Upholding the person with kidney disease: beyond GFR estimation

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Disclosures

I am an employee of the US Department of Veterans Affairs and the University of Washington in Seattle

I receive project funding from the University of Washington, the Department of Veterans Affairs and the National Institutes of Health

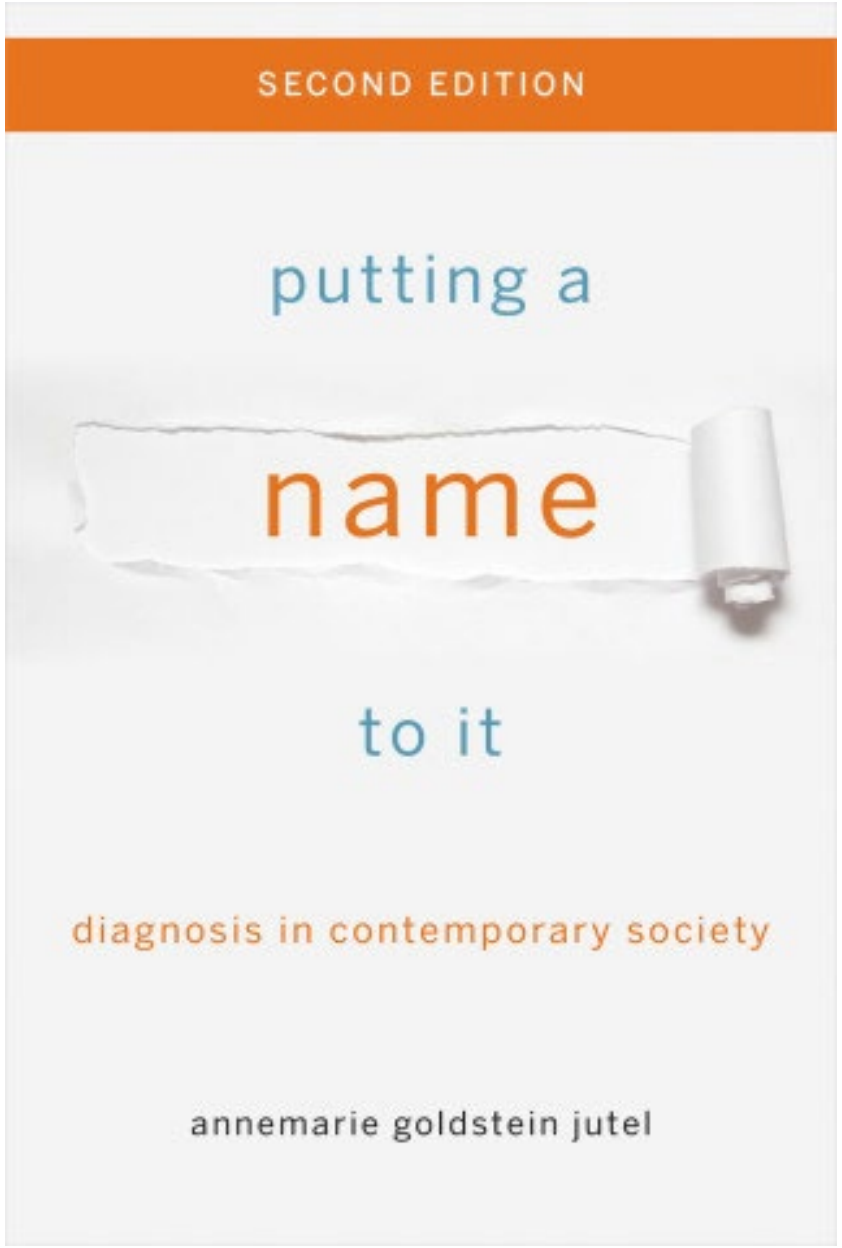
I am the holder of the Bill Peckham Endowed Fund for Person Centered Care at the University of Washington

Chronic kidney disease

Guide to frequency of monitoring (number of times per year) by GFR and albuminuria category

GFR categories (mL/min/1.73 m²) Description and range			Persistent albuminuria categories Description and range		
			A1	**A2**	**A3**
			Normal to mildly increased	Moderately increased	Severely increased
			<30 mg/g <3 mg/mmol	30-300 mg/g 3-30 mg/mmol	>300 mg/g >30 mg/mmol
G1	Normal or high	≥90	**1 if CKD**	**1**	**2**
G2	Mildly decreased	60-89	**1 if CKD**	**1**	**2**
G3a	Mildly to moderately decreased	45-59	**1**	**2**	**3**
G3b	Moderately to severely decreased	30-44	**2**	**3**	**3**
G4	Severely decreased	15-29	**3**	**3**	**4+**
G5	Kidney failure	<15	**4+**	**4+**	**4+**

Diagnoses are socially constructed



Evidence-Based Medicine

A New Approach to Teaching the Practice of Medicine

Evidence-Based Medicine Working Group

A NEW paradigm for medical practice is emerging. Evidence-based medicine de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision making and stresses the examination of evidence from clinical research. Evidence-based medicine requires new skills of the physician, including efficient literature searching and the application of formal rules of evidence evaluating the clinical literature.

An important goal of our medical residency program is to educate physicians in the practice of evidence-based medicine. Strategies include a weekly, formal academic half-day for residents, devoted to learning the necessary skills; recruitment into teaching roles of physicians who practice evidence-based medicine; sharing among faculty of approaches to teaching evidence-based medicine; and providing faculty with feedback on their performance as role models and teachers of evidence-based medicine. The influence of evidence-based medicine on clinical practice and medical education is increasing.

CLINICAL SCENARIO

A junior medical resident working in a teaching hospital admits a 43-year-old previously well man who experienced a witnessed grand mal seizure. He had never had a seizure before and had not had any recent head trauma. He drank alcohol once or twice a week and had not had alcohol on the day of the seizure. Findings on physical examination are normal. The patient is given a loading dose of phenytoin intravenously and the drug is continued orally. A computed tomographic head scan is completely normal, and an electroencephalogram shows only nonspecific findings. The patient is very concerned about his risk of seizure recurrence. How might the resident proceed?

The Way of the Past

Faced with this situation as a clinical clerk, the resident was told by her senior resident (who was supported in his view by the attending physician) that the risk of seizure recurrence is high (though he could not put an exact number on it) and that was the information that should be conveyed to the patient. She now follows this path, emphasizing to the patient not to drive, to continue his medication, and to see his family physician in follow-up. The patient leaves in a state of vague trepidation about his risk of subsequent seizure.

The Way of the Future

The resident asks herself whether she knows the prognosis of a first seizure and realizes she does not. She proceeds to the library and, using the Grateful Med program,[1] conducts a computerized literature search. She enters the Medical Subject Headings terms *epilepsy*, *prognosis*, and *recurrence*, and the program retrieves 25 relevant articles. Surveying the titles, one[2] appears directly relevant. She reviews the paper, finds that it meets criteria she has previously learned for a valid investigation of prognosis,[3] and determines that the results are applicable to her patient. The search costs the resident $2.68, and the entire process (including the trip to the library and the time to make a photocopy of the article) took half an hour.

The results of the relevant study show that the patient risk of recurrence at 1 year is between 43% and 51%, and at 3 years the risk is between 51% and 60%. After a seizure-free period of 18 months his risk of recurrence would likely be less than 20%. She conveys this information to the patient, along with a recommendation that he take his medication, see his family doctor regularly, and have a review of his need for medication if he remains seizure-free for 18 months. The patient leaves with a clear idea of his likely prognosis.

A PARADIGM SHIFT

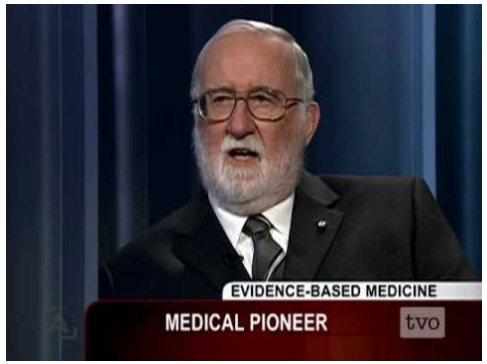
Thomas Kuhn has described scientific paradigms as ways of looking at the world that define both the problems that can legitimately be addressed and the range of admissible evidence that may bear on their solution.[4] When defects in an existing paradigm accumulate to the extent that the paradigm is no longer tenable, the paradigm is challenged and replaced by a new way of looking at the world. Medical practice is changing, and the change, which involves using the medical literature more effectively in guiding medical practice, is profound enough that it can appropriately be called a paradigm shift.

The foundations of the paradigm shift lie in developments in clinical research over the last 30 years. In 1960, the randomized clinical trial was an oddity. It is now accepted that virtually no drug can enter clinical practice without a demonstration of its efficacy in clinical trials. Moreover, the same randomized trial method increasingly is being applied to surgical therapies[5] and diagnostic tests.[6] Meta-analysis is gaining increasing acceptance as a method of summarizing the results of a number of randomized trials, and ultimately may have as profound an effect on setting treatment policy as have randomized trials themselves.[7] While less dramatic, crucial methodological ad-

A complete list of members of the Evidenced-Based Medicine Working Group appears at the end of this article.

Reprint requests to McMaster University Health Sciences Centre, Room 3W10, 1200 Main St W, Hamilton, Ontario, Canada L8N 3Z5 (Gordon Guyatt, MD).

- ‘Evidence-based medicine de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision-making and stresses the examination of evidence from clinical research’, Guyatt, Sackett et al, JAMA 1992



Clinical epidemiology

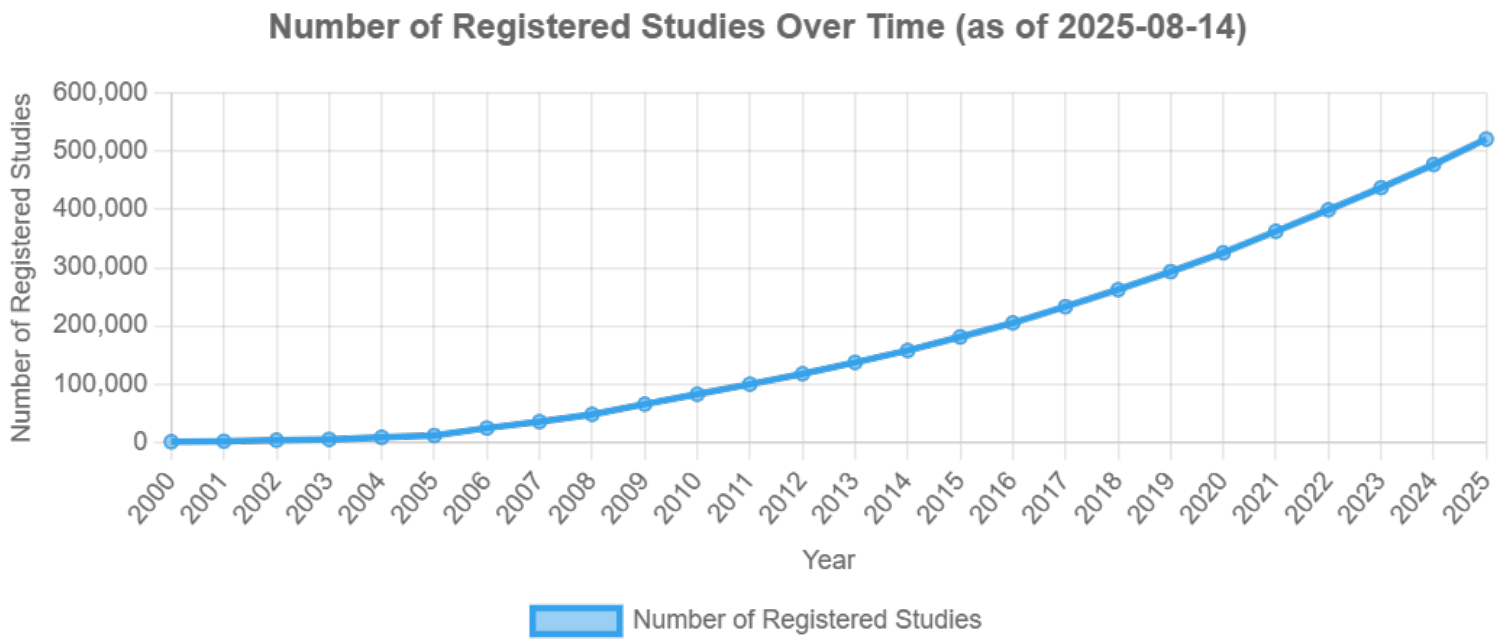
- Population vs. individual health
- Summary measures: incidence, prevalence, relative and absolute risk, relative and absolute risk reduction
- Study design: Randomized controlled clinical trials
- Meta-analysis and systematic review

- Under an evidence-based paradigm, populations rather than individuals become the primary focus of investigation. Treatment priorities are largely shaped by the availability, relevance and quality of evidence and study outcomes and results are assumed to have near universal significance based on their implications at the population level. Evidence is the major force driving treatment recommendations, with the caveat that these are not intended to substitute for good clinical judgment or override patient preferences

Educational infrastructure

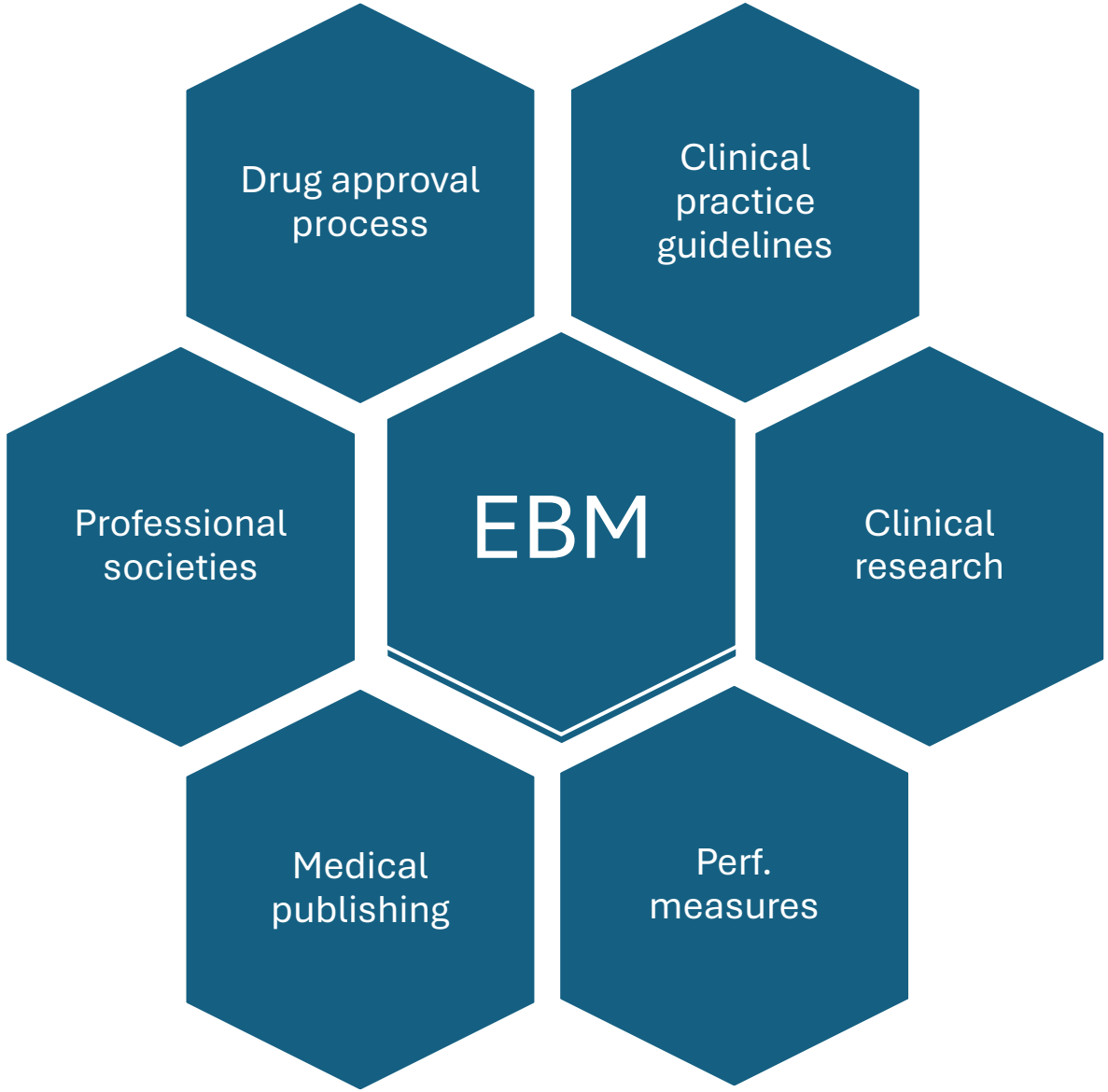
- 1970 Masters Program in Clinical Epidemiology, McMaster
- 1974 Robert Wood Johnson Clinical Scholars Program
- 1982 first textbook of clinical epidemiology (Fletcher, Fletcher and Wagner)
- 1990's Journal infrastructure: Journal of clinical epidemiology, CMAJ (how to read clinical journals), JAMA (Rational Clinical Examination and Users' Guide to the Medical Literature), Annals of Internal Medicine (ACP Journal Club), British Medical Journal.
- 1992 McMaster Manifesto appeared in JAMA
- 1993 Cochrane collaboration established

ClinicalTrials.gov



Source: https://ClinicalTrials.gov

Note:
The International Committee of Medical Journal Editors (ICMJE) began requiring trial registration as a condition of publication in September 2005
The registration requirements of Food and Drug Administration Amendments Act of 2007 (FDAAA) began and were implemented on ClinicalTrials.gov in December 2007


Drug approval process
Clinical practice guidelines
Professional societies
EBM
Clinical research
Medical publishing
Perf. measures

UPTODATE SUITE

UpToDate: Trusted, evidence-based solutions for modern healthcare

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OpenEvidence

Personalized medicine

Personalized medicine is an approach to healthcare that seeks to optimize disease prevention, diagnosis, and treatment by tailoring medical decisions and interventions to the unique characteristics of each individual. This includes integrating clinical, genetic, genomic, environmental, and lifestyle information to guide therapeutic choices, rather than relying solely on population-based guidelines or a "one size fits all" model

Patient-centered or person-centered care

Table 3. Treatment Regimen Based on Clinical Practice Guidelines for a Hypothetical 79-Year-Old Woman With Hypertension, Diabetes Mellitus, Osteoporosis, Osteoarthritis, and COPD*

Time	Medications†	Other
7:00 AM	Ipratropium metered dose inhaler 70 mg/wk of alendronate	Check feet Sit upright for 30 min on day when alendronate is taken Check blood sugar
8:00 AM	500 mg of calcium and 200 IU of vitamin D 12.5 mg of hydrochlorothiazide 40 mg of lisinopril 10 mg of glyburide 81 mg of aspirin 850 mg of metformin 250 mg of naproxen 20 mg of omeprazole	Eat breakfast 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
12:00 PM		Eat lunch 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
1:00 PM	Ipratropium metered dose inhaler 500 mg of calcium and 200 IU of vitamin D	
7:00 PM	Ipratropium metered dose inhaler 850 mg of metformin 500 mg of calcium and 200 IU of vitamin D 40 mg of lovastatin 250 mg of naproxen	Eat dinner 2.4 g/d of sodium 90 mmol/d of potassium Low intake of dietary saturated fat and cholesterol Adequate intake of magnesium and calcium Medical nutrition therapy for diabetes‡ DASH‡
11:00 PM	Ipratropium metered dose inhaler	
As needed	Albuterol metered dose inhaler	

Abbreviations: ADA, American Diabetes Association; COPD, chronic obstructive pulmonary disease; DASH, Dietary Approaches to Stop Hypertension.

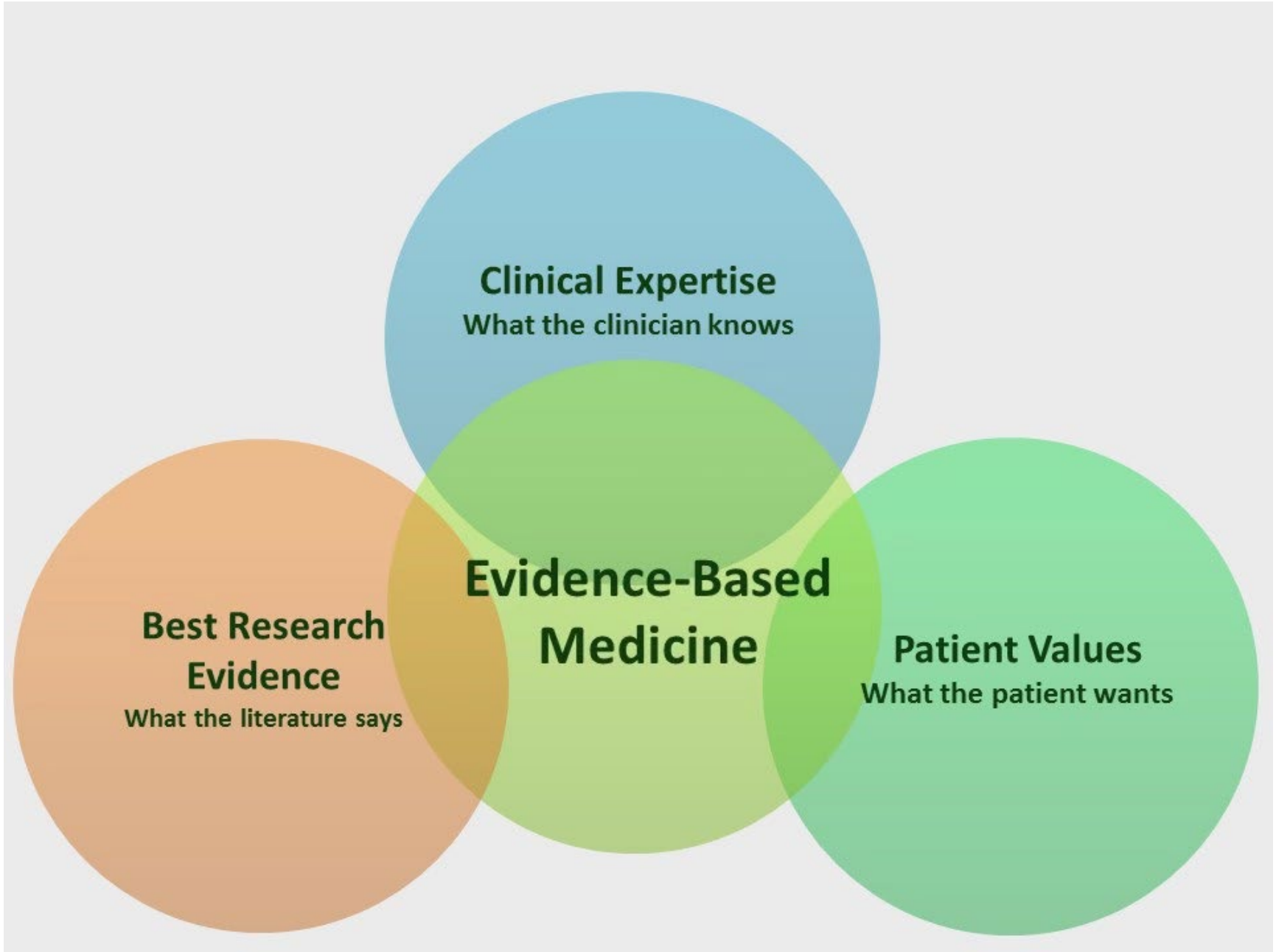
*Clinical practice guidelines used: (1) Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure VII.[39] (2) ADA[19-32]; glycemic control is recommended; however, specific medicines are not described. (3) American College of Rheumatology[33-36]; recent evidence about the safety and appropriateness of cyclooxygenase inhibitors, particularly in individuals with comorbid cardiovascular disease, led us to omit them from the list of medication options, although they are discussed in the reviewed clinical practice guidelines. (4) National Osteoporosis Foundation[40]; this regimen assumes dietary intake of 200 IU of vitamin D. (5) National Heart, Lung, and Blood Institute and World Health Organization.[37,38]

†Taken orally unless otherwise indicated. The medication complexity score of the regimen for this hypothetical woman is 14, with 19 doses of medications per day, assuming 2 as needed doses of albuterol metered dose inhaler plus 70 mg/wk of alendronate.

‡DASH and ADA dietary guidelines may be synthesized, but the help of a registered dietitian is specifically recommended. Eat foods containing carbohydrate from whole grains, fruits, vegetables, and low-fat milk. Avoid protein intake of more than 20% of total daily energy; lower protein intake to about 10% of daily calories if overt nephropathy is present. Limit intake of saturated fat (<10% of total daily energy) and dietary cholesterol (<200-300 mg). Limit intake of *trans*unsaturated fatty acids. Eat 2 to 3 servings of fish per week. Intake of polyunsaturated fat should be about 10% of total daily energy.

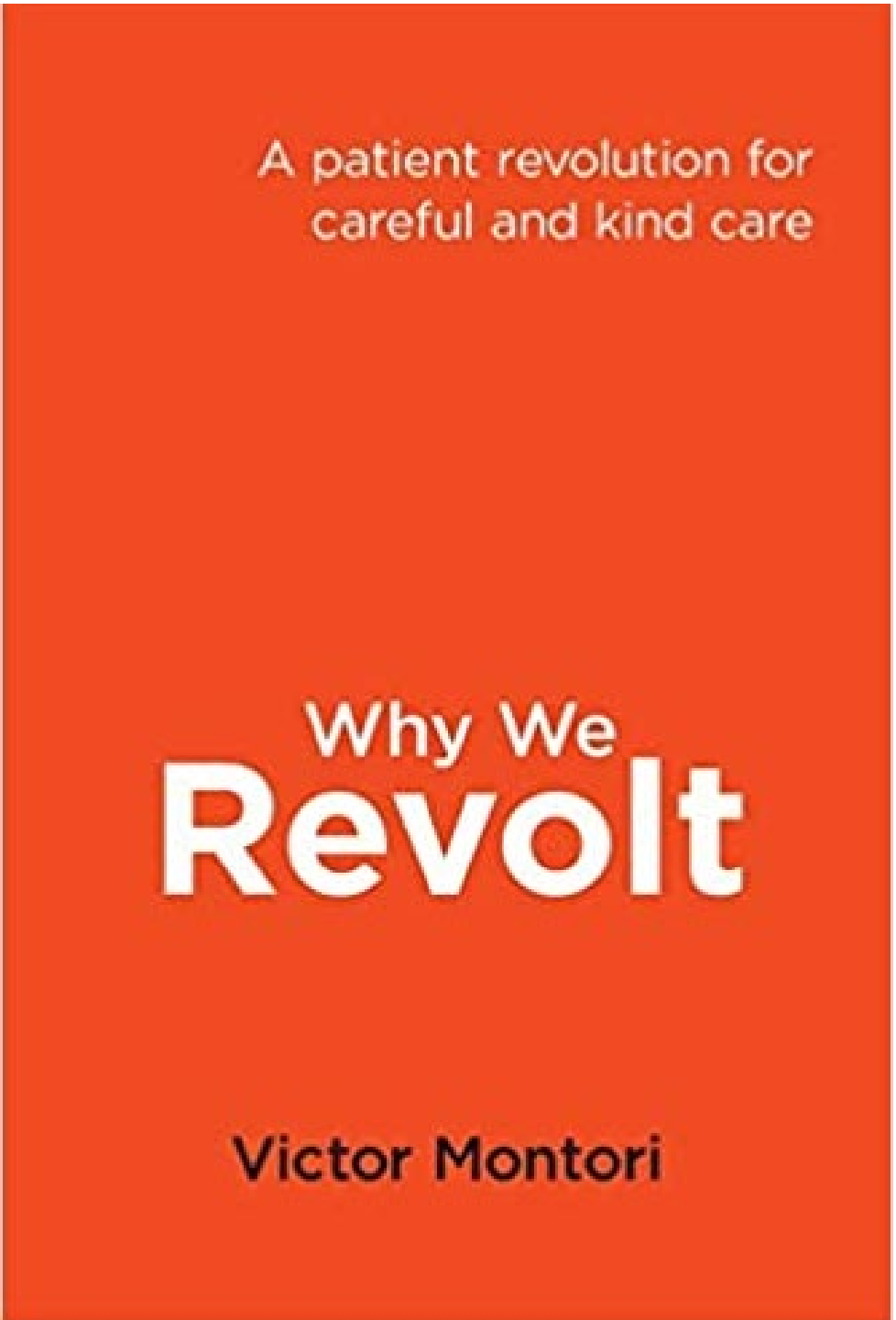
Boyd, JAMA 200

- Outcomes don’t have universal significance, different things matter to different patients
- Most outcomes have tradeoffs: even if meaningful, an outcome may not matter as much as other possible outcomes
- Single and even multiple outcomes examined in clinical trials fail to capture patients’ lived experience of health and health care
- Always uncertainty at the level of the individual patient


Clinical Expertise
What the clinician knows
Best Research Evidence
What the literature says
Evidence-Based Medicine
Patient Values
What the patient wants

Preference-sensitive care

- A **preference-centered decision** is a clinical decision-making process in which the patient's individual values, goals, and preferences are explicitly elicited and integrated into the selection among medically reasonable options. This approach is particularly important in situations where multiple treatment options exist and no single option is clearly superior based on current evidence—so-called "preference-sensitive" decisions. In these cases, the optimal choice depends on how the patient values the potential benefits, risks, and burdens of each option relative to their own life circumstances and priorities



Unintended harms

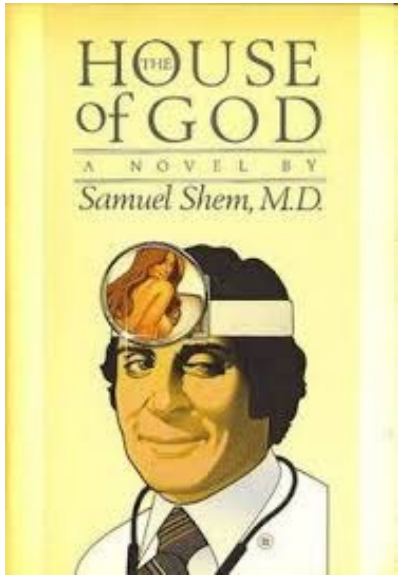
Industrial healthcare fails to notice patients. It standardizes practice for *patients like this*, rather than caring for *this patient*. Efficient specialization and narrow job definitions drive industrial healthcare's focus toward organs, diseases, or test results. Rigid procedures and fear of deviating from them miss the person.

Value placed on standardization

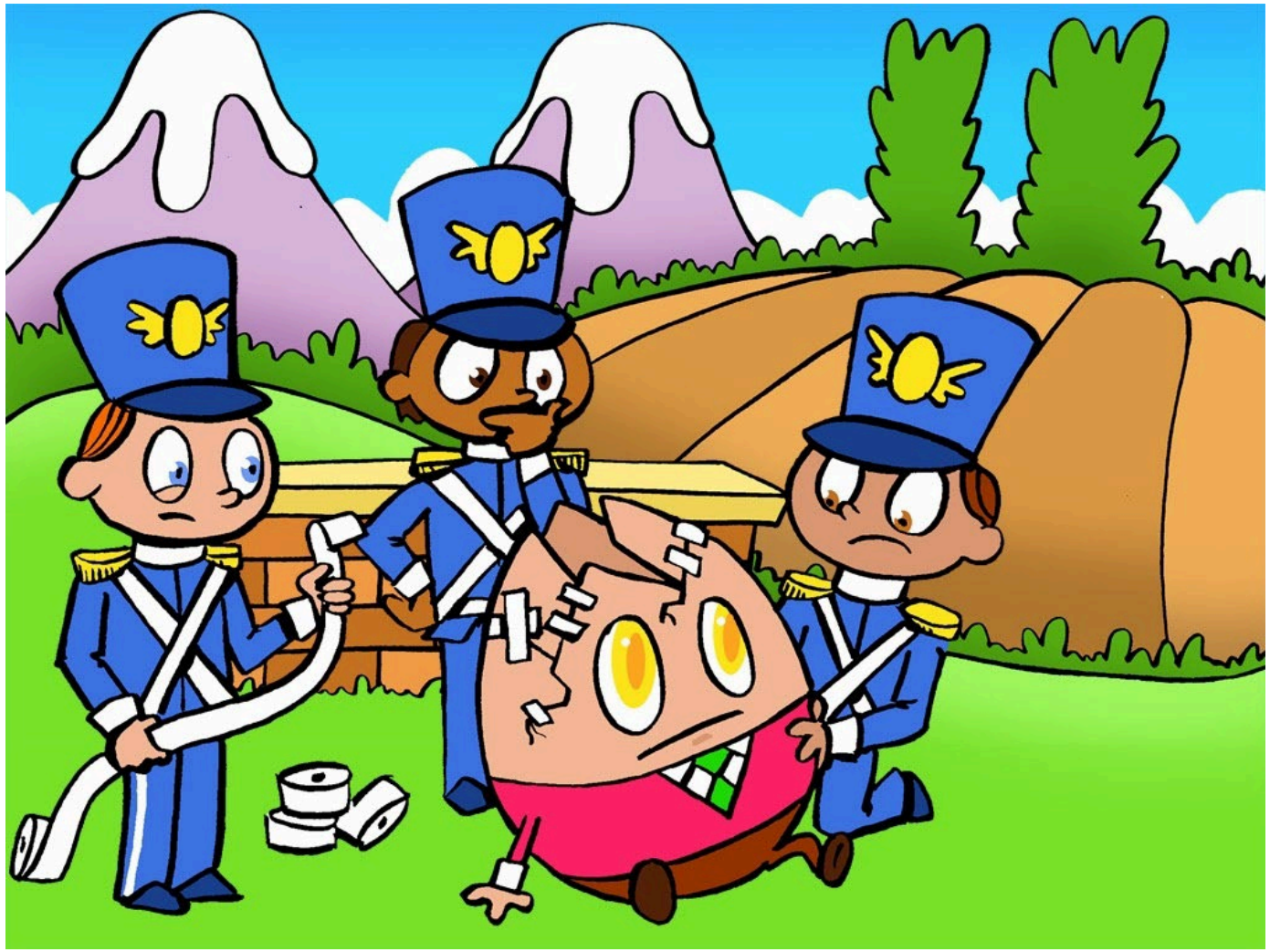
- Evidence-based or recommended treatments
- Importance of generalizability (antithesis of n=1 approach)
- Routinization of clinical care (dialysis, CKM, transplant etc.)

Group vs. individual identity

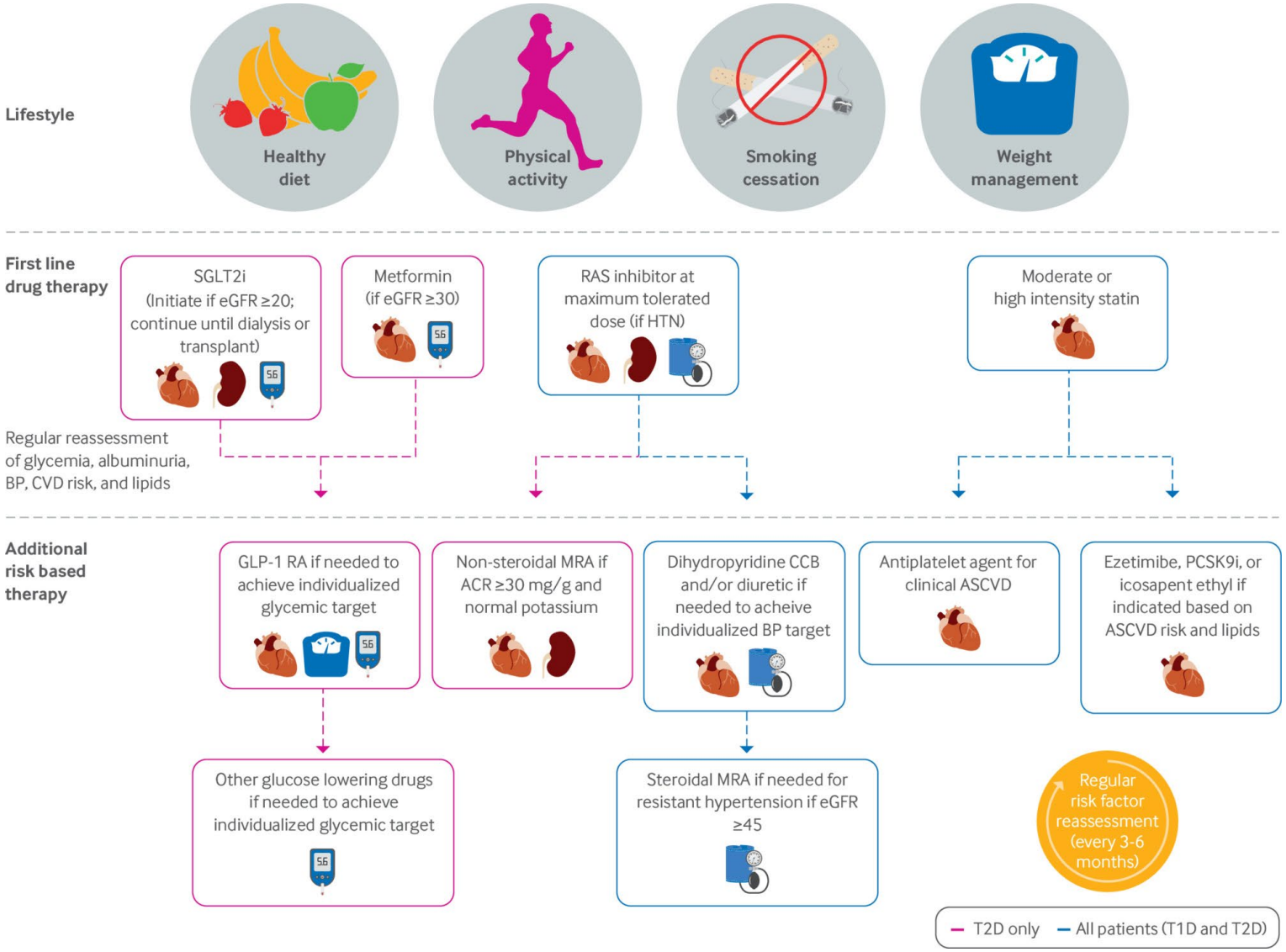
- Labeling humans as diseases (“CKD patients”, “IGA nephropathy patients”, “diabetic nephropathy patients”)
- Labeling humans according to the care they are receiving (e.g., “dialysis patients” “transplant patients” “CKM patients”)



Entrenchment of organ system-based approach



Algorithmic

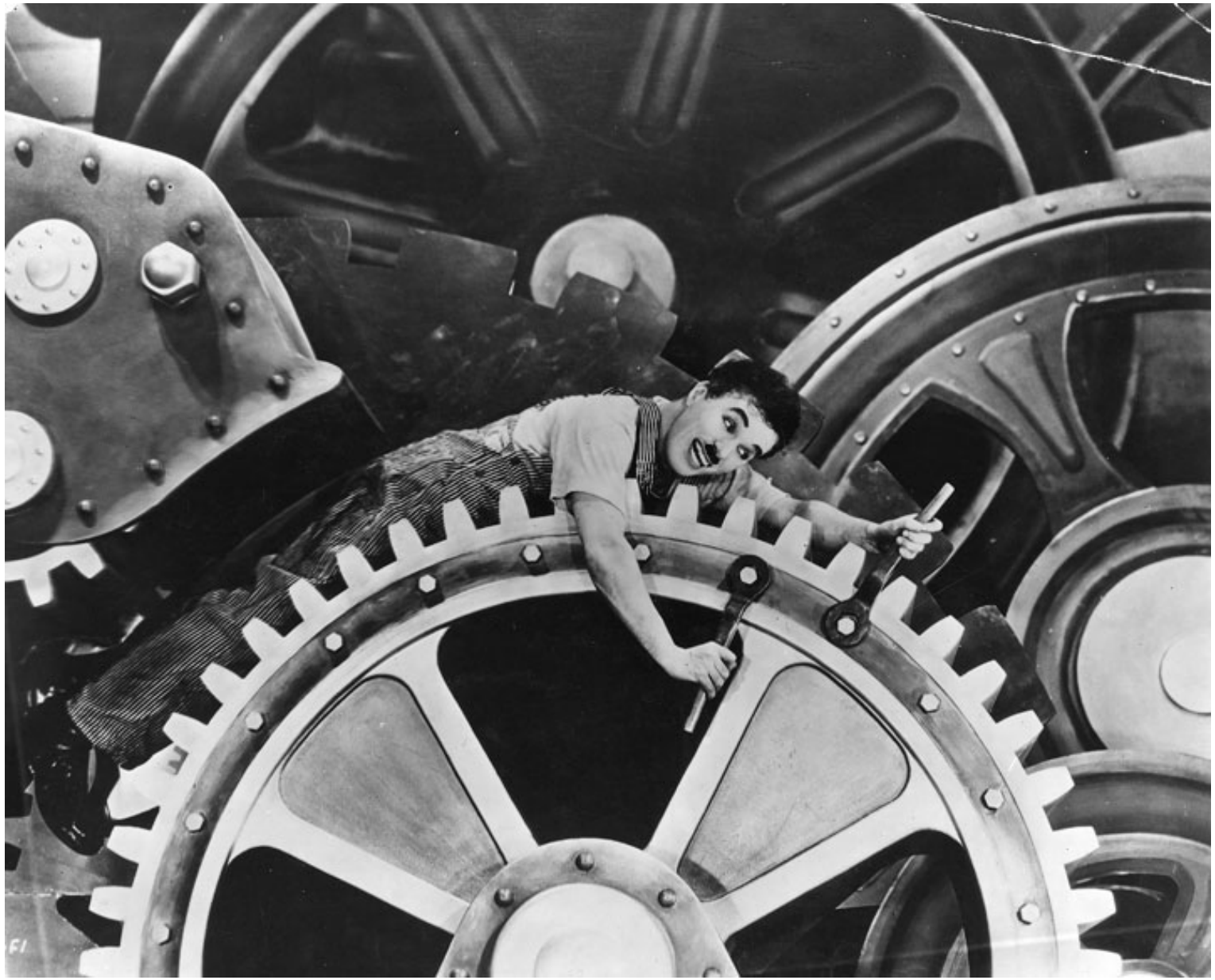


Playing a role

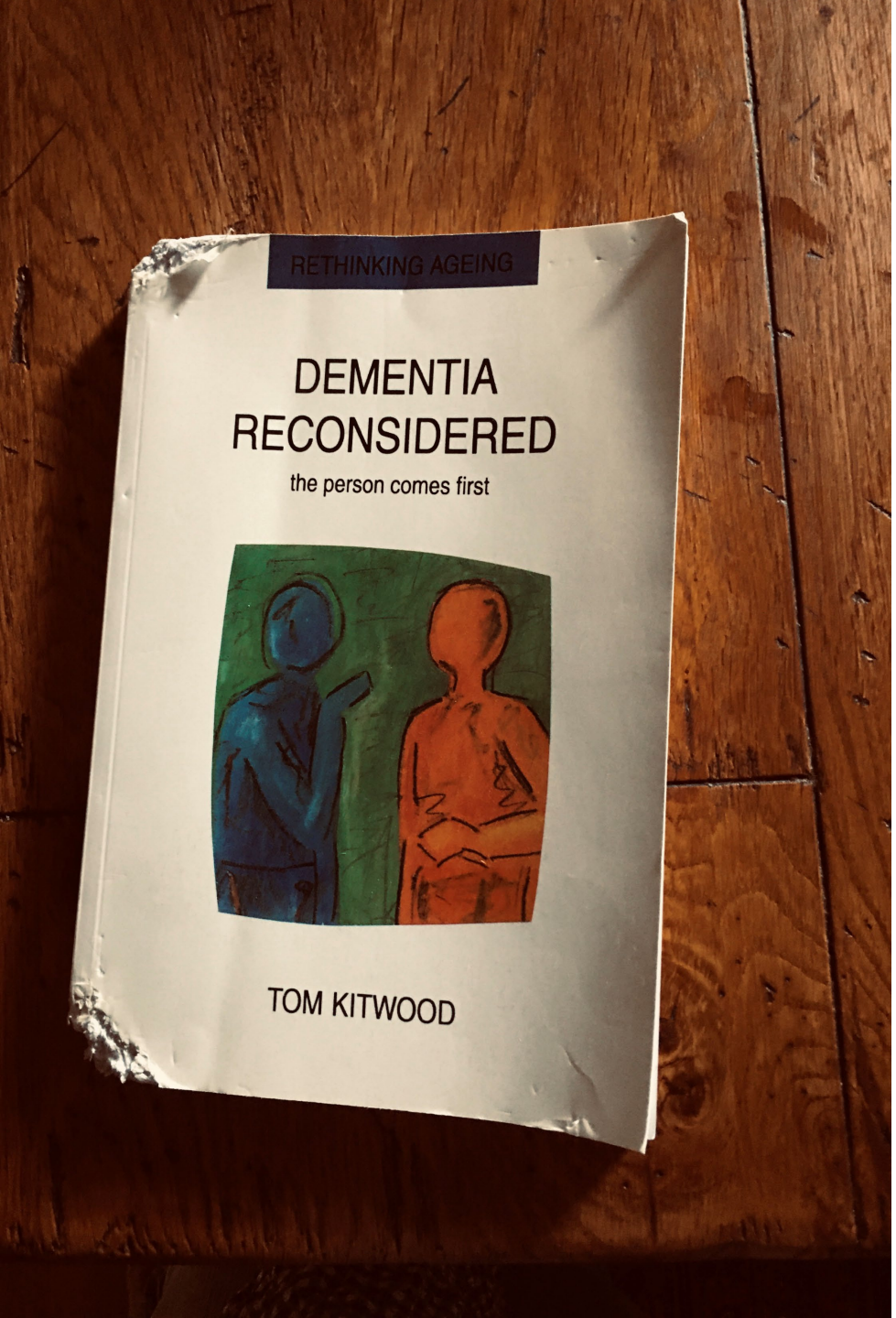
Following a script

- **Name/Introduction:**
- Start by clearly identifying yourself and your role.
- **Understanding:**
- Acknowledge and validate the other person's perspective, showing that you are listening and comprehending their concerns. This could involve paraphrasing or summarizing their statements to ensure accuracy.
- **Respect:**
- Treat the other person with courtesy and consideration, regardless of the situation.
- **Support/Situation:**
- Offer reassurance and support, emphasizing that you are there to help and work together. The "Situation" aspect may be part of a broader framework like SBAR (Situation, Background, Assessment, Recommendation).
- **Empathy/Explanation:**
- Show that you understand their feelings and perspective. Provide clear and concise explanations about the situation, treatment, or care plan.

Efficiency and productivity valued

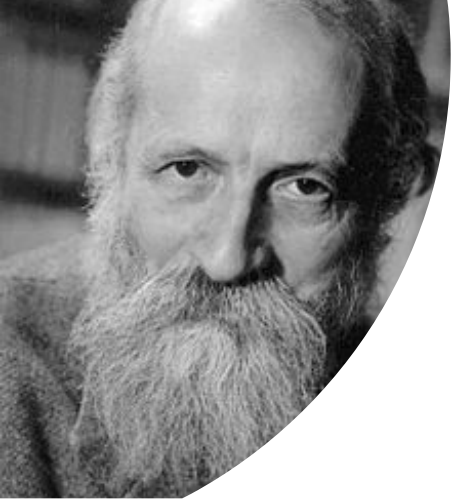


Invisible work of patients and families



Personhood

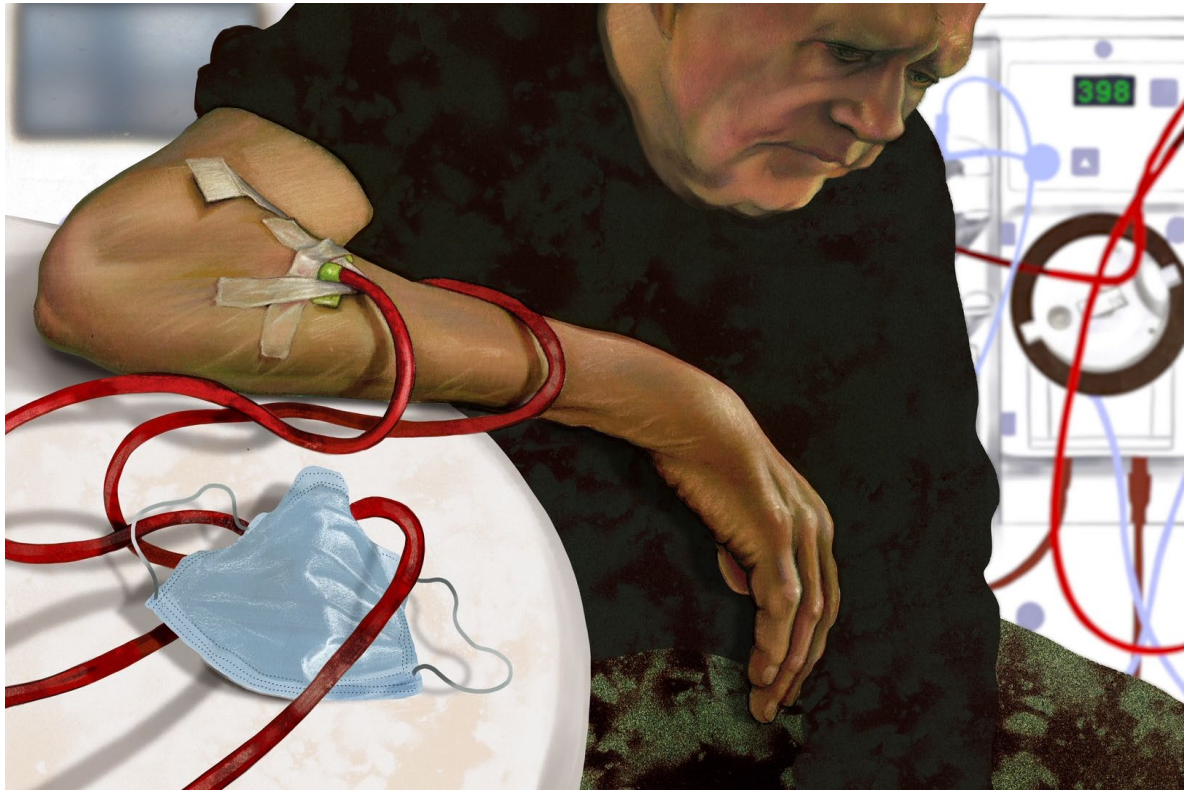
“It is a standing or status that is bestowed on one human being, by others, in the context of relationship and social being. It implies recognition, respect and trust.”
Kitwood, 1997



Ich und Du (I and Thou), Martin Buber, 1923

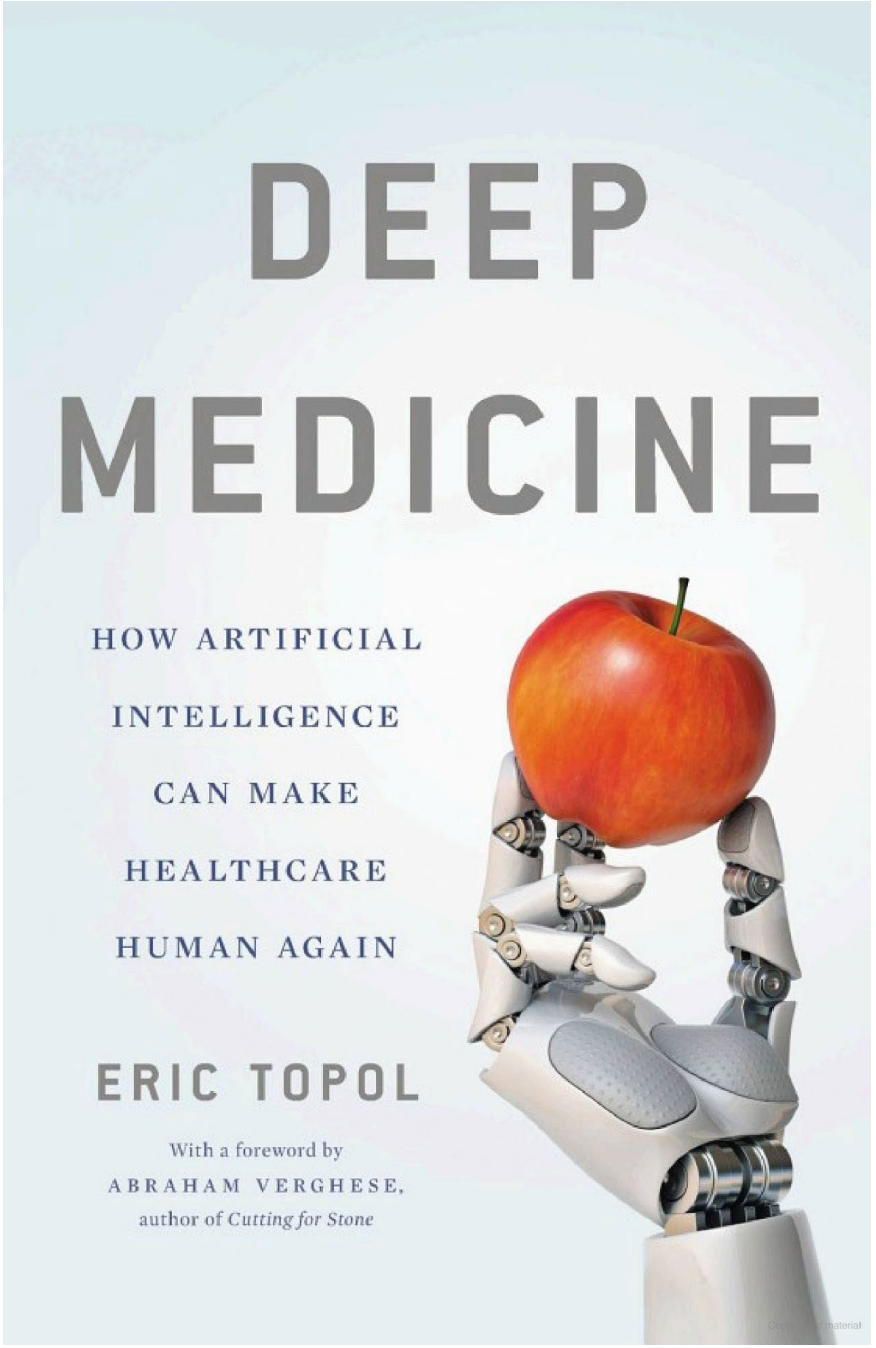
- I-It
  - Coolness, detachment, instrumentality.
  - I-it can never rise above the banal and trivial.
- I-Thou
  - Going out toward the other, self-disclosure, spontaneity, a journey into uncharted territory.
  - Daring to relate to another as Thou may involve anxiety or even suffering.

What is at stake?



- There is however a very somber point to consider about contemporary practice. It is that a man or woman could be given the most accurate diagnosis, subjected to the most thorough assessment, provided with a highly detailed care plan and given a place in the most pleasant surroundings—**without any meeting of the I-Thou kind ever having taken place**” Kitwood

Don’t worry! AI is coming to the rescue!



Waking up from industrial medicine

“The secret of the care of the patient is in caring for the patient”

Landmark Article
March 19, 1927
(*JAMA* 1927;88:877-882)

The Care of the Patient*

Francis W. Peabody, M.D.
Boston


EVIDENCE
Agency:
Item No:
Case No:
Date of Collection:
Time of Collection:
Collected by:
Description of Evidence:
Location of Collection:
Type of Offense:
Victim:
Suspect:
CHAIN OF CUSTODY
Received from:
By:
Date:
Time:
Received from:
By:
Date:
Time:
Received from:
By:
Date:
Time:
A-3700
ARROWHEAD FORENSICS

n=1 approach

Five questions that have helped me wake up from industrial medicine

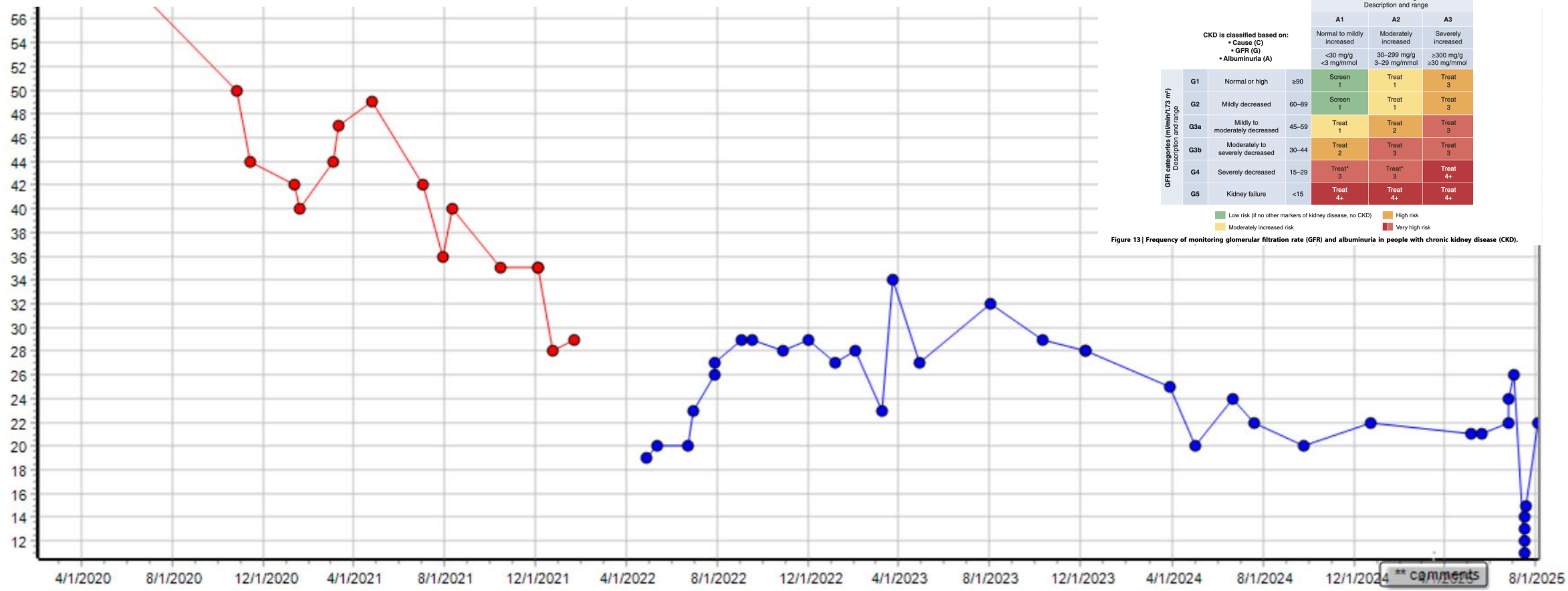
1. What new will I learn from and about this person?

2. What would I most like to remember about this interaction?

3. How can I help to limit this person’s suffering?

4. How can I move my care beyond the generic?

Escaping the heat map



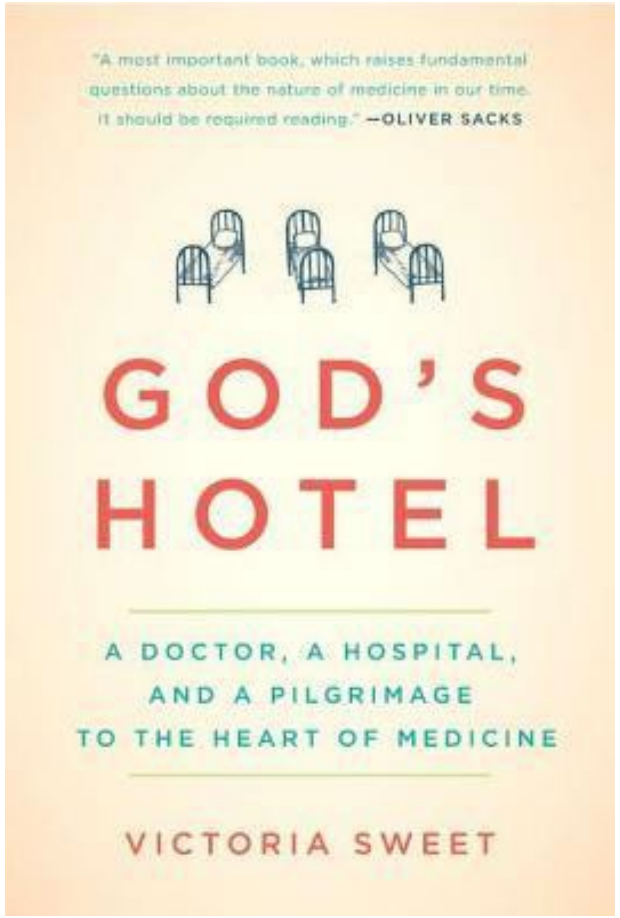
CKD is classified based on: • Cause (C) • GFR (G) • Albuminuria (A)				Albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–299 mg/g 3–29 mg/mmol	≥300 mg/g ≥30 mg/mmol
GFR categories (ml/min/1.73 m²) Description and range	G1	Normal or high	≥90	Screen 1	Treat 1	Treat 3
	G2	Mildly decreased	60–89	Screen 1	Treat 1	Treat 3
	G3a	Mildly to moderately decreased	45–59	Treat 1	Treat 2	Treat 3
	G3b	Moderately to severely decreased	30–44	Treat 2	Treat 3	Treat 3
	G4	Severely decreased	15–29	Treat* 3	Treat* 3	Treat 4+
	G5	Kidney failure	<15	Treat 4+	Treat 4+	Treat 4+

Low risk (if no other markers of kidney disease, no CKD) | High risk
Moderately increased risk | Very high risk

Figure 13 | Frequency of monitoring glomerular filtration rate (GFR) and albuminuria in people with chronic kidney disease (CKD).

5. Is there an opportunity to go beyond myself?

The efficiency of inefficiency




dreamstime