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Defining, Measuring and Improving Healthcare Value

Lancet Commission on Global Surgery

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Value-based health care delivery

The central goal in health care must be **value for patients**, not access, volume, convenience, quality, or cost containment

$$\text{Value} = \frac{\text{Health outcomes}}{\text{Costs of delivering the outcomes}}$$

The Value approach requires that we measure two fundamental parameters:

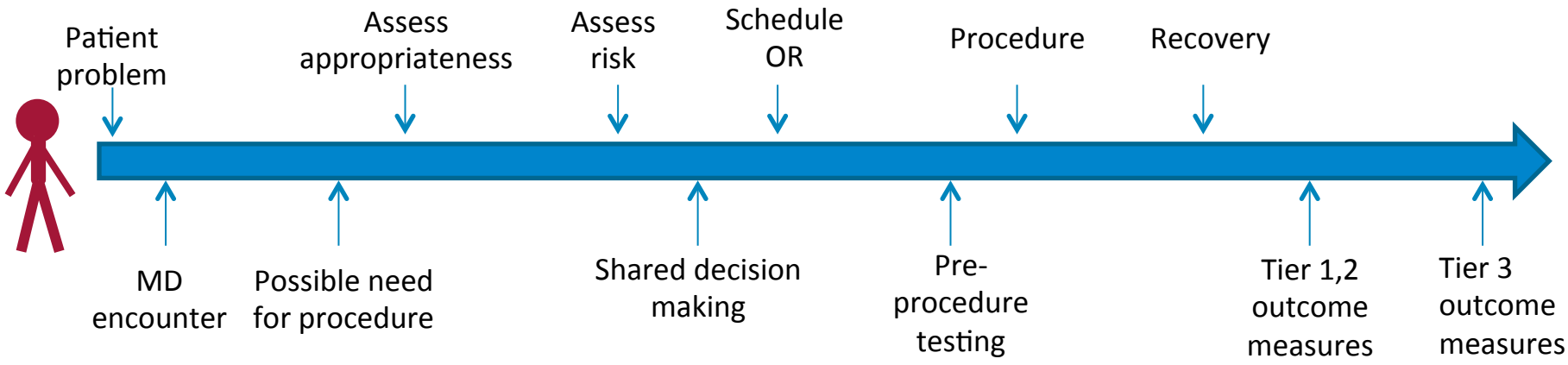
1. Outcomes: the **full set of patient health outcomes** over the care cycle
2. Costs: the **total costs of resources** used to care for a patient's condition over the care cycle

Measurement matters!

"In the past year, I have been struck by how important measurement is to improving the human condition. You can achieve incredible progress if you set a clear goal and find a measure that will drive progress toward that goal."

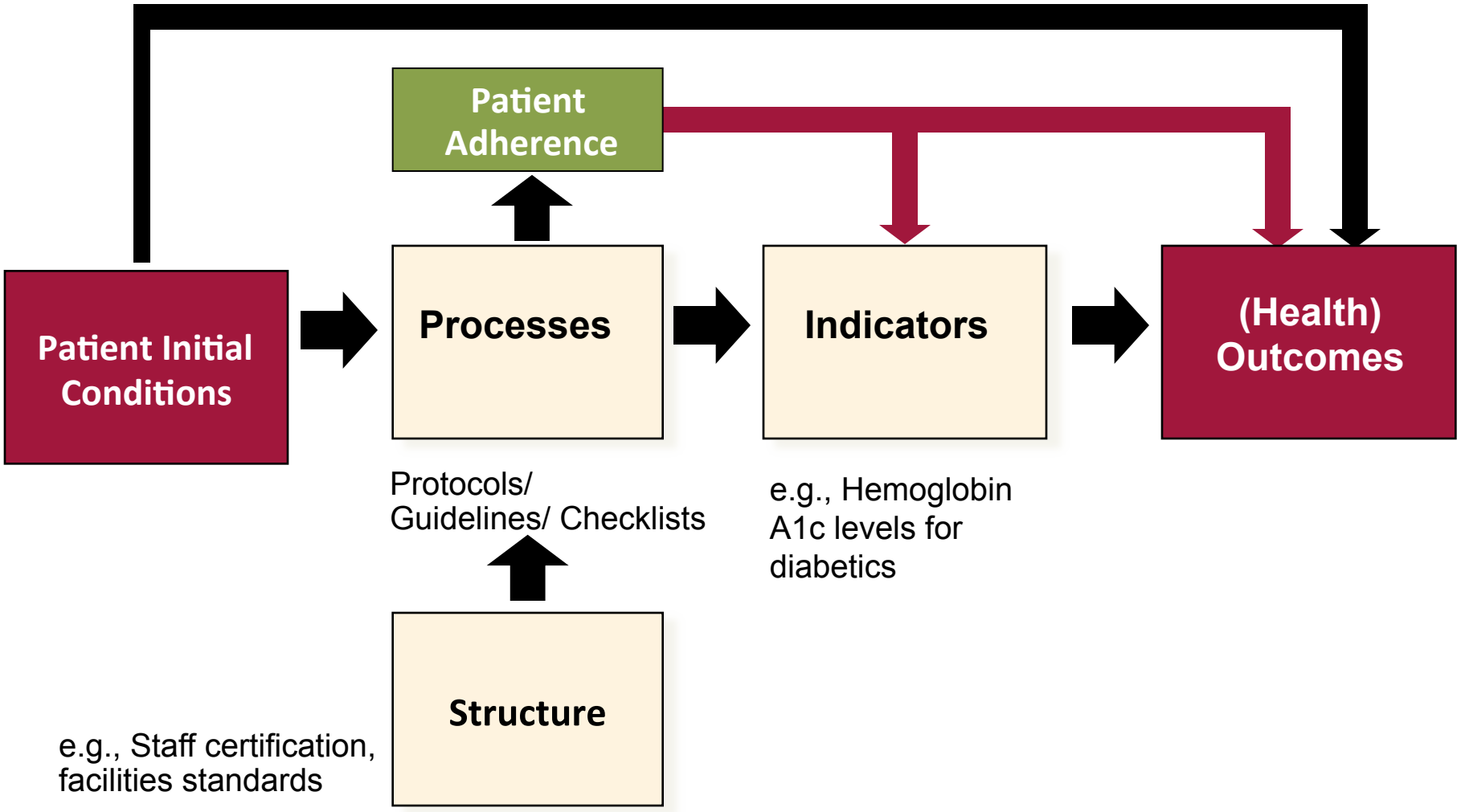
2013 Annual Letter from Bill Gates
Bill and Melinda Gates Foundation

Patient-level outcomes and costs should be measured over a complete cycle of care for a clinical condition

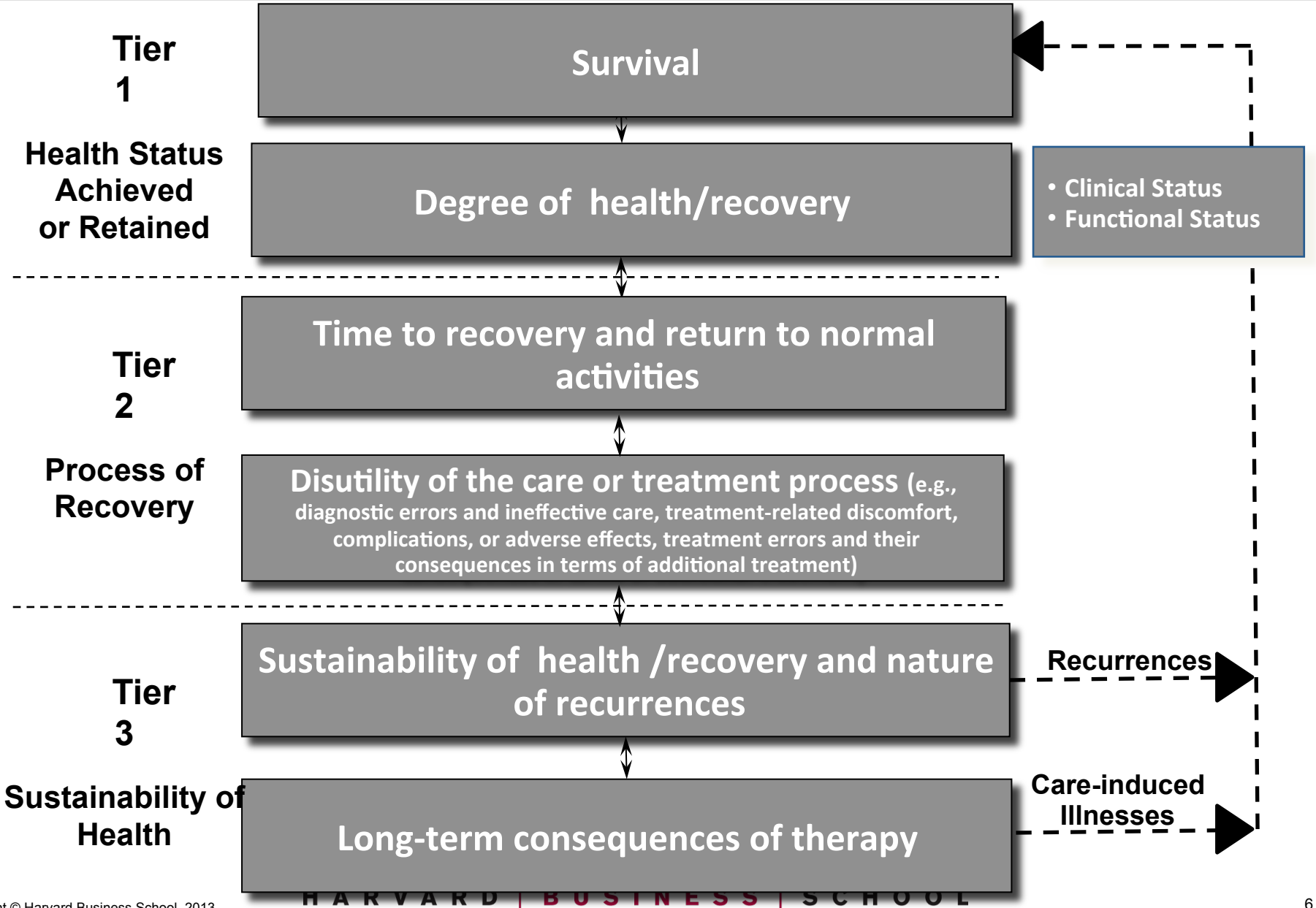


Source: Tim Ferris, MD, personal communication

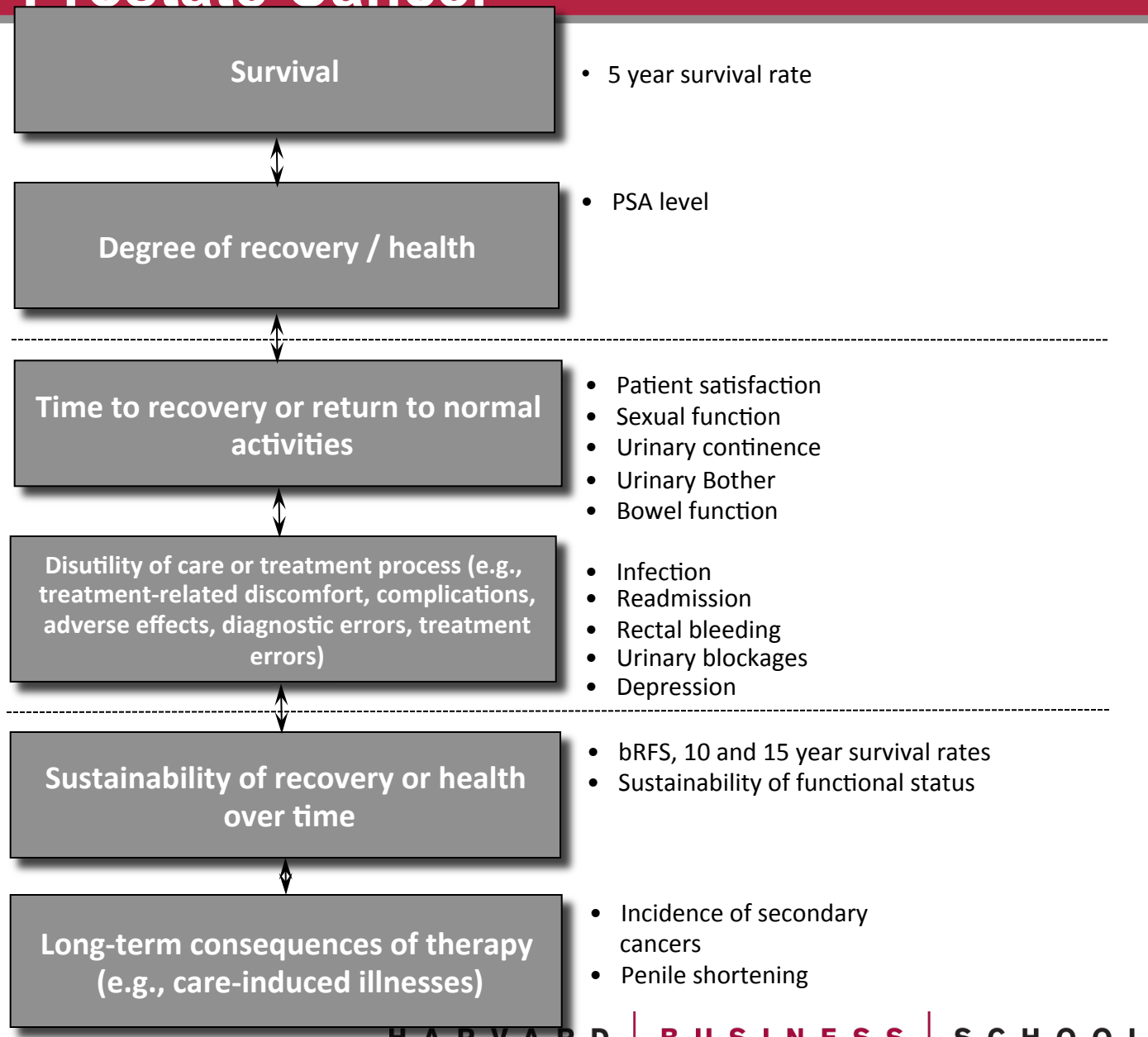
Measurement Tension: Process or Outcomes?



Measuring Outcomes (Michael Porter, NEJM, Dec 23, 2010)



The Outcome Measures Hierarchy: Prostate Cancer



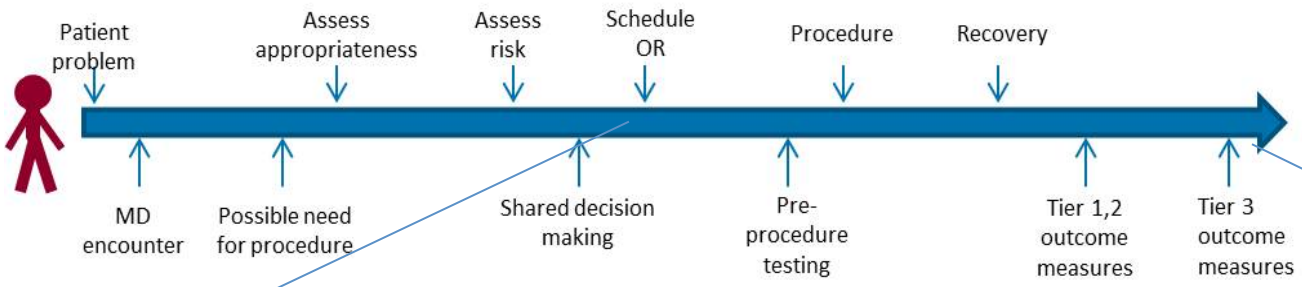
Measuring costs using Time-Driven Activity-Based Costing (TDABC)

- A bottoms-up approach to costing patient care based on the actual clinical and administrative processes, and resources, used to treat patients.

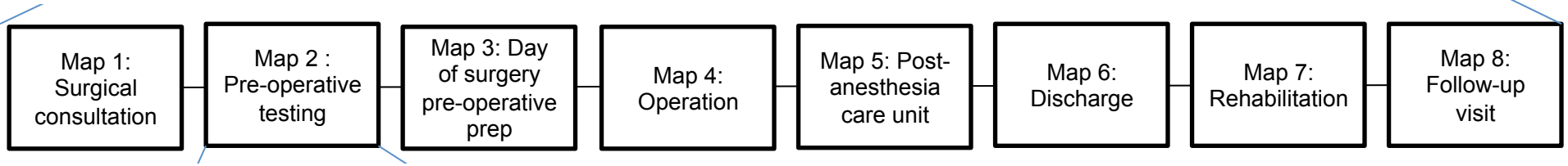
- Combines process mapping from industrial engineering with the most modern approach for accurate and transparent patient-level costing

TDABC Step 1: Develop process maps for the complete care cycle

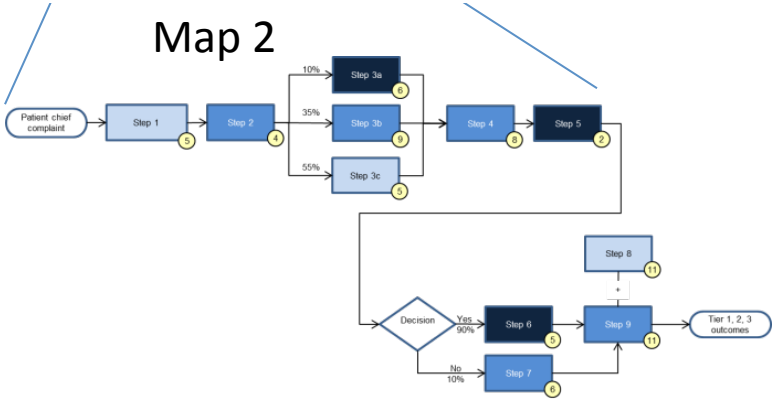
Level 1: Overall care cycle



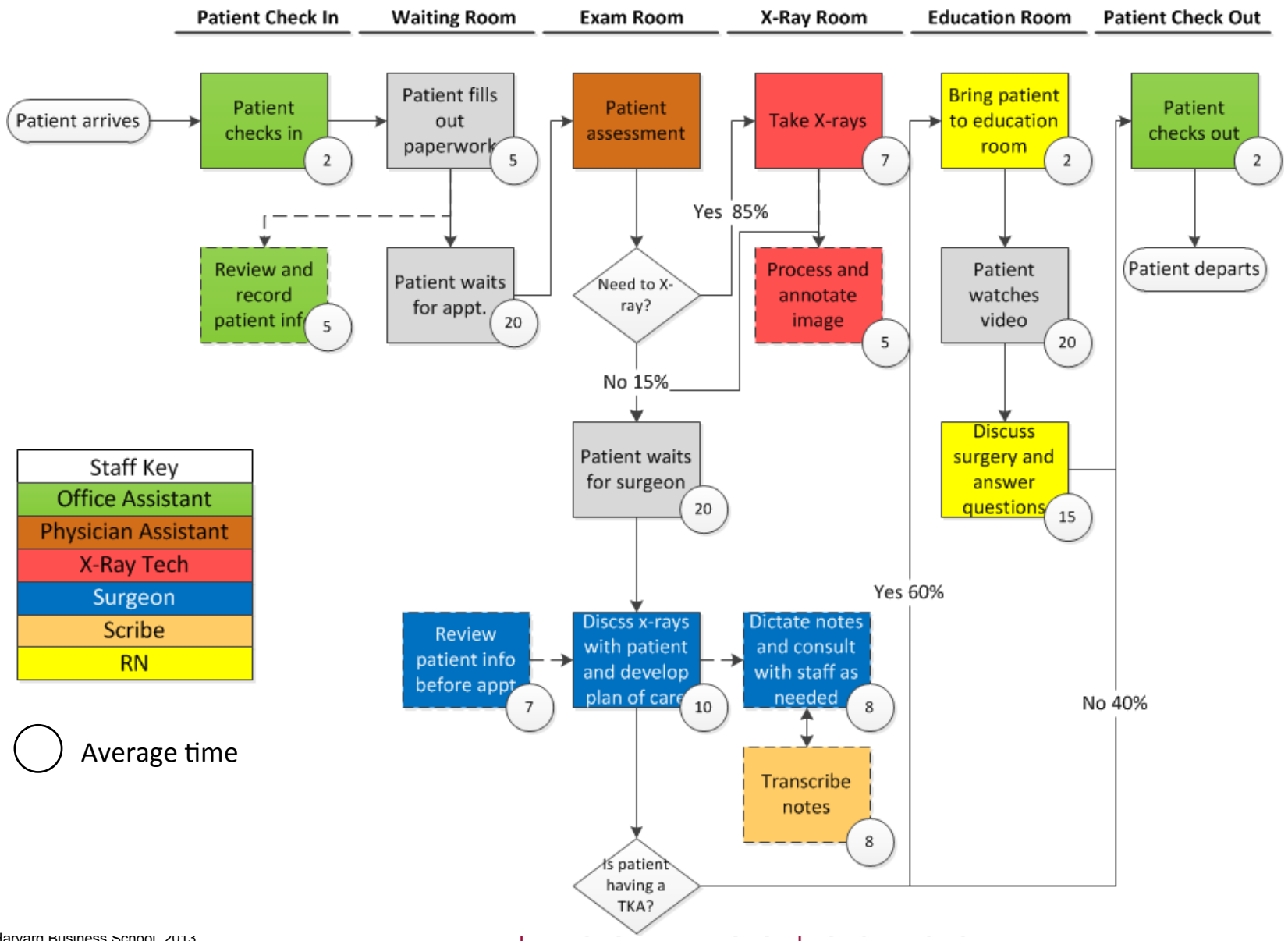
Level 2: Study care cycle



Level 3: Process maps



Process map for initial office visit



TDABC Step 2: Calculate each resource's Capacity Cost Rate ($/minute)

- Costs: All the costs (salary, fringe benefits, occupancy, technology, supervision, support resources) associated with having that person (or piece of equipment) available to treat patients

- Capacity: The capacity (time) that each resource (personnel, equipment) has available for treating and caring for patients

- Capacity Cost Rate = Resource Cost/ Resource Capacity

  = $ (€) per minute

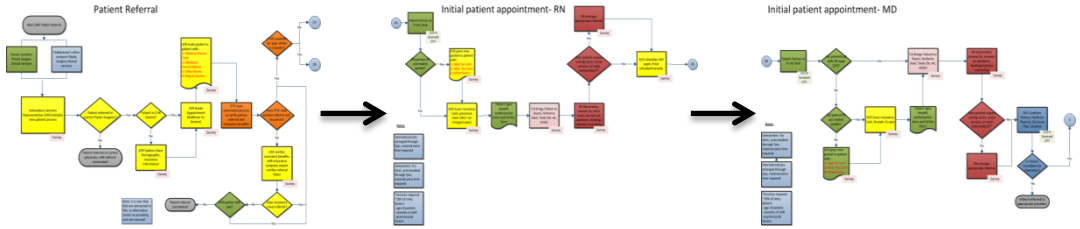
Calculate Capacity Cost Rates (CCR) for each resource (personnel or equipment)

Data are illustrative

	Surgeon	Registered Nurse	X-Ray Technician	Physician Assistant	Office Assistant	Scribe
Total Clinical Costs ($)	$ 546,400	$ 120,000	$ 100,000	$ 64,000	$ 51,000	$ 61,000
Personnel Capacity (minutes)	91,086	89,086	89,086	89,086	89,086	89,086
Personnel Capacity Cost Rate ($/min.)	$ 6.00	$ 1.35	$ 1.12	$ 0.72	$ 0.57	$ 0.68

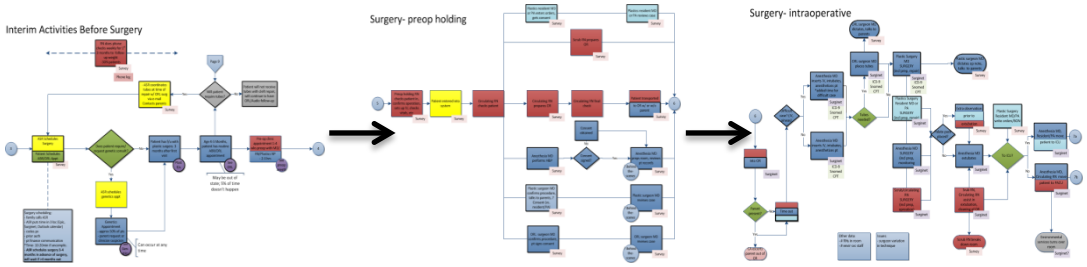
Compute total patient care costs by multiplying process times by its resource capacity cost rate and sum across the patient's cycle of care

Initial consultation



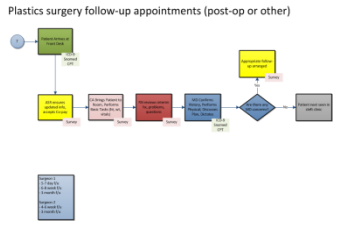
	Minutes	Cost/ minute	*Total
MD	X_1	Y_1	136.13
RN	X_2	Y_2	68.04
CA	X_3	Y_3	6.17
ASR	X_4	Y_4	15.74
			$266.08

Surgical procedure



MD	X_1	Y_1	584.99
Anes.	X_2	Y_2	603.89
RN	X_3	Y_3	136.29
Tech	X_4	Y_4	97.82
OR	X_5	Y_5	329.16
			$1752.15

Follow-up or post-operative visit



MD	X_1	Y_1	55.19
RN	X_2	Y_2	13.61
CA	X_3	Y_3	3.09
ASR	X_4	Y_4	1.77
			$73.66

Source: Meg Abbott, MD & John Meara, MD Boston Children's Hospital

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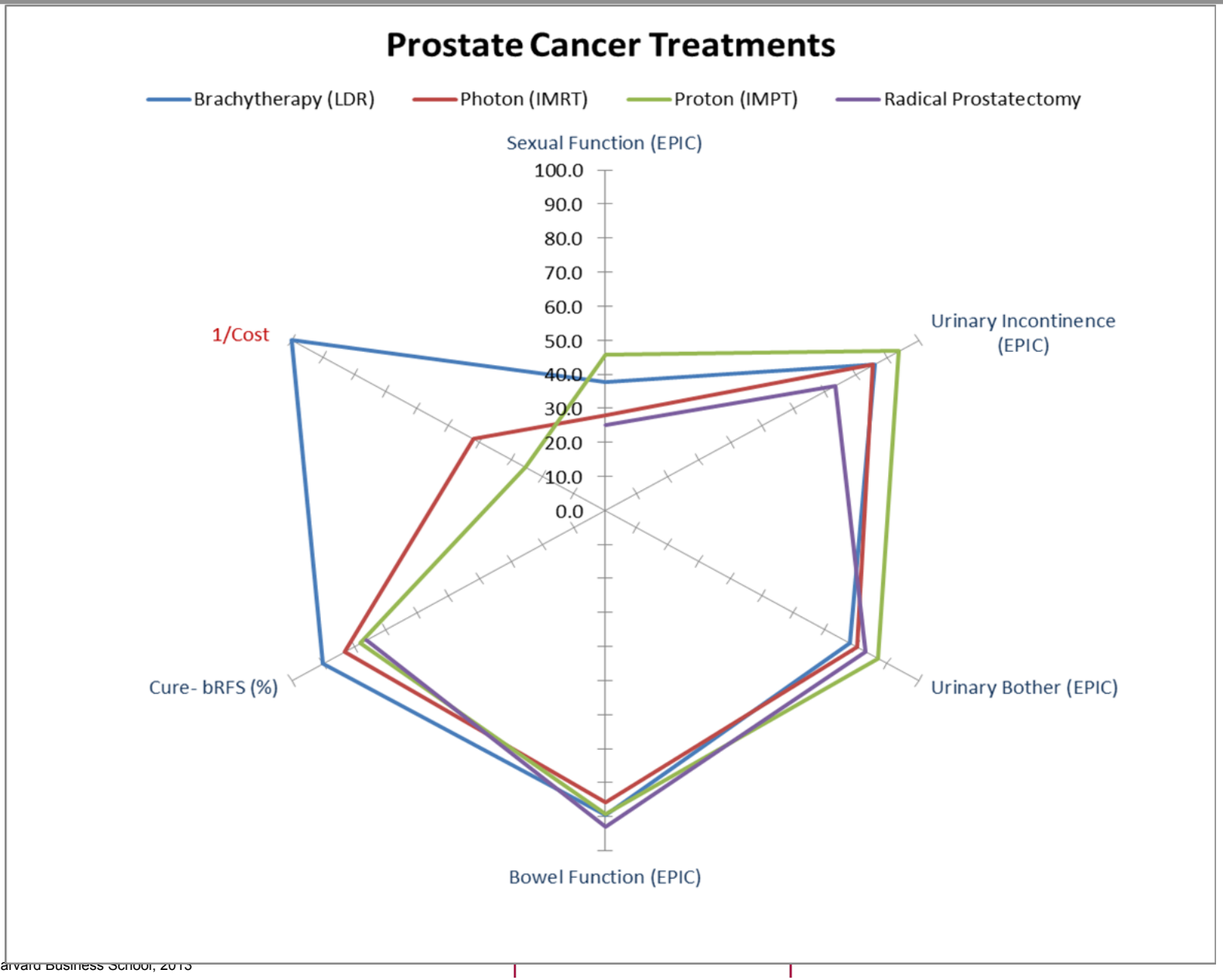
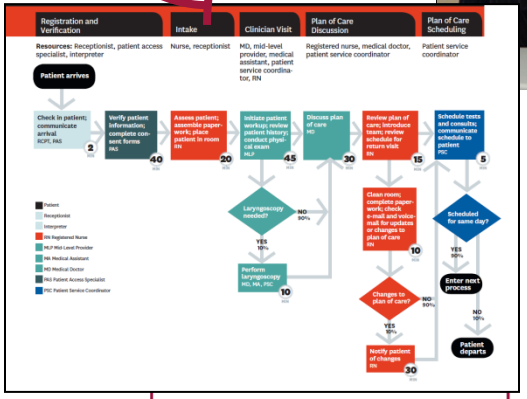
We can display value – outcomes and cost – on a radar/ spider chart



Time-Driven ABC provides a common platform – a single version of truth – for productive discussions among clinical & administrative personnel.

By standardizing on this procedure and we can achieve consistently excellent outcomes at lower cost.

We can skip this process and save $120 per patient.



Clinicians and Staff collaborate to increase value in health care delivery

- **Process Improvements:** Optimize and standardize processes over complete cycles of care

- **Personnel and Resource Utilization:**
  - Care givers work at the top-of-their-license; who should be doing the work, where, and how?
  - Optimize the utilization of resource capacity

We are about to start several TDABC projects at the new PIH hospital in Mirebalais, Haiti

1. Surgeries
   - Mastectomies
   - C-sections
2. Emergency room: Moderate to severe trauma
3. Maternal Health: Vaginal Delivery

Valid outcome and cost measurements also provide the foundation for bundled (episode-based) reimbursement

- For each medical condition, a bundled price covers the costs of all the resources required to deliver excellent outcomes for a full cycle of care assuming resources are used effectively and efficiently, including high capacity utilization.

- Time-based reimbursement for complete care of a **chronic condition** (e.g., diabetes, end stage renal disease)

- Time-based reimbursement for **primary/preventive care for defined patient populations** (healthy infants and children, healthy adults, frail elderly)