Patient Safety and Medical Risk Management in an Urgent Care Practice Setting

May 2019



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45	High Risk Errors

Quality & Patient Safety

Error is an impediment to the Triple Aim

The Triple Aim: Care, Health, And Cost

Donald M. Berwick, Thomas W. Nolan, and John Whittington

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SECTIONS VIEW ARTICLE PERMISSIONS SHARE TOOLS

ABSTRACT

Improving the U.S. health care system requires simultaneous pursuit of three aims: improving the experience of care, improving the health of populations, and reducing per capita costs of health care. Preconditions for this include the enrollment of an identified population, a commitment to universality for its members, and the existence of an organization (an "integrator") that accepts responsibility for all three aims for that population. The integrator's

Error Prevention in Medicine

The single greatest impediment to error prevention in the medical industry is that we punish people for making mistakes.

Dr. Lucian Leape - Professor, Harvard School of Public Health



Systems Design to prevent human error

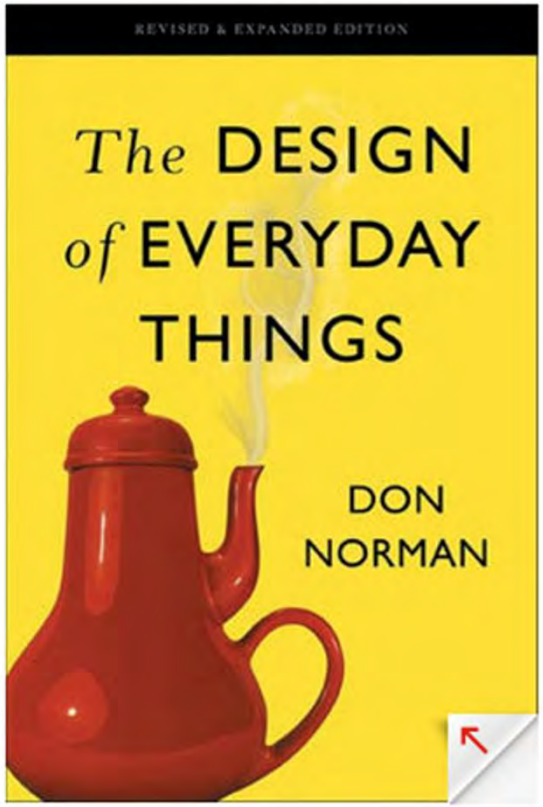
"People make errors, which lead to accidents. Accidents lead to deaths. *The standard solution is to* ***blame the people involved***.

The problem is seldom the fault of an individual; ***it is the fault of the system***.

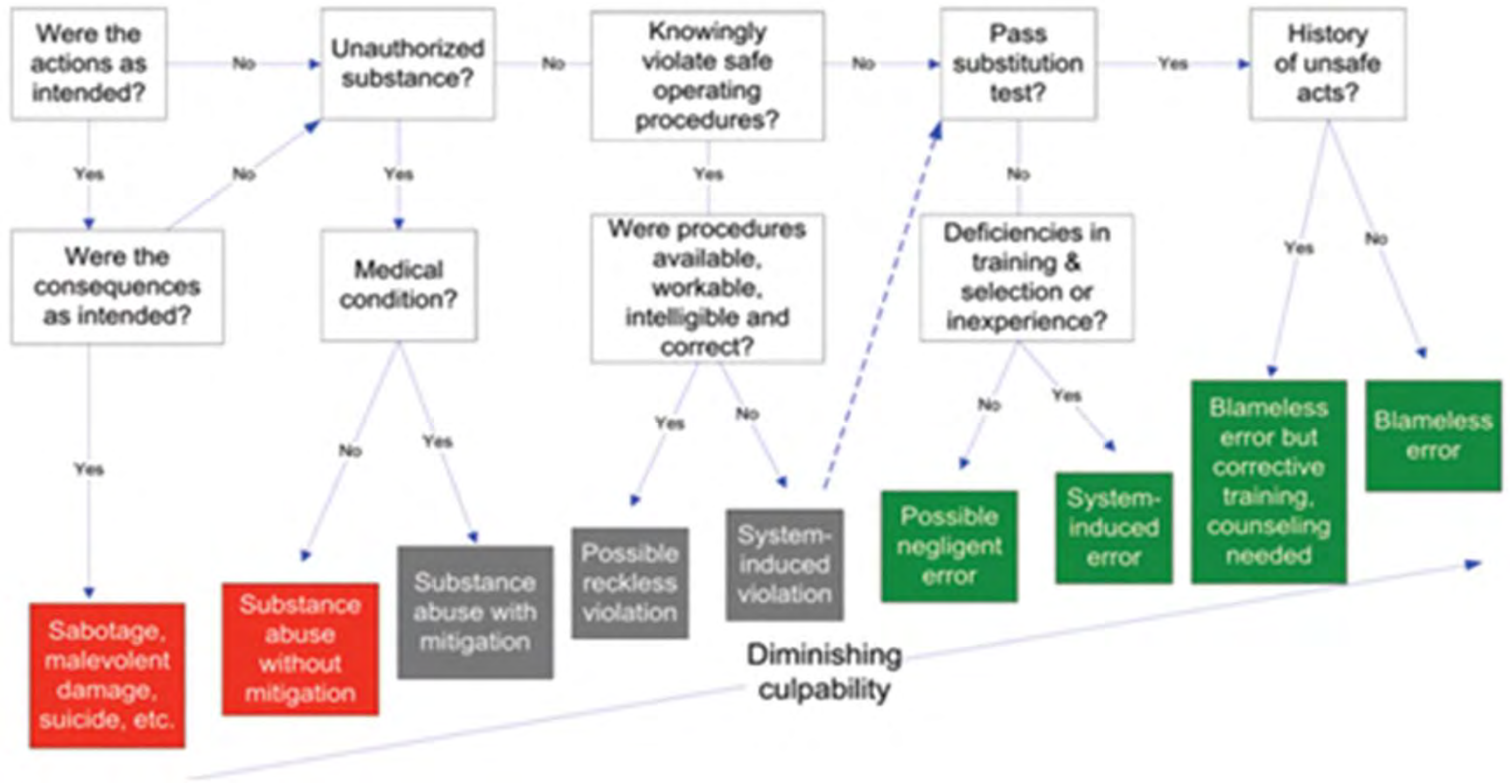
Change the *people* without changing the *system* and the problems will continue."

Don Norman

Author, the Design of Everyday Things



Just Culture Algorithm – James Reason (1997)



Swiss Cheese Model – J. Reason

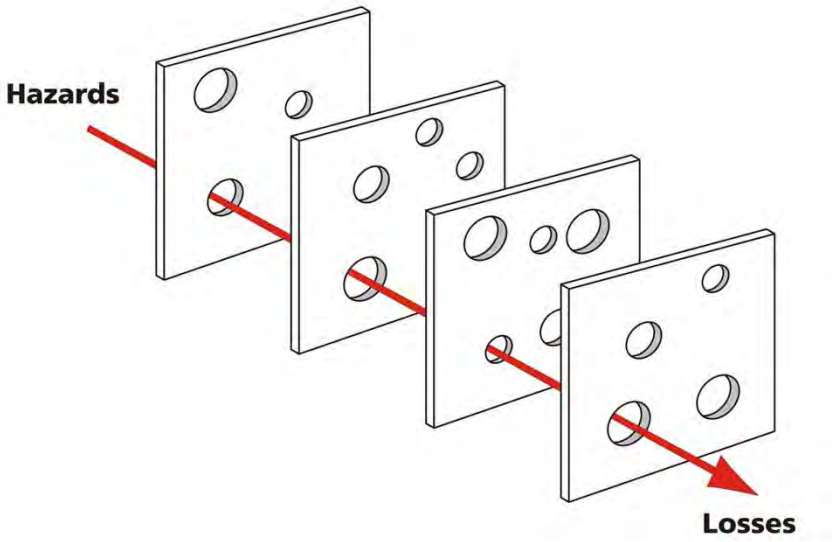
Complex systems will likely have inevitable error.

Error in high risk systems leads to serious adverse events

Layers of Risk mitigation can be a partial defense…can prevent a single point of failure.

There are flaws in each layer of defense.

If the flaws in each layer are aligned, that will allow the error to reach the patient and cause harm



Swiss cheese Model – J. Reason 1980. Graphic By Davidmack - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=31679759

How to apply lessons learned elsewhere to UC?

Analysis of Patient Safety data

Body of Patient Safety Literature

Healthcare & other Industry other industries

Urgent Care

relatively new, few benchmarks…Start from scratch?

Build on/borrow/steal from other fields?



Institute for Healthcare Improvement
(IHI.org) Quality Improvement Essentials Toolkit

Urgent Care Association - UCAOA.org/Resources

Systematic Approach to Patient Safety: Our Process

Adopt tools and approaches from others

Collect and analyze our own error data

Surveillance measures>>Near misses>>Adverse events>>SSEs

Identify areas of opportunity

Discuss potential solutions (multidisciplinary input)

Implement changes

Track results



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159766 - Dr. Tibor Duliskovich - http://www.duliskovich.com [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0/)]

Systems Approach: Reducing Error & Medical Risk

Q: **How can we make the system "Doctor-proof?"**

On-boarding & Training

- Screening, Interviewing, Orientation, Cont Ed

- **Policies, Procedures, Guidelines**
  - Evidence Based Practice Standards,
  - Polices vs *Guidelines*

- **Standardization & Facilitation of Procedures**
  - Removal of barriers
  - extra steps/decision points→opportunity for error)

- **(FMEA) Failure Mode Effect Analysis**
  - "What could go wrong with this step?" "How could an error occur here?" "How can that error be prevented?"

- **Technologic Improvements**

- **System Redundancy**
  - Aftercare

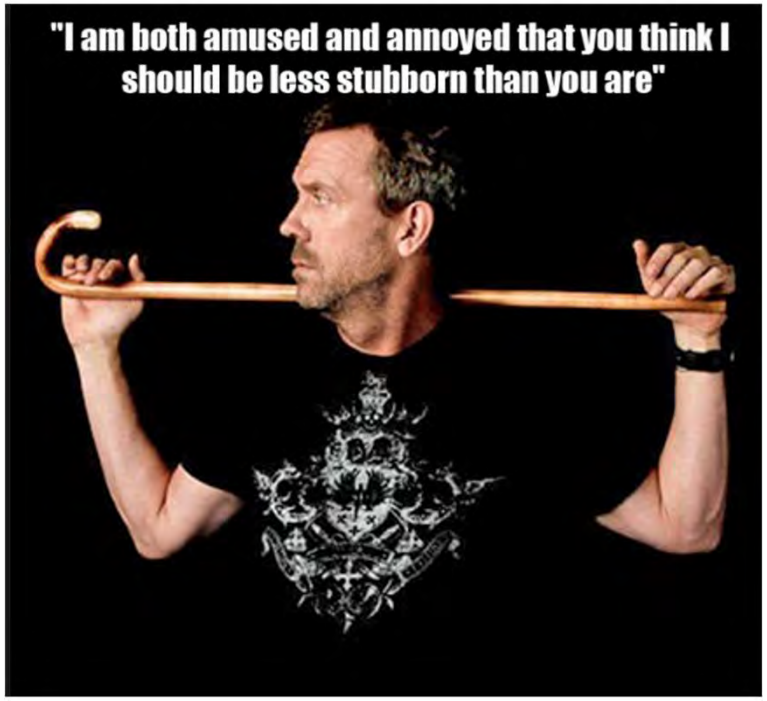
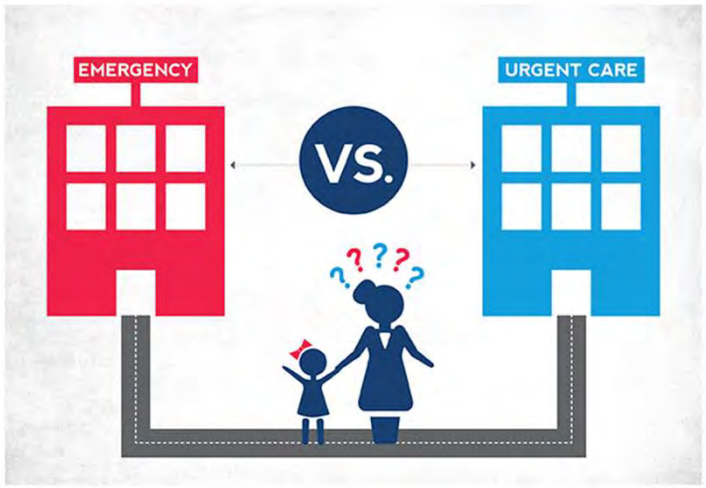


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What is urgent care?

- **Episodic**, walk-in care
- **non-emergent conditions**
- Evenings, Weekends, holidays, 365
- blood tests, sutures, travel meds, and X-rays
- Lower cost (Insurer and the patient) vs ER visit
- Rapidly growing field in healthcare industry (8% growth YTY)
- >8100 centers
- >89 million 2018 visits in US



Urgent Care Services

Illness and Injury (High Acuity Urgent Care)

- Corneal Ulcer/Abrasion (Fluorescein)
- Laceration Repair
- Burns
- Nosebleed (Epistaxis Control)
- Orthopedic Fracture/Sprains/Strains (Onsite X-ray + Splint)
- Wound Care/Abscess Drainage
- Animal Bites
- Minor Head Injury/Concussion

- Abdominal Pain or GI complaints
- GYN Complaints
- STD treatment
- Asthma, URI, Influenza, Pneumonia
- Cellulitis
- Dehydration/Vomiting
- Rash / Skin lesions
- Headache
- ENT Foreign Body Removal/Cerumen Removal

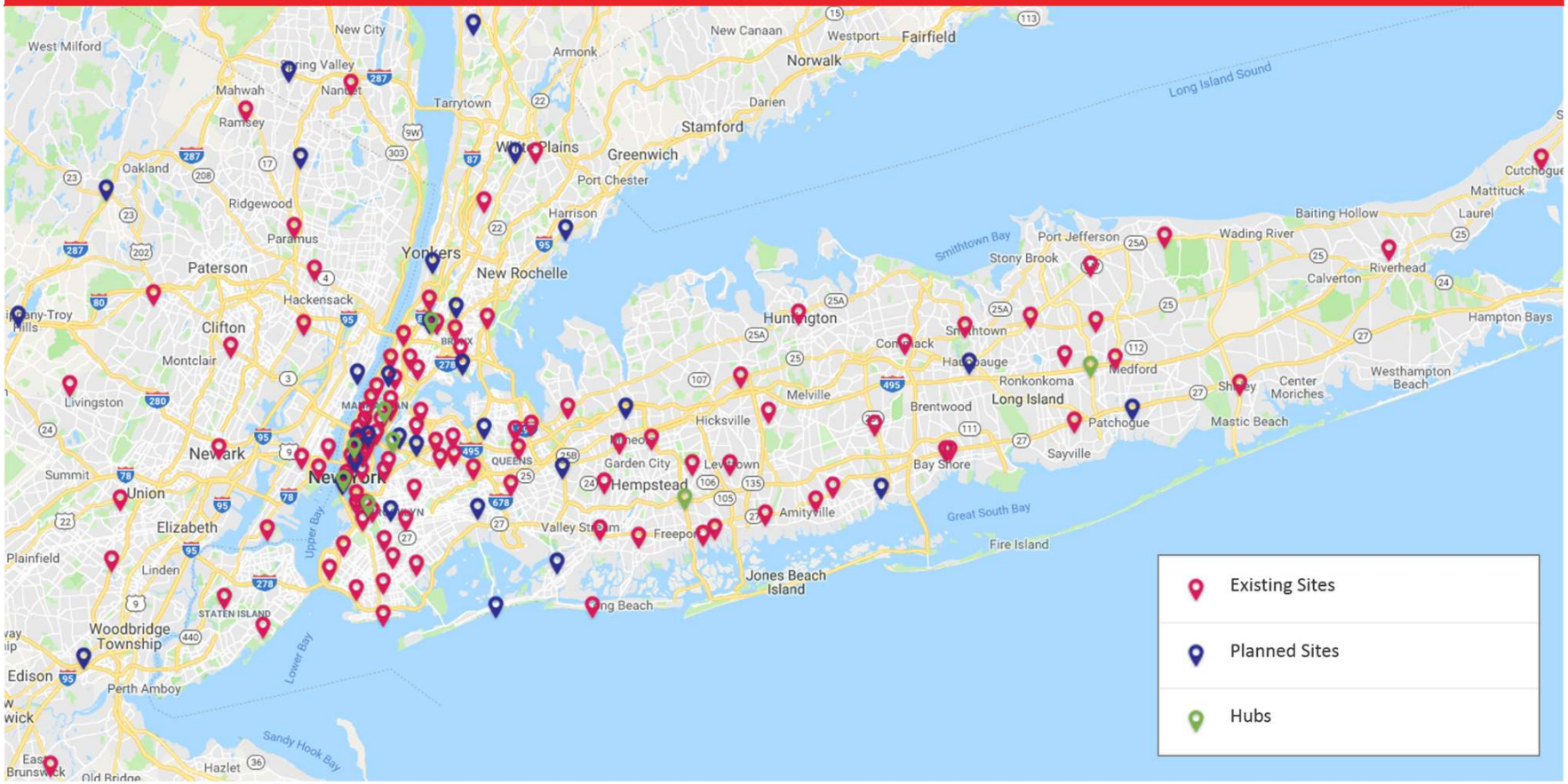
Preventive and Screening

- Occupational vaccines (e.g. Hepatitis, MMR)
- HIV testing and PEP
- Titers and immunity (e.g. Measles, Mumps, Rubella, TB)
- Travel Vaccines (e.g. Yellow Fever, Typhoid, Tetanus)
- Specialty testing (e.g. Zika, Measles, Mumps, Hepatitis)
- STD screening

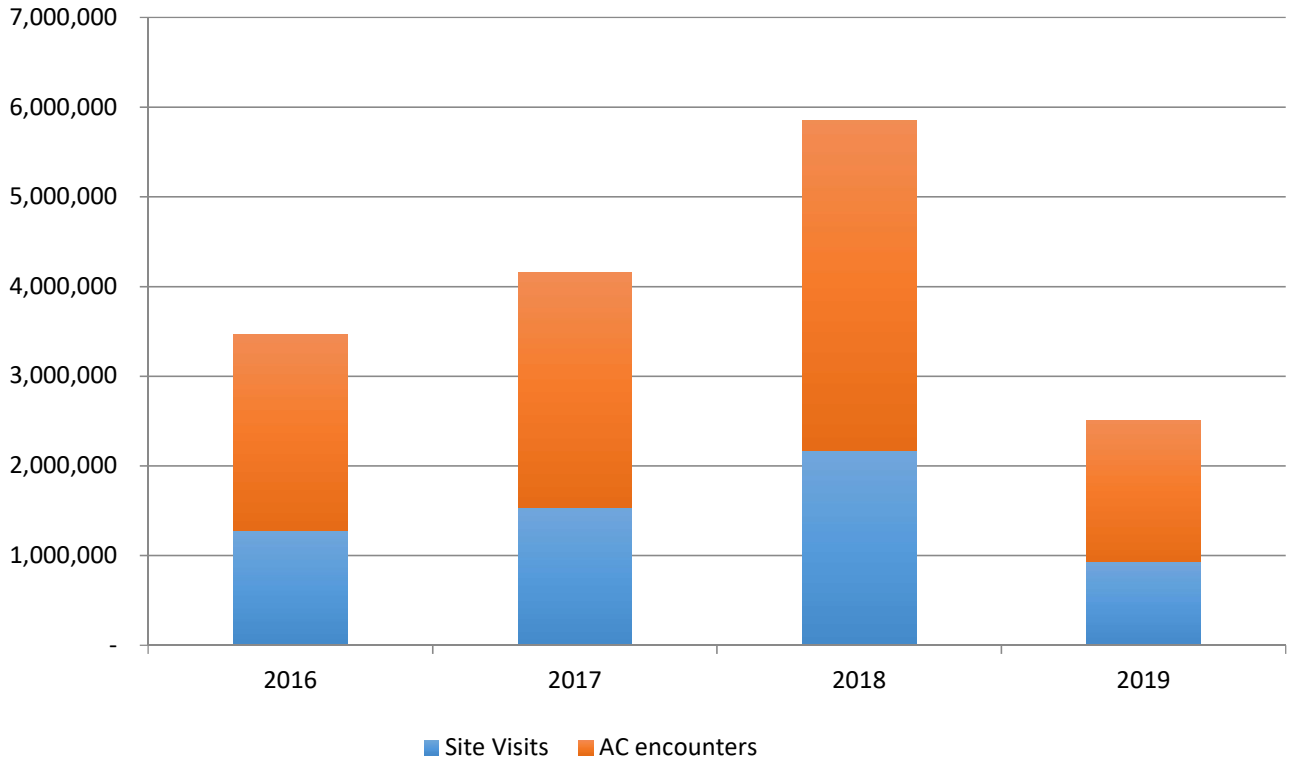
CityMD Footprint

NYC metro area

Tri-State Area



Patient Encounters 2016-2019ytd



CityMD…decision points, by the numbers

Patient Follow Up Responsibilities

- **Large number of lives touched**
  - 2.7M est visits in 2019
  - 1.7M unique patients in 2019
  - 4M unique patients since 2010
- **Significant Responsibility for Care Coordination and Follow Up**
  - Average patient visits CityMD 1.6 times per year
  - ~450K patients require a follow up
  - ~50% of CityMD patients don't have a primary care physician
- **Significant referral & ancillary responsibility**
  - 385K referrals (14% of visits) managed during visit and followed up through Aftercare
  - 1.5M lab orders
  - 300K Xrays
  - 39K advanced imaging tests imaging test referrals (US, CT, etc)

What could go wrong???

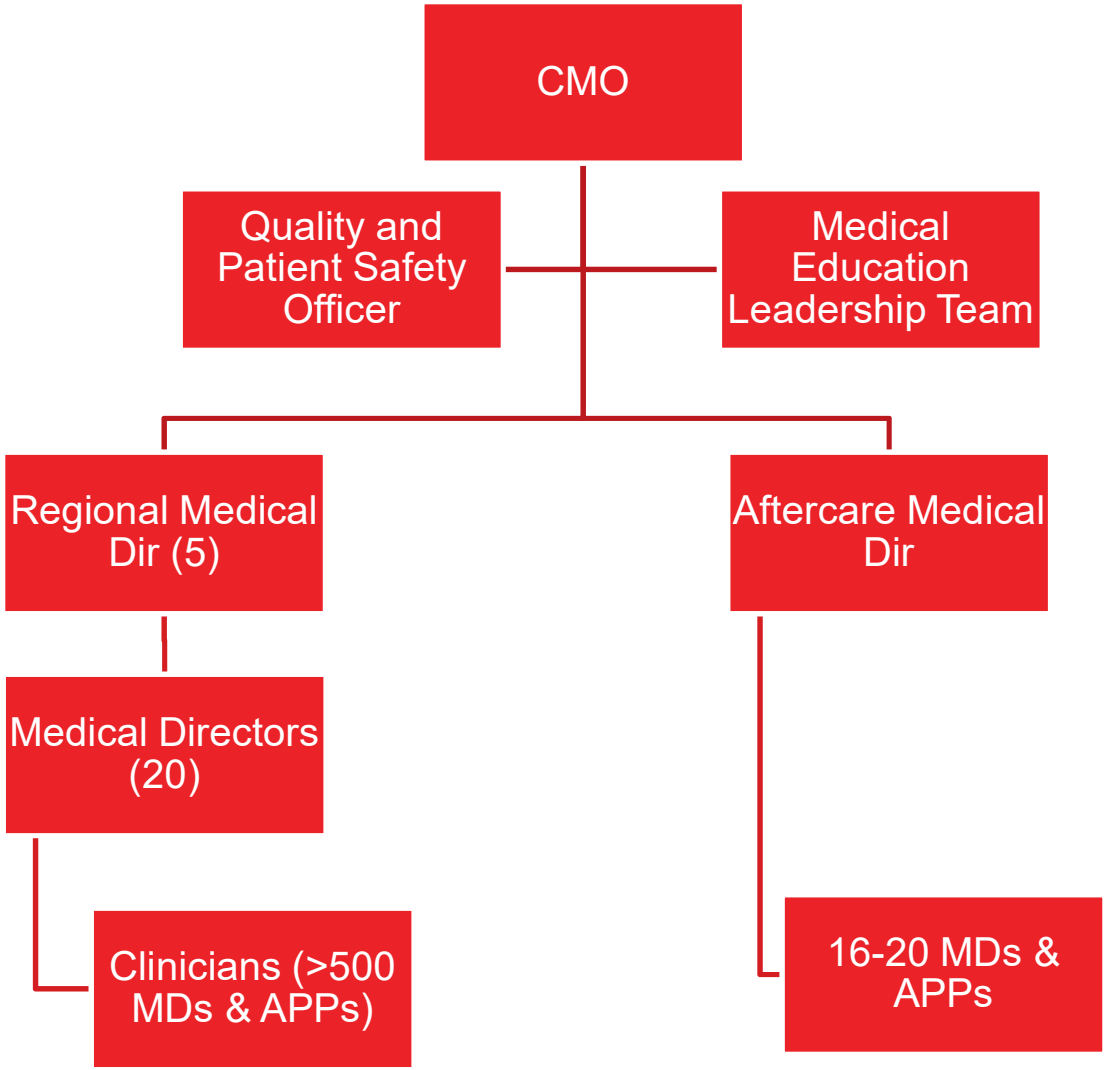


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Clinical Quality Organization Structure



Quality Roles and Responsibilities

"It Takes a Village"

Medical Directors & RMDs

Interviewing & Hiring (Culture/Fit, skills evaluation on interview)

Orientation, mentorship, first 30 days, 90 day eval

Chart reviews, Staff Feedback, Aftercare Feedback

Quarterly reviews (KPIs, NPS, Feedback, 360s)

QA/PI Mtgs w PSO

***Clinical presence at sites**

Quality Patient Safety Officer

Bi-Weekly QA/PI

Classify types of error: failure modes, possible system errors, individual/group knowledge gaps

SSE determination, RCAs

Education Modules

Clinical Guidelines

Patient Safety Initiatives (e.g.Team STEPPS)

Risk Management Modules (Sullivan Group)

Aftercare

24/7 Clinical Loop Closure

-Labs, Xrays, Rx issues, etc

Referral management

Daily Error adjudication

Incidental findings

-Xray discrepancies; nodules

High Risk Diagnoses

P2P notifications to PCP

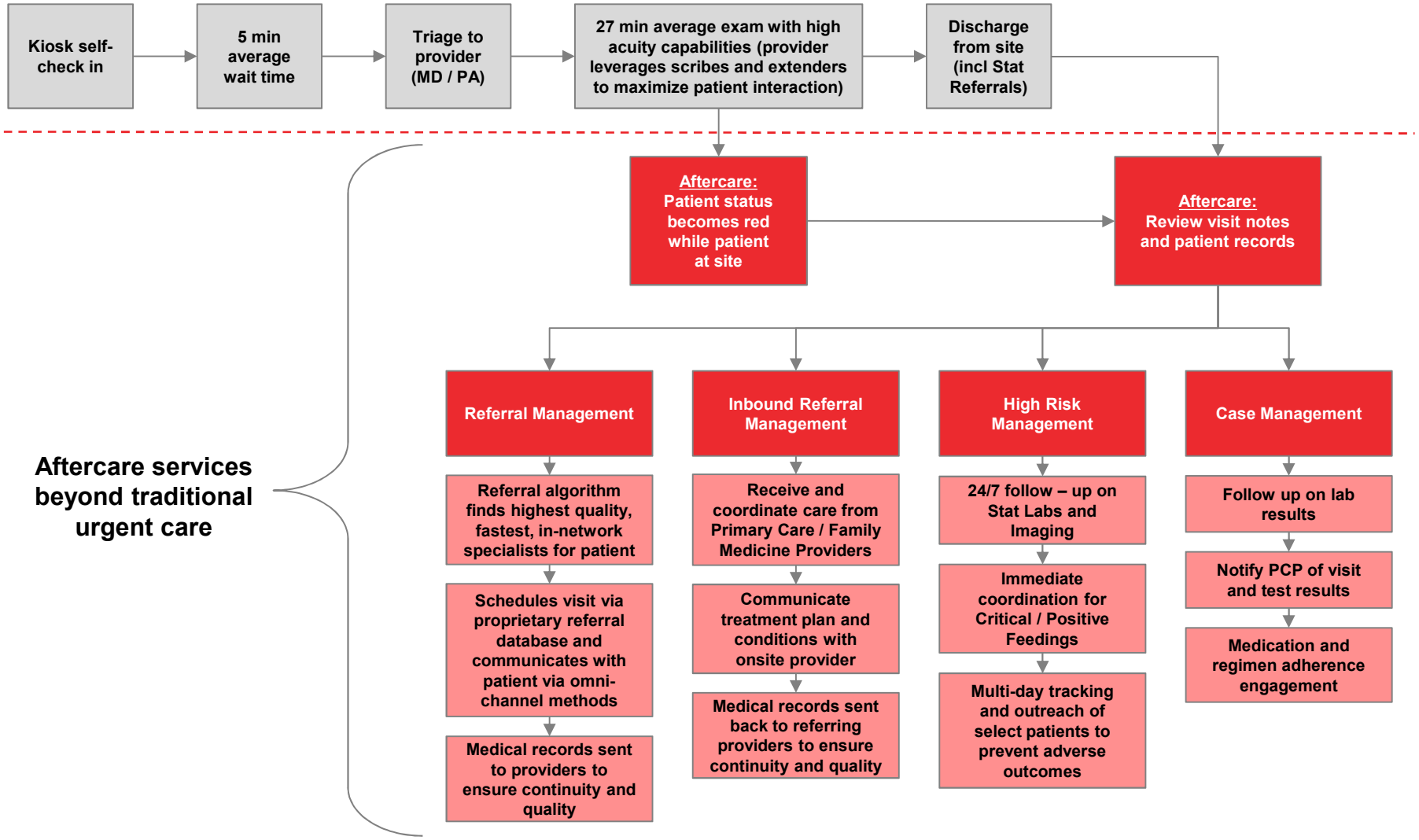
DOH reporting/Syndromic Surveillance

Employee Health & Safety

***So much more!

Aftercare…what happens after the visit!

Streamlined, high quality operations, backed by Aftercare



Quality Surveillance & Reporting: QA/PI case review

AfterCare QA

Pharmacy errors

Radiology Critical List

Radiology Discrepancies

Radiology Incidental Findings

Lab findings

Advanced Imaging follow-up

Care Coordination issues

DOH reporting

High Risk cases

ER cases

Site Level QA

Self Reporting of Events

Incident Reports (site manager)

Response to Patient complaints

360 Staff Feedback

Medical Director Chart Review

Error classification Example

QA Reports	Sub-Error Type	Error Type	Action Plan
Discussion w/ Provider	Dx-Mgmt	Dx-Mgmt	POW Review
	Med: Allergy	Medication	
	Med: Improper Choice	X-Ray	
	Med: Wrong Dosage	System	
	X-Ray: Managed Adequately	Other	
	X-Ray: Managed Appropriately		
	X-Ray: Managed Inadequately		
	X-Ray: Provider Miss		
	X-Ray: TeleRad Miss		
	System: AfterCare		
	System: Labs		
	System: Poor Documentation		
	System: Radiology		
	Other		

Histogram Chart / Pareto Chart (80-20 Rule)

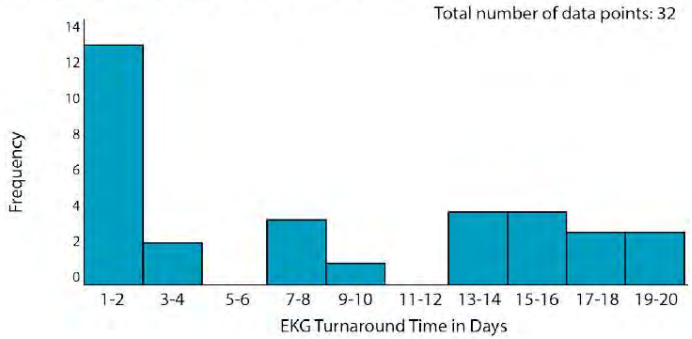
Sample Data Table: EKG Turnaround Time

EKG Turnaround Time in Days

9	16	1	4
15	8	13	1
13	16	14	17
7	2	20	2
2	2	18	3
1	1	2	7
1	2	15	2

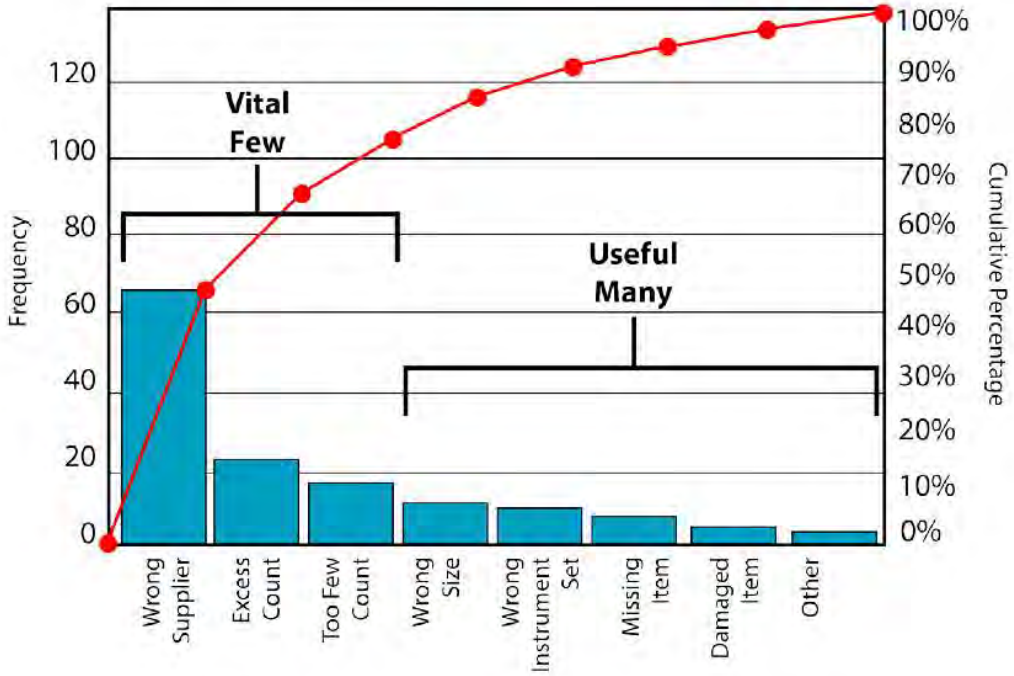
Average = 8.3 Days

Sample Histogram: EKG Turnaround Time



Institute for Healthcare Improvement · ihi.org

Pareto Chart: Types of Errors Discovered During Surgical Set-up



Common QA Issues Found (Improvement opportunities)

- **Meds**
  - Errors in Pediatric Prescriptions
  - Allergies
- **Xray**
  - Clinician miss
  - Delay in communicating re-read
  - Incidental Findings
- **Diagnosis & Management**
  - Abdom Pain (e.g. missed AP)
  - Pneumonia
  - Pulmonary Embolism
  - Wound care/lacerations
- **Critical Labs**
  - D-Dimers
  - Troponin
  - WBC
  - Electrolytes
  - Positive Cultures
- **High Risk conditions**
  - Abdominal Pain, Pneumonia, Cellulitis, Asthma
  - Chest Pain
- **Incidental Findings**
  - Pulmonary Nodules → CA
  - Ectatic Aorta → AAA
  - Cardiomegaly → CHF

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Areas of Opportunity

System/Documentation

- Medication Errors
  - Allergies
  - Wrong Choice
  - Wrong Dose
    - Pediatrics

Dx & Mgmt

- Xray discrepancies
- Antibiotics
- Abdominal Pain
- Hand Injuries
- Lacerations & Wounds

High Risk for SSE

- Critical Results
- High Risk Diagnoses
  - Chest pain
  - Abdom Pain
  - Pneumonia
- Incidental Nodules
  - CA risk
  - Laverne's Law

Areas of Opportunity:

Q: **How to identify & mitigate risk?**

A: **Deep Dive**: Process Map + Failure Mode Effect Analysis (FMEA)

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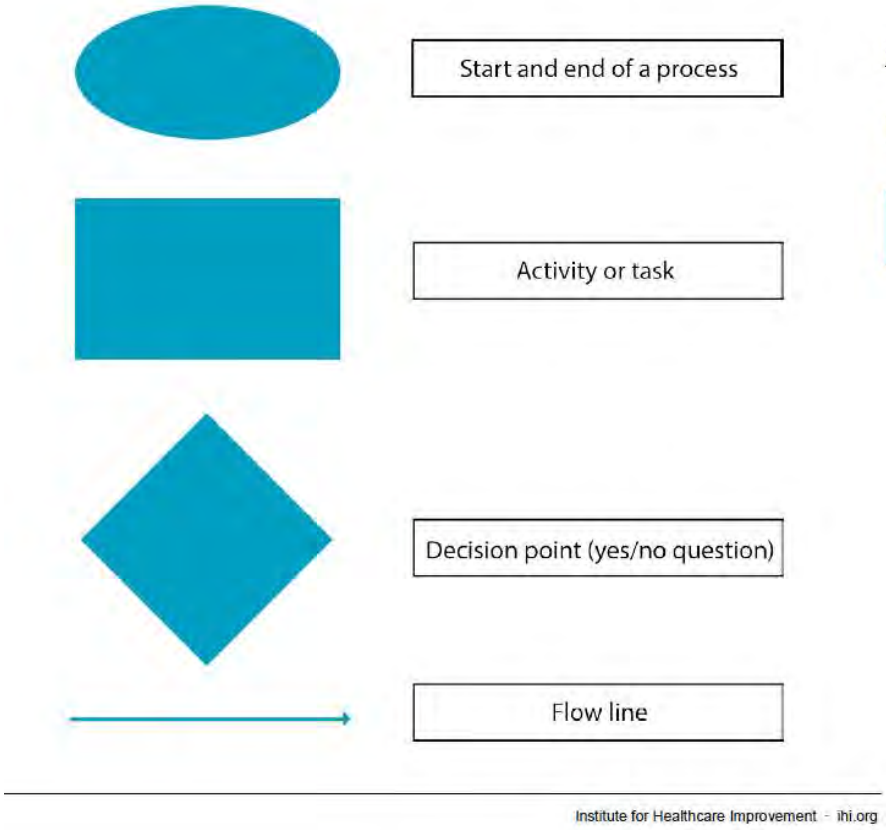
Dx & Mgmt

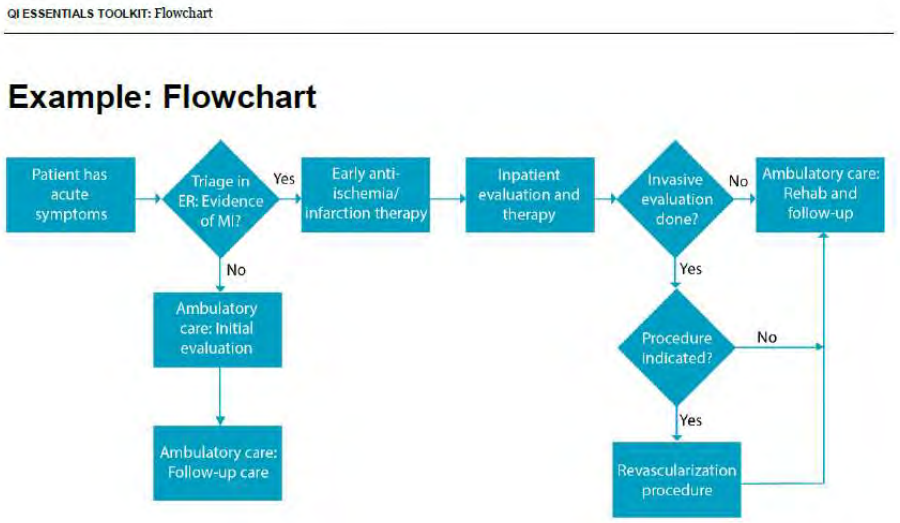
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Process Flow Mapping – Step by step





Failure Modes and Effects Analysis – Step by Step

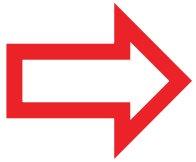
Example: Failure Modes and Effects Analysis (FMEA) – Medication Dispensing Process

Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
Orders are written for new medications.	The first dose may be given prior to pharmacist review of the orders.	Medication ordered may be available and easily accessed in the dispensing machine.	Patient may receive incorrect medication, incorrect dose, or a dose via incorrect route.	6	5	1	30	Assign clinical pharmacists to patient care units so that all medication orders can be reviewed as they occur.
Orders are written to discontinue a medication or change the existing order.	Orders are written to discontinue a medication or change the existing order.	All doses needed for a 24-hour period are delivered to the drawer. Drawer is not changed until next routine delivery. 24-hour supply of refrigerated medications is delivered. Multi-dose vials may be kept in the patient-specific drawer. Medications are available in dispensing machine.	Patients may receive medications that have been discontinued or the incorrect dose of a medication that has been changed.	10	5	5	250	Schedule pick-ups of discontinued medications, including refrigerated medications, twice per day. Use dispensing machine screen to verify all information regarding current and discontinued medications prior to each administration.
Orders are written for a non-standard dose of a medication.	Nursing staff may prepare an incorrect dose when manipulating the medication.	Staff prepare the dose using medications from the dispensing machine and manipulate them to get the dose ordered.	Patient may receive an incorrect dose.	3	5	4	60	Prepare all non-standard doses in the pharmacy and dispense each as a patient-specific unit dose.

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Medication Error: Allergies

Process Errors/Failure Modes:

1. Allergies not documented
2. Allergy history not “Confirmed” in EHR
3. Allergies not “carried over” from previous visits
4. **Allergy noted in FREE TEXT field**

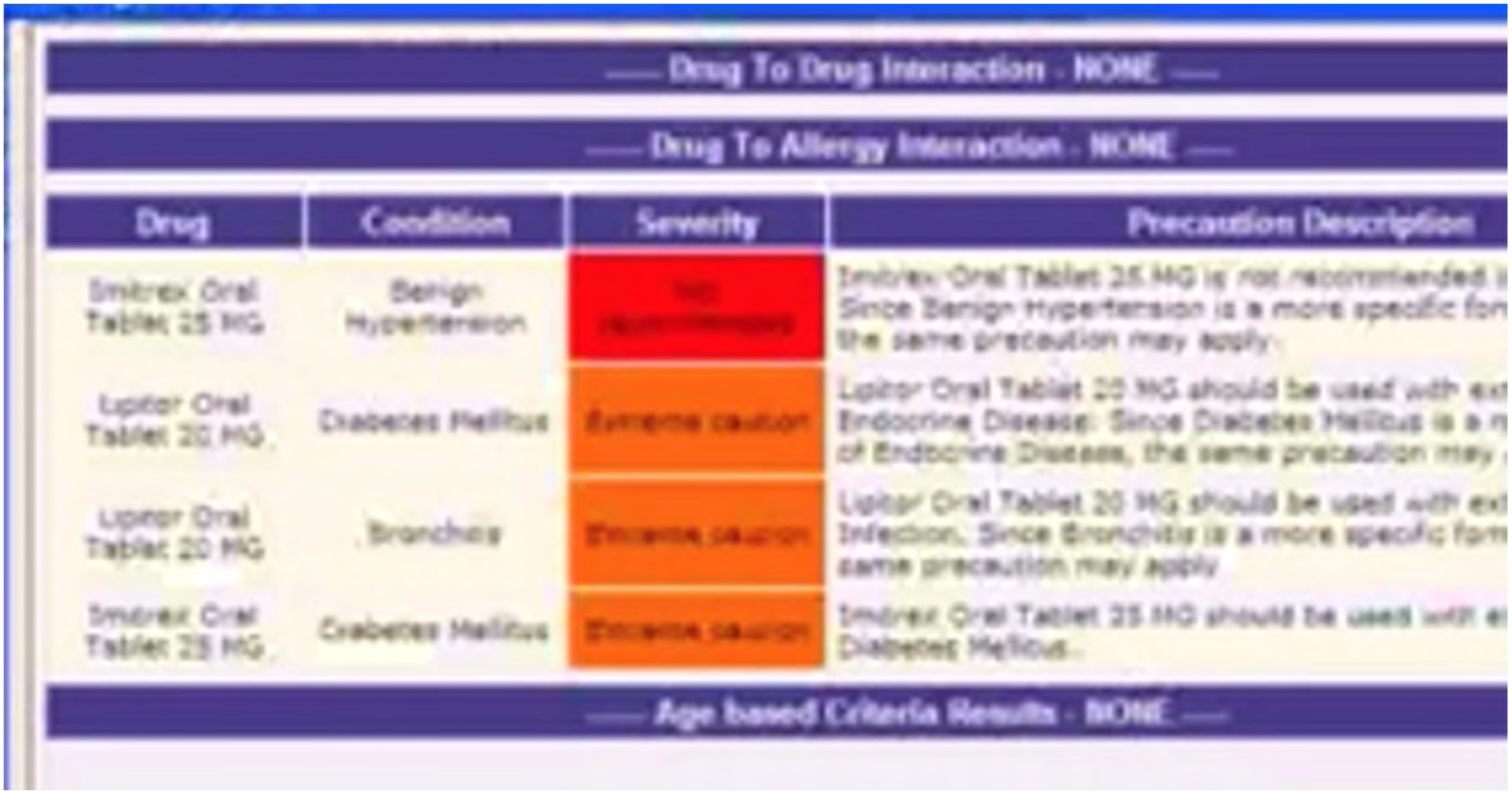
System/Process Changes:

1. Allergies now a **mandatory** Field
2. Validation of allergy hx for every patient
3. Carryover feature activated on EHR, requires validation
4. **Allergy must be noted in structured field**

Re-Education of New Processes

1. Staff & clinician support and feedback
2. Clinicians taught to confirm allergy hx obtained from staff
3. Staff educated on new processes

Allergy and Drug-Drug interaction feature



—— Drug To Drug Interaction - NONE ——

—— Drug To Allergy Interaction - NONE ——

Drug	Condition	Severity	Precaution Description
Imitrex Oral Tablet 25 MG	Benign Hypertension	[illegible]	Imitrex Oral Tablet 25 MG is not recommended [illegible] Since Benign Hypertension is a more specific form the same precaution may apply.
Lipitor Oral Tablet 20 MG	Diabetes Mellitus	Extreme caution	Lipitor Oral Tablet 20 MG should be used with ext Endocrine Disease. Since Diabetes Mellitus is a m of Endocrine Disease, the same precaution may
Lipitor Oral Tablet 20 MG	Bronchitis	Extreme caution	Lipitor Oral Tablet 20 MG should be used with ext Infection. Since Bronchitis is a more specific form same precaution may apply
Imitrex Oral Tablet 25 MG	Diabetes Mellitus	Extreme caution	Imitrex Oral Tablet 25 MG should be used with e Diabetes Mellitus.

—— Age based Criteria Results - NONE ——

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System/Documentation

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Medication Error: Wrong Choice of Antibiotics

Failure Modes

1. **UTI**
    1. Empiric tx, clinical variability
        "This is how I have always done it."
    2. Treatment failures (No uCx)
2. **Pneumonia**
    1. Wrong empiric tx, clinical Tx variability
    2. Xray Reading Discrepancy
    3. Outpatient Treatment Failure

Correcting Knowledge Gap/Physician Education

1. CityMD Antibiotics Guide
    1. UTI Tx
    2. Pneumonia
2. Urine C/S Antibiogram
   for our Population
3. The Sullivan Group -
   Risk Management CME Modules
4. Current Clinical Guidelines (IDSA/ATA)

System Enhancements

Layers of Swiss Cheese

1. All Positive U/As get a U C/S
2. A/C follows up on ALL U C/S
3. Radiology reading <30m
    1. Discrepancy called to site in real time
    2. Discrepancy report
4. Pneumonia "High Risk"
    1. A/C calls all HR dx in 24 hrs f/u
    2. Checks abx selection

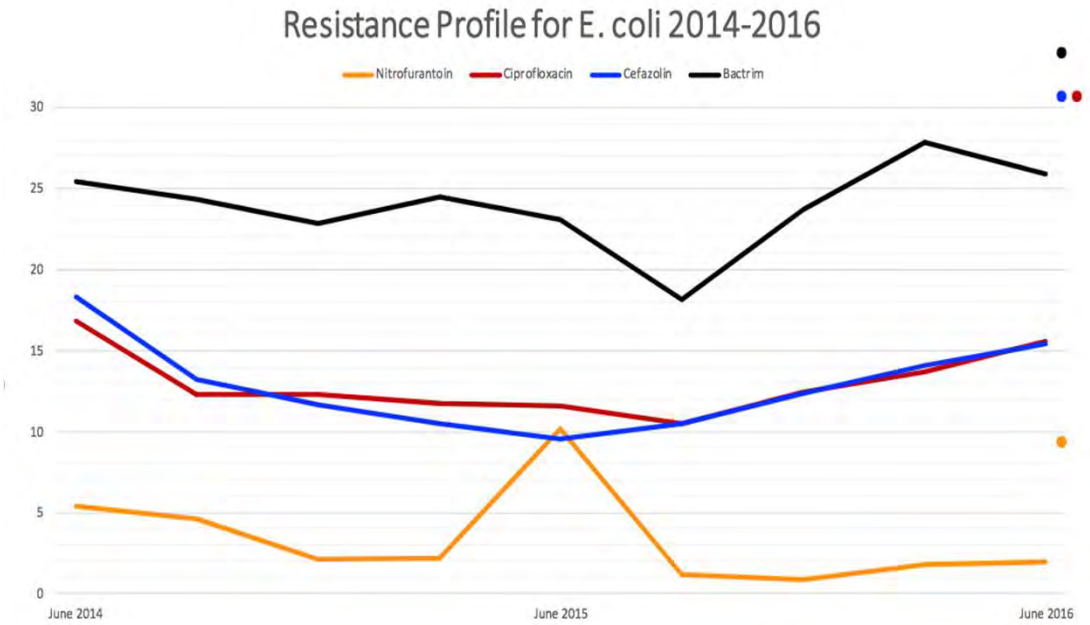
Education as a tool to change behavior

CITYMD
NEW YORK'S URGENT CARE

Antibiotic Guide For Common Diagnoses

2018

Hong Keun Choi MD MPH FAAEM
Pamela Arsove MD FACEP
Vincent D'Amore MD FACEP
Faiz Khan MD FACEP FAAEM FACP



Docs are more likely to respond to data/information if it is:

1. **Correct**;
2. **Concise**
3. **Applicable to their practice**

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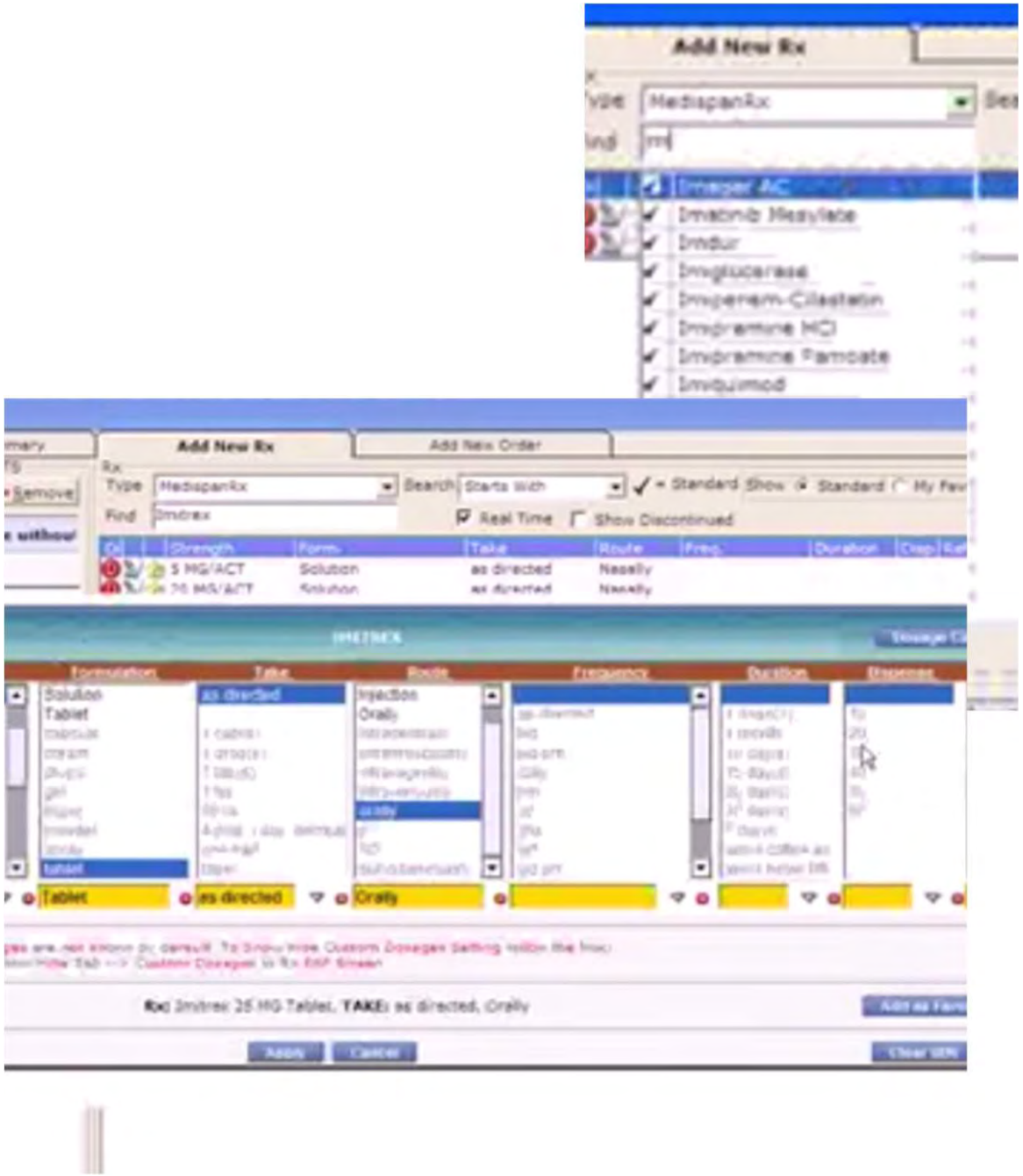
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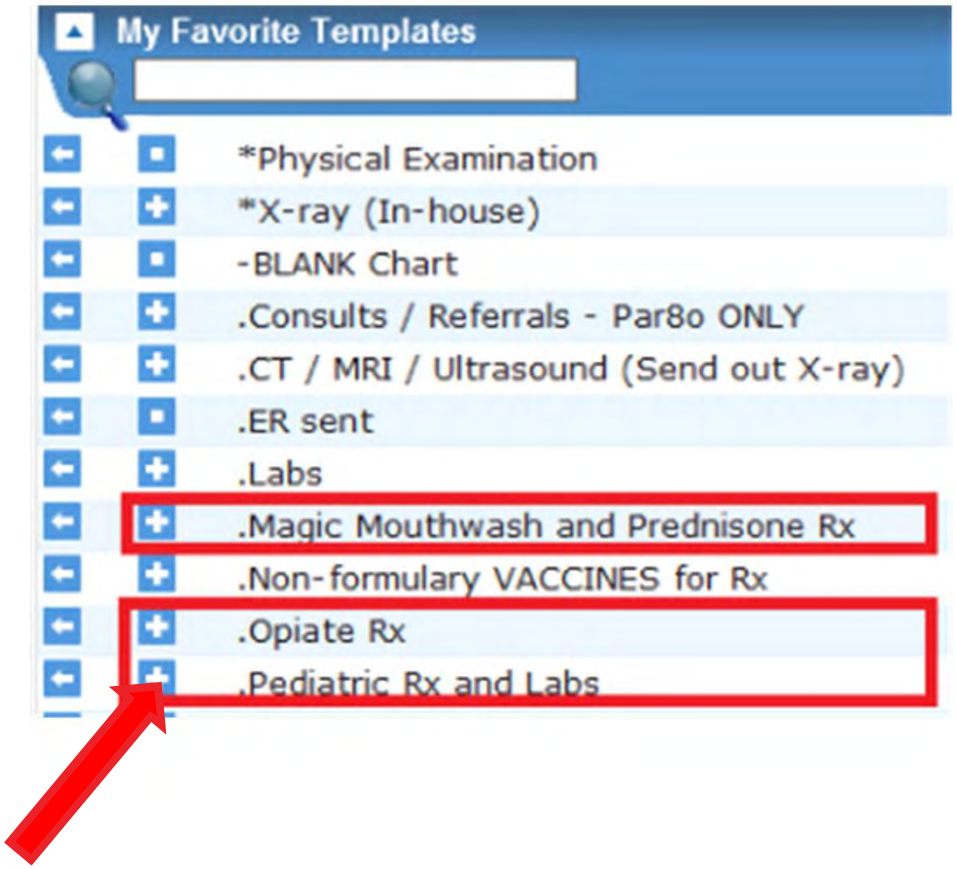
Wrong Dose Errors

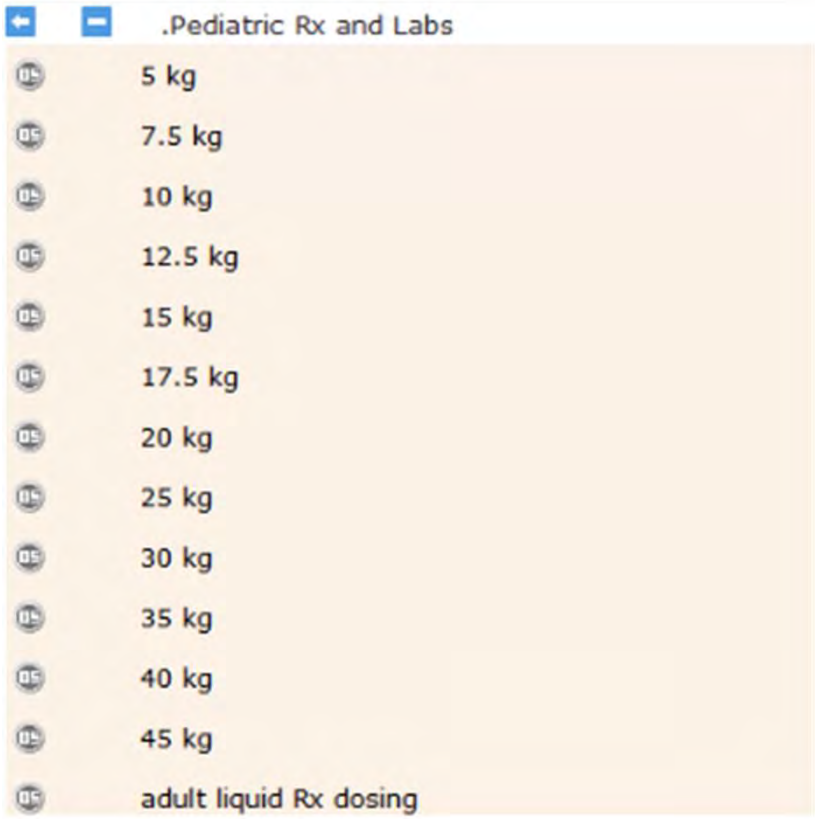
Failure Modes

1. Selecting wrong choice on drop down menu
    1. Drug Name
    2. Concentration
    3. Dose
    4. Interval
    5. Route
    6. Quantity
2. weight based calculations (peds)
    1. Enter incorrect weight lbs v kg
    2. Math: 50mg/kg/day divided TID x 10 days
3. Limitations of the EHR
4. Lack of Standardization by providers



Custom Prescription Templates





Commonly Prescribed Pediatric Rx Template

Rx

		Name	Strength	Take	Freq	Duration	Refills	
☐		Acetaminophen	160 MG/5ML	8.5 mL	Q6 H prn	05 days	0	Orally
☐		Azithromycin	200 MG/5ML	as directed	4.5ml PO day one, then 2.5ml PO days 2-5	05 days	0	Orally
☐		DiphenhydrAMINE HCl	12.5 MG/5ML	7mL	Q6 H prn	05 days	0	Orally
☐		Ibuprofen	100 MG/5ML	8.5 mL	Q6 H prn	05 days	0	Orally
☐		PrednisoLONE	15 MG/5ML	6mL	QD	05 days	0	Orally
☐		Amoxicillin	400 MG/5ML	5 ml	BID - pharyngitis	10 days	0	Orally
☐		Amoxicillin	400 MG/5ML	9 ml	BID - Otitis Media	10 days	0	Orally
☑		Cephalexin	250 MG/5ML	5 ml	TID	10 day(s)	0	Orally
☐	1	Cefadroxil	250 MG/5ML	5 ml	BID	10 days	0	Orally
☐		Cefdinir	125 MG/5ML	5 ml	BID	10 days	0	Orally
☐		Tamiflu	6 MG/ML	7.5 ml	Twice a day	05 days	0	Orally

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Areas of Opportunity – Diagnostic Error

System/Documentation

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    - Pediatrics

Diagnosis & Mgmt

- **Xray discrepancies**
- **Abdominal Pain**
- **Hand Injuries**
- **Lacerations & Wounds**



Human Factors Errors

High Risk for SSE

- Critical Results
- High Risk Diagnoses
  - Chest pain
  - Abdom Pain
  - Pneumonia
- Incidental Nodules
  - CA risk
  - Laverne's Law

Human Factors Error Types

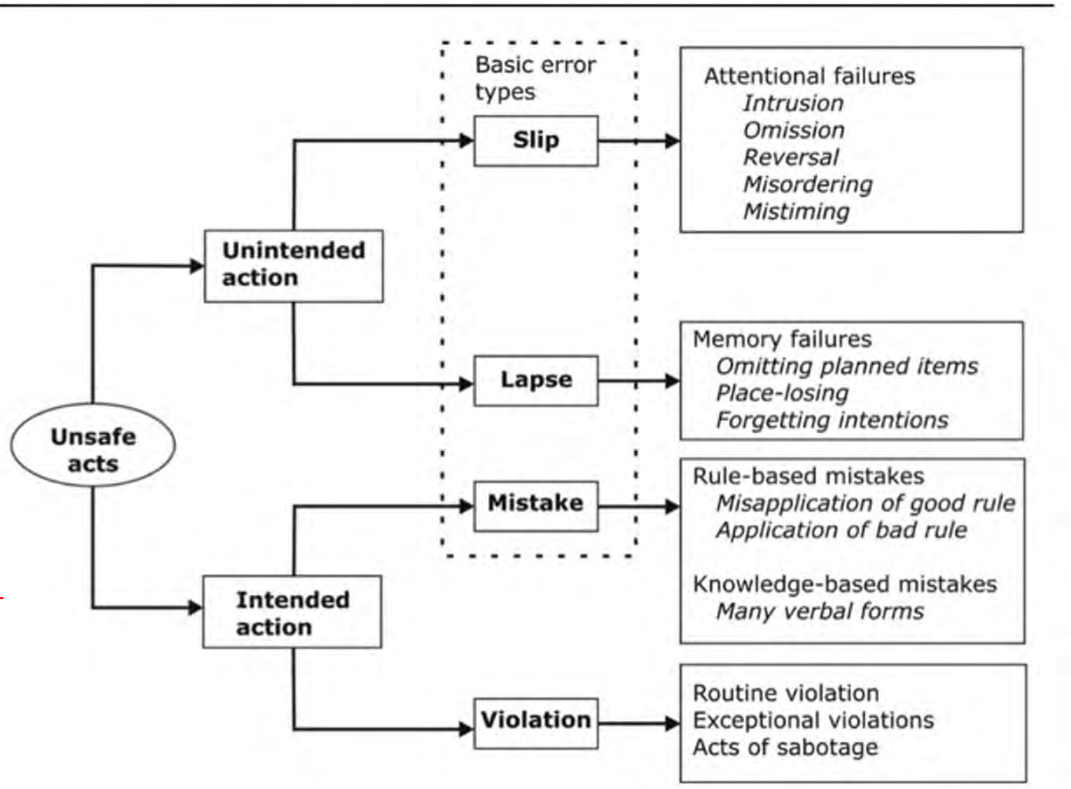
Unintended Actions

- Slip
- Lapse

Intended Actions

- Mistake
  - Rule-Based
  - Knowledge Based

- Violation
  - Reckless behavior
  - Sabotage



Diagnostic and Management ("Doctoring") Errors

Failure Modes

1. **Lapses**
    1. Missed Fracture on X-ray
    2. Missed FB in wound
2. **Rule Based Errors**
    1. Apply guideline for Pneumonia Tx incorrectly
3. **Knowledge Based error**
    1. Risk stratification
        1. Appendicitis
        2. Chest Pain
4. **Procedural Issues**
    1. Availability of CT
    2. Availability of specialist
    3. Availability of close follow up
    4. Dx Uncertainty due to incomplete information

Clinician Support & Education

1. **TSG Modules – High Risk DX**
    1. Appendicitis
    2. Pneumonia
    3. Chest Pain
    4. Wound Care
    5. Pulm Embolism
2. **CityMD Antibiotic Guideline**
3. **Skills Exam** at Interview, **CME** for existing clinicians
4. **Tx Guidelines** for High Risk cases

Process/System Enhancements

1. Telerad over-read <30 min
2. Guidelines for lacerations/wound care. Skills ab
3. AfterCare High Risk Dx process
    1. Follow up all cases in 24 hrs
4. AfterCare Xray Discrepancy Reconcilliation <24 hrs
5. Aftercare Referral management
    1. Same day referrals for high risk cases
6. Developed robust CT/US referral network – accept STAT orders
7. AfterCare – Critical Lab list
    1. 24/7 ability to manage critical lab values (D-dimer)

Critical Lab Values

Critical Labs Hotline

- Office Hours:
  - Treating clinician notifies pt

After Hours

- AC clinician 24/7
  - Contact patient/emerg contact
  - Direct pt to appropriate care

WBC > 17

Abs Neutrophil (ANC) <0.5

Band > 7%

Hemoglobin <7.5

Platelet <20

Lipase > 400

INR > 7.5

Blood Culture – any positive

D-dimer >0.50

Troponin I >0.04

CK Total > 5000

Sodium <125 or >155

Potassium <2.8 or >5.8

C02: <15 and >40

Glucose <50 and >500

Calcium <7 or >13

Digoxin > 2.5

Lithium > 2.0

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Areas of Opportunity – High Risk for SSE

System/Documentation

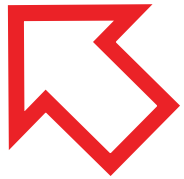
- Medication Errors
  - Allergies
  - Wrong Choice
  - Wrong Dose
    - Pediatrics

Diagnosis & Mgmt

- Xray discrepancies
- Abdominal Pain
- Hand Injuries
- Lacerations & Wounds

High Risk for SSE

- Critical Results
- High Risk Diagnoses
  - Chest pain
  - Abdom Pain
  - Pneumonia
- **Incidental Nodules**
  - **CA risk**
  - **Laverne's Law**



Incidental Pulmonary Nodules

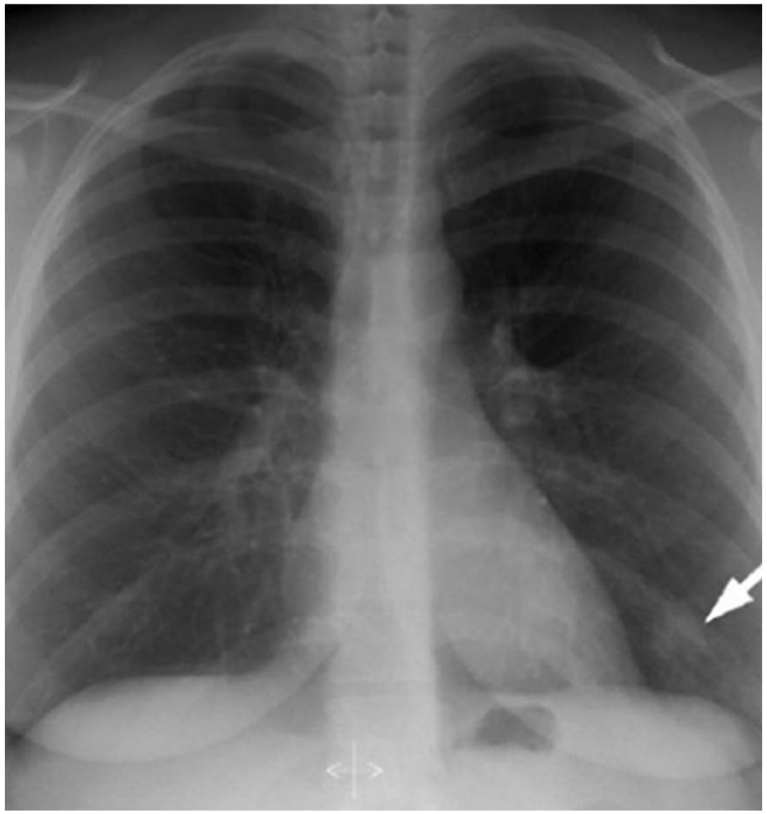
50 yo F presents to ER with cough x 1 week for evaluation of possible pneumonia.

Exam: Mild congestion, otherwise normal

CXR: No pneumonia

Dx: URI

f/u with PCP



Incidental Pulmonary Nodules (continued)

6 years later…

You receive a request for all medical records for this patient.

The patient is currently undergoing treatment for stage 4 metastatic lung CA, that was just diagnosed last month.

Upon review of the initial CXR, there is a small hazy nodule not noticed on the initial exam.

Laverne's Law (effective April 2017)

Expands the statute of limitations for failure to diagnose cancer claims from **2 ½ years** to from the **date of discovery** of a misdiagnosed malignancy.

Expands the cap to 7 years from the **date of last treatment**.

Incidental pulmonary nodules

High Risk for Error & High Risk for Harm

1. Can be very subtle
2. Easy to miss
3. Many CXRs obtained
4. Many opportunities for error
5. Any such error could lead to: **Delay in dx Cancer**

Systems/Proceses to Reduce Error (Harm)

1. Need to develop a fail safe mechanism to ensure nodules are not missed
2. Need to develop a process to communicate the presence of the nodule back to the patient (and document the discussion)
3. Need to develop process to refer for pulmonology and follow up imaging

Risk Mitigation - Pulmonary Nodules

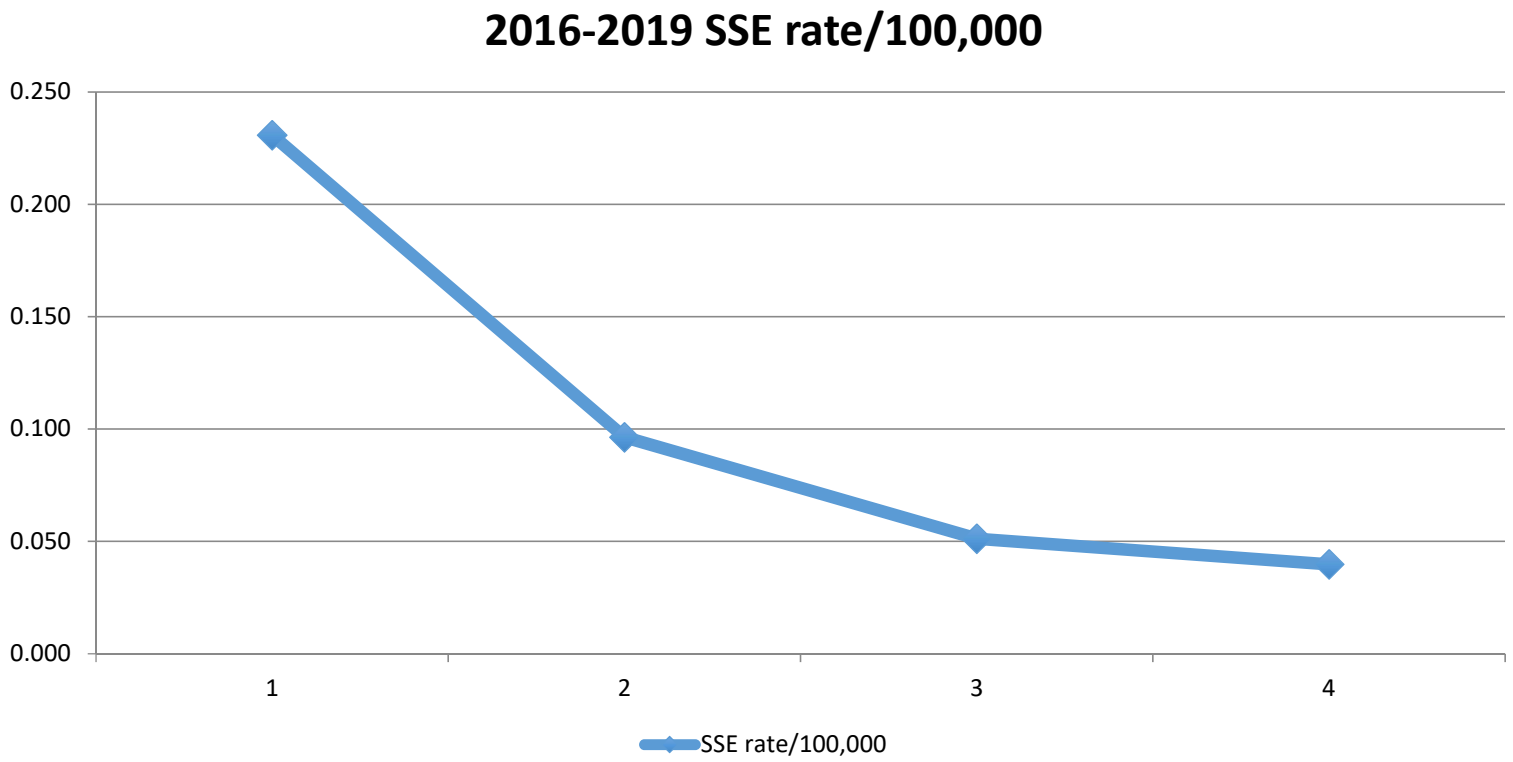
Systems/Proceses to Reduce Error (Harm)

1. Need to develop a fail safe mechanism to ensure nodules are not missed
2. Need to develop a process to communicate the presence of the nodule back to the patient (and document the discussion)
3. Need to develop process to refer for pulmonology and follow up imaging

Processes developed

1. All Xrays overread by Radiologist within 30 min
2. All Nodules are reported to AfterCare within 24 hrs
3. Aftercare calls every patient with an incidental nodule to notify them of the finding of a nodule, explains the significance, and what the follow up entails
4. The patient is offered a referral to a pulmonologist and follow up imaging
5. Encounter is documented in the medical record

Getting to Zero: SSE rate/100,000



Thank You

Frank Illuzzi, MD, CPE, FACEP

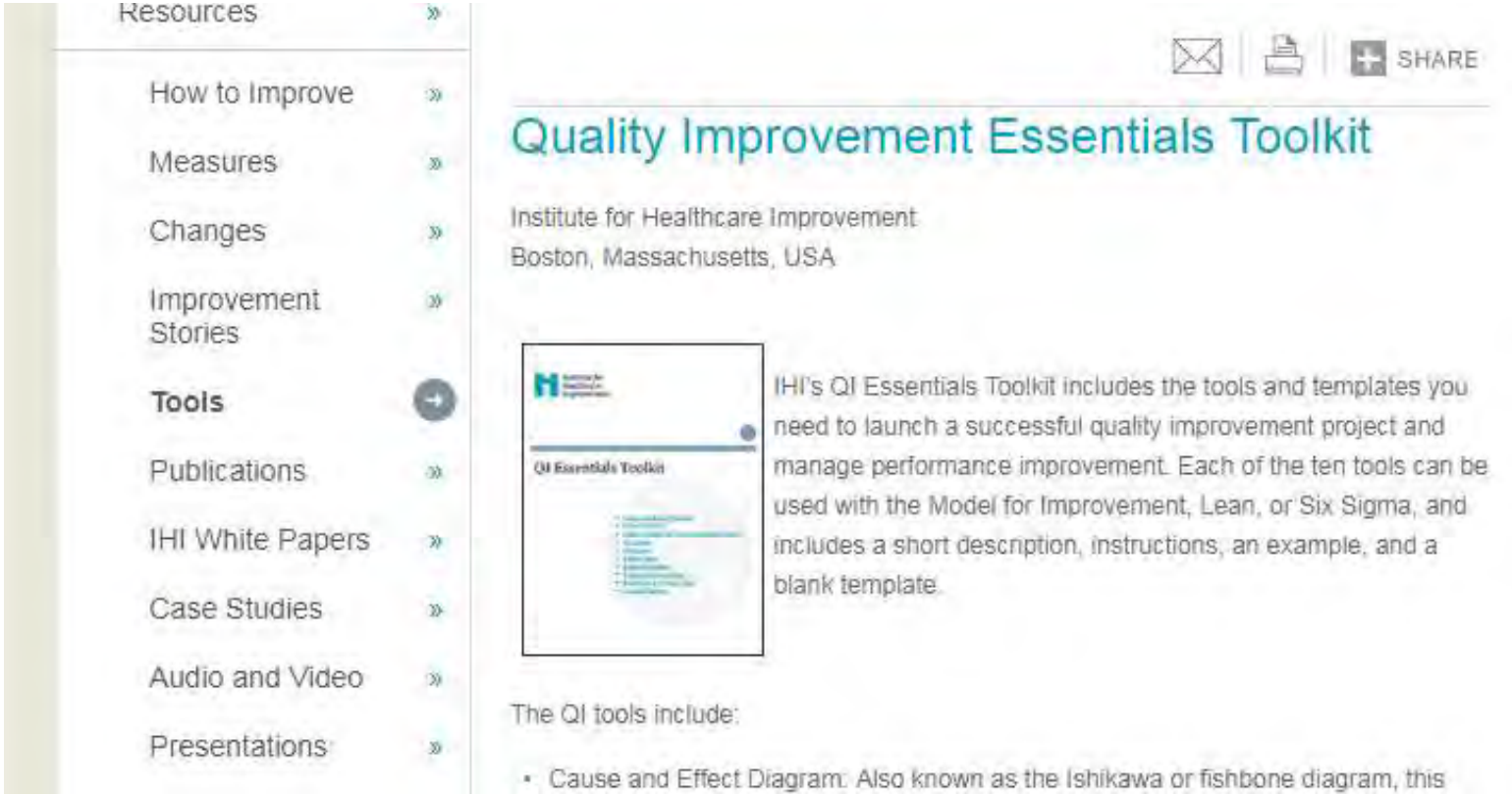
Chief Medical Officer - CityMD

filluzzi@citymd.net

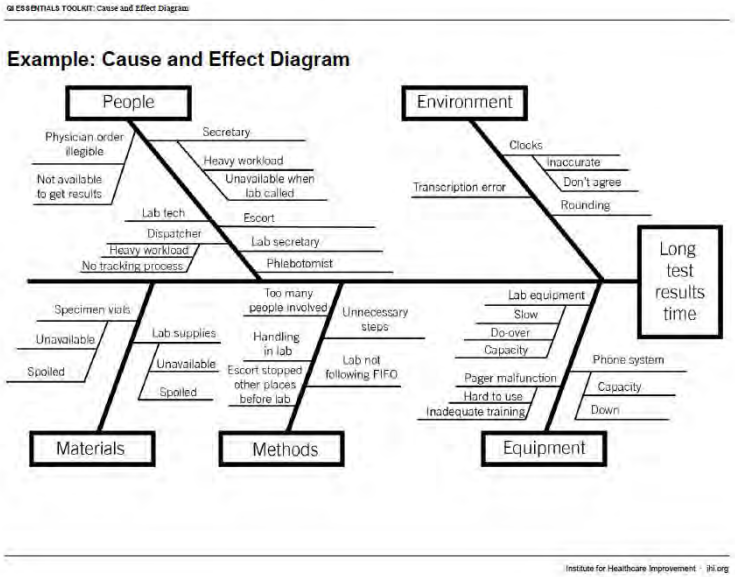


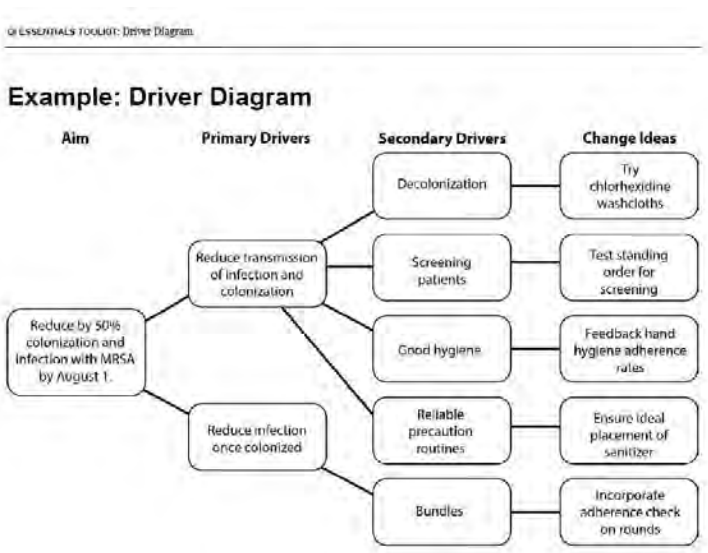
Appendix

IHI Toolkit http://www.ihi.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx



Cause and Effect Diagram / Key Driver Diagram



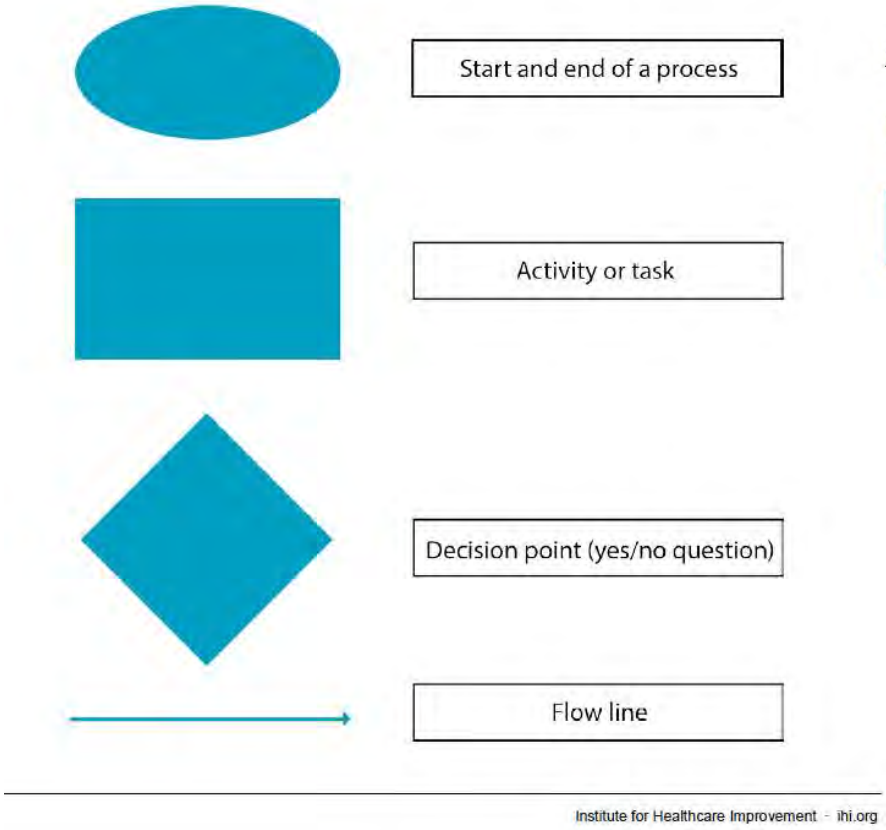


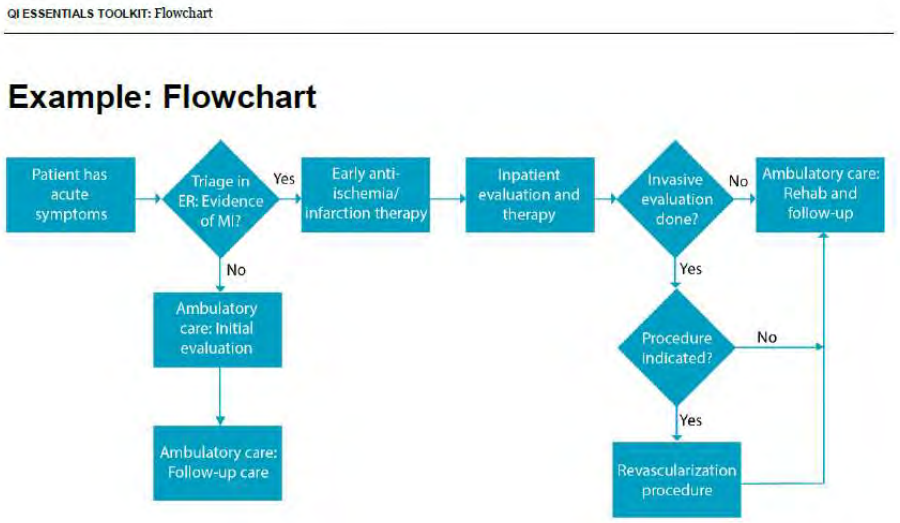
Failure Modes and Effects Analysis (FMEA)

Example: Failure Modes and Effects Analysis (FMEA) – Medication Dispensing Process

Steps in the Process	Failure Mode	Failure Causes	Failure Effects	Likelihood of Occurrence (1-10)	Likelihood of Detection (1-10)	Severity (1-10)	Risk Profile Number (RPN)	Actions to Reduce Occurrence of Failure
Orders are written for new medications.	The first dose may be given prior to pharmacist review of the orders.	Medication ordered may be available and easily accessed in the dispensing machine.	Patient may receive incorrect medication, incorrect dose, or a dose via incorrect route.	6	5	1	30	Assign clinical pharmacists to patient care units so that all medication orders can be reviewed as they occur.
Orders are written to discontinue a medication or change the existing order.	Orders are written to discontinue a medication or change the existing order.	All doses needed for a 24-hour period are delivered to the drawer. Drawer is not changed until next routine delivery. 24-hour supply of refrigerated medications is delivered. Multi-dose vials may be kept in the patient-specific drawer. Medications are available in dispensing machine.	Patients may receive medications that have been discontinued or the incorrect dose of a medication that has been changed.	10	5	5	250	Schedule pick-ups of discontinued medications, including refrigerated medications, twice per day. Use dispensing machine screen to verify all information regarding current and discontinued medications prior to each administration.
Orders are written for a non-standard dose of a medication.	Nursing staff may prepare an incorrect dose when manipulating the medication.	Staff prepare the dose using medications from the dispensing machine and manipulate them to get the dose ordered.	Patient may receive an incorrect dose.	3	5	4	60	Prepare all non-standard doses in the pharmacy and dispense each as a patient-specific unit dose.

Process FlowMaps





Histogram Chart / Pareto Chart

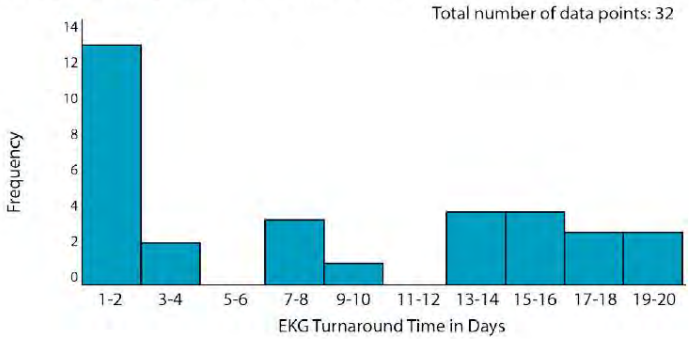
Sample Data Table: EKG Turnaround Time

EKG Turnaround Time in Days

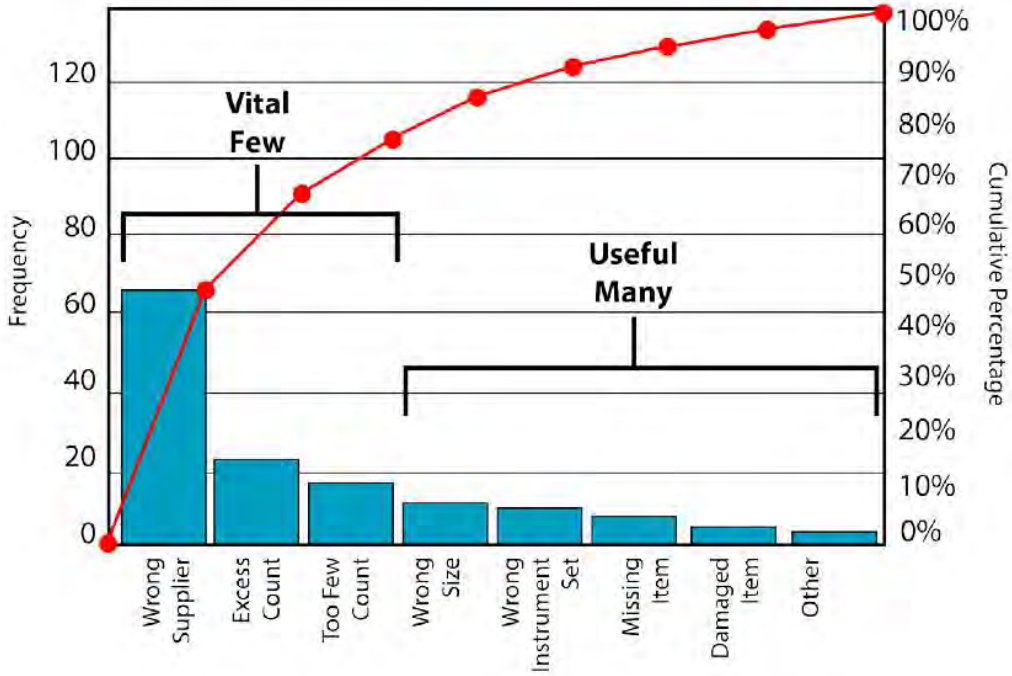
9	16	1	4
15	8	13	1
13	16	14	17
7	2	20	2
2	2	18	3
1	1	2	7
1	2	15	2

Average = 8.3 Days

Sample Histogram: EKG Turnaround Time



Pareto Chart: Types of Errors Discovered During Surgical Set-up



Plan-Do-Study-Act (PDSA) / Project Planning/Mgmt



Plan: Plan the test, including a plan for collecting data.

- State the question you want to answer and make a prediction about what you think will happen.
- Develop a plan to test the change. (Who? What? When? Where?)
- Identify what data you will need to collect.



Do: Run the test on a small scale.

- Carry out the test.
- Document problems and unexpected observations.
- Collect and begin to analyze the data.



Study: Analyze the results and compare them to your predictions.

- Complete, as a team, if possible, your analysis of the data.
- Compare the data to your prediction.
- Summarize and reflect on what you learned.



Act: Based on what you learned from the test, make a plan for your next step.

- Adapt (make modifications and run another test), adopt (test the change on a larger scale), or abandon (don't do another test on this change idea).
- Prepare a plan for the next PDSA.

Example: Project Planning Form

Team: John, Sally, Mark, Dave, Laura, and Beth **Project**: Lowering Depression Scores: Achieve a 15-point decrease in PHQ-9 scores for 50% of depressed patients by May 1.

Driver – list the drivers you'll be working on	Process Measure	Goal
1. Patient education	% of patients in depressed population receiving education materials before leaving office will have documented use of education materials	90% of patients in depressed population will have documented use of educational materials before leaving office
2. Follow-up assessment	% of patients in depressed population that have a follow-up assessment within the first eight weeks of their initial diagnosis	75% of patients in depressed population have a follow-up assessment within the first eight weeks of their initial diagnosis
3.		
4.		
5.		
6.		

Driver Number (from above)	Change Idea	Tasks to Prepare for Tests	PDSA	Person Responsible	Timeline (T = Test; I = Implement; S = Spread) Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Provide pamphlet and link to short video at time of patient discharge	Need to make sure we have enough pamphlets on site; need to ensure link to video works	Nurse will hand materials to patient before leaving the exam room with all patients scoring high on the PHQ-9	Beth and Mark	T	T												
2	Patients will come back to the office for a follow-up assessment within eight weeks of depression diagnosis	Need to schedule appointments within timeframe and get patients to attend follow-up appointment; need to make sure secretaries are aware of this test	Have secretaries write down the date and time of the follow-up appointment on the back of the clinic's business card	Laura	T	T												