

Design Studio III: Undesirable Patient-to-Patient Interactions in Hospitals

A common problem in hospitals pertains to a need to minimize the potential exposure of one patient with one condition (e.g., disease, illness, injury) to another patient with another condition. Especially if a patient's condition is highly contagious and, if communicated, would exploit weaknesses known to exist with the condition of the other patient, it is crucial to avoid the two patients to be in close physical proximity. For instance, if some patient's illness spreads itself through open wounds, rooming that infected patient with a patient who has open wounds from, say, a car accident, would be extremely problematic and even libelous to the hospital.

In some cases, too, it is not direct exposure that matters, but patients should not be spending time in the same room within some specific period of time.

The hospital, to date, has relied on unwritten conventions and manual management to avoid these undesirable patient-to-patient interactions. Given today's sue-happy society, the hospital wants to be safe rather than sorry, and has contacted you to develop an automated solution. It particularly is asking you to develop a "design bid" in which you specify at a minimum:

1. The overall functionality the system is going to provide: What is its scope?
2. The day-to-day operation of the system: How are patients added and removed from the system? How are patients tracked throughout the hospital? How to deal with patients whose condition initially may not be known but is gradually more precisely diagnosed? How are nurses and doctors warned of any potential problems?
3. The initial set up of the system: How are undesirable interactions specified in the first place? How is the hospital layout entered into the system? How can the hospital be broken down into "zones" for particular types of patients?
4. The architecture of the system: What hardware and software components are needed? How is the information stored in the system?

The hospital has contacted you because of your reputation as a top-notch design team that follows sound design practices, and they expect you to professionally engage in this design exercise. You are to deliver, on December 11, the design bid in printed form together with a 15 minute presentation that contains the highlights of your design. The hospital is not interested in the process you followed to arrive at this design (well, at least not for the presentation), but wants you to deliver an honest description of what your system can and cannot do, and what its strengths and weaknesses are.