

**Suman Adhikari** Antimicrobial Stewardship & Critical Care Pharmacist  
St George Hospital, South Eastern Sydney LHD

Email: [suman.adhikari@health.nsw.gov.au](mailto:suman.adhikari@health.nsw.gov.au)  
Phone: 02-91131582 ECLP Cohort: 23

## Aim Statement:

“80% of patients labelled allergic to penicillin in the surgical wards will be assessed for severity and formally referred to the allergy team by October 2020”

## Background to problem worth solving

- At St George Hospital 1423 (11%), out of 12798 admitted patients, were labelled allergic to penicillin (Feb-Dec. 2018).
- Large scale studies have demonstrated 85-90% of patients labelled with penicillin allergy tolerate penicillin. True penicillin allergy accounts only 1%.
- Implications of incorrect allergy label
  - ↑ Error rates and antibiotic delays
  - ↑ Restricted antibiotic use
  - ↑ LOS, readmission and death
  - 23% ↑ risk of *Clostridioides difficile*
  - 14% ↑ risk of MRSA infection
  - 30% ↑ risk VRE infection

**Executive sponsor:**  
Heidi Boss, Director of Medical Services, SGH

**Project team members:**  
Dr Pam Konecny, Senior Staff Specialist ID & AMS lead  
Dr Richard Sullivan, Staff Specialist ID  
Orla Galvin, Clinical Pharmacist Surgical  
Rayan Nahas, Senior Surgical Pharmacist  
Alison Centorrino, CNE Surgical Ward  
Dr Sanjana Shah, AMS RMO Representative  
Lolita Java, Antimicrobial Stewardship Project Officer, CEC  
Bayan Hosseini, Improvement Lead Medication Safety (AMS), CEC  
Dr Elliot Cameron, AMS RMO Representative  
Ibrahim Hamad, Clinical Pharmacist ED  
Maggie Lai, Clinical Pharmacist  
Dr Raymond Prasad, RMO Surgical Ward

**Quality Advisor:**  
Sandra Grove, Clinical Quality Manager, St George Hospital  
Maria Jessing, Patient Safety Education Lead, CEC

## Link to National Standard or Strategic Imperative

**Preventing and Controlling Healthcare-Associated Infection Standard**

**Antimicrobial Stewardship**

**Medication Safety Standard**

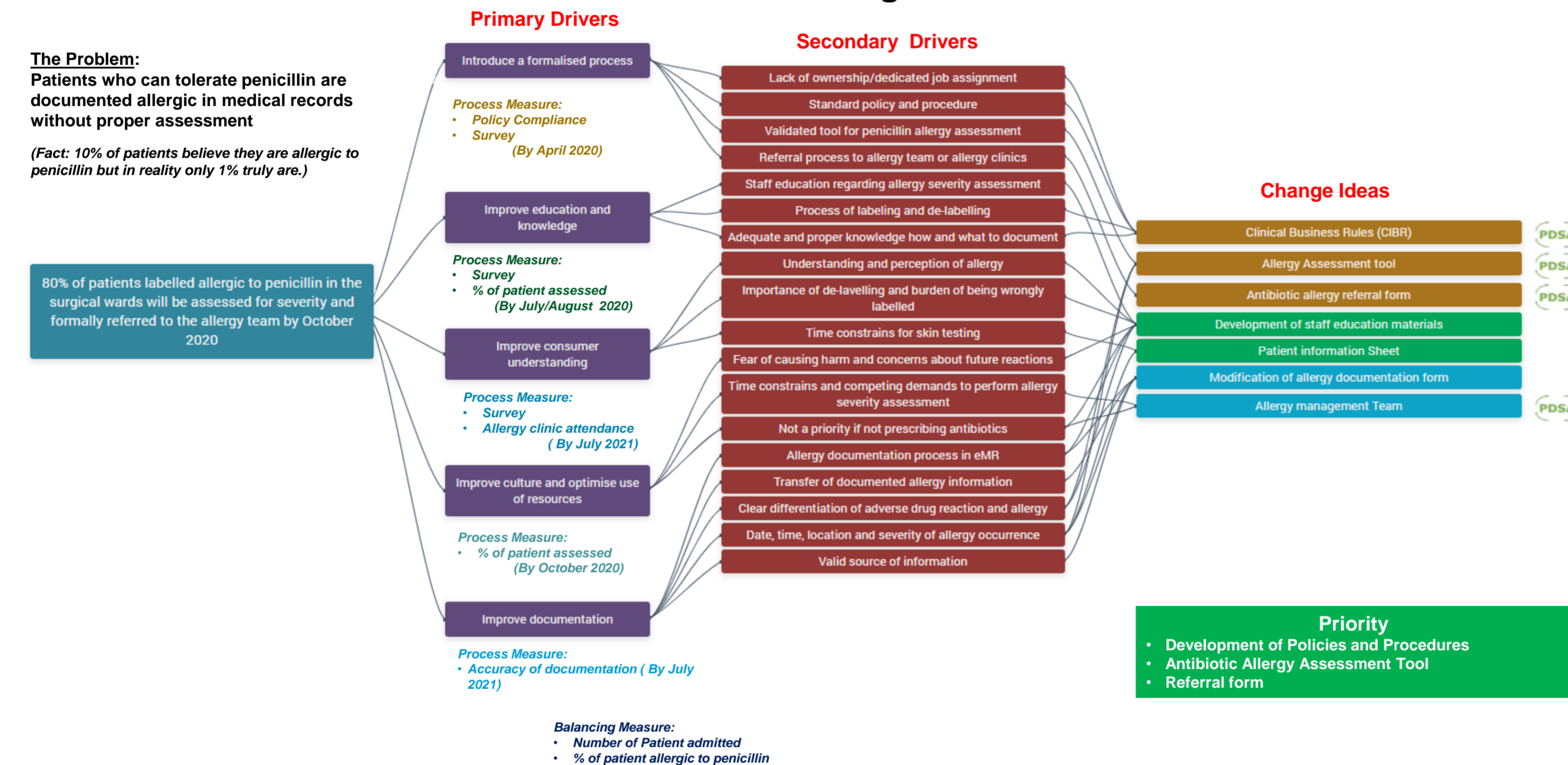
**Documentation of patient information**

Action 4.7 states: The health service organisation has processes for documenting a patient's history of medicine allergies and adverse drug reactions in the healthcare record on presentation

## Literature review

- Trubiano JA; J Allergy Clin Immunol Pract 2016; 4:1187-93
- Trubiano et al. Med J Aust. 2016;204 (7):273
- Blumenthal KG, et al. Allergy 2016; 71: 1305-13.
- Macy E, Contreras R; J Allergy Clin Immunol 2014; 133: 790-6
- Trubiano et al. Med J Aust 2016; 204 (8): 273
- Conway et al. Clin Ther 2017; 39 (11): 2276
- Trubiano et al. J Antimicrob Chemother 2016; 71(6): 1715 2.
- Trubiano JA; Antimicrob Resist Infect Control. 2015; 4: 23
- Knezevic et al. Intern Med J 2016; 11: 1276 7.
- Blumenthal et al. J Gen Intern Med 2019 April 22
- Blumenthal et al. BMJ 2018 Jun 27
- Trubiano et al. Clin Infect Dis 2017; 65(1):166-174

## Driver Diagram



### PDSA Cycle 1

**Development of allergy assessment policy and procedures**

**What changes are to be made?**

- Develop antibiotic assessment and de-labelling policy and procedures
- Standardised way of assessing and de-labelling
- Education on the impact of antibiotic allergy labels

**Who is responsible to develop and educate?**

SGH Infectious Disease department and AMS team

**When?** By February 2020

**Data:** Percentage of patients allergic, Number of patients assessed, Number of patients referred

**How?** Education sessions, Grand round presentation, JMO/RMO teaching program

**Review data and Study anecdotes:**

- Team brainstorming session
- Lack of knowledge and assessment tool

**Where to refer patients if needed?**

- Ward in-service
- Departmental education program

### PDSA Cycle 2

**Use CEC (draft) Antibiotic Allergy Assessment Tool (AAT) in practice**

**What changes are to be made?**

- Determine what problem healthcare professional face while assessing patient antibiotic allergy
- Antibiotic allergy myths and misconceptions
- Use CEC (draft) AAT
- Train staff how to use AAT

**Who is responsible to develop, coordinate and educate?**

AMS Pharmacist and surgical pharmacist

**When?** By April 2020

**Data:** Survey (Pre/post education session), Percentage of patients allergic, Number of patients assessed

**How?** Education sessions, Pharmacist Case studies

**Review the data and Study the anecdotes:**

- Discussions at departmental meetings
- Group discussion
- Lack of referral process after assessment

**Evaluate AAT:** Ward ATT

### PDSA Cycle 3

**Improve Allergy assessment using AAT and Allergy Clinic Referral**

**What changes are to be made?**

- Train Pharmacy staff on understanding of type of reaction and implication of incorrectly documented allergy label
- Modify allergy clinic referral process and form
- Inform nursing/surgical team
- Dedicate task

**Who is responsible?**

Staff specialist ID and AMS Pharmacist

**When?** By May 2020

**Data:** Survey (Pre/post education session), Number of patients assessed, Percentage of allergic patients referred to antibiotic allergy clinic

**How?** Communication board

**Analyse data:**

- Review number of allergy assessments and referrals
- Attitudinal data interpretation using 5-point Likert scale
- Workflow assessment

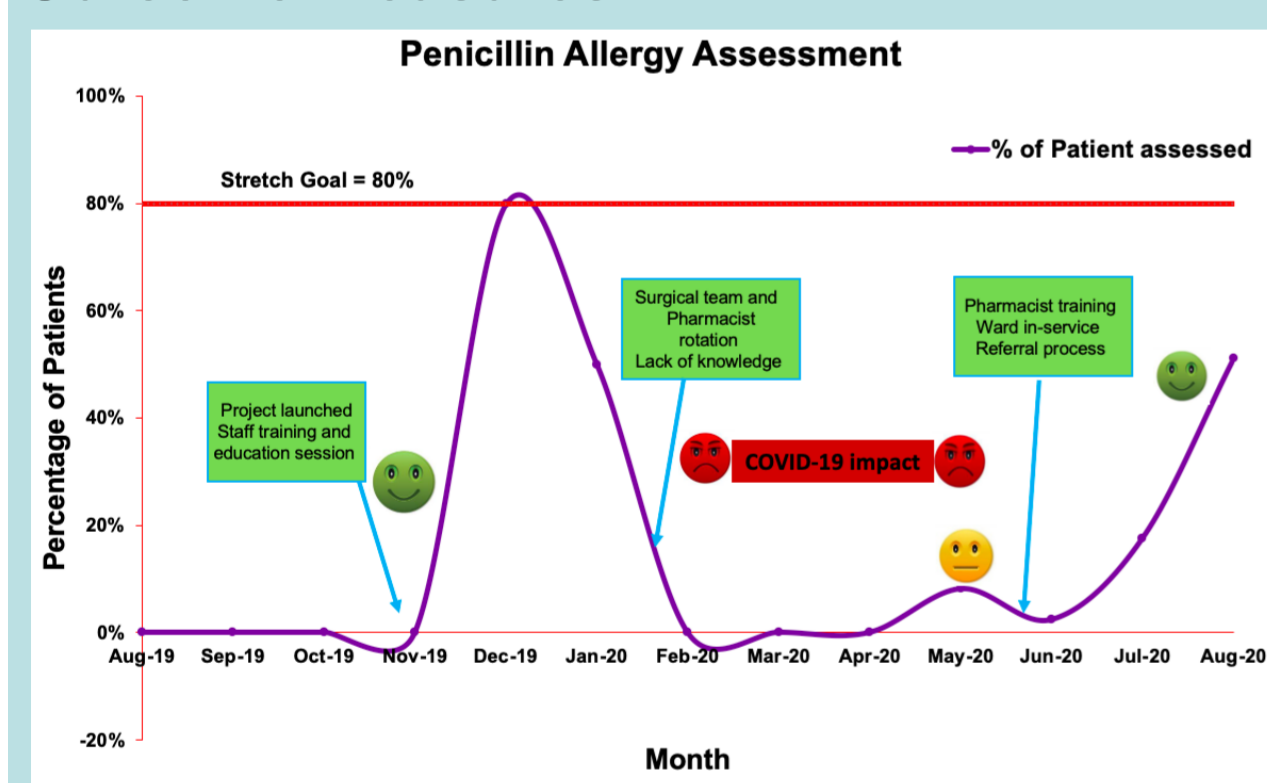
**Education session:** Pharmacist case studies, Ward in-service, Departmental education program

## Discussion and Outcome of Project:

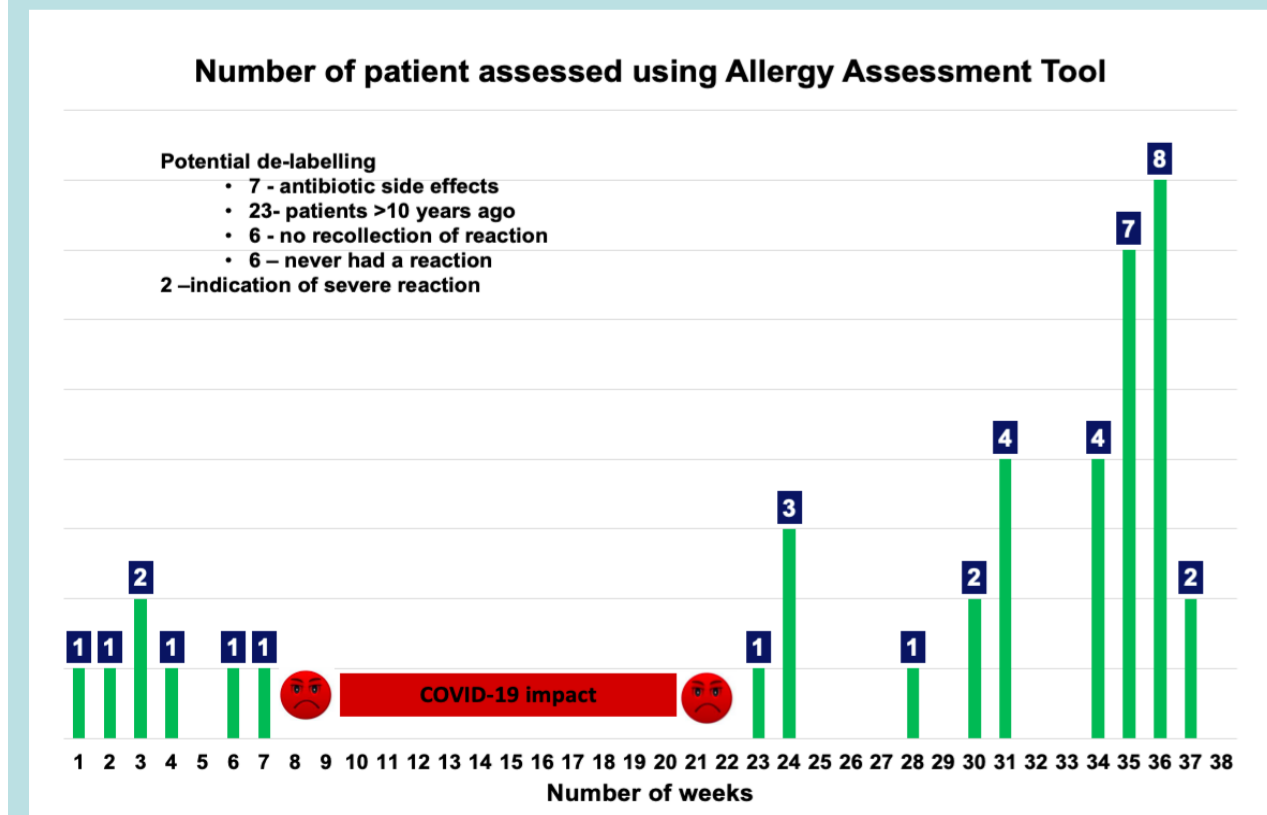
- Project execution was severely impacted by COVID-19, however this work has solid foundation for expansion.
- The stretch goal of 80% was not achieved.
- Improved accuracy of documentation of penicillin allergy
  - Patients labelled allergic to penicillin reduced from 11% to 7.3% mainly due to clinical staff education.
- Improved accuracy of allergy assessment in practice.
  - 19% of patient labelled allergic to penicillin were formally assessed.
  - 50% of patients were de-labelled after assessment and 33% were referred to allergy clinic for review.
- Standardised and formal process of antibiotic allergy assessment, de-labelling and desensitising skin prick testing established, there was no such process prior to this.
- CEC draft Antibiotic Assessment Tool (AAT) was utilised and evaluated.

## Results

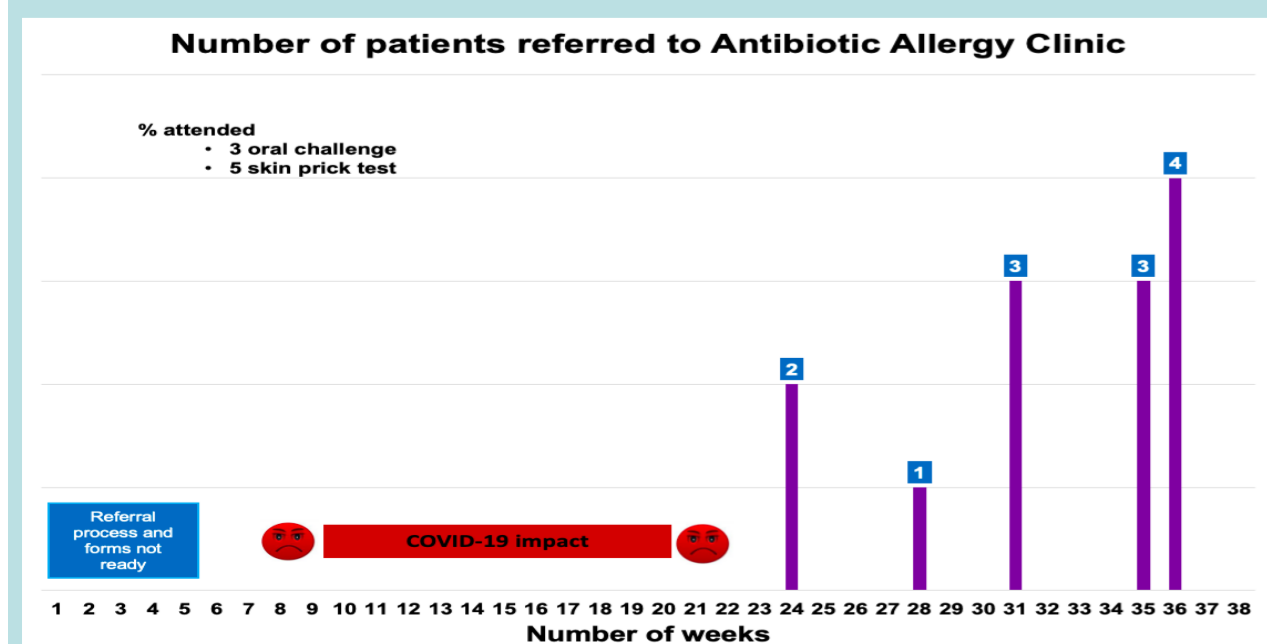
### Outcome measures



### Process measures 1



### Process measures 2



## Results continued

### Process measures 3- Survey results (Pre and post education session)

Are you aware that the hospital has an antibiotic allergy policy and procedure, an antibiotic allergy team, and an antibiotic allergy referral clinic?			
Respondents : Pharmacist, nurse and doctors	Pre (n=26)	Post (n=23)	
Yes	19.2%	91.3%	
Aware of policy but do not know the referral process	30.8%	8.7%	
Never heard of it	50%	0%	

How confident do you feel to directly de-label (remove) side effects to antibiotics documented as an allergy on a medical record (eMR)? For example, a patient listed as allergic to amoxicillin because they suffered with diarrhoea (a known side effect).			
Respondents : Pharmacist, nurse and doctors	Pre (n=26)	Post (n=23)	
Extremely confident	0%	4.3%	
Very confident	7.7%	39.1%	
Somewhat confident	30.8%	39.1%	
Not so confident	38.5%	8.7%	
Not at all confident	23%	8.7%	

When assessing antibiotic allergies, if there was an allergy assessment tool available, I would feel more confident to assess and de-label (remove) an already documented "false" allergy from a medical record (eMR)?			
Respondents : Pharmacist, nurse and doctors	Pre (n=26)	Post (n=23)	
Yes	84.6%	82.6%	
Unsure	15.4%	17.4%	
No	0%	0	

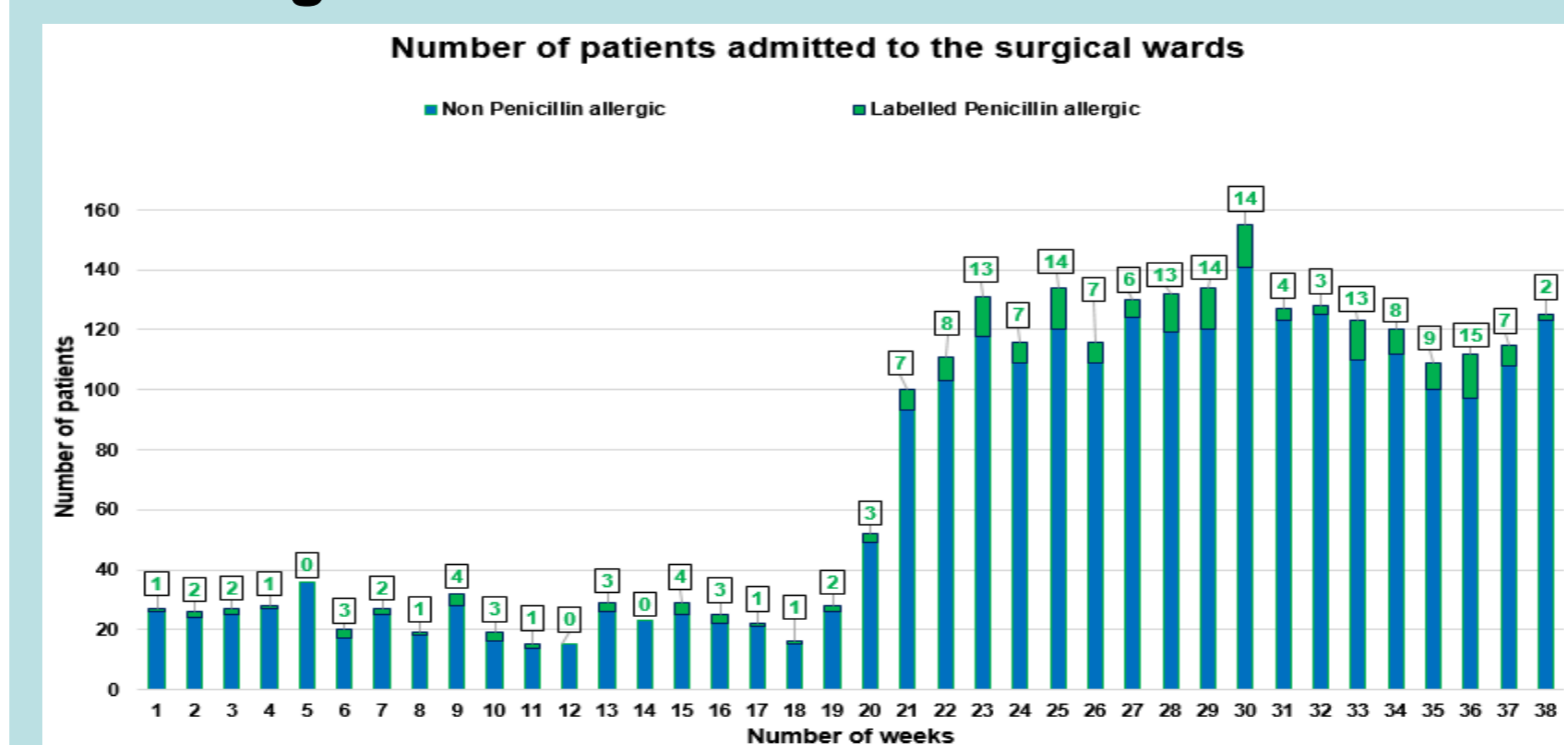
## Comments on draft CEC AAT (Post training survey)

**Pharmacist A**  
"Great clarification of allergies and I look forward to using an allergy assessment tool"

**Pharmacist B**  
"An antibiotic allergy assessment on the back of the Antibiotic guideline cards (for portability) would be most useful"

**Nurse A**  
"Making decisions about whether a patient has a true allergy or not seems like a huge responsibility"

## Balancing measures



## Plans to sustain change

- Standardisation**
- Standardised way to assess antibiotic allergy using validated tool
  - Dedicated antibiotic allergy rounds and formalised referral process
- Training**
- Antibiotic allergy assessment integrated into Pharmacist surgical ward rotations.
  - Antibiotic allergy assessment and referral included in JMO/RMO orientation
- Documentation**
- Develop electronic AAT and referral process in eMR
  - Separate adverse effects and allergy in eMR
- Measurement**
- Ongoing audit of allergy assessment and referrals

## Plans to spread/share change

- Publication in peer reviewed journal
- Expand it to other SESLHD and ISLHD hospitals
- Present in national conference
- Report to CEC on evaluation of AAT