

The User's Voice - Prospective Ergonomics in Hospital Design

Conference Poster

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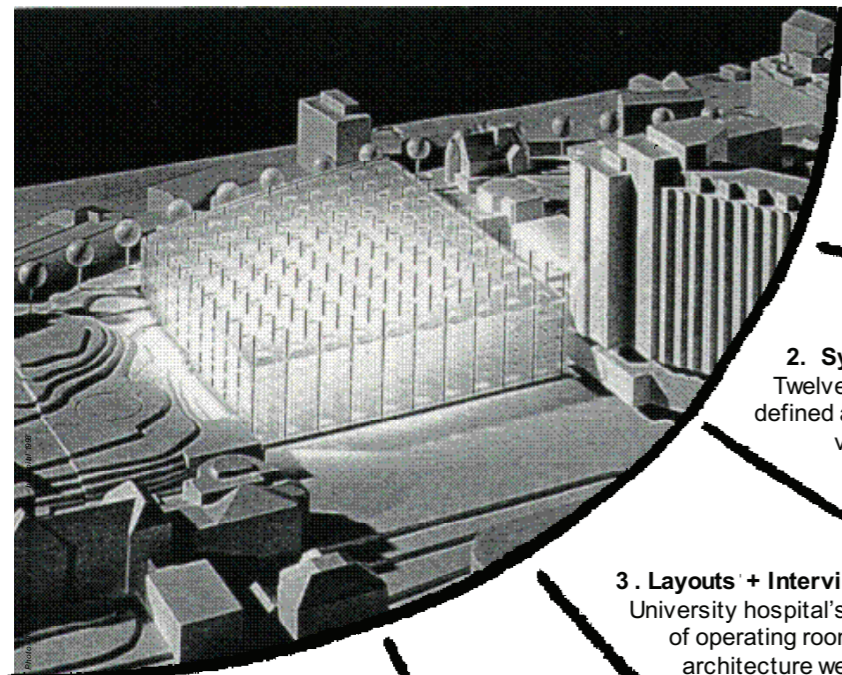
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The User's Voice - Prospective Ergonomics in



1. Concept A or B?
The discussion in the layout of a new hospital building is, whether:
Concept A - to have a central holding area only for patient waiting and separate rooms for induction and preparation of the patient, or:
Concept B - to do preparations in advance in the holding area and all other work in the OR.

2. System's variables
Twelve ergonomic variables were defined and linked together with 168 other variables of the project. Result is the high importance of the ergonomic variable: the transparency of the work processes.

3. Layouts + Interviews
University hospital's layout of operating room facility architecture were analysed

4. FIT-System
Tasks and links in anaesthesia work (preparation, induction) were analysed with a new mobile event recording technique (the FIT-System).

5. Information structuring

The information are structured under aspects of: work organisation, patient's point of view, ergonomics, training and efficiency, and education in relation to the different layouts.

Conclusion/Discussion

Hospitals are complex systems and changes are hard to anticipate. A method to manage the high amount of interdependent system variables can support decision making. Knowledge transfer from similar systems is a further help, but requires tools (FIT-System, VALAMO) for the registration of work procedures and for verbalisation of knowledge. This provides the decision makers with valuable data, but those information must reach the architects too and in an early planning stage. Experts in Ergonomics are hereby important for those information processing and dissemination. But the most important experts are the users and their voices, as a metaphor for transferring their knowledge and experiences.

Structured user statements (7 of at all 580 statements)

B: Preparation of the OR

	A	C	A	P	I	X
Setting up instruments while the patient is in the OR is no problem /1/3/5/7	1	1	2	1	4	
The scrub nurse shall not be disturbed in the preparation work /2				1	1	1
Don't set up the instruments when a very sick patient is in the OR /5	1					1
Usually the scrub nurse finished the preparations before the anaesthesia staff is ready /6	1					1
	1	2	1	3	0	7

1. I don't see a problem (patient enters the OR while instruments are setting up) because the instruments are being used for that particular patient. We do not set up cases and over them. The set up is for that patient and is set up for the time, it is going to be used. /P

2. It will take (I'll be honest) a minimum of 10 to 15 minutes by the time you take the patient out before you can accept the next patient. Our patient could enter the OR before all of the instruments are open. Some hospitals will not let the patient enter until all of the instrumentation is open and everybody is waiting and ready. We let our next patient come in sometimes before any instruments are set up. But we have to regard the comfort level of the scrub nurse (space to work). /P

3. We want to make sure, that we have some of the instruments are open when the patient enters the OR but we have the autoclave in the wall, so we can put the next set of instruments in the autoclave while they are closing the patient (what takes them so long, is to take the instruments down and around the corner). Once the room is cleaned, then the circulator can come and bring the instruments. And the scrub nurse can set them up and while this works they can bring the next patient into the OR. /P

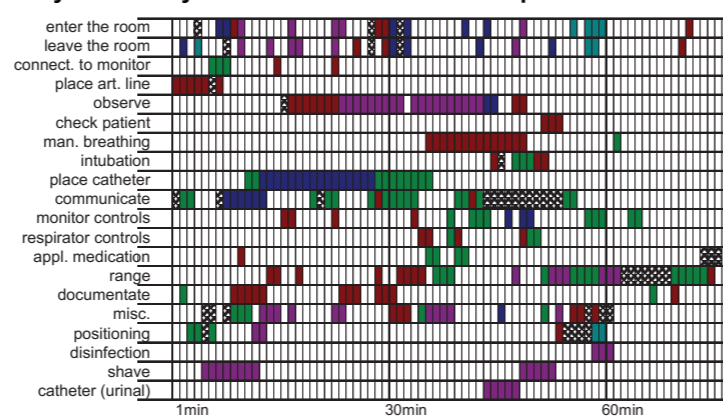
4. You have to give the staff time to set up the instruments (depending on the case 15-20 minutes). You can't magically make this happen. And my staff knows that it's gone take the anaesthesia 30 minutes to get the patient off to sleep. /P

5. I don't think that's necessary (to forbidden the patient to enter into the OR until all instruments are set up and open). That might be the situation if you have a very sick patient. Because if the patient is induced, they might get in trouble (heart or respiration). /C

6. Setting up the instruments also takes time, but typically the instruments are ready before anaesthesia. Anaesthesia could be ready, but it would demand an inhuman pace, and I don't do that. /A

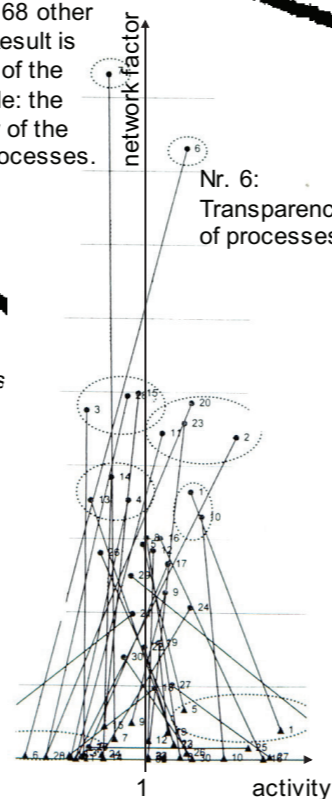
7. (To allow the patient first to enter the OR when all the instruments are set up and open) We used to do that but now: As soon the room is cleaned, the floor is mopped and the garbage is out and they start to set up, we bring the patient in. And so they're setting up while we bring the patient to sleep in. (The scrub nurses are not disturbed) No they do these things and we do our things and it actually works out well. /AP

FIT-System Analysis: Team-Taskstructure Preparation/Induction



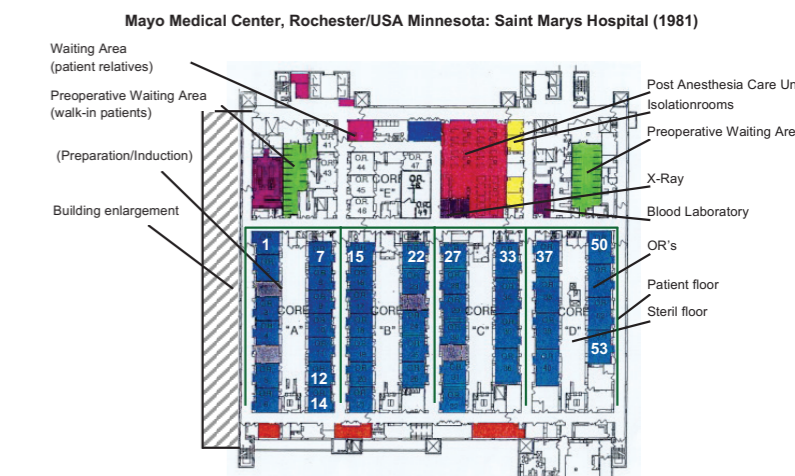
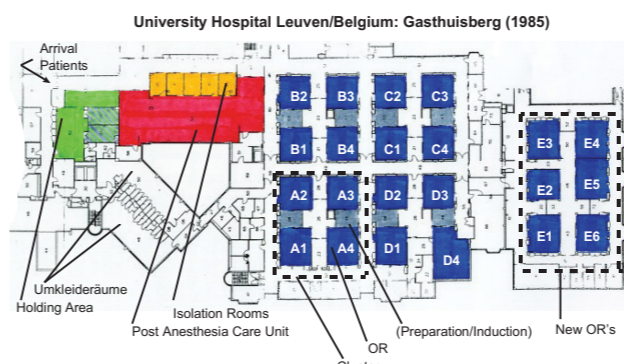
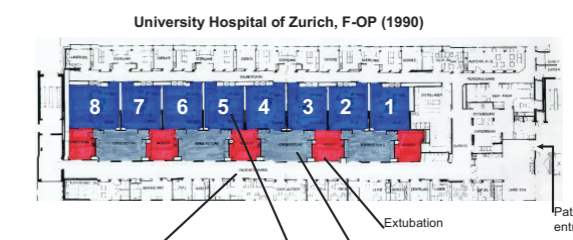
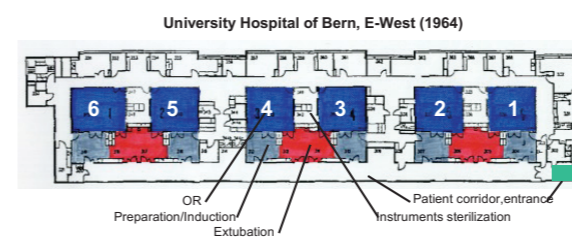
University Hospital of Bern

- Anaesthetist#1
- Anaesthetist#2
- Anaesthetist#3
- Positioning Specialist#1
- Positioning Specialist#2

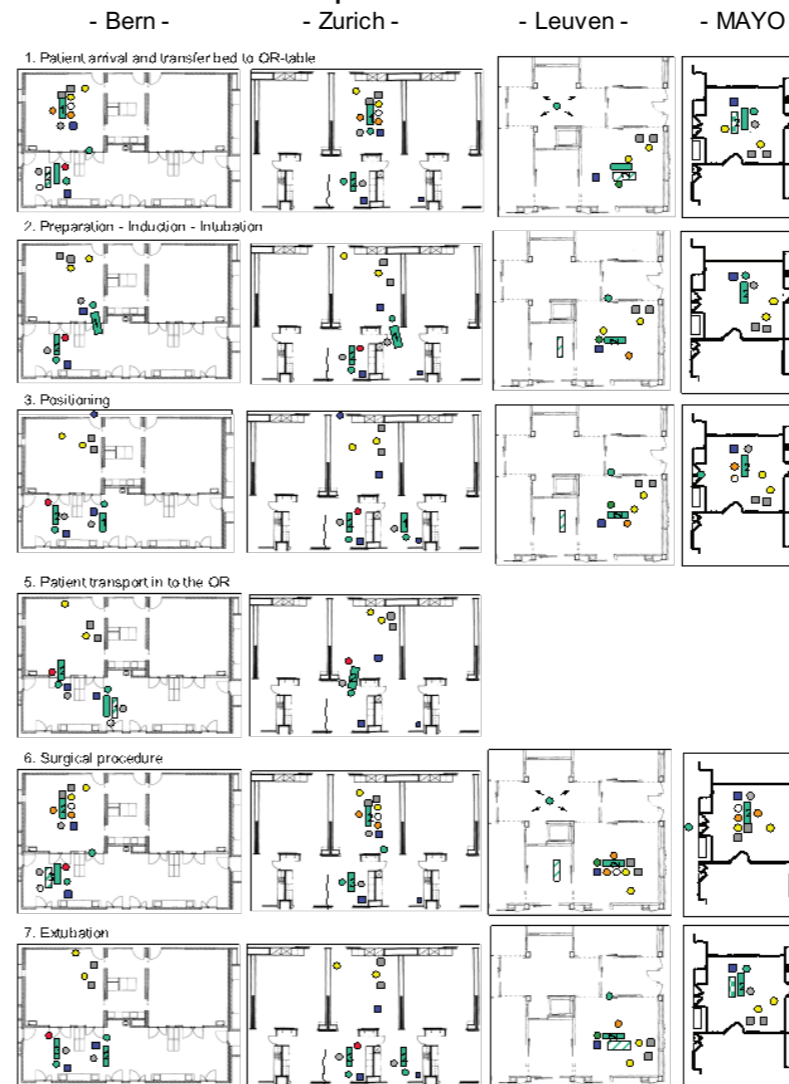


Hospital Design

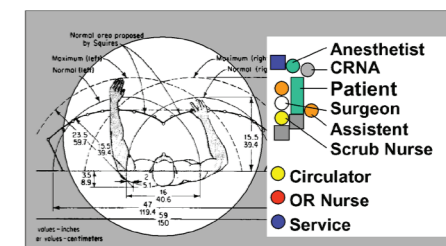
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VALAMO results: OR-work procedures



symbols (scaled)



Results

Hospitals and layout concepts
Bern (1964): A, but no holding area
Zurich (1990): A, but no holding area
Leuven (1985): B, but planned as A
MAYO (1981): B, but partly planned as A

In contrast to the Swiss hospitals (6-8 OR's, induction rooms, no central holding areas), the MAYO-Clinic (45 OR's) as well as the hospital in Leuven (16 OR's) have central holding areas, an integrated post anaesthesia care unit. Both hospitals had induction rooms which are no longer in use due to cost constraints! The hospital in Leuven shows an efficient work in small teams (no nurse anaesthetists) and an OR layout which facilitates the organisation because of a clustered and transparent (overview) structure.

Beside of all architectural aspects, the interviews shows the important factor of human resources: "You can have 10 different processes but when your staffing don't facilitate the processes, the processes gone be slow down." J. Miller, Nurse Manager Mayo Medical Center