

ENHANCED RECOVERY PROGRAMS AS
A MODEL FOR VALUE BASED CARE

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DISCLOSURES:

- No Financial Disclosures
- Anesthesiology Champion for ERAS at UTSW

OVERVIEW

- ERAS Background
- Defining Value
- Measuring Value
- Evolution of Reimbursement
- Connecting ERAS → Value

ERAS BACKGROUND

- **Enhanced Recovery After Surgery (ERAS) or Enhanced Recovery Programs/ Pathways (ERP)**
- Enhanced Recovery After Surgery (ERAS) is a well-recognized, integrated, multimodal approach to perioperative care designed to minimize postoperative organ dysfunction and return the patient to baseline as soon as possible.
- The basis of ERAS is promotion of best-practice guidelines across specialties to facilitate all aspects of the patients' surgical journey.
- This process involves coordination and integration of multiple medical specialties, nursing and other perioperative care team members to ensure optimal outcomes.

(CHANDRASEKHARAN & GAN, 2015)

ERAS BACKGROUND

- First developed by Henrik Kehlet, a colorectal surgeon in Denmark in the 1990's.
- Kehlet's group focused on the following interventions:
 - Avoidance of fasting with minimal NPO time and inclusion of carbohydrate fluids before surgery
 - Eliminating/minimizing bowel preparations and drains
 - Use of regional anesthetic techniques
 - Active patient mobilization
 - Pre-emptive treatment of postoperative pain and nausea
- By using this "fast-track" technique, the group decreased the length of stay for open colorectal cases from 5-10 days to a median of 2 days.

(KEHLET & MOGENSEN, 1999)

ERAS BACKGROUND

- **Basic Tenants of all ERAS pathways:**
 - Minimal NPO time/Early Satiation
 - Clear liquids up to 2 hours before surgery, minimizing bowel preps, starting clears in the PACU post op
 - Multi-modal analgesia
 - Minimal short-acting narcotics, other non-narcotic pain regimens, regional techniques
 - Early ambulation
 - Starting right after surgery when possible

WHO DOES HEALTHCARE VALUE MATTER TO?

- **Patients** → satisfaction, outcomes, costs (clinical care, copays, medications, lost wages, HHC/rehab), individual goals (return to productive activities)
- **Physicians** → OR efficiency, patient satisfaction, outcomes
- **Hospitals** → timeliness across service lines, serving the underserved, competing for payer incentives
- **Government/CMS** → resource utilization, predetermined value measures
 - Medicare value-based programs
- **Private insurers** → cost optimization; individual goals
 - ex. Return to work for insurer aligned with business

www.cms.gov (HYDER & HERL, 2015), (ATKINS & FLEISHER, 2015)

VALUE: DO YOU KNOW IT WHEN YOU SEE IT?

Real World



Health Care



DEFINING VALUE

- Business definition: Value = Benefit - Costs
- Alternative definition (used in healthcare): Value = Benefit(or care quality)/Costs
- Customer defines value... price is the defined monetary amount agreed upon by customer and provider
- Value in healthcare ???
 - Cost-effectiveness analysis, cost-utility analysis and incremental cost-effectiveness ratios (ICERs)

[\(GROCCOTT & MYTHEN, 2015\)](#), [\(BEVERLY, VROCHDES, & URMJAN, 2017\)](#)

HEALTHCARE ECONOMICS CONUNDRUM

- In business, assigning monetary value to benefit:cost ratio is often easy
- In health economics, this is often more difficult
 - What is the value of
 - Longer life?
 - Disability free life?
 - Pain control?

(GROCCOTT & MYTHEN, 2015)

QUANTIFYING BENEFITS

- Difficult in Healthcare
- We know what a particular surgery or treatment may be "worth"
 - CPT code: 47562 (lap chole) price: \$5865
- But for other aspects of care, we cannot as easily quantify their benefit (monetarily):
 - Patients - pain control, return to baseline health, return to work, satisfaction
 - Hospitals - reimbursement (varies by insurer), satisfaction of patients, cohesiveness of various services

HTTPS://SURGERYCENTEROK.COM/PRICING/LAPAROSCOPIC-CHOLECYSTECTOMY/

QUANTIFYING COSTS

- Typically 3 steps involved with allocating costs to hospitals/patients:
 - Hospital overhead costs (administration, logistics, facility management, security) to the medical departments providing medical care (clinics, labs, OR's, radiology)
 - Department overhead (non-medical staff, inventory) to the patients
 - Department direct costs (medical staff, meds, materials) to the patients

Measuring hospital services

Identifying hospital services	
Accuracy	
- Accuracy	+ Accuracy
Top down gross costing	Top down microcosting
Bottom up gross costing	Bottom up microcosting

(LJUNGQVIST, THANH, & NELSON, 2017)

QUANTIFYING COSTS

- Cost of hospital episode typically peaks in the first few days (during treatment phase)
- Complications are major drivers of costs:
 - Need for reoperation with GA costs 3.5 x's more than uncomplicated patient
 - If complication involves organ failure or ICU care the cost increase more than 5 x's
 - Complications on avg. double the length of stay

[LJUNGQVIST, THANH, & NELSON, 2017]

MEASURING VALUE IN HEALTHCARE

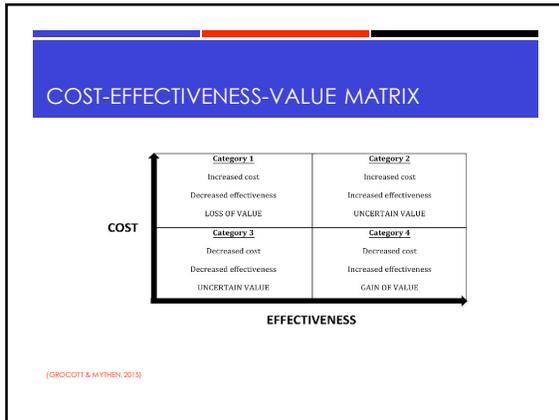
- Performance measures typically fall into 1 of 3 categories
 - **Structure** - ex. Participation in data registry, 24 hour in house call coverage, board certification
 - Easy to measure but least useful markers of quality or value
 - **Process** - focus on what is done to patient; ex. Timing of abx or post op removal of Foley cath, surgical safety checklist
 - Intended to capture best practices/improve quality; simple and inexpensive to track
 - Numerous shortcomings: often best practices are later proven inconsequential/harmful; focus on "what the doctor does, not on how patient does", doesn't strictly measure value- quality, patient experience and cost
 - **Outcome** - measures directly "how a patient does" ex. Complications or death
 - Excellent face value for all stakeholders, costly
 - Limitations: may not capture what matters most to patients, have methodologic limitations (risk adjustment), do not inform providers how to improve value
 - Better examples may be increased functionality, decreased pain, prolonged lives beyond 30-day, 90 day windows, patient experience (CAHPS)

[HYDER & HEBL, 2015], [ATKINS & FLEISHER, 2015]

VALUE EVOLUTION

- As the goal moves from quality → value, concept of **efficiency** has taken more priority
- This measure aims to address cost of care more directly than structure, process or outcomes
- Ex. Use of cardiac imaging prior to low-risk noncardiac surgery, excessive preop labs, use of high cost meds rather than generics

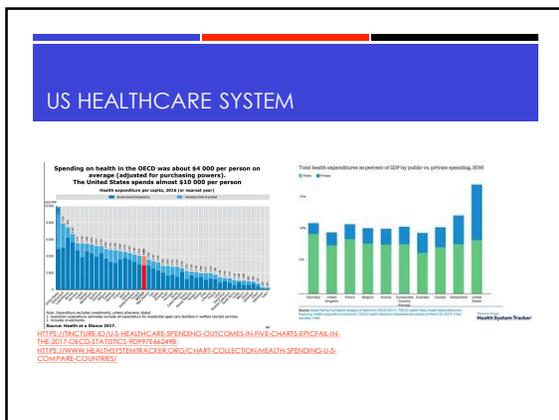
[HYDER & HEBL, 2015]



WHY DO WE WORRY ABOUT COSTS? OR TRY TO DEFINE THEM IN HEALTHCARE?

- Population growth, longevity put a strain on the financial resources of a limited healthcare system
- From 1960-2010, overall spending on health care increased from 5.1%-17.6% of the gross domestic product of the US. During this time, outcomes have remained basically unchanged.
- US congressional Budget Office extrapolation leads to the prediction that health care expenditure will reach 98.9% of US GDP by 2082 (based on untenable assumption that current policies are maintained).
- Tough decisions about resources and costs will need to be made
- New models of health care providing increased value by decreasing costs are necessary

[GROCCOTT & MYTHEN, 2015]; [ATKINS & FLEISHER, 2015]



WHY SHOULD HEALTHCARE FOCUS ON VALUE?

- Given the context of an eventually limited resource, maximizing healthcare value should be the top priority to all stakeholders in the delivery and receipt of that care. This allows for sustainability of the resource.
- Since value is defined by the patient, it should be measured across the patient experience, not at individual aspects.
- Focus on inputs (costs) and outputs (benefits or patient outcomes) at a practitioner or departmental level obscures the true relationship from a customer (patient) perspective.
- Maximizing value in surgical services is achieved by focusing on the whole patient journey....aka ERAS!

(GROCCOTT & MYTHEN, 2015)

HOW DO PHYSICIANS OR HOSPITALS GET PAID?

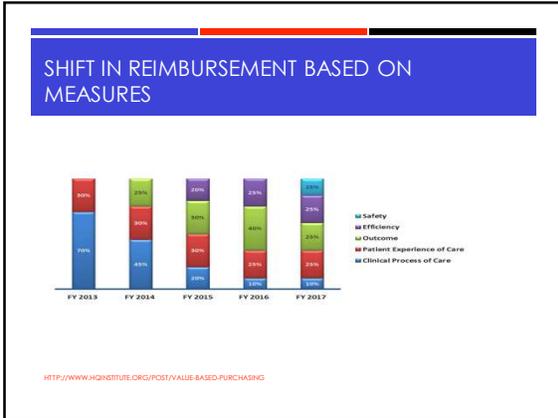
- Fee-for Service (FFS)
- Value-Based care
 - Pay-for-coordination (ex. Patient centered medical homes model)
 - Pay-for-performance
 - Bundled Payment
 - Shared Savings Programs (ex. ACO)

WWW.INSIGHT-TXCH.ORG

FEE-FOR-SERVICE MODEL

- Healthcare's most traditional payment model
- Providers are reimbursed by insurance companies and government agencies based on the number of services they provide or the number of procedures they order
- Payments are unbundled and paid for separately
- So each appointment, consult, test, procedure or hospital stay are billed even though some may not be needed or supported by evidence-based data
- Rewards quantity... not necessarily quality

WWW.INSIGHT-TXCH.ORG



BUNDLED PAYMENTS

- CMS' new voluntary episode payment model
- Aim to align incentives among participating health care providers for reducing expenditures and improving quality of care for Medicare beneficiaries.
- Payment is combined for physician, hospital and other health care provider services into a single bundled payment.
- CMS believes single bundled payments can motivate health care providers to furnish services efficiently, to better coordinate care, and to improve the quality of care.
- Providers may realize a gain or loss, based on how successfully they manage resources and total costs throughout each episode of care. Episode of care is often extended for a time frame after discharge as well (30 or 90 days).
- First cohort started participation in Oct 2018 and will run through Dec 2023. Second cohort to start in Jan 2020.

[WWW.INNOVATION.CMS.GOV/INITIATIVES/BPCI-ADVANCED](http://www.innovation.cms.gov/initiatives/bpci-advanced) (ATRING & FLEISHER 2018)

BUNDLED PAYMENTS

- Providers receive a single retrospective bundled payment with 90-day clinical episode duration
- Currently 29 inpatient clinical episodes
- 3 outpatient clinical episodes
- Payment is tied to performance on quality measures
- Bundled Payment for Care Improvement (BPCI) aims to encourage clinicians to redesign care delivery by adopting best practices, reducing variation from standards of care, and providing a clinically appropriate level of services for patients throughout the clinical episode.
- Currently over 170+ hospitals/clinics within TX using this model or testing this model at their facility

[WWW.INNOVATION.CMS.GOV/INITIATIVES/BPCI-ADVANCED](http://www.innovation.cms.gov/initiatives/bpci-advanced)

BUNDLED PAYMENTS

Inpatient Clinical Episodes

- Acute MI
- CABG, Valve, defib, pacer or PCI
- Major joint replacement (upper or lower)
- Renal failure
- Sepsis, UTI
- Stroke
- GI Hemorrhage/obstruction

Outpatient clinical Episodes

- PCI
- Cardiac Defibrillator
- Back & Neck Surgery except Spinal fusion

WWW.INNOVATION.CMS.GOV/INITIATIVES/BCI.ADVANCED

CONNECTING ERAS TO VALUE

Healthcare Value

Cost Effectiveness Value Matrix

- Value = Benefit (or care quality) / Costs

	Scenario 1	Scenario 2
COST	Decreased cost Decreased effectiveness Length of stay	Increased cost Increased effectiveness Increased stay
	Scenario 3 Decreased cost Decreased effectiveness Length of stay	Scenario 4 Decreased cost Increased effectiveness Length of stay
	EFFECTIVENESS	

[GROCCOTT & MYTHEN, 2015]

ERAS BENEFITS

- Proactively focus on avoiding the bad outcome, rather than treating it when it happens;
 - ex. Preop optimization, minimal NPO time, multimodal pain regimens, standard prophylaxis for Venous Thromboembolism (VTE), N/V
- Team-based approach leads to improved outcomes with index illnesses as well as with comorbid conditions, greater patient satisfaction, greater satisfaction amongst team members, decreased readmission
- In Colorectal Surgery, Length of Stay (LOS) has been shown to be reduced as much as 30% and postoperative complications as much as 50%.

[CHANDRANATHAN & GAN, 2015]

ERAS BENEFITS

Surgical Approaches

- MIS-decreased LOS, ileus, faster transition to oral intake
- No NG/drains- decreased upper RII, GERD, PONV
- Early removal of Foley- decreased nosocomial infections
- Early ambulation- improved lung function, improved bowel function

Anesthetic Approaches

- Standard VIE prophylaxis- decreased DVT/PE
- Less NPO time- decreased hunger, length of stay, anxiety, decreased insulin resistance (carb load), decreased n/v, preservation of skeletal muscle
- Standardized Abx- decreased infection control, decreased narcotics, early ambulation
- Multi-modal analgesia- improved pain control, decreased narcotics, early ambulation
- Euthermia- decreased LOS, postop recovery time, wound infections

[CHANDRASEKHARAN & GIAN, 2015]

EXAMPLES OF ERAS REDUCING COSTS

- Roulin et al.- case control analysis of 100 patients undergoing colectomy, almost 5k\$ decrease per patient in perioperative costs
- Joilat et al.- decreased mean costs from 63,821 → 56,083 (12%) after implementing ERAS in whipple (70% compliance rate with pathway)
- Univer. Hospital of Switz- Hepatectomy ERAS revealed almost 4000\$/patient cost savings
- Wang et al.- meta-analysis of 19 original studies, 31% decrease in hepatectomy total costs after ERAS implementation.
- Alberta Canada-providence wide implementation of ERAS pathways starting with colorectal; 60% compliance; 1.5 day reduction in LOS, 8% decrease in readmission rates, savings of 2800\$-5900\$/patient.

[BEVERLY, VROCHIDES, & URMAN, 2017]

ERAS COST REDUCTION STUDIES

Study	ERAS Surgery	Cost Savings (Dollars)
Lemanu et al	Lap Sleeve Gastrectomy	1035
Joilat et al	Hepatectomy	4064
Wang et al	Gastrectomy	4219
Liang et al	Lap Hepatectomy	4318
Zhao et al	Esophagectomy	5508
Feng et al	Total Gastrectomy	5941
Kim et al	Lap Distal Gastrectomy	7179
Kalogera et al	Gyn Onc Surgery	7642
Joilat et al	Whipple	8726

[LJUNGQVIST, STURTELL & NESSON, 2017] FIGURE REVISED.

UK MODEL AS AN EXAMPLE OF ERAS VALUE

- Single payer system; bundled payments mainly
- Quality principle driver of providers; volume not necessarily good business
- Enhanced Recovery Partnership Programme instituted from May 2009-May 2012, with goal to deliver the same value as the best 10% of institutions prior to start of program
- Despite increased productivity, net saving in excess of 50 million\$/year reported by the end of year 2 (there was modest initial investment, which was typically recovered in 1 year)
- Patient satisfaction reported >90% (higher than national baseline), increased production, decreased LOS, no increased readmission; 170,000 beds freed up/year
- Consensus statement by UK health leaders "We believe that enhanced recovery should now be considered as standard practice for most patients undergoing major surgery across a range of procedures and specialties"

(GROCCOTT & MYTHEN, 2015)

HOW DOES ERAS CREATE VALUE?

- Clinical Benefits**
 - Fewer complications
 - Reduced hospital stay
 - No change or reduction in readmission and mortality
- Elimination of variation in care**
 - Reduces waste
 - Assures highest standard of evidence based care
- Minimal Significant Investment**
 - Often the systems are in place, mainly just have to change culture
- Patient Centered**
 - Patient focused, aligned care leads to higher patient satisfaction
- Auditing**
 - Allows for ease of monitoring
 - Provides real time feedback on clinical, financial interventions
 - Notifies providers/systems with wins or needs to change

(BEVERLY, VROCHIDES, & URMAN, 2017)

SUMMARY

- The US is a country with increasing healthcare expenditures without necessarily improving results.
- Defining healthcare value is difficult, and the previous standards used may be evolving.
- The shift in reimbursement is emphasizing an environment of quality over quantity.
- ERAS pathways are perfectly designed to help physicians, hospitals, insurers and patients optimize value by increasing benefits, decreasing costs and focusing not only on traditional outcomes, but new measures.

THANK YOU

- Questions?

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