

Reducing Urinary Tract Infections through hydration

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Oxford

**Patient
Safety
Collaborative**

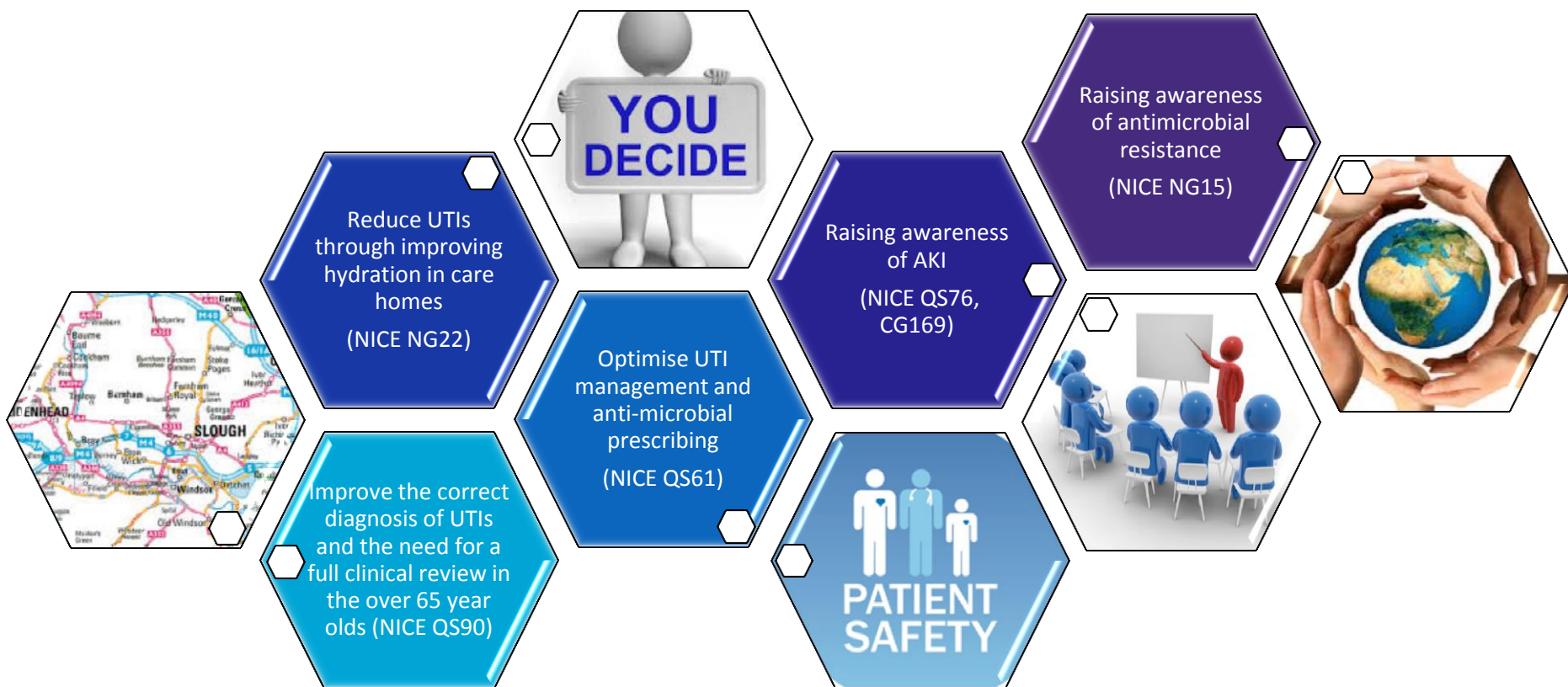
NHS

East Berkshire
Clinical Commissioning Group

Beginning of the journey

2015/2016 - East Berkshire CCG noted a rise in UTI hospital admissions care homes

NHS England 2014 reported that urinary tract infection (UTI) was the condition with the highest emergency admissions rate in 2012/13





Background

Pilot 1 group

- Started 1st July 2016
- 3 Residential Homes (25 residents in each)
- 1 Nursing Home (75 residents)
- Total residents 150 (> 60% with dementia)

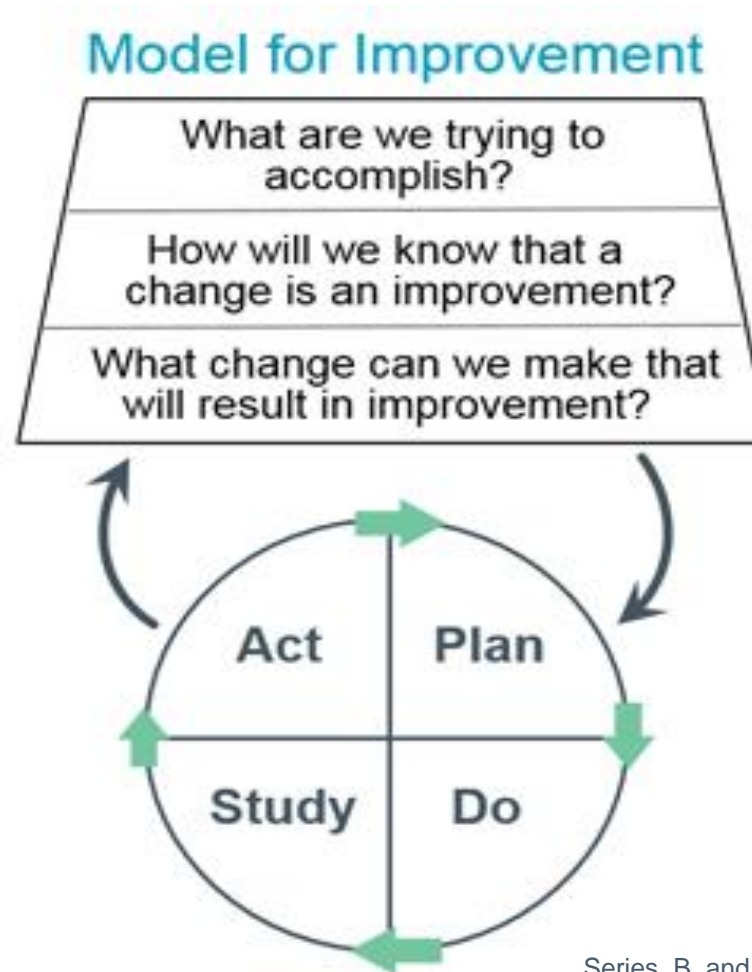
Collaborative working

- Care Home Managers, Oxford AHSN Patient Safety Collaborative AKI work stream and East Berkshire CCG (Medicines Optimisation)

Multidisciplinary

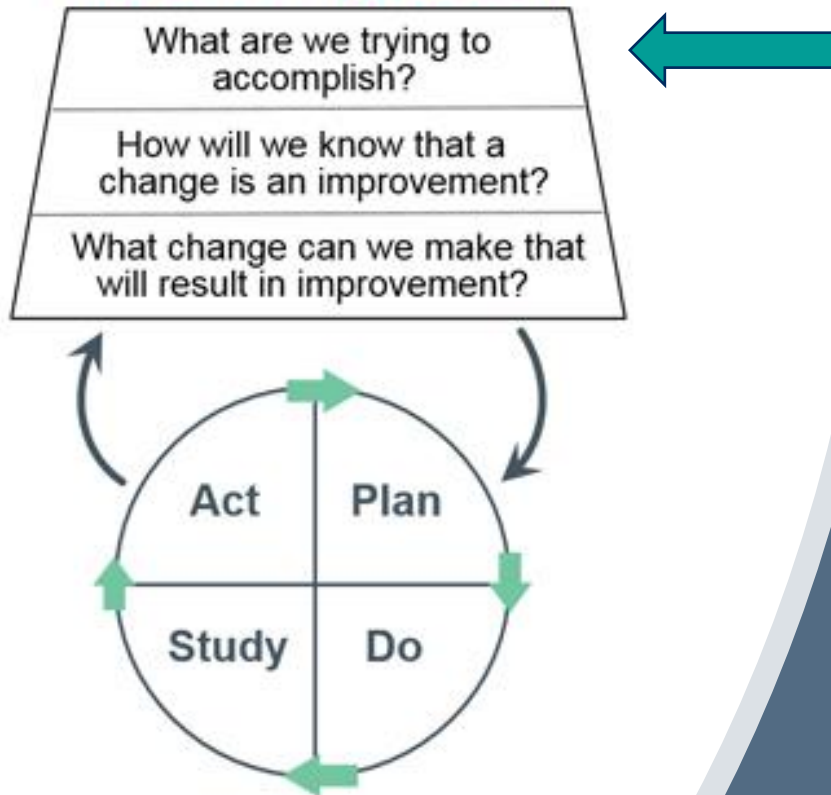
- AHSN patient safety manager, pharmacist, dietitian, care home staff (carers, chefs, nurses, activity co-ordinators, managers), GPs, patients.

Approach - Quality Improvement



Series, B. and Kilo, C.M., 1998. A Framework for Collaborative Improvement: Lessons from the Institute for Healthcare improvement's Breakthrough Series. *Quality management in health care*, 6(4), pp.1-13.

Model for Improvement



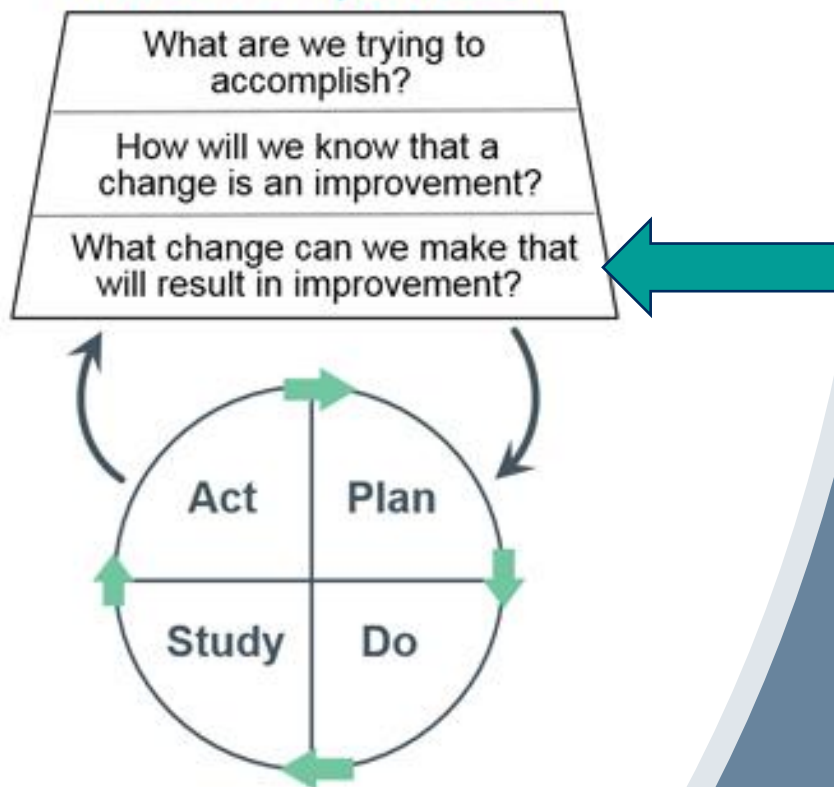
Main Aim:

- **Reduce hospital admissions for UTIs by 5% from the previous year**

Other Aims:

- To reduce number of antibiotic treated UTIs
- To improve the general health and well being of residents
- To improve safety
- To raise awareness for care staff
- To optimise UTI management and prescribing

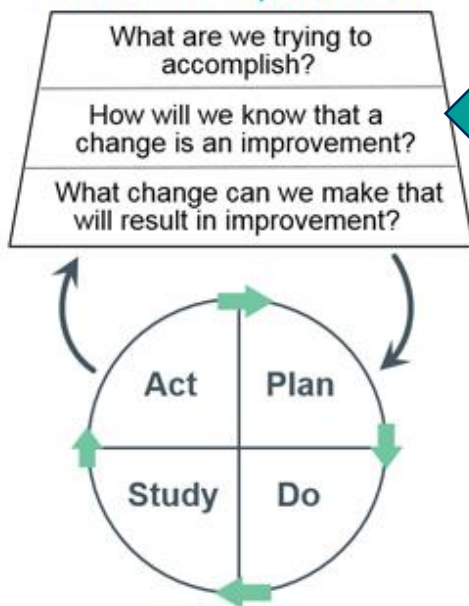
Model for Improvement



Designed process measures with care home managers

7 Structured Drinks rounds a day

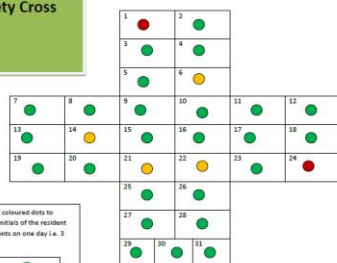
Model for Improvement



Outcome Measure – UTIs requiring antibiotics or admitted to hospital with a safety cross

Urinary Infection Safety Cross

Month: April 2018

Oxford Academic Health Science Network
PATIENT SAFETY

KEY: If a resident has a UTI use the following coloured dots to populate the data it occurred on. Write the initials of the resident who has the UTI in the box. If multiple residents on one day i.e. 3 residents put 3 dots and 3 sets of initials.

No UTIs	Green dot
UTI with antibiotics but remained in the residential/nursing home	Yellow dot
UTI and admitted to hospital	Red dot

Process data

Monthly Structured Drinks Rounds Chart Please circle Y or N if the drinks round took place or not at the allocated time

Name of care home _____

Month _____ Year _____

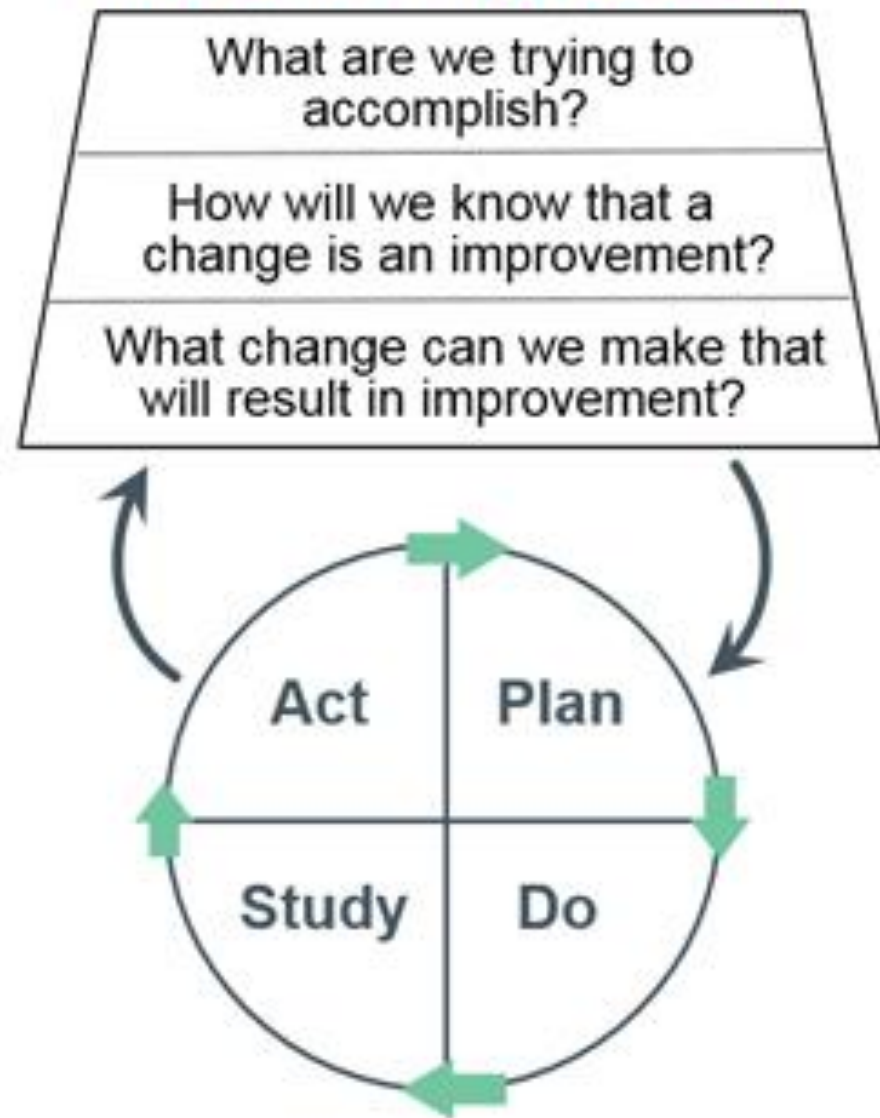
	Time (amend time to suit care home)							Total
Date	0800	1000	1200	1300	1500	1700	1900	
1	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
2	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
3	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
4	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
5	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
6	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
7	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
8	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
9	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
10	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
11	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
12	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
13	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
14	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
15	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
16	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
17	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
18	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
19	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
20	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
21	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
22	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
23	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
24	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
25	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
26	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
27	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
28	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
29	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
30	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
31	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	

Example 1 - process measure, delivery of 7 structured drinks rounds a day designed with care home managers

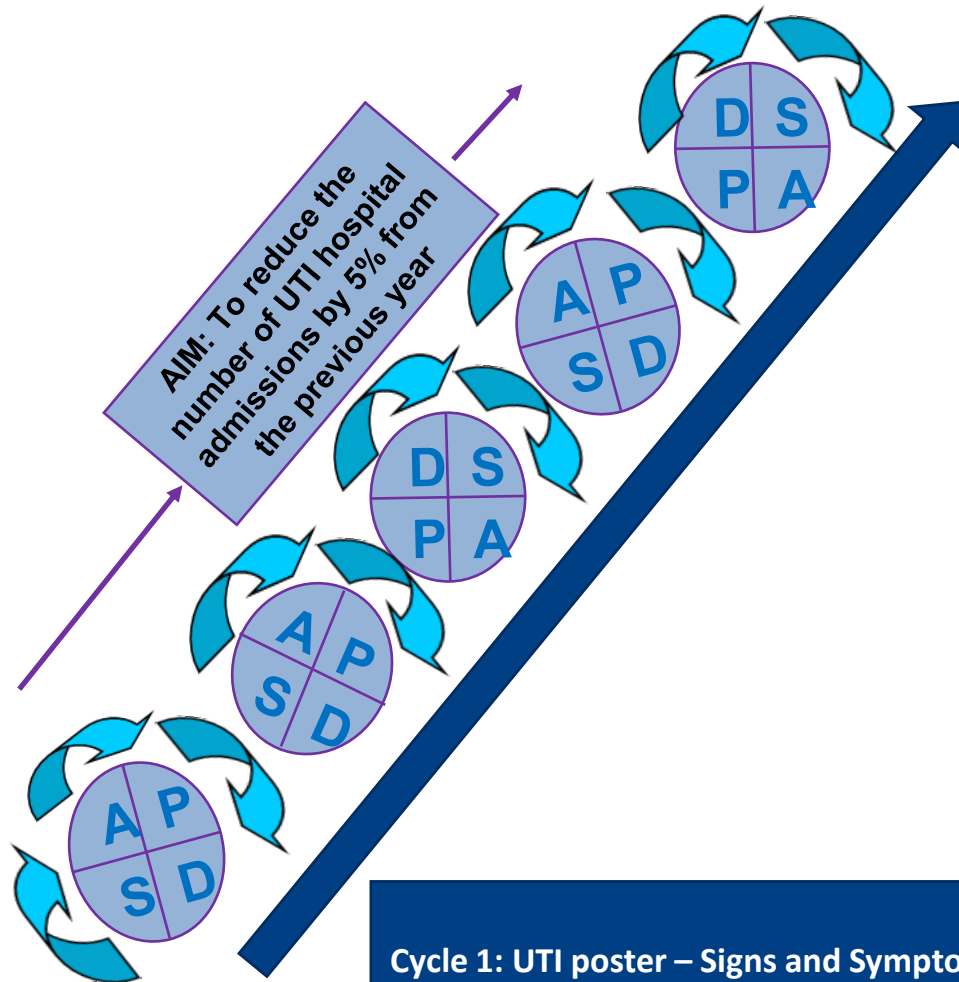


PDSA Cycles

Model for Improvement



Tests of Change: Hydration PDSAs



Cycle 1: UTI poster – Signs and Symptoms of a UTI – 1st June 2016

Urinary Tract Infection (UTI) in Care Home Residents

What is a Urinary Tract Infection?

It is an infection in any part of the urinary system, the kidneys, ureters, bladder and urethra



How do I know if someone has a UTI?

Any two new symptoms of the following:

- New onset or worsening of pre-existing confusion/agitation/drowsy
- Shaking /chills/high temperature $>38.0^{\circ}\text{C}$ or <36.0
- Dysuria - difficulty or pain passing urine
- Urgency - needing to go to the toilet quickly
- Frequency - needing to urinate more often than normal
- Urinary incontinence - unintentional loss of urine
- Pain in the side of the body or above the groin area
- Blood in the urine

NHS.uk guidance, July 2012, Management of suspected bacterial urinary tract infections in adults

It is particularly difficult to diagnose a UTI in older people because they can have a bacteria in their urine but not show any symptoms. This means that older people in care homes frequently have antibiotic treatment which can be avoided.

Urine Colour

A general rule of adequate hydration is that the clearer and lighter the urine the better.

1-3 is healthy pee, 4-8 you must hydrate
Remember: various medications and vitamins can alter the colour of the urine.



How can I help?

The elderly often do not know they are thirsty.

They should drink around 1500-2000 mls (6-8 glasses) each day.

Offer drinks regularly throughout the day.
Help them to have their drink.
Give them choices of cups and drinks.

Hydrate: Offer more drinks



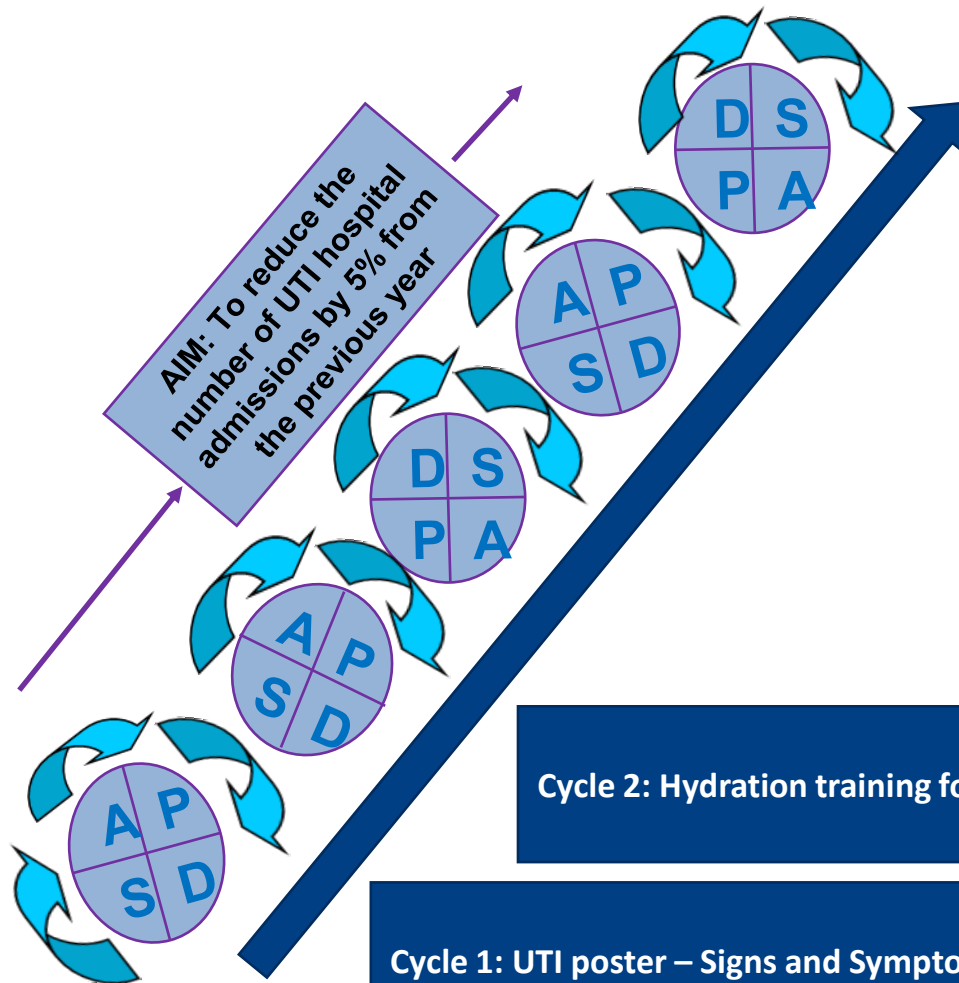
Let's Talk Hydration Levels

How hydrated is your resident?

1	Hydrated	If the colour of your resident's urine matches 1, 2 or 3, they are properly hydrated.	
2			
3			
4	Dehydrated	If the colour of your resident's urine matches 4, 5 or 6, they need to drink more. Start a care plan to ensure regular drinks taken and ensure allocated member of staff helps the resident for the rest of the day.	
5			
6			
7	Severely Dehydrated	If the colour of your resident's urine matches 7 or 8 - the resident needs to be rehydrated. Urgent fluids needed, commence fluid chart, hourly fluids, observe for other signs of deterioration and contact the doctor if necessary.	
8			

Urinary Tract Infection Poster

Tests of Change: Hydration PDSAs



Cycle 2: Hydration training for care home staff 28th June 2016

Cycle 1: UTI poster – Signs and Symptoms of a UTI – 1st June 2016



TRAINING

- In groups of 8-30
- Duration 2 hours

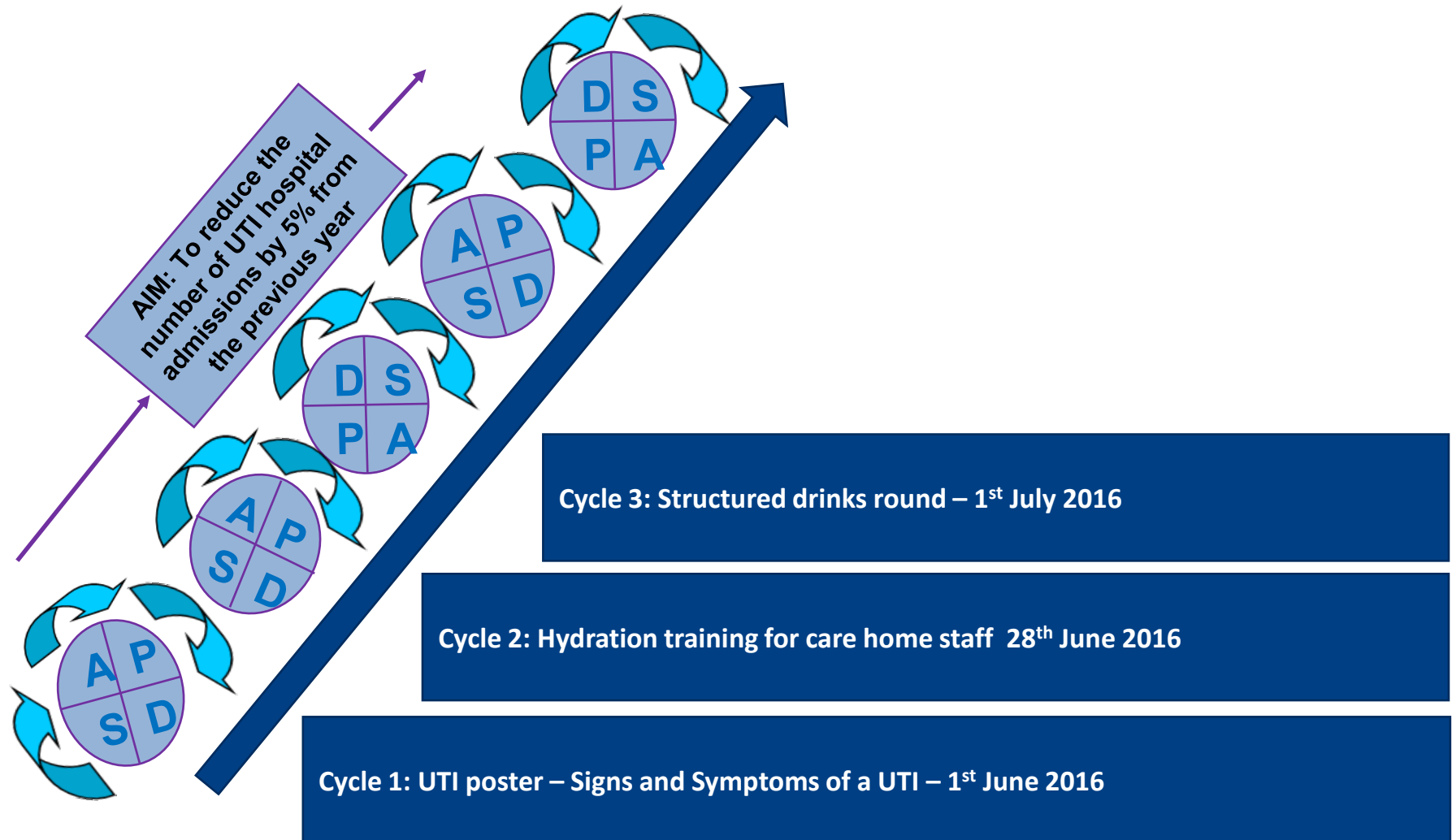
Topics

- Anatomy and Physiology of the urinary system
- Signs and symptoms of dehydration
- How to improve hydration
- The elderly and water
- AKI
- UTIs
- Medications and water
- How to implement and measure a structured drinks round
- Captured thoughts and ideas from care staff as to what would work

“The training has given us understanding of why it’s important to ensure that residents have enough fluids – it’s looking at the whole system, not just a drink.”

Care Home Staff Member

Tests of Change: Hydration PDSAs



Structured Drinks Round

Look forward to

7 rounds per day

Variety of cups and drinks

Colourful

Families Involved

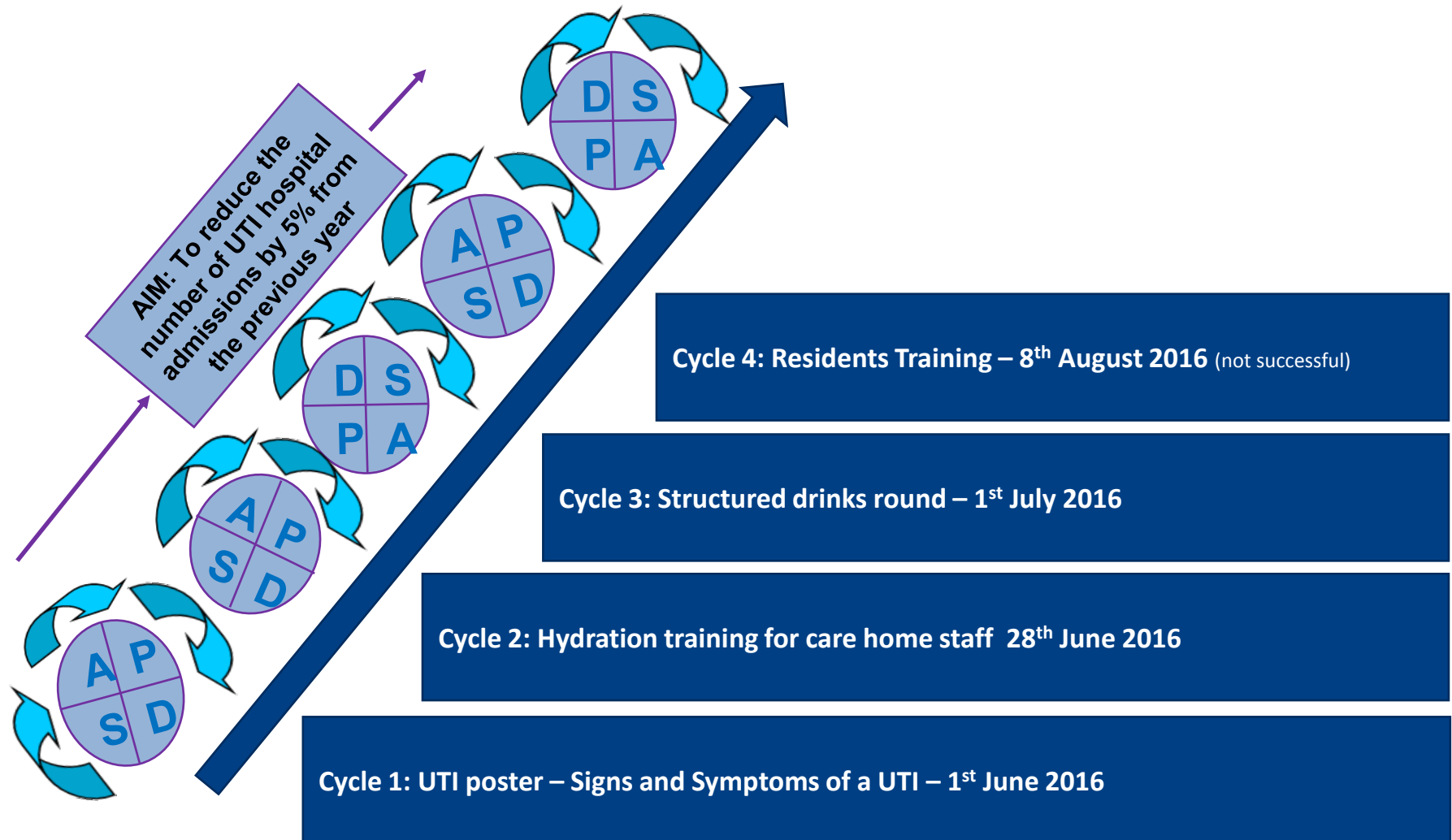
Themed

Creative

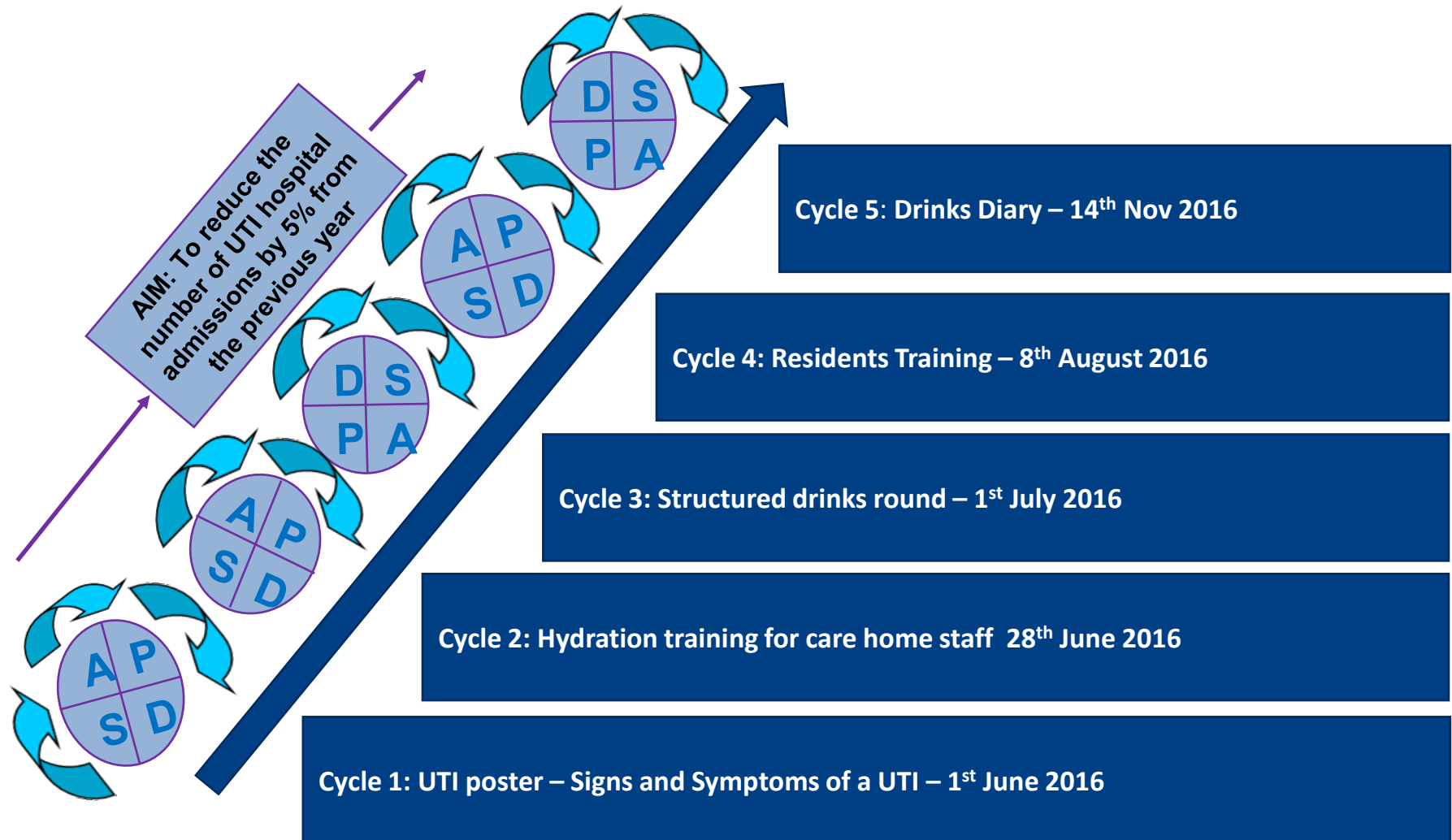
Residents Involved



Tests of Change: Hydration PDSAs



Tests of Change: Hydration PDSAs





Food and Fluid Chart

A resident who had a UTI every 6 weeks used the drinks diary (had capacity) and realised how little they were drinking. Increased fluids of own free will. Improvement in walking, interaction socially and been UTI free for over 10 months.

Enter name of residential home

Food and Drinks Chart

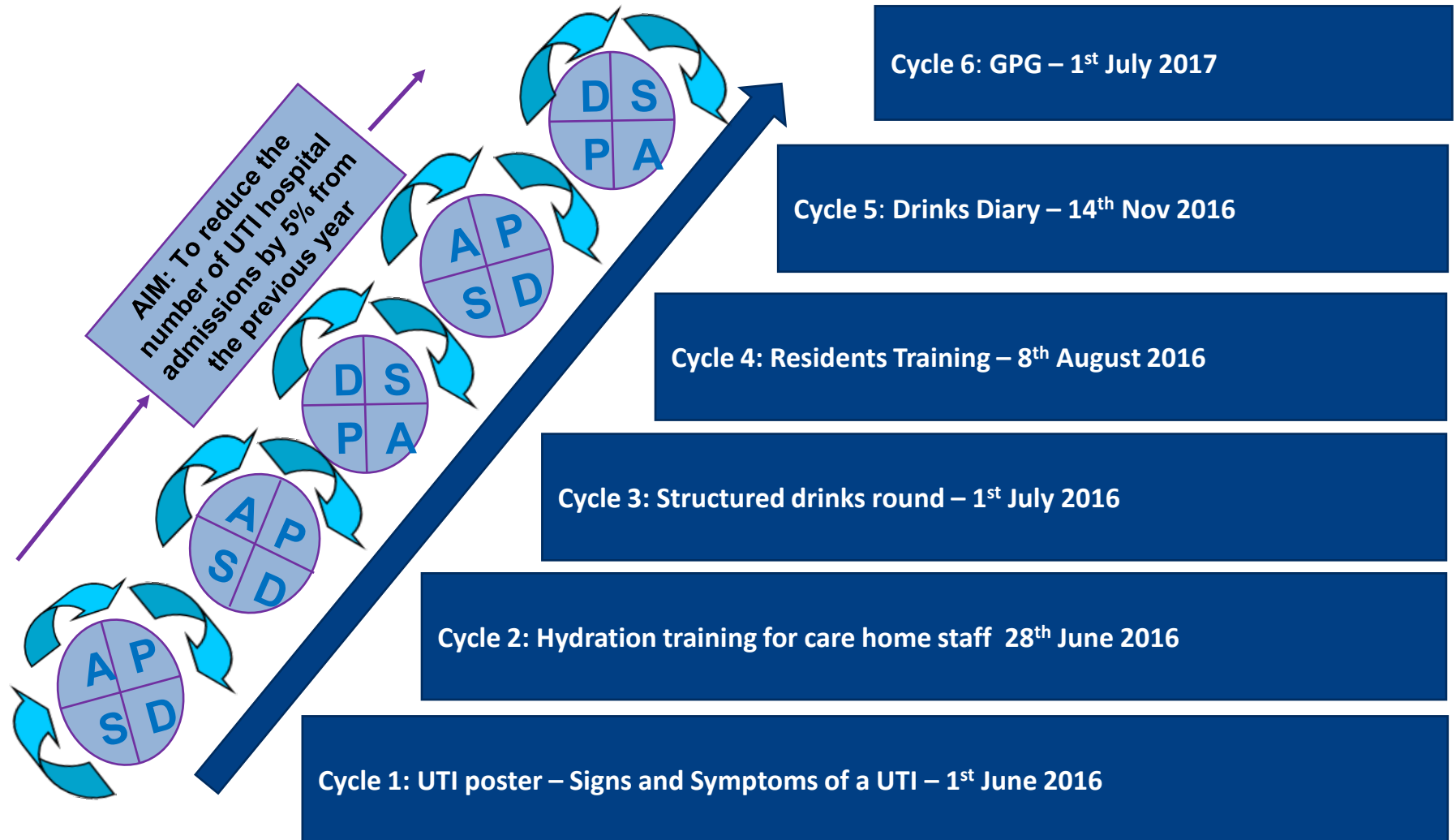
Oxford Academic Health Science Network
PATIENT SAFETY



1. Start a food and drinks chart each day per resident
2. Each time they have a drink at the structured drinks round or more – ensure that it is documented below. Each time they eat ensure it is completed below.

[illegible]

Tests of Change: Hydration PDSAs



Good Practice Guidance

SIGN 88, NICE QS90, PHE

GPG for GPs – diagnosis, prescribing, advice

Good Practice Guidance for CARE STAFF^{1,2,3,4}:
Management of UTIs for elderly patients residing in care homes



UTI - What is it?

- A urinary tract infection (UTI) is an infection in any part of the urinary system — the kidneys, ureters, bladder and urethra.
- UTIs are more common in women than in men. Urinary tract infection incidence increases with age for both sexes. *NICE CKS, NICE QS90*
- Urinary tract infections were the condition with the highest emergency hospital admissions rate in 2012/13 with 67 admissions per 100,000 population every 3 months on average. *NHSE 2014*
- UTIs in the elderly are often over-diagnosed and over-treated. *NICE QS90*

UTIs and the Elderly

- The diagnosis of UTIs is particularly difficult in older people, who are more likely to have asymptomatic bacteriuria (bacteria in the urine but no signs or symptoms of an infection)
- Older people in in care homes frequently have unnecessary antibiotic treatment for asymptomatic bacteriuria
- Asymptomatic bacteriuria may be avoidable with increased volume of water or fluids. For good hydration, most people need 1500-2000mls of fluid per day.
- In elderly patients (over 65 years of age), diagnosis of Urinary Tract Infections (UTIs) should be based on clinical signs and symptoms.

Signs and Symptoms of a UTI

Does the patient/resident have two or more of the following as new symptoms?

- New onset or worsening of pre-existing confusion/agitation/drowsy
- Shaking chills (rigors)/ high temperature >38°C/ low temperature of <36°C
- Dysuria - (painful or difficult urination)
- Urgency - (needing to go to the toilet quickly)
- Frequency - (needing to go to urinate more often than normal)
- Urinary incontinence – (unintentional loss of urine)
- Flank or suprapubic pain – (pain in the side of the body or above the groin area)
- Haematuria (blood in the urine)

If your resident has two or more new symptoms as listed above, then:

- Complete the Management of UTIs for elderly patients residing in care homes form (Form U1).
- Contact resident's GP to inform them of these symptoms
- Fax form for the attention of the GP and follow the advice given
- Once completed file the form in resident's care plan
- Place a copy of the form in the envelope provided by the CCG. This will be collected every 3 months.

FORM U1

Management of UTIs For elderly patients residing in care homes^{1,2}

URGENT - For attention of GP today please.



PATIENT DETAILS	Guidance on how to use this form:
Name:	<ul style="list-style-type: none"> CARE HOME STAFF to complete sections 1-3 Do not dip stick test unless specifically requested by GP – no longer recommended for people >65 yrs old Fax form to GP first and then call GP GP may request Mid-stream Urine Specimen (MSU) if possible to obtain – not urine from pads Complete section 4 after GP has decided how to manage the UTI
DOB:	
Care home:	
Staff member completing form:	
Date form completed:	

1- Are there any symptoms suggestive of non-urinary infection? Please circle symptoms which apply:			
Respiratory -	shortness of breath	cough or sputum production	new chest pain
Gastrointestinal -	nausea/vomiting	new abdominal pain	new onset diarrhoea
Skin/soft tissue -	new redness	warmth/swelling	appearance of pus

2- Does the patient/resident have two or more of the following as new symptoms? Tick relevant boxes if present	
<ul style="list-style-type: none"> New onset or worsening of pre-existing confusion/agitation/drowsy Shaking chills (rigors)/ high temperature >38°C/ low temperature of <36°C Dysuria - (painful or difficult urination) Urgency - (needing to go to the toilet quickly) Frequency - (needing to go to urinate more often than normal) Urinary incontinence – (unintentional loss of urine) Flank or suprapubic pain – (pain in the side of the body or above the groin area) Haematuria (blood in the urine) 	

3- Is there a catheter? Yes / No	
If yes, reason for catheter:	
Date last changed:	

4- UTI Management as instructed by GP		Tick relevant boxes
Wait and review in 24 Hours		
Mid-stream Urine Specimen (MSU) needed – if ≥ 2 signs/symptoms (esp. dysuria, temp >38°C or new incontinence) or failed treatment		
UTI diagnosed		
Antibiotic prescribed:	Dose and frequency:	Quantity:
Additional Comments:		

File form in the resident's notes and put a copy in the envelope/folder provided by the CCG. This will be picked up every 3 months by the care home pharmacist.

References:

- ¹ SIGN 88 - Management of suspected bacterial urinary tract infection in adults, July 2002. (<http://www.sign.ac.uk/assets/sign88.pdf>)
² NICE Quality Standard (QS90), June 2015. (<https://www.nice.org.uk/guidance/qs90/Chapter/Chapter-1-Diagnosing-urinary-tract-infections-in-adults-aged-65-years-and-over>)

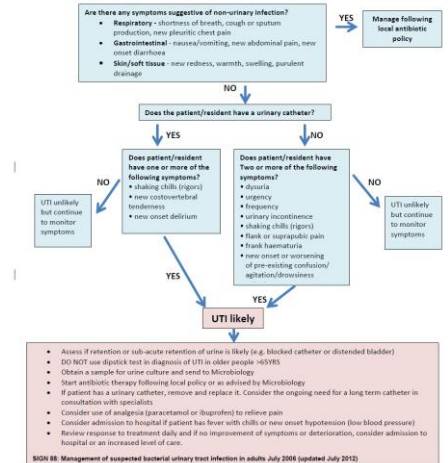
Good Practice Guidance for GPs: Management of UTIs for elderly patients residing in care homes



DIAGNOSIS^{1,2}

In elderly patients (over 65 years of age), diagnosis should be based on a full clinical assessment, including vital signs. Please request care staff to complete the Management of UTIs for elderly patients residing in care homes form (U1).

Below is a decision aid³ to guide management of patients/residents with fever defined as temperature >37.9°C or 1.5°C increase above baseline occurring on at least two occasions in last 12 hours. Hypothermia (low temperature of <36°C) may also indicate infection, especially those with comorbidities. Be alert to non-specific symptoms of infection such as abdominal pain, alteration of behaviour or loss of diabetes control.

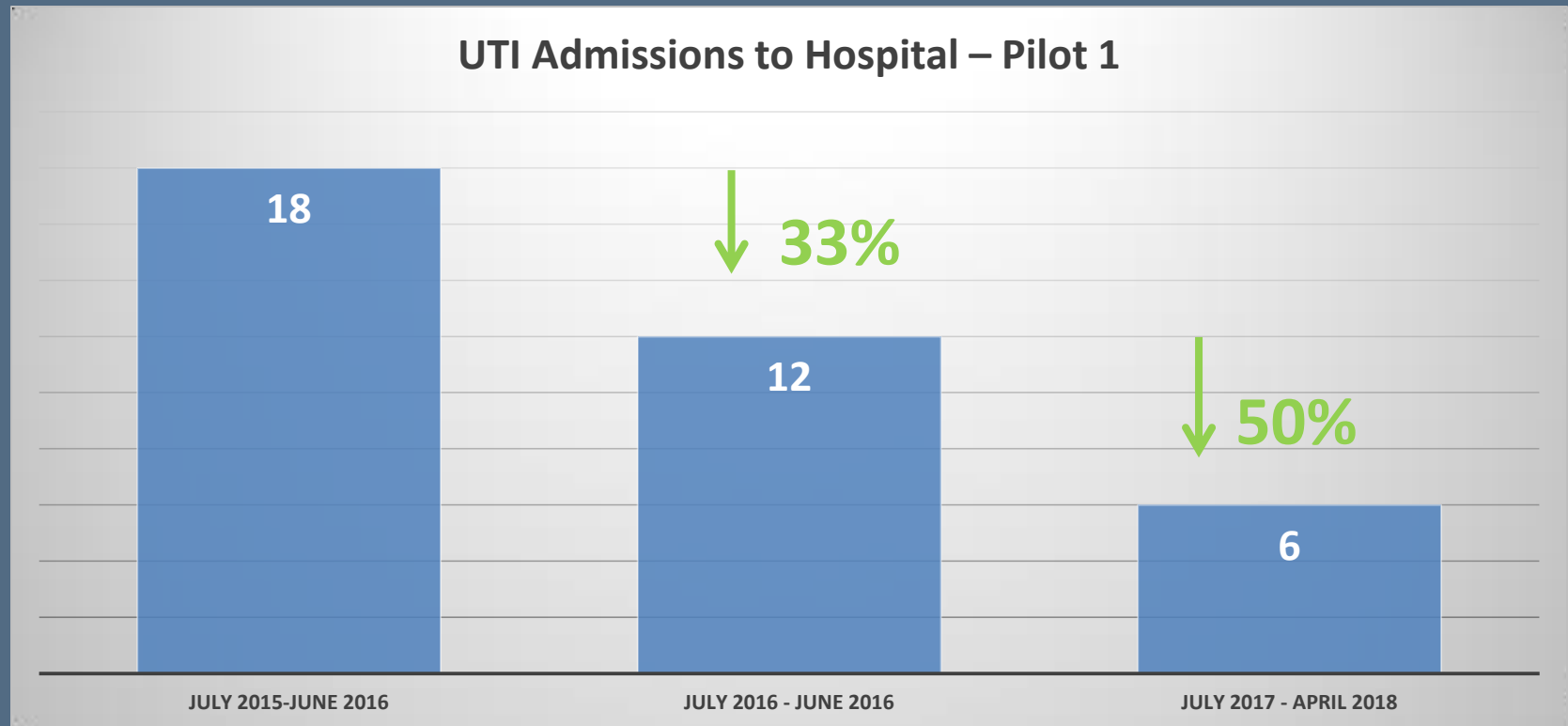


GPG for care staff – UTI signs and symptoms, risks of dehydration, advice to promote hydration, NO ROUTINE dip stick testing

FORM U1 – identifying and reporting signs and symptoms, UTI management plan, improving communication between care homes and GPs

Outcome data

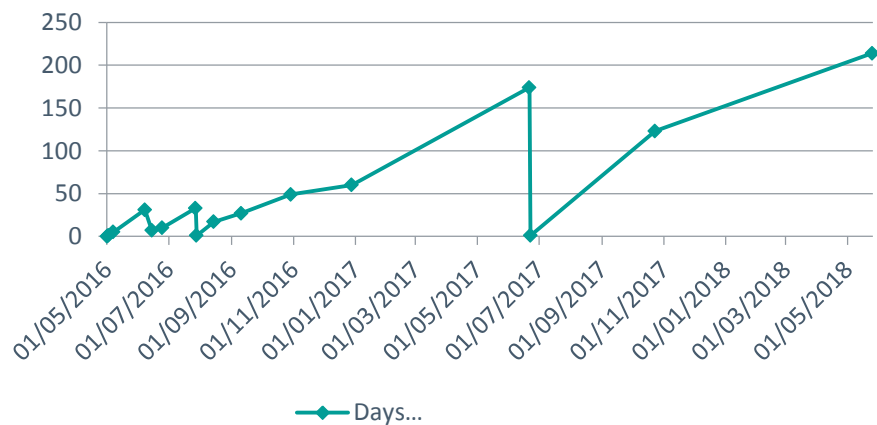
Aim – to reduce hospital admissions for UTI by 5% each year



Outcome data – Days between UTIs requiring antibiotics

Care home code	Started Project	Baseline Average (2 months)	Average to date	Greatest number of days between UTIs (May 2016-June 2018)
E1	01/07/2016	1 UTI per 9 days	1 UTI per 70 days	214 days
H1	01/07/2016	0 UTIs	1 UTI per 61 days	243 days
M1	01/07/2016	1 UTI per 15 days	1 UTI per 54 days	225 days
L1	01/07/2016	1 UTI per 10 days	1 UTI per 20 days	92 days

Days Between UTIs Requiring Antibiotics – E1



Days Between UTIs Requiring Antibiotics – L1



Qualitative Feedback

"I like the choice of cold drinks and I will carry on drinking them even in the winter"

"I like the variety of drinks and sometimes I have two drinks"

"I ask for my drinks if the trolley is late" 😊



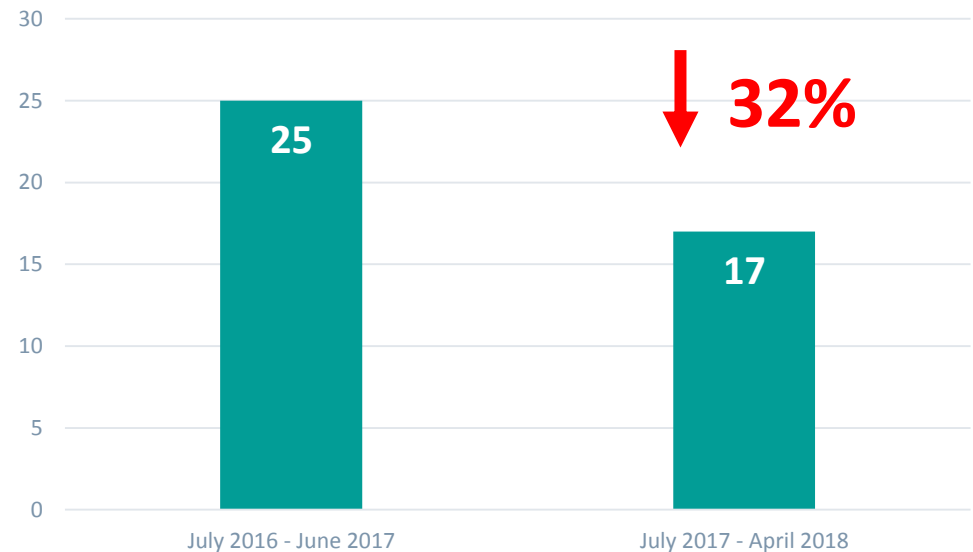
Staff Feedback

- Improved skin integrity
- Fewer falls
- Less GP visits
- Less tired
- Taking part in more activity

Pilot 2

- 5 Care homes in East Berkshire
- 3 x nursing
- 2 x residential
(215 Residents)
- 31st July 2017

UTI Admissions to Hospital - Pilot 2



Care home code	Started Project	Baseline Average (2 months)	Average to date (August 2017-March 2018)	Greatest number of days between UTIs (June 2017-June 2018)
F2	31/07/2017	1 UTI per 11 days	1 UTI per 47 days	78 days
LH2	31/07/2017	1 UTI per 10 days	1 UTI per 16 days	46 days
N2	31/07/2017	1 UTI per 14 days	1 UTI per 22 days	39 days
OA2	31/07/2017	1 UTI per 3 days	1 UTI per 9 days	37 days
XO2	31/07/2017	1 UTI per 5 days	1 UTI per 17 days	66 days



- Physical well being
- Psychological
- Social interaction
Increased participation in activities
- Long term impact
- Choice



- The average cost of a UTI hospital admission is £1331 (NHS National Tariff Payment System).
- Pilot 1 ↓ 12 admissions = £15,972.00 savings
- Pilot 2 ↓ 8 admissions = £10,648.00 savings
- Reduced GP call outs
- Reduced falls
- Reduced number of antibiotics

The project has minimal cost implications including decorations for drinks trolleys but sometimes these are supplied by families wishing to take part.

Continuing the journey

- A toolkit and all project resources on Patient Safety Collaborative website
- 6 YouTube videos designed and released
<https://www.youtube.com/watch?v=oY8m3bv2JDU>
- Rolled out regionally and beyond through train the trainer sessions



Why is this project successful ?

Improve the physical, social and psychological well-being of the resident

Simple, easy and cost efficient to implement and sustain

Working collaboratively



Simple.



Thank you

<https://www.patientsafetyoxford.org>