Measuring Quality
Mission Possible

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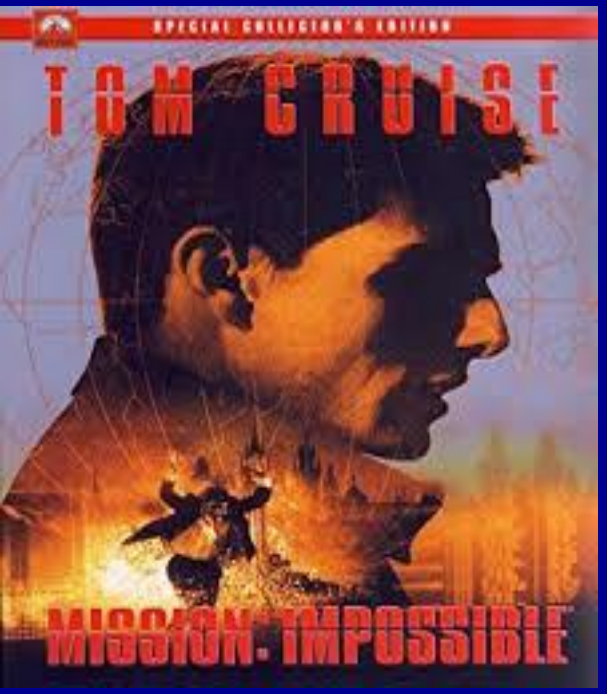
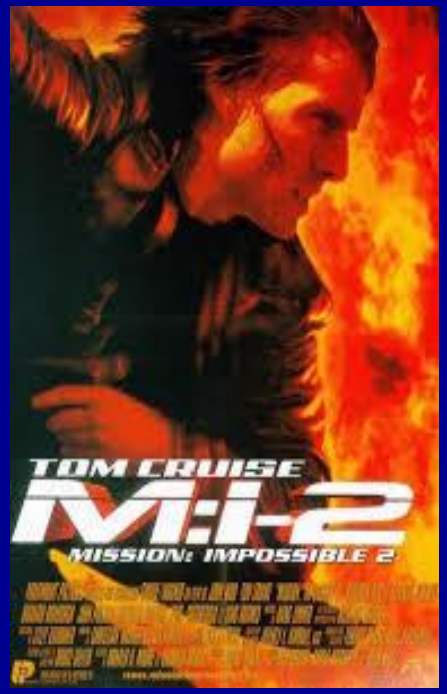
Goals & Objectives

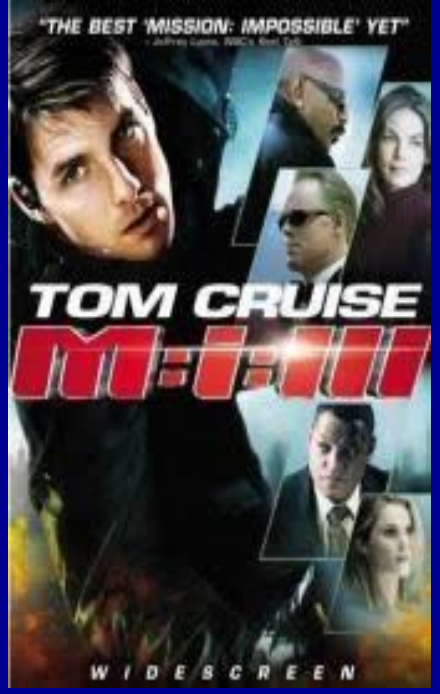
- Briefly review the history of quality improvement
- Describe the elements of a successful Quality Assurance Performance Improvement (QAPI) program
- Discuss QAPI design and process using a case-based approach

Impossible Missions Force

- IMF
- Your team







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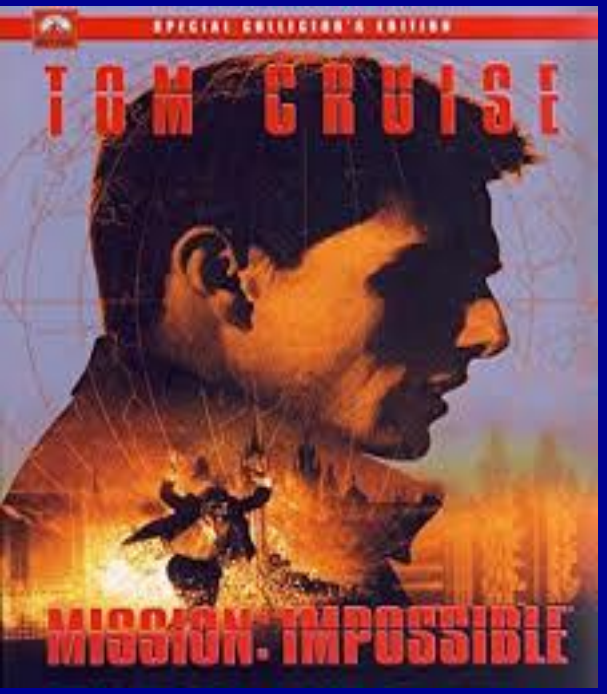
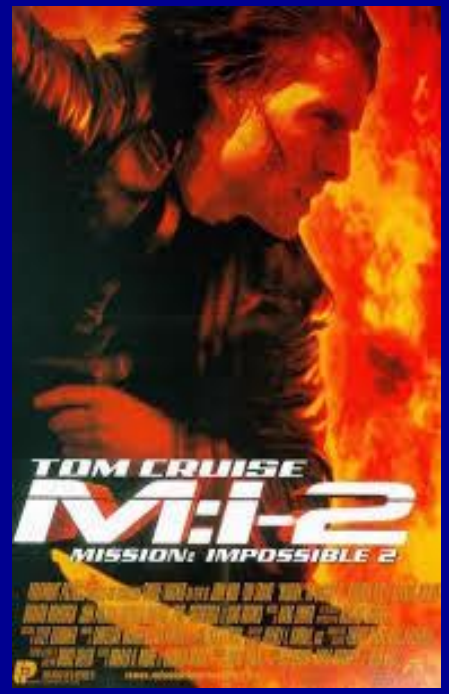
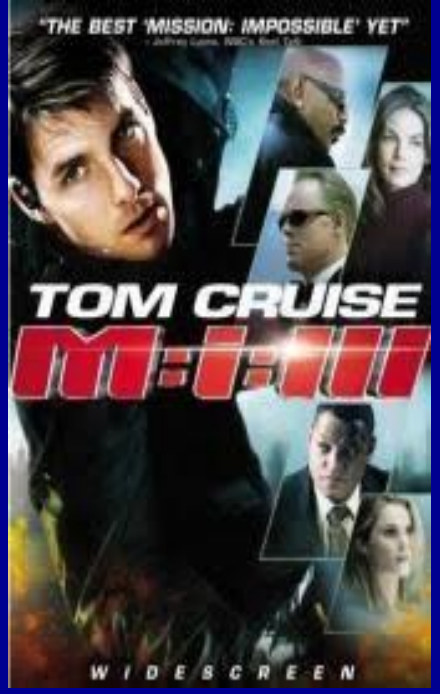
Question 1

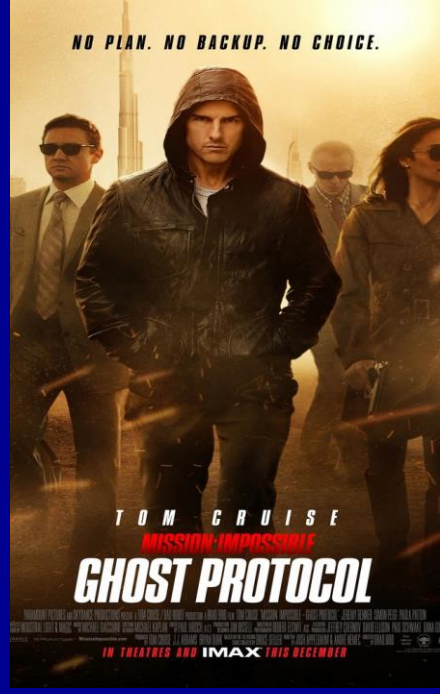
When you think about Mission Impossible, which comes to mind?

1. The Film Series starring Tom Cruise
2. The Television Series









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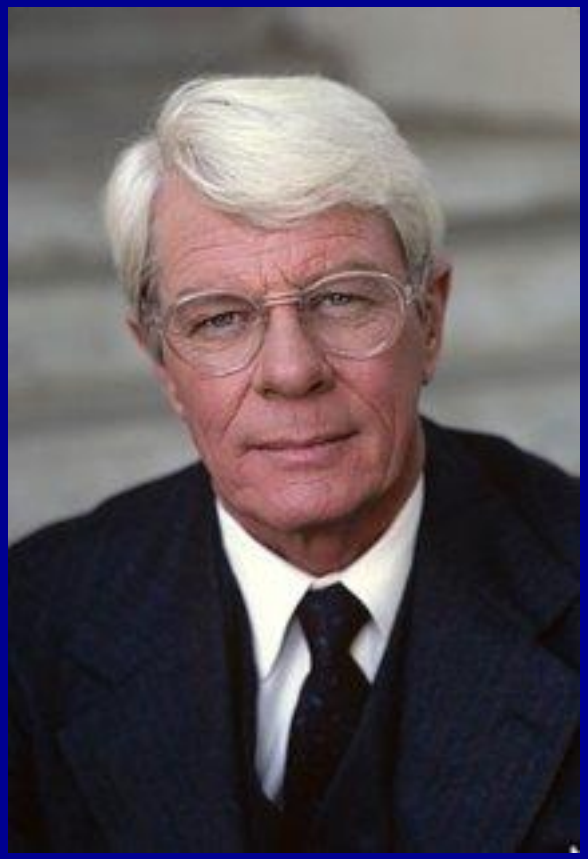
James Phelps



- Team Leader

This Tape Will Self-Destruct

Rollin Hand

- Master of Disguise

Barney Collier

- Electronics Expert

Willy Armitage

- Muscle Man

Cinnamon Carter

- Seductive Model

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History of Quality Improvement

W. Edwards Deming

- An American electrical engineer and statistician
- Considered by many to be the “Father of Quality”
- Developed sampling techniques still in use by the US Census Bureau
- Championed statistical process control & operation definitions used by Walter Shewart

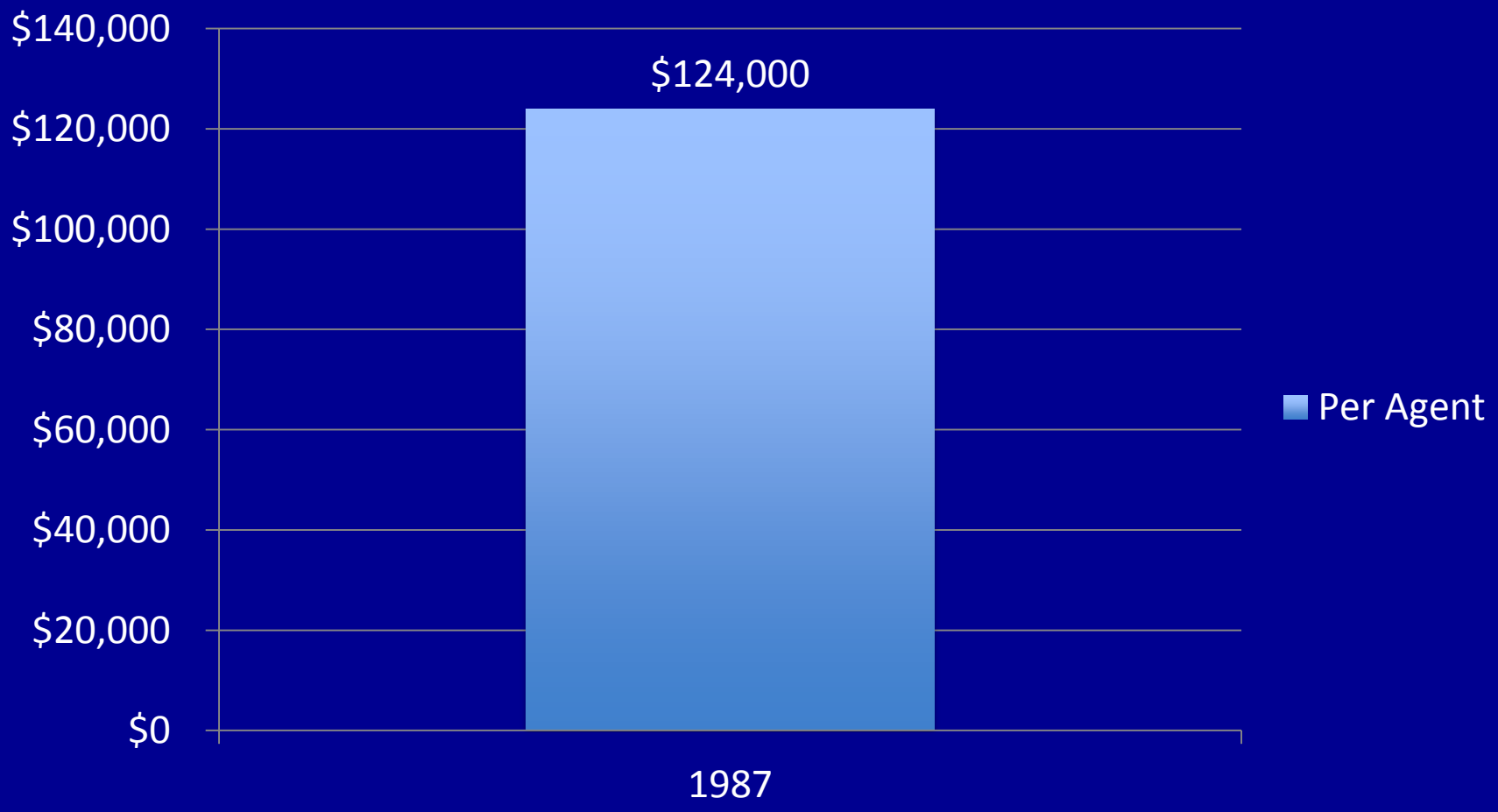
What is Quality Improvement

What It’s Not!

Best Efforts are Not Enough

- Make everyone accountable
- Manage by objectives
- Manage by numbers
- Manage by results
- Merit systems
- Incentive pay – Pay for performance

Illicit Drugs Stopped at US Borders



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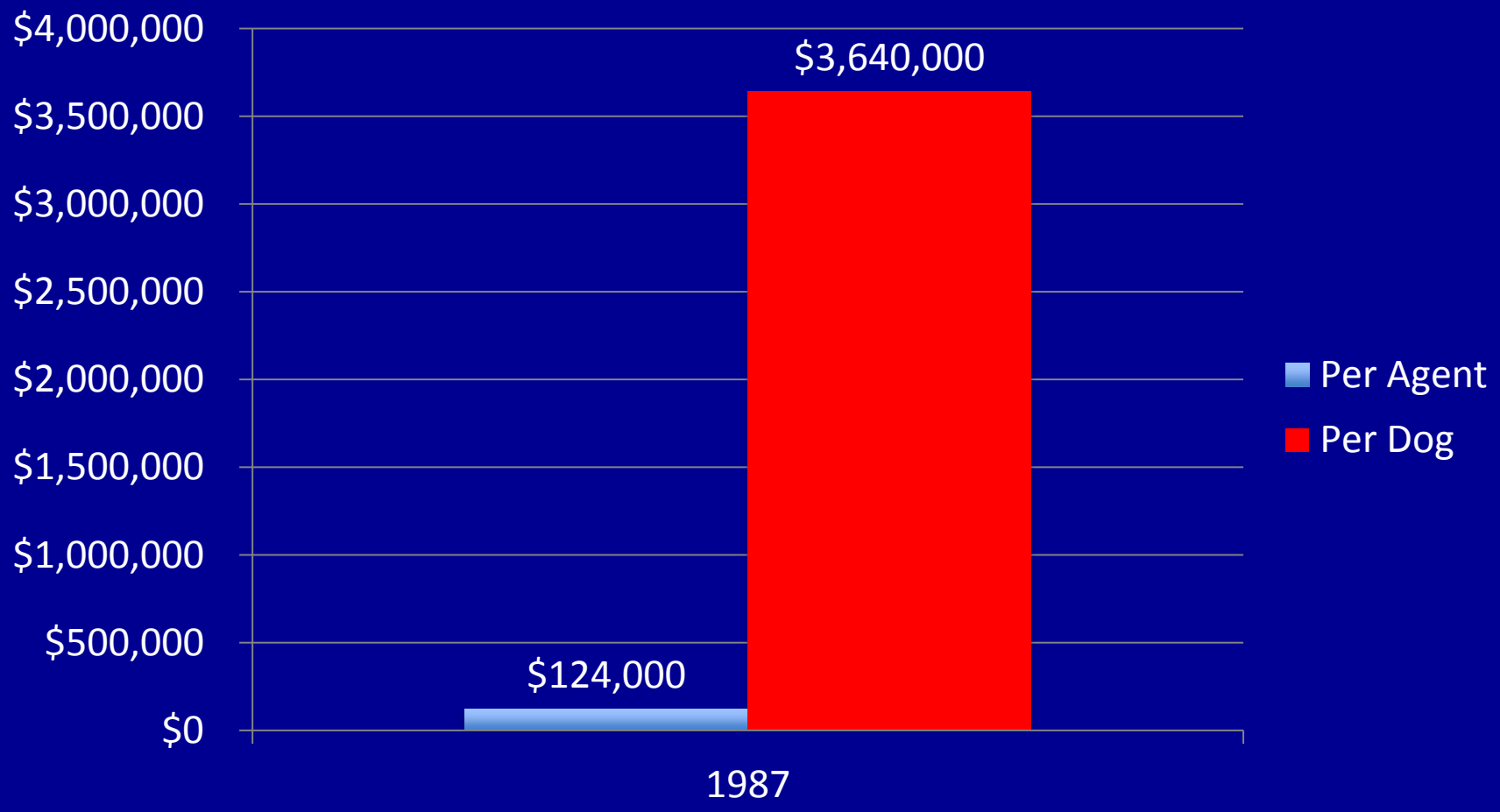


How do we achieve quality?

Deming's 14 Points

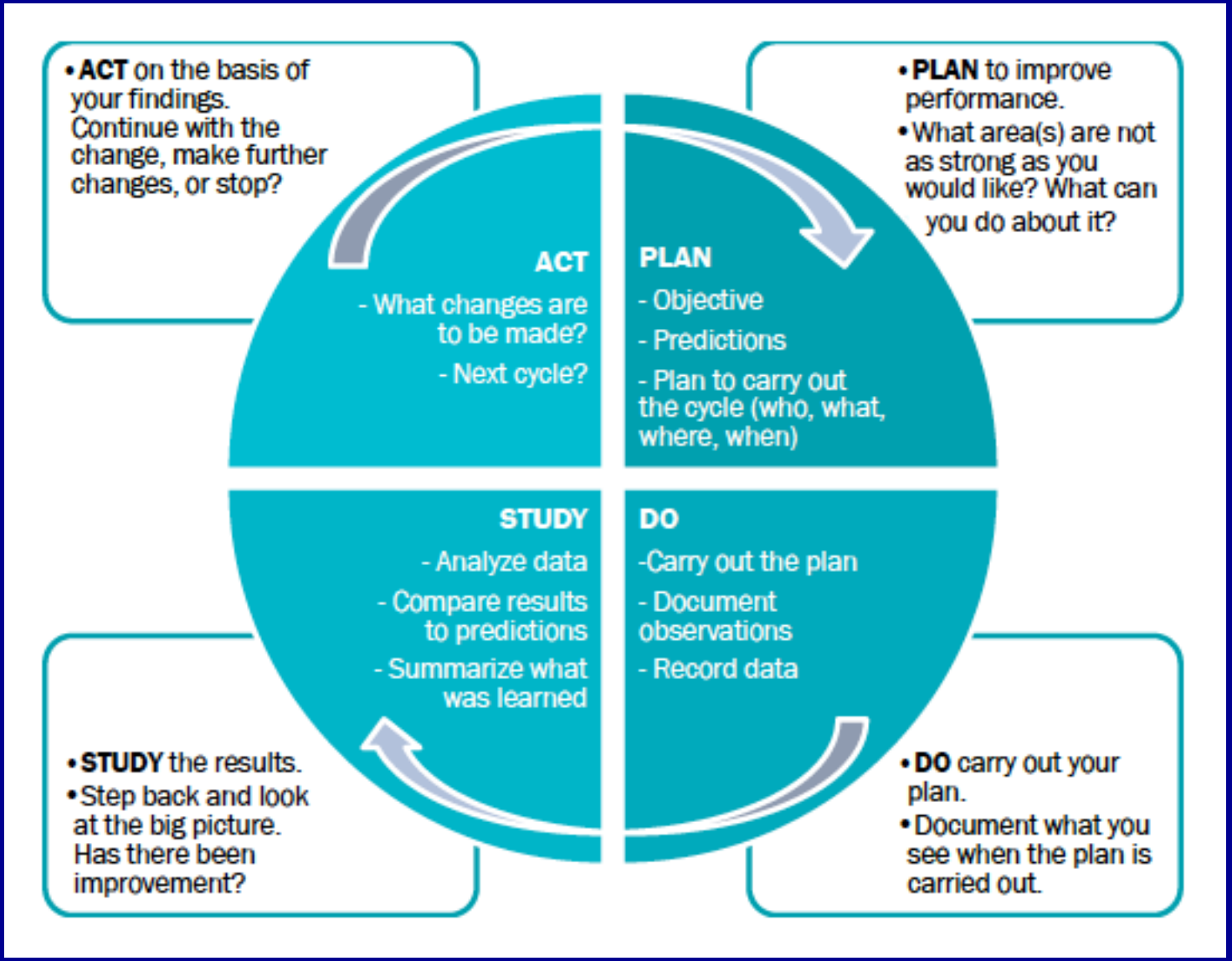
- Institute training (#6)
- Institute leadership (#7)
- Drive out fear (#8)
- Break down barriers between departments and people (#9)
- Remove barriers to quality and pride in workmanship (#11)
- Institute a vigorous program of education and self-improvement (#13)
- Transformation is everyone’s job (#14)

PDSA

- Plan-Do-Study-Act
  - Concept introduced by Shewart
- Deming believed that the PDCA cycle (Plan-Do-Check-Act) was a corruption of the PDSA cycle.

https://deming.org/explore/p-d-s-a

PDSA


• ACT on the basis of your findings. Continue with the change, make further changes, or stop?
• PLAN to improve performance.
• What area(s) are not as strong as you would like? What can you do about it?
ACT
- What changes are to be made?
- Next cycle?
PLAN
- Objective
- Predictions
- Plan to carry out the cycle (who, what, where, when)
STUDY
- Analyze data
- Compare results to predictions
- Summarize what was learned
DO
-Carry out the plan
- Document observations
- Record data
• STUDY the results.
• Step back and look at the big picture. Has there been improvement?
• DO carry out your plan.
• Document what you see when the plan is carried out.

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Building QAPI

QAPI Addresses 4 Basic Questions

1. Where are we now?
2. Why do we want to change where we are?
3. Where do we want to go?
4. How are we going to get there?

QAPI Goal Setting Worksheet

Develop using the SMART formula

- Specific
- Measurable
- Attainable
- Relevant
- Time-Bound

QAPI Action Plan

- Goal
- Team members
- Root cause (or causes)
- Action steps
  - Person responsible
  - Estimated completion date
  - Actual completion date
  - Follow up
- Team Leader

Question 2

Who drives the QAPI process in your clinic?

1. Facility Administrator
2. Nurse Manager
3. Medical Director
4. It varies
5. We don’t have one

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QAPI Example 1: Infection

Case 1

- 60-yr old male on HD since 2011 with T2 DM & all complications (neuropathy, nephropathy & retinopathy), HTN, CAD, hyperlipidemia, low albumin. He reports having a diabetic ulcer of his right foot & receiving outpatient wound care. This turned out to be false.
- His wound ultimately evolved into an osteomyelitis.
- Over the next 6 months he had 14 admissions:
  - 8 in-patient, 3 same-day surgical and 3 emergency department.

Case 2

2 months later during the clinic's IDT meeting:

- 67-yr old, wheel chair dependent male on HD since 2002 with T2 DM & all complications (neuropathy, nephropathy & retinopathy), s/p R-AKA, HTN, CAD, hyperlipidemia, low albumin, HIT.
- He reports having a diabetic ulcer of his left foot & receiving outpatient wound care (true). His wound ultimately evolved into an osteomyelitis.

Question 3

What element would you create a QAPI process around?

1. Diabetes
2. Diabetic Foot Infections
3. Malnutrition
4. Osteomyelitis

Diabetic Foot Infection

- Collect baseline data
- Review clinic process
  - Do we know who has DM
  - Do we know who sees Endocrine (and whom)
  - Do we know who sees Podiatry
  - Do we inspect shoes
  - Do we have patients take off socks & do foot checks
  - Do we evaluate using a monofilament

Osteomyelitis

Osteomyelitis

1. Where are we now?
   - Collect baseline data.
2. Why do we want to change where we are?
   - Determine if the clinic is contributing.
3. Where do we want to go?
   - Reduce the number of osteomyelitis cases.
4. How are we going to get there?
   - Root cause analysis.

Baseline Data

- We did a chart audit
  - Found 6 more patients (total 8 patients) with a diagnosis of osteomyelitis

Question 4

What data element would you look at next?

1. Dialysis Access type
2. Diabetes status
3. Organism
4. Site of Infection
5. Dialysis shift

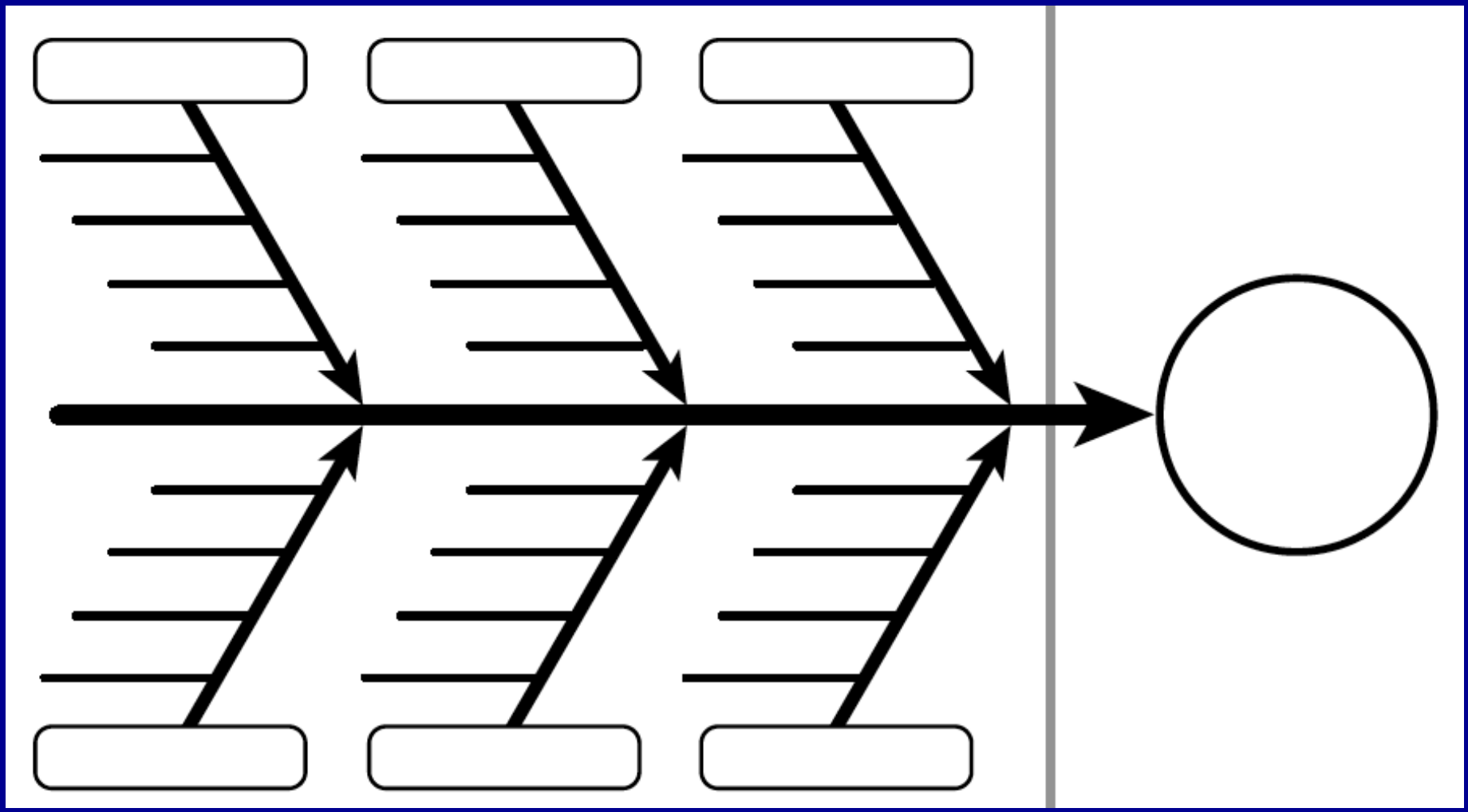
Root Cause Analysis

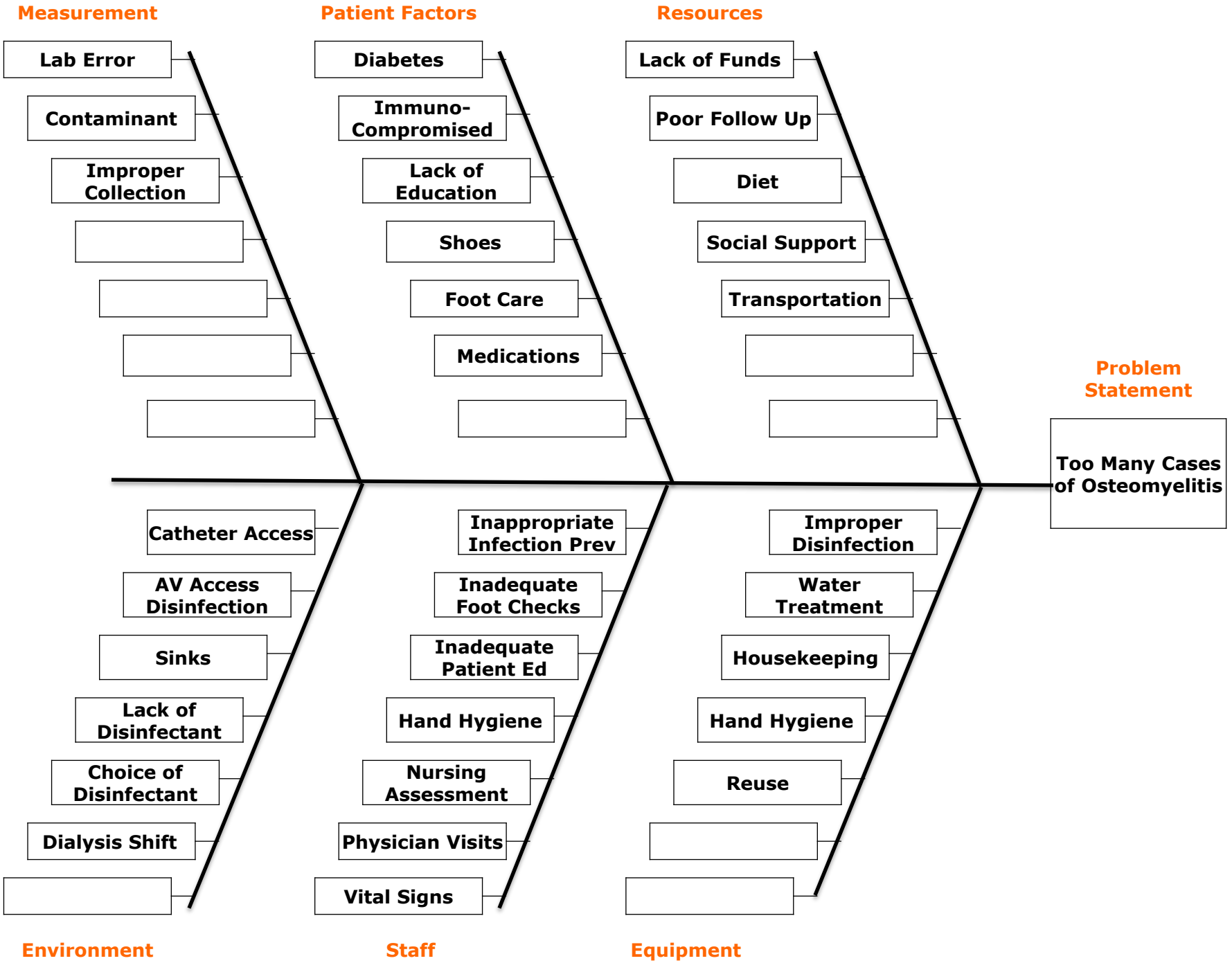
- An approach for identifying the underlying causes of an incident so that the most effective solutions can be identified and implemented.
- Typically used when something goes wrong, but can also be used when something goes well.
- Within an organization, problem solving, incident investigation, and root cause analysis are all fundamentally connected by three basic questions:
  - What's the problem?
  - Why did it happen?
  - What can be done to prevent it from happening again?

Root Cause Analysis

- Uses the fishbone or Ishikawa diagram

Fishbone Diagram




Measurement
Lab Error
Contaminant
Improper Collection
Patient Factors
Diabetes
Immuno-Compromised
Lack of Education
Shoes
Foot Care
Medications
Resources
Lack of Funds
Poor Follow Up
Diet
Social Support
Transportation
Problem Statement
Too Many Cases of Osteomyelitis
Environment
Catheter Access
AV Access Disinfection
Sinks
Lack of Disinfectant
Choice of Disinfectant
Dialysis Shift
Staff
Inappropriate Infection Prev
Inadequate Foot Checks
Inadequate Patient Ed
Hand Hygiene
Nursing Assessment
Physician Visits
Vital Signs
Equipment
Improper Disinfection
Water Treatment
Housekeeping
Hand Hygiene
Reuse

Baseline Data

Patient	Infection Site	Organism	Access	DM	Shift
1M	Right foot	None	AVF	Y	MWF-2
2M	Left foot	Mixed	AVF	Y	MWF-3
3M	Right foot	None	AVF	N	MWF-2
4M	Left foot	None	AVF	Y	MWF-2
5F	Right toe	None	AVG	Y	MWF-2
6M	Right toe	None	AVF	Y	TTS-1
7M	Right wrist	None	AVF	N	MWF-2
8M	Left toe	None	AVG	Y	MWF-2

Dialysis Shift

- Could this be due to an issue common to MWF-2 shift?

Dialysis Shift

- We reviewed the timing of these infections
  - First one identified Feb 2015
  - Last one identified Jun 2016
- We could not identify a common theme but instituted a staff re-education and reinstituted foot checks for patients with diabetes

QAPI Example 2: Admission / Readmission

Case

66 year-old male with DM & all associated complications, HTN, CAD, hyperlipidemia, s/p cardiac arrest, MV replaced, hypothyroidism, pruritis, low albumin who began HD in 2010. Beginning in Feb 2016 the IDT noted an increase in hospitalizations.

Baseline Hospitalizations

- May 2010: Pancreatitis
- Aug 2010: Cardiac cath
- May 2012: GI bleed
- Jan 2013: GI bleed
- Apr 2013: Peritonitis
- Jun 2013: Cardiac arrest
- 2014 (Jan, Apr, Jul, Aug): All access related

Critical Hospitalization

- May 2015: Altered Mental Status (8d)

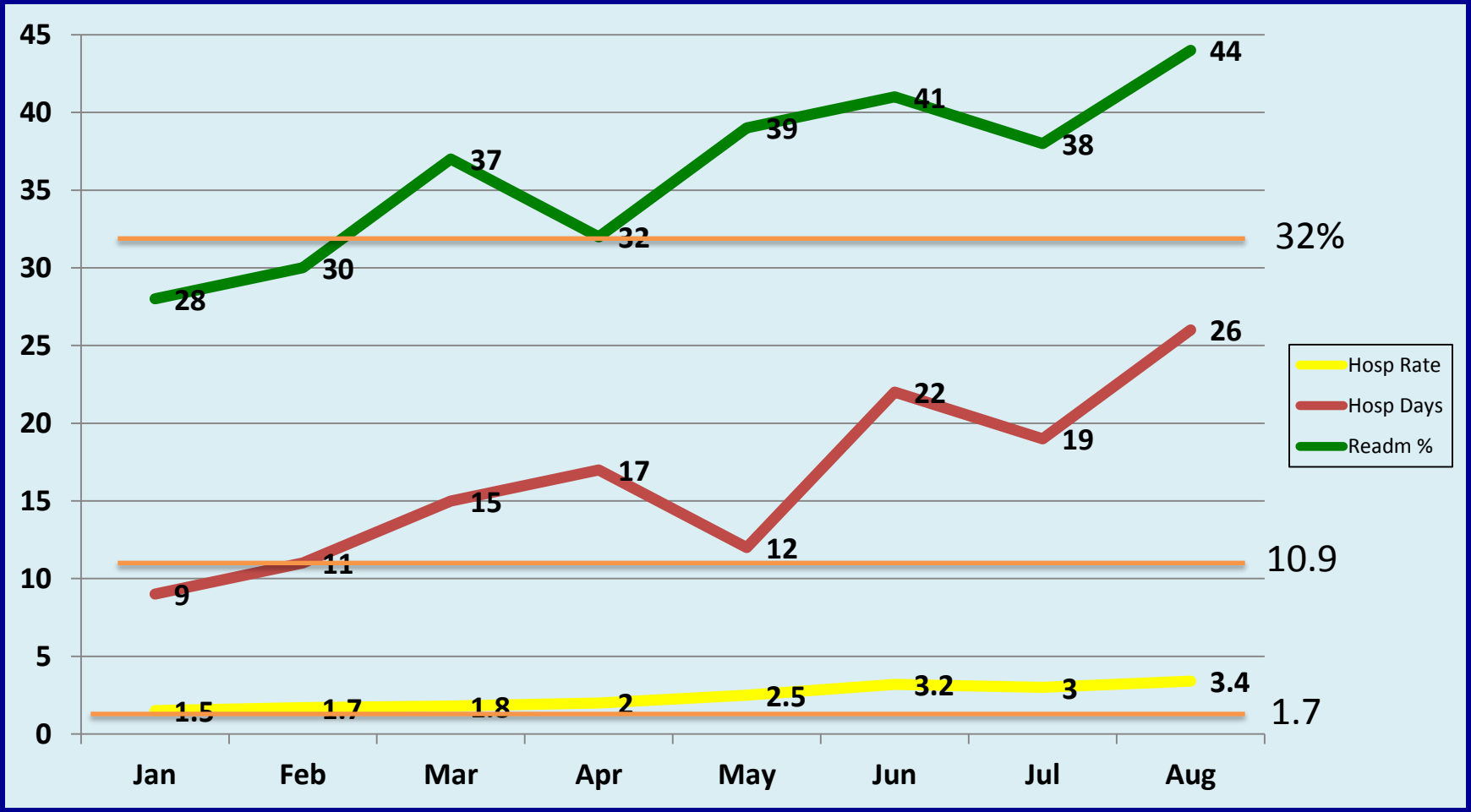
During this admission he was diagnosed with hepatic failure and hepatic encephalopathy and started on lactulose.

Increase Hospitalizations

- Feb 2016: Altered Mental Status (3d)
- Mar 2016: Altered Mental Status (3d)
- Apr 2016: Altered Mental Status (8d)
- May 2016: Altered Mental Status (9d)

Apply QAPI to a single patient?

Hospitalization QAPI



Apply QAPI to a single patient?

1. Where are we now?
   - We've collected baseline data.
2. Why do we want to change where we are?
   - Minimize hospitalizations for the patient.
3. Where do we want to go?
   - Improve patient quality of care.
4. How are we going to get there?
   - Root cause analysis.

Hepatic Encephalopathy

Date	Ammonia	(Ref: 27-83)
02/22/16	95	
03/07/16	166	
03/10/16	99	
04/04/16	74	
05/02/16	185	
05/06/16	116	
05/10/16	105	
05/30/16	244	

Treatment

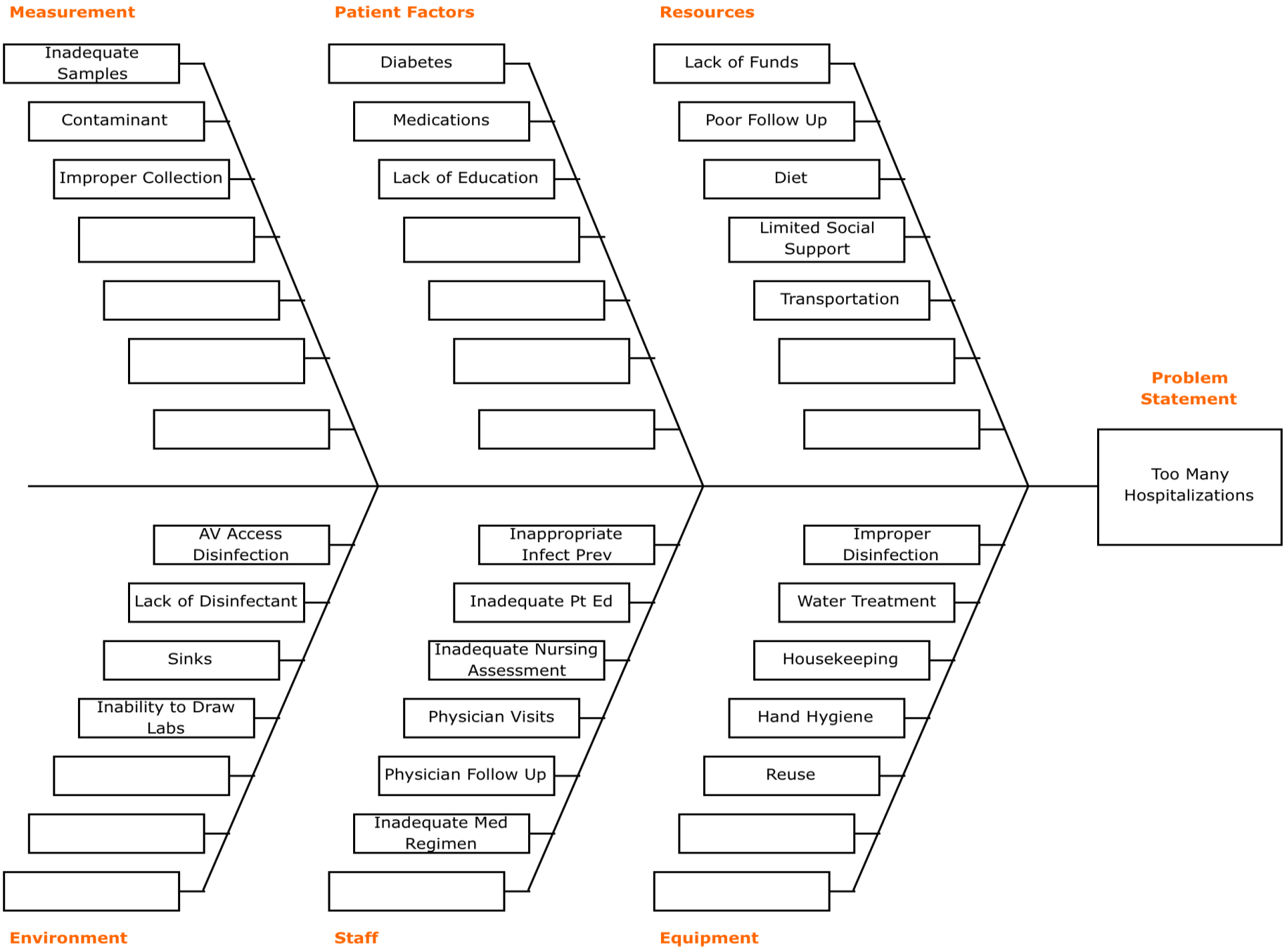
- Metronidazole
- Lactulose
- Neomycin
- Allergy to rifaximin

Lactulose

- A syrup that does not get absorbed
  - Diabetics do not have to worry about blood sugar
- Causes intestinal bacteria to take up nitrogen
  - Occurs when lactulose metabolized
- Results in less ammonia production
  - Protein degraded to other nitrogen substances
- Stimulates diarrhea that helps eliminate other toxic substances

Typical Admission

- Patient was in his usual state of health until Sunday. He and his wife went out to dinner and when they returned, he was barely able to get out of his chair. His wife describes him as collapsing on the floor and falling asleep. When he awoke, he was very fatigued.


Measurement
Inadequate Samples
Contaminant
Improper Collection
Patient Factors
Diabetes
Medications
Lack of Education
Resources
Lack of Funds
Poor Follow Up
Diet
Limited Social Support
Transportation
Problem Statement
Too Many Hospitalizations
AV Access Disinfection
Lack of Disinfectant
Sinks
Inability to Draw Labs
Inappropriate Infect Prev
Inadequate Pt Ed
Inadequate Nursing Assessment
Physician Visits
Physician Follow Up
Inadequate Med Regimen
Improper Disinfection
Water Treatment
Housekeeping
Hand Hygiene
Reuse
Environment
Staff
Equipment

Family Meeting

- During initial family meetings it was clear that wife was overwhelmed with his care but would not allow visiting nurses or other home help. She felt it was her job to care for him.
- Medication education was given.

Family Meeting

- During further questioning wife admitted to reducing doses of lactulose whenever going out and when at home so she wouldn't have to worry about diarrhea.
- With continued support and education wife began to see that admissions were related to lactulose dosing.

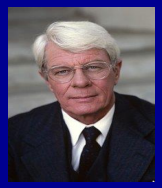
Follow Up Hospitalizations

- Dec 2016: Pneumonia (4d)
- Jan 2017: Altered Mental Status (3d)
- Mar 2017: Access Issues (4d)
- May 2017: Failure to Thrive – died during admission

Final Thoughts

- “Good morning, Mr. Phelps…Your mission – should you decide to accept it, is to improve the quality in your dialysis facility.”

Impossible Missions Force



Jim: **Leadership**

Rollin: **Change yourself**

Barney: **Technical expertise**

Willy: **Strength**

Cinnamon: **Charm**

References

- The W. Edwards Deming Institute.
  - https: //deming.org
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Thank You