Observation of Work from a Systems Perspective
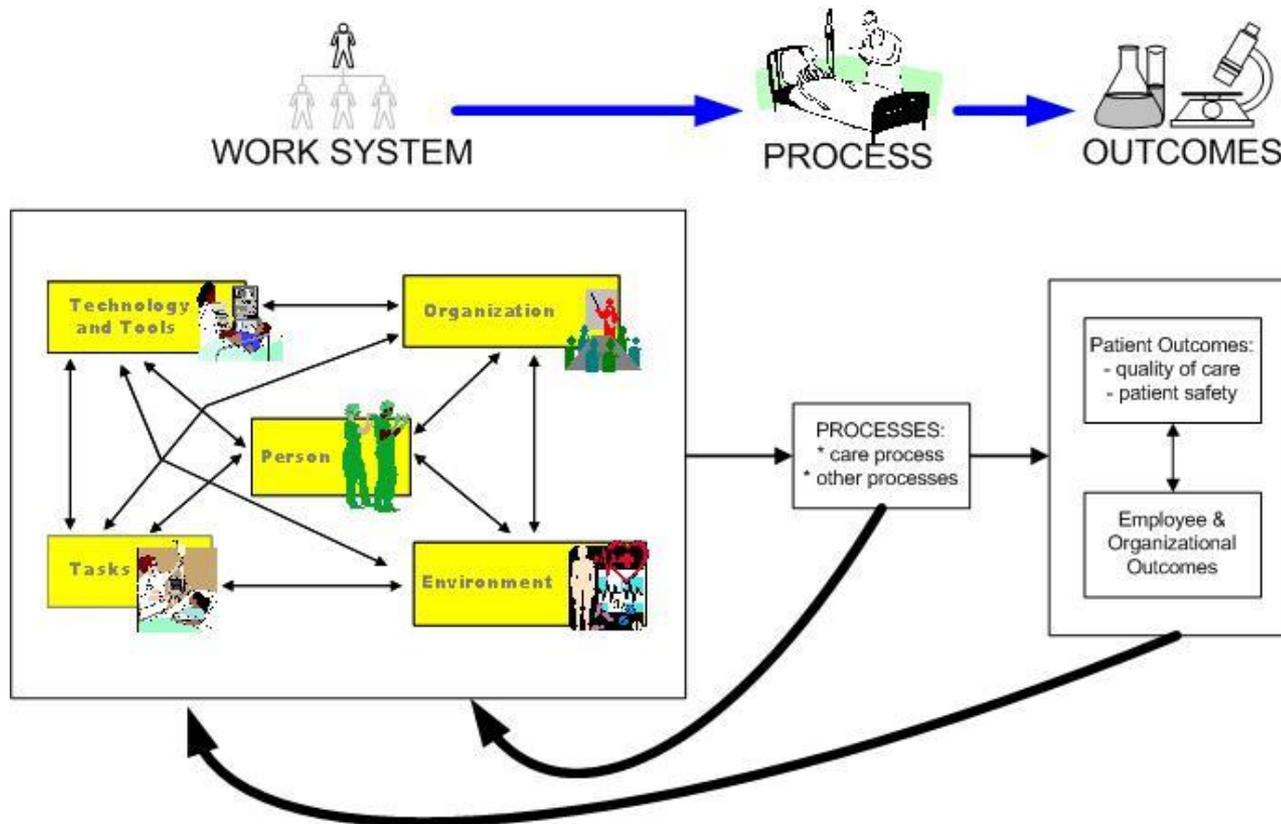
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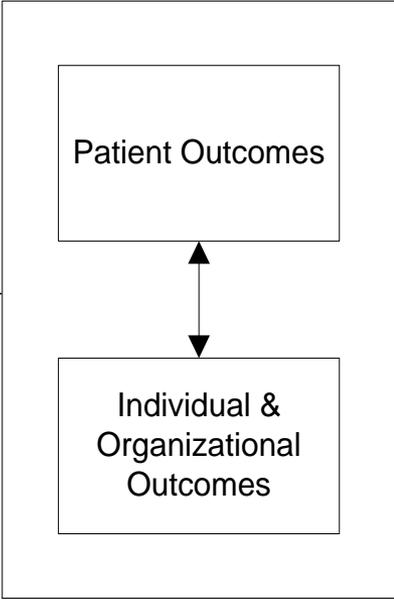# UW Systems Engineering Initiative for Patient Safety (SEIPS) Model of a work system

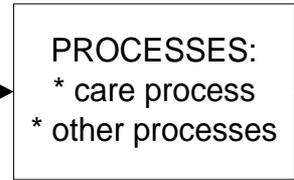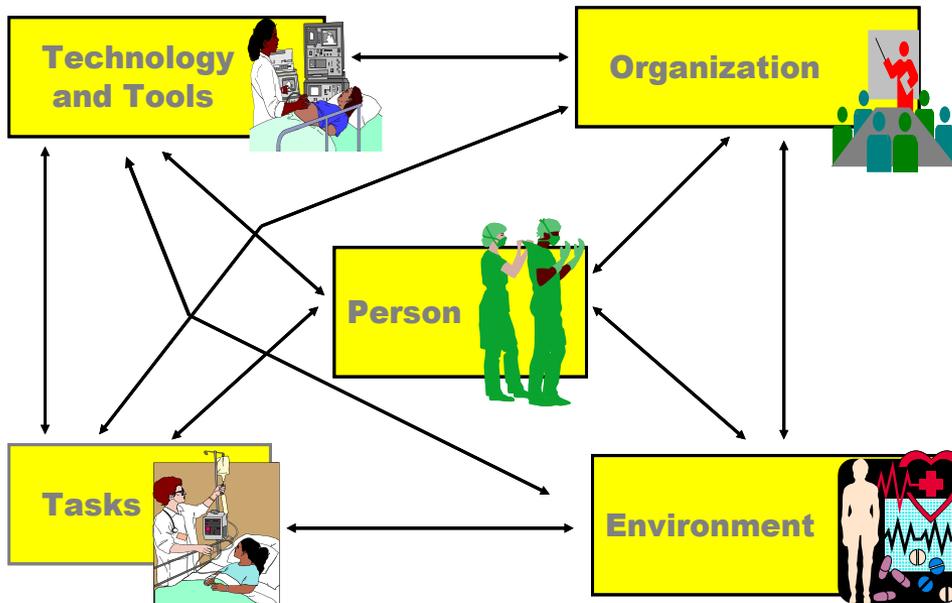Carayon, P., Hundt, A. S., Karsh, B., Gurses, A. P. Alvarado, C. J., Smith, M., and Brennan, P. F. (2006). Work system design for patient safety: the SEIPS model. Quality and Safety in Healthcare, 15(Suppl I), i50-i58.

UW-SEIPS System Model for Health Care (Carayon et al. 2003)

Work System Elements: Person

SEIPS model

- Education, skills, knowledge
- Motivation & needs
- Physical & psychological characteristics
- Includes patients & healthcare providers and staff

Admit BPMH example

- Staff / clinicians present. More than one person taking history? If so, how do they work together?
- Family or caregiver present
- Patient factors influencing process (acuity of illness, mental status changes, language, etc)
- Do workers appear fatigued, overworked, harried/on-edge, anxious to move quickly, composed, etc

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Organization

SEIPS model

- Org culture & patient safety culture
- Teamwork
- Coordination, collaboration, communication
- Supervisory and management style
- Work schedules
- Performance evaluation, incentives

Admit BPMH example

- Was the person being observed interrupted?
  - By whom (and how, e.g., phone call, pager, face-to-face, etc.)?
  - How did the person observed negotiate the interruption (e.g., how did individual juggle two tasks)?
  - Did the individual resume the "primary task"?
  - Did it influence the process/outcome?
- Teamwork – evidence of inter-prof communication about med rec?
  - What facilitated or prevented good teamwork?

Technologies & Tools

SEIPS model

- Information technologies & their characteristics
    - E.g., Electronic health records, computerized provider order entry
- Medical devices
    - IV pumps, CT scanners, calculators
- Paper charts & tools – order sets, templates

Admit BPMH example

- Technology Alarms/warnings:
    - Visual or audio alarms/alerts from technology being used – (may indicate problem with the process or use of the technology)
    - Individual response to alarms
    - Is a computer used? On what platform - laptop, computer on wheels, PDA
    - How well is the technology used? Easy, efficient?
- Tools:
    - What tools are used? How well are they used? Easy, efficient?
        - Med rec paper forms, EHR med list, Order sheets

Tasks

SEIPS model

- ☐ Variety of tasks to be done
- ☐ Job content, challenge, utilization of skills
- ☐ Autonomy, job control and participation
- ☐ Job demands
  - ■ E.g., workload, time pressure, cognitive load, need for attention

Admit BPMH example

- ☐ Is the med list reviewed in its entirety? Did providers cut corners to save time?
- ☐ Are the tasks performed in a logical sequence?
- ☐ Evidence of time pressure or workload problems?

Environment

SEIPS model

- Layout of workspace
  - E.g., Workstation design, patient exam rooms, hospital unit
- Noise
- Lighting
- Temperature, humidity, air quality

Admit BPMH example

- Physical environment, e.g., flat surfaces, layout, visibility, walking distance to computer/printer/documents
- Issues with: lighting, noise, privacy
- Social environment: how individuals are positioned & interacting (who is standing vs. sitting? Eye contact? Who is looking at whom when speaking? Do they look distracted by the physical environment?)

Observation

- ☐ Jotted notes
  - ■ Filling out the form while observing
- ☐ Direct observation notes
  - ■ After observation, completing notes
- ☐ Inferences
  - ■ What something means in context
- ☐ Analysis
  - ■ Interpret what was seen, draw conclusions