



# RETHINKING

## the Nurses Station

Strategies for Improving  
Care Delivery and  
Staff Performance

An interview with Kingshuk Das, Steelcase Environments for Healing Initiative

It happens so often. A hospital ICU buys new equipment that monitors every patient vital sign from blood pressure to O<sup>2</sup> saturation, but it won't fit in a nurses station designed and built for specific, older technology. So, it's time for a work-around: perch the monitors on top of the station, perhaps, or hang them from the ceiling. But that diminishes patient sight lines and adds to the clutter. They could tear down and rebuild the station, but that's expensive and disruptive.

It doesn't have to be this way.

## Rethinking the Nurses Station

*“You can’t predict many changes in technology, work processes, or government regulations,” says Kingsbuk Das, healthcare consultant at Steelcase. “But you can plan for them.” An architect and a strategic design planner with the company’s Environments for Healing Initiative, Das studies and consults with hospitals and clinics around North America.*

*The U.S. is in the middle of the largest hospital building boom in history. Thanks to an aging infrastructure, a graying population, and rapidly changing technology, hospitals will spend \$16 billion this year on new construction, and more than \$20 billion a year by 2010. Faced with increased demand for healthcare, patients with high expectations and frustration with healthcare costs, a nursing shortage and high staff turnover, administrators are rethinking nurses station layouts and work processes. They’re also turning to people like Das for ethnographic research methods that yield a deeper understanding of what actually happens in their environments.*

*The Healthcare Report talked with Das about his research and the new ideas that are helping improve care delivery.*



### *What kinds of organizations are you working with?*

In the last three years we’ve studied or worked with at least a dozen hospitals and clinics, including not-for-profit and for-profit institutions, from major medical centers to community hospitals. We are also developing relationships with A&D firms with expertise or interest in healthcare, seeking to understand their challenges and aspirations so that we can support their work better.

### *Focusing on nurses stations?*

Not exclusively, but often. The nurses station is a fulcrum of activity on the inpatient hospital floor. Practically every function of the hospital intersects there at some point, so there are a lot of simultaneous work processes and lots of impromptu interaction. This intensive use makes it a complex and challenging design problem, and loaded with opportunity.



*Traditional nurses stations are designed somewhat like a fortress and do not support new patient care delivery models or new work processes and technologies.*

### *What are some of the issues hospitals face with improving nurses stations?*

The typical hospital nurses station – some hospitals call it a team hub or communications center – is designed somewhat like a fortress. Like a bank teller counter or a hotel reception desk. Now, reception is one function of a nurses station, but it’s only a small part of the work and shouldn’t dictate the entire design. Work processes in nurses stations have changed over the years: there’s more technology, new patient care delivery modes, a whole new set of work processes, yet the basic configuration remains static. Even when hospitals renovate or build new patient units, the changes are primarily aesthetic – new colors or wood finishes, etc. – they don’t have time to rethink how work flows and how best to support it.

## Rethinking the Nurses Station *continued*

How the environment supports the staff is critically important. Nursing is a high stress job. The average age of a hospital nurse is 42, and it'll be 50 by the end of the decade. Registered nurses have a turnover rate of 20%, and there's a real shortage of nurses. Surveys show that physical working conditions, along with compensation and support, are key drivers of turnover and burnout. So improving the work environment, work processes, and how well the staff is equipped to do their job, is critical to hospitals being successful in the future.

### *How do you determine what the work issues are?*

We take a research and design approach that's built around the user experience. Many people are familiar with Steelcase as a knowledge leader in traditional office work, but we also provide solutions specific to hospitals, labs, universities. Our approach uses ethnographic research methods. We have four steps: understand, observe, synthesize, and realize – to which we are adding a fifth – pilot and test.

### *How does this process work?*

First, we understand and analyze the industry rigorously – the business issues, technology trends, what's new, and how it affects the organization.

Then we go on site and build a first-hand understanding of the user's day-to-day work life – talking to people, studying how their systems really work, the processes they use or don't use. We take photographs and shoot video footage to document (and later, visually communicate) the workarounds that people create to circumvent barriers to getting work done. This gets at deeper issues, the ones you would never hear about in a formal survey or a focus group at the company's headquarters, and uncovers unmet needs that the users may not be able to articulate, or in some cases, never realized they had.

Our design research team then synthesizes these findings into design principles, criteria and concepts that we feed into our product development process. Finally, we share all of this information with the healthcare provider and the A&D firm.

### *How about an example?*

One healthcare system installed an electronic medical records system on mobile carts – invested tens of millions of dollars – and they just weren't being used. We went in, spent a couple of weeks analyzing different hospitals in the system, and, building off patterns we've documented in hospitals around the country, identified the biggest anomalies.



*Steelcase uses ethnographic research methods to better understand what actually happens in healthcare environments and then provides solutions specific to users needs.*





*Different kinds of work happen in nurses stations, but traditional designs try to force fit them into one rigid configuration. The reality is, there's chaos and crowding...*



It turns out they had typical problems related to technology, design, ergonomics and age of facilities. But the core issue was cultural: staff perceptions were tied to older, less successful rollouts of technology and were affecting adoption of the new system. To make matters worse, the organization hadn't learned from relatively cheap pilot projects before they invested heavily in the new system. By studying the entire situation, we identified the critical issues and could make specific recommendations.

### *So you look at the big picture...*

Absolutely. Looking at the work environment systemically is the key. Not just one element, say the architecture, furniture, or technology. It's the integrated work environment – the relationship between people, processes, objects, and spaces.

### *What are typical problems you see in nurses stations?*

Different kinds of work happen in that space, but traditional designs try to force-fit them into one rigid configuration, typically with a fortress-like counter and an enclosed room behind it. This assumes that work happens in neat, defined silos. The reality is, there's chaos and crowding, different behaviors colliding in the space.

### **We know there are at least three kinds of work going on, which we call “curb side,” “step-in,” and “immersive” work.**

“Curb side” is where impromptu meetings happen. Doctor comes to the floor, a nurse needs to talk with him about a patient. A quick consultation. Maybe the doctor needs to check a chart, reference something on a computer. This doesn't require a desk or a meeting room, but a standing height worksurface that two or more people can gather around is really helpful. Both standing, eye to eye, is best. This is even more important when groups work and roam on the floor – such as when physicians make rounds.

### *Most nurse stations are more like sit down desks...*

That's right. But only a few people at any one time need to sit down for a long time to get their work done. “Curb side” standing height surfaces are comfortable from all sides and increase the usefulness of this type of work area. It's flexible enough to support individuals or groups. By not forcing nurses, doctors and other staff to commit to entering a sit-down area of the nurses station, they can get more done, faster.

## Rethinking the Nurses Station *continued*

### *“Step in” is for more involved work?*

Right. It's sitting down to write in a chart or do dictation. Maybe you need a little privacy, meet with a family or talk over a treatment plan with someone. Seated height tools are needed here. Often some medium height panels to provide some visual or acoustical privacy. Both “step in” and “curb side” work happen constantly at a nurses station, and often involve different types of technology.

### *“Immersive” must be long-term work...*

A planned meeting, say at shift change, requires workspace where the participants can not only immerse themselves in the work, such as giving report to the next shift, but also having various other tools available, such as a computer and different kinds of information display: from something as simple as a whiteboard, to an interactive plasma screen, or a CopyCam imaging capturing appliance for instantly recording and disseminating notes, images, x-rays, etc.

There are also times where a nurse or doctor might need to “peel off” from the meeting, turn their back and do other stuff. Refer to a chart, take a phone call, whatever. They can quickly turn away, take care of that business, then rejoin the immersive session.



*This nurses station has been designed with a curb side area for impromptu meetings, as well as a step-in zone for more involved work.*

### *How can the station be designed to support these different work zones?*

There are any number of design solutions. One possible solution includes an enclosed conference room with glass walls so staff can still see patient rooms, monitors, visitors, etc. – keeping sight lines is important in healthcare – yet they have acoustical privacy so they can discuss confidential information without being overheard.

It's not the zones themselves that are important, it's the co-location of the zones, their adjacencies that allow work to flow more smoothly. There are different ways to think of these spaces and to design them. Architects and designers can build on our observations to respond differently in each situation based on regulations, work culture, patient acuity, etc.

### *How can hospitals deal with constantly changing technology in a nurses station?*

First, as they say in medicine, do no harm. By this I mean don't simply transfer a print-based process to digital and expect great things. Technology can make things worse. One hospital we worked with went to all-electronic charting and their nurses spent more time doing documentation under the digital system than they did on paper. That's why you have to look at



*This immersion space allows for concentration and privacy. Transparent walls give doctors and nurses visual access to colleagues on the hospital floor when an emergency arises. Access to technology allows staff to easily share information.*

## Rethinking the Nurses Station *continued*

the whole process, figure out what the user needs are, and develop a flexible solution.

### *What do you mean by “flexible”?*

It's two things: one, it's testing various configurations before you lock in the final design, and two, it's making sure the design can continue to adapt to future changes in technology, workflow, etc.

In the fourth part of the research and design process, realization, we create sketches, floor plans and prototypes as ways to communicate our ideas on how to design a space in a user-centered way. Users are a big part of this. They provide input, ideas, feedback. They're the ones who have to do the work, so we involve them deeply in designing solutions. We build prototypes quickly, test them with users, get feedback and rebuild them. Sometimes it's a very rough prototype, very cheap. Sometimes it's just a role play or simulated situation. But the point is to get the reactions of multiple users, and make the process

iterative. Co-creation and rapid prototyping are part of creating a flexible solution.

### *How do you make sure a nurses station can adapt to future changes?*

Hospitals have traditionally favored built-in custom casework nurses stations. They can get exactly what they want with a fairly low first cost. Architects like them too. The nurses station is so representative of a hospital, they're a good way to express a design intent.

But a low first cost often overlooks the cost of changing that station to accommodate new technology, or when you have to move it, reconfigure the patient unit, expand, etc. A modular systems furniture product changes, moves and reconfigures easily. The savings in time and cost of construction and disposal are huge compared to a built-in nurse station. It's simpler, faster, more cost-effective, flexible by design, and more environmentally responsible.



*How will this improve patient care?*

There's a clear link between the physical environment and patient and staff outcomes. Better hospital design can help reduce staff stress and fatigue, increase effectiveness in delivering care, improve patient safety, reduce patient and family stress, improve outcomes and improve overall healthcare quality.

There are documented studies that show the impact of things like better ergonomic designs, supportive workplaces, and improved layout that can help reduce errors, reduce stress, and improve other outcomes. A growing scientific literature is confirming that the conventional ways that hospitals are designed contributes to stress and danger, or more positively, that this level of risk and stress is unnecessary: improved physical settings can be an important tool in making hospitals safer, more healing, and better places to work.

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*The Steelcase Environments for Healing Initiative collaborates with architects, designers, and healthcare planners throughout North America, and they are continually forming new collaborations to further the design and development of state of the art healthcare environments. Comments on this article, questions about Steelcase research, or other inquiries are always welcome. Please email [kdas@steelcase.com](mailto:kdas@steelcase.com).*

