



# Clinical Safety & Effectiveness

## Cohort #15 Team #4

**Improving Documentation of Penicillin Allergy in Veterans at  
the South Texas Veterans Health Care System**

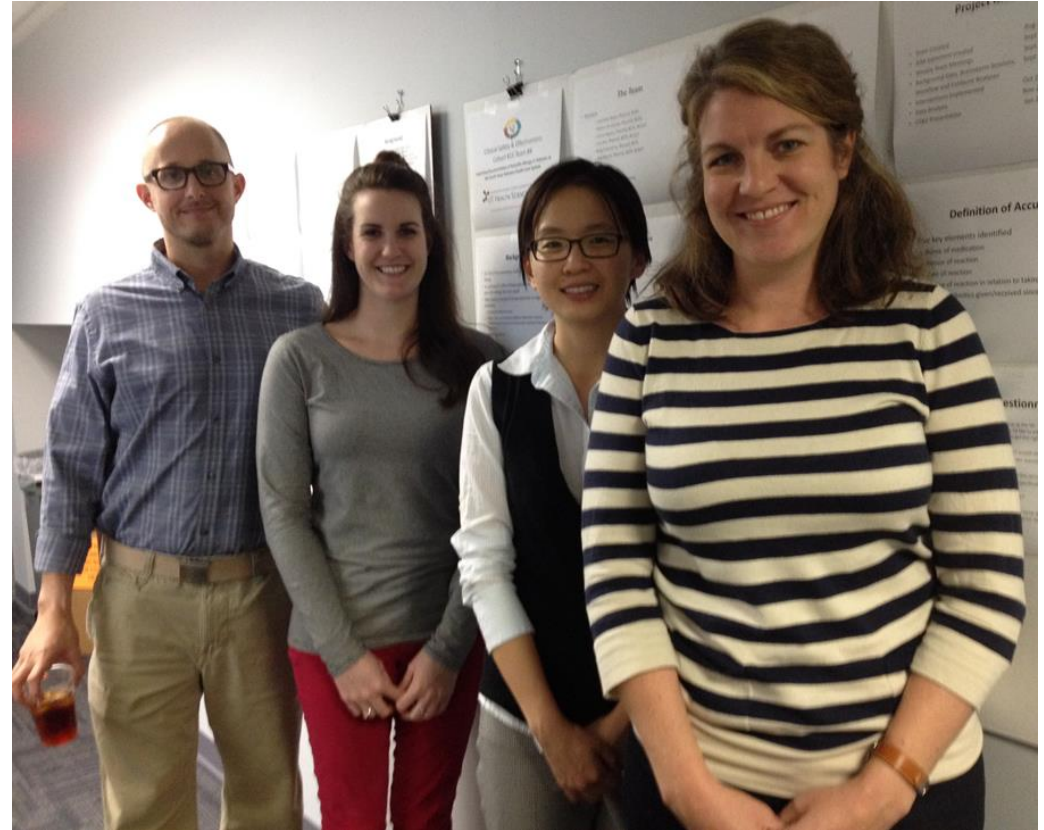


# The Team

## Division

- Courtney Waye, PharmD, BCPS
- Denver Buchanan, PharmD, BCPS
- Carrie Rogers, PharmD, BCPS, BCACP
- Lisa Kim, PharmD, BCPS, BCACP
- Kelly Echevarria, PharmD, BCPS
- Tera Moore, PharmD, BCPS, BCACP

Facilitator: Edna Cruz, M.Sc., RN, CPHQ



# AIM STATEMENT

The aim of this project is to improve accuracy of penicillin allergy documentation at STVHCS from 33.3% to 70%. This process will occur from October 2014– January 2015.

This is important to improve in order to ensure optimal antimicrobial therapy, reduce healthcare costs, and reduce unnecessary adverse outcomes for patients admitted to the hospital.

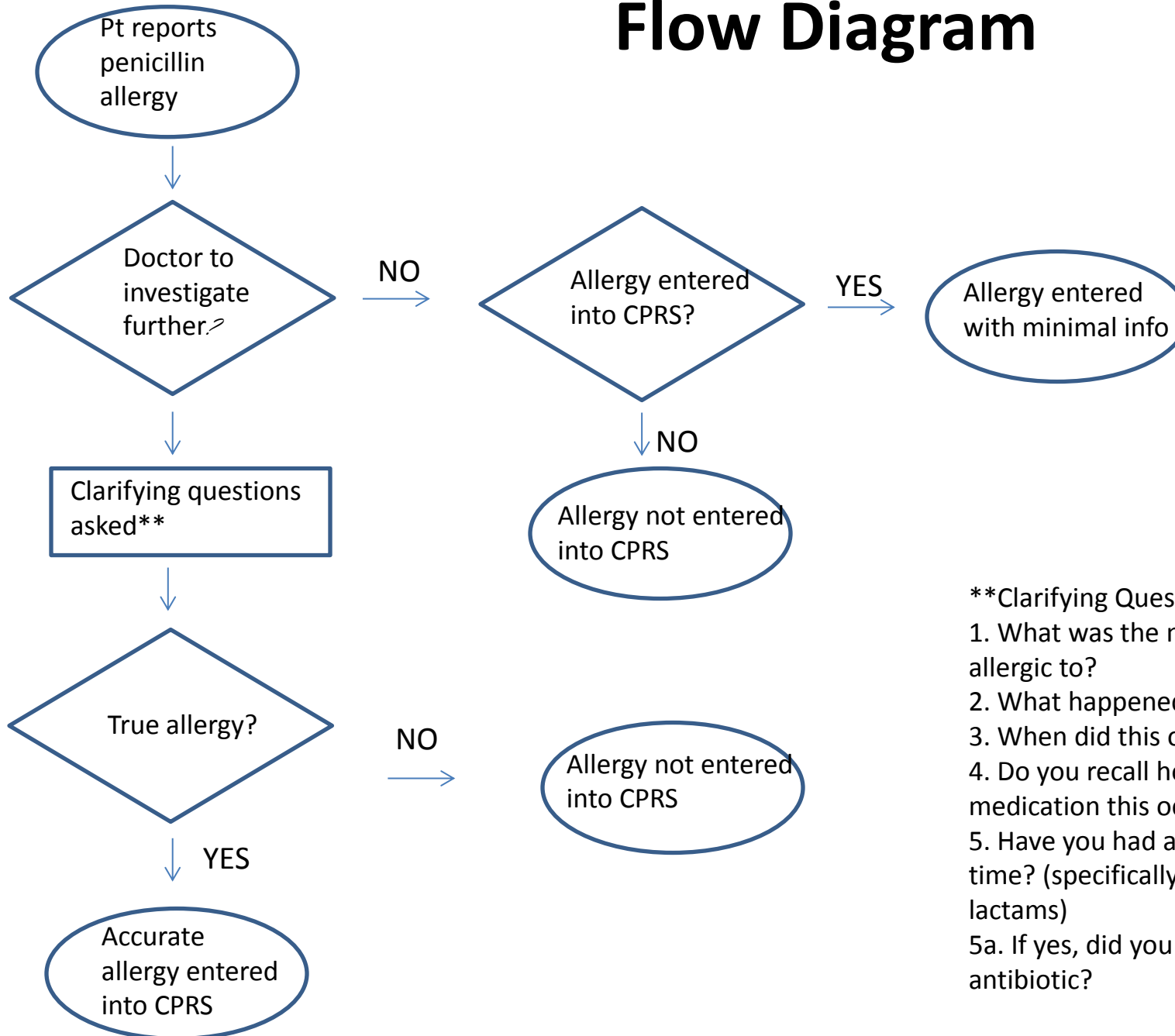
# Project Milestones

- Team Created Aug 2014
- AIM statement created Sept 2014
- Weekly Team Meetings Sept 2014- Jan 2015
- Background Data, Brainstorm Sessions, Workflow and Fishbone Analyses Sept 2014– Oct 2014
- Interventions Implemented Oct 2014- Jan 2015
- Data Analysis Nov 2014- Jan 2015
- CS&E Presentation Jan 23<sup>rd</sup>

# Background

- 10-15% of the population with self-reported penicillin allergy
- An estimated 2-10% of these patients will have a positive penicillin allergy skin test result
- Often leads to receipt of broad-spectrum or inappropriate antibiotics
  - Increased healthcare costs
  - Higher rates of *Clostridium difficile*, methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus* infections
  - Worse outcomes

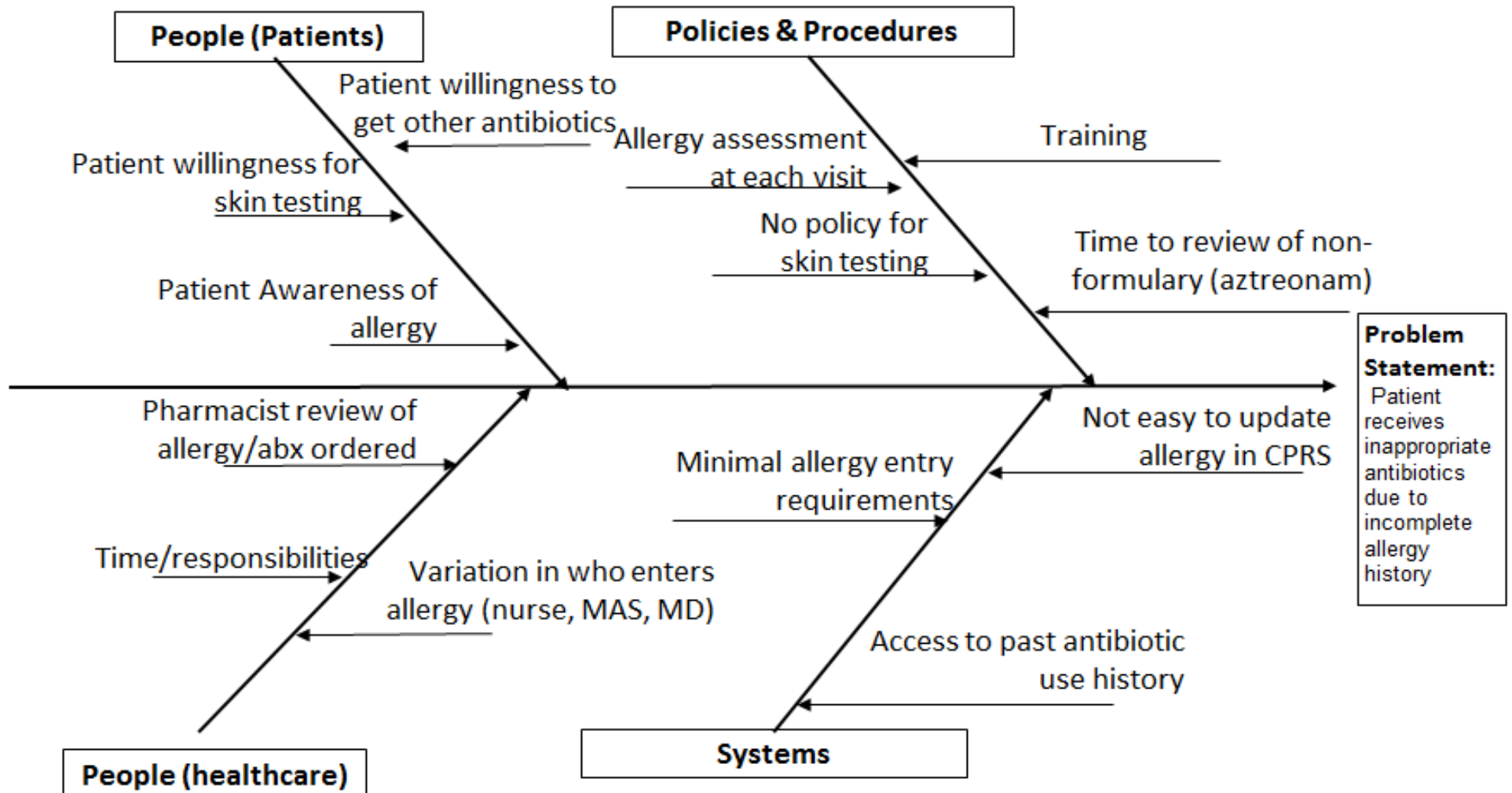
# Flow Diagram



\*\*Clarifying Questions Include:

1. What was the medication that you were allergic to?
2. What happened when you took \_\_\_\_\_?
3. When did this occur? (date and/or age)
4. Do you recall how soon after starting the medication this occurred?
5. Have you had any other antibiotics since that time? (specifically cephalosporins or other beta lactams)
- 5a. If yes, did you have any reactions to that antibiotic?

# Cause and Effect Diagram



# Definition of Accuracy

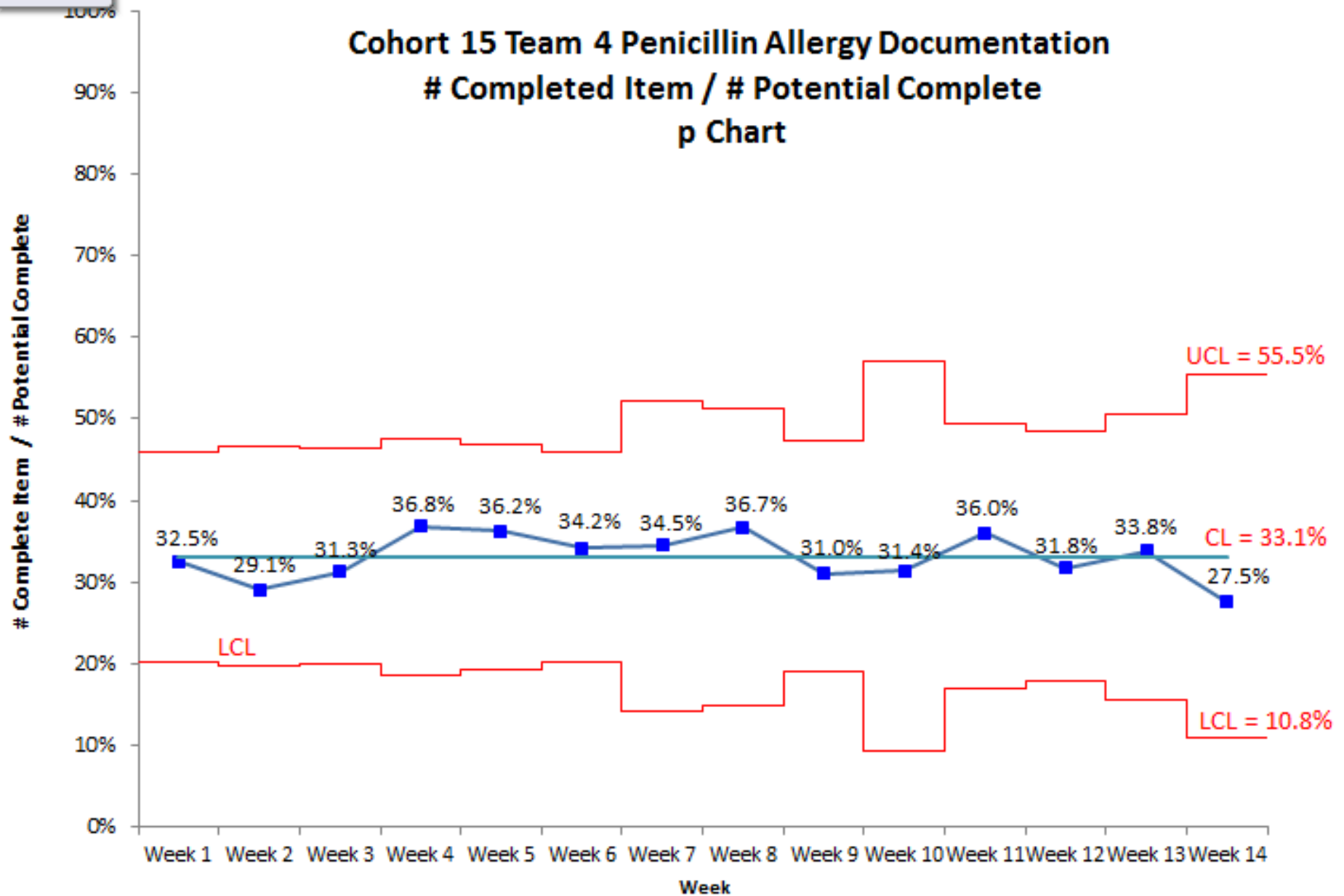
- Five key elements identified
  - Name of medication
  - Nature of reaction
  - Date of reaction
  - Timing of reaction in relation to taking the antibiotic
  - Other antibiotics given/received since allergy occurred



# Pre-intervention Data

- 252 unique patients admitted to the VA with a documented penicillin allergy from 1/1/14-3/31/14
  - 236 evaluated
  - Of these, 225 entered were historical allergies (happened prior to admission)
- Review of five key elements
  - Name of medication: 100%
  - Nature of reaction: 54%
  - Date of reaction: 2%
  - Timing of reaction in relation to taking the antibiotic: 1%
  - Other antibiotics given/received since allergy occurred: 2%

### Cohort 15 Team 4 Penicillin Allergy Documentation # Completed Item / # Potential Complete p Chart



# Plan: Intervention

- Weekly report of new penicillin allergies generated
  - Start of October 2014
  - End in January 2015
- Patients called by team members
  - Allergy assessed using standardized patient questionnaire
  - Allergy updated in chart

# Patient Questionnaire

Hi, my name is \_\_\_\_\_ and I'm a clinical pharmacist at the VA. You recently had a penicillin allergy entered in our system, and if you don't mind, I'd like to ask you a few more questions to make sure that if you ever need antibiotics again, you get the right ones.

- What was the medication that you were allergic to? (could clarify if it was a pill, IM shot, IV)
- What happened when you took \_\_\_\_\_? (what was the reaction?)
- When did this occur? (date and/or age)
- Do you recall how soon after starting the medication this occurred?
- Have you had any other antibiotics since that time? (specifically cephalosporins or other beta lactams)
  - If yes, did you have any reactions to that antibiotic?

Thank you so much. Hopefully, we won't have to ask these same questions in the future again, and we can give you the best treatment you need. Have a great day!

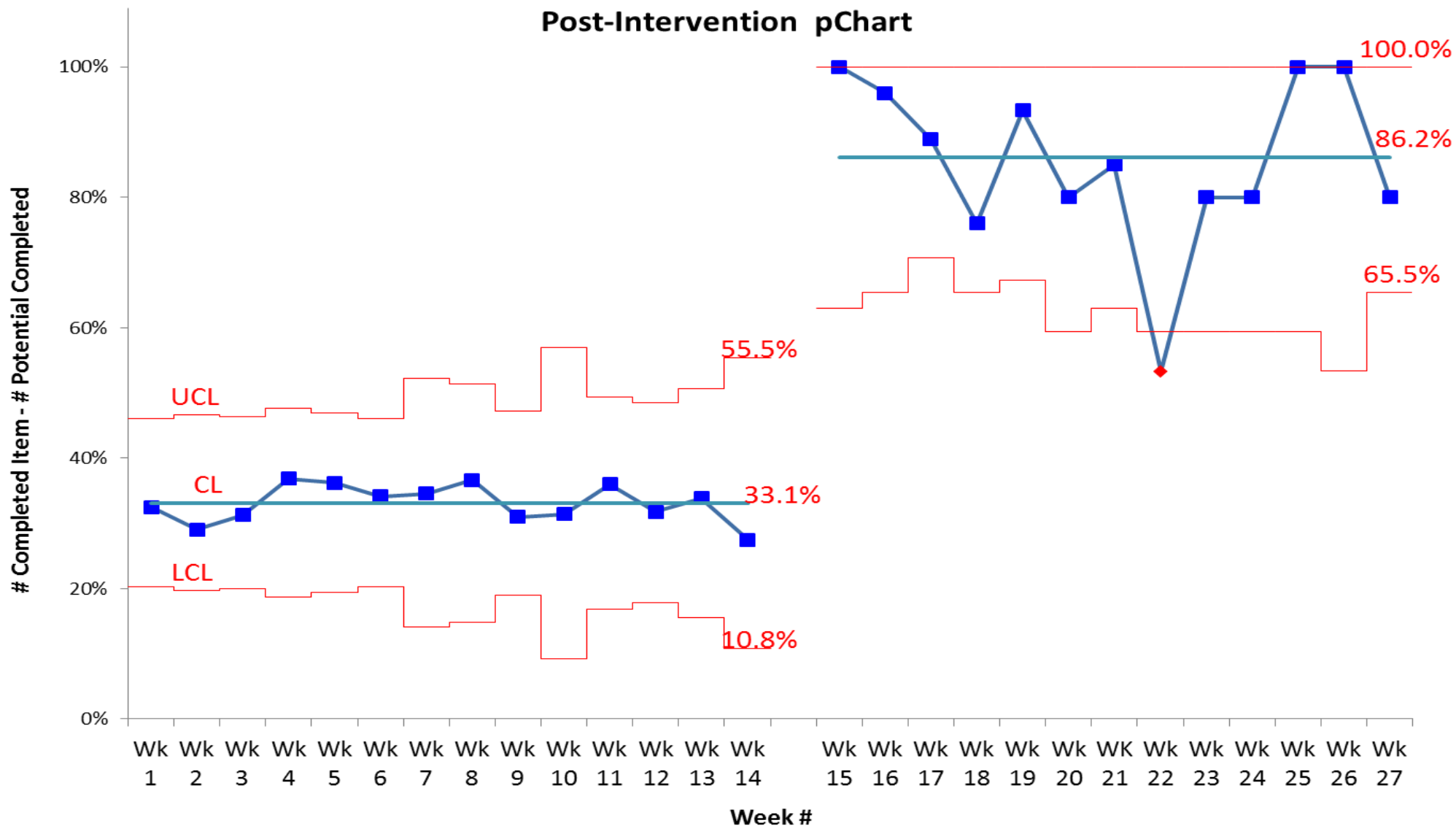
# Post-Intervention Data

- 229 unique patients with new documented penicillin allergies entered into the VA system from admitted to the VA with a documented penicillin allergy from 10/3/14-1/8/14
  - Of these, 55 were able to be contacted and assessed
- Review of five key elements
  - Name of medication (specific identification): 90%
  - Nature of reaction: 93%
  - Date of reaction: 98%
  - Timing of reaction in relation to taking the antibiotic: 66%
  - Other antibiotics given/received since allergy occurred: 84%

# Cohort 15 Team 4 Penicillin Allergy Documentation

## # Completed Item / # Potential Complete

### Post-Intervention pChart



# DO: Implementing the Change

- Lesson learned: difficult to implement with current model
- Implementation issues
  - Point of intervention (real-time vs. retrospective)
  - Assignment to appropriate pharmacist (inpatient vs. outpatient)
  - Logistics of documentation (e.g. limitations on the medical record)

# CHECK: Results/Impact

- Demonstrated positive impact of pharmacist intervention to improve documentation of penicillin allergy
- Increased potential for appropriate antibiotic prescribing to decrease costs and minimize adverse outcomes



# ACT: Sustaining the Results

- Propose discussion to incorporate allergy clarification into daily workflow for appropriate pharmacists with minimal interruption to other responsibilities (e.g. clinic, rounds)
- Education to providers on appropriate allergy documentation
  - Review critical elements
  - Provide tips to navigate medical record

# Return on Investment

- Return/Numerator

46 patients now eligible for beta-lactam

\$272.22 - \$1,254.34

**\$12,522 - \$57,700**

- Investment/Denominator

CPS time – 13.75 hours

\$694.10

Picard, et al. Management of patients with a history of penicillin allergy in a large tertiary-care academic hospital. J Allergy Clin Immunol: In Practice 2013;1:252-7.

Macy, et al. Healthcare utilization and serious infection prevalence associated with penicillin “allergy” in hospitalized patients” a cohort study. J Allergy Clin Immunol 2014;133:790-6.

# Return on Investment

- Conservative Numbers
- Soft Savings

$$12,522 / 694.10 = \$18 \text{ per dollar spent}$$

# Conclusion/What's Next

- Implementation of penicillin allergy skin testing
- Discussion of future strategies to reassess accuracy of allergy documentation
- Expansion to other medications with potential for improved outcomes (e.g. ACE inhibitors)

**Thank you!**



*Educating for Quality Improvement & Patient Safety*