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Participatory Design for Behaviour Change:

an integrative approach to healthcare quality improvement

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Introduction –

BEHAVIOUR CHANGE IN HEALTHCARE

> Approach mostly applied to **Public Policy**, and **Public Health** [1]

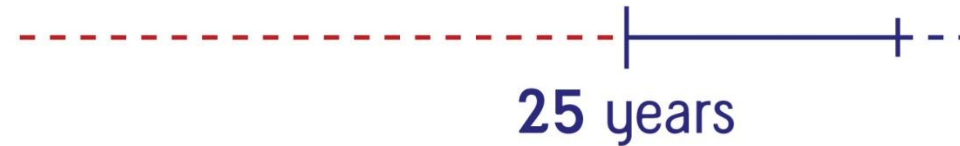
> 'Behaviour Change' explored **in Design** for about a decade [2], **little focus on health**

> **Staff** behaviour change is critical to **improving practice** [3]

> The problematic difference between the **'Knowledge gap'** and the **'Know-do gap'**

Hand hygiene (Dixon 2016)

Single-family rooms (White & Whitman 1992)



Stop urine dip in older adults (Scottish Government 2012)

[1] Institute for Government 2010; [2] Lilley 2007; [3] NHS 2014

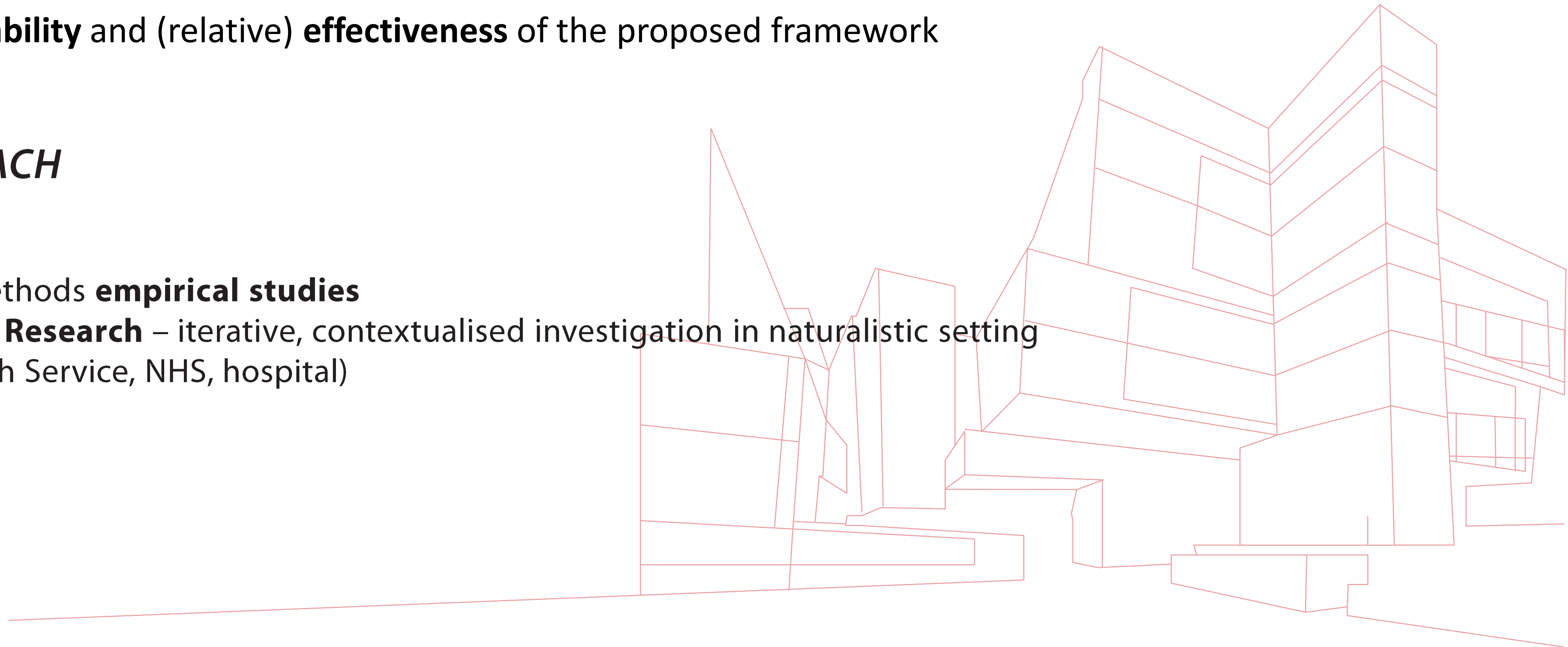
Introduction –

RESEARCH AIM & OBJECTIVES

> To **develop** an integrative **Participatory Design for Behaviour Change framework** for healthcare quality improvement
> To **assess** the **applicability** and (relative) **effectiveness** of the proposed framework

RESEARCH APPROACH

> **Literature review**
> Qualitative, mixed-methods **empirical studies**
> **Participatory Action Research** – iterative, contextualised investigation in naturalistic setting (a British National Health Service, NHS, hospital)



Summary of Literature Review –

QUALITY IMPROVEMENT (QI)

> Most healthcare QI methods are **adapted** from **other areas** [4]

> **No one method** is proven to be **more effective than any other** (e.g. Six Sigma, Lean, PDSA, SPC) [4]

> Existing QI methods **do not employ behavior change** approaches and methods

BEHAVIOUR CHANGE (BC)

> Behaviour change approaches have **proven to be effective in QI**: e.g. hand hygiene [5], appointment attendance, and antibiotics prescription [6]

> Some existing frameworks follow a stepwise rationale **similar** to the **design process**

> **Stakeholder involvement** is poorly addressed; process can be disempowering [7], and too focused on agency [8]

PARTICIPATORY DESIGN (PD)

> PD has developed **methods and tools** that **assist engagement** in problem-definition, solution-development, and intervention-implementation [9]

> PD processes contribute to democratisation, **empowerment**, and lead to active, **ethical participation** [10]

> **Decision-making** in PD is often not grounded on pure **'scientific evidence'**, which can be **problematic** in the **healthcare context**

[4] Boaden et al. 2008; [5] Perry et al. 2015; [6] Hallsworth et al. 2016; [7] Tegland 2012; [8] Spotswood & Marsh 2016; [9] Sanders et al. 2010; [10] Robertson & Wagner 2013

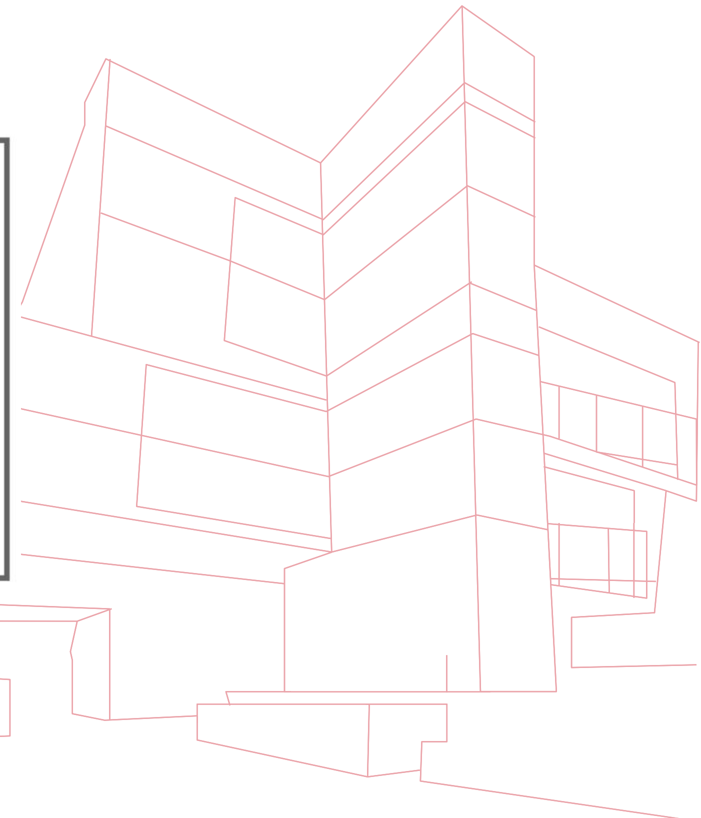
Case Study: Research Design –

AIM

> To **test the applicability and appropriateness** of the framework in supporting staff to **develop interventions to change practice** in the Emergency Department

PARTICIPANTS

CORE GROUP n=24 M=11, F=13	DOCTORS (8) + Med Std. (2); NURSES (3) + Nurse Std. (1); PHARMACISTS (4); MICROBIOLOGISTS (3); HEALTHCARE RESEARCHERS (2).	TOTAL n=52 M=23, F=29
ED GROUP n=28 M=12, F=16	DOCTORS (15); NURSES (9); MANAGERS (4).	



> **Purposive sample**: engagement characterised by a **diverse** and **irregular** attendance to **face-to-face activities**

Case Study: UTI in Older Adults –

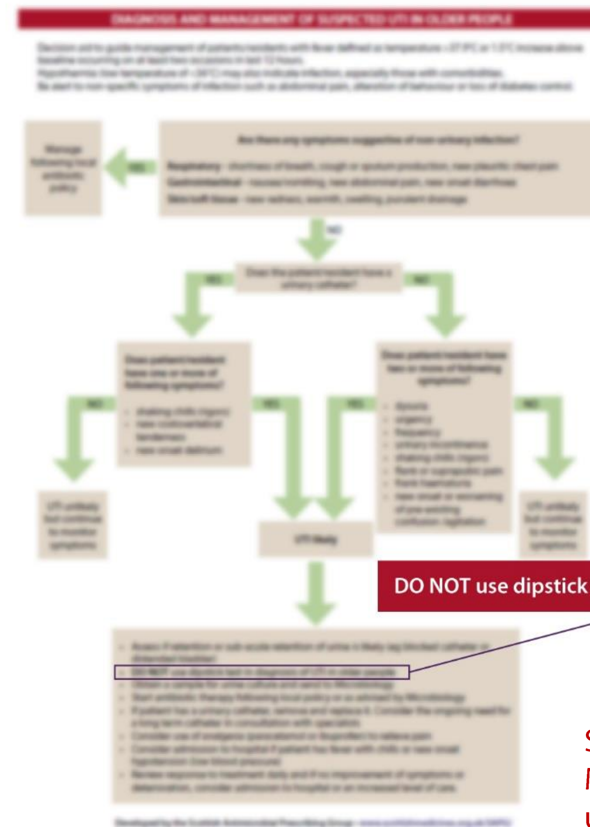
THE NEED FOR CHANGES IN BEHAVIOUR

> **Changes in guidelines** (non-compliance) DO NOT DIP

> **Diagnose** should be made on assessment **of symptoms** [11]
- **Lack** of professional **knowledge** about this cohort **in ED** [12]
- Population is **frequently mistreated** with antibiotics [12]

CONTEXT

> Environmental and cultural **factors**; social and system **pressures**:
- Ready **access** to dip sticks
- Dip test perceived as **'cheap, quick fix'**
- Cultural/social dynamics of the **Emergency Department**
- **4-hour target**

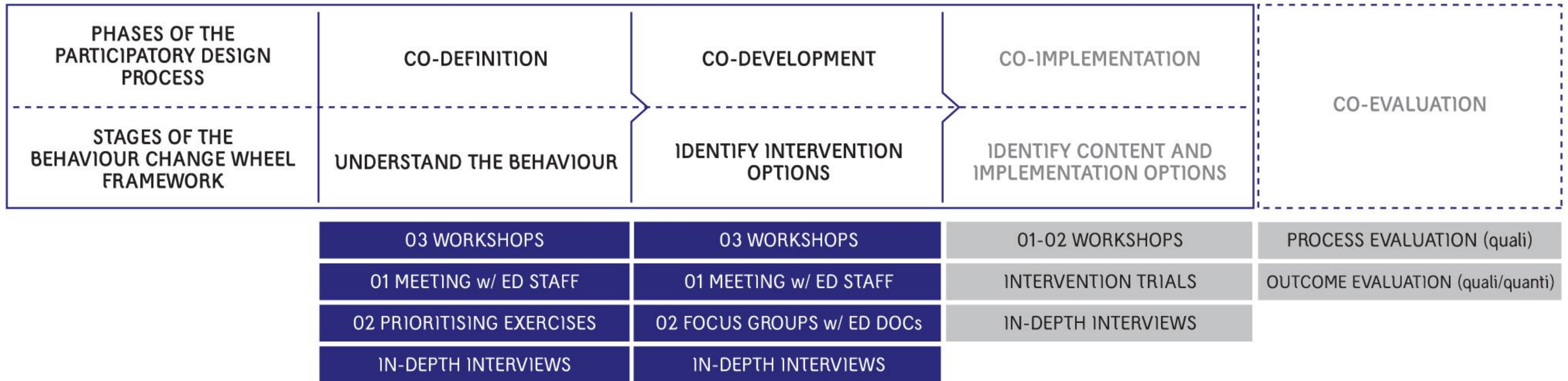


DO NOT use dipstick test in diagnosis of UTI in older people

SIGN 88 [13]:
Management of suspected bacterial urinary tract infection in adults

[11] Gladman et al. 2015; [12] NICE 2015; [13] Scottish Government 2012

Case Study: Methods –



> Behaviour Change and Participatory Design as **three-staged processes with similar aims**

> **Complementary nature** of the approaches and methods

Results –

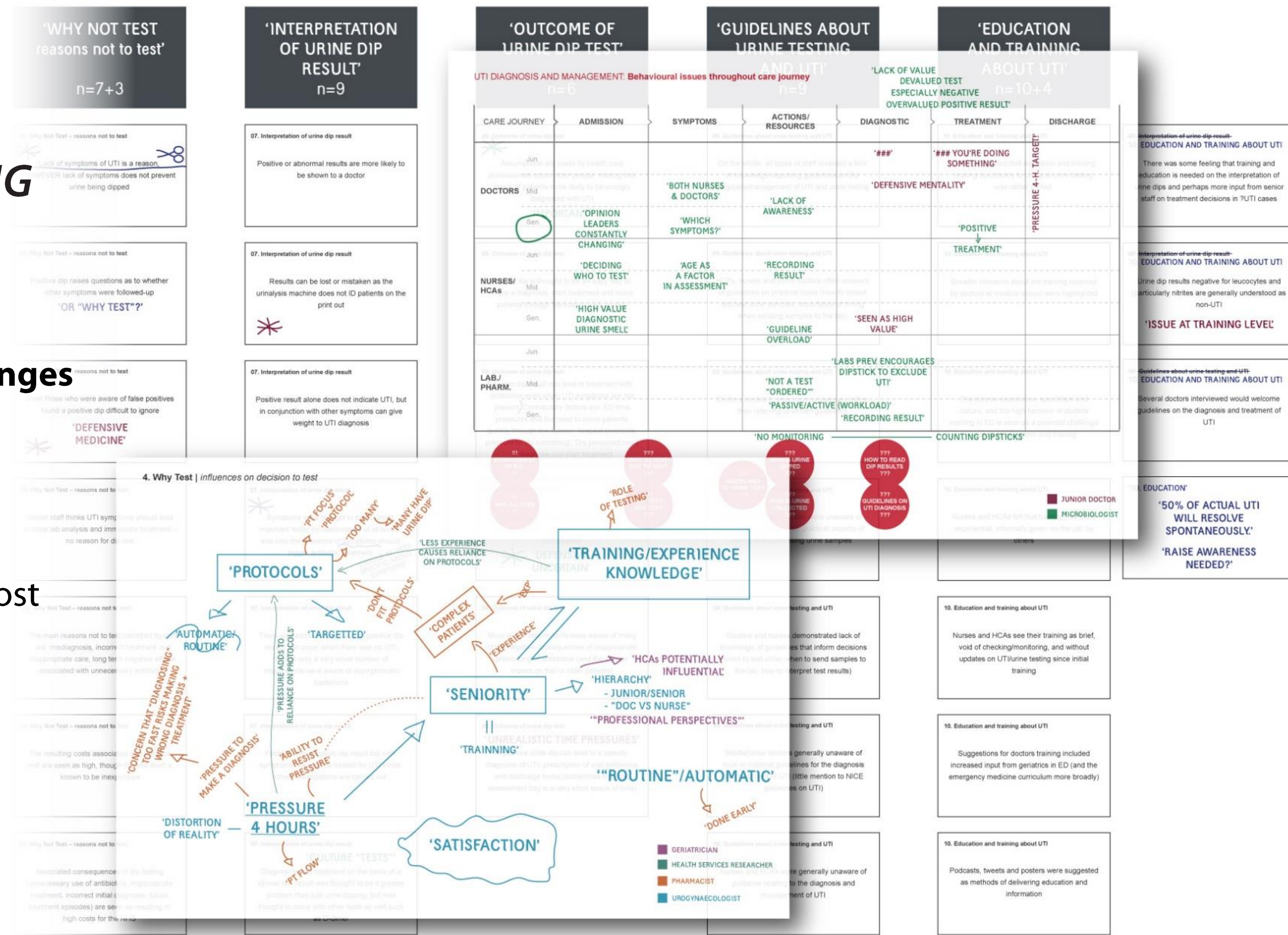
DEVELOPING A SHARED UNDERSTANDING

> Started a **coalition** among participants

> Developed a **shared understanding of the challenges**

> Produced **visual maps** of relationships among the many **contributors to 'bad' practice**

> Thematic networks map served as **reference** for most **subsequent activities**



Stakeholder Group's developments – Workshop 01

Results –

IDENTIFYING/PRIORITISING BEHAVIOURAL CHALLENGES

> **List** of 12 main **behavioural challenges** to best practice

> Two separate **prioristising exercises** with Core Group (n=10), and with Emergency Department group (n=12)

> Prioritising exercises led to a **dual approach** with complementary objectives:
- short-term focus for **'shop floor' changes**
- long-term focus for **system changes**

LIST OF BEHAVIOURAL CHALLENGES	ALL VOTES	%	RANK	ALL VOTES	%	RANK	ALL VOTES	%	RANK	SCORES	RANK
1 RUSH TO USE A TEST TO GET A DIAGNOSIS (TIME PRESSURES - PATIENT FLOW). PRESSURES TO MAKE A DECISION OR DO ADEQUATE ASSESSMENT	37	10,67	5	43	10,91	2	36	9,84	4	116	3
2 OVER-RELIANCE ON DIPSTICK TEST. ARE WE IGNORING / MISSING THE BIGGER CLINICAL PICTURE? [TESTS ARE] DONE AUTOMATICALLY	39	11,23	2	41	10,41	3	40	10,93	2	120	2
3 [TESTS ARE] SEEN AS 'SOMETHING THAT WE DO'. NO AUTHORISATION NEEDED TO DO THE TEST. NEED TO ADDRESS BEHAVIOUR IN THE DEPARTMENT	26	7,5	10	38	9,64	7	32	8,74	10	96	10
4 DEFENSIVE MENTALITY? [STAFF] NEED TO BE SEEN TO BE DOING ADEQUATE TESTS - RISKS OF MISSING A DIAGNOSIS DUE TO NOT DOING A TEST ESPECIALLY NON-INVASIVE / SIMPLE TESTS LIKE URINE DIP	30	8,64	8	34	8,63	10	33	9,02	9	97	9
5 POOR UNDERSTANDING OF DIAGNOSTIC TESTING. ARE WE PUTTING TESTS AHEAD OF CLINICAL JUDGEMENT AND INDIVIDUAL PATIENT CARE?	41	11,81	1	45	11,42	1	42	11,47	1	128	1
6 POOR UNDERSTANDING OF DIAGNOSTICS / SYMPTOMS OF UTI DO OVER-RELIANCE ON URINE DIP TO SEE WHAT IS GOING ON	38	10,95	4	40	10,15	5	36	9,84	4	114	6
7 NOT UNDERTAKING THE TEST IN THE CORRECT WAY - DOING PRESS PADS, COLLECTION FROM CATHETER BAG NOT TUBES, ETC.							35	9,56	8	115	4
8 MAKING ASSUMPTIONS ABOUT PATIENT ... ROUTINELY TESTED							40	10,93	2	115	4
PROTOCOLS: OVER RELIANCE ON DIAGNOSTIC PROTOCOLS AND THERE ARE TOO MANY ... STAFF OR HCAs FOLLOW THESE WHEN DECIDING TO DO A URINE DIP?							36	9,84	4	101	8
10 COMPLEX PATIENTS - ARE OUR PATIENTS GETTING MORE COMPLEX? PROBLEMS / SYMPTOMS IN COMPLEX PATIENTS CAN BE HARD TO INTERPRET. IS URINE DIP SEEN AS SOMETHING THAT CAN HELP BUILD A PICTURE? ...							36	9,84	4	105	7
							366	100			

On a scale 1 to 5, How much the behaviour has a direct impact on broader processes and the hospital system?

... of impact; 4 = significant

Poor understanding of diagnostic testing. Are we putting tests ahead of clinical judgement and individual patient care?

Rush to use a test to get a diagnosis (time pressures - patient flow). Pressures to make a decision or do adequate assessment.

Over-reliance on dipstick test. Are we ignoring/missing the bigger clinical picture? [Tests are] done automatically.

Not undertaking the test in the correct way - doing press pads, collection from catheter bag not tubes, etc.

Poor understanding of diagnostics/symptoms of UTI do over-reliance on urine dip to see what is going on.

Making assumptions about patient groups + their risk of UTI; i.e. older people (esp. women) + women of childbearing age are routinely tested.

[Tests are] seen as 'something that we do'. No authorisation needed to do the test. Need to address behaviour in the department.

Protocols: over reliance on diagnostic protocols and there are too many (medical staff) - too many protocols. Do the nursing staff or HCAs follow these when deciding to do a urine dip?

Complex patients - are our patients getting more complex? Problems/symptoms in complex patients can be hard to interpret. Is urine dip seen as something that can help build a picture? (multimorbidity/living older + longer/mental health).

Defensive mentality? [Staff] need to be seen to be doing adequate tests - risks of missing a diagnosis due to not doing a test, especially non-invasive/simple tests like urine dip.

Urine is dipped because a patient has passed urine in the department, seen as opportunity to get simple test, not done on clinical basis, but due to convenience.

Patients who are symptomatic of a UTI but are also incontinent or are unable to vocalise the need to pass urine are less likely to have a dip stick test. When a dip stick is required to rule out UTI, e.g. Sepsis, are some patients treated for a UTI without being tested.

Managers (n=3) Doctors (n=6) Nurses (n=3)

Prioritising exercises – Core Group (top), ED Group (bottom)

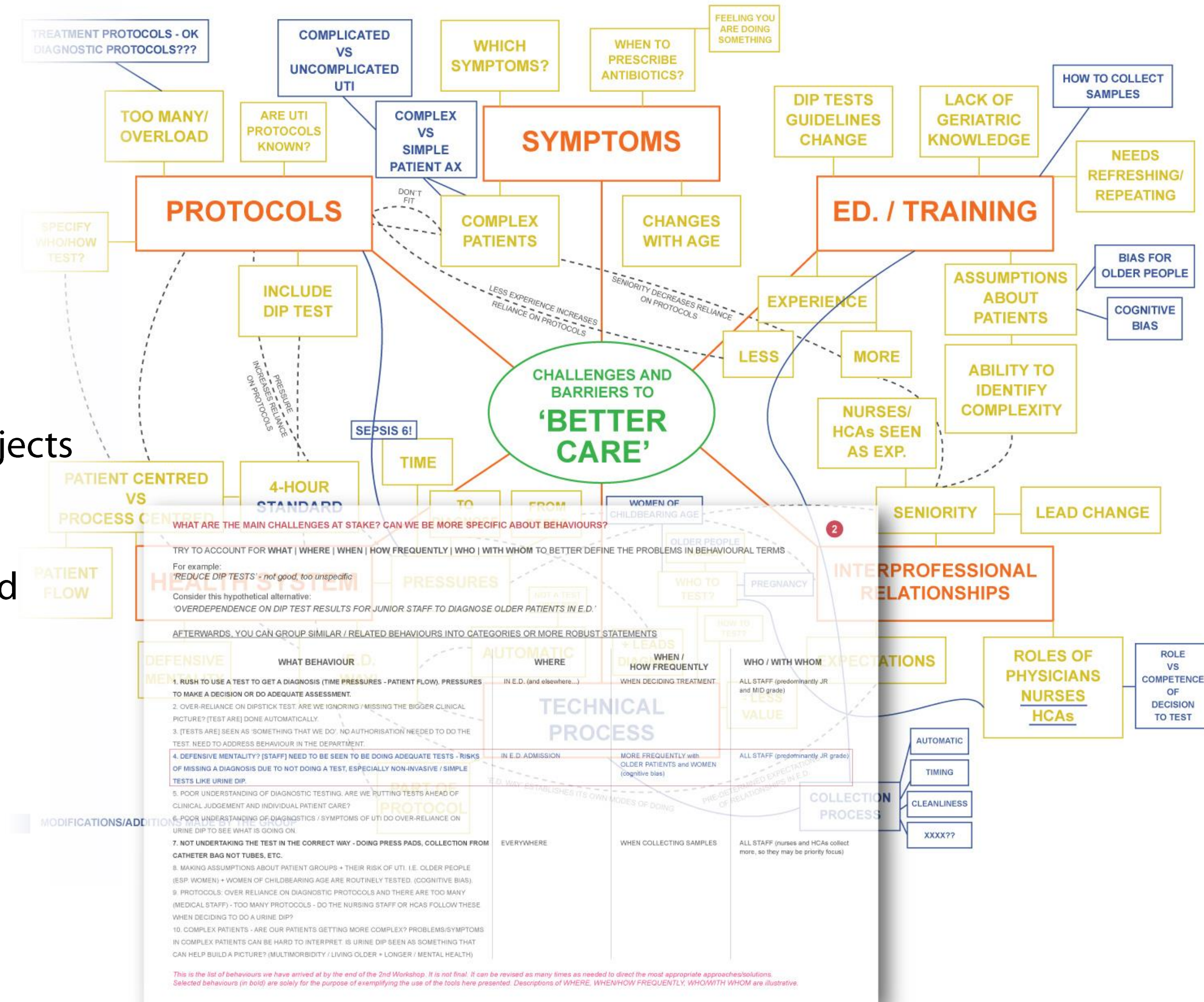
Results –

PLANNING INTERVENTIONS

> Established a **multiprofessional UTI Joint Committee** in the Emergency Department

> **Support** to two **doctors** conducting quality improvement projects (as part of medical training)

> Strategy and action plan for moving into **Co-Development** and **Co-Implementation** stages



Refined thematic networks map (top); list of main behavioural challenges (bottom)

Results –

RECENT DEVELOPMENTS

> 5th WORKSHOP: **50+ intervention ideas** proposed by stakeholders through the process

> 6th WORKSHOP: **two intervention solutions** developed (beginning trial phase now)

NEXT STEPS

> **Evaluation of pilot interventions**:
- Impact/outcome evaluation (quanti – quick PDSA cycles lead by ED staff)
- Process/practice evaluation (quali – in-depth interviews w/ stakeholders)

> **Co-production** session for **intervention refinement** (7th WORKSHOP)

Findings –

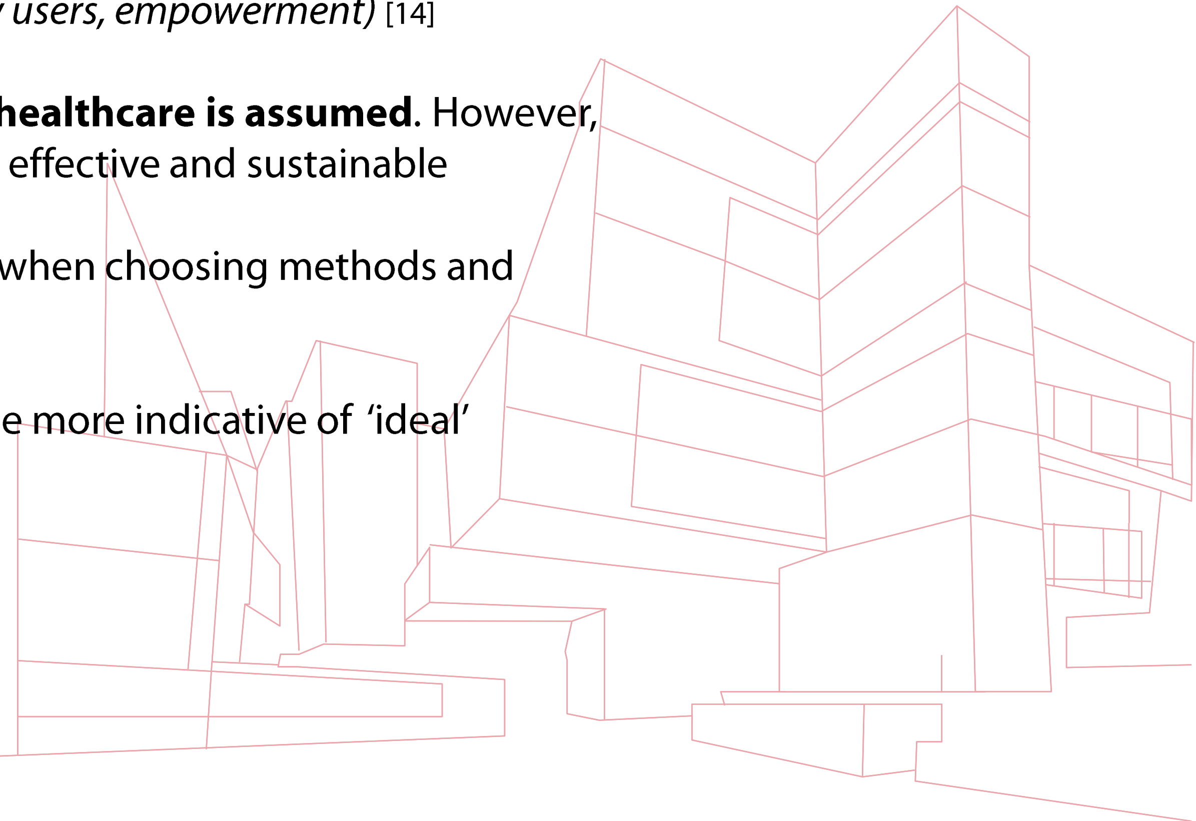
> It **is feasible** to employ a **behavioural approach to healthcare quality improvement in participatory ways**

> **Stakeholder engagement has a definite role** in changing clinical practice *(enhanced knowledge of systems, integration of change into every-day practice, choices created by users, empowerment)* [14]

> Unlike 'patient and public involvement' (PPI), **staff participation in healthcare is assumed**. However, participation needs support and a systematic approach to be feasible, effective and sustainable

> **Staff's possibilities** for active engagement need to be **considered** when choosing methods and employing tools **to co-develop behaviour change interventions**

> For healthcare staff, **early-involvement** and **choice-creation** may be more indicative of 'ideal' participation than **decision-making**



[14] Bratteteig & Wagner 2016

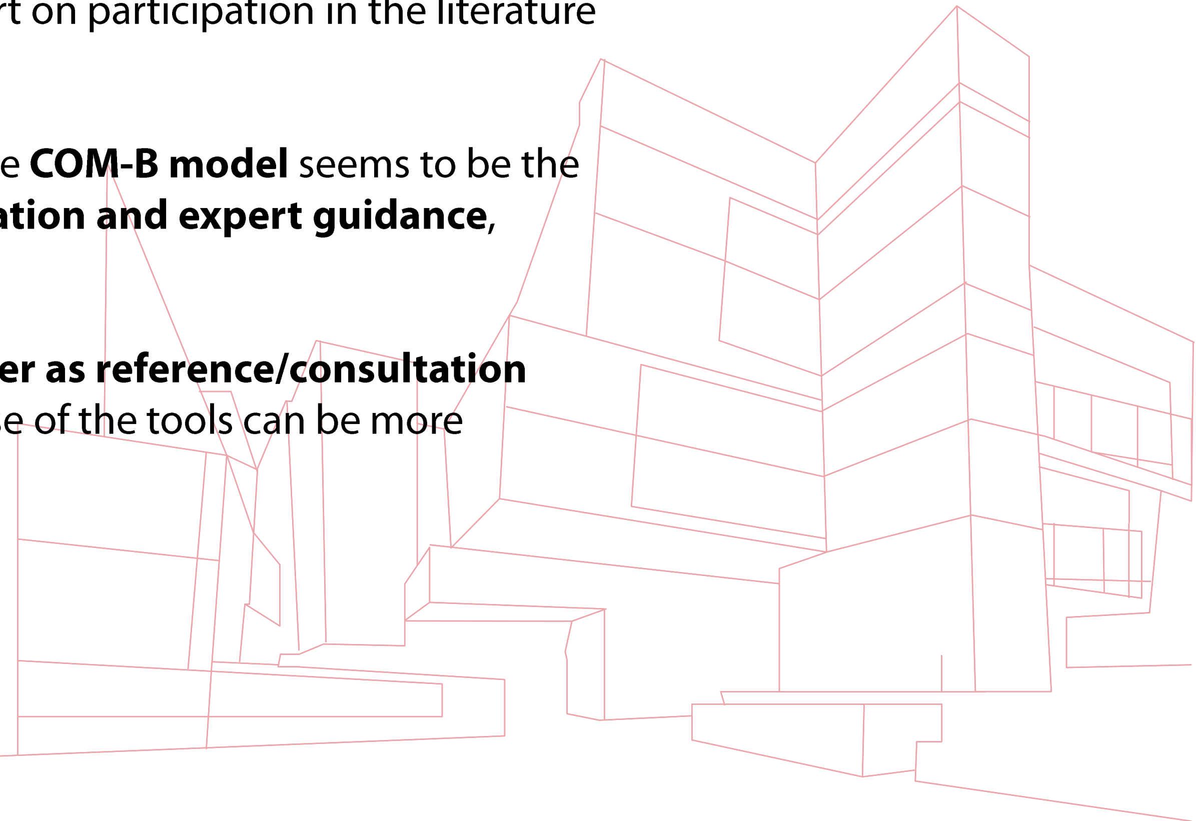
Discussion –

> The proposed **framework is applicable to quality improvement in healthcare**. However, its effectiveness in relation to other approaches has not been assessed in this study

> Whether **Participatory Design** is the best approach to **enact staff engagement** is still unclear – though there are firm grounds to support that assumption, poor report on participation in the literature makes it hard to analyse and compare different approaches

> Behaviour change can support participatory intervention design. The **COM-B model** seems to be the **most universally accepted tool**, whereas other **tools require adaptation and expert guidance**, contrary to claims from the literature [15]

> In **participatory settings**, some behaviour change **tools work better as reference/consultation material** than as prescriptive design guidelines. To what extent this use of the tools can be more effective than their original use is yet to be evaluated



[15] Atkins & Michie 2015

Thank you very much –

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