DESIGN FOR HEALTHCARE TEAMS
human computer interaction for health
HEALTH CARE TODAY?
What is healthcare like today?

- “Healthcare today is a team sport”
- EXAMPLE: Emergency Department, Code teams, ICU
  - ICU: patients are surrounded by nurses day->night
- EHR (electronic health records) super important!
  - Main way health information about patients can be transmitted
  - Supports the team mentality (everyone has access to info)
Healthcare Teams
Diversity of Healthcare Teams

- What is a team?
  - “A distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/object/mission, who have been assigned specific roles or functions to perform, and who have a limited lifespan of membership” (Salas et al. 1992, p.4)

- Problems: Role assignments may be perceived differently
  - Operating Rooms? Or Trauma rooms (where things are chaotic)
  - EX: ED Teams = good example of an adaptive team, changes based on patient and issue they come with
  - EX: Surgery Team: group of surgeons, nurses, surgical techs, anesthesiologists work together often,
    - More structured set of roles and responsibilities
Things a Healthcare Team Needs

1. Flexibility/Adaptibility
   a. Patient illness/treatment path/needs of a patient change

2. Structure for Responsibility and Communication
   a. Hospital settings might not have that clear and designated system
   b. Sharing of responsibility for patients, for care
   c. Groups need to discuss to share patient information + plan a treatment path
   d. In emergency situations where people on team can’t make it—FLEXIBILITY TO TAKE OVER RESPONSIBILITIES
   e. Communication between team members regarding EHR
      i. design
Dynamic Communication Behaviors

- Face-to-face communication = better
  - Indirect informal communication that goes missed if not in person
  - Whiteboards + bulletin boards = good tools if not face-to-face
- Information transmitted needs to be able to exist in different places “MOVE”
  - Different departments, different treatments, and tests
  - Temporal Communication: nursing shifts change
- COMMUNICATION IS IMPORTANT!
  - EX: amputation of a patient’s wrong leg bc of a bad communication error during shift report
How to Support Collaborative Work?

- **Medical Records:**
  - Current; Replacing paper medical records
  - Improving accessibility, patient safety, accountability, cost savings
  - POOR DESIGN OF HIT systems → negative consequences

- **Collaborative healthcare = timely access to people, info, and resources**
  - Spatial and temporal distribution
CASE STUDIES
CASE STUDY #1

- Mobile phones in the ED: failed to support distributed teamwork
- Paul: Nurse in ED: Was drawing blood sample from patient
  - Phone vibrated
  - Paul ignored it
  - Phone call was actually an emergency call to help a critically ill patient in another room
  - Social contexts?

- **CONCLUSION:** Overhead pagers to communicate work related information
  - Mobile phones do not provide enough awareness for the entire group in patient care team members
  - Unwanted interruptions at patients’ bedside
  - Also a lack of role-based communication
CASE STUDY #2

Resident: Mr. VVV is a 52-year old male with...His white cell count is continuing to increase. He is on antibiotics. Plan for him...
[Resident provides a summary of the patient’s current condition using her summary sheet while the attending looks at the computer for getting an update on patient’s status]
Attending: Why don’t we change his antibiotics to antibiotic x?
Pharmacist: Because he is allergic to Penicillin.
Attending: OK.
Resident: He has also developed a high fever last night.
[The charge nurse interrupts the conversation and asks]
Charge nurse: Excuse me Dr. B (the attending), how many empty beds will we have for today’s admissions?
[Attending and the charge nurse walk together from the bedside to the whiteboard to check]

CONCLUSION: Ways to communicate information so easily transferred between shifts
“Information Arena”

1. Front-stage Activities driving front-stage activities
2. Front stage Activities driving back stage activities
3. Back-stage activities for supporting front-stage activities
4. Back-stage activities driving other back-stage activities
QUESTIONS?