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# Ward design: implications for work practices, care quality and patient safety

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# Background

- Since 1997, DH best practice guidance has advised that new healthcare buildings should provide a minimum of 50% single-bed rooms
- Drivers include perceived patient preference, improved infection control, provision of same-sex accommodation although evidence-base limited and conflicting
- Little is known about impact on staff efficiency, quality of care, nursing costs and patient satisfaction across different patient groups
- NNRU undertaking research project looking at a Trust moving from old accommodation to a new hospital development with 100% single-bed rooms

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A 'before and after' study

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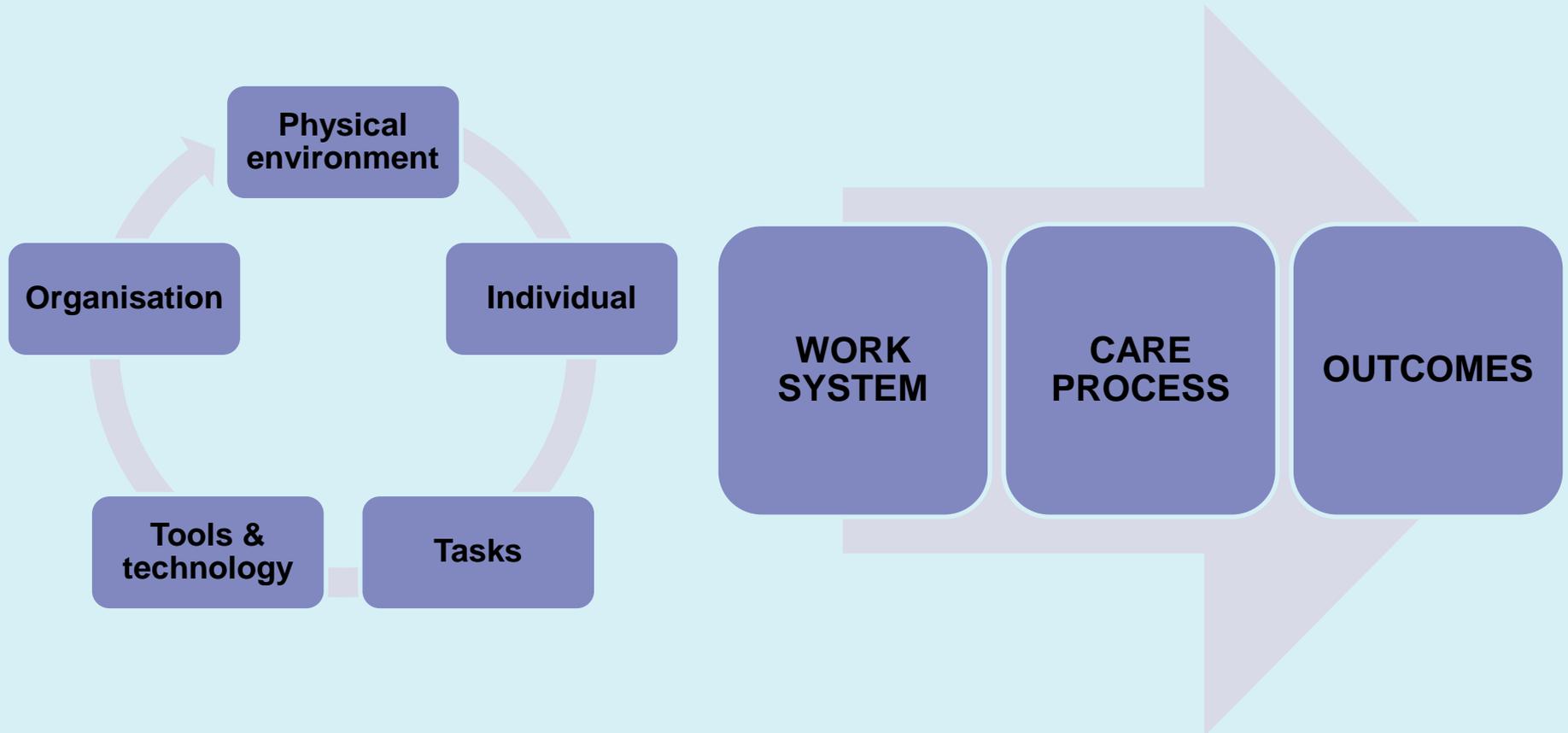
# Study design

- Focus of presentation is on ‘before’ data
- Need to understand nursing work practices and staff and patient experience in old accommodation
- In-depth case studies to understand practices and experience *before* the move
  - Four ward areas selected to include a range patient groups and levels of acuity

# Theoretical approach

- Difficult to look at the physical environment of healthcare in isolation from the work that needs to be done, who performs the work, and how the work is organised
- Requires a holistic or ‘whole system’ approach
- Human factors and systems engineering approaches useful for describing nursing work, its interaction with the physical environment and resulting outcomes
  - Staff and patient safety, satisfaction and well-being
  - Operational efficiency

# SEIPS 'work system' model



# Data collection methods

- Mixed qualitative and quantitative methods to produce a rounded picture of the issues
  - Observation of nursing work practices and processes (30 hrs staff shadowing per case study ward using PDA to collect time-motion data)
  - Staff travel distances (pedometers worn by nursing staff during observation session)
  - Staff survey (n=50)
  - In-depth interviews with staff (n=24) and patients (n=32)
  - Staff reflexive photography
  - Analysis of routinely collected data

# Advantages in old accommodation

- Observation, interviews and survey data revealed staff and patients valued the following:
  - Proximity of staff and patients (visual and aural)
    - Monitoring patients
    - Teamwork
    - Social contact between patients
  - Implications for staff and patient safety and well-being

# Staff photographs – visibility and social contact



# Patient experience (1)

“I can just lay in bed and watch everything go on around me and I’m quite happy... At the end of the ward there’s a little canteen or something, I’m not sure what it is, or a shortcut from somewhere, but there’s always people going past into there and coming back out again... You never felt as though you were isolated.” [Patient interview, male surgical ward]

# Disadvantages in old accommodation

- Observation, interviews and survey data revealed challenges with following:
  - **Space to deliver care at patient bedsides**
  - Noise levels and temperature of patient care areas
  - Patient privacy and dignity
  - Patient toilets/bathroom facilities
  - **Staff rest areas and toilet facilities**
  - Complying with infection control protocols
  - Space and IT equipment at staff bases
  - **Location and size of ward support areas**
  - Vertical and horizontal links with other areas

# Staff photographs – space at patient bedsides



# Patient experience (2)

“The lady next to me had had part of her bowel removed... they [nursing staff] were there for her, but she had quite a few accidents... I just felt so sorry for her and not to put too fine a point on it, it splashed under the curtains between us. We were that close, the smell and everything else, it was just horrid.” [Patient interview, female surgical ward]

# Staff photographs – staff facilities



# Staff photographs – location and size of ward support areas



# Time-motion data – staff activity

Activity (between 07:00 and 20:00hrs <sup>1</sup> )	Mean % time spent (SD)	
	Maternity (RMs)	Surgical (RNs)
Direct care	<b>27</b> (7)	<b>29</b> (10)
Documentation	<b>30</b> (9)	<b>6</b> (3)
Indirect care	<b>8</b> (1.5)	<b>13</b> (2)
Medication tasks	<b>5</b> (4)	<b>11</b> (6)
Personal/social	<b>2</b> (.5)	<b>11</b> (2)
Professional communication	<b>22</b> (2)	<b>21</b> (4)
Ward-related	<b>9</b> (4.5)	<b>8</b> (2)
<i>Total time observed (hh:mm)</i>	<b>14:48</b>	<b>19:13</b>
<i>1. Excluding main shift report/handover &amp; main meal breaks</i>		

# Staff travel distances

	No. staff/hrs	RMs/RNs Mean steps per hour (SD)	HCA/CSWs Mean steps per hour (SD)
<b>Maternity</b>	11 staff/79 hrs	<b>475</b> (94)	<b>786</b> (126)
<b>Surgical</b>	14 staff/123 hrs	<b>574</b> (92)	<b>767</b> (153)
<b>Elderly care</b>	11 staff/105 hrs	<b>471</b> (81)	<b>737</b> (112)
<b>MAU</b> (Medical Assessment Unit)	8 staff/78 hrs	<b>728</b> (183)	<b>949</b> (29)

# Next steps

- Repeat data collection in the new hospital (approx 6-months post-move) using work system model / whole system approach to:
  - **Assess impact of key design features** (e.g. single rooms; centralised ward support facilities; decentralised staff bases; distributed work stations; wireless communication system with integrated nurse call; pneumatic tube system; vertical and horizontal links/flows)
  - **Understand disruption and reconstitution of care processes including overcoming potential challenges** (e.g. monitoring patients; falls prevention; patient isolation; teamwork; staff safety)