Reviewing Deaths to Save Lives: A Standardized Approach to Mortality Review

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Disclosures

- None

Agenda

1. Importance and role of mortality review
2. Approaches to reviewing deaths
3. Implementation of comprehensive mortality review at DUHS
4. Conclusions: Challenges and lessons learned

Why is Mortality Review Important?

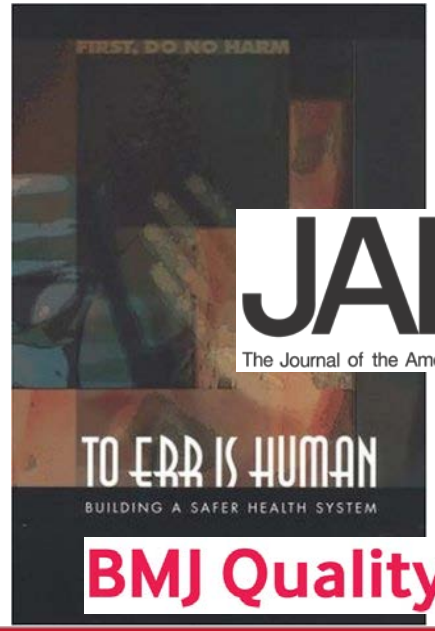
- An important measure of the quality of care
  - Patients and providers
- Growing reporting requirements
  - Significant factor in hospital based reimbursement
- Patient death due to medical error is a leading contributor to mortality in US hospitals
  - Unclear how many deaths are preventable
- No consistent process for reviewing mortality

Reported Mortality Metrics

Measure	Risk Adjusted	Publicly Reported	Financial Implications
CMS: 30-day Mortality for AMI, HF, PN, STK, COPD	✓	✓	✓
AHRQ PSIs: Death in Low-Mortality DRGs, Surgical Patients with Treatable Conditions	✓	✓	
AHRQ IQIs: Deaths following 15 surgical procedures and 2 composites			✓ (AMI only)
Leapfrog: Deaths following AVR, AAA Repair, Pancreatectomy, Esophagectomy	✓	✓	
UHC/Vizient: Ratio of Observed to Expected Deaths	✓		
US News and World Report: 30-day mortality rates for 12 specialties	✓	✓	

Preventable Inpatient Mortality

- IOM Report: *To Err Is Human* (1999)[1]
  - 44,000-98,000 preventable deaths/yr
- *JAMA* (2001)[2]
  - 6-23% of deaths potentially preventable
  - 6-61 preventable deaths/10,000 admissions
- *BMJ Qual & Saf* (2012)[3]
  - 5.2% of deaths potentially preventable (NHS)
  - 12,000 preventable deaths/yr (UK)
- *Journal of Patient Safety* (2013)[4]
  - 200-400K preventable deaths/yr



JAMA®
The Journal of the American Medical Association

BMJ Quality & Safety

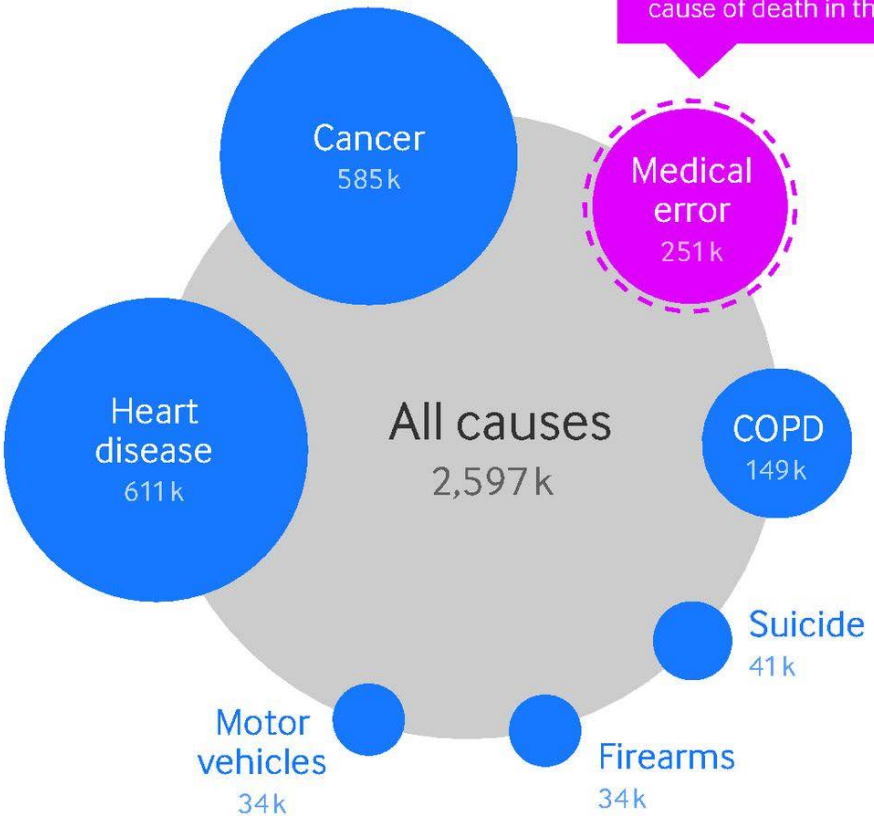
JOURNAL OF PATIENT SAFETY

Medical errors 3rd leading cause of death in the US

[1]Inst of Medicine, 1999
[2]*JAMA*, 2001; 286 (4): 415-20
[3]*BMJ Qual & Saf*, 2012; 21: 737-45
[4]*J Patient Saf,* 2013; 9 (3), 122-28

Causes of death, US, 2013

Based on our estimate, medical error is the 3rd most common cause of death in the US



However, we're not even counting this - medical error is not recorded on US death certificates

Data source:
http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf

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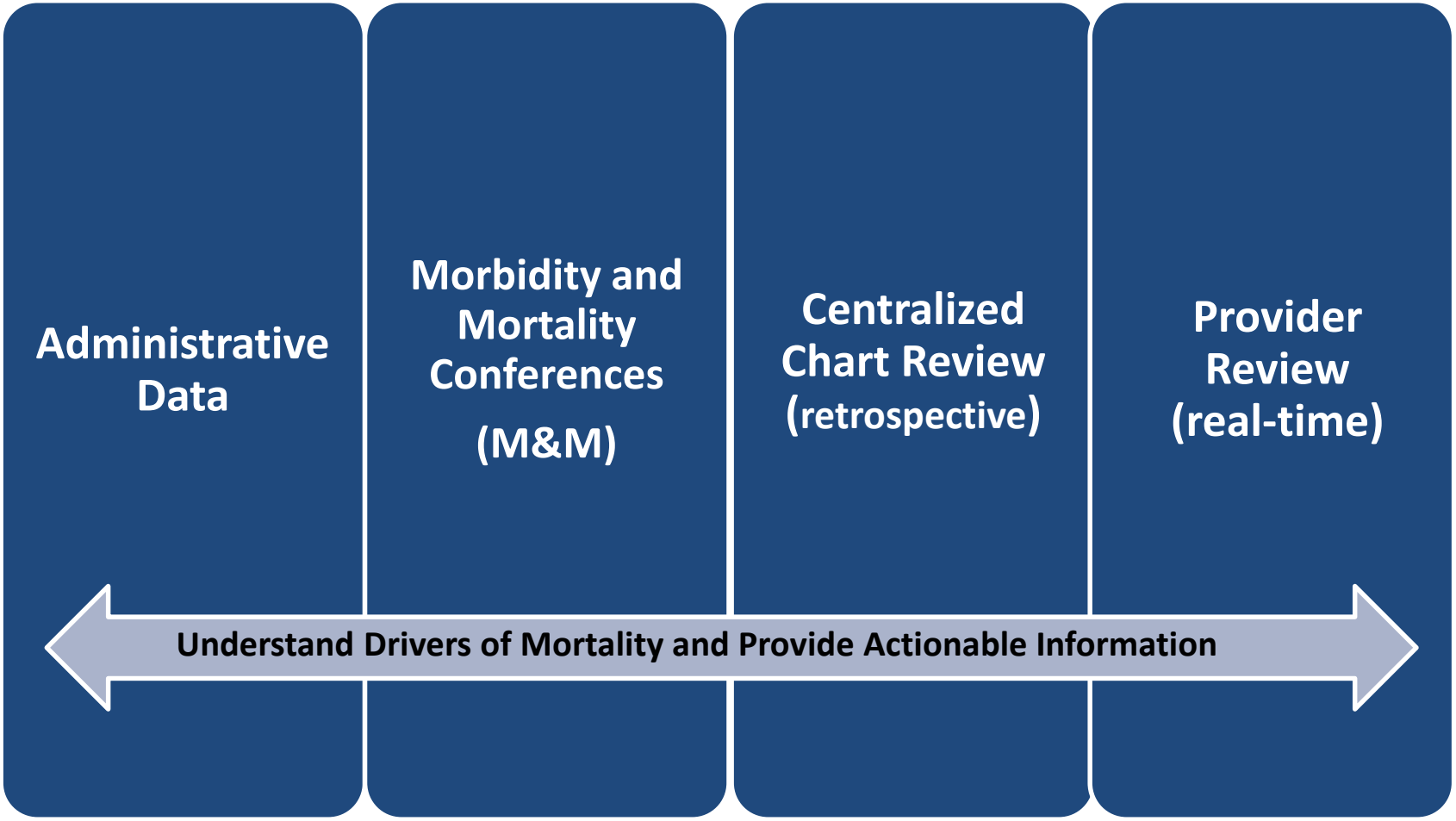
Reviewing Deaths

Going Behind the Numbers



Administrative Data

- Low-cost way to provide areas of concern and direction, but often requires further chart review
- Potential categories:
  - Deaths in low risk surgeries
  - Areas with high number of early deaths (LOS < 2 days)
  - Cases with coded complications
  - Areas that account for the greatest numbers of deaths
  - Areas with the highest mortality O/E ratio

Mortality Measurement	Challenges
Raw inpatient mortality	Not risk-adjusted
30-day mortality	Difficult to track once patient leaves the facility
Risk-adjusted/ Standardized mortality rates	Risk-adjustment often does not take into account preventability and end of life preferences. Risk-adjustment methodology depends on accurate administrative data.

Morbidity and Mortality Conferences

- Traditional forums attended by physicians to discuss specific aspects of cases with complications (including deaths)
- Tend to be more focused on clinician education rather than systems-based issues and solutions
- Can be challenging to spread lessons learned from one department to another department

Centralized Chart Review

Standardized Review Tool

Requires use of institution-specific or other established mortality review tool (e.g., IHI 2x2 Mortality Matrix, Global Trigger)

Patient Level Data

Can help point out case-level and system-level drivers of mortality, *if* documented in the record

Resource Intensive

Centralized review of all cases can be costly (staff) and requires dedicated time

Front Line Provider Review Process

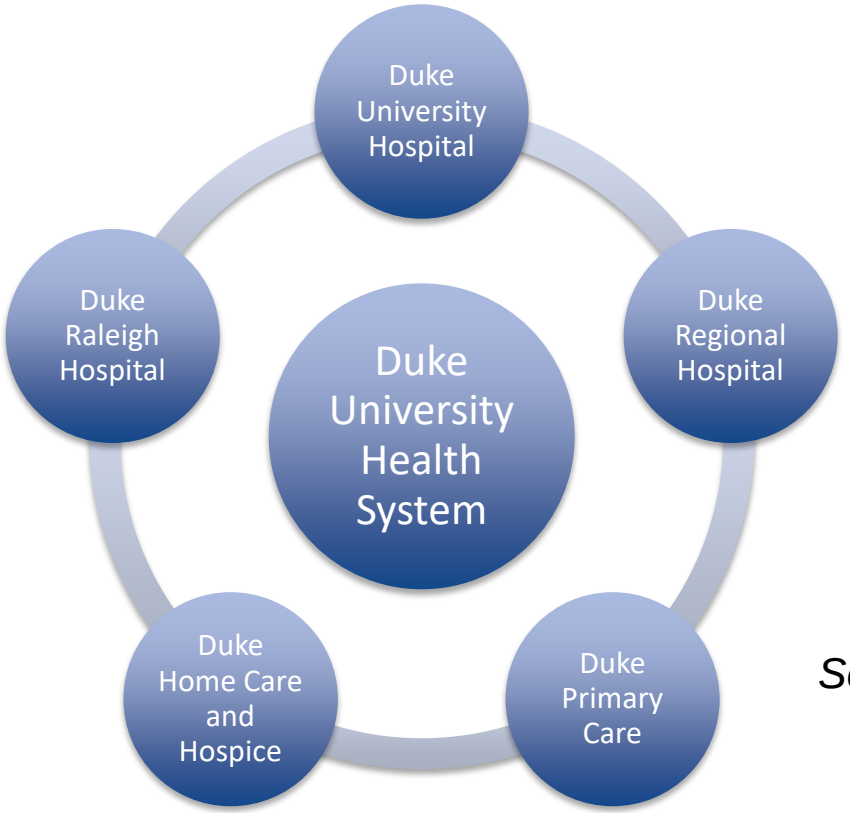
Review Content

- Selected Complications
- Delays
- Teamwork and Communication
- End-of-life related information
- Short clinical summary
- Opinion on preventability
- Suggestions for improvement
- Ability to request peer support or further follow-up

Advantages of Front Line Provider Review

- Front line clinician input from providers who cared for patient directly
- Issues from case not available through chart review or administrative data alone
- Distributes process of review to allow for identification and focus on a subset of cases

Duke University Health System: Facts and Statistics



Staff:

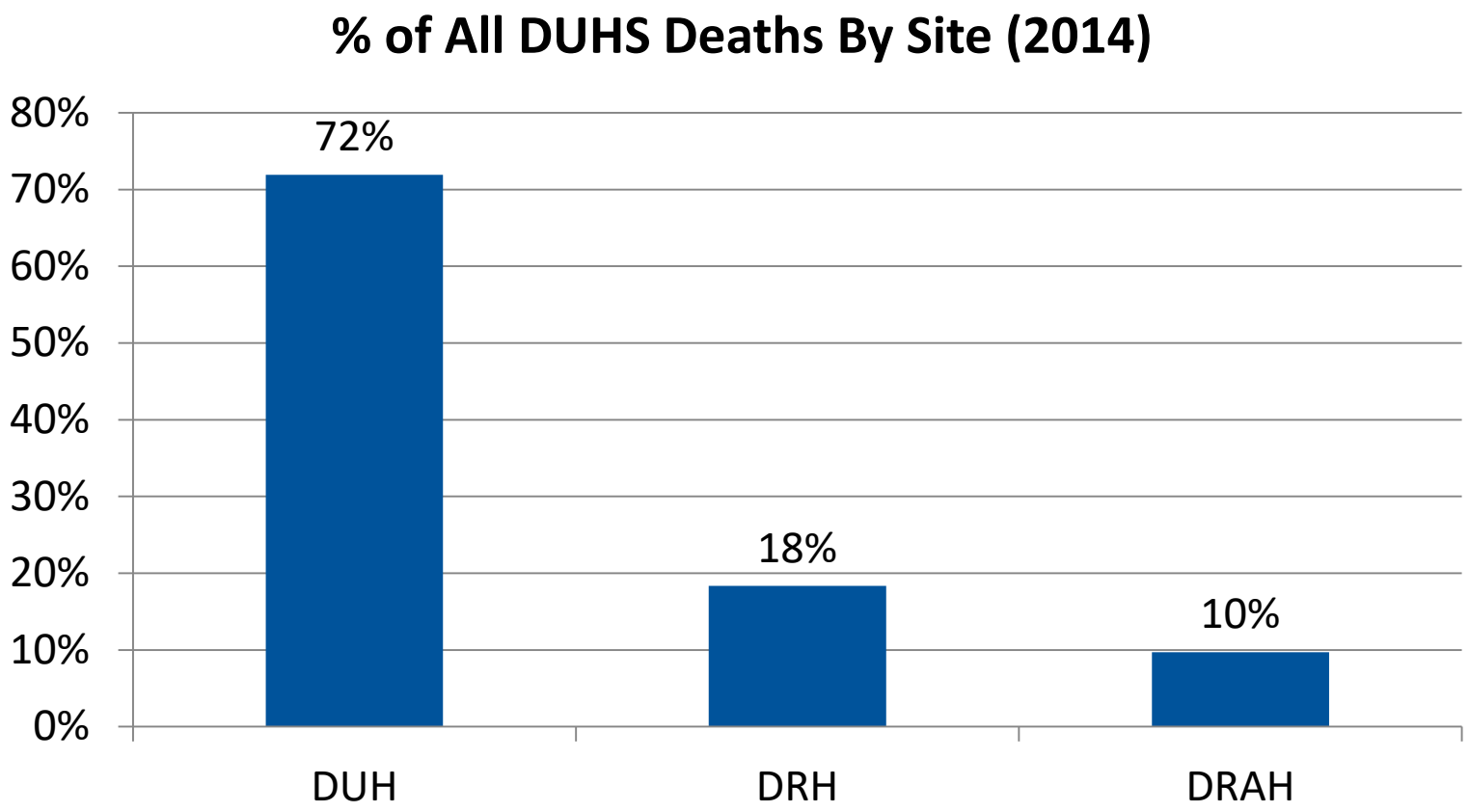
- 1,925 Faculty
- 1006 Residents and Fellows

Patient Care:

- >160K ED visits/year
- >65K inpatient admissions/year
- >90K surgical cases/year

Serve 750,000 unique lives through Duke Health

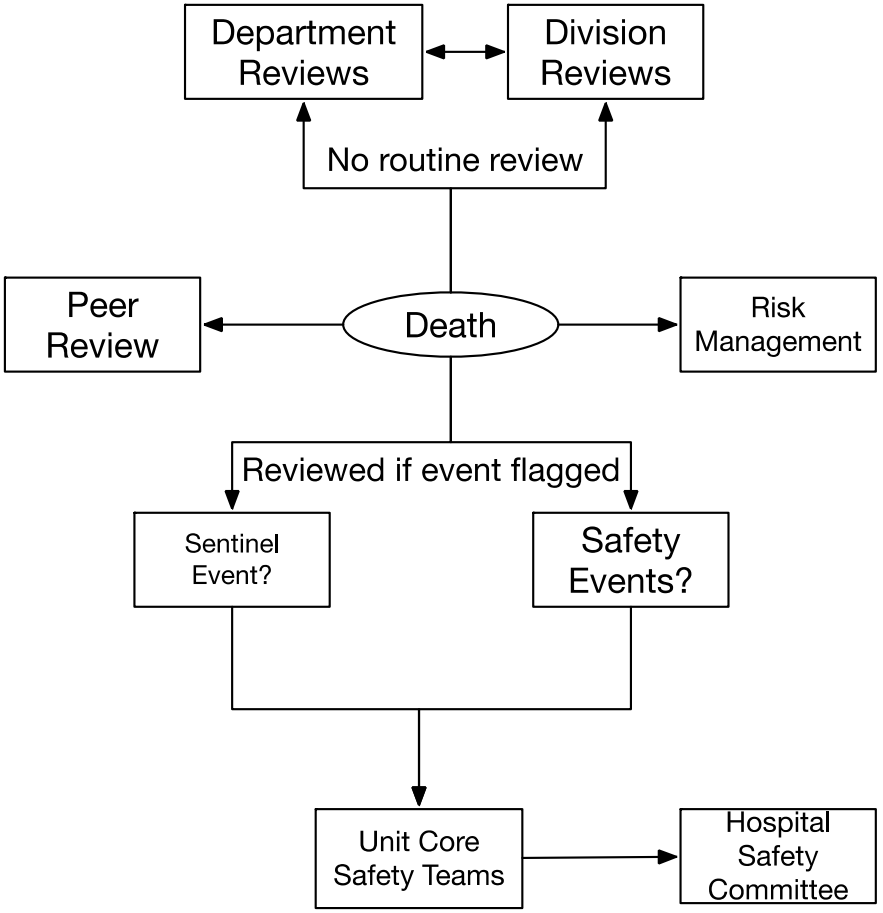
Background on DUHS Deaths



Approximately 1500-1600 deaths per year across DUHS

Background on Mortality Review at DUHS

- Process for mortality review decentralized and not structured
- Inconsistent ties back to Patient Safety, Risk Management & Peer Review



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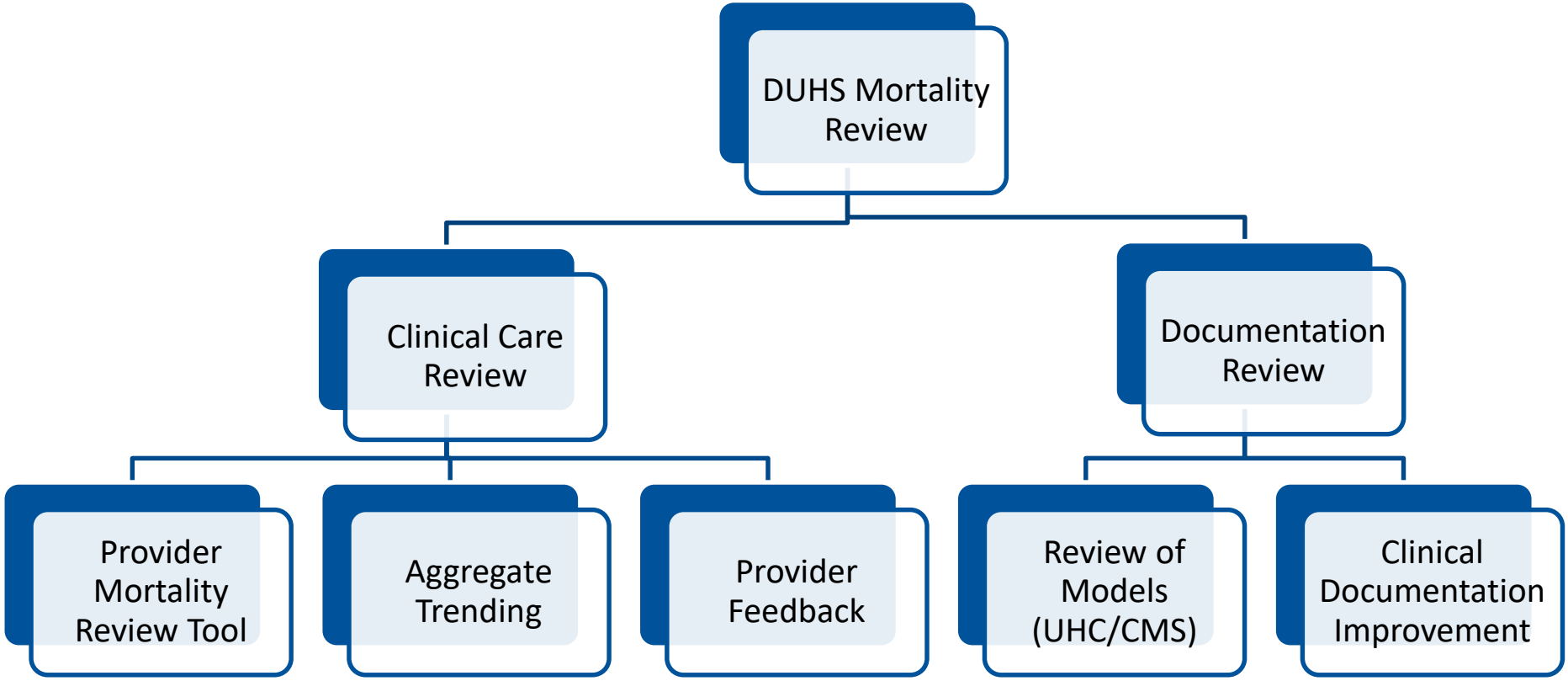
Organization of DUHS Mortality Review



Mortality Reporting

- Governments and patients evaluate a hospital's quality of care by looking at performance data
- Mortality is measured by mortality index: observed deaths/expected deaths
- Expected deaths are influenced by patients' characteristics which impact resource utilization and clinical outcome
- Patients' characteristics are judged by two measures: Risk of Mortality (ROM) and Severity of Illness (SOI)
- Higher scores in ROM and SOI reflects the increased difficulty and costs involved in treating the patient and the higher likelihood of poor outcomes

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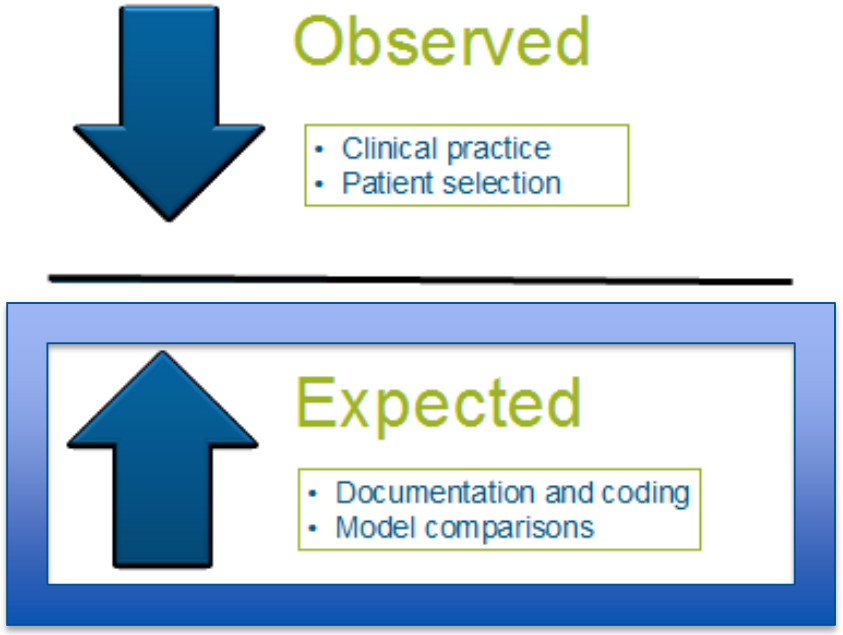
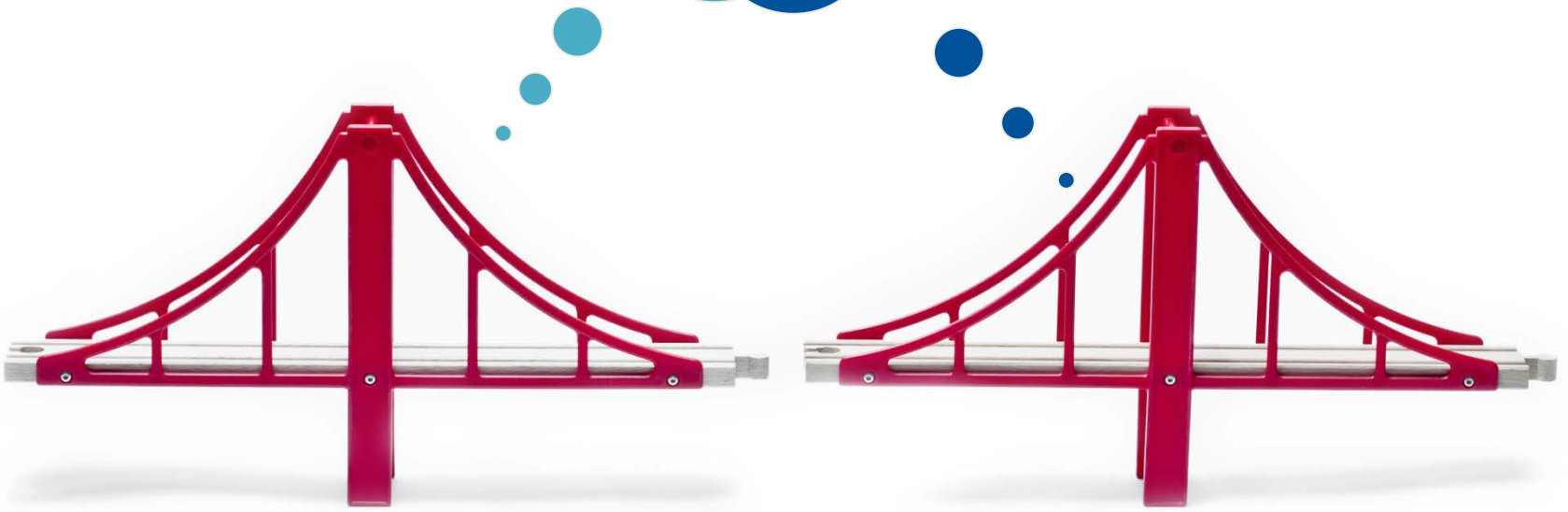


A Gap Exists that Needs to be Bridged

Provider documentation is captured in *CLINICAL* terms

There is a breakdown between the two separate languages

Documentation for coding, profiling & compliance requires specificity in *DIAGNOSIS* terms



Clinical Documentation Excellence Helps to Bridge the Gap

Review of Expected Mortality

- Accurate reflection of our patients true severity of illness and risk of mortality requires:
  - An active clinical documentation improvement (CDI) program
  - Providers' education and engagement
  - Active review of expected mortality by medical and coding leadership

- Two layers of reviews:
  - Review by the CMO of each hospital
  - Committee review of all mortality cases with ROM/SOI less than 4, pre-bill
    - Committee includes Medical Leadership, Coding Director, CDI Director and Analysts
    - Involves real-team coding while adding diagnoses found on chart review

Provider Mortality Review Tool

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Observed

- Clinical practice
- Patient selection

Expected

- Documentation and coding
- Model comparisons

Goals of DUHS Inpatient Mortality Review

- Review all Inpatient Deaths
- Identify system-wide issues for improvement
- Initiate and guide improvement efforts to reduce inpatient mortality
- Measure number of preventable deaths
- Improve Departmental/Divisional M&M Review process

DUHS Mortality Review Process

Patient death

- Death identified
- Notification sent to discharging provider within 24 hours
- Secure email with link to online tool

Death reviewed by discharging provider

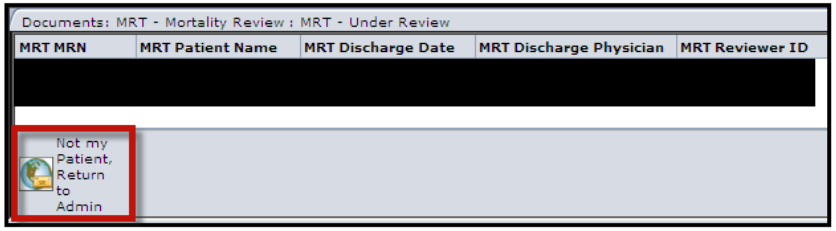
- Uses online standardized mortality instrument
- Meant to be completed from memory
- Data collected in centralized database

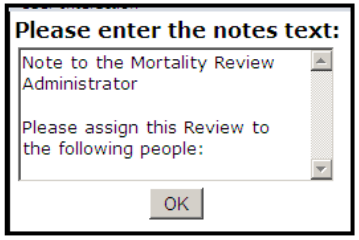
DUHS Mortality Review Process

Email Notification to Provider

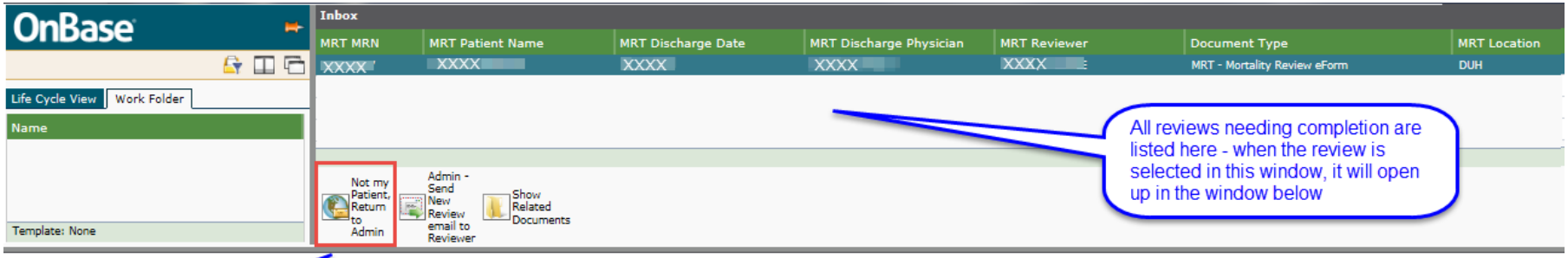
You have a mortality review to complete for patient TONY STARK (MRN: TS4855) who died on 7/4/2014. Please click this link to access the mortality review for this patient.

If you did not care for this patient, you can access the review and select "Not my Patient, Return to Admin". You will then have the opportunity to identify who should receive the review (if known) or can just select "OK" and the review will be removed from your "Under Review" folder.





Online Mortality Tool



Select 'Return to Admin' task if you did not care for this patient

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DUHS Mortality Review

Provider Review

Please complete the following review based on your knowledge and memory of the patient's case. We value your perspective and will use the results to identify opportunities to improve patient care and safety. This review is confidential and peer review protected. Any information you supply may be reviewed according to your divisional and/or hospital peer review structure. This information will fall under peer-review protection with the ultimate goal of identifying patient safety issues. Additionally, the data will be used in aggregate to identify targets for health system improvement. If there are confidential concerns you wish to share outside of this review, please contact Dr. Lisa Pickett, Duke University Hospital Chief Medical Officer (l.pickett@duke.edu) or Dr. Noppon Pooh Setji, Medical Director for DUHS Mortality Review (noppon.setji@duke.edu).

Patient demographics prepopulated

Patient Demographics

Patient Name:	*Patient ID:*	*Age:*
XXXX	XXXX	XX
Gender:	*Race:*	*LOS:*
FEMALE	XXXX	XX
Admit Service:	*Admit Date:*	*Admitting Physician:*
INTERNAL MEDICINE	XX/XX/XXXX	XXXX
Discharge Service:	*Discharge Date:*	*Discharge Physician:*
INTERNAL MEDICINE	XX/XX/XXXX	XXXX
Preliminary Cause of Death:		

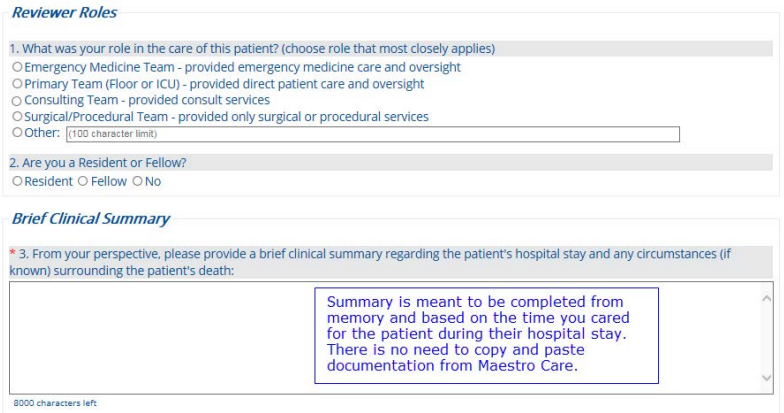
NOTE: PATIENTS ARE IDENTIFIED WITHIN 24 HOURS POST DISCHARGE FOR A MORTALITY REVIEW. THE DATA IN THE DEMOGRAPHICS SECTION IS SUBJECT TO CHANGE BASED ON CODING/BILLING REVIEW WHICH USUALLY OCCURS FOUR DAYS OR MORE AFTER PATIENTS ARE DISCHARGED.

Red Asterisks indicate required fields in the review form

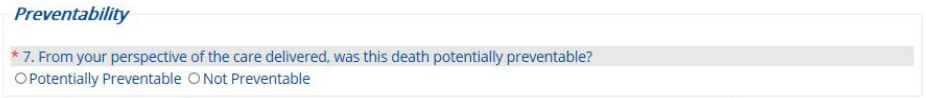
** Red asterisks below indicate required fields.*

Standardized Mortality Questionnaire

- Brief summary of case
- Identify additional reviewers
- Risk Management Referral
- Review for:
  - Preventable issues
  - System Issues
  - Unanticipated deaths
  - End of Life Care



If 'Anticipated', you will answer additional questions related to End of Life and Palliative Care opportunities in the Inpatient as well as Outpatient settings.



If 'Potentially Preventable', you will be asked to comment on the reason for your selection.

DUHS Mortality Review Process (cont)

Independent review of death

- Centralized review by mortality team for reviews potentially preventable issue or reviews that meet additional triggers

Data aggregated at hospital and health system level

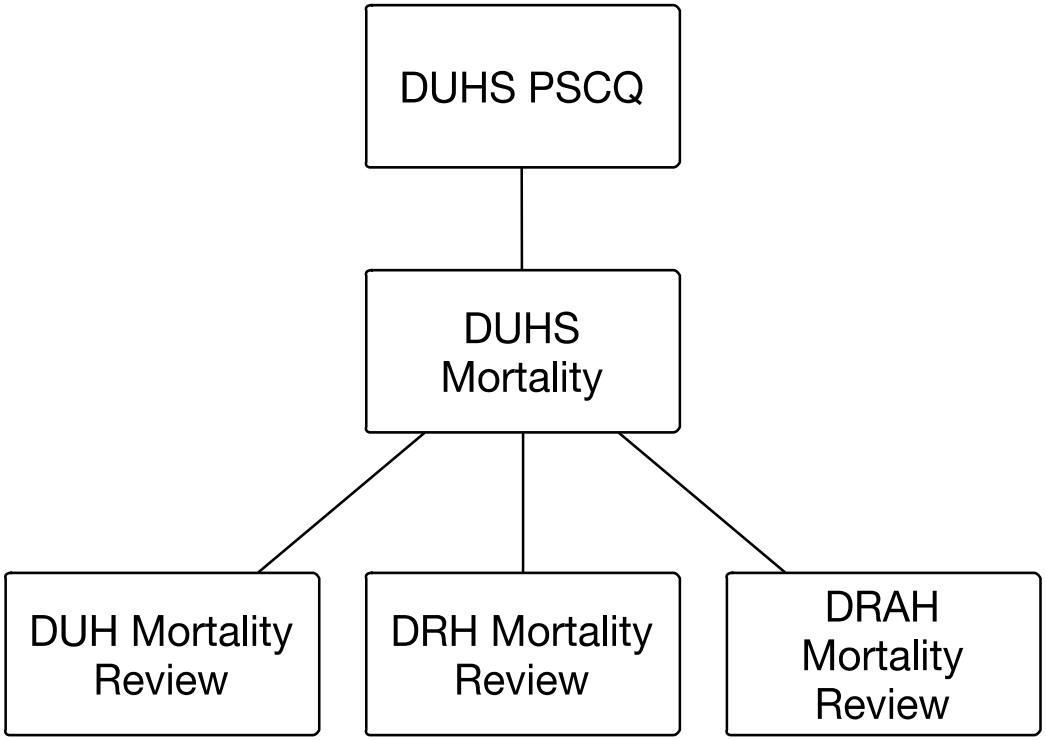
- Gauge # of possibly preventable deaths
- Identify trends and opportunities for process improvement

Performance improvement

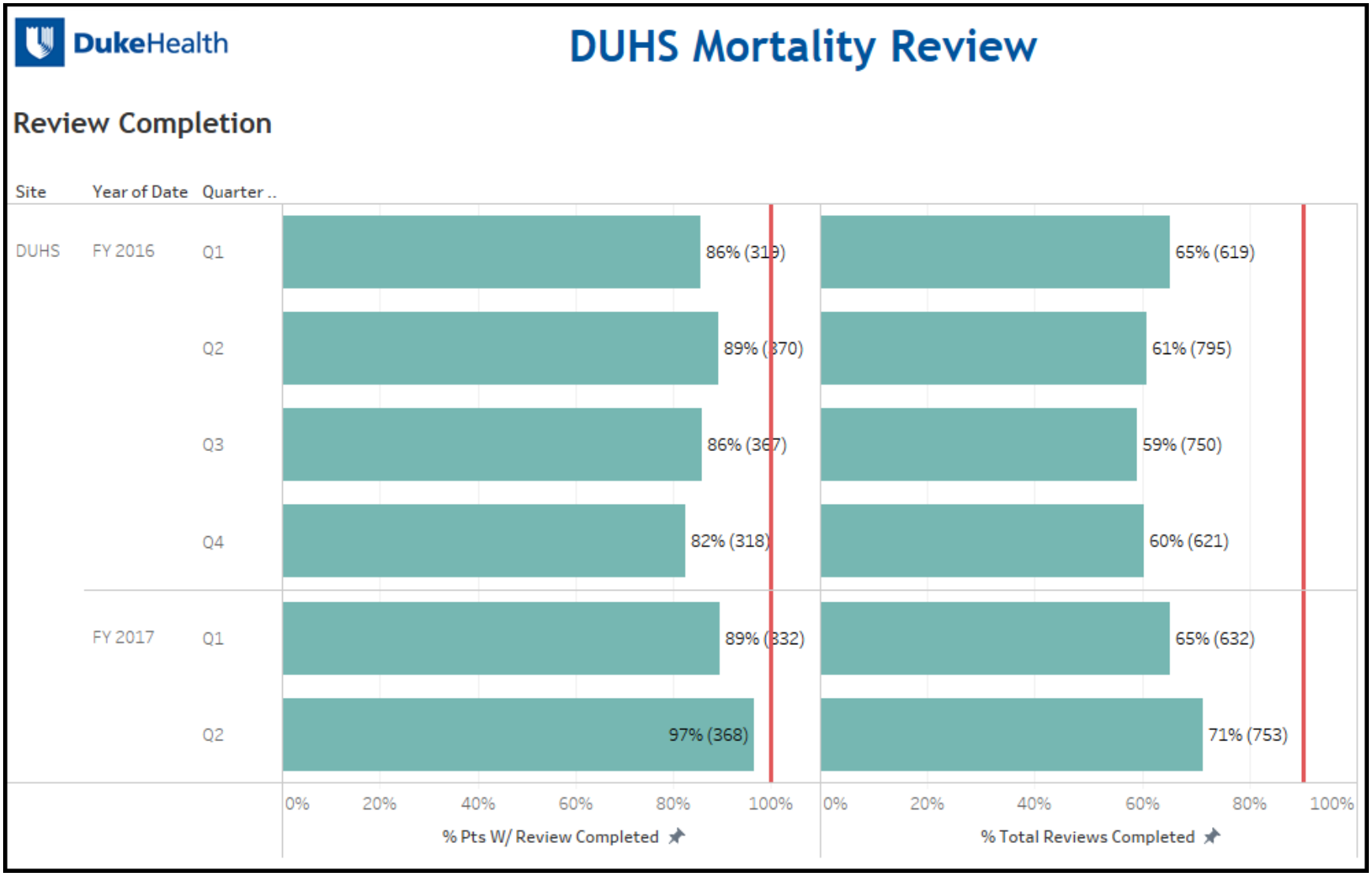
- Share best practices across health system
- Develop performance improvement efforts at division/CSU or system level

Reporting Structure

- Risk Management
- Mortality Review Team at each hospital site
  - Tied into entity peer review infrastructure
- Peer Review Protected
  - Defined locally
- Non discoverable



DUHS Mortality Review Executive Summary
Discharge Dates: 7/1/15 – 12/31/16



Sample Case

68 yo M with history of multiple myeloma for 6 years who is admitted to the hospital with shortness of breath worsening over the past month and occasional fevers.

Patient is in remission and doing well from his MM standpoint overall but is fairly deconditioned and has some signs of dementia.

Sample Hospital Course

Patient was seen in the ED by Dr. ED. He was admitted to Dr. Hospitalist after having a cxr showing bilateral infiltrates.

Empiric abx with vancomycin/zosyn/azithro and tamiflu were started. Over 24 hours he had increasing oxygen requirements.

The next day he was transferred to the ICU and cared for by Dr. Critical Care. In the ICU he ultimately was intubated for 2 days.

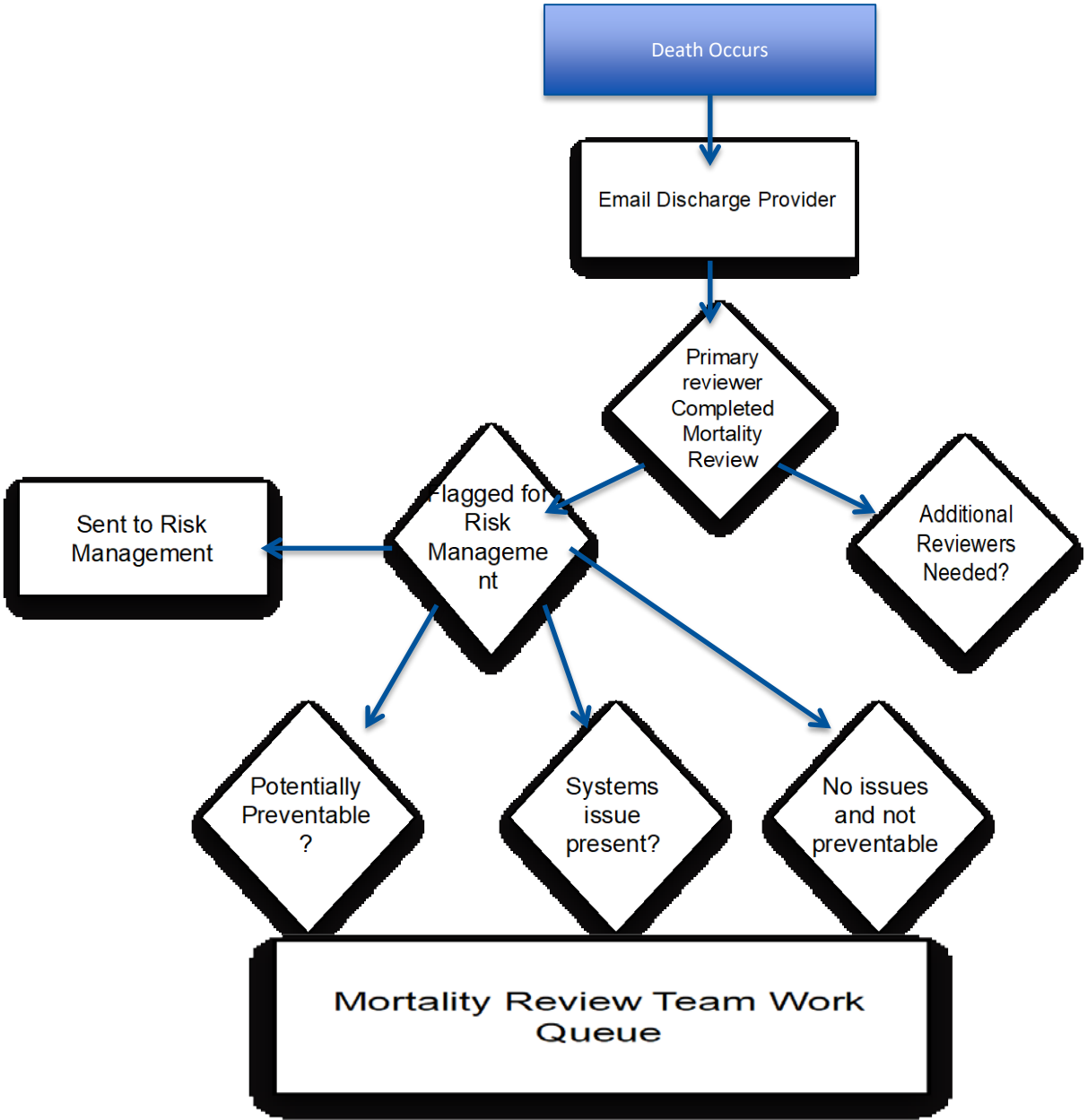
Sample Case Continued

A family discussion was held and the patient was made comfort care and extubated.

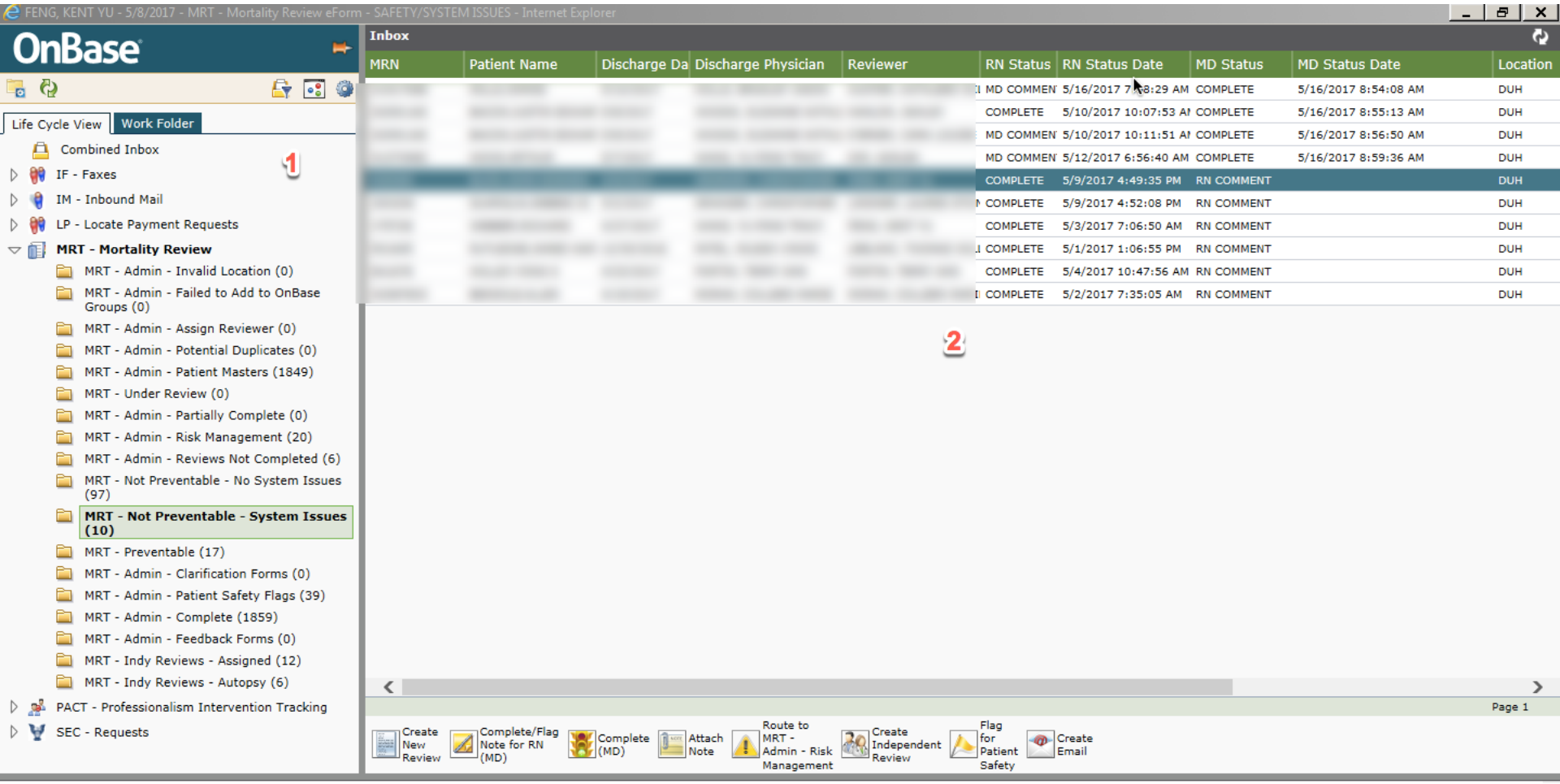
He was transferred to the floor to Dr. Palliative where he passed away 6 hours later.

1 month later autopsy shows PCP pneumonia.

Review Process in Action



Mortality Team Review Work Flow



Death Perspectives

- Dr. ED – the patient was alive when I saw him
- Dr. Hospitalist – I thought he should have responded to the antimicrobials…
- Outpatient Provider – Nobody told me he was admitted
- Dr. Palliative– death was expected
- Autopsy – Path results a little surprising

Mortality Team in Action

- Path results spur independent review or expert review request
- Case review findings show a couple of MM patients who die of PCP in last year
- Patient Safety Flag sent to Infection Control and to Liquid Tumor teams to review
- Liquid Tumor team advises M&M review locally at their division mortality/safety conference

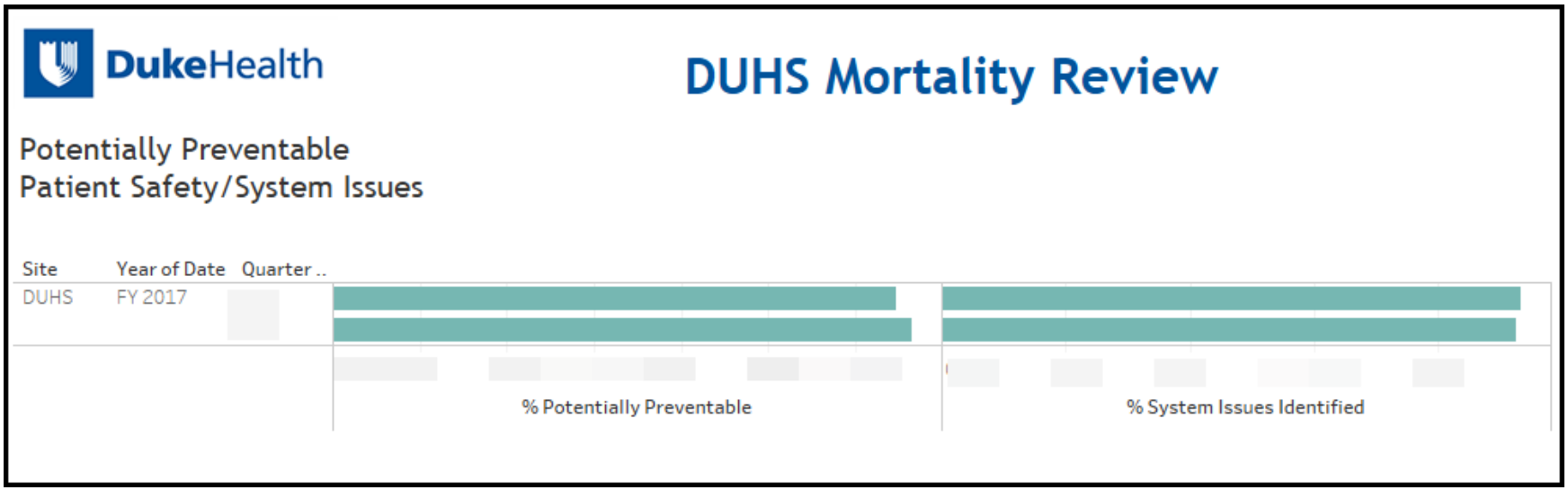
Mortality Team in Action

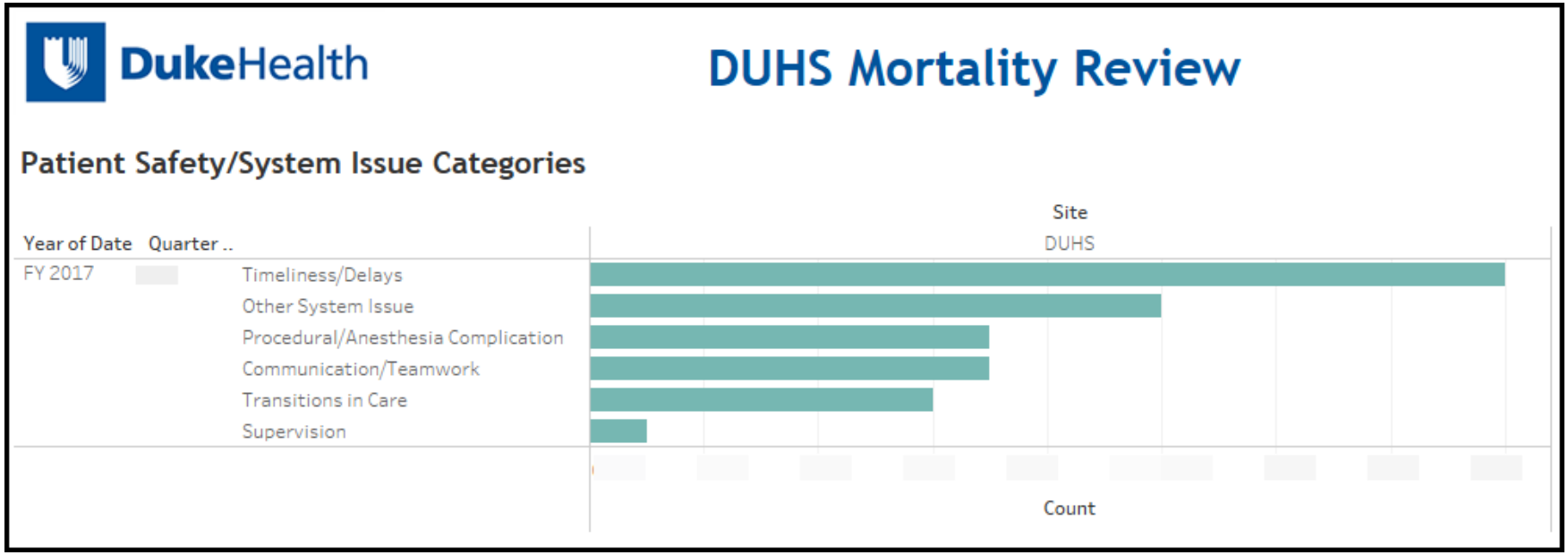
- Liquid Tumor team brings their “lessons learned” to our monthly JEDI council
- These lessons are captured in our mortality digest for dissemination
- CMO meets monthly to discuss trends/patterns and to devise action plan to address this potential systems/safety issue

Mortality Team Activities

- Opportunities for improvement shared with service line leaders
- Aggregated data helps to identify trends and targets for health system safety projects

DUHS Mortality Review SAMPLE Data



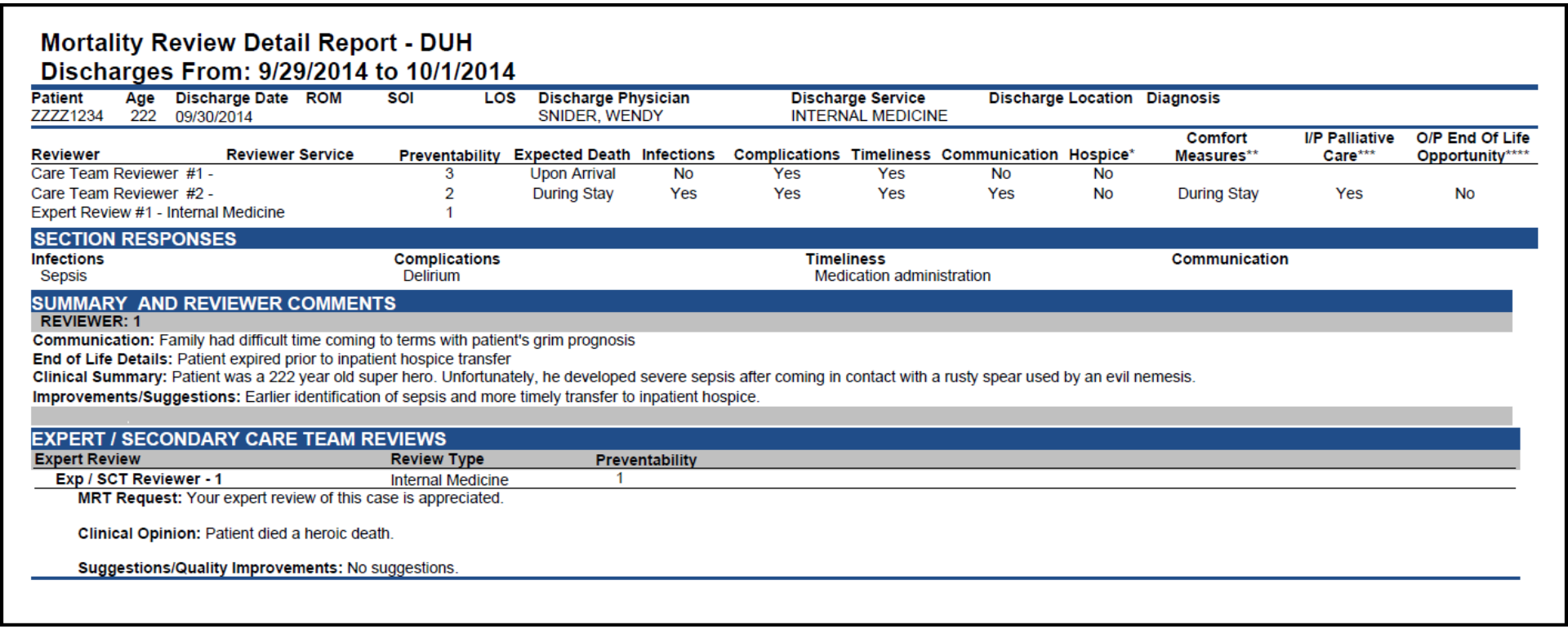


Simulated data for presentation purposes only

Project Work

- Direct ED-Hospice Admissions
- Focus on increased palliative care support directly from clinics
- Evaluation and revision of DNAR process
- Identification and prevention of inpatient delirium
- Aspiration prevention
- Earlier Advance Care Planning

Sample Reports



Mortality Review Detail Report - DUH
Discharges From: 9/29/2014 to 10/1/2014

Patient	Age	Discharge Date	ROM	SOI	LOS	Discharge Physician	Discharge Service	Discharge Location	Diagnosis
ZZZZ1234	222	09/30/2014				SNIDER, WENDY	INTERNAL MEDICINE		

Reviewer	Reviewer Service	Preventability	Expected Death	Infections	Complications	Timeliness	Communication	Hospice*	Comfort Measures**	I/P Palliative Care***	O/P End Of Life Opportunity****
Care Team Reviewer #1 -		3	Upon Arrival	No	Yes	Yes	No	No			
Care Team Reviewer #2 -		2	During Stay	Yes	Yes	Yes	Yes	No	During Stay	Yes	No
Expert Review #1 - Internal Medicine		1									

SECTION RESPONSES

Infections	Complications	Timeliness	Communication
Sepsis	Delirium	Medication administration	

SUMMARY AND REVIEWER COMMENTS

REVIEWER: 1

Communication: Family had difficult time coming to terms with patient's grim prognosis
End of Life Details: Patient expired prior to inpatient hospice transfer
Clinical Summary: Patient was a 222 year old super hero. Unfortunately, he developed severe sepsis after coming in contact with a rusty spear used by an evil nemesis.
Improvements/Suggestions: Earlier identification of sepsis and more timely transfer to inpatient hospice.

EXPERT / SECONDARY CARE TEAM REVIEWS

Expert Review	Review Type	Preventability
Exp / SCT Reviewer - 1	Internal Medicine	1

MRT Request: Your expert review of this case is appreciated.

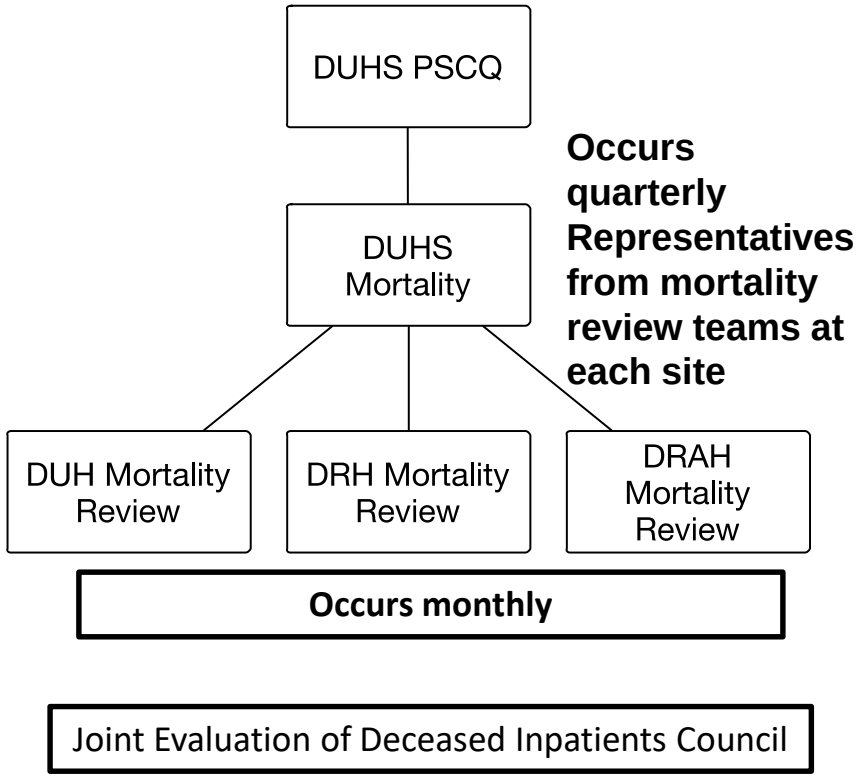
Clinical Opinion: Patient died a heroic death.

Suggestions/Quality Improvements: No suggestions.

Simulated data for presentation purposes only

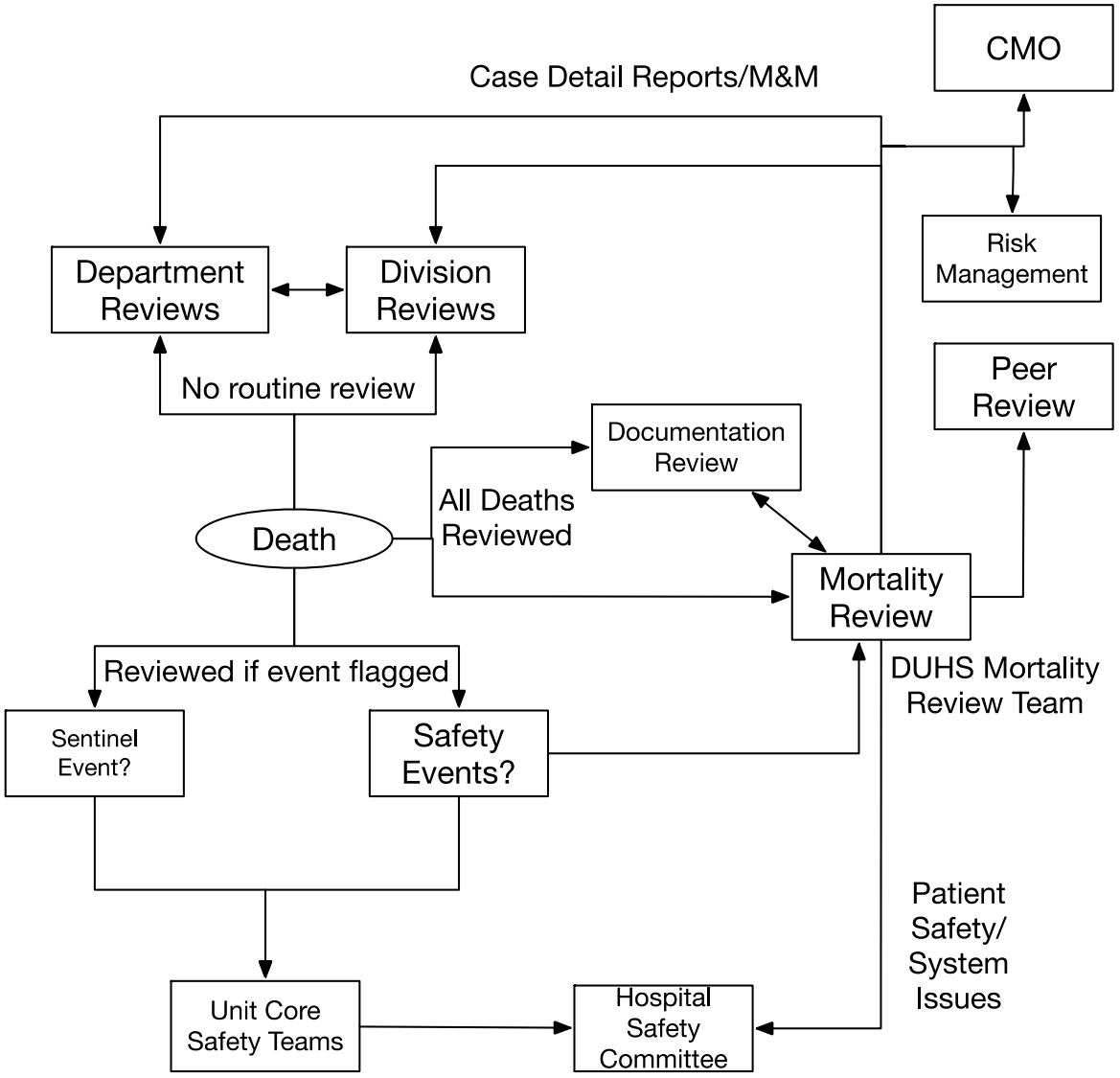
DUHS Mortality Review Teams

- Centralized, multidisciplinary venue to review a subset of deaths with potentially preventable issues
- Categorize themes and issues
- Forum to connect various Department/Divisions, tie back to patient safety, and guide M&M

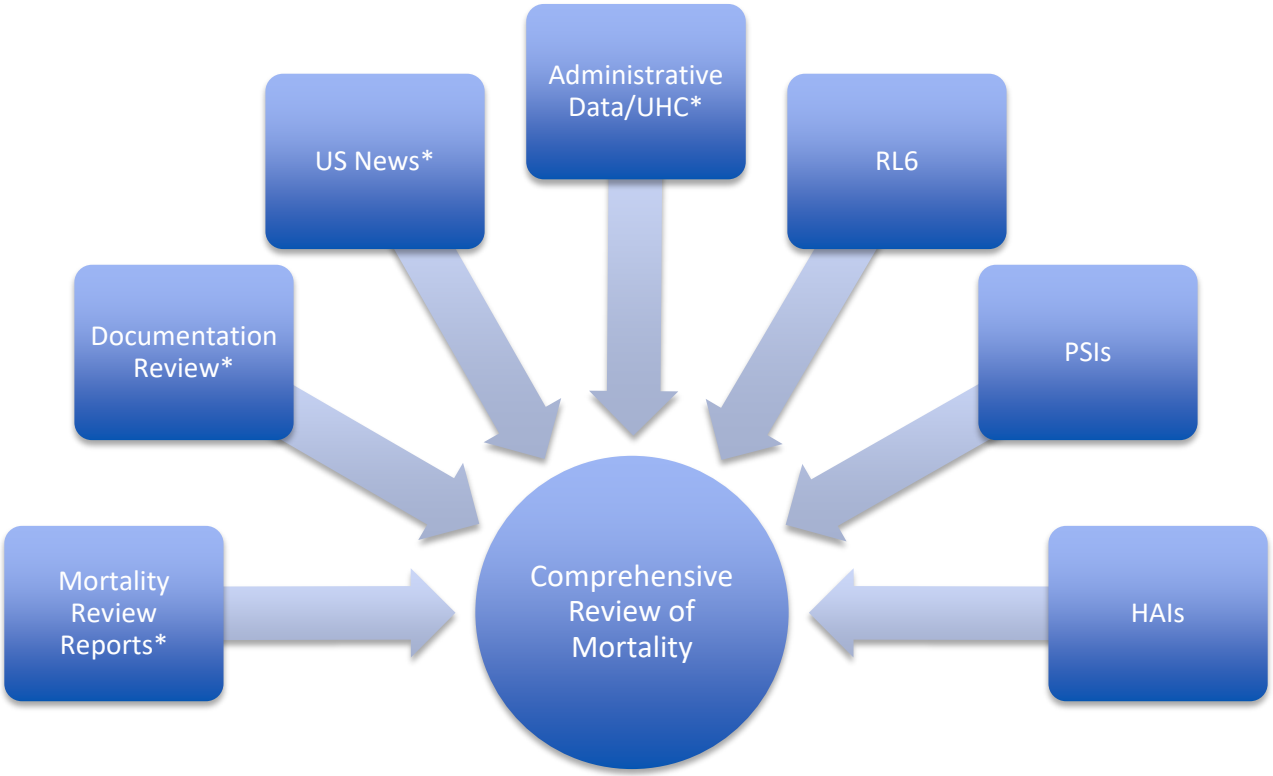


JEDI Council

Survival Map



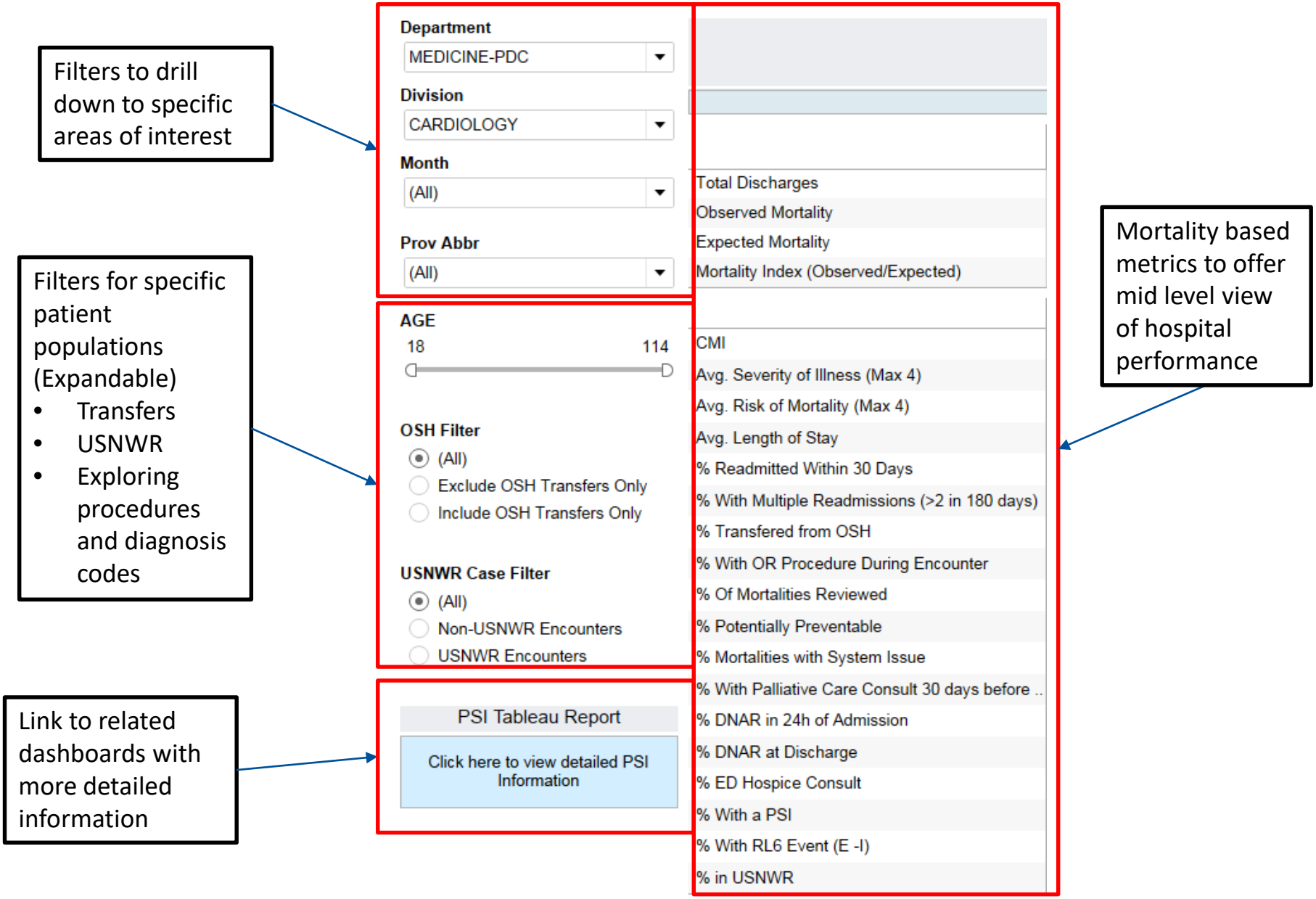
Comprehensive Review of Mortality



Multiple sources of information within health system that serve as "listening posts" for the identification of patient safety and performance improvement opportunities

* Indicates first wave of integration

Comprehensive Mortality Review



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Implementation Challenges

- Dependent on quality of provider input
  - Independent adjudication of case findings is important
- Impact of Culture
  - Physician buy-in to the process
- Technical aspects & cost to build and manage
- Mitigating risk and peer review protections
- Creating strong ties to Performance Improvement work
- How to “harmonize” administrative & documentation data with clinical care data

Future Directions

- Addition of other review types (i.e., nurse, pharmacist, autopsy)
- Continued development of independent adjudication
- Further integration with patient safety/quality improvement operational work and M&Ms
- Continue to “harmonize” data streams to provide the comprehensive overview of care delivery opportunities
- Enhancing feedback to providers
- Focus on Second Victim

Summary

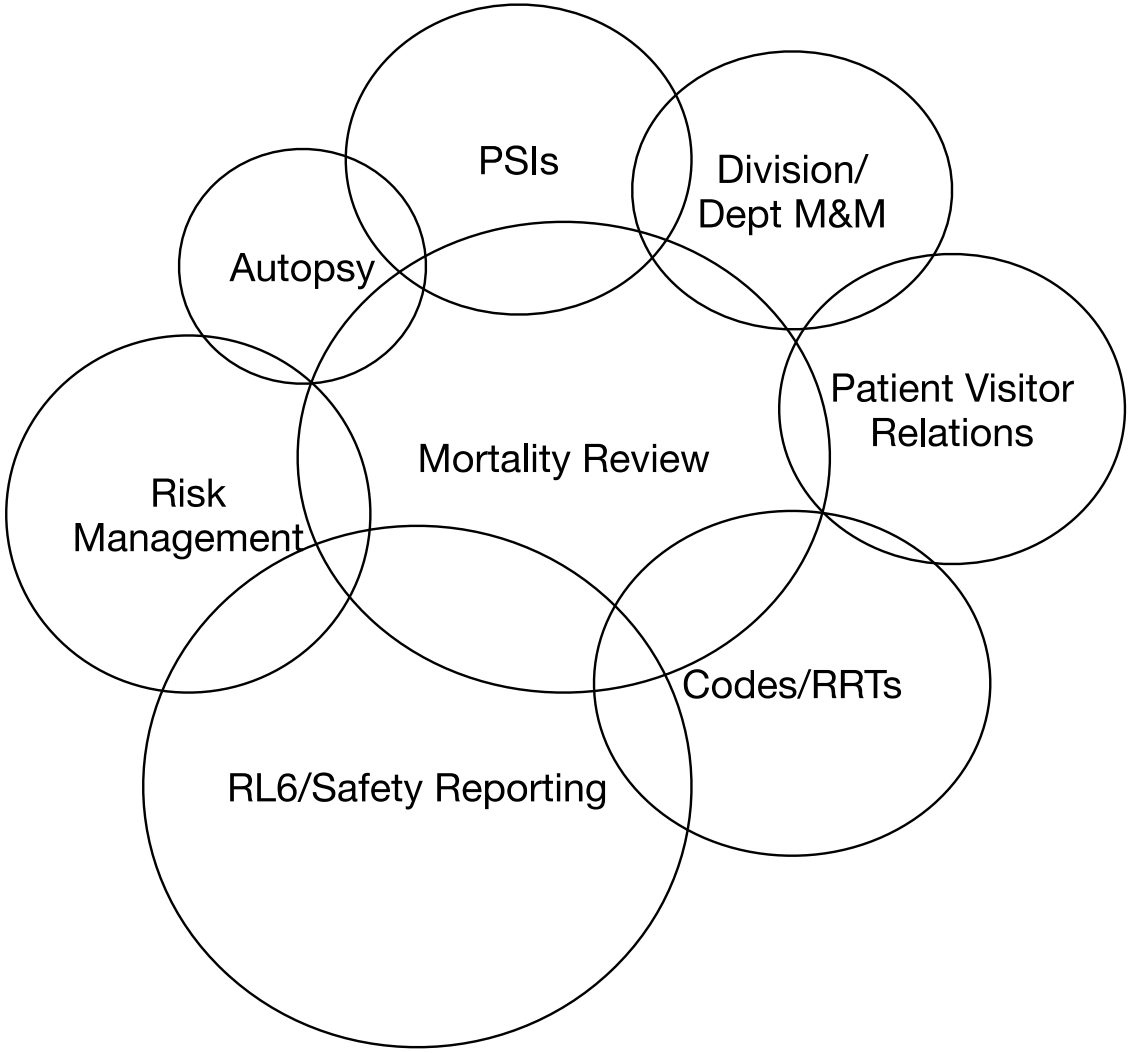
- Consistent and systematic review of mortality important for identifying system issues and keeping patients safe
- Requires a focus on documentation and clinical care delivery
- Helps to identify multiple targets for improvement
- Strong leadership support is a prerequisite
- Data dissemination is essential
  - This includes feeding back data to providers
- Need an improvement infrastructure to respond to your data
- Frontline provider perspective is invaluable

Questions/Comments

DUHS Mortality Review Team
Jonathan Bae (Jon.Bae@duke.edu)
Noppon Setji (Noppon.Setji@duke.edu)

APPENDIX

DUHS Mortality Listening Posts



Multiple sources of information within health system that serve as “listening posts” for the identification of patient safety and performance improvement opportunities

SOI/ROM Scores Depend on Accurate Documentation

- Provider's documentation must capture all co-morbidities, organ malfunction and hospitalization events
- Provider's documentation is translated from words into a series of codes
- Based on Interaction among Secondary Diagnoses and co-morbidity
- These codes are submitted in claims and are the basis for all quality metrics

Capture of True SOI/ROM

- Accurate reflection of our patients true severity of illness and risk of mortality requires:
  - An active clinical documentation improvement (CDI) program
  - Providers' education and engagement
  - Active review of expected mortality by medical and coding leadership

Accurate Mortality Reporting

- Reflecting the true quality of care is critical to:
  - Patients
  - Providers
  - External reporting agencies
- Must engage providers, medical leadership and coding leadership

Mortality Review Models

- UCSF
  - Centralized multi-disciplinary committee
  - Cases referred for review
- Mayo
  - All deaths reviewed independently by both nurse and MD
  - All deaths discussed at monthly mortality review meeting; presented by nurse/MD
- Brigham & Women's
  - Provider based review
  - Monthly review of subset of cases with system issues identified and/or scored as possibly/likely preventable; cases presented to multidisciplinary committee

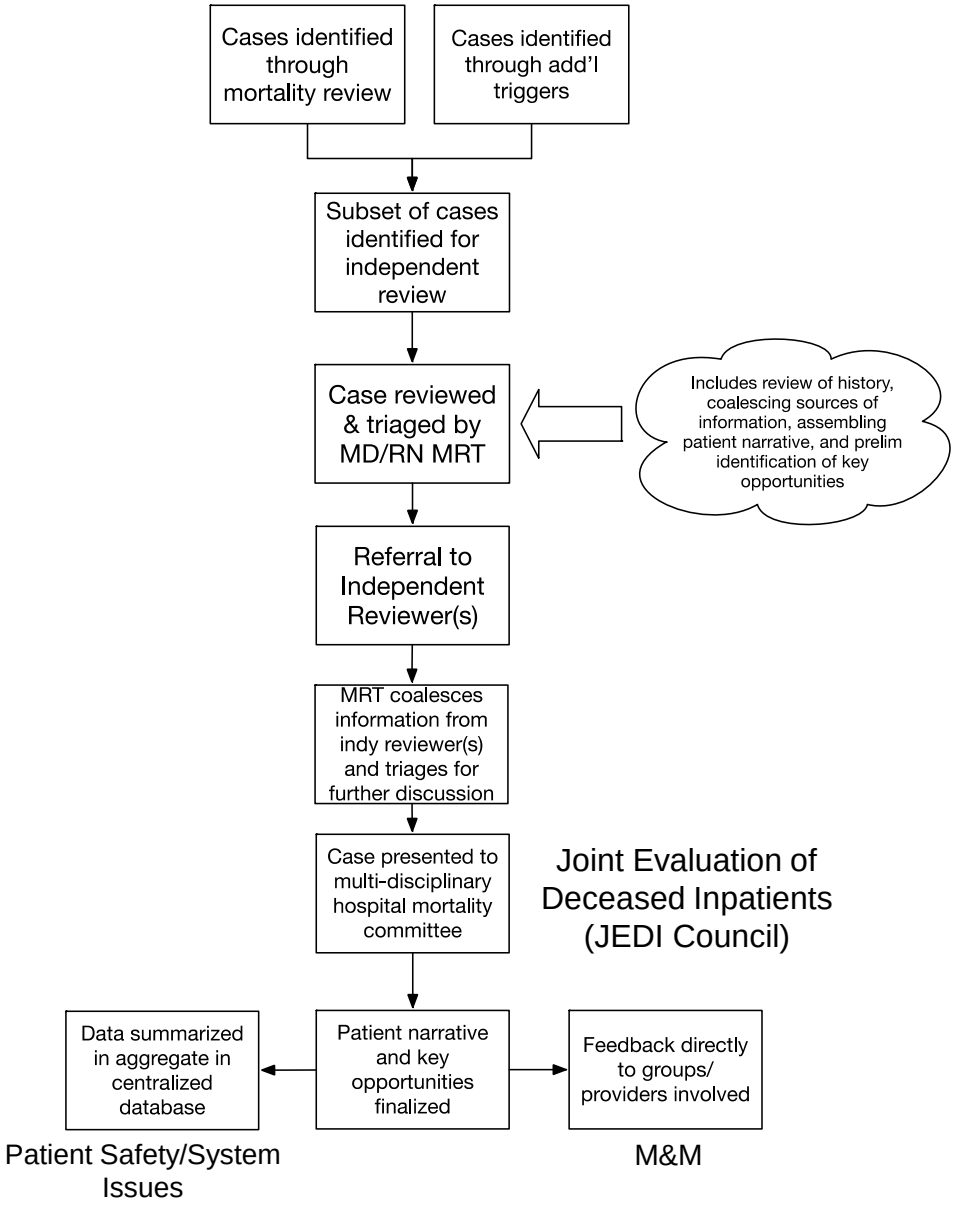
UCSF

MAYO CLINIC HEALTH SYSTEM

BRIGHAM AND WOMEN'S HOSPITAL

Joint Evaluation of Deceased Inpatients (JEDI) Council

- Centralized, multidisciplinary venue to review a subset of deaths with potentially preventable issues
- Categorize themes and issues
- Forum to connect various Department/Divisions, tie back to patient safety, and guide M&M



Project Timeline