Define

Final Report Out

CRITTENTON
Get Better Here™

Project Title: Global Immunization of the Pneumovax and Influenza Vaccines
Sponsor: William Murdoch MD, Director of the WSU Family Medicine Residency Program
BB Coach: Sharon Ulep SSBB, Director of Quality and Clinical Informatics
Process Owner: Karen Delaurier MSA RN, Director of Adult In-Patient Services
Project Start Date: February 23, 2012

Team Members:
- Christina Kimbrough MD
- Hussaini Hina Syeda MD
- Heidi Steiner RN BSN, Nursing Informatics Manager
- Clinical Informatics Resource Committee
- Crittenton Hospital Medical Center Nursing Staff
- Carol Parker RN, Medical Staff Quality Specialist
- Kate Wilcox, Quality Coordinator

Customers:
- Federal Government
- Patients
- Crittenton Hospital Medical Center

Problem Statement / Project Description:
Approximately 15 % of all patients admitted to the Crittenton Hospital Medical Center are not being immunized per CMS Guidelines. The impact is not only poor health outcomes for the patient, but affects the hospital's value-based purchasing capabilities and the hospital's reputation as Provider of Choice.

Project Scope:
In Scope – CMS Guidelines as it applies to all CHMC inpatients from January 2012 to present.
Out of Scope – all patients treated through the Emergency Department or listed as OP/OBS status.

Potential Benefits:
- Increased CMS reimbursements
- Improved CMS Core Measures rating
- Improved patient health care

Alignment with Strategic Plan:
- Ensure Financial Viability
- Quality and Safety in Patient Care
- Service Excellence

Source: https://www.mededportal.org/icollaborative/resource/536

Define

CRITTENTON
Get Better Here™

What do we want to know?

What is the Right Y (CTQ) to Measure? How will it be measured?

- The right Y is tracking whether 100% of the Crittenton Hospital Medical Center's in-patients are immunized against pneumoccocal and influenza viruses OR the patient declination is recorded per CMS Guidelines
- This information will be measured through data abstraction and analysis

What are the data sources? How will data be collected?

- The data sources used will be the patient charting in CERNER and the information provided by the Core Measure Indicators in the MIDAS Program
- Inoculation information populates into CERNER as entered by the Nursing Staff. This information will be abstracted and reviewed daily by the Quality Department

What is our goal?

- To ensure that 100% of the Crittenton Hospital Medical Center's in-patients are immunized against pneumoccocal and influenza viruses OR the patient declination is recorded per CMS Guidelines
- To improve the consistency and accuracy of data input in patient charting for CMS reporting

Source: https://www.mededportal.org/icollaborative/resource/536

Measure

CRITTENTON
Get Better Here™

What do we want to know?

What is the patient-identified target and specification limit?

Target: 100% compliance with CMS Guidelines *(source:)* CERNER and MIDAS Core Measure Indicators

USL: all patients admitted to CHMC *(source:)* CERNER and MIDAS Core Measure Indicators

What is the mean of our initial process?	***and range of our process?***	***Discrete Data?***
Pneumonia Mean: 90.9%	Pneumonia Range: 1.5%	yes
Influenza Mean: 83.9%	Influenza Range: 6.3 %	yes

What is our initial process capability (Z score, DPMO, Yield %)?

Pneumonia:

Overall:	**Z score = 3.13**	**Defects per million opportunities = 51,903**	**Yield = 94.8%**
Age 65+:	**Z score = 3.28**	**Defects per million opportunities = 37,313**	**Yield = 96.3%**
High Risk:	**Z score = 1.96**	**Defects per million opportunities = 322,581**	**Yield = 67.7%**

Influenza:

Overall:	**Z score = 2.53**	**Defects per million opportunities = 152,344**	**Yield = 84.8%**

A defect is: non-compliance with CMS Guidelines (see Slide 4)

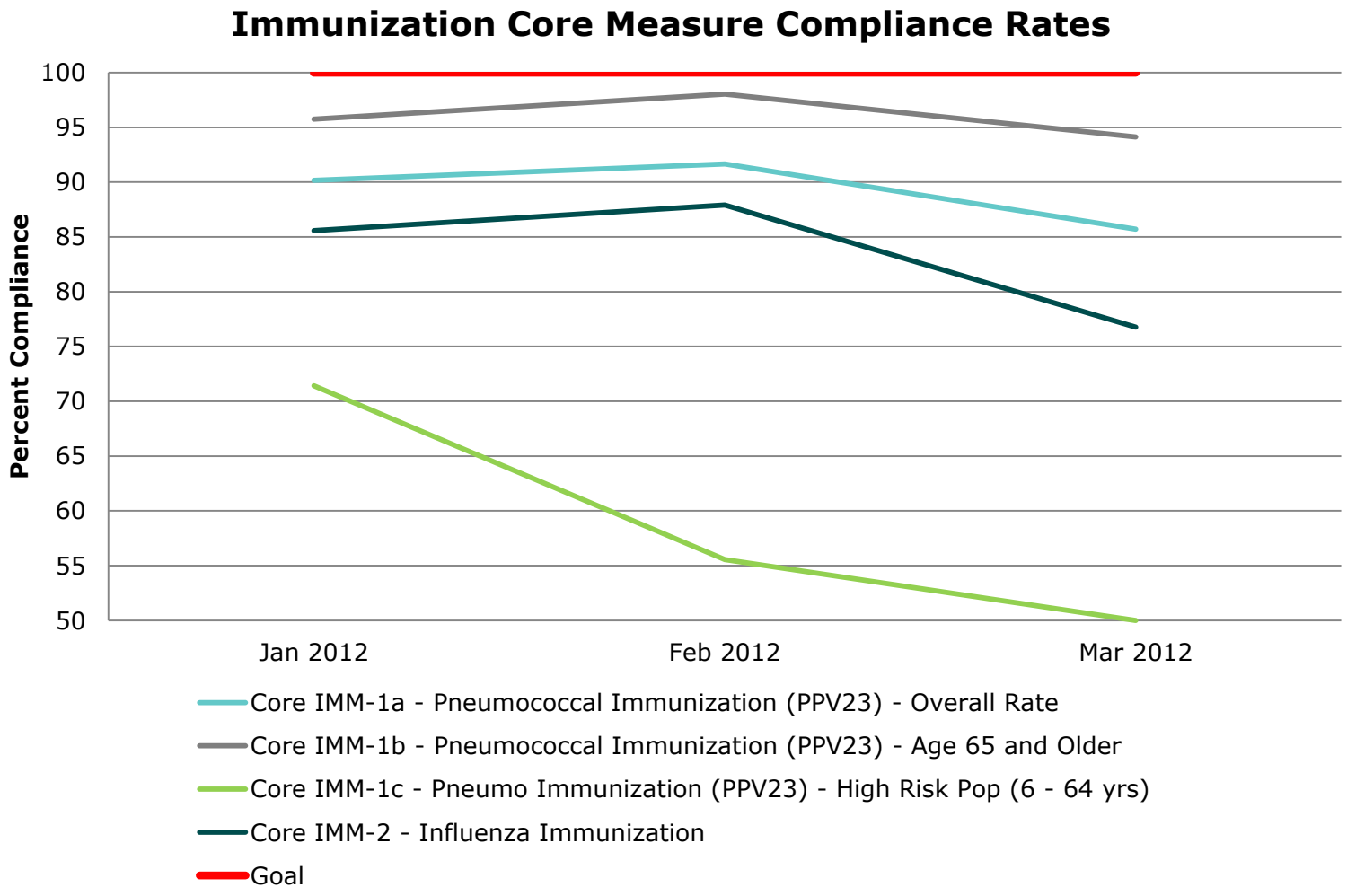
Source: https://www.mededportal.org/icollaborative/resource/536

CC BY NC

Measure

CRITTENTON
Get Better Here™

Baseline Data



Source: https://www.mededportal.org/icollaborative/resource/536

Analyze

CRITTENTON
Get Better Here™

Value Stream Map Opportunities for Performance Improvements:

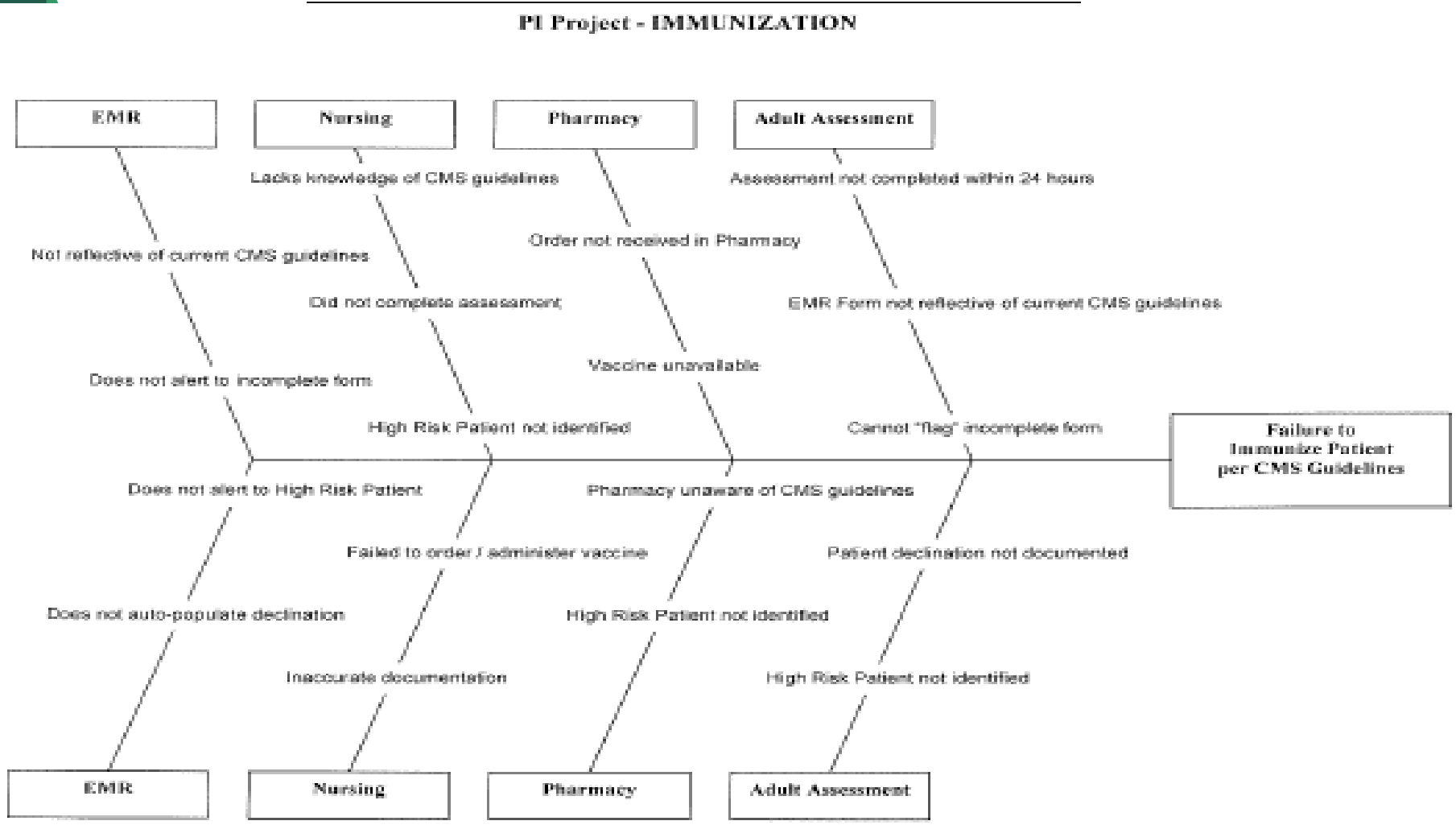
S	I	P	O	C
Nursing	Patient history, Medical Records, Family Members	Admission Assessment	Is Patient Eligible for Immunization?	Pharmacy
Pharmacy	Advanced Treatment Protocol	Pharmacy Order if Patient is Eligible	Vaccine Prepared	PIXIS
PIXIS	Advanced Treatment Protocol	Vaccine Dispensed	Verify if Correct Vaccine Received	Patient's Nurse
Patient's Nurse	Two Patient Identifier	Administer the Vaccine	Vaccinated the Patient	Patient's Nurse
Patient's Nurse	Patient Chart	Document Immunization Status	Chart Update	Quality Department

Source: https://www.mededportal.org/icollaborative/resource/536

Analyze

CRITTENTON
Get Better Here™

What do we want to know?
Identify Variation Sources

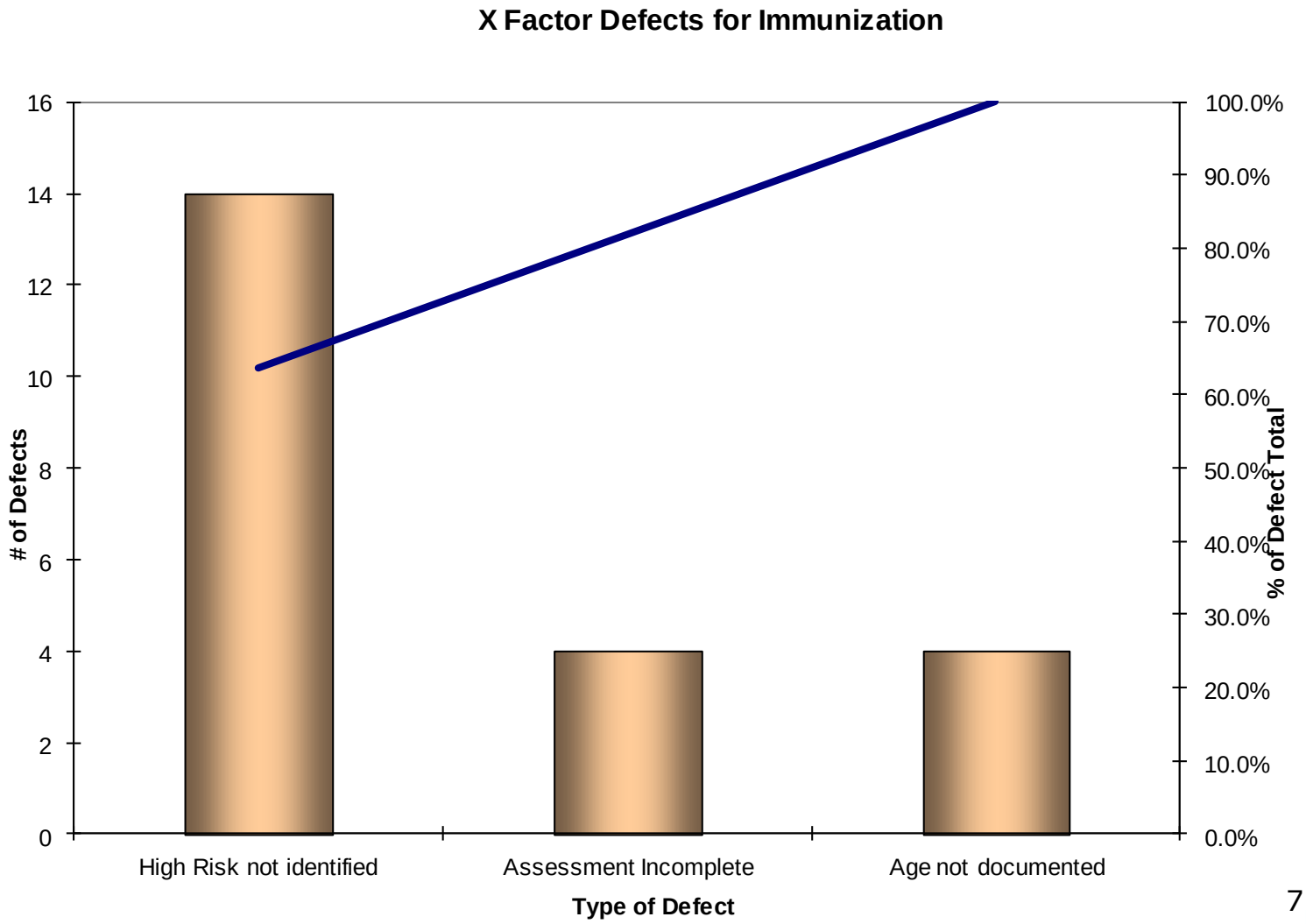


Source: https://www.mededportal.org/icollaborative/resource/536

Analyze

CRITTENTON
Get Better Here™

PARETO CHART



Source: https://www.mededportal.org/icollaborative/resource/536

Improve

CRITTENTON
Get Better Here™

What do we want to change?

What X's (inputs) have we chosen to improve?

1. Improving the prompts on the Adult Admission Assessment Form
2. Developing an "alert" within Cerner to complete assessment prior to patient discharge
3. Educating the staff on CMS standards and the changes within the Assessment Form

What are some potential solutions? How can we change the process?

1. Involving IT and the Clinical Informatics Resource Committee to update the prompts on the current Adult Admission Assessment Form to be CMS-compliant

What is our improvement strategy? How will we implement the change?

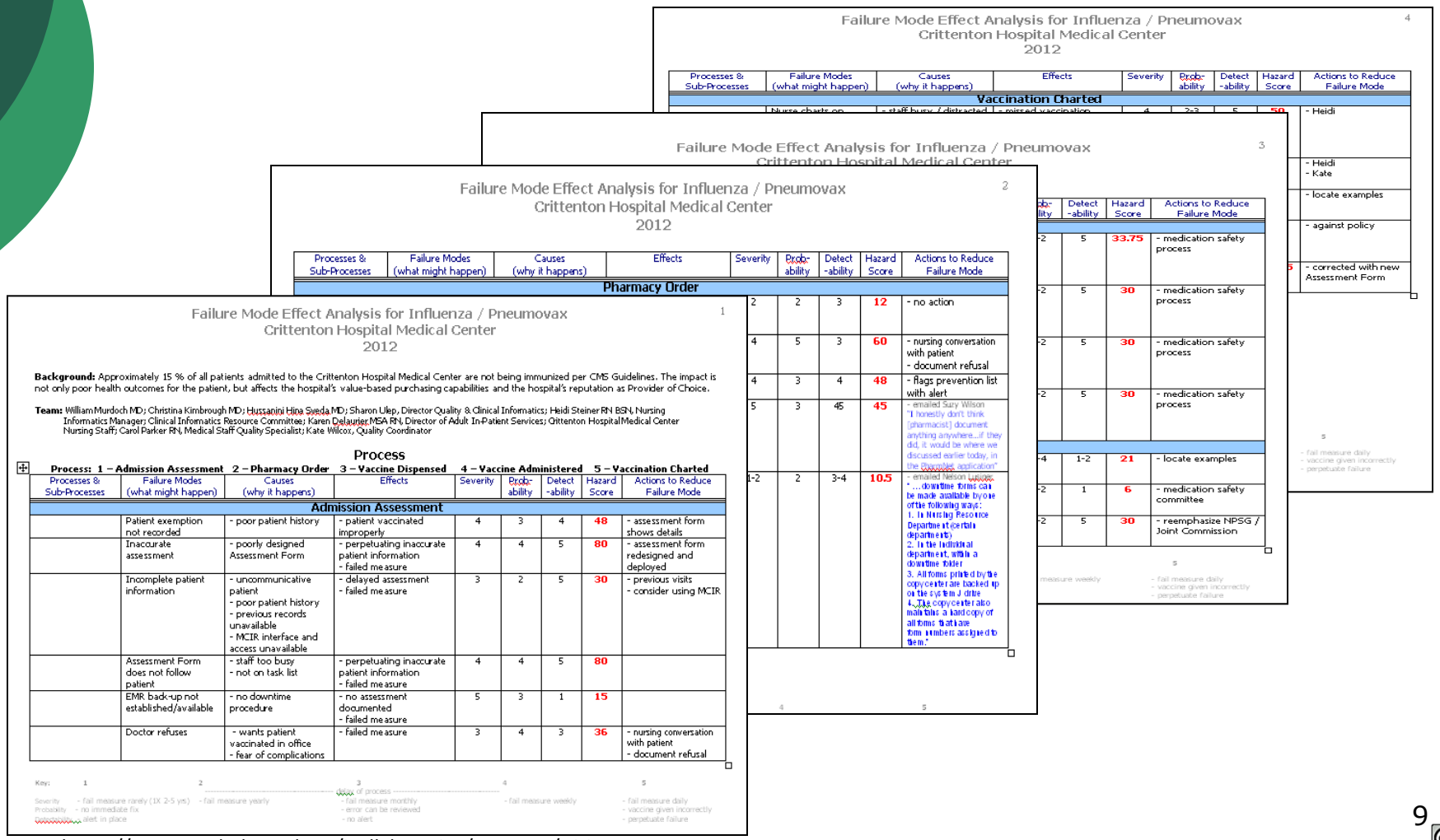
1. Make changes to Adult Assessment Form
2. Educate Users
3. Monitor Results

Source: https://www.mededportal.org/icollaborative/resource/536

Improve

CRITTENTON
Get Better Here™

What actions will we take as a result of our FMEA?



Failure Mode Effect Analysis for Influenza / Pneumovax
Crittenton Hospital Medical Center
2012

Background: Approximately 15 % of all patients admitted to the Crittenton Hospital Medical Center are not being immunized per CMS Guidelines. The impact is not only poor health outcomes for the patient, but affects the hospital's value-based purchasing capabilities and the hospital's reputation as Provider of Choice.

Team: William Murdoch MD; Christina Kimbrough MD; Hussanini Hina Syeda MD; Sharon Ulep, Director Quality & Clinical Informatics; Heidi Steiner RN BSN, Nursing Informatics Manager; Clinical Informatics Resource Committee; Karen Delaurier MSA RN, Director of Adult In-Patient Services; Crittenton Hospital Medical Center Nursing Staff; Carol Parker RN, Medical Staff Quality Specialist; Kate Wilcox, Quality Coordinator

Process

Process: 1 – Admission Assessment 2 – Pharmacy Order 3 – Vaccine Dispensed 4 – Vaccine Administered 5 – Vaccination Charted

Processes & Sub-Processes	Failure Modes (what might happen)	Causes (why it happens)	Effects	Severity	Prob-ability	Detect -ability	Hazard Score	Actions to Reduce Failure Mode
Admission Assessment								
	Patient exemption not recorded	- poor patient history	- patient vaccinated improperly	4	3	4	48	- assessment form shows details
	Inaccurate assessment	- poorly designed Assessment Form	- perpetuating inaccurate patient information - failed measure	4	4	5	80	- assessment form redesigned and deployed
	Incomplete patient information	- uncommunicative patient - poor patient history - previous records unavailable - MCIR interface and access unavailable	- delayed assessment - failed measure	3	2	5	30	- previous visits - consider using MCIR
	Assessment Form does not follow patient	- staff too busy - not on task list	- perpetuating inaccurate patient information - failed measure	4	4	5	80	
	EMR back-up not established/available	- no downtime procedure	- no assessment documented - failed measure	5	3	1	15	
	Doctor refuses	- wants patient vaccinated in office - fear of complications	- failed measure	3	4	3	36	- nursing conversation with patient - document refusal

Key: 1 2 3 4 5 (direction of process)
Severity – fail measure rarely (1X 2-5 yrs) – fail measure yearly – fail measure monthly – fail measure weekly – fail measure daily
Probability – no immediate fix – error can be reviewed – vaccine given incorrectly
Detectability – alert in place – no alert – perpetuate failure

Failure Mode Effect Analysis for Influenza / Pneumovax
Crittenton Hospital Medical Center
2012

Processes & Sub-Processes	Failure Modes (what might happen)	Causes (why it happens)	Effects	Severity	Prob-ability	Detect -ability	Hazard Score	Actions to Reduce Failure Mode
Pharmacy Order								
				2	2	3	12	- no action
				4	5	3	60	- nursing conversation with patient - document refusal
				4	3	4	48	- flags prevention list with alert
				5	3	45	45	- emailed Suzy Wilson "I honestly don't think [pharmacist] document anything anywhere...if they did, it would be where we discussed earlier today, in the [illegible] application"
				1-2	2	3-4	10.5	- emailed Nelson [illegible] "....downtime forms can be made available by one of the following ways: 1. In Nursing Resource Department (certain departments) 2. In the individual department, with a downtime folder 3. All forms printed by the copy center are backed up on the system J drive 4. The copy center also maintains a hard copy of all forms that have form numbers assigned to them."

Failure Mode Effect Analysis for Influenza / Pneumovax
Crittenton Hospital Medical Center

Processes & Sub-Processes	Failure Modes (what might happen)	Causes (why it happens)	Effects	Severity	Prob-ability	Detect -ability	Hazard Score	Actions to Reduce Failure Mode
				-2	5		33.75	- medication safety process
				-2	5		30	- medication safety process
				-2	5		30	- medication safety process
				-2	5		30	- medication safety process
				-4	1-2		21	- locate examples
				-2	1		6	- medication safety committee
				-2	5		30	- reemphasize NPSG / Joint Commission

Failure Mode Effect Analysis for Influenza / Pneumovax
Crittenton Hospital Medical Center

Processes & Sub-Processes	Failure Modes (what might happen)	Causes (why it happens)	Effects	Severity	Prob-ability	Detect -ability	Hazard Score	Actions to Reduce Failure Mode
								- Heidi
								- Heidi - Kate
								- locate examples
								- against policy
								- corrected with new Assessment Form

Failure Mode Effect Analysis for Influenza / Pneumovax
Crittenton Hospital Medical Center
2012

Processes & Sub-Processes	Failure Modes (what might happen)	Causes (why it happens)	Effects	Severity	Prob-ability	Detect -ability	Hazard Score	Actions to Reduce Failure Mode
Vaccination Charted								
	Nurse charts on	- staff busy / distracted	- missed vaccination	4	2-3	5	50	- Heidi

Source: https://www.mededportal.org/icollaborative/resource/536

Improve

CRITTENTON
Get Better Here™

FMEA Summary

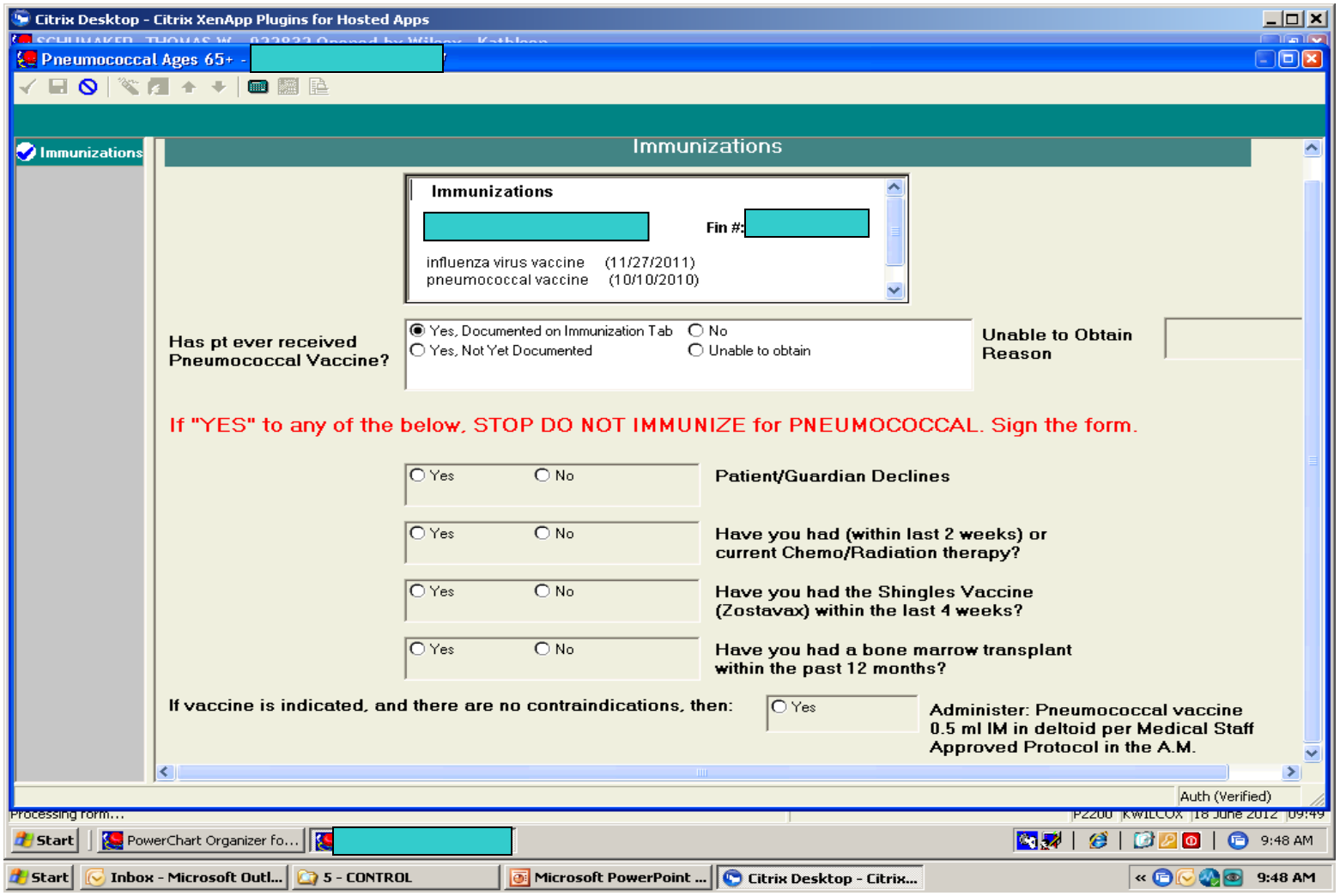
Process	Failure Mode	Causes	Effects	Hazard Score	Actions to Reduce Failure Mode
Admission Assessment	- incomplete - inaccurate	- poorly designed assessment form - no downtime procedure	- fail CMS measure - perpetuate inaccuracy	80	-- improve assessment form -- consider using MCIR
Pharmacy Order	-- no order received -- order does follow patient -- no EMR backup	-- inaccurate -- CHIPS failure -- no downtime procedure	- fail CMS measure - perpetuate inaccuracy	35	- develop EMR backup procedure
Vaccine Dispensed	-- mislabeled -- wrong patient -- vaccine expired	-- technical error -- pharmacy error	-- wrong vaccine given -- delay in immunization	30	- medication safety process
Vaccine Administered	-- vaccine not administered - syringe failure	-- staff distracted -- patient DC -- manufacturer defect	--fail CMS measure -- no vaccination coverage	25	- medication safety committee
Vaccination Charted	- incomplete - inaccurate	- poorly designed assessment form - no downtime procedure	--fail CMS measure -- no vaccination coverage	80	-- improve assessment form -- consider using MCIR

Source: https://www.mededportal.org/icollaborative/resource/536

Improve

CRITTENTON
Get Better Here™

Improvement: New Assessment Form



Source: https://www.mededportal.org/icollaborative/resource/536

Improve

CRITTENTON
Get Better Here™

Optimized Solution / Change Management

SOLUTIONS:

1. The new Adult Assessment Forms fixed 80% of the issues identified in FMEA.
2. Recommendations from FMEA also include:
   a. use of MCIR on all units would be beneficial
   b. reporting adult immunizations to MCIR is considered a go-forward project
   c. ensuring that the new Adult Assessment Form is part of the Downtime Assessment Paper Toolkit was assured through I.T. and the Clinical Informatics Resource (Forms) Committee.

CHANGE MANAGEMENT:

1. regular interaction with the Clinical Informatics Team and the CHIPS Super User group
2. daily monitoring of Core Measures during implementation
3. attended UPC meetings and assisted with Nursing Unit education
4. attended P&T Committee meeting and Clinical Informatics Committee meetings to facilitate collaborative transition to new Adult Assessment Form use

Source: https://www.mededportal.org/icollaborative/resource/536

Control

CRITTENTON
Get Better Here™

What does our process look like now?

What is our new process capability (Z score, DPMO, Yield %)? Did we meet our goal?

Pneumonia:

Overall: Z score = **3.9** Defects per million opportunities = **9346** Yield = **96.7%**

Age 65+: Z score = **6** Defects per million opportunities = **0** Yield = **100%**

High Risk: Z score = **3.9** Defects per million opportunities = **9346** Yield = **93.5%**

Our new process capability for pneumovax (high risk) is 3.9

Influenza:

Data abstraction and analysis for the Influenza Measure will begin again in October 2012

What is our Process Control Plan / Control Method?

1. Daily monitoring of Core Measures by Quality and Outcomes Management

2. Regular communication with the Clinical Informatics Team and the CHIPS Super User group regarding any trends that would need addressing (ie: any failure of the measure)

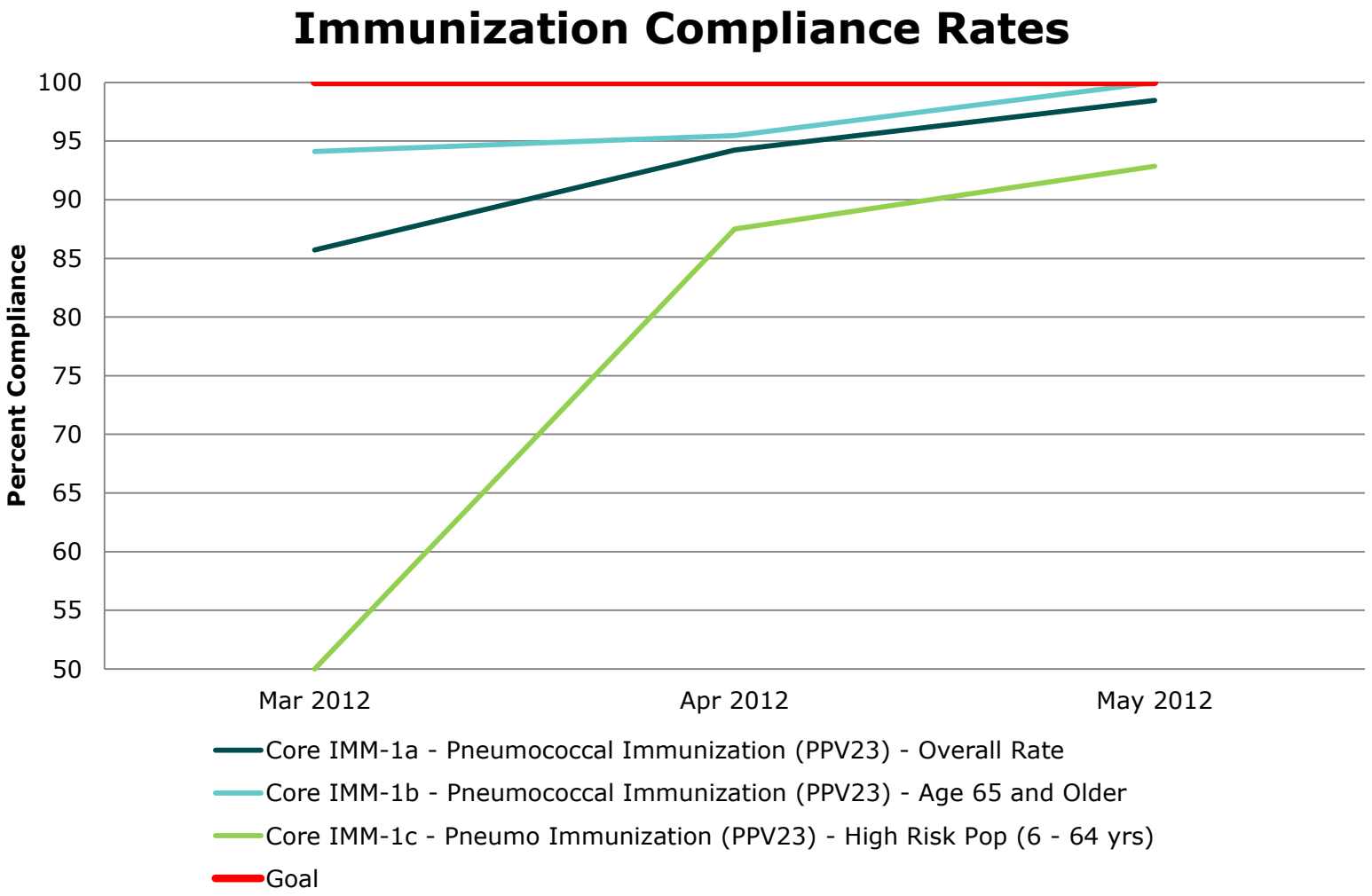
3. Attend UPC meetings and assist with Nursing Unit education as needed

Source: https://www.mededportal.org/icollaborative/resource/536

Control

CRITTENTON
Get Better Here™

What are our results?



Source: https://www.mededportal.org/icollaborative/resource/536

Control

CRITTENTON
Get Better Here™

What do we want to continue to monitor?

What are our financial and quality results? How were they calculated?

Measures are calculated as part of the Core Measure abstraction process.

The financial impact of this project will be more fully realized if Global Immunization Measures are selected as part of future BCBS Pay-for-Performance or VBP – Value Based Purchasing Measures.

The results of these core measures will be reported publicly on www.hospitalcompare.hhs.gov and will be available to the Joint Commission in October 2012.

Source: https://www.mededportal.org/icollaborative/resource/536

CRITTENTON

Get Better Here™

Source: https://www.mededportal.org/icollaborative/resource/536

CC BY NC