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Technology Lets the Light Shine in:

When MaineGeneral Health opens its New Regional Hospital in 2014, here's what people will notice: Sunlight, big windows, private rooms, lounges, a courtyard and a healing garden. Here's what they may not notice: Cuttingedge information technology running through every inch of the building. And MaineGeneral is OK with that.

The New Regional Hospital in Augusta, Maine, incorporates state-of-the-art technology into every aspect of its design— and, ultimately—its patient care. But instead of showing it off, the hospital designers and stakeholders wanted to make the technology invisible. Why?

This is a story about how the team building a brand-new hospital made innovative, sometimes counterintuitive, IT and design decisions that used technology to put people first.

A few years ago, MaineGeneral had some challenges. It ran three ageing, inefficient facilities. Staff and provider recruitment and retention proved to be difficult in this rural location. The IT department was not functioning at peak efficiency, leaving user departments in the hospital (customers and stakeholders) frustrated. The CIO position had turned over twice in ten years.

At the same time, many good things were happening. MaineGeneral was making significant investments into clinical and business applications. The IT systems shifted from a distributed model to a centralised one. A new hospital was on the horizon.

Getting the Right Help

Dan Burgess, MaineGeneral's current VP and CIO, took the helm amid these changes. He recognised that thoughtful planning and getting all the stakeholders on board was critical to success. Burgess brought in Clint Davies and BerryDunn's Information Technology Consulting team to perform an objective and independent assessment of the IT organisation and to help identify IT's formative role in MaineGeneral's strategic planning efforts.

The goals were clear: To stabilise IT operations, and, more importantly, to lay the foundation for an information technology culture that would be a collaborative partner for the health system. Burgess and Davies' team established priorities:

- Engage stakeholders early on and throughout the process;
- Position IT to take a leadership role across the organisation;
- Integrate technology as a formative component in the design of the new hospital;
- Employ effective management practices to help the healthcare organisation undertake significant change; and
- Plan for the impact of new technology on improving clinical workflow and patient experience.

Project #1: Assessment

The first step in structuring the IT division for the future involved assessing the department's own needs.

Burgess wanted **to establish a more collaborative culture within IT** . After restructuring the IT department to make it centralised rather than distributed, the systems functioned collaboratively. So, too, could the staff. In addition to enabling a more productive workforce, a collaborative culture would, ideally, stave off communication lapses and potential morale problems.

The IT department also needed **to determine appropriate staffing levels**. Getting the right people into the right technical leadership roles goes hand in hand with the restructuring of IT systems. A review of the recent and upcoming changes to Maine- General's IT systems—involving IT leadership and even Human Resources— resulted in a re-evaluation of job descriptions, titles and responsibilities to best match employees' skills with their roles.

Project #2: Collaborative Technology Planning

The second step involved identifying what the organisation needed from IT, and then facilitating any changes that may be needed. To do this, Davies' team asked stakeholders what they thought about the current IT services, the role of IT, and what they expected of IT in the future.

Engagement and Buy-In

Burgess saw BerryDunn's assessment and technology planning as an opportunity to engage and collaborate with the entire health system community— department leaders, administrators, physicians, nurses, patients, and members of the community. These were the key stakeholders in the process, so the BerryDunn team set out to listen to as many of them as possible in order to understand their individual perspective and objectives.

Davies' team held numerous focus groups over several months. The stakeholders assigned relative urgency to various technology needs and assisted in aggregating all of the data into themes.

The focus groups produced over 500 points of issues, perspectives, and priorities. The BerryDunn team categorised and winnowed down all the data, teasing out key themes that formed guiding principles for the next stage in the project.

Principles and Goals

Here are the IT guiding principles and their corresponding goals:

- Making technology simpler, more efficient, and easier to use:
    - Better adoption by the clinical community.
- Greater sharing and integration of patient information:
    - Serve the community as an integrated service delivery system.
- Strengthen reliability, security and performance:
    - Deliver fully compliant, robust solutions.
- Bring more of a strategic and enterprise view to technology planning:
    - Ensure alignment with business objectives.
- Strengthen project and portfolio management practices:
    - Deliver the right projects on time and on budget.

These principles and goals represented the voices of the many stakeholders, from patients to physicians, administrators, and community members.

Outcomes from the Assessment

Positive IT Changes

The findings pointed to several positive changes the MaineGeneral team could make to the IT systems and structure. IT could reduce the number of systems and make them easier for people to use. It could continue to consolidate its applications and data. The organisation could also continue incremental improvements toward achieving an integrated patient chart.

Based on the gathered feedback, Burgess committed to strengthening the project management culture, and utilising technology to improve collaboration and communication. The assessment affirmed that the IT Division could strengthen the reliability, security, support and integrity of its systems. Overall, the IT Division could bring more of a strategic view to planning and purchasing new systems. One of the most significant changes that came from this effort was a new IT governance structure.

New Governance Structure

Based on the assessment of needs and priorities, MaineGeneral's IT Division updated its governance structure, in which new requests would be reviewed while considering the prioritisation of current projects. Resource allocation could then take place according to established priorities.

While the priorities were generated with stakeholder input from the focus groups, they would continue to be reviewed by a newly established leadership team, called the Strategic Project Oversight Team (SPOT). The purpose of SPOT is to ensure that projects are considered and prioritised in alignment with MaineGeneral's objectives.

Planning for the New Hospital

Building a new hospital from the ground up is a once-in-a-lifetime opportunity. Facility planning for MaineGeneral's 312 million dollar, 600,000-square-foot regional hospital was running parallel to its IT planning process. The principles articulated by the hospital's many stakeholders during the IT assessment applied to and were folded into the new hospital design as a whole. Technology as an Attraction MaineGeneral recognised that a new with modern facilities and the latest technology would attract and retain doctors at a time when hospitals in the United States are competing for physicians. The New Regional Hospital is located in a relatively rural location in the state of Maine, but it is the largest employer in the region, serves a large catchment area and has several outpatient facilities. A new state-of-the-art hospital would create additional jobs, while serving as an attractive anchor for businesses and other investments in the region.

Invisible Technology

So much cutting-edge technology—why not show it off? Based on the stakeholders' input, the hospital's technology is designed to be invisible to patients and their families. That does not mean that the technology is out of reach. IT touches almost every inch of the hospital, from the high-tech IT desktops on each floor to the secure transmittal of patient information to staff and providers. The providers will have the most complete, pertinent information at the right place at the right time.

Using MaineGeneral's guiding principles developed through BerryDunn's strategic IT planning, technology will support and facilitate the flow of patient care. The new hospital will have 192 private rooms, which allow for better protection against infection and more privacy for patients and families. A Patient Family Advisory Council weighed in on the design of patient rooms, deciding to face windows toward the courtyard, for example, rather than the internal hallways. Staff and nurse concerns about seeing patients were allayed through technological means of monitoring patients.

To the extent possible, high-tech instruments can be stowed out of sight in patients' rooms. The idea is to diminish distractions indoors and instead direct attention outdoors, allowing sunlight and nature to become part of the healing process.

Healing Enhanced by Nature

Just prior to building the New Regional Hospital, MaineGeneral completed a new centre for cancer care and wanted to extend the cancer centre's concept of "healing enhanced by nature" to the new hospital design. Natural light and outside views serve to bring the outdoors in. Outside, the grounds include a courtyard, ornamental gardens, and a healing garden. Rehab patients have easy access to the gardens that are part of their healing programme.

Environmentally Healthy

The building is being built to the highest standards of U.S. "green" construction (LEED certification). It will have highly efficient heating and cooling systems, renewable energy sources where feasible, and building materials from local sources. The green construction and design will greatly reduce environmental impact while saving 900,000 dollars in annual operating costs and 12 million gallons of water a year.

Front-of-House / Back-of-House Design

While strategic technology planning goes a long way to improve patient care, Maine- General values low-tech solutions, as well. They reflect many of the same IT goals, however, to improve flow by simplifying and streamlining the experience.

In terms of layout, the hospital has a single entrance to ease access. The floors are marked in distinct colours and designs to simplify way-finding, even for patients with dementia. There are separate corridors for the public and for patient transport. The Emergency Department is streamlined, with comprehensive diagnostic services right next door. A helipad sits near the Emergency Department to assist emergency transit.

Inpatient wings are located away from the main entrance to provide more quiet and fewer interruptions, and separate wings serve specific types of inpatient care. Patient rooms have guest sleeping capacity and large windows to bring in light and views of nature.

The new facility houses a medical library and resource centre open to the public, an education centre with meeting spaces, and a spiritual centre. It also contains a learning lab for ongoing research and improvement of its own best practices.

Connecting the Community Through Technology

Technology serves to connect people at MaineGeneral. The public can follow the hospital's construction process live online through a web-cam on MaineGeneral's website. The site hosts an "ask a question" feature, allows people to subscribe to email project alerts, and posts photo galleries and renderings of the design. The community can follow regular updates about the building's progress on Facebook, Twitter and YouTube.

The first and perhaps most important community connection—long before the YouTube videos and webcams—consisted of the early stakeholder focus groups within the MaineGeneral health system. Oldfashioned, in-person discussions, and lots of listening by Burgess and the BerryDunn team, laid the groundwork for some of the most sophisticated technology planning in the history of MaineGeneral Health.

The Journey to Wellness

Just as the IT Division integrated its systems to reflect the priorities of the health system community, the entire hospital is designed to focus on the delivery of integrated care. Patient education, preventative care, and patient- and family-focused care are central to MaineGeneral Health's mission. Aided by Berry- Dunn's IT assessment and project planning,

MaineGeneral's new facility consolidates services, increases efficiency, improves staff and provider recruitment, adds convenience and upgrades healthcare. The new regional hospital's technology-driven design allows patients and their families to get the services they need quickly, easily — and naturally.

For more information on the project, please visit: www.ournewhospital.org

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