Changing building typologies forum – Observations from practice

Hospital configuration and culture

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Healthcare systems around the world are putting pressure on hospitals to improve operational efficiency and reduce error. While spatial configuration is increasingly implicated in operational inefficiency, and communication implicated in medical error, the impact of spatial configuration on communication is rarely discussed. That spatial configuration might have an impact on the complex web of social relations within a hospital is never considered. Hospital ‘culture’ is seen as widely variable but exclusively a by-product of management philosophy and processes. However, a hospital in the south-east corner of the Netherlands suggests that space profoundly influences communication, social relations and culture.

Hospitals are inhabited by several categories of clinicians and staff, and visited by several categories of patients - with or without family members or companions. The most basic patient categories are inpatients who stay in the hospital for days at a time, and outpatients whose visits vary from less than an hour to most of a day. Patients receive care in three basic setting types: inpatient units; outpatient clinics; and diagnostic & treatment (D&T) departments, used by both inpatients and outpatients. The layout of these care settings modulates the multiple relationships and communication patterns between caregivers, patients and patients’ families/companions.

Mahbub Rashid (2009) makes a distinction between clinician Communities of Practice (CoPs) with similar training and qualifications such as intensive care nurses or internists, and Communities of Interest (Cols), comprising more or less permanent diverse groups of clinicians focused on the care of particular patient groups or critically ill patients with unusual symptoms. The current focus on team, or Col-based care, recognises the interdisciplinary nature of hospital-based care delivery.

Care within hospitals is steadily migrating from inpatient to outpatient settings, with outpatient care steadily migrating from the hospital to the community, and increasingly into the home. Patients left in the hospital are higher acuity inpatients and the most complex and chronic outpatients. Hospitals are therefore focusing on structure and management, and on efforts to improve communication within and between Cols. Communication breakdowns within Cols are largely blamed on poor communication between their constituent CoPs, such as between nurses and physicians.

While changes are afoot in how and where care is delivered, hospital design, and particularly the planning of care settings within hospitals has been highly paradigmatic - particularly in North America where the racetrack inpatient unit and outpatient clinics comprising long exam room-lined corridors sandwiched between patient waiting rooms and perimeter doctors’ offices have long been, as Bill Hillier would put it, ‘ideas that [hospital] architects think with rather than about’. Both paradigmatic settings stymy communication within and between care teams and aggravate relations between clinicians and their patients and patient companions.

The Orbis Medical Centre in Sittard, the Netherlands, by Bonnema Architecten has done more to improve communication within its outpatient and inpatient care settings than perhaps any recent hospital in North America or Europe. Moreover, by separating patients and families from caregivers in its outpatient clinics and integrating them on its inpatient units, relations between all are improved in both settings.
Optimising clinician collaboration in outpatient clinics

The exam/consulting rooms of the Orbis outpatient clinics literally form the walls of the main and mezzanine levels of a long atrium. After registering, patients wait directly in front of their assigned exam/consulting room to be invited in by a clinician. Clinicians enter from a charting galley immediately outside the back doors of the exam/consulting rooms. The charting galleys of vertically adjacent clinics share a ‘knowledge centre’ at the mid-level between them, inhabited by clinicians, students and residents using a range of open workspace types, a few small enclosed rooms for one or two people, and a pair of large meeting rooms.

The Orbis model has distinct advantages over the North American corridor model:

- Patients and their companions wait immediately outside the exam/consulting room, eliminating the need to guide and often accompany patients to an exam room from the waiting room.
- Clinicians work, collaborate and circulate exclusively within the clinician-only charting galley and collaboration zone, allowing communication to be initiated immediately upon leaving the room.
- The need for patient eye-contact avoidance in shared corridors is eliminated.
- Clinics can be paired vertically to promote collaboration between related clinic teams.

While double-doored exam room layouts have been explored within the banks-of-rooms model, none are as successful as those at Orbis. Either the collaboration zone remains at the end of a clinician-only back corridor, or collaboration zones are isolated from each other and serve rooms accessed by two separate patient corridors.

The Orbis clinics were the subject of a recent study by Providence Healthcare, Stantec, and the Space Syntax Laboratory at the Bartlett, UCL. The results of the study (Sailer et al., 2013; Pachilova and Sailer, 2004), showing significantly more unplanned and planned communication between five Orbis clinics and five programatically similar clinics at Providence Healthcare’s St Paul’s Hospital in downtown Vancouver, supported the design of the seven outpatient clinic floors for a new Ambulatory Care Centre for St Paul’s. By virtue of a constrained site, charting galleys and mid-height collaboration platforms are organised around a single vertically integrated collaboration centre, linking clinicians within all outpatient clinics.

Figure 1:
St Paul’s typical clinic floor plan.
Engaging families on inpatient units

Outpatient visits are typically short and communication between patient, companion and clinician is ideally continuous within a single exam/consulting room. The Orbis Medical Centre again uses space to drastically change the very different dynamics of patient, companion and clinician relationships on its inpatient units. The Orbis units replace the high-walled support spaces in the core of a typical racetrack unit with a wide hall, open at the end for daylight and view and furnished with lounge type seating groups, a very well appointed nourishment centre, a meeting/dining table and a few open clinician workstations. Complete visibility is retained in the hall. Patient rooms on either side of the hall have heavy sliding glass doors that the patient can open, and integral blinds that the patient can tilt - both from the bed - allowing patients to modulate acoustical and visual privacy from zero to complete. From observation, about 85% of patients leave the blinds wide open and the door open a crack – likely so they can see and be seen by clinicians in the wide hall outside their room and be heard calling for help if urgently needed. The Orbis units have several advantages over the standard racetrack unit:

- Family and companions can retreat to lounge seating in the hall for a break, to allow privacy during an examination or to consult with a caregiver, while remaining close to if not in view of the patient.
- Families can support other families of nearby patients immediately outside of patient rooms.
- The patient and the family see the care team functioning as a team instead of as unrelated individuals who suddenly appear in the patient’s room.
- Clinicians can work and collaborate in the hall, close to the patients, and have a wide view of activity on the unit as they leave each patient’s room.
The same hospital that separated patients and families from caregivers so effectively in its outpatient clinics uses a shared space to create a calm and respectful culture of collaboration between patients, their families and the care team.

Conclusion
The web of social relations amongst clinicians, patients and companions within and between the component parts of a hospital is varied and complex, and likely profoundly influenced by spatial configuration. Outpatient clinics and inpatient units at the recently opened and architecturally stunning Meander Medisch Centrum in Amersfoort, the Netherlands, would be an excellent comparator for further studies of the influence of space on culture at the Orbis Medical Centre.

References


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I am the Lead at Healthcare Research and Innovation for Stantec, and a design team leader in the Vancouver Integrated Healthcare Design Studio. My primary interests are the impacts of spatial arrangement on care processes and communication, and the use of daylight planning and building systems integration to achieve high indoor environmental quality and energy conservation in hospitals. My role requires that I monitor developments in hospital design worldwide, and allows visits to the most intriguing. I engage with Stantec and industry colleagues, clinicians, and academic collaborators on various research projects. The MSc at the Bartlett, completed in 1986, was the watershed learning experience of my career as an architect.