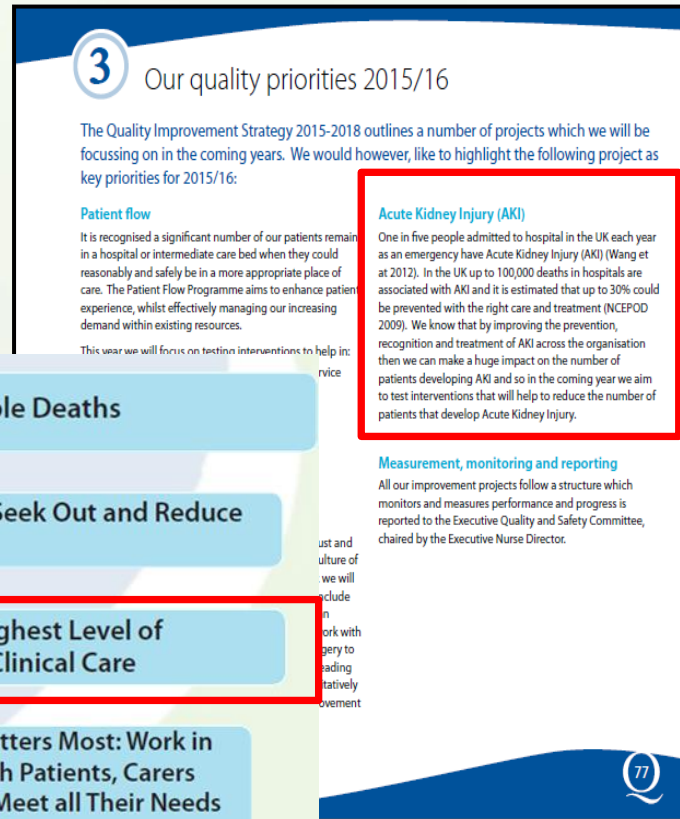


# Acute Kidney Injury: A Quality Improvement Approach

Chedia Hoolickin  
Quality Improvement Lead

# Background: AKI and the QI Strategy



- 3<sup>rd</sup> QI Strategy
- Use QI methods that had been successfully applied to other areas
- AKI also identified as a priority in 15/16 quality accounts

# Background to Project

- **AKI Working Group**

- EAU, Renal, Critical Care, Biochemistry Consultants
- Senior Pharmacist, Managers and Nurses
- Support Functions: L&D, Quality Improvement , CLAHRC, Information, Electronic Patient Records

- **AKI paper presented to Executive Board to initiate a trust wide piece of work** (Sept 14)

- Help to prioritise work within other departments
- Start to test some ideas
- May 15 paper to initiate an AKI improvement collaborative

10% reduction in all AKI by December 2016

25% reduction in preventable "hospital acquired" AKI by December 2016

Achieve a 50% reduction in the number of early (Stage 1) progressing to Stage 2/3 by December 2016

### Education

- Practice educator roles/ Nurse Preceptorship training
  - Allocation of Nurse Champions
  - Testing designated AKI nurse/ MDT
  - Development of E-learning package
- Review and implementation of national training toolkit
  - Trust wide communication strategy
- MDT use of medicine optimization training tool kit (renal pharmacy group)

### Detection

- NPSA Algorithm launch
- EPR Implementation
- Communication of flag
- Electronic decision support
- Development of screening risk assessment
- Mechanism to flag AKI patients to pharmacists

### Intervention

- Bundle development
- Stop/ start medication tests
- Role allocation and escalation of trigger
  - Local guidelines
- Identification and management within the community/ patient education
- Communication at discharge of AKI diagnosis
  - Sick day rules

### Measurement

- Bundle/ risk assessment compliance
  - Local audit
- AQ AKI stage 3 measure
  - Education compliance
- Pharmacy knowledge baseline audit
- Medication review data

# IHI Breakthrough Series Model

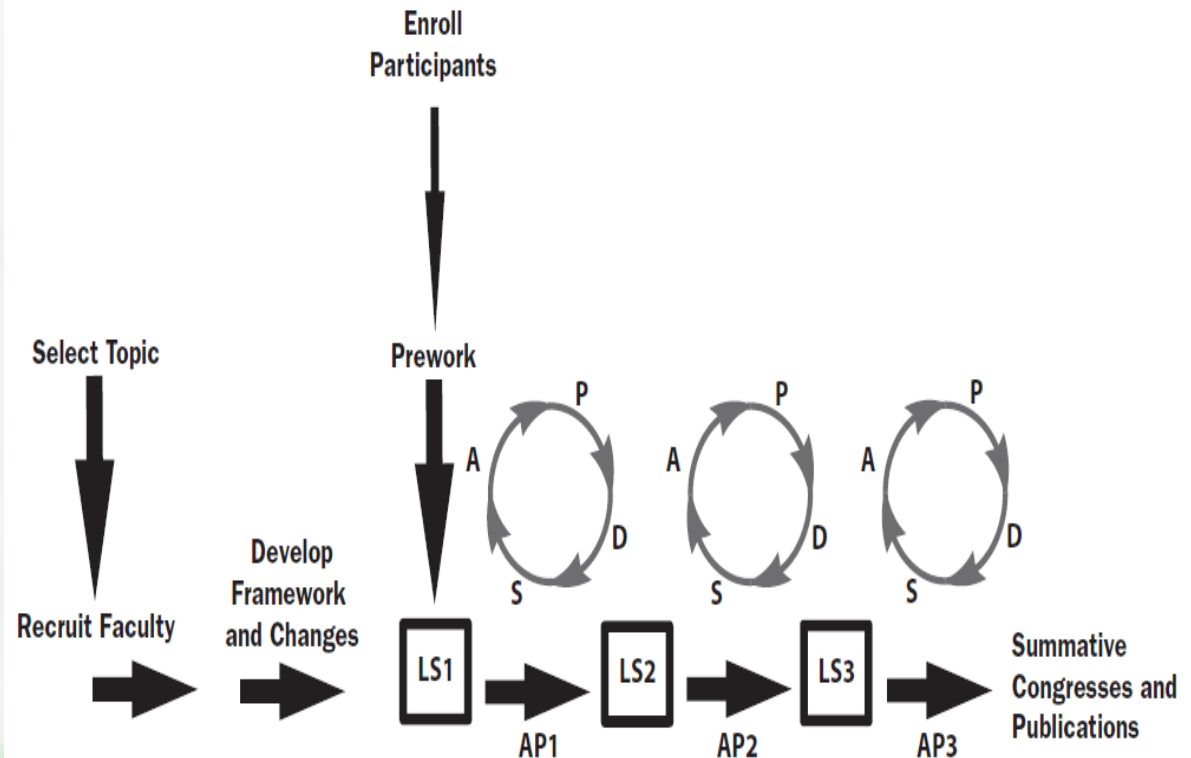
10 MDT teams across the organisation

Learning session 1: August 15

Learning session 5: Oct 16

Summit : Feb 17

Action Period- regular informal catch up



LS1: Learning Session  
AP: Action Period  
P-D-S-A: Plan-Do-Study-Act

Supports:  
Email • Visits • Phone Conferences • Monthly Team Reports • Assessments



# Salford Acronym

## Think SALFORD

Institute AKI bundle in all patients with 26 mmol/L or 1.5 X rise in creatinine or oliguria (<0.5mls/kg/hr) for >6 hours.

safe • clean • personal

**S**epsis and other causes-treat

**A**CE/ARB and NSAIDS suspend/review drugs

**L**abs (Repeat Creatinine within 24 hours) & **L**eafllets (for patients)

**F**luid assessment and response (History and examination, initiate fluid chart, measure daily weights - if hypovolaemic give bolus IV 250 mls and reassess)

**O**bstruction USS should be performed within 24 hours if there is oliguria (<3 X rise in creatinine or >354 mmol/litre) of unknown cause

**R**enal /critical care referral Non resolved AKI, severe AKI, CKD 4-5, renal transplant, severe AKI complicated

**D**ip the urine and record it

**Think SALFORD** bundle checklist:

- S**epsis and other causes-treat
- A**CE/ARB and NSAIDS suspend/review drugs
- L**abs (Repeat Creatinine within 24 hours) & **L**eafllets (for patients)
- F**luid assessment and response (History and examination, initiate fluid chart, measure daily weights - if hypovolaemic give bolus IV 250 mls and reassess)
- O**bstruction USS should be performed within 24 hours if there is oliguria (<3 X rise in creatinine or >354 mmol/litre) of unknown cause
- R**enal /critical care referral Non resolved AKI, severe AKI, CKD 4-5, renal transplant, severe AKI complicated
- D**ip the urine and record it

Checklist columns: Responsible, Completed

# Improving Processes

Identification ..so what?

-Use of safety Huddle to identify AKI patients and start key tasks from the 'Salford' acronym

The screenshot displays a patient's EHR interface. At the top, the patient's name is 'EPRPATHB\_PATIENT' and 'Z Test Ward'. The patient's NHS number is 0099999991 / 000000023. The patient is identified as 'Marsh, Mr D', 35 years old (DOB: 01-01-1979), male. A red box highlights 'AKI 3' in the patient's information section. Below this, there are tabs for 'Patient List', 'Results', 'Orders', 'Documents', 'Flowsheets', 'Patient Info', 'Clinical Summary', 'Scanned Records', 'ECG', 'Letter Viewer', 'SIR', 'Christie's', and 'PACS'. The 'Results' tab is active, showing a table of laboratory results for 'Urea & Electrolytes' dated 20-12-2013 09:25. A warning message states: 'Some results may not be shown for all available charts for performed dates from 01-12-2013 to 01-01-2014; Result Category: Clinical Biochemistry'. The table lists the following results:

Test	Value	Reference Range	Status
Urea (serum)	20.4	[2.5-7.8 mmol/L]	Final
Creatinine	1061	[62-106 umol/L]	Final
Sodium (serum)	140	[133-146 mmol/L]	Final
Potassium (serum)	5.7	[3.5-5.3 mmol/L]	Final
Estimated Glomerular Filtration Rate	5	[>90 mL/min/1.73m2]	Final
Biochemistry Comment			Final

# Improving Processes

## Medication Review

- Pharmacy champion receive daily email from biochemistry identifying AKI patients
- They contact pharmacist colleague for that area to prompt AKI review ( EPR documentation)
- Champion later checks AKI review has been completed

structured Notes Entry - EPRTEST19, PATIENT - AKI Pharmacists Review.

DATE  Preview

Copy Forward Refer to Note Preview Modify Template Acronym Expansion

ACUTE KIDNEY INJURY POLICY

Acute Kidney Injury [Click here to view policy on Trust intranet](#)

BIOCHEMISTRY 0/0

Show all available  Show selected only

Range: 21-07-2015 to 21-10-2015 Chart Scope:

Result Name

MEDICATIONS - ACTIVE AND INACTIVE 0/142

Show all available  Show selected only

Chart Scope: This Chart

<input type="checkbox"/>	Date	Order Name	Order Summary Line	Status	Disc/
<input checked="" type="checkbox"/>	Pharmacy				
<input type="checkbox"/>	07-03-2010	Omeprazole	Capsule	Stopped	21-03
<input type="checkbox"/>	12-03-2010	Hydroxocobalamin Injection	1 mg: <User Schedule>	Inactive	13-03
<input type="checkbox"/>	12-03-2010	Hydroxocobalamin Injection	1 mg: <User Schedule>	Inactive	16-03
<input type="checkbox"/>	12-03-2010	Morphine Oral Solution (10mg/5ml)	CONTROLLED DRUG.	Stopped	21-03
<input type="checkbox"/>	13-03-2010	Hydroxocobalamin Injection	1 mg: <User Schedule>	Inactive	16-03
<input type="checkbox"/>	14-03-2010	Codeine	Tablet	Stopped	21-03
<input type="checkbox"/>	14-03-2010	Morphine 1/R Tablets [SEVREDOL]	CONTROLLED DRUG.	Stopped	21-03
<input type="checkbox"/>	16-03-2010	Bisoprolol	Tablet	Stopped	21-03
<input type="checkbox"/>	16-03-2010	Clopidogrel	Tablet	Stopped	16-03
<input type="checkbox"/>	16-03-2010	Omega-3-Acid Ethyl Esters (OMACOR)	Capsule	Stopped	21-03
<input type="checkbox"/>	16-03-2010	Ramipril	Tablet/Capsule	Stopped	21-03
<input type="checkbox"/>	16-03-2010	Vancomycin Injection	1 g: Every 12 Hours	Stopped	21-03



# Education

https://www.salfordlearning.nhs.uk/course/view.php?id=187

You are logged in as Liam Doyle (Log out)

Salford Royal **NHS**  
NHS Foundation Trust

Home | My Profile | SRFT Induction | SRFT Staff | Medical Students | PG Trainee Doctors | Volunteers

Home > My courses > SRFT Staff > Personal and Professional Development > Acute Kidney Injury (AKI) [Turn editing on]

NOVEMBER 2015

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Events Key

- Hide global events
- Hide course events
- Hide group events
- Hide user events

Navigation

- Home
  - Site pages
  - My profile
  - Current course
    - Acute Kidney Injury (AKI)**
      - Participants
      - Badges
      - AKI Online Learning Resources
      - Learning Resources
      - Acute Kidney Injury Skills Check
      - Forum

### AKI Online Learning Resources

Your progress

One in five emergency admissions to hospital will have AKI. Such patients are usually under the care of specialties other than nephrology. With the right care and treatment up to 30% could be prevented (NCEPOD 2009).

- In the UK up to 100,000 deaths each year in hospital are associated with acute kidney injury. Up to 30% could be prevented with the right care and treatment.**  
NCEPOD, Adding insult to injury, 2009
- One in five people admitted to hospital in the UK each year as an emergency has acute kidney injury.**  
Wang, et al. 2012
- Just one in two know their kidney make up.**  
Ipsos MORI s July 2011

### Learning Resources

This section provides online learning resources to support staff at all levels with their online assessment and professional development. In order to complete the AKI course you must complete the AKI skills check in the next section

- E-learning completed by 1200 staff
- AKI training for newly qualified nurses and delivered on wards by practice educators
- More detailed and focused training around fluid balance

# Other Key Activity

- Embedding National Algorithm and bundle within electronic systems
- Link nurse activity
- Junior Doctor engagement

Structured Notes Entry - EPRPATH.B. PATIENT - Admission Document Medical

CREATE | Preview

Copy Forward Refer to Note Preview Modify Template Acronym Expansion < << >> >

Document Info

AKI MEDICAL ACTIONS

Acute Kidney Injury  Click here to view policy on Trust intranet

Acute Kidney Injury diagnosis  Yes...  No

Acute Kidney Injury stage (score)  1  2  3

Acute Kidney Injury Information Highest AKI score during admission: 2. Date: Sep 4 2015 3:17PM  
AKI Medication review completed

Acute Kidney Injury guidance THINK KIDNEYS THINK SALFORD

S - Sepsis and other causes - Treat  
A - ACE/ARB and NSAIDS suspend/review drugs  
L - Labs (repeat creatinine within 24 hours) & Leaflets (for patients)  
F - Fluid assessment and response (fluid charts, daily weights)  
O - Obstruction (USS should be performed within 24 hours in non resolving AKI)  
R - Renal/critical care referral (non resolving AKI)  
D - Dip the urine and record it

Urinalysis requested  Yes...  No...

IV fluids indicated  Yes...  No...

Fluid balance chart reviewed  Yes  No.

Please note

- Caution with use of drugs with nephrotoxic potential (such as NSAIDs, aminoglycosides, ACE inhibitors, ARBs, metformin and diuretics) within the past week, especially if hypovolaemic
- Do not routinely offer loop diuretics to treat acute kidney injury
- Do not offer low-dose dopamine to treat acute kidney injury
- Caution should be exercised with iodinated Contrast or patients who have had iodinated Contrast in the last week

Has the patient received any potentially nephrotoxic medications  Yes - currently prescribed  Yes - stopped during admission  Yes - stopped prior to admission

Indication for ultrasound (urinary tract symptoms)  Yes - review AKI policy  No

Referral to renal (All Stage 3 patients)  Yes - Enter referral on NORSE.  No

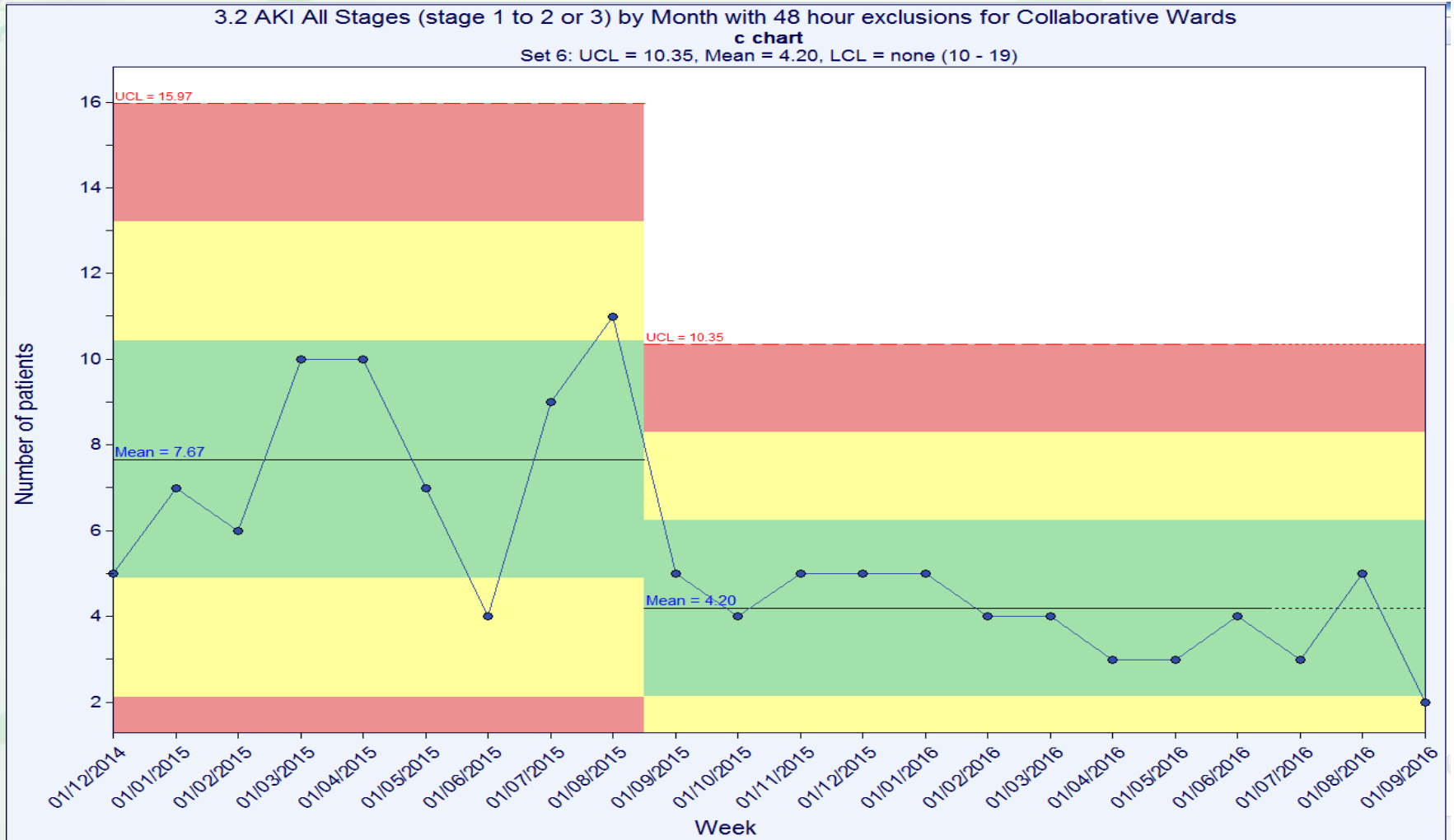
Indication for referral to urology  Yes - review AKI policy  No

Indication for referral to critical care  Yes - review AKI policy  No

Referral Comments

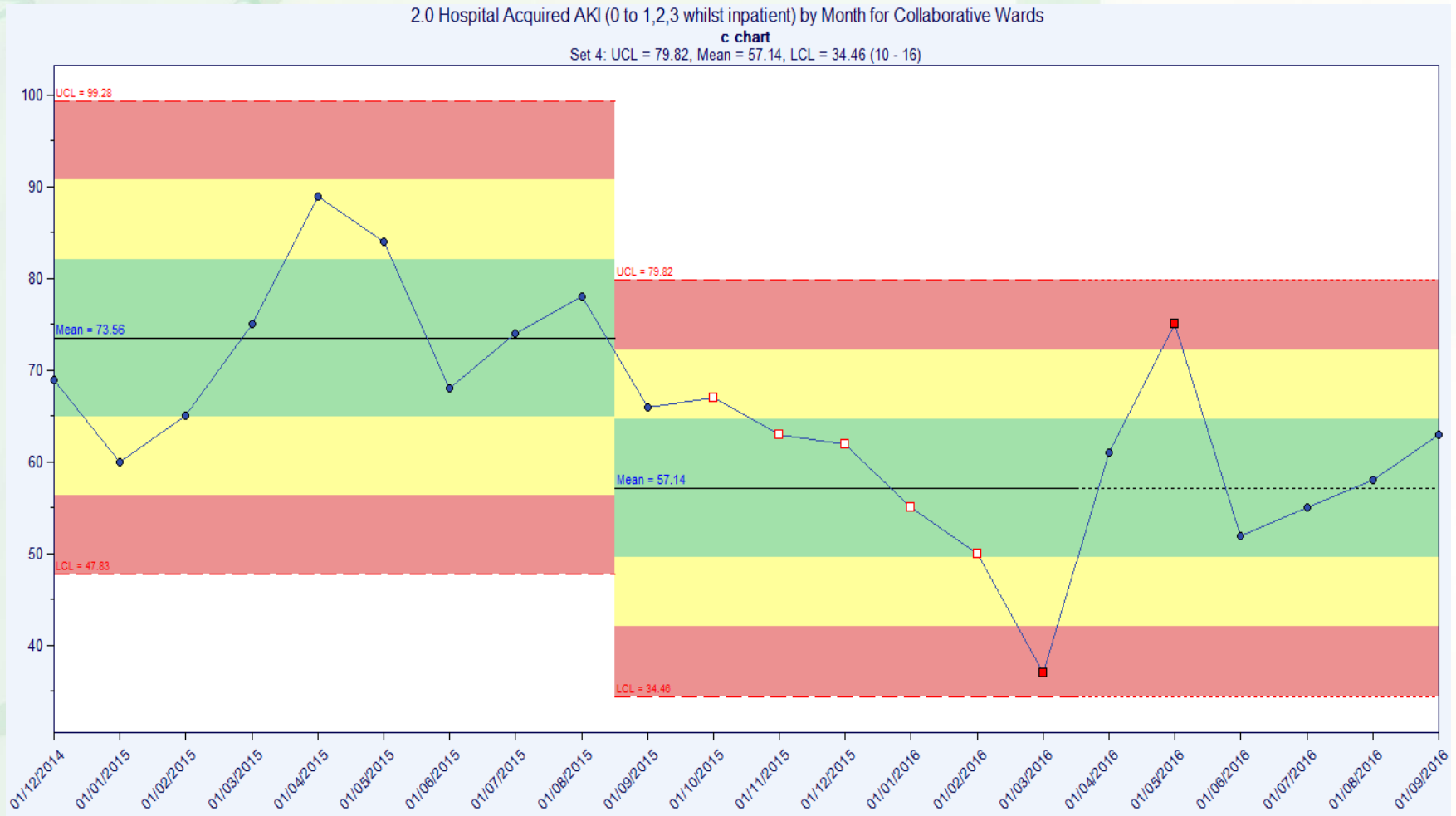
Need Help? Mark Note As:  Results pending  Priority  Incomplete  Calculate after save  Charge Capture SuperBill Save Cancel

# Data: AKI stage 1 progressing to stage 2 or 3 for collaborative wards (after 48 hours of admission)



# Data: 'Hospital Acquired' AKI 0 to 1,2,3 for collaborative wards

safe • clean • personal



# Next Steps

- Launch of AKI change package
- Phase 2 collaborative with 10 new wards and buddy system with phase 1 wards
- Patient information video
- Some ideas from today ...



QUALITY  
MATTERS

Thank you  
Any Questions?