

# Putting the “RT” in redevelopment

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There has been a progressive increase in hospital redevelopment projects over the last 10 years; an interdisciplinary approach is needed to ensure design and operationalization of the new spaces are optimized. Respiratory therapists (RTs) possess clinical and technical expertise that can be a valuable asset to hospital development projects. The involvement of RTs in redevelopment roles should occur as early as the capital planning phase and continue through to operational readiness activities and beyond. RTs have the leadership capacity to advance within organizations. Development of these skills, along with process improvement training and change management techniques, should be fostered in RTs to enhance their levels of success in these roles.

**Key Words:** *respiratory therapy; hospital redevelopment; capital planning; operational readiness; change management; leadership*

## INTRODUCTION

Respiratory therapists (RTs) work in all clinical areas of the hospital and through all spans of the lifecycle, from helping a new baby take its first lungful of air to providing ventilation to those who cannot manage on their own to compassionately helping patients take their last breath. It is not uncommon for all of these feats to occur within a single shift. RTs possess a vast amount of knowledge, skills, and abilities to provide a comprehensive range of therapeutic and diagnostic procedures. They also work closely with physicians and other healthcare staff to develop and carry out complex therapies and individual patient care plans [1].

### The current state of hospital redevelopment

Over the last 10 years in Ontario, there have been 34 major healthcare redevelopments completed. There are 13 major projects presently in progress in 2017, with many more on the horizon [2]. It is not just the bricks and mortar changes that healthcare professionals face during new builds and renovations but also significant modifications of geography and accompanying technology and equipment. These changes can have a significant impact on day-to-day processes and workflow. Additionally, hospital redevelopment can be seen as an opportunity to implement better practices. Operational readiness is a process that ensures the working environment is prepared to effectively support and accept the changes resulting from the physical changes produced by the hospital redevelopment project [3]. The building of a new facility or renovations of an existing building require contributions from an untold number of individuals from many different fields, both clinical and nonclinical, from the initial design phases of the project right through to the operationalization of the new spaces and beyond.

### Impact to respiratory therapy practice

Hospital redevelopment should be multidisciplinary to identify unique hospital requirements and to provide direction to staff and physicians affected by the changes. Representatives from all healthcare professions should be at the table when decisions are made, particularly when alterations in process directly impact patient care. The distinctive contribution of RTs includes clinical and technical knowledge that is integral to the transformations that accompany hospital redevelopment. The purpose of this paper will be to describe the value of the RT during hospital redevelopment as a distinctive resource for clinical and technical information, as an essential stakeholder in the capital redevelopment planning and operational readiness phases, and as a vital change agent with strong leadership skills and change management capabilities.

### The role of the RT in capital redevelopment planning

There are five different phases involved in capital redevelopment projects in Ontario: submitting the project proposal to the Ministry of Health and Long-Term Care (MOHLTC), development of the functional program, building of the output specifications, creating the request for proposal (RFP), and the construction phase [4]. Given their clinical and technical expertise, RTs can play a significant role throughout several phases of the capital planning stages. RTs are excellent at troubleshooting, problem-solving, and critical thinking. These attributes, as well as being accustomed to complex and ambiguous situations, can be invaluable throughout the many facets of redevelopment planning.

### Project proposal submission

The project proposal is a comprehensive report to the MOHLTC that lays the groundwork the capital redevelopment project including estimated costs, site and building plans, a fundraising strategy, and other operational issues [4]. The development of the first-stage submission requires extensive planning expertise and the contributions of both internal and external stakeholders to capture the interplay between program and service elements and physical and cost elements [4]. The engagement of RTs in these activities from the earliest stages is necessary to ensure key complex medical workflows and process changes are optimized in the project plans. Since RTs work in all areas of the hospital, cover multiple areas of the hospital at a time, and must move rapidly between these areas, they have practical insight into design features that allow for improved efficiency and patient safety. RTs are one of the few healthcare professionals that can speak to the interconnectivity of departments and interdependency of programs and services. RT involvement at the proposal stage can also help minimize costly change orders or omissions that need to be rectified at later stages in the project.

### Development of the functional program

The functional program projects services, patient volumes, and patient needs in the future and outlines projected staffing, space requirements, and department adjacencies that will be incorporated into the design of the new space [4]. Given the tremendous clinical skillset of the RT, they can become an extensive resource when designing the physical requirements of intensive care units (ICUs), operating rooms (ORs), trauma and emergency department (ED) bays, special care nurseries, and general patient rooms. These abilities position RTs to be consulted when developing new workflows or altering existing ones to fit into a new space. Architectural and design teams possess the industry standards

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content but RTs can provide insight into some of the clinical design features and adjacencies that should be included in the functional program document. One such vision is the location of an RT department within the ICU to optimize their accessibility to the sickest patients. Since RTs tend to cross-cover other areas of the hospital, it would be ideal for RT departments to also be adjacent to all of the units that they work in. Additionally, understanding of the usage of critical equipment such as ventilators and procedure carts in relation to these spaces can be of value in creating a room that is functional and allows for efficiency, effectiveness, and delivery of safe patient care. RTs are typically members of the code response teams and can give valuable input during emergency preparedness planning. Often the importance and merit of RTs is underestimated and respiratory caregivers are eliminated from decision-making processes; RTs need to remember that they are the only profession specially trained to perform respiratory care modalities and their unique and resourceful opinions have the potential to change patient outcomes and decrease hospital length of stay [5].

### Building Project-Specific Output Specifications

The Project-Specific Output Specifications (PSOS) document generates a list of criteria and standard features that must incorporate into the design of the new space [6]. This can include features such as the height of hand-washing sinks or countertops, the kind of paint or surfaces that are to be used in patient rooms, the steel used for framing, and the locations and adjacencies of the various departments [6]. RTs are vital advisors into the design features of many workspaces including the locations on articulating arms and headwalls. For example, considering RT knowledge of both the anesthesia and neonatal roles, along with nursing and physician input, the optimal design of a C-section OR can be determined. An RT will have insight in to the workspace needed for the anesthetist when caring for the mother such as the location of the anesthetic gas machine, anesthesia workspace, and equipment needed for an airway or hemodynamic emergency. They will also understand the workflow of those caring for the baby including the pathway from the surgical table to the radiant warmer and the locations of headwalls and resuscitation equipment that should be on hand. Conditions that contribute to patient- and family-centered care such as the presence of family in the OR as well as staff and patient workflow are all design concepts that RTs can provide insight into during the development of the PSOS.

### Creating the RFP

In this stage, the healthcare facility and Infrastructure Ontario will first release a Request for Qualifications to shortlist the pool of candidates to three developers to ensure the project team has the required experience and track record to complete capital project on time and on budget [6]. The three shortlisted candidates will then proceed to respond to an RFP while meeting all the criteria outlined in the PSOS from Stage 3 when designing the new hospital [6]. During the RFP stage, the role of the RT can include providing input alongside other frontline healthcare professionals and the project team on the responses from the various builders and assessing how well they meet the specifications outlined in the PSOS. They can also participate in the scoring process and ultimately towards the selection of the winning bid.

### Construction phase

During the construction phase, the opportunity to view new areas while still in production can not only flag any potential problems, but also help prepare for operational readiness activities. For example, touring the unfinished ICU space and noticing that the transport of a patient from the OR on an ICU bed must occur through a very narrow doorway may indicate that an alternate route needs to be established or a change in process must occur (e.g., the patient can be transported on a stretcher instead of a larger bed). Realizing the magnitude of change that needs to occur during the construction phase based on the physical space may evoke the need for alterations in process to occur in the present space. Implementing change early and transferring these new processes to the new areas can help avoid bombarding staff with change all at once. After substantial completion of a redevelopment project, pre- and postoccupancy

inspections occur as a means of exposing any deficiencies in the design or building of the new spaces. Sometimes flaws in the functionality of a space are not apparent until clinicians are able to tour the completed physical location. Errors and omissions in the building design, as well as in the presence and functioning of in-contract specifications that affect RT practice, should also be inspected from an RT perspective.

Inclusion of RTs in all the capital planning phases not only allows for hospital redevelopment teams to ensure changes are viewed from the eyes of the interdisciplinary team, but also provides a primer for operationalization of the new spaces.

### Operational readiness

Operational readiness ensures that on opening day patient care and services are delivered by the right people, at the right place, at the right time, with the right equipment and technology, and in accordance with the right policies and protocols [7]. Additionally, operational readiness activities form the living half of the project. This may include redesigned models of patient care and workflow, a human resources plan, information-technology strategies and implementation, opening day definition and ramp down and up tactics, financial plans and operating budgets, stakeholder relations and expectations, internal and external communications, and orientation and training plans [7]. RTs can be a vital part of these processes. While the focus on early implementation of new processes and equipment in existing spaces should be in place, this is not always possible due to geography or inaccessibility of equipment. Involvement of RTs from the earliest stages of the project including operational readiness activities can help mitigate some of the change pressures associated with capital redevelopment projects.

Although the RT profession has evolved from being a highly technical vocation to one that is predominantly clinical, RTs are still revered for their expert knowledge of respiratory and anesthesia equipment as well as their ability to troubleshoot complex medical devices. Technical skills such as medical gas outlet repair and maintenance and repair of equipment such as flow meters, suction regulators, ventilators, anesthetic gas machines, and blood gas analyzers continue to be components of RT occupational profiles [1]. RT expertise of medical gas systems can be essential to planning the locations and configurations of articulating arms and headwalls across the hospital as well as the quantities of medical gas outlets and configurations based on workflows within each space and the connectivity of respiratory equipment to respiratory interfaces. The merging of clinical skill and technical applications during patient care is a unique area of expertise. For example, management of the technical demands associated with patient transport and independent travel during in house and external (land and air) transport is often managed by RTs along with the application of clinical skills to support the patient [1]. This is important to consider when planning the flow of patients within and outside of a new facility. As well, RT knowledge of Department of Transportation regulations for the safe transport and handling of medical gas cylinders is an important consideration when planning equipment and patient moves to a new facility or space [8].

The technical capabilities of RTs also make them valuable resources to be involved in the procurement of equipment such as ventilators and anesthetic gas machines that are complex and specific. Mechanical devices such as suction regulators, flow meters, and airway adjuncts that are required for numerous areas of the hospital should also be obtained through consultation with RTs to ensure the proper devices are being procured for a particular situation. RTs can play a significant role throughout the equipment RFP process. From developing the specifications to facilitating and performing the clinical trials, RTs are absolutely required to ensure the equipment selected is not only optimal for patient use but also user friendly. They can also contribute during negotiation processes where consumables, interfaces, training and orientation of staff by the vendor, technical support, and service contracts are often discussed as part of the entire package.

The burn-in phase is the process by which components of a system are exercised prior to being placed in service with the objective of forcing certain failures to occur under supervised conditions so an understanding of capacity of the space can be established [9]. During this phase, new clinical spaces are set up with the required equipment and supplies.

Workflows and new processes are mapped and tested then appropriate changes are made based on feedback from staff. Day-in-the-life scenarios or pilot units involve simulation of patient care in the actual space. These scenarios use the actual equipment, supplies, and personnel involved in a real situation and can be completed to determine the optimal routes for patients and staff to travel, separation of clean and dirty supplies to prevent cross-contamination, and for emergency preparedness exercises. RTs should be included in these multidisciplinary exercises as they are often involved in the real-life emergent care. Much of the complex respiratory and anesthesia equipment requires expert knowledge to set-up, configure, and integrate with other systems. Technical acceptance checklists and validation of proper functioning may also need to be completed before new equipment is accepted from the vendor; clinical acceptance is to be completed once equipment is used on patients.

Finally, RTs can play an important role during the training and orientation phases of operational readiness. Corporate orientation can provide the generic preparation needed by all staff such as standard building operating procedures, general way-finding, and corporate policies and procedures. Clinical staff will also require orientation to their specific new patient care areas, equipment, and clinical processes. At the department level, staff should be orientated to their own unique spaces and for RTs this can include several different areas of the hospital. Therefore, RTs require a robust orientation program designed to ensure they know the entire footprint of the new building including patient rooms, supply rooms, team stations, medication rooms, stairwells, and code response routes. RTs can be an excellent resource to assist in the orientation and training of other staff with regards to way-finding, mock code simulations, and respiratory and anesthesia equipment use and set-up. RTs can also be trained as “super-users” by equipment vendors as a means to implement “train-the-trainer” models where staff provides the majority of training to the end-users either on the job or in protected time. RTs perform educational duties on a daily basis, whether it is teaching a new healthcare professional to suction a patient or teaching a family member how to hold an intubated baby, they possess the skills to teach others effectively [5].

Overall, clinical and technical skillsets of RTs can make them an important contributor to the operational readiness activities that must be performed to get a new facility ready for opening day. RTs need to be given the opportunity to participate in these activities to not only ensure RTs are well prepared but also other healthcare professionals. An interdisciplinary approach is essential to ensure all the bases are covered for all staff.

### Change management and leadership

Over the past 20 years in the RT profession, there has been movement away from a technical focus towards clinical skills. However, the progression of RTs into nontraditional positions remains an avenue less pursued. Consequently, opportunities to become involved in roles such as those required for hospital redevelopment are not considered by many RTs or hospital administrators. The RT profession should strive to become involved in redevelopment projects and take the initiative to pursue education in leadership, process improvement, and change management to perform optimally in these positions. RT managers should encourage staff to pursue these professional development opportunities alongside clinical and technical training that is essential to the RT role.

One of the primary barriers to successful hospital change initiatives is failing to create buy-in or ownership of a change enterprise [10]. Communicating a solid vision to front-line staff regarding the necessity of the upcoming transition so that it is known why changes are being implemented and what the desired outcomes are can facilitate commitment, empowerment, and participation in hospital redevelopment initiatives [10]. As well, hospital development provides a golden opportunity to review existing practices and establish new and innovative approaches to the delivery of patient care [11]. Due to the comprehensiveness of the RT role throughout the hospital, RTs can play a significant role during process improvement initiatives. Using philosophies that strive to implement efficient practices, respond to customer requirements as quickly as possible by identifying delays in the value chain, and working towards eliminating wastes in the system, RTs can be a key stakeholder in mapping flows of patients, staff, equipment, and supplies [12]. RTs can

provide insight into the routes that are most efficient for patient transport throughout the building to support areas such as the laboratory, diagnostic imaging, and interventional radiology, as well as to and from clinical areas. They can provide input into supplies that are used during procedures such as anesthesia, difficult intubations, and arterial and central line insertions. They can develop procedure carts with the necessary equipment that are set up to mimic the logical workflows of physicians and staff so that in an emergent situation supplies can easily be found. Incorporating process improvement principles with a multidisciplinary approach has been found to facilitate problem-solving and successful implementation of day-to-day functions [12]. An example of this is involving RTs who work as anesthesia assistants (RT-AAs) in mapping out new processes for the provision of procedural sedation during cataract surgery. RT-AAs are often involved with these patients pre-operatively, during their surgery, and postoperatively and will have insight into equipment used, supplies needed, and workflows of staff at each stage. Including RT-AAs with physicians, nurses, and supporting staff in process mapping can provide a more fulsome scope of the flow of the patient through the surgical program to identify tasks that add value and those that are create inefficiencies in the system.

RTs are uniquely situated to advance into what have historically been considered nontraditional leadership roles within healthcare organizations and capital redevelopment such as directors, project managers, and redevelopment or transition specialists [13]. Frontline RTs demonstrate leadership in their day-to-day clinical practice as educators and patient advocates. These skills can be extrapolated to the project setting where there is great opportunity to help reshape organizational culture and focus on renewing patient-centered care [13]. At any level, when given leadership opportunities during capital redevelopment projects, RTs can empower their colleagues and other allied healthcare professionals to make important decisions and become involved in the transition process. As well, in these roles, RTs can serve as champions for RT participation from the earliest stages and throughout the entire redevelopment project. Often, there is a lack of understanding by those involved in the construction side of the project about the roles and scope of other healthcare professions outside of physicians and nursing. RTs can be advocates not only for the RT profession but also become a voice for other allied health professionals to ensure that an interdisciplinary lens is used in the planning and implementation of capital redevelopment projects

### CONCLUSIONS

RTs should be included in hospital redevelopment projects as front-line staff, managers, directors, and in specialized redevelopment or transitional roles. They are invaluable members of the project team when their unique clinical, technical, leadership, process improvement, and change management skills are utilized. Although many RTs remain at the frontline and shy away from nontraditional roles, RTs have the capability and skill to take on leading roles in hospital redevelopment. Leadership is not necessarily dependent on one's title or one's organizational position; it can occur at any level of an organization, and the strategy to being successful is the ability to make people want to follow [13]. As a profession, RTs need to assert these leadership skills, to participate in hospital redevelopment projects and provide their much needed expertise in large organizational changes.

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