Diagnostics for Patient Safety and Quality of Care

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Objectives

- Discuss the diagnostics available for patient safety
- Apply these diagnostics to your work
- Identify the infrastructure for accurately diagnosing problems regularly

Vulnerable System Syndrome

- Three core pathologies
  - Blame
  - Denial
  - And the pursuit of (the wrong kind of) excellence

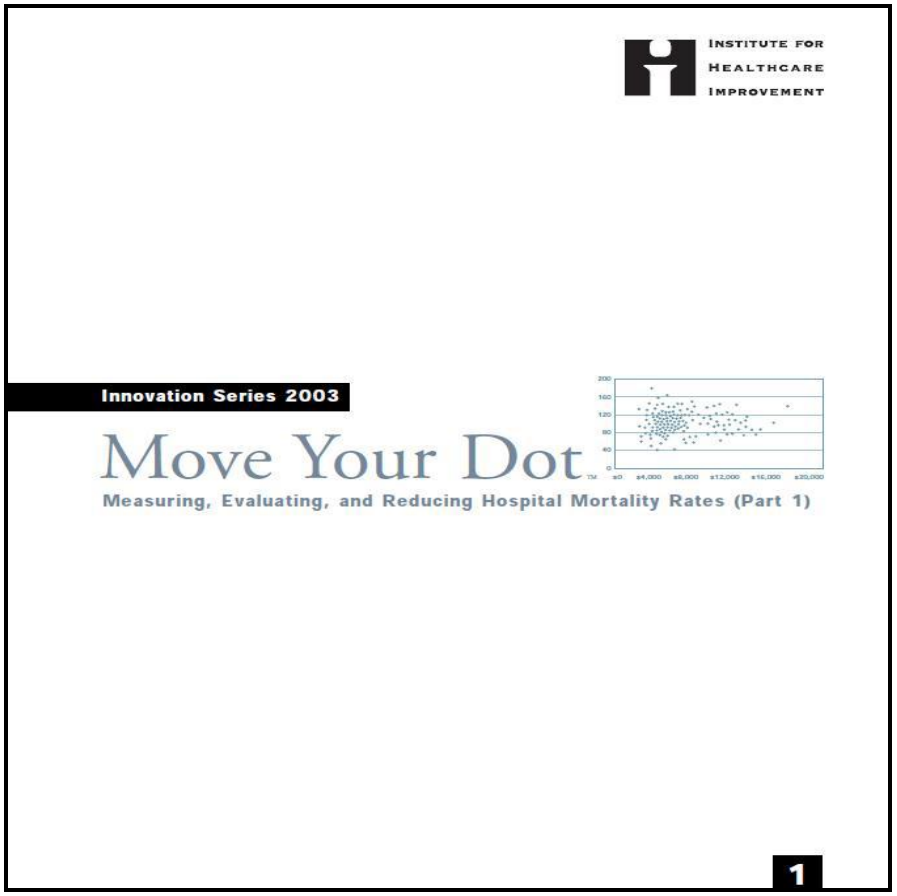
HOW CAN WE LEARN ABOUT OUR SYSTEM PERFORMANCE?

Diagnostic Journey

- Do people die unnecessarily every day in our hospitals?

- In order for us to understand this, we need a diagnostic journey that moves out of a model for judgment and into a model for learning.

Move Your Dot™: Measuring, Evaluating, and Reducing Hospital Mortality Rates (Part 1)



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The Mortality Diagnostic – 2x2 Matrix

- Review most recent 50 consecutive deaths.
- Place them into a two by two matrix based on:
  - Was the patient *admitted* for palliative care?
  - Was the patient *admitted* to the ICU?
- Focus your work initially on boxes that have at least 20% of your mortality.
- Change ideas are linked to these boxes.

Diagnostic – The 2 x 2 Matrix

Admitted to the ICU?

Admitted for Palliative Care Only?	Yes	No
Yes	**Box #1**	**Box #2**
No	**Box #3**	**Box #4**

The Mortality Diagnostic
- Failure to Recognize, Plan, Communicate

- Analyze deaths in box 3 and box 4 for evidence of failure to: recognize, communicate, plan.

- This will help you understand the local environment.

Recognize, Communicate, Plan

- ***Failure to Recognize***: Any situation in which a patient has died and there was evidence that an intervention could have been made anytime prior to the patient's death Example: the staff was worried, change in heart rate, change in respiratory rate, change in blood pressure, change in O2 saturation or change in consciousness or neurological status that was not responded to.
- ***Failure to Plan***, such as: diagnosis, treatment, or calling a rescue team.
- ***Failure to Communicate***: Patient to staff, clinician to clinician, inadequate documentation, inadequate supervisor, leadership (no quarterback for the team), etc.

The Mortality Diagnostic

- Evidence of Adverse Events

- Analyze deaths in box 3 and box 4 for evidence of adverse events using the Global Trigger Tool.

- This will give some further direction to local problems.

The Mortality Diagnostic

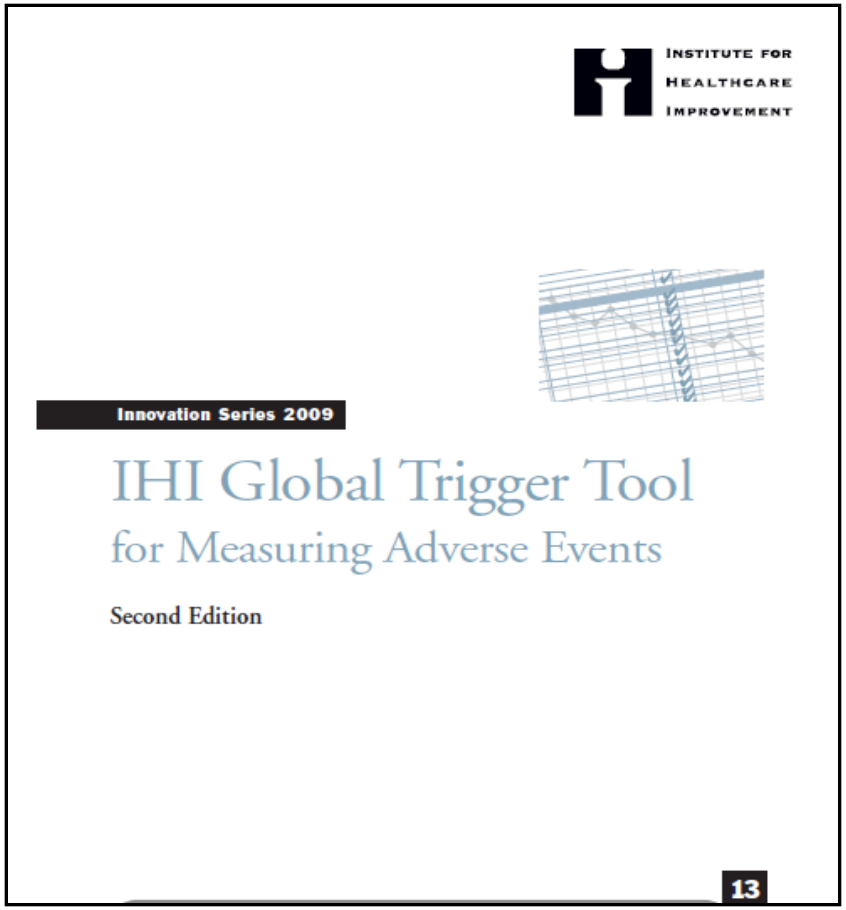
- The Impact of Care

Evaluate ALL deaths in box 3 and box 4 to assess the estimated impact of our care on mortality:

*As you review the deaths in box 3 & 4, ask yourself the questions honestly (focusing on learning, not judgment):

- **Was perfect care rendered?**
- If perfect care wasn't rendered, could the outcome of death have been prevented if the care had been better?
  - What number of deaths could have been prevented?

IHI Global Trigger Tool for Measuring Adverse Events



IHI Global Trigger Tool

- Review chart for triggers that are sensitive and specific for harm
- Find a trigger – Was there harm?
- Not all triggers mean there was harm!

IHI GTT Modules

- Cares (General)
- Critical Care
- Medication
- Surgery
- L&D
- ED

	Cares Module Triggers
C1	Transfusion or use of blood products
C2	Any Code or arrest
C3	Dialysis
C4	Positive blood culture
C5	X-Ray or Doppler studies for emboli
C6	Abrupt drop of greater than 25% in Hg or Hemtocrit
C7	Patient fall
C8	Decubiti
C9	Readmission within 30 days
C10	Restraint use
C11	Infection of any kind
C12	In hospital Stroke
C13	Transfer to higher level of care
C14	Any procedure complication
C15	Other

Examples of Transfer to Higher Level of Care

- Endoscopy
- Post procedure somnolent and hypotensive (BP 80) transferred to ICU
- Placed on Bi-Pap
- Received standard meperdine and midazolam for procedure
- Given flumazenil; stayed in unit 12 hours

Global Trigger Tool Examples

- Readmit within 30 days with recurrence of abscess right hip
- Readmit next day w/ileus s/p exp lap for tumor
- Stopped furosemode-acute renal failure
- Readmitted in 30 days for wound revision due to incisional seroma
- Readmit related with wound infection
- Volume Depletion with altered mental status caused by furosemide -resulted in hospital admission
- ARF due to nephrotoxicity due to combination of ACE and NSAIDS taken at home
- Ischemic colitis had rt hemicolectomy. New onset CP=MI. Unresponsive, coded. Decreased loc & sats on Morphine PCA; Received naloxone

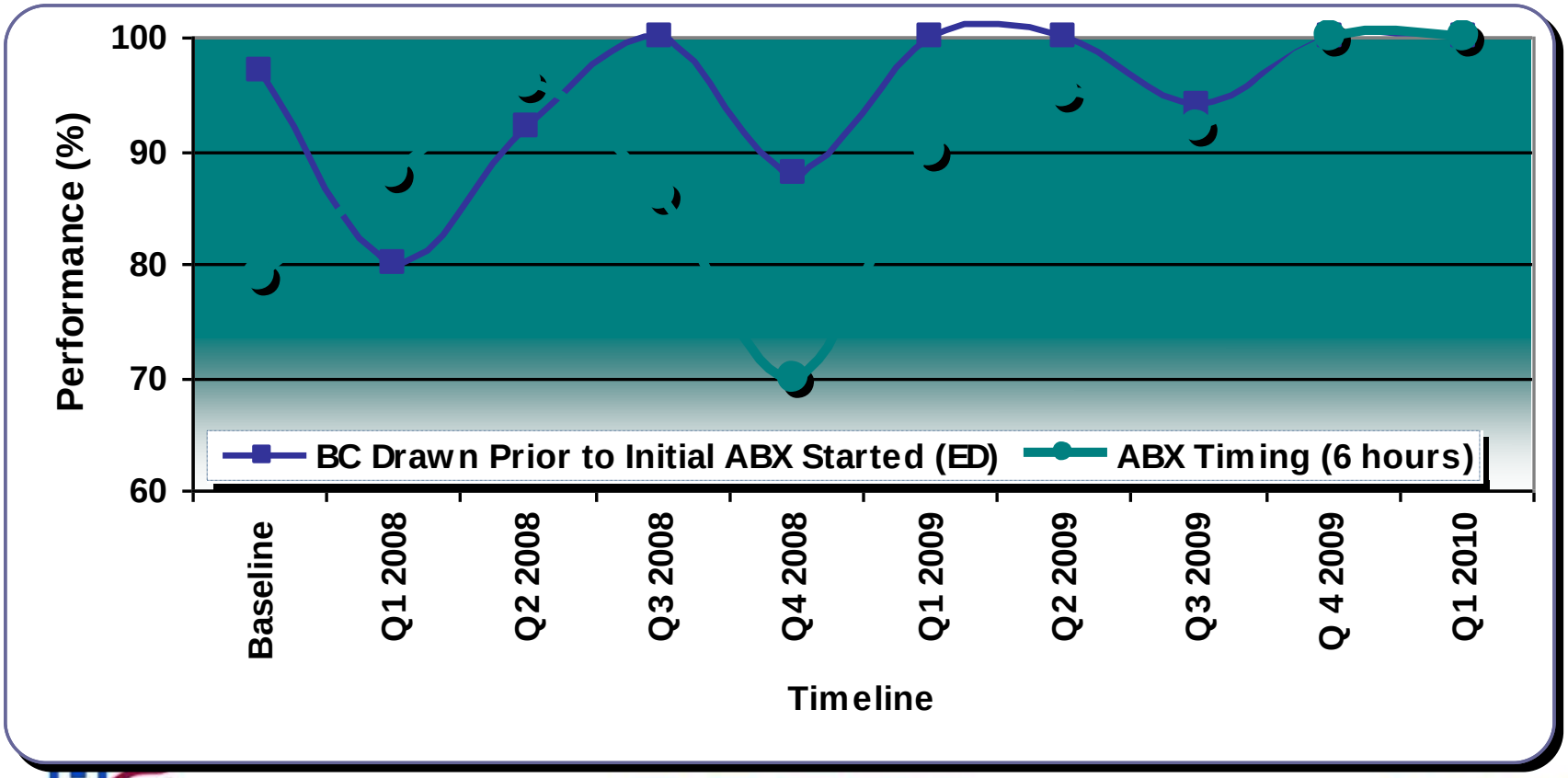
Concurrent Review

- Definition of Concurrent Review:
  - Real-time view of patient care related to the specific quality indicator being measured.
- Goal:
  - Improve quality of care during *present* patient admission.
- Reviewer Qualifications:
  - Adequate (clinical) knowledge/experience of subject matter and ability to synthesize and provide feedback.

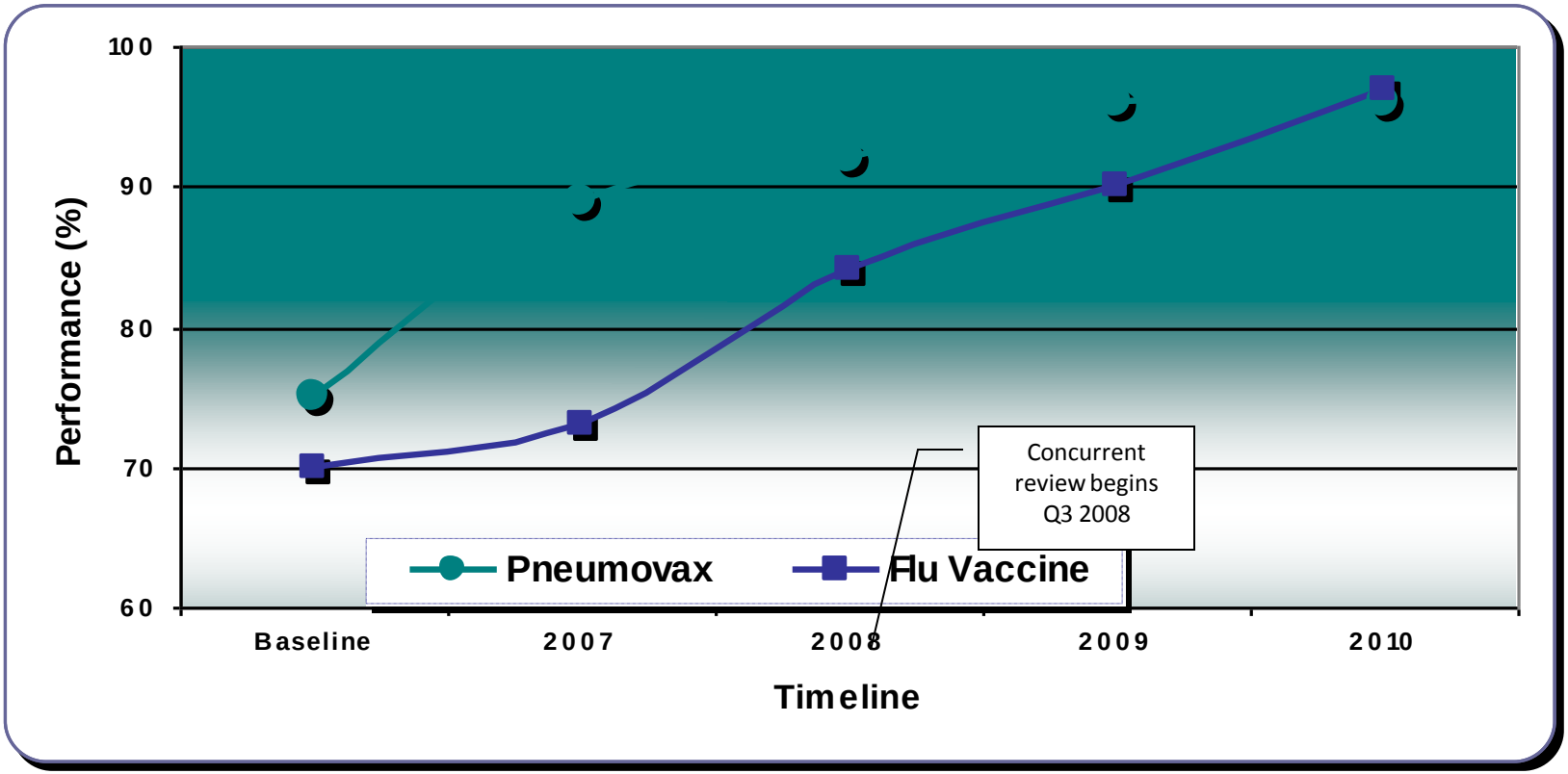
Concurrent Review Process

- Identify patients with a need for daily review
  - This can be the most challenging piece
  - Use IT/administrative systems when possible
- Review specifics of chart
- Analyze and synthesize information
- Provide feedback
  (with the potential for an intervention …)
  - One-on-one dialogue
  - Weekly Reports/feedback from leadership
    - Stats
    - Outliers
    - Review of guideline in question
    - Documentation issues
    - Staff Kudos!

Pneumonia Performance: ED Measures

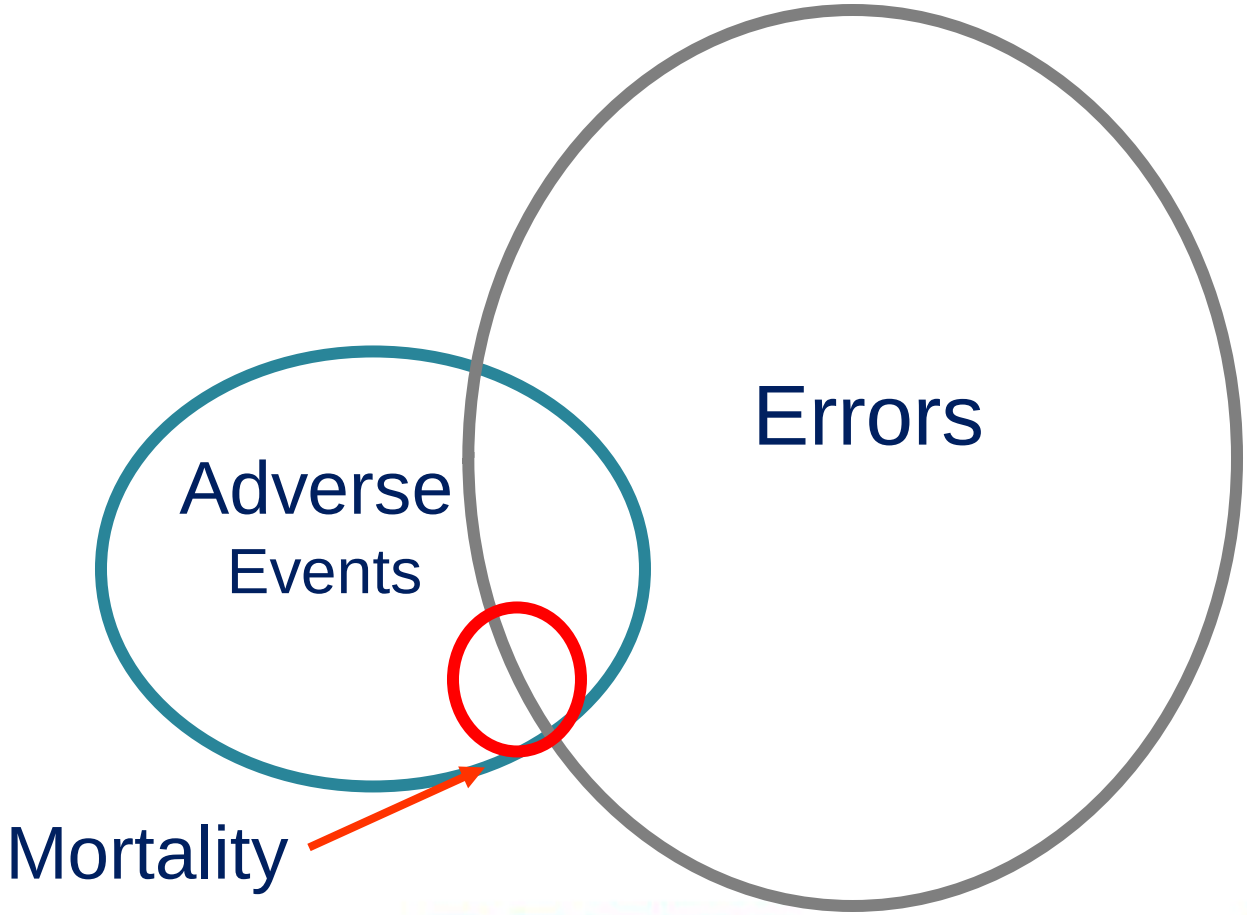


Pneumonia Performance: Vaccine Measures



THE SEARCH FOR AND UNDERSTANDING OF ERRORS HAS NOT MADE PATIENT CARE MUCH SAFER.

Adverse Events and Error



ICU Days and Adverse Events

- Study of a “trigger tool” for adverse events in ICU (IHI/VHA)
- Approximately 2 adverse events/ICU day
- Seventeen intensive care units around the nation
- In depth evaluation of 25 consecutive events showed 54 extra ICU days

Consecutive Adverse Events

- 1-Iatrogenic pneumothorax
- 2-Sternal wound infection
- 3-Thrombophlebitis
- 4-Post Surgical bleed
- 5-ICU delirium
- 6-Nosocomial pneumonia
- 7-Theophyline toxicity/arrhythmia
- 8-GI bleed
- 9-Iatrogenic pneumothorax
- 10-ICU delirium
- 11-Fluid overload
- 12-Oversedation
- 13-Urinary obstruction
- 14-ICU delirium
- 15-Rash
- 16-Aspiration pneumonia
- 17-Nausea
- 18-Pulmonary embolus
- 19-Nosocomial pneumonia
- 20-Sternal wound dehiscence
- 21-Dialysis induced hypotension
- 22-Severe hypotension with NTG
- 23-Renal failure post surgery
- 24-ICU delirium
- 25-Sternal wound infection

Cost Analysis

Pt. #	Impact	Charge Impact	Net Revenue Impact	Variable Direct Cost Impact	Favorable/(Unfav) NOI Impact
1611504	entire stay	$57,484	$15,525	$16,700	($1,175)
1614049	2 extra hospital days	$3,428	$0	$1,170	($1,170)
1610409	2 extra ICU days	$10,422	$0	$2,650	($2,650)
1612904	2 extra ICU days	$7,930	$0	$2,500	($2,500)
1615479	Total ICU costs	$1,502	$0	$865	($865)
1612683	Total Hospital Costs	$21,500	$3,958	$6,430	($2,472)
1616084	3 extra ICU days	$6,592	$0	$2,695	($2,695)
7025810	Indwelling Cath, 8 vent hours, 1 critical care day	$8,768	$0	$3,245	($3,245)
1610401	2 extra ICU days	$9,180	$0	$2,345	($2,345)
1615100	4 days ICU care	$13,756	$0	$4,485	($4,485)
1574521	No additional cost	n/a	n/a	n/a	n/a
1559036	5 extra ICU days	$19,341	$0	$7,150	($7,150)
1560556	3 extra ICU days	$19,032	$0	$3,730	($3,730)
1561070	2 extra ICU days and return to OR	$16,436	$0	$5,125	($5,125)
1560964	3 extra ICU days	$15,090	$0	$4,408	($4,408)
1566180	no additional cost	n/a	n/a	n/a	n/a
1565261	2 extra ICU days	$4,086	$0	$1,619	($1,619)

The Relationship Between Underlying Factors and Hospital Standardized Mortality Ratios

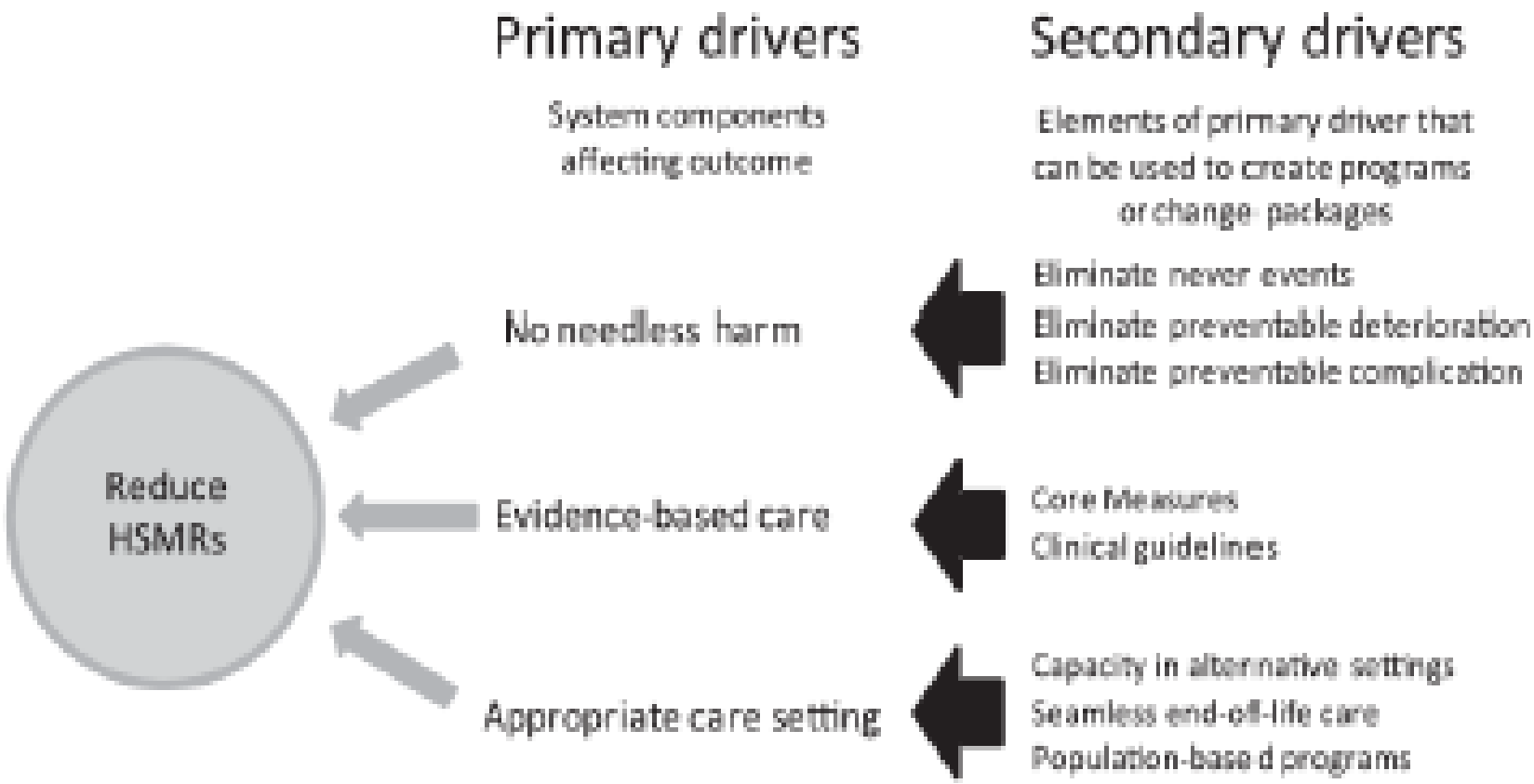
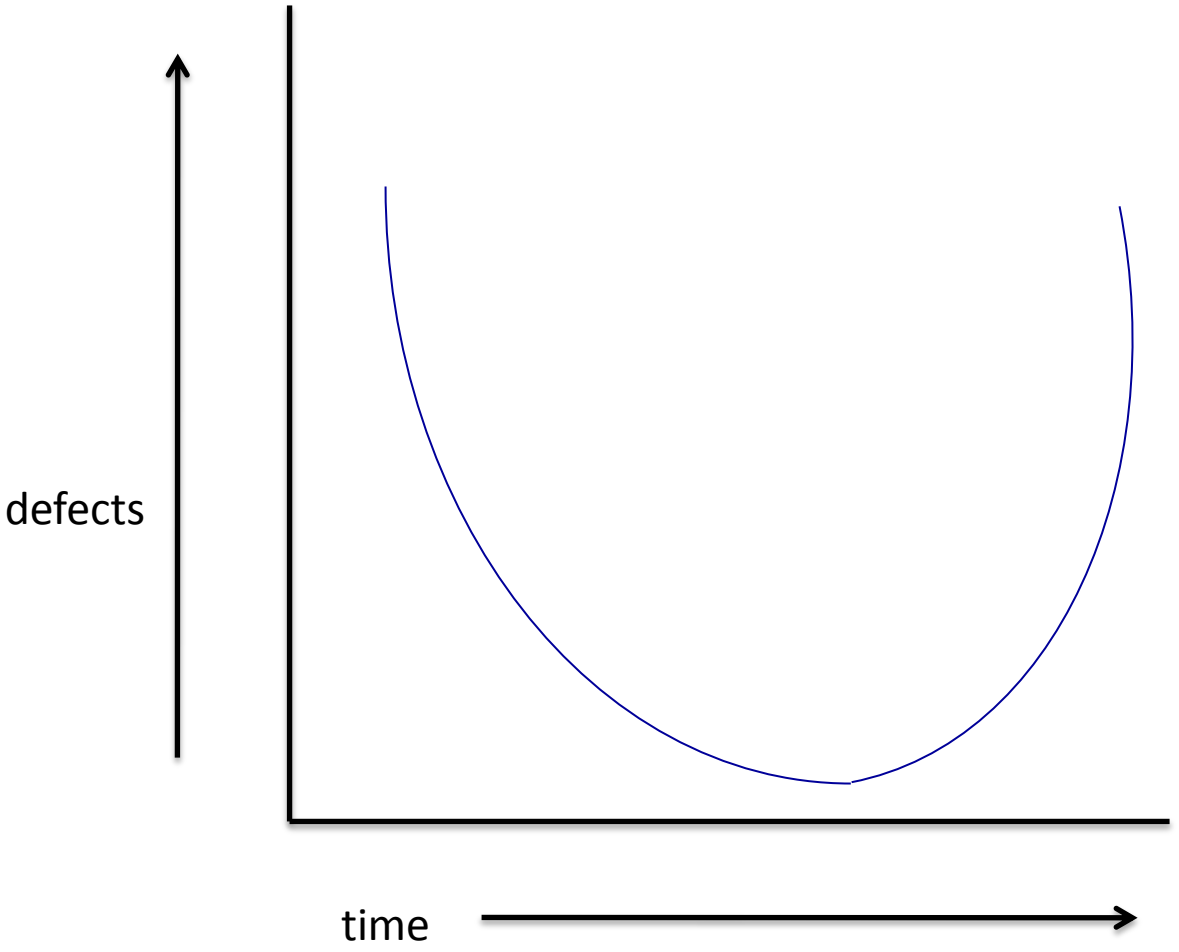


Figure 1. *Primary and secondary drivers represent factors that can contribute to the reduction of inpatient mortality*

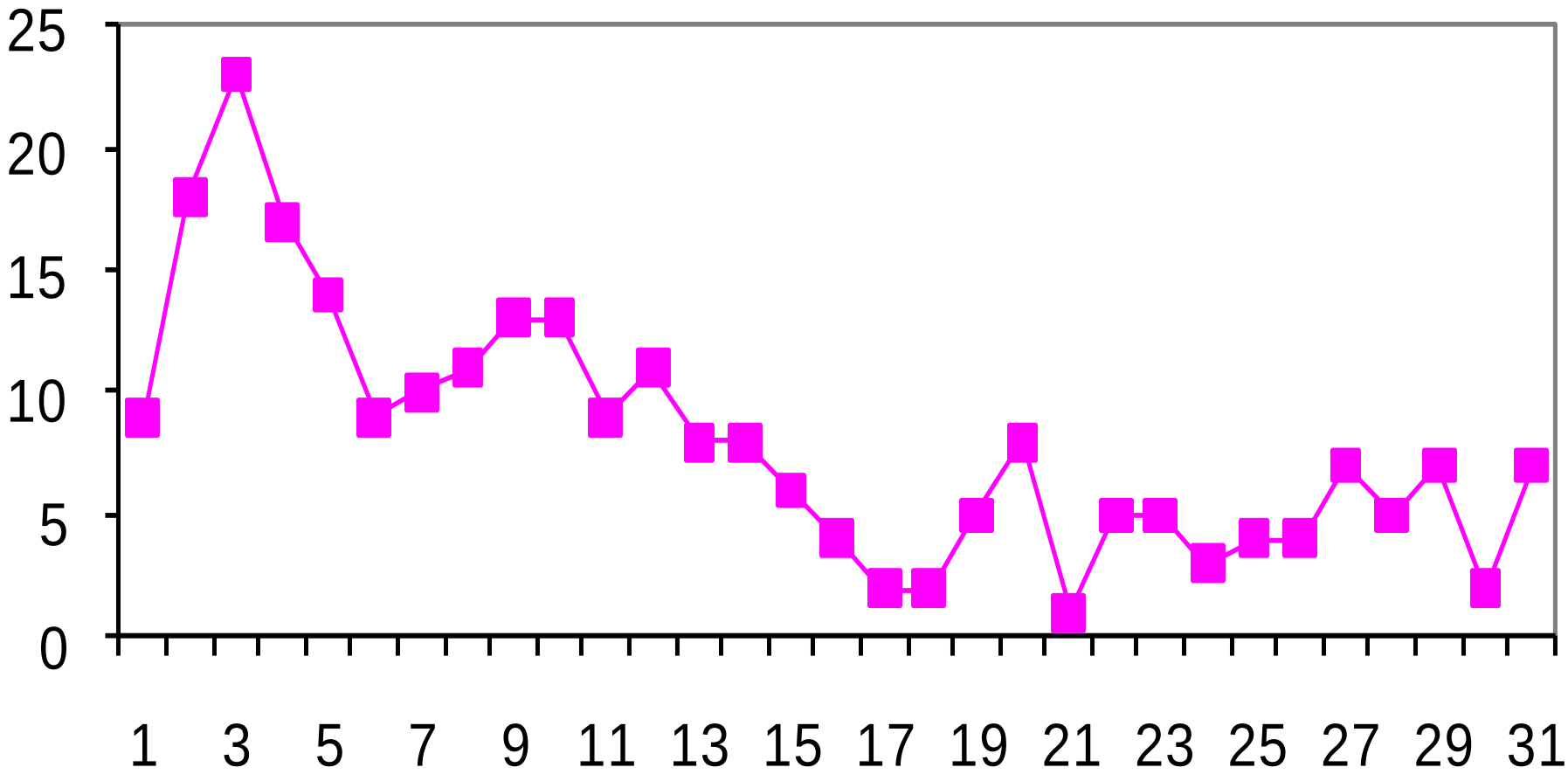
Source; Helen Lau, R.N., M.H.R.O.D., Kerry C. Litman, M.D. "Saving Lives by Studying Deaths: Using Standardized Mortality Reviews to Improve Inpatient Safety" *The Joint Commission Journal on Quality and Patient Safety*. September 2011 Volume 37 Number 9

RELIABILITY IS FAILURE FREE OPERATION OVER TIME.

Failure Free Operation Over Time
The Bath Tub Curve



Failures: readmissions within 31 days related dx



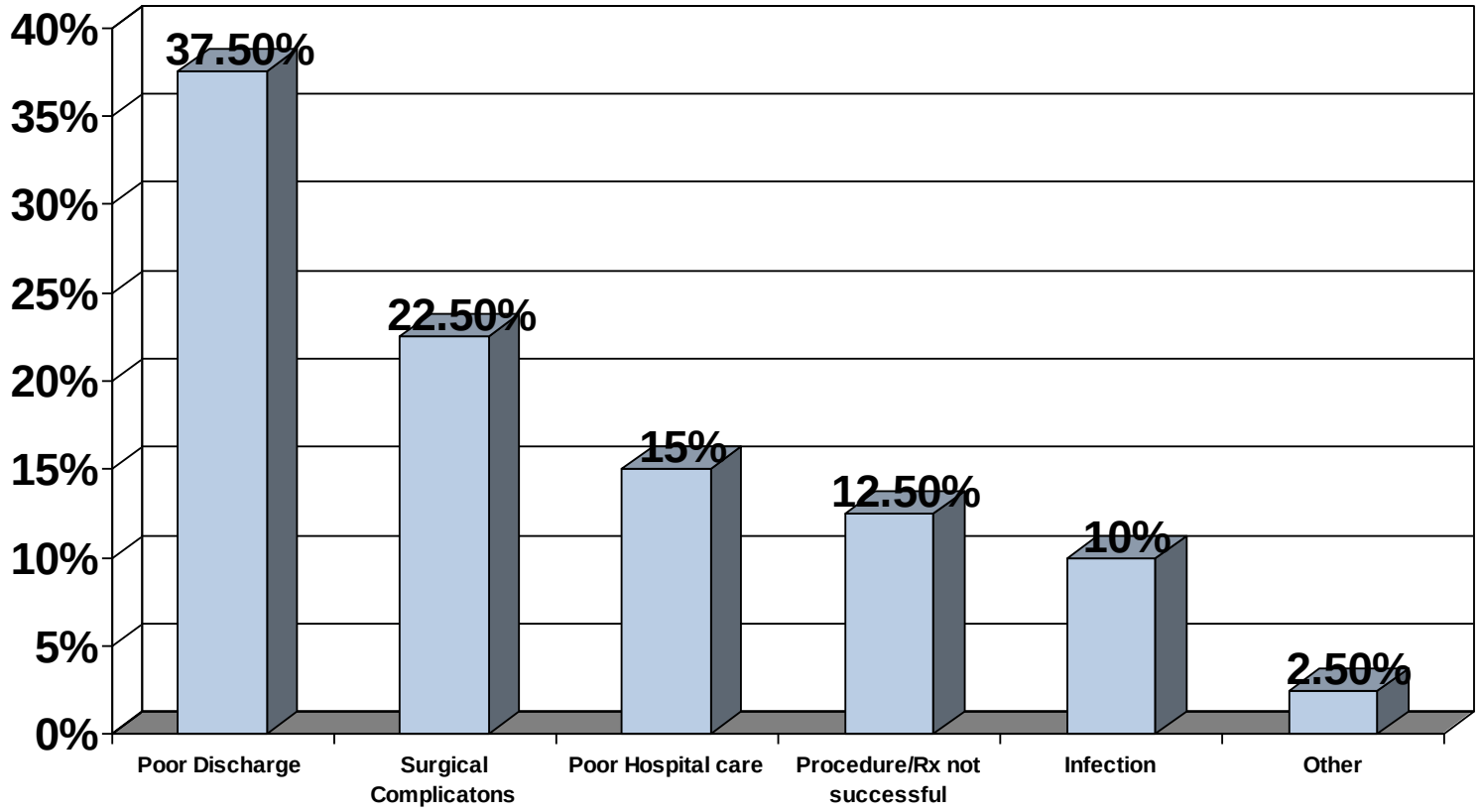
31 Day Readmission Analysis

- 100 random charts reviewed (total of 244 readmissions within 31 days for the year)
- Charts reviewed by physicians with a standard chart review worksheet
- Worksheets reviewed and data for production defects, environmental defects extracted

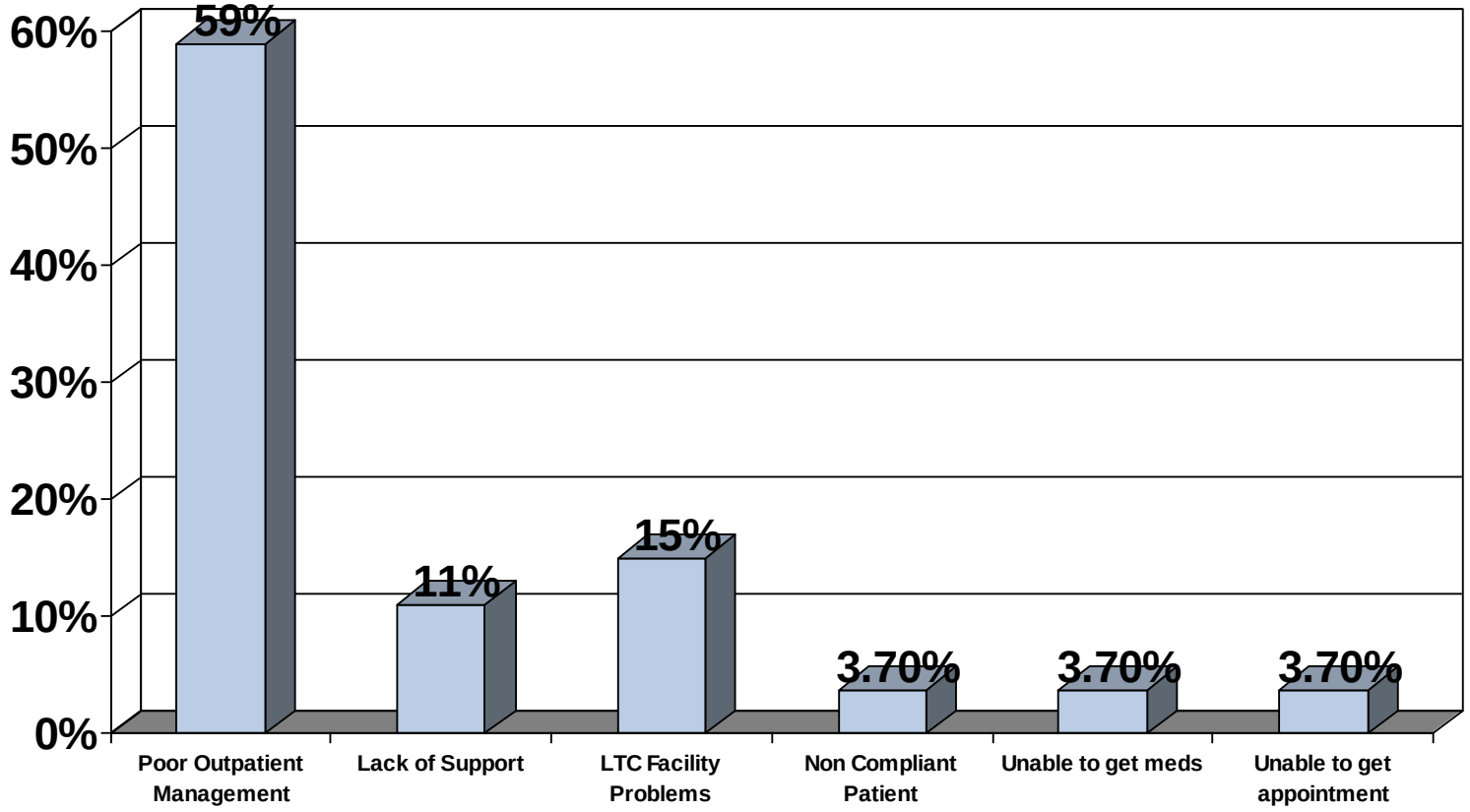
Worksheet Review

- 40% of readmissions had production defects (50% were deemed preventable readmissions)
- 27% of readmissions were environmental (85% were deemed preventable readmissions)
- 23% of readmissions were separate distinct disease processes (6% deemed preventable readmissions)

Production Defects



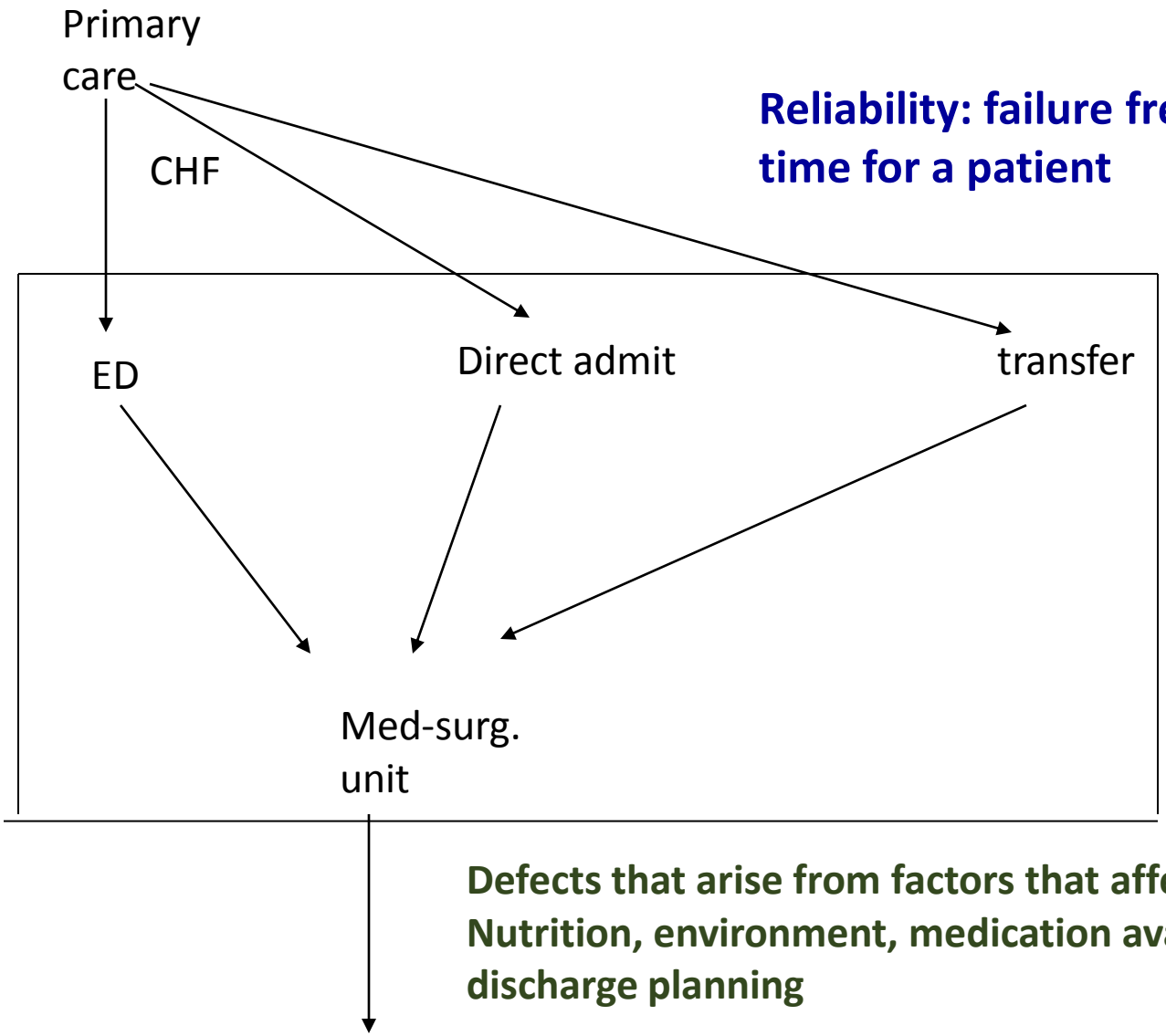
Environmental Defects



Poor Outpatient Management

- Poor outpatient pain control program (31%)
- Poor CHF outpatient follow up program (31%)
- Multiple other issues (37.5%)

Defects arise from access to care, medication, self care strategies



Reliability: failure free operation over time for a patient

Defects that arise over the LOS: variation from best care

Defects that arise from factors that affect care over time: Nutrition, environment, medication availability, poor discharge planning

High reliability organizations are continually on the lookout for novel types of system failure and have several contingency plans.

TAKE A MOMENT TO REFLECT ON YOUR OWN WORK. WHAT WILL YOU INCORPORATE FROM THIS SESSION INTO YOUR PLANS?