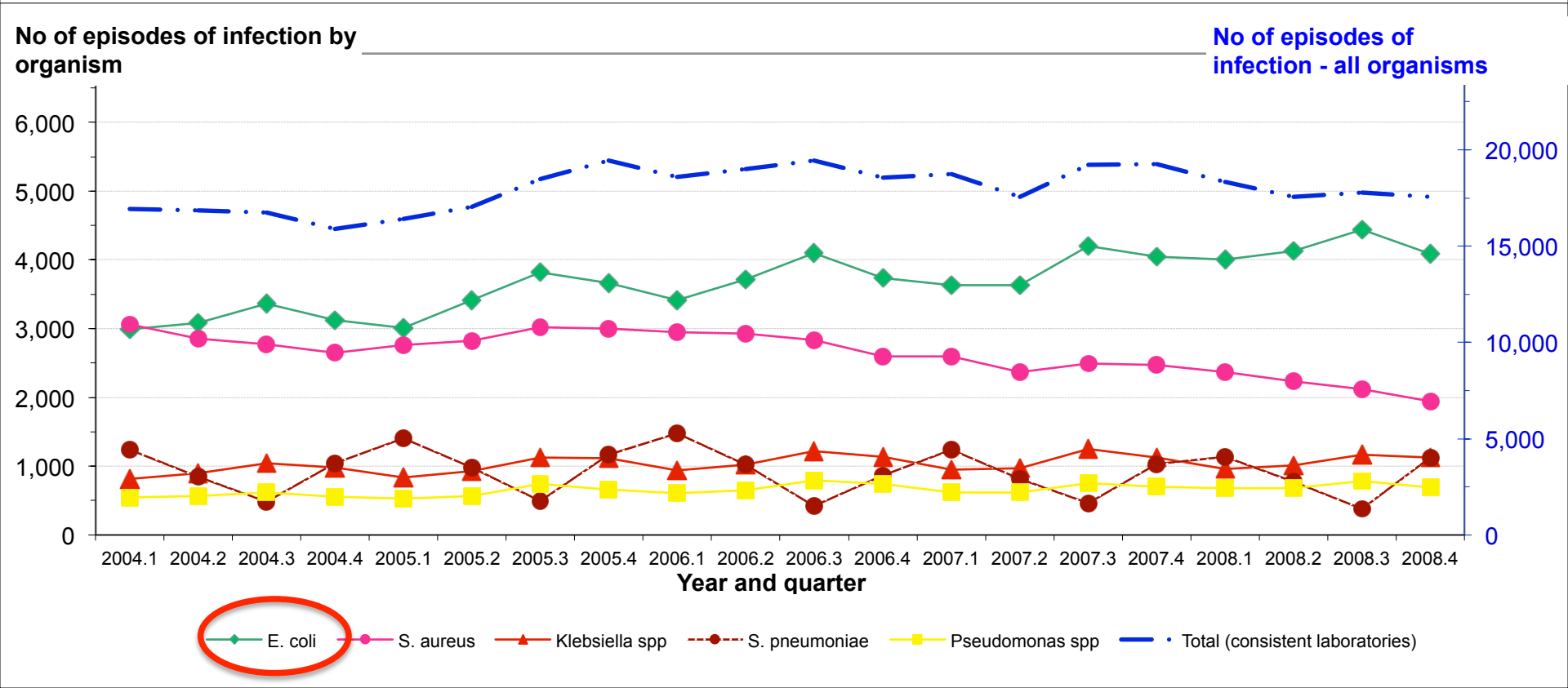
UNIVERSITY OF WEST LONDON
The Career University

The I-Hydrate project

Optimising the hydration of older people residing in care homes

Professor Jennie Wilson
Richard Wells Research Centre
College of Nursing Midwifery & Healthcare
University of West London

National trends in microorganisms causing bacteraemia (2004-2008) Wilson *et al* Clinical Micro Infect, Sept 2010



Epidemiology of E.coli bacteraemia

Abernethy et al 2017

Sentinel surveillance: 35 NHS hospitals in England; n = 1731

Characteristic	Proportion of cases	
Community onset	68.3%	
Healthcare exposure in last month	55%	
Antibiotics in last 4 weeks	32.4%	
Urogenital tract source	51.2%*	[80% UTI]
- Previous treatment for UTI (4 weeks)	62.4%	[176/282]
- Urine catheter last 7 days	21%	

*Hepatobiliary 16%; Gastrointestinal 7%, Unknown 15%

Dehydration in elderly people is common

Why are older adults vulnerable to dehydration?

Changes as the body ages

- Kidneys concentrate urine less
- Less muscle – ↓ stored water
- Loss of thirst reflex

Physical/cognitive impairments

- Difficulty swallowing
- Difficulty holding cups
- Dementia
- Fear of incontinence

Dependence on others to meet needs

- Constipation
- UTI, other infections
- Falls
- Stroke
- Kidney failure
- 10% of the elderly admitted as emergencies are found to be dehydrated

Consequences of dehydration are numerous and can be costly when hospitalizations are taken into account.

I-Hydrate – what was the project about?

- Funded by NIHR North West London Collaboration for Leadership in Applied Health Research & Care (NWL CLAHRC)
- Collaboration between University of West London + CCG Collaborative + 2 Nursing homes in West London over 18 months

Aim: to optimise the hydration of residents in nursing homes

Key objectives:

- Increase the number of residents consuming minimum daily fluid intake of 1500ml
- Reduce morbidity associated with dehydration
- Improve experience and quality of life of residents

Improvement science methods:

- Co-design with staff and residents/families to understand the barriers/facilitators & design new ways of working
- Changes tested using Plan Do Study Act (PDSA) cycles
  - a structured approach for making incremental changes

Understanding hydration practice in two care homes

Baseline data collected Oct 2015 – Dec 2015

1. Unit-wide observations of how and when fluid is delivered
   - Patterns of fluid delivery and types of fluid available/offered
   - Variation between resident location (own room, dining room/sitting room)
   - Observed between 6am and 9pm

2. Baseline measures of fluid intake
   - Followed individuals for whole day to determine mean intakes
   - Stratified into three groups: independent, needs prompting, needs assistance
   - Observed between 6am and 9pm

3. Information from staff, residents and relatives
   - Logistics and organisation of care

Results – care routine

Recommended **minimum** daily intake is 1500ml
That's at least 10 cups/glasses of any fluid

- ❑ Seven opportunities in the day where drinks are provided
  - ➢ One cup (150ml) at each opportunity = 1050ml
- ❑ Drinks served are not necessarily consumed)

Residents not often given more than one drink at each opportunity: 4% (Home A) and 8% (Home B)

- ✓ Need to provide more than one drink per opportunity
- ✓ Need to supplement with fluid-rich foods

Opportunities for Offering Drinks

For residents to drink **at least 1500ml a day** drinks need to be offered frequently throughout the day.

6 – 8am Early Morning	Offer a hot and/or cold drink
8 – 10.30am Breakfast	Offer a hot and/or cold drink Remember to offer drink refills
10.30 – 12pm Mid-morning	Offer a hot and/or cold drink
12 – 3pm Lunchtime	Offer a hot and/or cold drink with lunch Offer fluid-rich desserts (e.g. custard)
3 - 5pm Mid-afternoon	Protected Drinks Time Try to serve a hot and a cold drink
5 – 7pm Dinnertime	Offer a hot and/or cold drink with dinner Offer soup and fluid-rich desserts
7 – 10pm Bedtime	Offer a drink before the resident is too tired or sleepy

Remember to offer refills of drinks throughout the day

Timing and location of fluid delivery (drinks only)

Time Period	Own room			Lounge/dining room		
	no of residents	no (%) of residents receiving drinks	no of drinks per resident	no of residents	no (%) of residents receiving drinks	no of drinks per resident
Early morning	8	0 (0%)	0.00	-	-	-
Breakfast	5	5 (100%)	1.40	9	9 (100%)	1.67
Mid-morning	15	0 (0%)	0.00	8	1 (12.5%)	0.13
Lunch	10	6 (60%)	0.80	11	10 (91%)	1.27
Mid-afternoon	15	8 (53%)	0.53	9	7 (78%)	1.22
Dinner	11	10 (91%)	0.90	10	8 (80%)	1.00
Evening	19	8 (42%)	0.53	2	1 (50%)	0.50
Total:	83	37 (45%)	0.52	49	36 (73%)	1.06

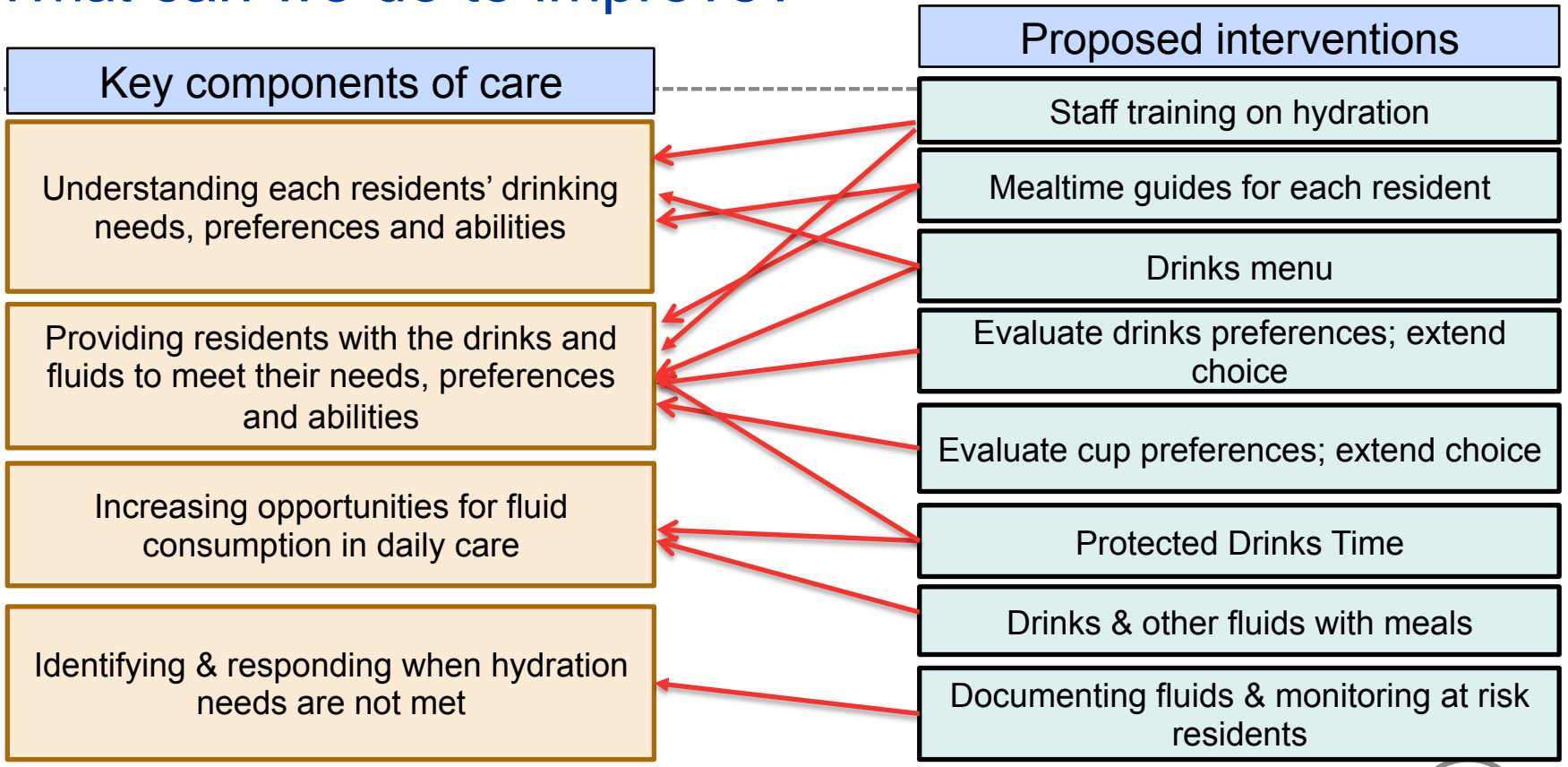
Fluids given and consumed by level of assistance

Type of resident	No of residents	Mean fluids served (ml)	Mean fluids consumed (ml)	% of fluids consumed	% of fluids served at mealtimes	% from food	Mean no of drinks served
Independent	8	1574	1071	68%	58%	32%	10
Needs prompting	2	1938	1040	54%	41%	24%	12
Needs assistance	4	1175	946	81%	70%	34%	8
Total*	14	1512	1031	68%	59%	31%	10

* Total mean derived from the individual intakes (Home A and B)

- **Independent residents**: offered just above minimum – consume less than 1500ml
- **Residents who need prompting**: offered sufficient – consume less than 1500ml
- **Residents who need assistance**: not offered enough – consume less than 1000ml

What can we do to improve?



Hydration training for care home staff

- **Interactive activities (case studies, quiz) focused on:**
  - Recognising the importance of individual needs and preferences
  - Raising awareness of common hydration issues in the elderly
  - Practical skills in: prevention techniques, identifying residents at risk of dehydration and preparing thickened fluids

- **Knowledge before training rated 'good', after training rated "very good/excellent'**
  - Staff do not recognise their own training needs
  - Lack of skills in 'Reflection'?
  - Learning not translated into practice

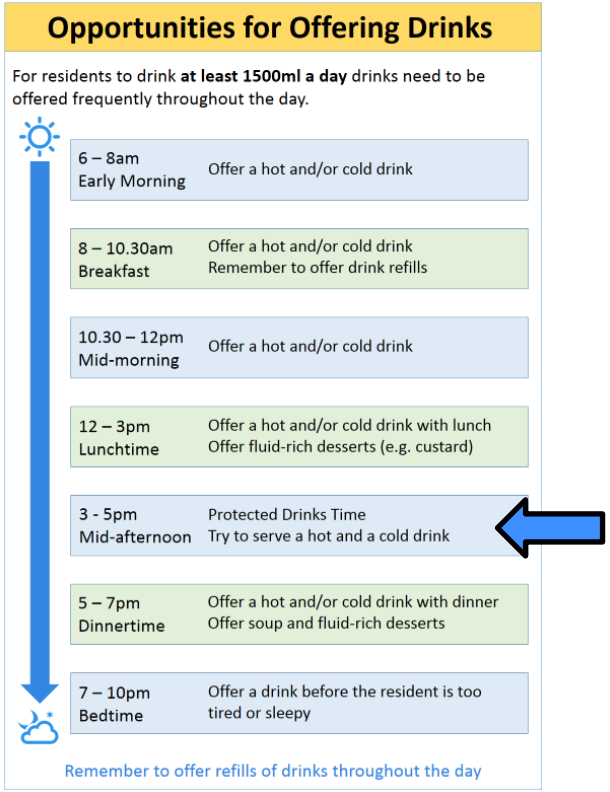
- **Training session supported by 'huddle' training on the units**
  - On shift 10-15 minute training about key messages
  - Role modelling key behaviours - relating training to Mental Capacity Act

Protected Drinks Time

Aim: To focus HCA on hydration during a routine care activity

Intervention:

- All HCA focus on resident hydration during 3pm drinks round
- Assist residents who need help to drink
- Allocate to staff to roles
- Offer refills
- Ensure sufficient equipment (trollies, cups, fluids)
- Takes around 45mins



Outcome of Protected Drinks Time

"Allocating roles means everyone is contributing to the drinks round" (HCA)

Results of PDT

- ↑ % of residents getting drinks
- ↑ number of drinks per resident
- ↑ amount of fluids consumed
- Positive staff and resident feedback

However, a few weeks later….

- ➢ No. drinks & No. residents receiving drinks returned to baseline levels
- ➢ Strong leadership to ensure prioritised

Critical to success

Leadership

- Clear allocation of roles & responsibilities
- Ensuring hydration is the priority
- Embedding as a routine activity

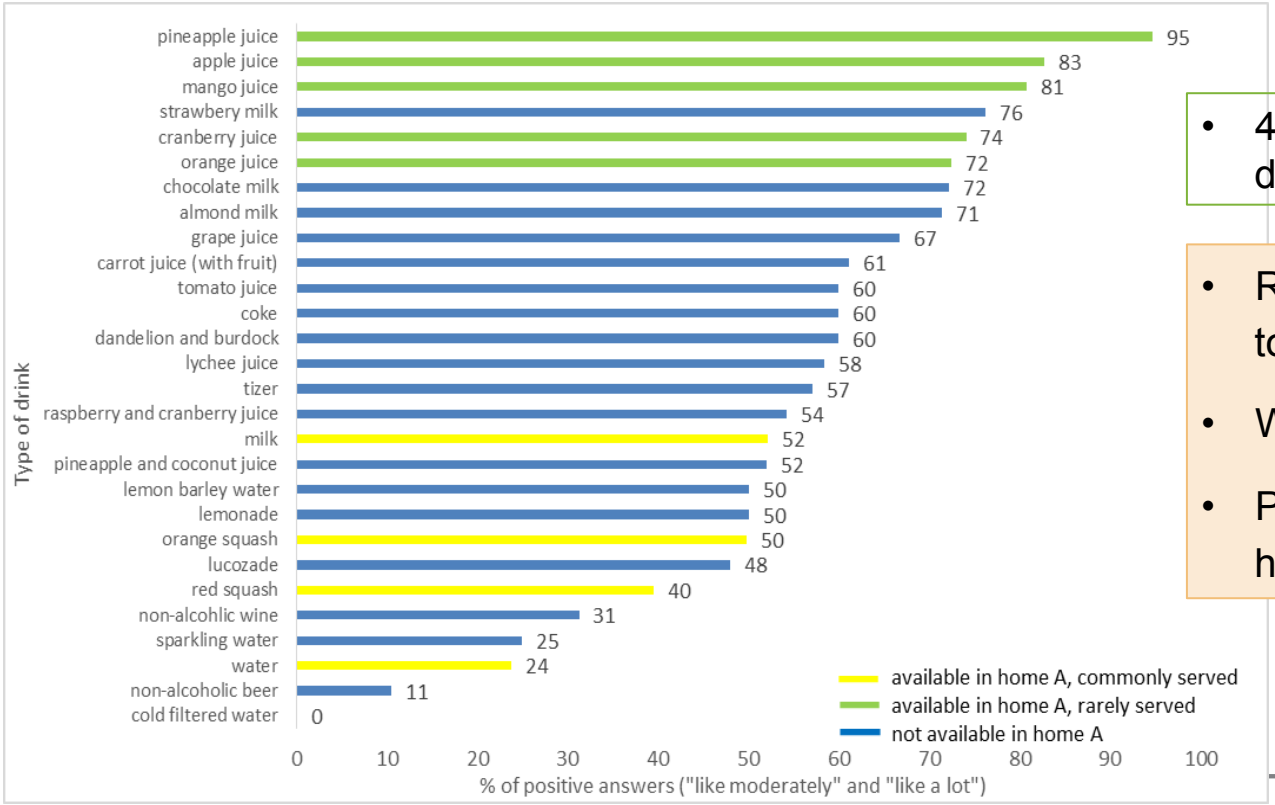
Equipment

- Trolley or trollies
- Adequate stock of drinks
- Clean and appropriate cups/mugs

Skills

- Training in assisting & positioning to drink

Resident drink preferences



- 47 residents tested 28 different drinks tested

- Residents preferred fruit juices to squash
- Water was not a popular drink
- Preferred drinks available in home but rarely given

Drinks menu

"I am not always being given what I like" (Resident)

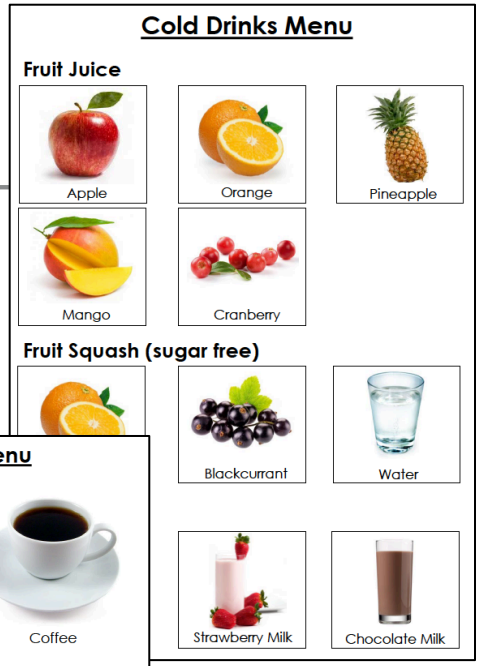
Aim:

- To enable residents to choose their preferred drink
- Encourage consumption of more than one drink

"I like my morning cup of tea; I do get one, but I would like more…" (Resident)

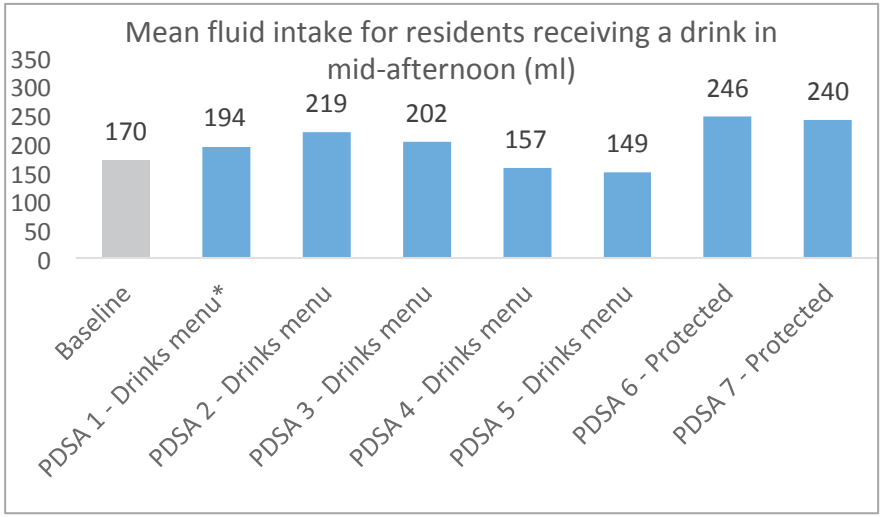
Intervention:

- Visual drinks menu created
- Available in own rooms and communal areas
- Staff asked to use it during PDT
- Pureed fruit made available as alternative to cake



Drinks menu combined with PDT (Home B)

Key outcomes



Drinks menu ↑ the types of fluids available
↑ consumption of juice
Residents offered more choice - even if menu is not used
Staff were surprised by the choices residents made

Critical to success

- Leadership / mentoring / role modeling
- Importance of offering choice
  - Requirement of Mental Capacity Act
  - Regular 'huddle' training to reinforce
- Ensuring all drinks on the menu are available
  - Defined responsibility for stock
- Costed with the manager/catering manager

Drinks before/after meals

Aim (Home A)

Drinks given to residents brought to dining room before breakfast

Aim (Home B)

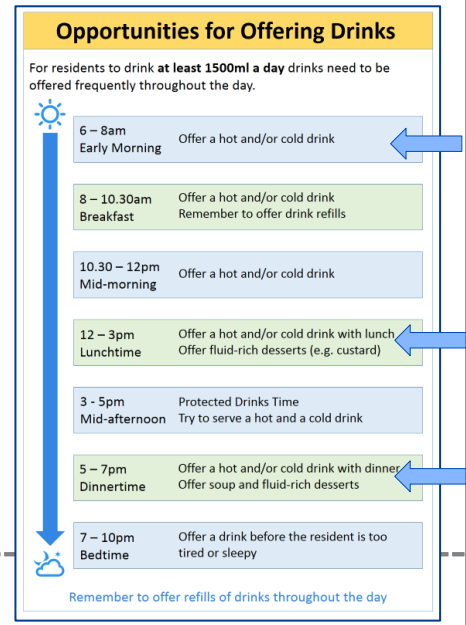
Hot drinks offered to residents in lounge/ dining room after lunch and dinner

Intervention

- Tea/coffee dispensers set up in dining room (juice/squash available)
- Encourage choice by using the drinks menu

Outcomes

- ↑ fluid consumption (intake not reduced at the next drinks opportunity)
- Independent drinkers drank more than those who needed assistance
- Mostly benefited residents in lounge/dining room (more likely to be independent) with residents in their rooms or who need full assistance less likely to get a drink



Identifying cup preferences

"*They drink more, they are given bigger volumes and drink more*" (HCA)

Cup preferences

Tested with 10 residents:

- Ease of handling, volume, pleasantness to drink, appearance

Standard teacup

"*The handle on the teacup burns my fingers*" (Resident)

- Holds 150ml
- Small handle, difficult to hold
- Thick china

Trial mug

- Preferred by residents
- Holds 250-280ml
- Lightweight (<250g)
- Large wide handle, easy to hold

"*It's great! It works, he's drinking so much more now*" (Family member)

Impact of new mugs

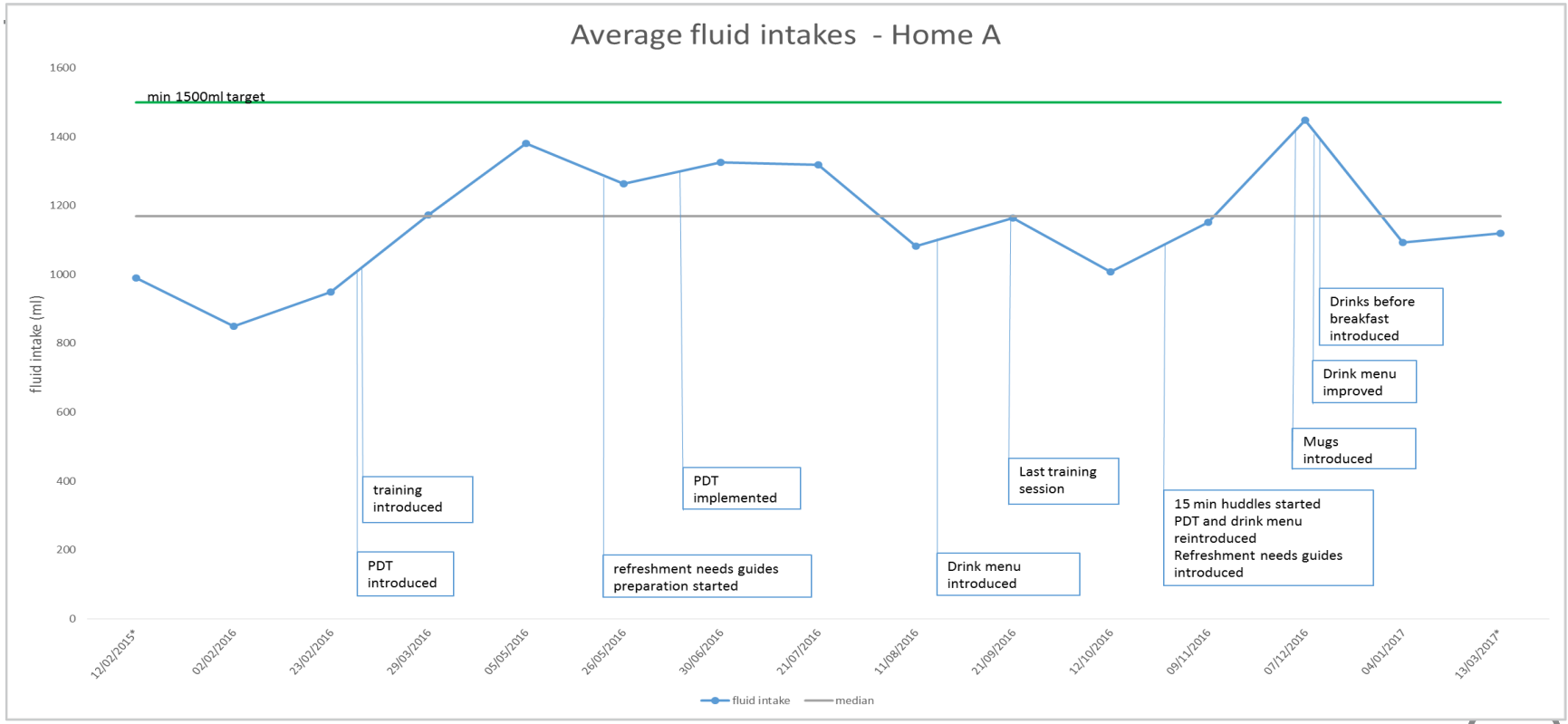
Effect on fluid intake measured at breakfast and lunch:

↑ fluid consumption (some residents consumed a full mug of 280ml)

Staff need to fill the mugs (not assume a full mug is too much for residents to drink)

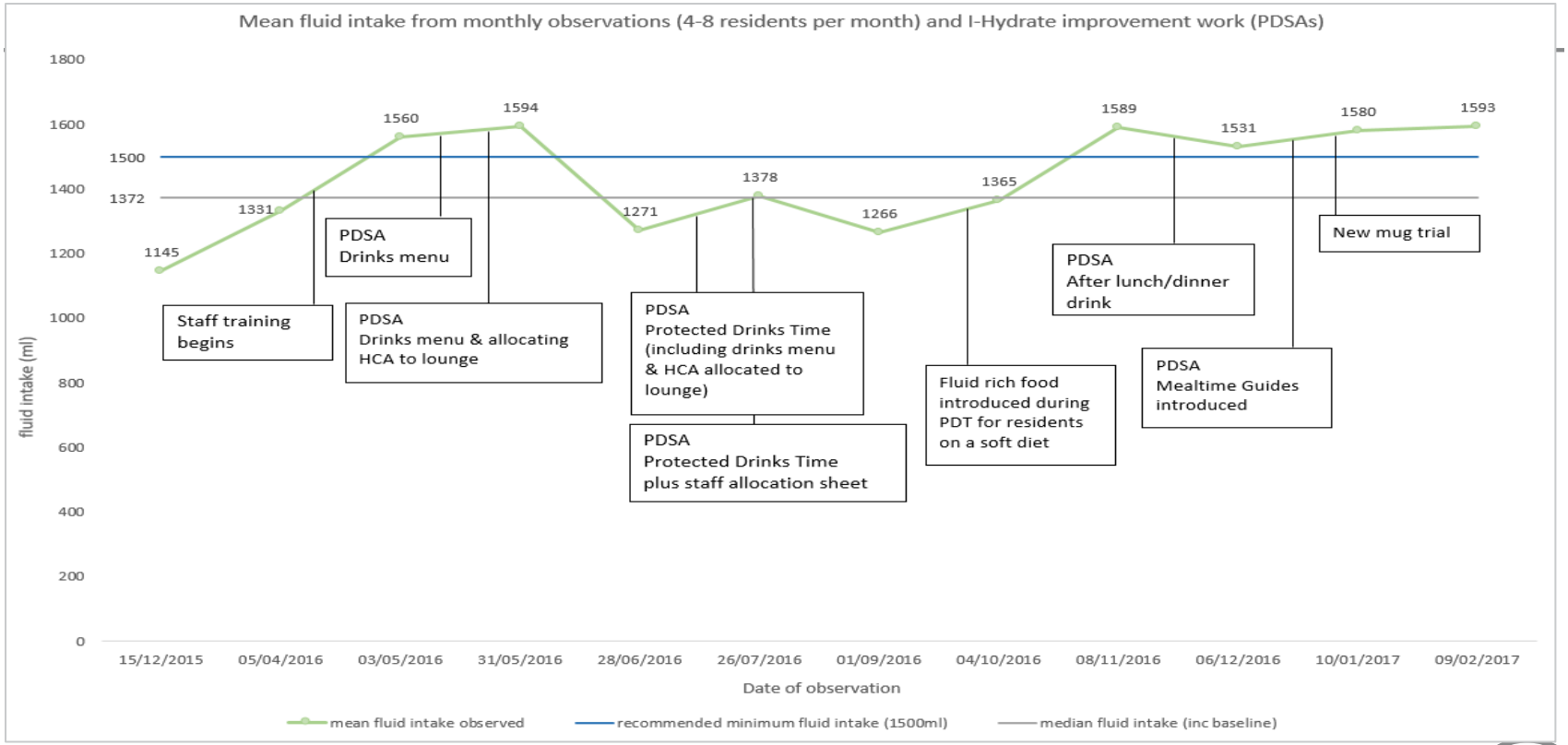
Need consistent, sustainable mug supply

Monthly fluid intakes – Home A



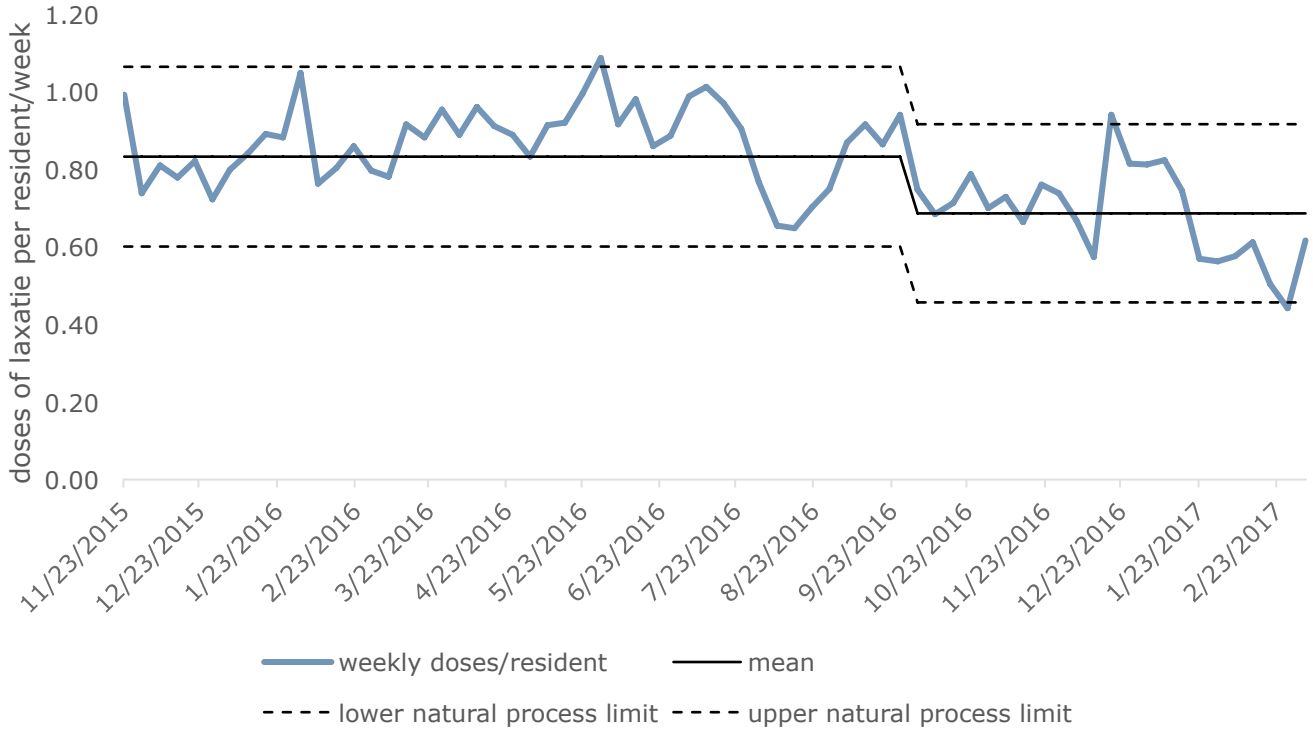
Routine monthly observations (6am – 9pm) of 4-6 randomly selected residents (includes fluid-rich foods)

Monthly fluid intakes – Home B



Routine monthly observations (6am – 9pm) of 4-6 randomly selected residents (includes fluid-rich foods)

Laxative consumption (Home A)



Success criteria for improvement

1. Leadership & Culture

- Strong senior management support - reinforcing hydration as a priority
- Allocation of roles and responsibilities – clear communication
- Mentoring and role modeling of good practice
- Embedding hydration as a routine activity – otherwise progress can be lost

2. Training & Skills

- Competence in assisting & positioning residents to drink
- Confident in communicating with residents to support and enable choice (Mental Capacity Act)
- 'Huddle' training to reinforce learning & practice in care team
- Accuracy of recording fluid intakes and taking appropriate action

3. Equipment/Resources

- Ensuring adequate stock of drinks, appropriate cups/mugs available
- Trolleys equipped and available to distribute drinks