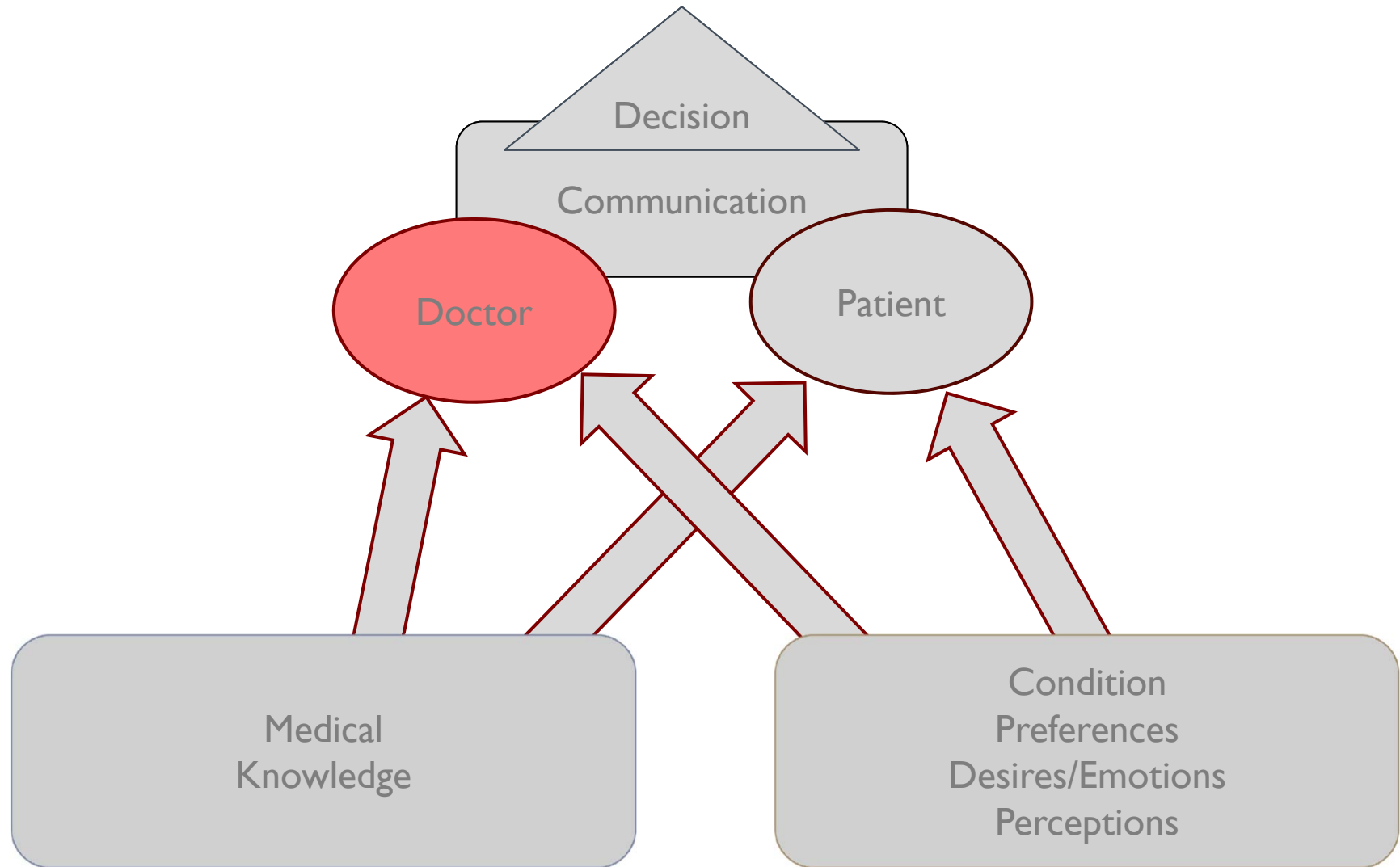
# Shared Decision Making: Status Quo

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- ▶ Only 1 in 4 physicians introduced herself,
- ▶ 3 in 4 patients cannot identify their doctor.
- ▶ 2 out of 3 patients are discharged from the hospital without even knowing their diagnosis.
- ▶ On average, physicians wait 18 seconds before interrupting patients' narratives of their symptoms

# How to achieve Shared Medical Decision Making in practice?

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# Selection Criteria

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**Selection**

# Physiology Question - MCAT

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The liver synthesizes factors that act cooperatively with platelets to facilitate which physiological process?

- ▶ A. Cholesterol synthesis
- ▶ B. Glucose metabolism
- ▶ ☒ C. Blood clotting
- ▶ D. Fat digestion



# Doctor-patient communication

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Doctor-patient communication requires

- ▶ Medical knowledge
- ▶ Communication skills



# Communication Skills

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- ▶ Communication techniques
- ▶ Ability and motivation to listen
- ▶ (Applied) psychological knowledge
- ▶ Nonverbal communication

# Psychology Question - MCAT

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A researcher is interested in memory of novel words. He shows participants unrelated words on a card, one after the other. Participants see 20 words in total, wait for 2 minutes, and then are asked to write down all of the words they can remember.

The researcher finds that 95% of the subjects remember the first three words. This finding is an example of:

- ▶ A. recency effect
- ▶ B. proactive interference
- ▶ ☒ C. the primacy effect
- ▶ D. retroactive interference



# Emotional Intelligence (EI, EQ,...) as a better selection criterion?

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“the ability to monitor one’s own and others’ emotions, to discriminate among them, and to use this information to guide one’s thinking and actions.”

(Salovey and Mayer, 1990)

Later additions and alternative concepts:

- ▶ Ability to perceive emotion, integrate understand and to regulate emotion (Mayer and Salovey, 1997)
- ▶ Non-cognitive skills, abilities, competencies, capabilities for coping with environmental pressure (Bar-on, 1997)
- ▶ Perceive and express emotions, regulate emotions in self and others (Kasman, Fryer-Edwards, & Braddock, 2003)

# Problems with Emotional Intelligence

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- ▶ Unclear whether EI is a general individual ability that can be measured
  - ▶ EI could be a **set** of techniques
  - ▶ EI could depend on current **contexts** and relations
- ▶ There are **numerous conflicting measurement tools** with sometimes poor psychometric properties
- ▶ Current concept lacks a **moral dimension**: manipulation of others is consistent with high EI
- ▶ Skill-based measures (ability EI) are very similar to **general intelligence**, self-reports (trait EI) are easily **fakeable** and correlate with **personality measures**

## Conclusions about EI

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- ▶ “There is **insufficient evidence**, at present, to support the use of EI as selection criterion.”
- ▶ “...there would be a **real risk of including and excluding the wrong people**. It is rather illogical, moreover, to exclude people because they lack a property they are supposed to acquire from the curriculum they are being selected for.”

### **Consequence:**

The development of a new measurement tool is desirable targeting the specific student population and the practical demands of their vocations.

## Second/third year medical students

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- ▶ Studies find an “escalation of cynicism”, an “ethical erosion”, and a decline in idealism that occurs during medical studies
- ▶ Student’s comment: “[the] humanistic side of medicine is too soft and a waste of time.”

“**Profound changes to enhance empathy** during medical education should be considered by leaders in medical education as a **mandate**, not an option, if the public is to be served in the best possible manner.”

# Training and teaching goals

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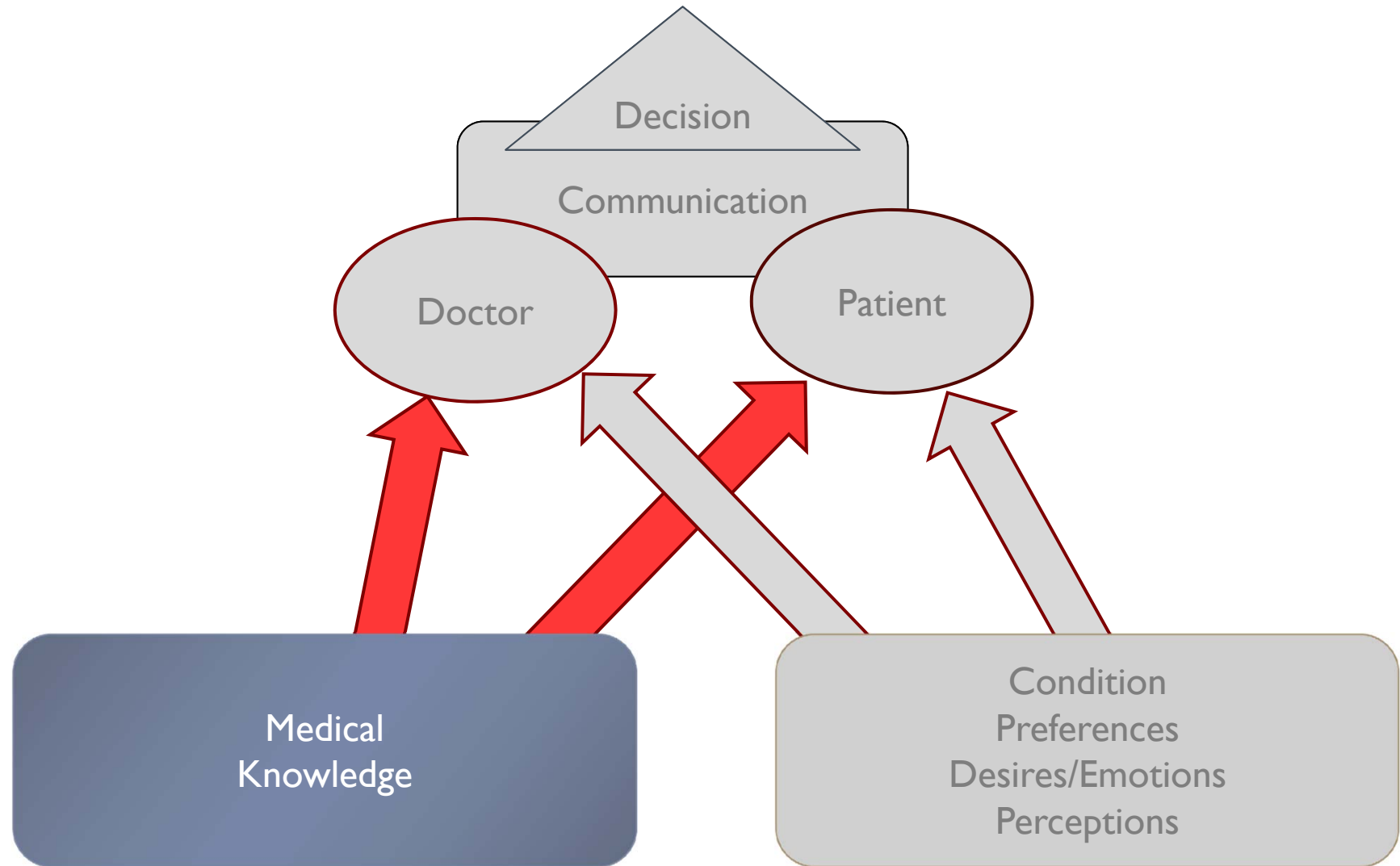


Selection

Training

# How to achieve Shared Medical Decision Making in practice: Statistical Literacy

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# Question asked to 160 gynecologists

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Assume you conduct breast cancer screening using mammography in a certain region. You know the following information about the women in this region:

- ▶ The probability that a woman has breast cancer is **1%** (prevalence)
- ▶ If a woman has breast cancer, the probability that she tests positive is **90%** (sensitivity)
- ▶ If a woman does not have breast cancer, the probability that she nevertheless tests positive is **9%** (false-positive rate)

A woman tests positive. She wants to know from you whether that means that she has breast cancer for sure, or what the chances are. What is the best answer?

- ▶ **1%, 10%, 81%, or 90%?**

# Probability of cancer given a positive test

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## Conditional Probabilities

$$p(\text{breast cancer}) = 1\%$$

$$p(\text{positive}|\text{cancer}) = 90\%$$

$$p(\text{positive}|\text{no cancer}) = 9\%$$

Gynecologists could calculate the correct answer from the information given (or recall it from their training)

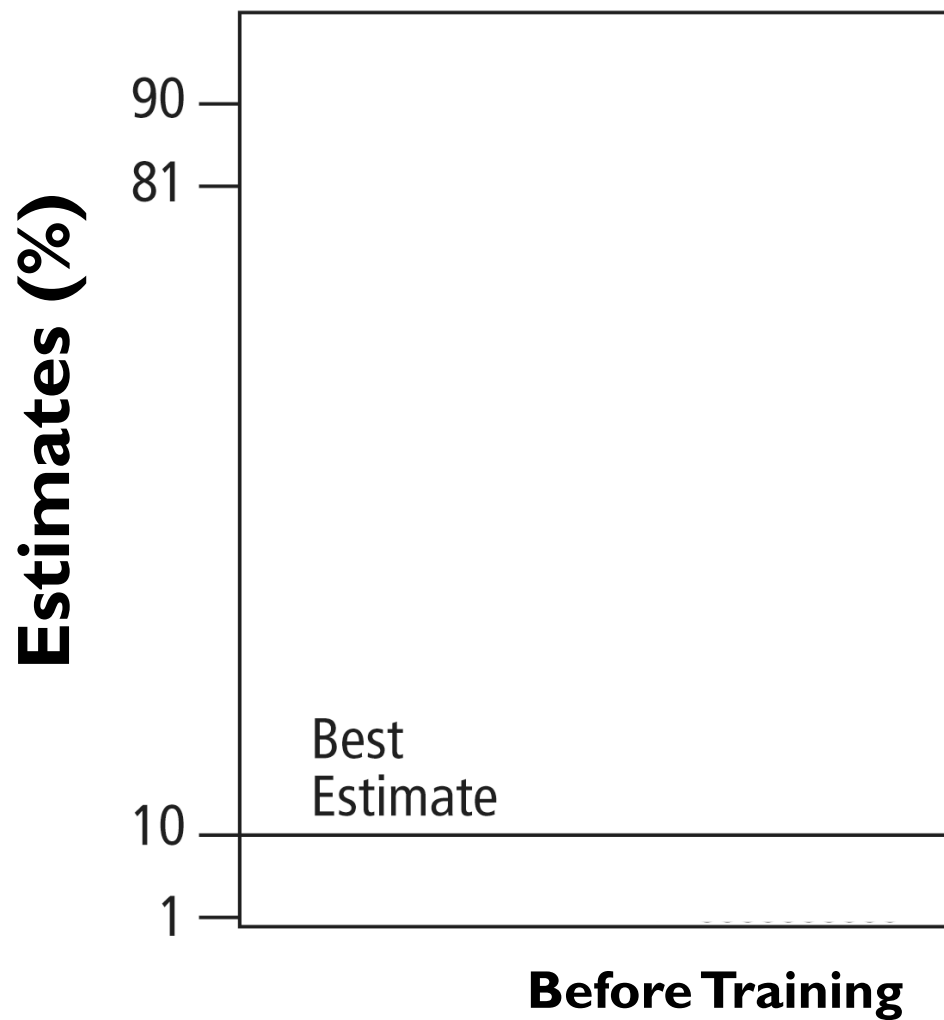
~~1%~~, **10%**, ~~81%~~, or ~~90%~~?

$$p(\text{cancer}|\text{positive})$$

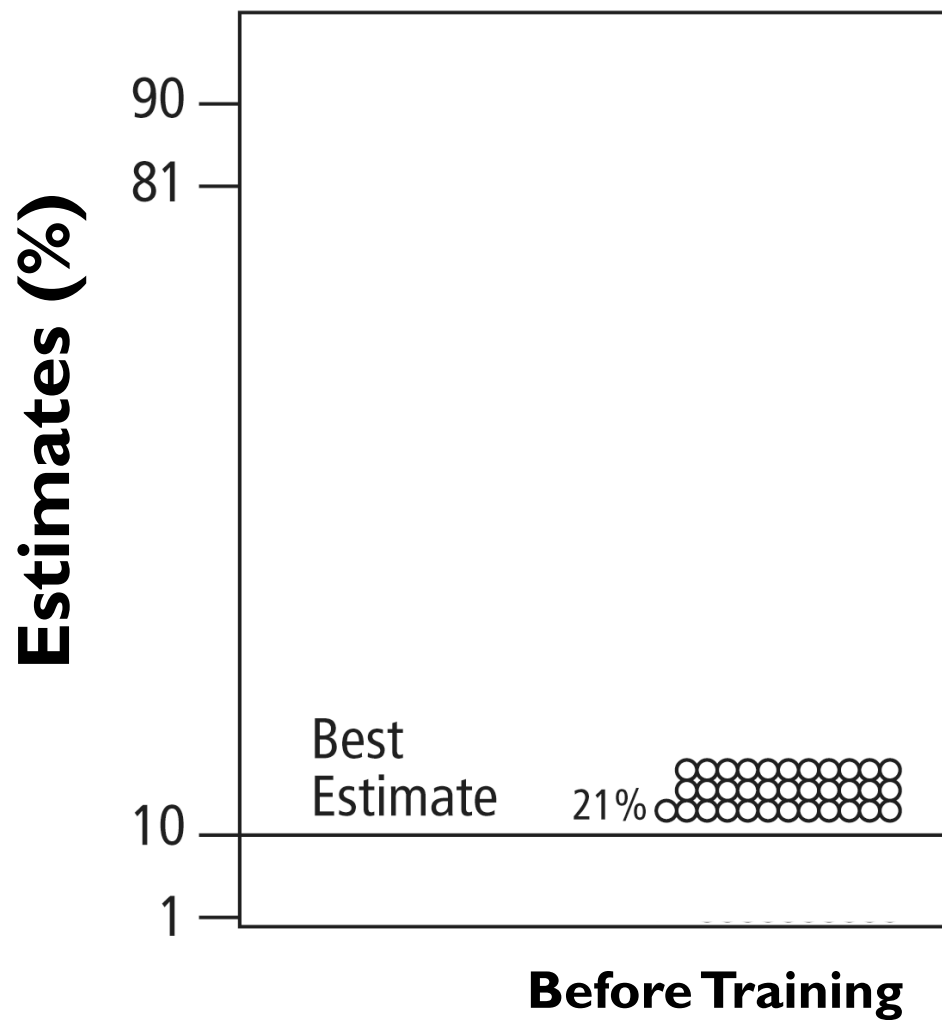
$$= \frac{.01 \times .90}{.01 \times .90 + .99 \times .09}$$

**Mammography**

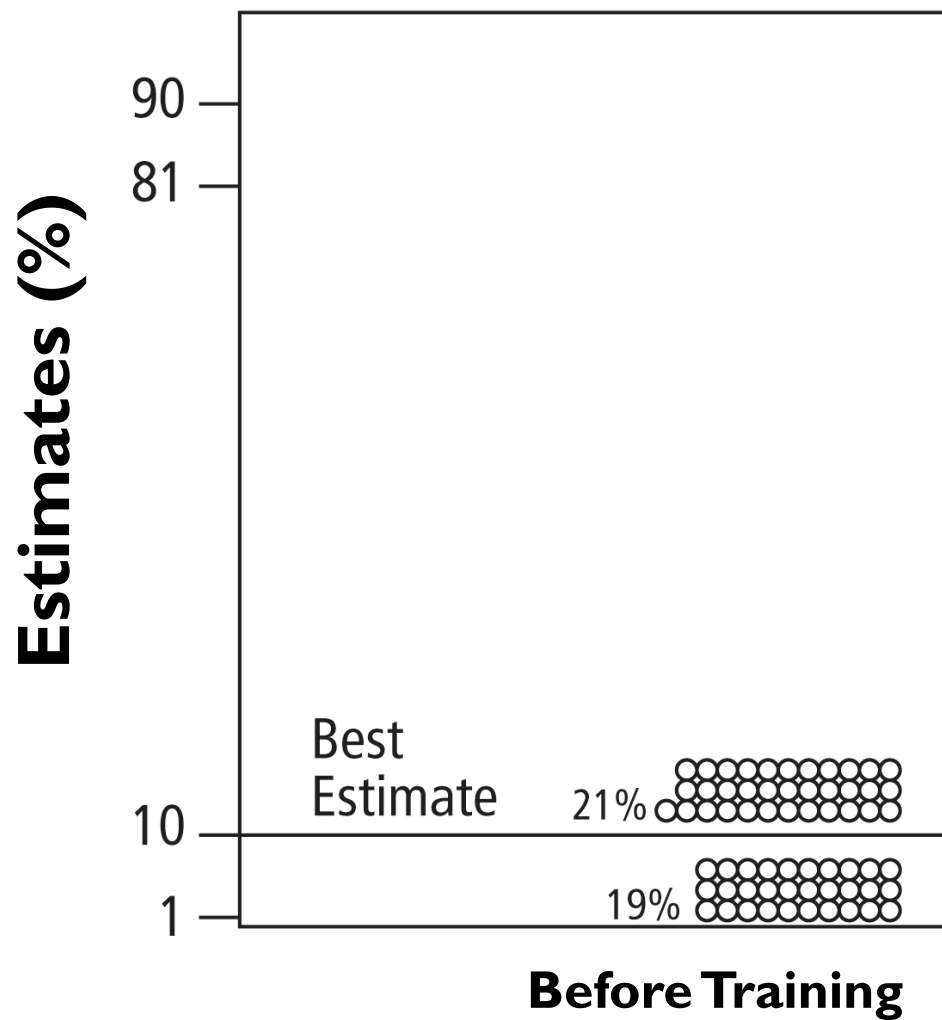
160 Gynecologists estimate:  
Probability of breast cancer | positive mammogram



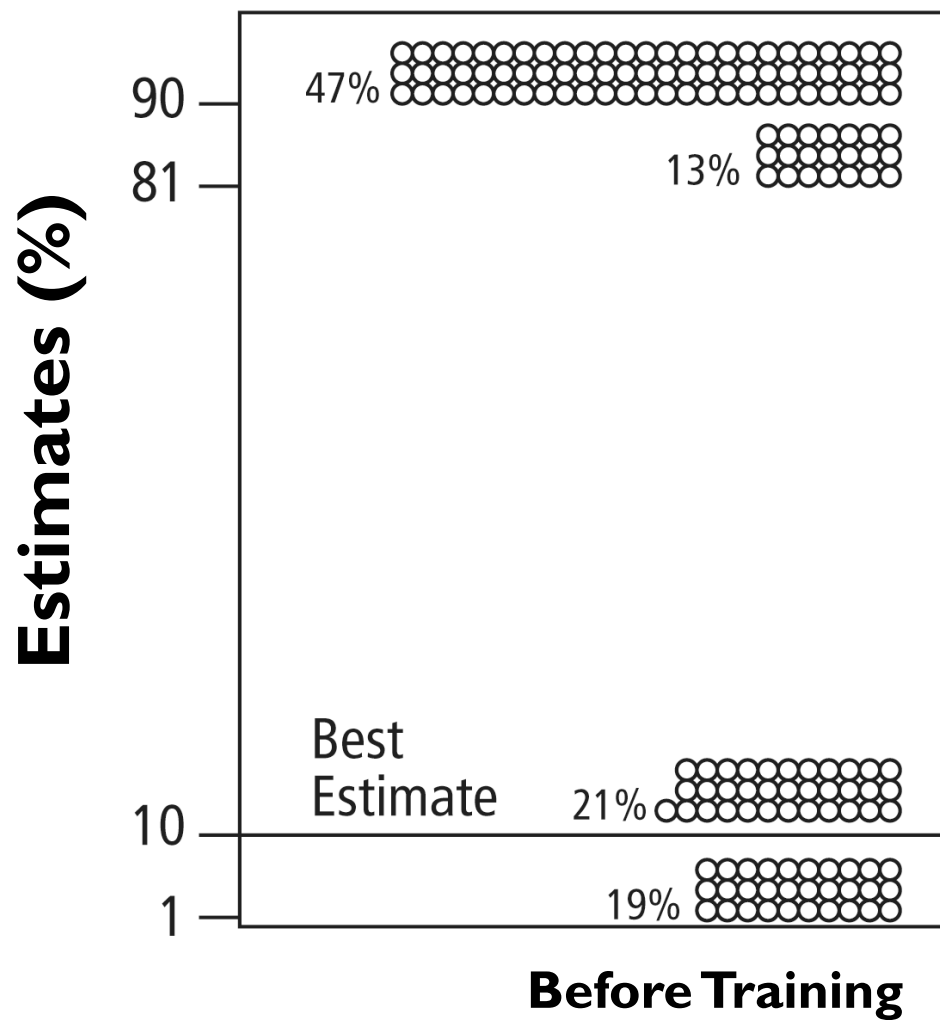
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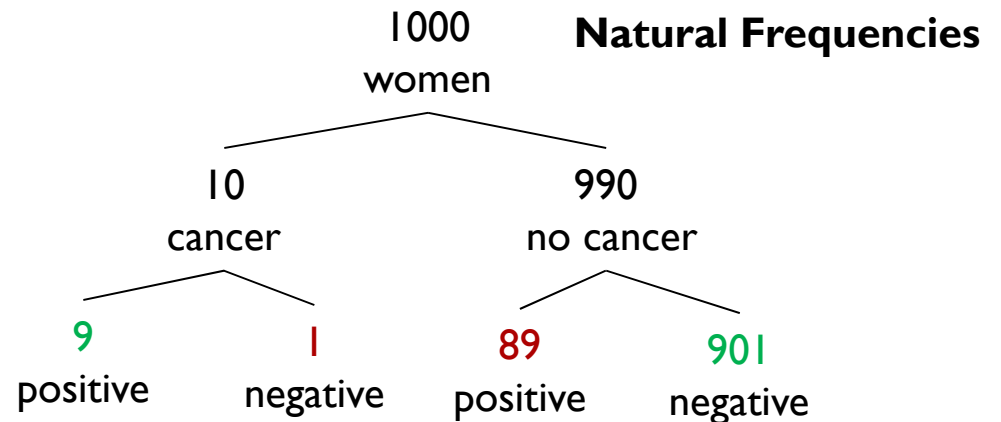
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## Mammography

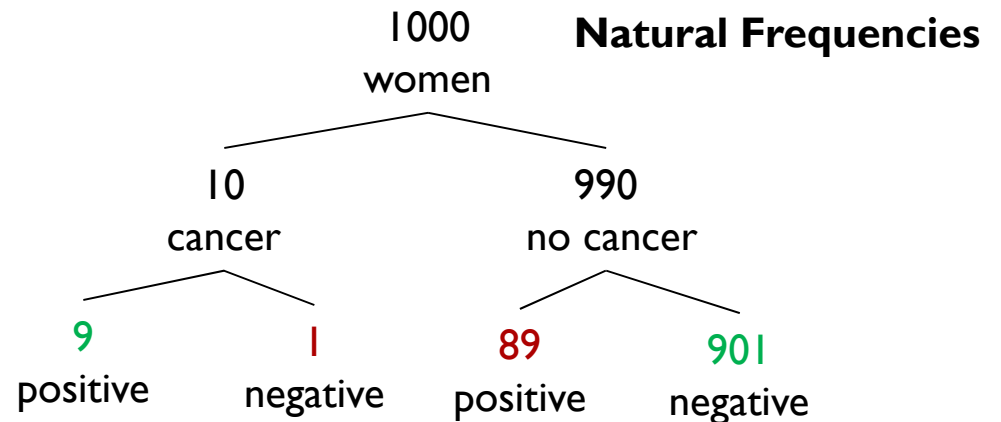
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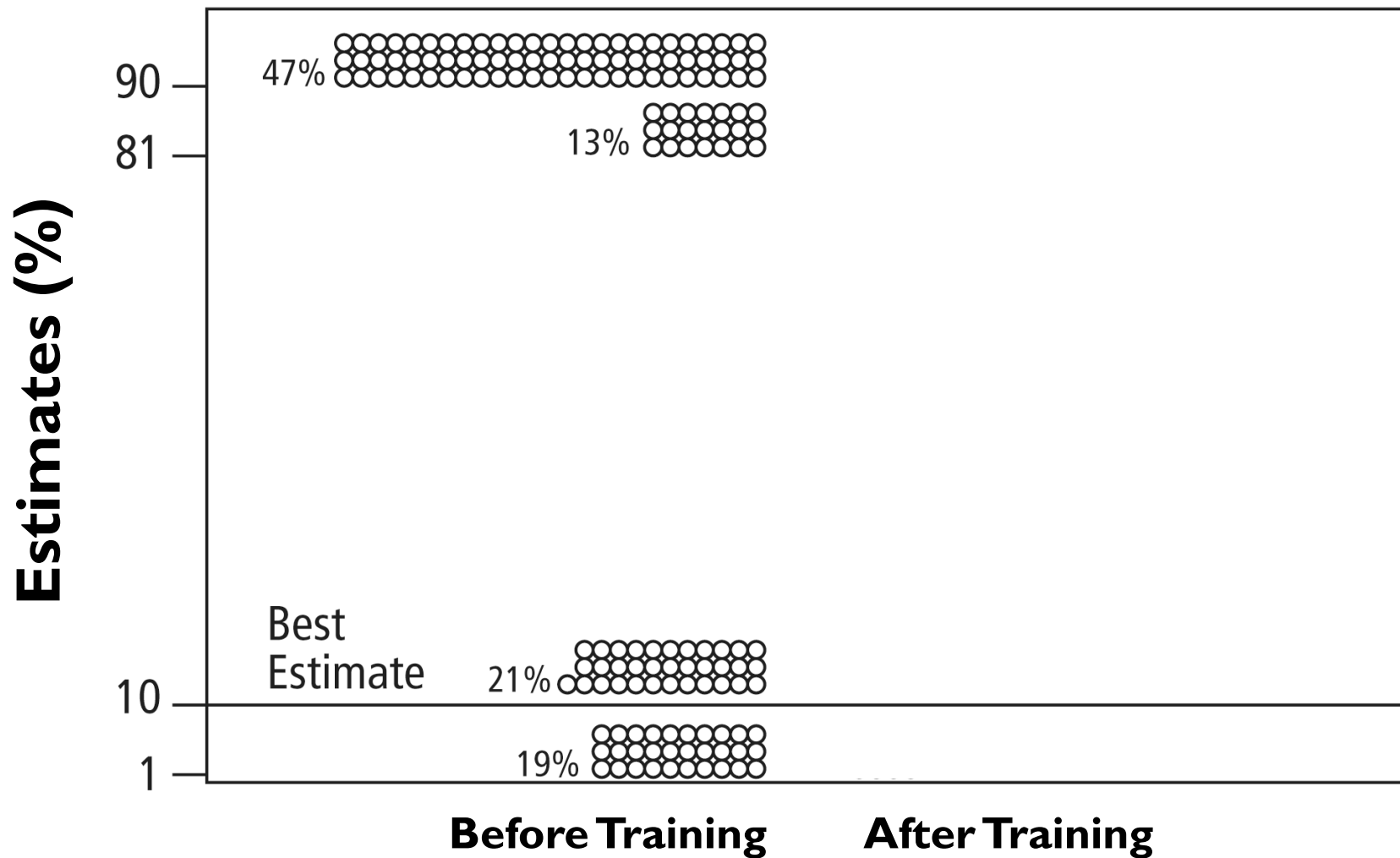
$$p(\text{cancer}|\text{positive})$$

$$= \frac{9}{9 + 89}$$

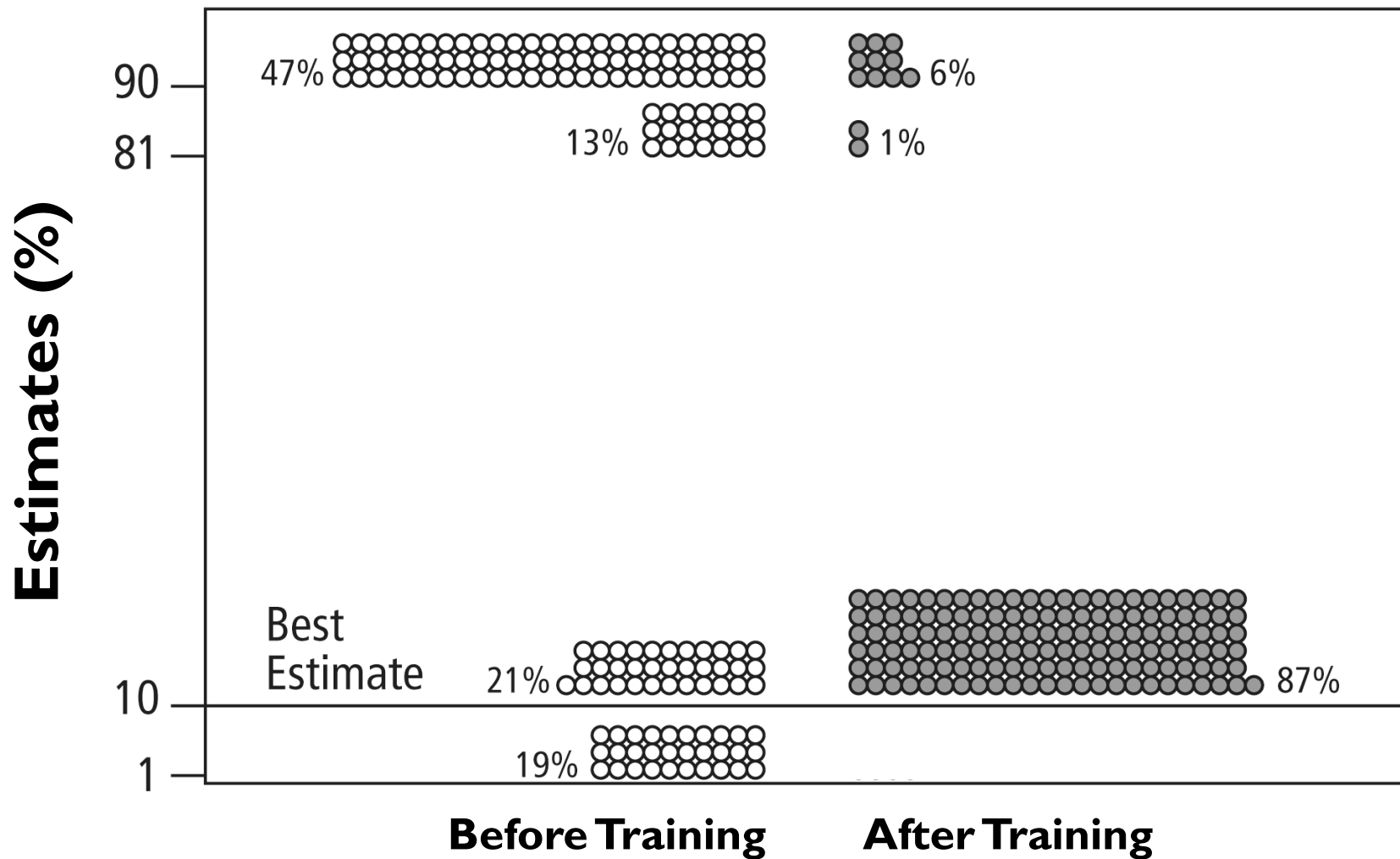
~10 %

**Mammography**

160 Gynecologists estimate:  
Probability of breast cancer | positive mammogram



160 Gynecologists estimate:  
Probability of breast cancer | positive mammogram



# Physicians and statistics

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- ▶ Physicians **overestimate the accuracy** of test results

Gigerenzer, G., Gaissmaier, W., Kurz-Milcke, E., Schwartz, L. M., & Woloshin, S. (2007). Helping doctors and patients make sense of health statistics. *Psychological science in the public interest*, 8(2), 53-96.

- ▶ We can **manipulate** physicians' beliefs about a medical procedure **by changing the representation** of evidence

Wegwarth, O., Schwartz, L. M., Woloshin, S., Gaissmaier, W., & Gigerenzer, G. (2012). Do physicians understand cancer screening statistics? A national survey of primary care physicians in the United States. *Annals of internal medicine*, 156(5), 340-349.  
Wegwarth, O., Gaissmaier, W., & Gigerenzer, G. (2011). Deceiving numbers survival rates and their impact on doctors' risk communication. *Medical Decision Making*, 31(3), 386-394.

- ▶ Physicians **do not communicate** relevant clinical evidence in a complete and understandable way

Gaissmaier, W., Anderson, B. L., & Schulkin, J. (2014). How do physicians provide statistical information about antidepressants to hypothetical patients?. *Medical Decision Making*, 34(2), 206-215.

Tools can help to overcome these problems

# Prostate Cancer Early Detection

by PSA screening and digital-rectal examination.

Numbers are for men aged 50 years or older, not participating vs. participating in screening for 13 years.



	1,000 men without screening	1,000 men with screening
<b>Benefits</b>		
How many men died from prostate cancer?	5*	4
How many men died from any cause?	200	200
<b>Harms</b>		
How many men were diagnosed and treated** for prostate cancer unnecessarily?	—	30
How many men without cancer got a false alarm and a biopsy?	—	170

\* This means that about 5 out of 1,000 men (50+ years of age) without screening died from prostate cancer within 13 years.

\*\* With prostate removal or radiation therapy, which can lead to incontinence or impotence.

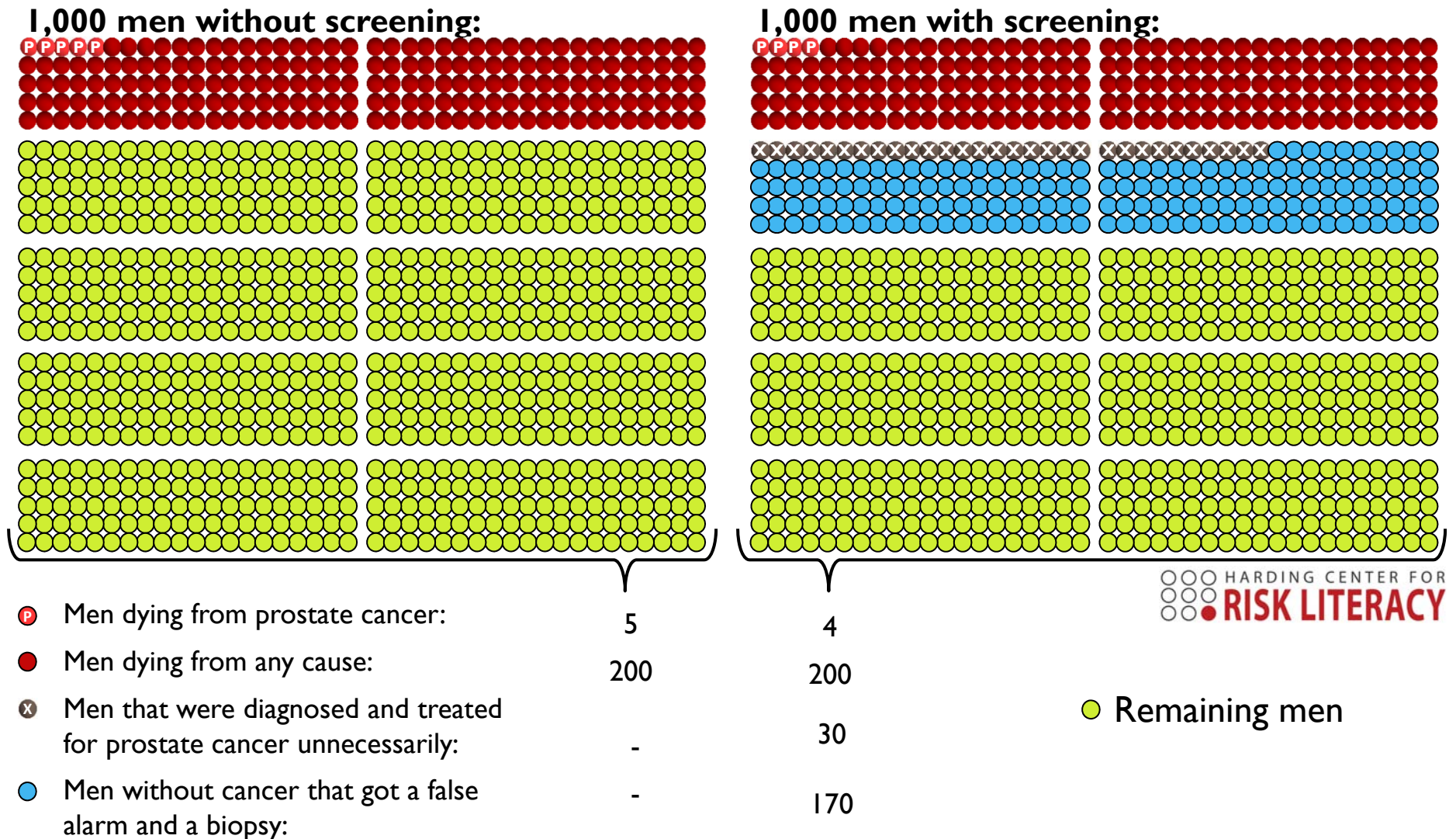


Schröder, F. H., Hugosson, J., Roobol, M. J., Tammela, T. L., Zappa, M., Nelen, V., ... & ERSPC Investigators. (2014). Screening and prostate cancer mortality: results of the European Randomised Study of Screening for Prostate Cancer (ERSPC) at 13 years of follow-up. *The Lancet*, 384(9959), 2027-2035.

# Prostate Cancer Early Detection

by PSA screening and digital-rectal examination.

Numbers are for men aged 50 years or older, not participating vs. participating in screening for 10 years.



Schröder, F. H., Hugosson, J., Roobol, M. J., Tammela, T. L., Zappa, M., Nelen, V., ... & ERSPC Investigators. (2014). Screening and prostate cancer mortality: results of the European Randomised Study of Screening for Prostate Cancer (ERSPC) at 13 years of follow-up. *The Lancet*, 384(9959), 2027-2035.

Garcia-Retamero, R., & Cokely, E. T. (2013). Communicating health risks with visual aids. *Current Directions in Psychological Science*, 22(5), 392-399.

## From the inventor of P.S.A- screening

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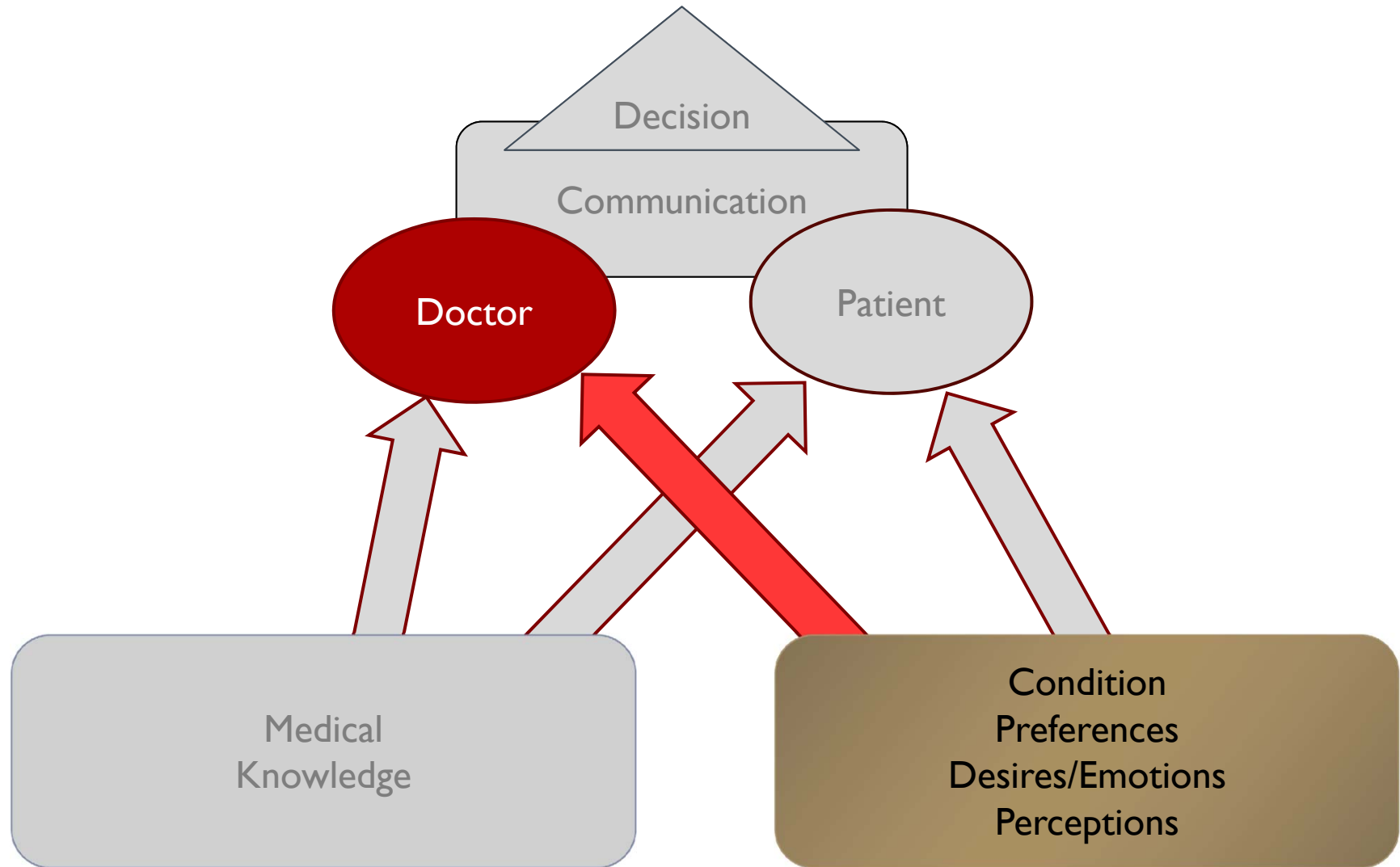
- ▶ I never dreamed that my discovery four decades ago would lead to such a profit-driven public health disaster. **The medical community must confront reality and stop the inappropriate use of P.S.A. screening.** Doing so would save billions of dollars and rescue millions of men from unnecessary, debilitating treatments.

**Richard J.Ablin**

(Professor of immunobiology and pathology , University of Arizona)

# Dealing with expectations

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Would you prefer a total-body CT scan or receiving \$1000 in cash?

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Telephone survey (n=500)

\$ 1000



Total-body CT scan



Would you prefer a total-body CT scan or receiving \$1000 in cash?

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27%

\$ 1000



73%

Full-body CT scan



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► Schwartz, L. M., Woloshin, S., Fowler Jr, F. J., & Welch, H. G. (2004). Enthusiasm for cancer screening in the United States. *Jama*, 291(1), 71-78.

# Overuse of CT scans

“Evidence is beginning to emerge that overutilization of radiological scans permits an oncologist to “cure” a current cancer only to cause a future one.”

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## Two reasons for overdiagnosis (and overtreatment)



# 1) Conflicting interests

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“[...] we at Emory have figured out that **if we screen 1,000 men** at the North Lake Mall this coming Saturday, we could bill Medicare and insurance companies for **\$4.9 million in health care costs** [for biopsies, tests, prostatectomies, etc]. But the real money comes later [...]. we don't screen any more at Emory, once I became head of Cancer Control.”

**Dr. Otis Brawley (interview)**

(at the time Director of the Georgia Cancer Center)

## 2) Fear of litigation

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“Anyone who has been in practice for a while knows that the **reason** we take these x-rays is **legal, not medical**. [...]

A \$50,000 fluoroscan machine can give a reading in a twinkling. It costs \$30,000 to process any single claim, whether anything comes of it or not [...].“

Excess x-rays

## 2) Fear of litigation

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Defensive  
Medicine

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► Hale, W. R. (1996). Can the Ottawa ankle decision rules be applied in the United States?. Western Journal of Medicine, 164(4), 363.

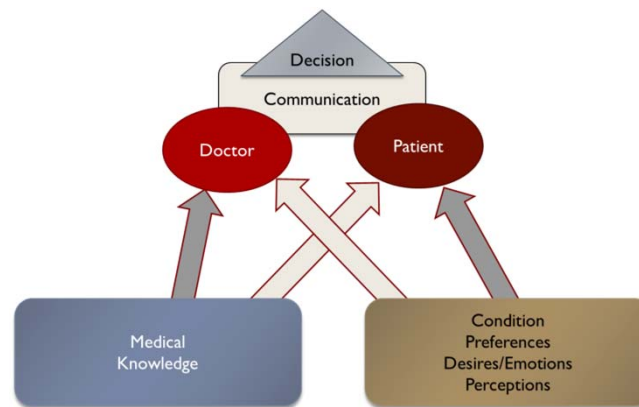
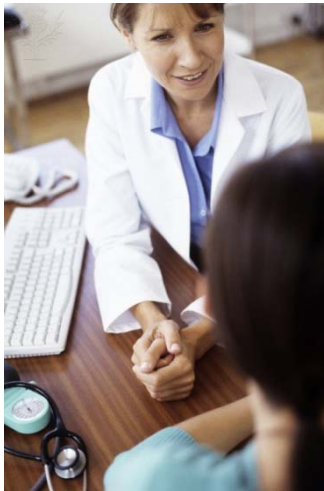
Gigerenzer, G. (2014). Risk savvy: How to make good decisions. Penguin.

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# Effects of communication training

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“Over the next two years, patient satisfaction with doctors [...] moved the hospital’s predicted score up in national rankings by a remarkable 40 percentile points. Several studies have found a correlation between higher patient satisfaction scores and better health outcomes.”

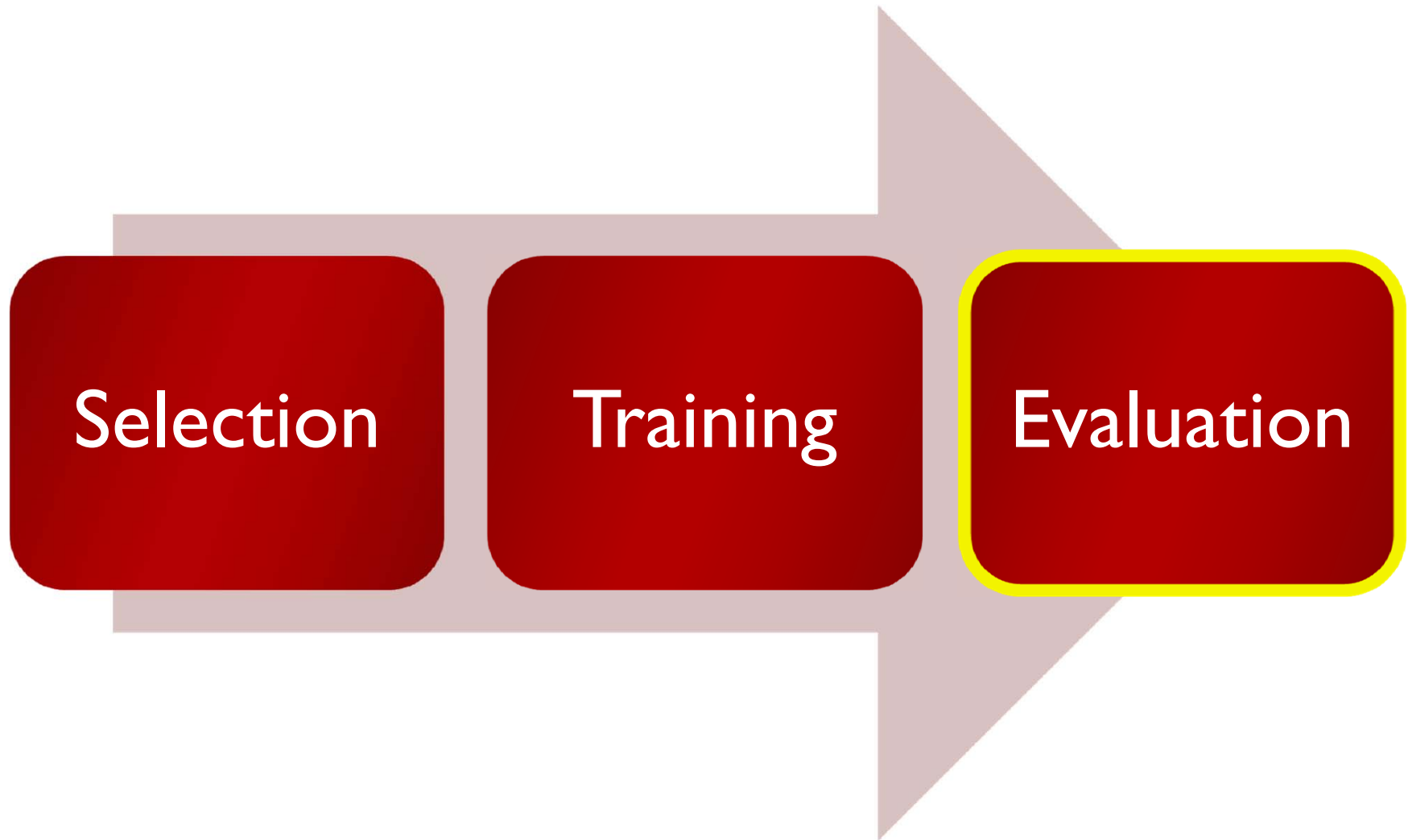
# Integration of Communication training

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- ▶ Decision making skills, communication skills, and specialized medical training need to be applied at the same time
- ▶ Communication (and decision making) should not be taught as a single and isolated class
- ▶ Practical exercises are essential: simulation, interaction, perspective-taking

# Evaluation criteria

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## Objective Structured Clinical Examination

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- ▶ (Simulated) patients played by actors with fixed response script accompanied by medical histories etc.
- ▶ Allows to test a variety of skills and assess behavior in a variety of roles
- ▶ Can be adapted to different learning levels
- ▶ Allows to assess communication skills

# Predictive capability of the OSCE

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- ▶ Communication Score in OSCE exam has been found to predict the **number of patient complaints** to regulatory authorities
- ▶ OSCE predictor as strong as the classic written exam score (and improves prediction beyond it)
- ▶ Particularly suited to predict complaints based on perceived deficits in doctor-patient communication

## Development of OSCEs

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- ▶ Examination should also include an assessment of:
  - ▶ the management of uncertainty, dealing with ambiguity, the unspectacular

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- ▶ Examination should also include an assessment of:
  - ▶ the management of uncertainty, dealing with ambiguity, the unspectacular
  - ▶ dealing with various communication and **teamwork** situations

# Healthy routines: Surgical Safety Checklist

## Sign in

Before induction of anesthesia, members of the team (at least the nurse and an anesthesia professional) orally confirm that:

- ☐ The patient has verified his or her identity, the surgical site and procedure, and consent
- ☐ The surgical site is marked or site marking is not applicable
- ☐ The pulse oximeter is on the patient and functioning
- ☐ All members of the team are aware of whether the patient has a known allergy
- ☐ The patient's airway and risk of aspiration have been evaluated and appropriate equipment and assistance are available
- ☐ If there is a risk of blood loss of at least 500 ml (or 7 ml/kg of body weight, in children), appropriate access and fluids are available

## Time out

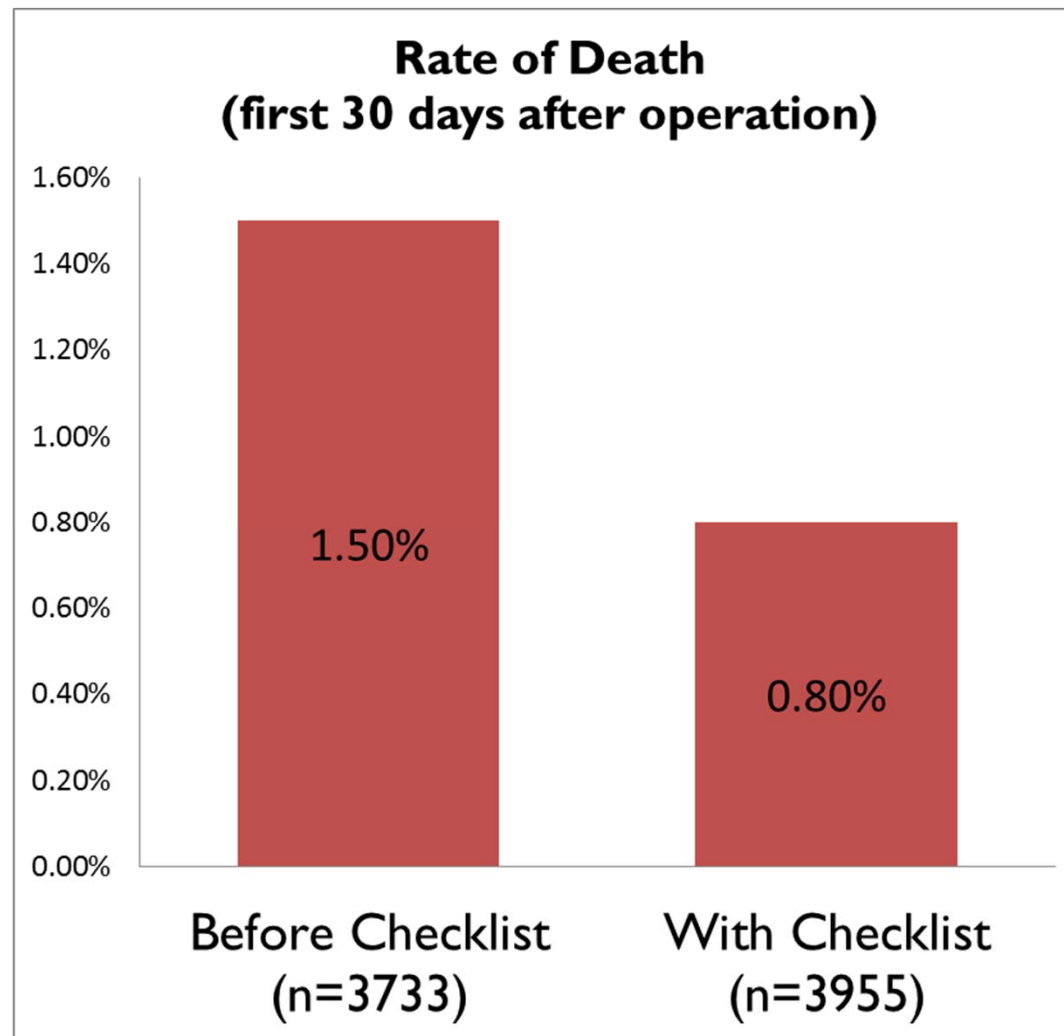
Before skin incision, the entire team (nurses, surgeons, anesthesia professionals, and any others participating in the care of the patient) orally:

- ☐ Confirms that all team members have been introduced by name and role
- ☐ Confirms the patient's identity, surgical site, and procedure

...

# Surgical Safety Checklist: Effect

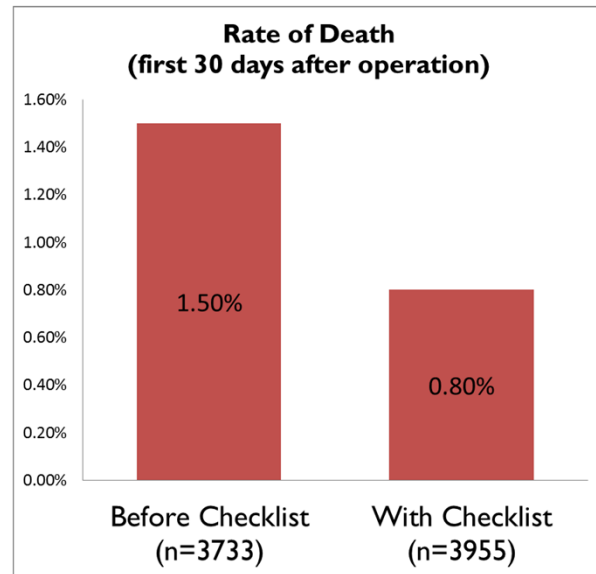
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► Haynes, A. B., Weiser, T. G., Berry, W. R., Lipsitz, S. R., Breizat, A. H. S., Dellinger, E. P., ... & Gawande, A. A. (2009). A surgical safety checklist to reduce morbidity and mortality in a global population. *New England Journal of Medicine*, 360(5), 491-499.

# Surgical Safety Checklist: Effect

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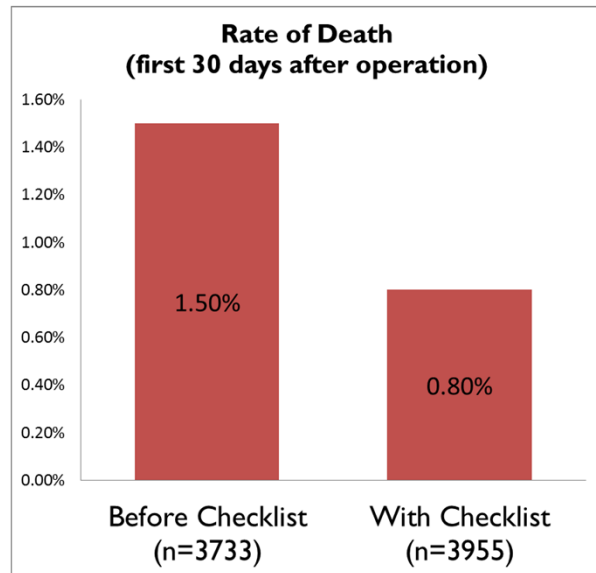


Checklists may save lives

Yet:

Not every hospital uses them.

# Surgical Safety Checklist: Effect



Checklists may save lives

Yet:

Not every hospital uses them.

“The most common barrier was resistance from senior clinicians.”

“... active resistance or passive noncompliance from individuals in the OR team, most frequently (84% of the time) from **senior surgeons and/or anesthesiologists**. This often made it very challenging for the person leading the checks (often a nurse) to complete them in the intended manner, or without **feeling personally attacked**.”

# 3000 wrong-side operations per year

“This is a horrendous tragedy when a healthy kidney has been removed, leaving the diseased one in the patient.”

“The solution [...] requires significant training, changes to entrenched behaviors, and consensus building that does not come easily to territorial departments.”

“**70–80%** of healthcare errors are caused by human factors associated with poor team **communication** and understanding”

## Development of OSCEs

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- ▶ Examination should also include an assessment of:
  - ▶ the management of uncertainty, dealing with ambiguity
  - ▶ dealing with various communication and teamwork situations
- ▶ 360° assessment, inter-professional training

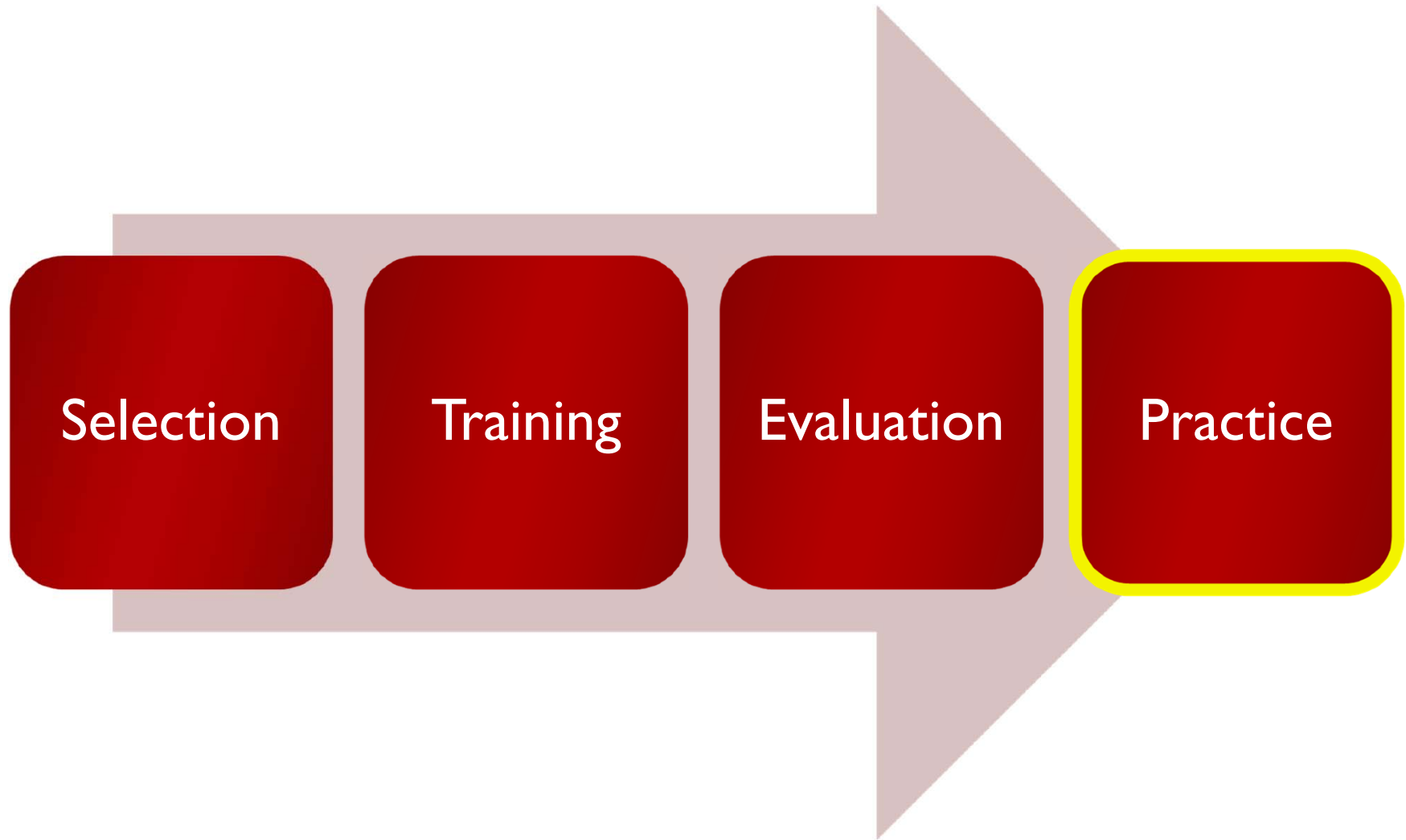
## Development of OSCEs

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- ▶ Examination should also include an assessment of:
  - ▶ the management of uncertainty, dealing with ambiguity, the unspectacular
  - ▶ dealing with various communication and teamwork problems
- ▶ 360° assessment, inter-professional training
- ▶ Ongoing formative assessment preferable to one-shot summative evaluation

# Influencing practice

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## How much do doctors improve across their careers?

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Experience,  
Knowledge,  
Acquired skills,  
Self-confidence

vs.

Years since training  
Unnoticed changes in best practices

59 studies with a total of over 50,000 doctors were analyzed.

## The Relationship between Clinical Experience and Quality of Health Care (59 articles)

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- The majority of studies found worse performance of longer-practising doctors
- Few studies (~4%) found improvement

“In summary, our results suggest that physicians with more experience may paradoxically be at risk for providing lower-quality care.”

# The Relationship between Clinical Experience and Quality of Health Care (59 articles)

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## Possible Explanations:

- Medical education may have improved
- Older physicians may not adopt newly proven therapies, tools and techniques

# The Relationship between Clinical Experience and Quality of Health Care (59 articles)

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## Recommendation:

- Life-long learning is a necessity
- The skills for life-long learning have to be acquired during training
- Life-long learning should be supported through tools and tailored information

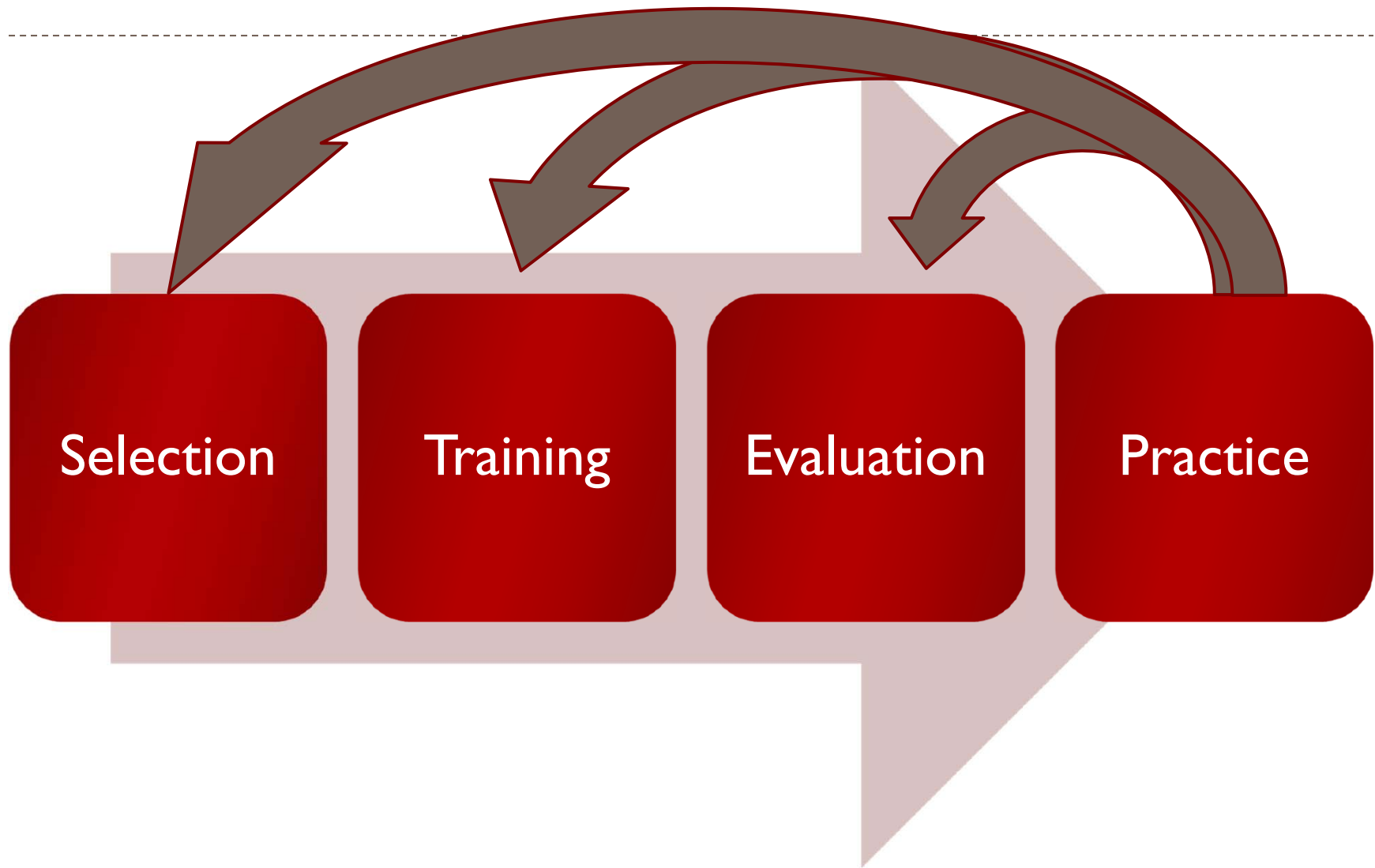
# Alumni Network

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- ▶ Communicate new findings
- ▶ Share newly developed communication tools (as a service)
- ▶ Receive feedback from practitioners to guide future development of the educational process
- ▶ Start a two-way communication

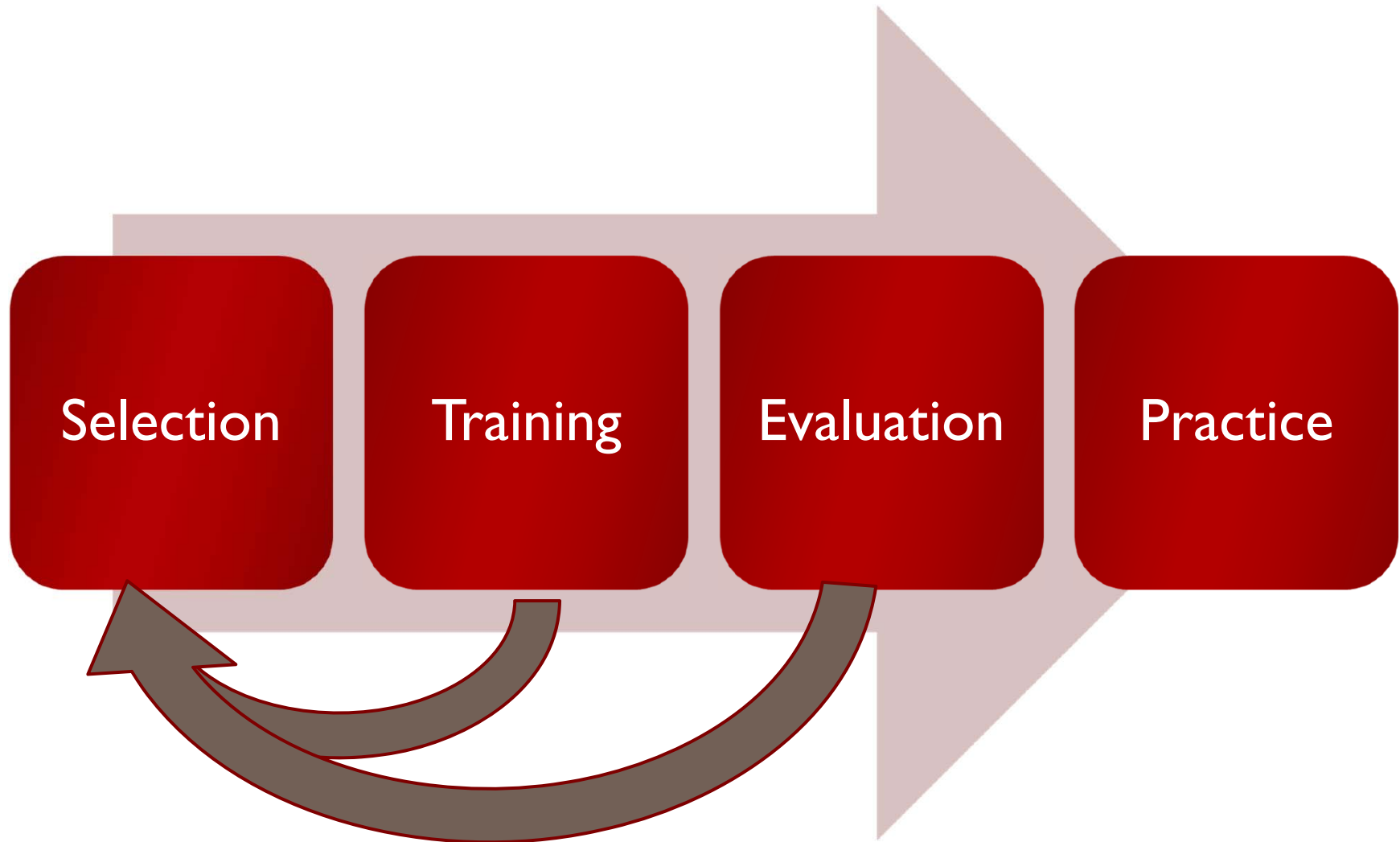
# Learning from Outcomes

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# Changing (Self-)Selection

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## Compatibility with current goals

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“Candidates and students must possess the emotional health required for [...] the development of mature, sensitive and effective relationships with patients.”

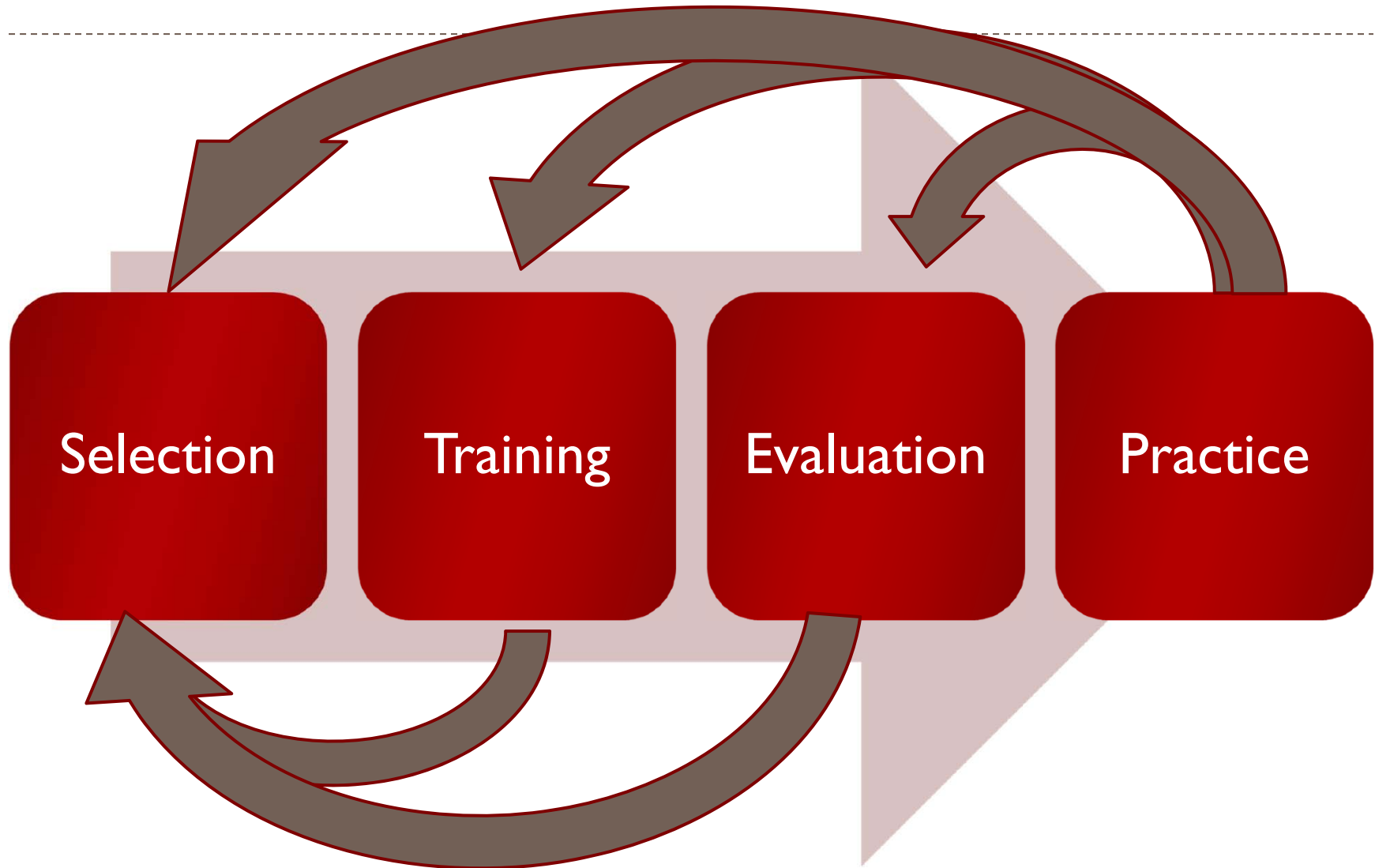
**USF**

“Grades and test scores are important, but so are other factors. [...]. In our admissions process, we look into their background and explore the details of where they grew up, to what extent they have served the underserved, what is motivating them to attend medical school and much more. [...] Florida State medical students learn in an environment that values diversity, mutual respect, teamwork and open communication.”

**FSU**

# Recommendations

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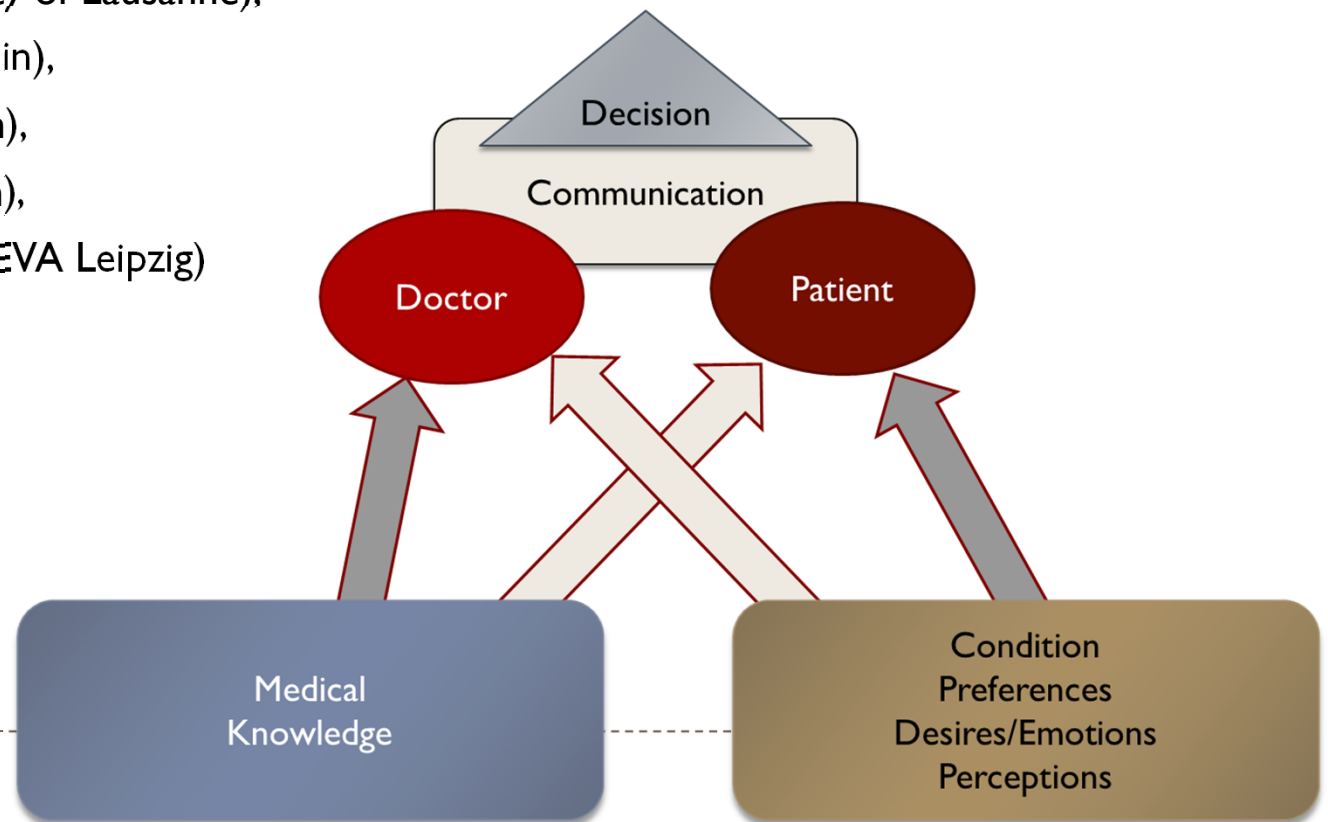


# Thank you very much.

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Additional thanks to:

- ▶ Wolfgang Gaissmaier (University of Konstanz),
- ▶ Gerd Gigerenzer (MPIB Berlin),
- ▶ Ulrich Hoffrage (University of Lausanne),
- ▶ Ralph Hertwig (MPIB Berlin),
- ▶ Mirjam Jenny (MPIB Berlin),
- ▶ Niklas Keller (MPIB Berlin),
- ▶ Patricia Kanngiesser (MPIEVA Leipzig)



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▶ Contact:  
woike@mpib-berlin.mpg.de