

TACT³

Promoting Ageing Continenence



TACT3

Smart Underwear

Eleanor van den Heuvel
Brunel University



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"Do you know what I fear most about old age?"

"No what?"

"Incontinence!"

Why older people?

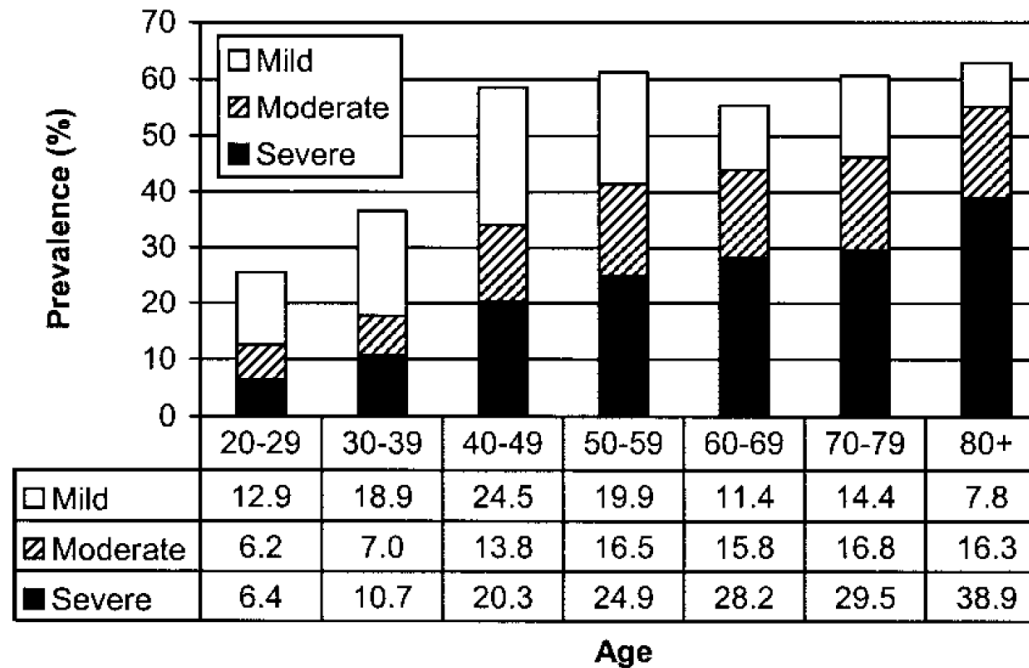


Fig. 4. Prevalence of any urinary incontinence by age and severity.

Minassian. Urinary Incontinence in Women. Obstet Gynecol 2008.

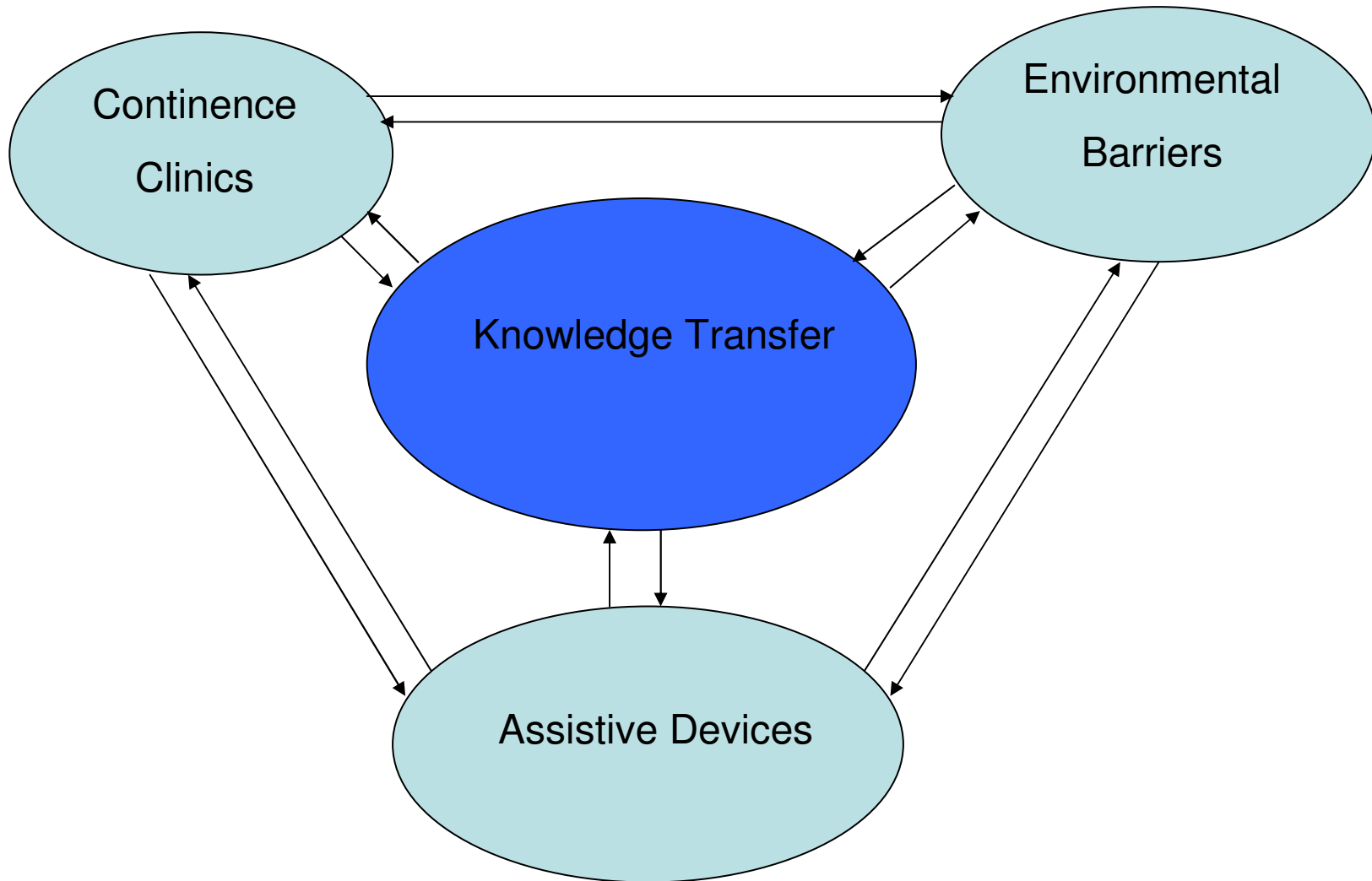
What are continence difficulties?

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What are continence difficulties?

- Over 70% of men and women over the age of 40 sometimes experience lower urinary tract symptoms (Coyne et al 2009)
- But even with perfect bowel and bladder control you can't be continent if you can't access toilet facilities!

TACT3



Assistive Technology

- *Developing two assistive devices to help people cope with their continence needs*



Smart Underwear wetness detector

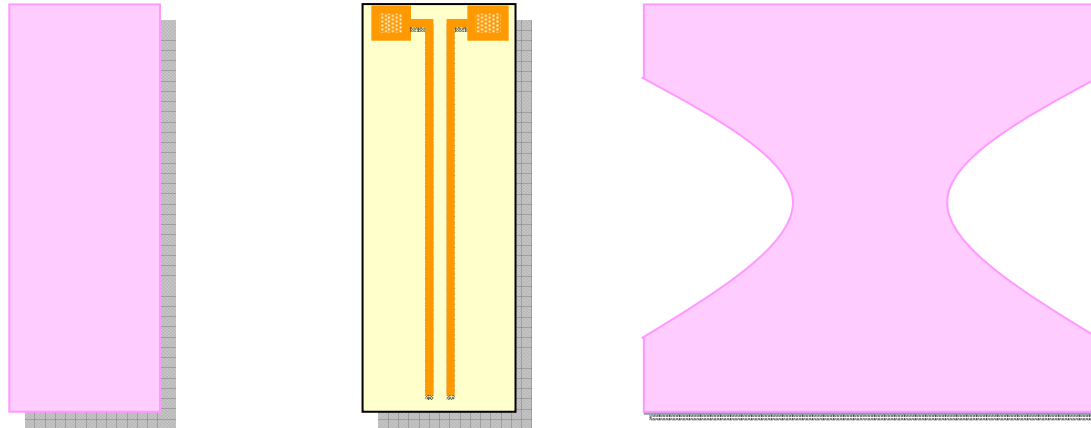
- Why?

It's vital to be able to carry on with everyday life. Knowing that the pad will hold urine gives you security so allows you to do things. If the pad leaks then you stop doing things. It's easy to lose confidence in yourself and stop doing everyday activities.

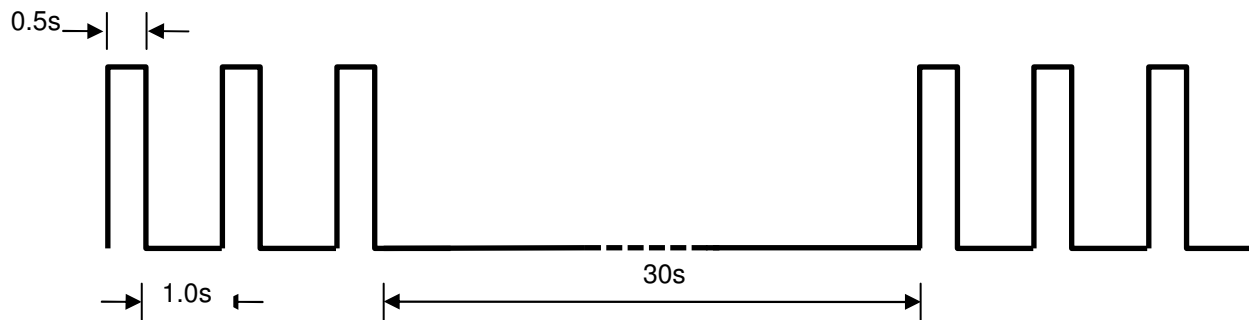
Focus groups



Sensor design



Vibration sequence



Smart Underwear



Clinical testing-Pilot Study

- **Baseline questionnaire** - age, type of pads, frequency of use, frequency of pad leakage.
- **Two week test period** - Five pairs Smart underwear, one signalling system
- **Daily diary** - Pad leakage events and device
- **Evaluation questionnaire** - Size and position of signalling unit, Ease of use, Comfort, Reliability and Confidence

Comments

"It gave me more confidence in doing everyday tasks."

"Gave me more confidence, felt 'in control' knew that 'wet patches' would not happen. Overall felt happier."

"It was very good in letting me know when wet"

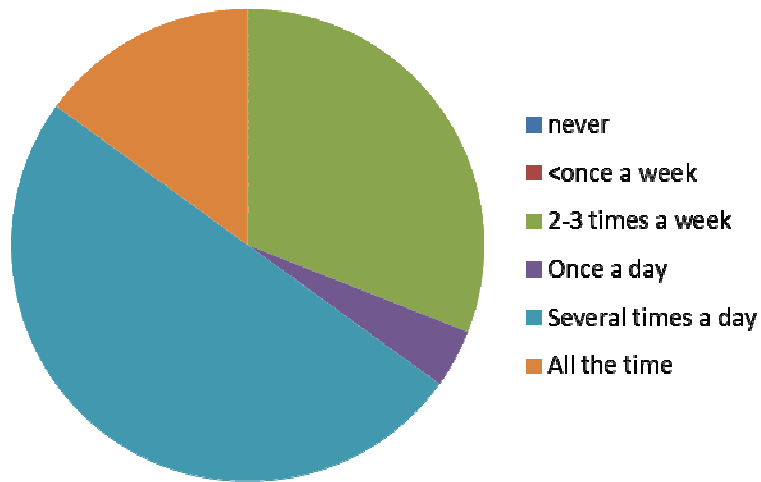
"Very useful, was able to change most of the time. It's a brilliant invention"

Clinical testing-Full Study

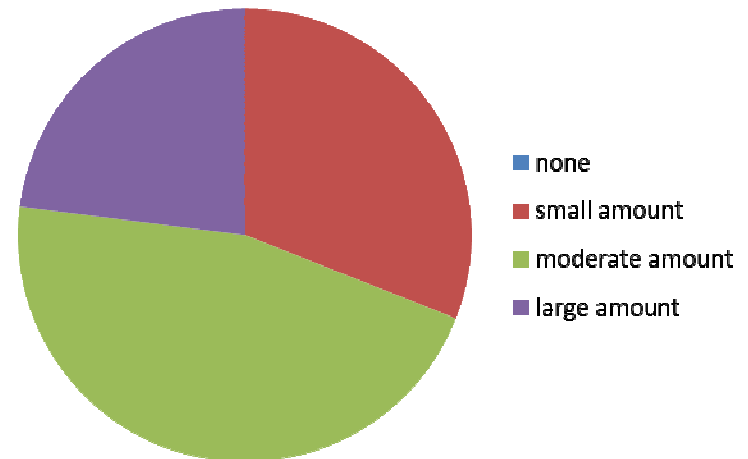
- International consultation on Incontinence Modular questionnaire (ICIQ)-UI
- ICIQ quality of life (QOL)
- Psychosocial Impact of Assistive Devices Scale (PIADS)

Interim results-Participant profile

How often urine leaks
(baseline %)

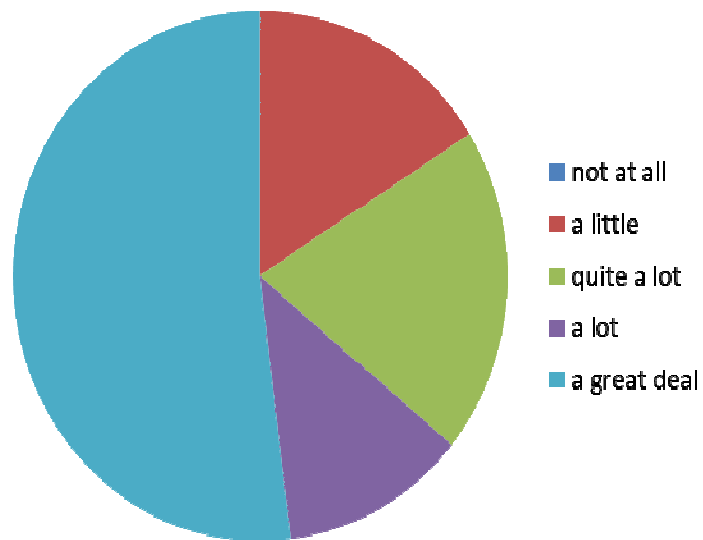


How much urine leaks
(baseline %)

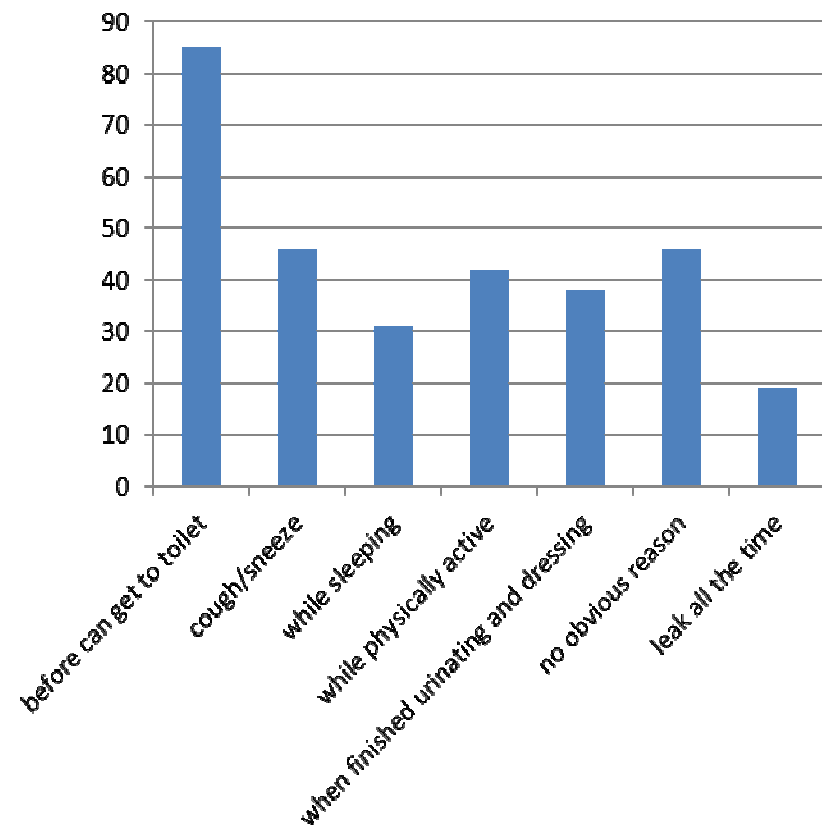


Participant profile

How much does leaking interfere with everyday life (baseline %)



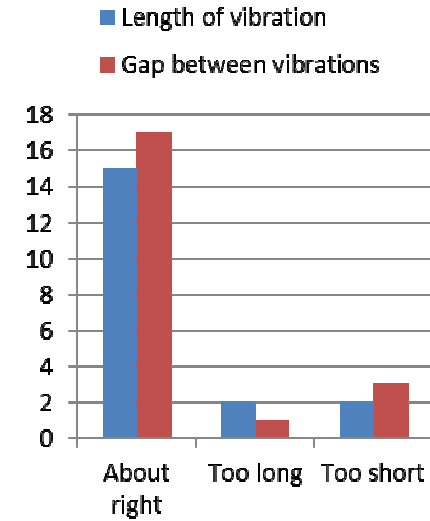
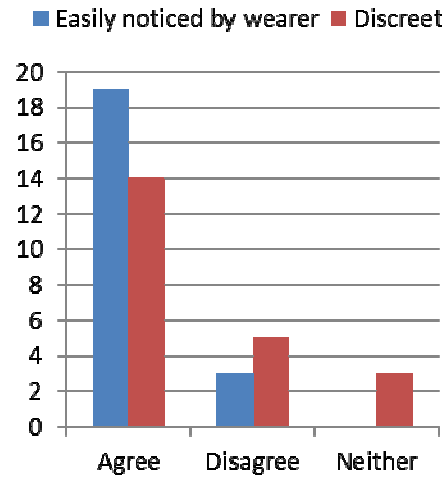
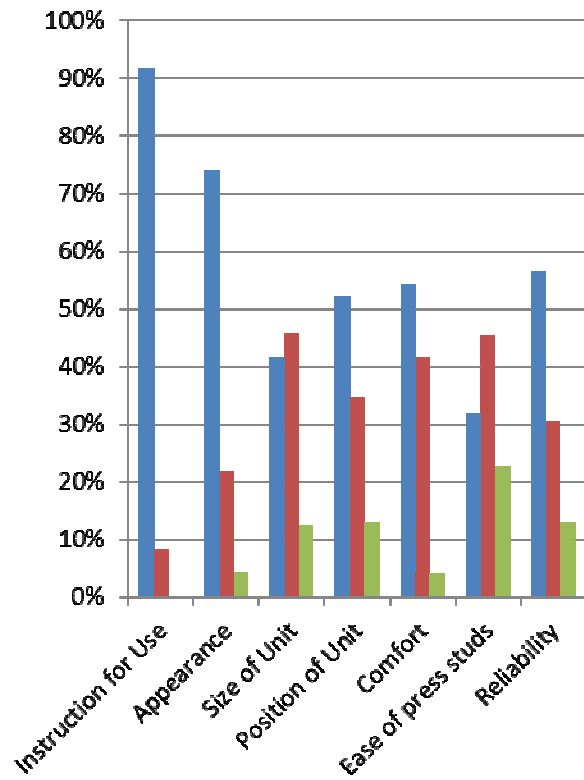
Perceived cause of leakage



Evaluation

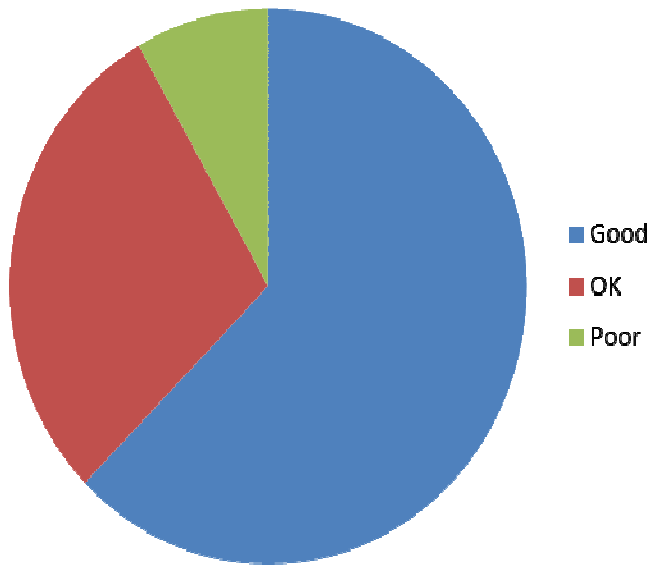
No. participants completed	27
No. of leakage events recorded	336
No. leakage events/day on average	2.2
Alerted by alarm	76%
Not aware of leakage prior to alarm	66%
Sufficient time to change pad	85%

Evaluation

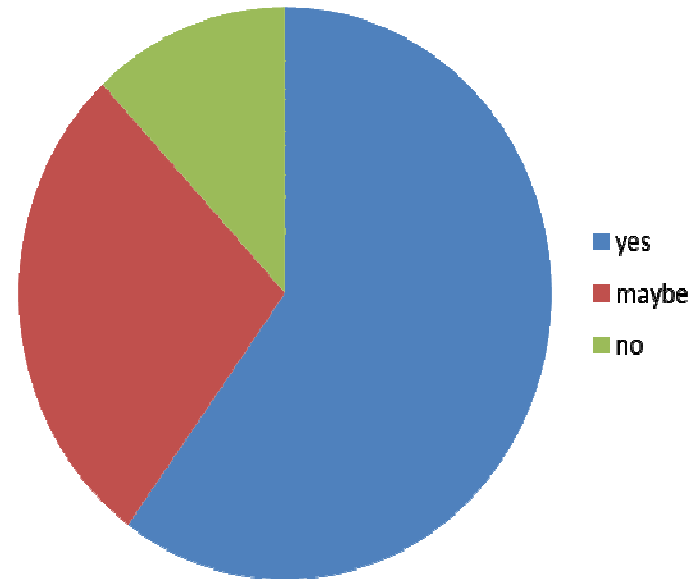


Impact

Overall impression



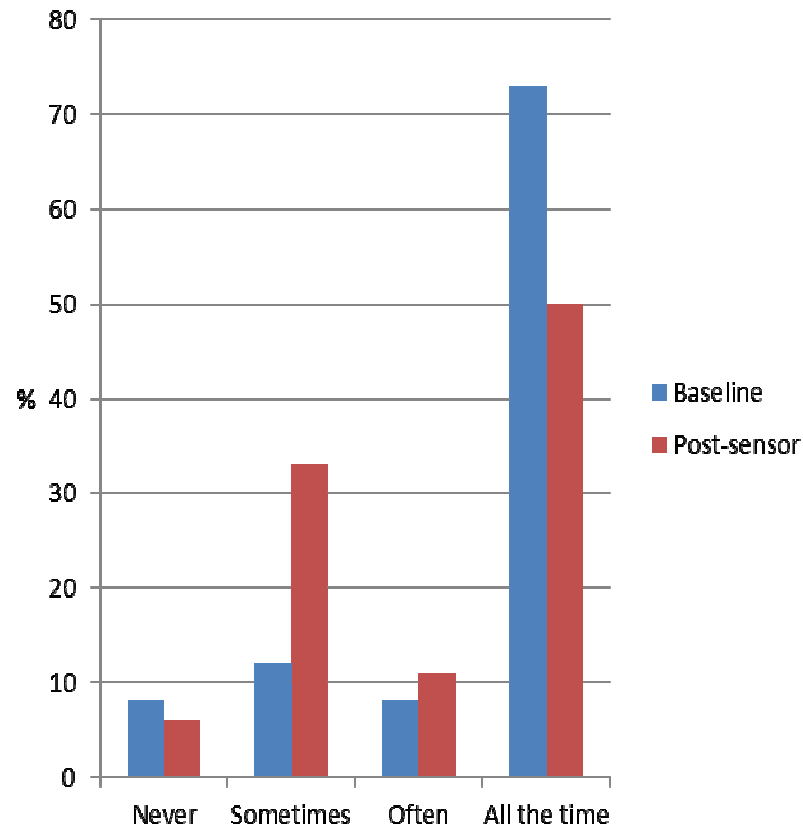
More confident



Impact

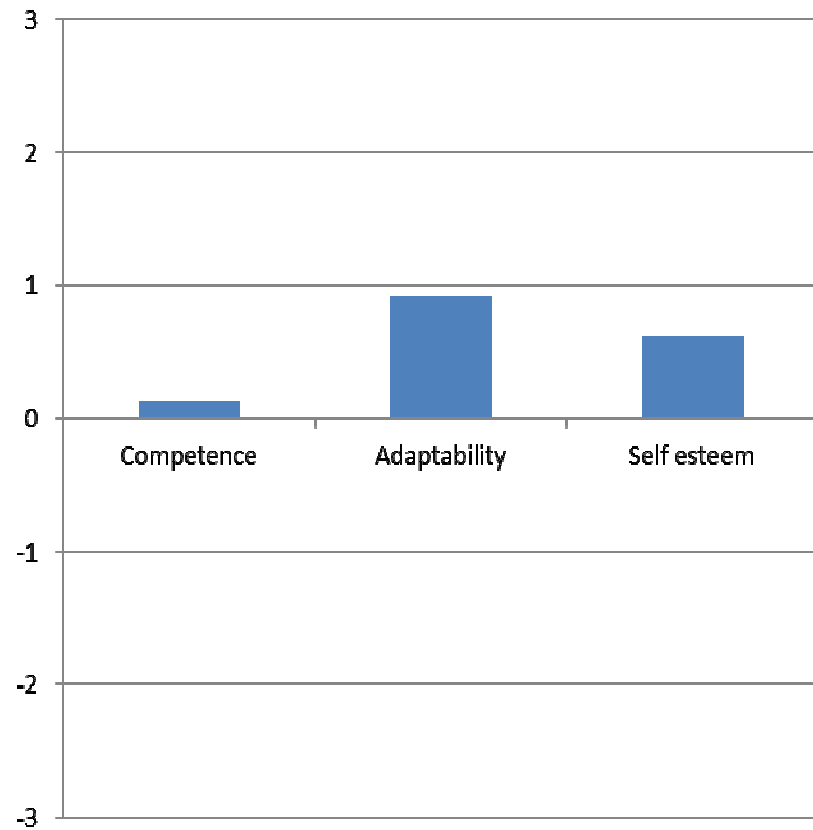
ICIQ-LUTSqol

Do you worry if you smell?



PIADS

Psychosocial impact of device



Future

To complete the user trials

Make adjustments to the product as required

Commercialise the smart underwear so that
it is available to pad users worldwide

Canadian Linked projects



Professor Jeff Jutai



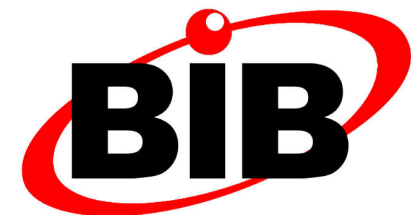
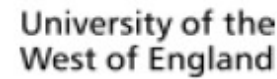
CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada



Cara Tannenbaum



Collaborators



Project Partners



**Technology
Sourcing**



The new force combining
Age Concern and Help the Aged



The Simon Foundation
for Continence



References

- K.S. Coyne, C.C. Sexton and C.L. Thompson et al., **The prevalence of lower urinary tract symptoms (LUTS) in the USA, the UK and Sweden: results from the epidemiology of LUTS (EpiLUTS) study**, *BJU Int* 104 (2009), pp. 352–360
- Getliffe K, Fader M, Cottenden A, Jamieson K, Green N. **Absorbent products for incontinence: 'treatment effect' and impact on quality of life**. *J Clin Nurs* (2007); 16: 1936–45.
- Minassian, Vatche A. MD^{1,2}; Stewart, Walter F. PhD²; Wood, G Craig MS² **Urinary Incontinence in Women: Variation in Prevalence Estimates and Risk Factors** *Obstetrics & Gynecology*: (2008) Volume 111 - Issue 2, Part 1 - pp 324-331doi: 10.1097/01.AOG.0000267220.48987.17