



## 9 Issues related to Residents as Workers and Learners

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A Paper Commissioned as part of the Environmental Scan for the Future of Medical Education in Canada Postgraduate Project



THE COLLEGE OF  
FAMILY PHYSICIANS  
OF CANADA



LE COLLÈGE DES  
MÉDECINS DE FAMILLE  
DU CANADA



This Environmental Scan was commissioned by the Future of Medical Education in Canada Postgraduate (FMEC PG) Project, funded by Health Canada and supported and managed by a consortium comprised of the Association of Faculties of Medicine of Canada (AFMC), the College of Family Physicians of Canada (CFPC), le Collège des médecins du Québec (CMQ) and the Royal College of Physicians and Surgeons of Canada (RCPSC), with the AFMC acting as the project secretariat.

### **Acknowledgements**

The authors wish to acknowledge the support of the University of British Columbia, the University of Toronto and McGill University in this study.

The authors would also like to acknowledge the following people who contributed to various aspects of the development of commissioned paper 9 Issues Related to Residents as Workers and Learners:

Erika Abner  
Susan Glover Takahashi  
Dawn Martin

How to cite this paper: Houston P, Conn R, Rajan, M, Sinha R. Issues Related to Residents as Workers and Learners. Members of the FMEC PG consortium; 2011.

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Published by: members of the FMEC PG consortium.

## Executive Summary

This paper explores two competing and complementary areas of responsibility for residents by looking at “what is learning” and “what is work” and how they can be best balanced to optimize both education and service.

As almost all day-to-day resident activities include elements of both service and education, it becomes a complex task to separate the ‘learner’ responsibilities from the ‘worker’ responsibilities. Sometimes, rather than being seen as complementary and synergistic, there is tension about wanting to make one area of responsibility a priority over the other.

This paper describes and explores residents as workers and residents as learners and examines how the literature provides insights on how working and learning can be concurrent and complementary. The literature suggests that to focus too much on learning would lead to the loss of much of the richness of the workplace-based learning. The literature also identifies some characteristics of learners, when they might have trouble with learning and what educational models are best suited to workplace learning and learners in the workplace. What educational models can be used to structure learning to the advantage of learners in the workplace is also described in the literature. The paper also documents the important contributions that residents make to the health services system.

Three key messages that arose from this research related to resident as workers and learners include the following:

1. There is no single educational approach that can easily incorporate all of the needed facets to meet the complexity of residents learning in the workplace. That said, an active, learner-centered use of the work-based apprenticeship model, which utilizes a curriculum that clarifies educational directions, competencies, needs and progress, seems to be a viable integrated approach.
2. As education models for training future residents are changed, consideration must be paid to the impact of these changes on both the status of the resident as a worker and the impact upon the health care system and society. Changes to the numbers of residents or number of hours worked per resident have the potential to impact upon the quality and effectiveness of health care delivery and on the educational experience.
3. Resolving the tensions that exist between the residents' learning needs and service requirements of the institutions in which they are employed must be evidence based and must meet the needs of all stakeholders. The solutions must be rooted in the reality of the Canadian health care system and the impact on medical education, patient safety, and health care costs.

## Background

The term “resident” is a historical term from when resident physicians lived in hospital-supplied housing and spent the majority of their time in the hospital. Currently, in Canada, the term resident applies to those who are enrolled in one of over 70 postgraduate medical education programs accredited by either the College of Family Physicians of Canada (CFPC) or the Royal College of Physicians and Surgeons of Canada (RCPSC). At the same time, residents are employees of the hospital or health region where they train and work under the conditions outlined in the collective agreement negotiated by their provincial housestaff organization. Thus, residents are both learners in postgraduate medicine residency training programs and workers in the health system with codified rights, salaries and benefits.

The learner and worker responsibilities sometimes result in tensions and confusion as educators assign residents to a clinical site (i.e., “what is learning” and “what is work”).

Within their residency training programs, as learners, residents must complete the many educational requirements outlined by their programs and the national accrediting bodies. Residents have both formal and informal learning activities; some activities are weekly, while others are monthly or occasional. While some of the educational requirements are clearly focused at the resident's specialty, other requirements are broader and aimed at ensuring each graduate has some degree of generalist education. At or near the end of their residency training program, the Residency Program Director documents that the resident has met the expected collection of educational requirements by completion of a Final In Training Evaluation Report (FITER) and is ready for the relevant certification exams from the national accrediting bodies.

As workers, residents have full-time work schedules, which include regularly moving from one clinical area, site or setting to another for clinical rotations. During their assigned or selected rotations residents provide their assigned daytime and after hours (i.e., ‘on call’). During the day when there are many learners and teachers in the clinical site is when most of the structured planned learning, teaching and working occurs. With the ‘after hours’ or on-call experiences comes fewer teachers on site and more opportunities and pressure for the resident to be ‘in charge’ of a patients’ care. Accreditation standards indicate that back up support to residents by more senior trainees and faculty must always be available – either by phone or in person.

Resident physicians are front line health care workers and play a very important role in the delivery of patient care in the Canadian health care system. Given the volume of patient care provided by the large number of residents across Canada, any change in the patient care workload of residents has a noticeable effect on the overall capacity of the medical system, unless there are efficiencies gained elsewhere. If the number of residents or the amount of resident time available for patient care decreases, then additional care providers would be needed to fill the resulting gap.

In Canada, residents have responsibilities to both their educational system and the health delivery system. Each of these systems has different governance, policies and procedures, and the resident has different rights and obligations in each of these areas. While the goals of the educational system and health systems are generally congruent, there are points where differences in expectations, obligations and best practices diverge.

This paper is one of 24 papers commissioned for the Future of Medical Education in Canada Postgraduate (FMEC PG) Project. This paper aims to explore the issues related to residents as learners and residents as workers and how these dual roles can be both complementary to and in conflict with each other

## **Methodology**

In order to explore current issues around residents as workers and learner, a literature review and expert consultations were conducted.

### Literature Review

Specific searches were conducted in Medline, CINAHL, Embase, Health Business Full Text, Pubmed, JSTOR and Google Scholar. Key search terms included “internship and/or resident\*”, AND “\*education and medical”, “employment and/or employee and/or worker”, “learner and/or learning and/or student”, “in difficulty and/or remediation”, “health care system” and “work hours and moonlighting”. Inclusion of articles was based on publications within the last 10 years, and the country of origin being Canada, the United States (US), and the United Kingdom(UK).

Additional searches were performed on the grey literature issued by accrediting and medical education research bodies in Canada, the US and the UK. The collective agreements from each region in Canada were also reviewed to provide insight on the terms of employment between health science academic centres and residents in postgraduate medical education.

### Expert Consultations

Expert consultations and reviews by trained medical education consultants in postgraduate medical education (PGME) were conducted on earlier working versions of the paper to address gaps that were identified in the literature and to provide additional perspectives and opinions on emerging issues in Canada as they relate to residents as workers and learners.

### Limitations:

The expert consultations are limited in that they were conducted at only one faculty of medicine. Although the experts work with residents from different institutional affiliations, the reader will need to discern the generalizability of the specific issues and opinions as they relate to residents as workers and learners across all of Canada.

## **Educational System: Expectations of Learners, Obligations to Learners and Best Practices for Learning in a Work Setting**

### Expectations of Learners

The literature suggests that, as adult learners, residents should be active participants in understanding their learning needs and learning styles.<sup>1</sup> The literature has suggested that there is wide variability in learners' engagement, motivation and ability to have insight into what their learning needs are<sup>2</sup> and their ability to self assess their skills or abilities.

At a minimum, PGME's expectations of learners are that they actively participate in the mandatory learning activities and demonstrate their knowledge, skills and abilities to meet the established goals and objectives in the residency education program. Most residents are highly motivated, highly capable learners who meet or exceed the learning outcomes and certification requirements of their accredited residency programs.

## Obligations to Learners

All accredited residency education programs are to meet the requisite structures of PGME educational system (i.e., “A” Standards of Accreditation), the general educational standards of accreditation (i.e., “B” Standards of Accreditation) and the specific specialty standards (i.e., Specialty Training Requirements). This suite of standards is wide reaching; the functionality and limits of accreditation are explored in commissioned paper 11 Accreditation of Postgraduate Medical Education.

In addition to these national standards, there may be provincially set standards (e.g., regulatory, educational consortium such as Council of Ontario Faculties of Medicine (COFM)), as well as university and health facility policies and guidelines articulating what should be made available to the resident as a learner.

In brief, residents as learners should have access to quality learning systems and experiences facilitated and supported by the workplace, the university and the faculty, which enable the resident to effectively meet the performance expectations of the residency program, the specialty certification body, current and future patients and the health care system.

Part of PGME's obligation to learners is to provide effective educational systems that are inclusive in their approach to supporting the success of all residents to meet their desired goals and the established standards for their profession through improved systems for remedial education. Some groups of residents struggle to meet the established requirements including those who need educational accommodations or remedial education.<sup>3</sup> Additionally, transitions are often noted as challenging for residents to manage. As such the PGME system includes wellness management, customization or accommodation for residents needs and improved management of transitions and hidden curriculum.

### Accommodation

Accommodation refers to a modification, service, equipment or special arrangement for participation restrictions, activity limits, that is put in place to support a learners with an impairment or disability in a university or other /training setting for example for participation restrictions, activity limits, impairments or disability. As in other fields, accommodation in PGME does not lower standards of practice, rather, it means workings with programs and curriculum to equalize the playing field. Accommodation practice requirements and policy can be found in CFPC and RCPSC's Accreditation Standards as well as through official policies on accommodation for exams, Provincial Housestaff Collective Agreements, the provincial college of Physicians and Surgeons, the Regulated Health Professionals Act 1991, hospital-based occupational health policies and standards and the Human Rights Code of Canada.

Accommodations are provided to any learner with a documented disability that affects his or her ability to function in an academic setting. One of the challenges around accommodation in PGME is that, while residents might report the requirement for accommodation, they must still be able to diagnose and manage health conditions and provide comprehensive, compassionate care to their patients.

It is noteworthy that in addition to accommodation, which has been defined in law, often educational programs are ‘personalized’ or ‘customized’ to meet the personal and professional needs of residents.

The dual element of education and occupational accommodation is complex. For example, the accommodation or customization for a quiet location to make decisions (e.g., in examinations), which may be reasonable for undergraduate medicine, may be neither feasible nor appropriate when a resident is assigned to a rotation to learn how to manage acute trauma injuries in the emergency room.

A further complication is that many of the resources available to design and implement accommodation or customized learning plans through university systems may not be available to residents. Another structural challenge is the distributed leadership in PGME, with each program director sorting out these complicated and important issues.<sup>4</sup>

### Remedial Education

Residents are generally defined as having difficulty when they do not meet, or are unable to meet, the training expectations of the program. In Canada, the General Standards of Accreditation (GSA) stipulate that residents must be informed when serious concerns exist and given opportunity to correct their performance.

Residents may be in difficulty for many reasons. A recently completed systematic review of 10 years of residents in difficulty notes that the top three areas of academic difficulty are medical expertise (85%), communication (48%) and professionalism (51%).

More recently, the comorbidity of wellness problems was explored over a two-year period where it was found that 81% of residents in difficulty also had wellness issues.<sup>5</sup> What is not yet clear is the distribution of this finding between those residents whose wellness issues caused or contributed to their academic performance, and those cases where the identification of the need for remediation and the intervention caused or contributed to their wellness problems.

Remediation takes a large toll on the resident, the program and the PGME system. Some authors suggest that future resident performance could be predicted early on and better screening of candidates would filter out future problem learners.<sup>6-8</sup> Selection and matching efforts are likely best focused on ensuring selection methods are sensitive to identifying those who have the capacity to function as effective physicians. A better understanding of effective approaches to prevention or early identification of residents in difficulty would be beneficial to both residents and the PGME system.

Remediation programs are a welcome step forward where “turning a ‘blind eye’” often seemed to be the only alternative.<sup>9</sup> Medical culture still needs to be challenged and replaced with a learning environment that rewards accurate self assessment, encourages and makes time for self reflection, and supports and values acknowledgement of limitations. The graduating specialist needs to be equipped as they move into the autonomous self-regulating practice environment where these skills and attitudes are critical. Finding language beyond ‘problem residents’, ‘remediation’ and ‘resident in difficulty’ that supports this cultural shift would be helpful.

### Transitions

Transitions refer to when an individual moves from one set of circumstances to another. Three major transitions have been identified during the continuum of medical education: from non clinical to clinical, entry into postgraduate training and from the specialist resident to medical specialist.<sup>10</sup> Of these, the transition between undergraduate medical education and postgraduate training has been consistently described as the most stressful.<sup>11</sup> Additionally

residents have many small transitions during residency as they move from one rotation to another with different patients and settings often in different facilities, with different teams and in different cities and towns.

Part of the challenge in the major transition from medical school to residency relates to the expanding expectation that there is a real-time need to apply what they know. New graduates are moving from being in a highly dependent learner role to a role where they have been delegated responsibility for the outcome of the patient's care.

PGME programs need to find strategies to lessen the toll of major transitions into residency and out of residency and the small transitions throughout residency. Managing first-year residents' lack of preparedness for postgraduate training has been the impetus for the development of different types of orientation programs to minimize stress and to ease the transition for medical school graduates making the leap into a postgraduate program. As well, early residency experiences in clinical and community settings may help avoid an abrupt graduation transition into the clinical environment.

Learning how to cope with and manage transitions and changes over the lifespan of one's career is critical for the physician of the 21<sup>st</sup> century and will ultimately help balance the complexity of the roles and responsibilities of the resident as learner and worker.

#### Hidden Curriculum

Hidden curriculum means that, in addition to the transmittal of knowledge and development of skills in the formal explicit educational curricula, there are implicit lessons learned about the structure and function of professional health systems. Often the word is viewed as negative with a perception that there is a purposeful withholding of information or that the real functionality is less than the expressed official version.<sup>12</sup>

While the formal curriculum is outlined by most programs and accreditation bodies, the hidden curriculum is "a set of influences that function at the level of the organizational structure and culture... [It is] a set of rules, routines, and regulations that exert a strong influence on learning and its implication in practice".<sup>13</sup>

Increasingly, accreditation standards have required extensive inventories of information to demonstrate evidence of the official curriculum, with on-site visits to verify the accuracy of the real version. With on-site visits usually occurring every six years, and with the diversity of points of view and interests, it should not be surprising that, at times, the hidden curriculum is out of step with the official version.

While there is little literature available on the hidden curriculum in postgraduate education, there is evidence that suggests it does, particularly when taking a closer look at four phenomena: institutional policies, evaluation activities, resource-allocation decisions, and institutional slang.<sup>13</sup> Additionally, sometimes programs have not clearly articulated their learning objectives or performance expectations, resulting in residents having to guess or find out through asking or making errors about what is expected. The literature notes that when learning is occurring in the work place, it is important for individual learners to understand the learning objectives. Having a clearly defined curriculum will also help in limiting the adverse affects of the hidden curriculum.

## Learning in PGME

Central to the obligations of residents as learners is that PGME programs employ effective approaches to the design of their educational programs. This section explores the literature and best practices related to the design of effective educational programs for residents. See Table 1 for a summary of advantages and disadvantages of workplace learning.

**Table 1: Advantages and Disadvantages of Workplace Learning**

Features of workplace learning	Advantages	Disadvantages
Learning occurs in context	Learning is more easily applied and recalled	Workplace demands may limit available time
Learning has immediate relevance	Learning can be applied directly	Time spent preparing and reflecting can be limited
Learning can be unpredictable	Learning can occur at any time	Hard to prepare
Learning content can be unstructured	Learning can be directly related to needs	Hard to be systematic so gaps may be left or there may be duplication
Learning is from experience	Learning is powerful	Not all experiences are good experiences, some learning is from mistakes
Learning from patients	Results and feedback can be immediate and direct	Learning may impinge on patient safety issues
Learning is determined in case mix	The case mix forms a de facto curriculum that covers common problems	Important but uncommon problems may be omitted
Learning depends on relationships with work colleagues	Learning can be individualized and motivating when relationships are positive	Learning can be inhibited or threatening when relationships are negative
Learning from role models	Helps professional identity and rote development	Not all role models are good role models
Learning from colleagues	Applicability is immediate; experience of others offers additional perspectives	Practice can dominate over theory; underpinning theory and evidence base may be lost; bad habits are perpetuated
Learning may be cover and outcomes tacit	Consciousness is reserved for more strenuous tasks; helps o develop fluidity in performance	Some influences may be unfavourable; tacit knowledge is hard to teach to others; learners are not aware of learning processes and outcomes

Source: Medical Education Theory and Practice (Eds.) Tim Dornan, Karen Mann, Albert Scherpbier, John Spencer 2011 Churchill Livingstone Elsevier Ltd. Pg 196

## Towards A New Approach to Apprenticeship

Efforts to revitalize the use of apprenticeship in medicine<sup>14</sup> aim to build on the importance of the relationship between the teacher, the learner and the patient. Learning takes place in a 'community of practice' where there is a set of relations among persons, activities and the world over time.<sup>15</sup> The social relationship between learners and communities of practice centers on the co-construction of meaning and identity; newcomers learn from more experienced community members. In the revitalized apprenticeship learning system, faculty and learners co-construct meaning and identity, and there is shared responsibility for learning experience among all community members.<sup>16</sup>

### Competency-based Model

Competency has been defined as the ability to handle a complex professional task by integrating the relevant cognitive, psychomotor, and affective skills.<sup>17</sup> CanMEDS and CanMEDS-FM<sup>18</sup> are the competency frameworks for Canadian PGME training. These frameworks aim to define essential, but generic competencies that must be achieved in order to function well as a socially accountable physician. In Canada, postgraduate training goals, objectives and evaluations flow from the CanMEDS and CanMEDS FM frameworks. The frameworks emphasize preparation for practice where the focus is on optimal outcomes for patients and society.

Competency-based education has sometimes been viewed as a way to either shorten postgraduate training or to increase educational efficiency. Over the last decade, there has been a reduction in resident work hours, whereby the available 'learning at work time' has become much more limited. Coupled with the continuously expanding volume of information and skills that need to be learned, competency-based education is viewed as a solution to enable learners and teacher to focus their learning, teaching and assessment efforts.

### Situated Learning Model

Another type of learning model currently generating a lot of interest among medical educators is situated learning.<sup>19</sup> It arose as a modern view of the apprenticeship model of learning that was first proposed by Lave and Wenger (1991). Lave and Wenger wrote that by "engaging in practice, rather than being its object, may well be the condition for the effectiveness of learning".<sup>15</sup> Central to this model is the concept that learning occurs in the same context in which it is applied. For residents, that would mean learning in the work settings in which they will ultimately practice. In the communities of practice literature, this is accomplished through legitimate peripheral participation as the resident physician becomes more accepted and central to the community as they progress through their residency training.

Numerous authors are encouraging a shift towards work-based learning models where the teacher and the learner are both actively engaged in promoting learning.<sup>16,20-22</sup> Specifically for resident training, this requires a significant shift to focused learning that is a dynamic, interactive activity involving both the teacher and learner as active participants to maximize learning.

### Best Practices for Learning in a Work Setting

The best learning systems for postgraduate learners are designed to reflect such features as:

- considering the diverse needs of the many learners,
- engaging learners in group learning activities,

- recognizing that confidence and competence are important and linked, and
- integrating the continuum of workplace learning:
  - work processes (e.g., learning is a byproduct when observing the impact, risks and benefits of care choices when providing continuity of care).
  - learning activities (e.g., informal focused learning at or near clinical areas, just in time to connect choices with specific patients' care).
  - learning processes (e.g., explicit teaching or review of how the care fits together)

Considering the different ways in which adults learn is important to resident training since the act of learning in PGME is unique to each learner. There is no pre-defined, one-size-fits-all approach to learning because each individual “perceives and interacts with the environment in personal and unique ways based on characteristics such as intelligence, personality, beliefs, experiences and culture”.<sup>23</sup>

People are by nature very social and a great deal of their learning depends on the people around them.<sup>24</sup> When learners in general learn as a group they engage in distributed cognition by spreading the learning task across many minds and drawing on multiple knowledge bases and ideas.<sup>24</sup> This can be particularly helpful in gaining a better understanding of a topic by considering strengths and weaknesses of arguments as well as incorporating the insights and thoughts of others.

In most workplaces, learning is informal, occurs as a result of engaging in work processes and activities, and is not the main aim of the workplace.<sup>21</sup> In PGME, the resident develops a sense of identity, and builds confidence, increasing motivation and self-awareness through participation.<sup>25</sup> Eraut, 2007 identifies confidence as the most important aspect to learning. Learning occurs “through doing things and being proactive in seeking learning opportunities; and this requires confidence. Moreover, he adds, “we noted that confidence arose from successfully meeting challenges in one’s work, while the confidence to take on such challenges depended on the extent to which learners felt supported in that endeavour by colleagues, either while doing the job or as a back up when working independently”.<sup>21</sup> Eraut describes the key variables that characterize work-based learning as the contexts in which the learning occurs, the conditions under which the performer is able to work competently and the situations which the learner has experience handling.<sup>26</sup> Eraut identifies three main workplace learning modes (see Table 2) that may be a helpful conceptual framework for workplace learning by residents.

**Table 2: A Typology of Early Career Learning<sup>26</sup>**

<b>Work Processes</b> <i>(with learning as a by-product)</i>	<b>Learning Activities</b> <i>(located within work or learning processes)</i>	<b>Learning Processes</b> <i>(at or near the workplace)</i>
<ul style="list-style-type: none"> <li>• Participation in group processes</li> <li>• Working alongside others</li> <li>• Consultation</li> <li>• Tackling challenging tasks and roles</li> <li>• Problem solving</li> <li>• Trying things out</li> <li>• Consolidating, extending and refining skills</li> <li>• Working with clients</li> </ul>	<ul style="list-style-type: none"> <li>• Asking questions</li> <li>• Getting information</li> <li>• Locating resource people</li> <li>• Listening and observing</li> <li>• Reflecting</li> <li>• Learning from mistakes</li> <li>• Giving and receiving feedback</li> <li>• Use of mediating artifacts</li> </ul>	<ul style="list-style-type: none"> <li>• Being supervised</li> <li>• Being coached</li> <li>• Being mentored</li> <li>• Shadowing</li> <li>• Visiting other sites</li> <li>• Conferences</li> <li>• Short courses</li> <li>• Working for a qualification</li> <li>• Independent study</li> </ul>

So what IS the best PGME Educational Model?

Despite the revitalization of the apprenticeship approach, some medical educators feel that the apprenticeship model continues to be overshadowed by competency-based frameworks.<sup>25</sup> Some educators argue that competency-based models over-simplify complexity and cause learners and teachers to lose sight of the bigger picture, undermining medical professionalism and risk generating incompetency if residents perceive prematurely they have achieved competency. Some suggest that the apprenticeship model sometimes lacks the necessary rigour of definable outcomes needed in medical education.<sup>27</sup> As well, providing relationship-centered learning is becoming an increasingly difficult task. The opportunity to gain competence and confidence in procedural skills through repetition has all but disappeared. In fact, concerns have been raised that many residents are graduating without the necessary experience to be considered confident in their competence.<sup>28-30</sup>

In sum, there is no one educational approach that simplistically incorporates all of need facets to meet the complexity of residents learning in the workplace and developing and demonstrating the needed expertise to function safely and effectively when they are certified and throughout their professional careers. That said, an active, learner-centered use of the apprenticeship model, which uses a competency-based approach to clarify educational directions, needs and progress, seems to be a viable integrated approach. Additionally, the value and impact of the high volume of formal learning and teaching that occurs away from practice context likely needs to be studied, as this might be a source of 'found' time to redirect into other effective activities for both learners and teachers.

### **Expectations, Obligations and Best Practices For Residents As Workers**

Residents spend most of their working time in fully-affiliated academic health sciences centres (AHSCs). In the early 1970's, residents across Canada began to organize for the right to

collectively bargain. For instance, in 1974, residents in Ontario were the first to receive the formal legal dual status as employees of teaching hospitals and postgraduate residents within the universities. The Ontario collective agreement now reads: “[F]or the purpose of negotiating terms and conditions of employment in these teaching hospitals, it is agreed that residents have dual status; they are postgraduate medical residents registered in approved university programs leading to licensure and/or certification; and they are physicians employed by the hospitals performing essential service functions”.<sup>31</sup>

## Collective Agreements

Most resident physician collective agreements outline the basic responsibilities of the employer to the employee such as working conditions and call room requirements. Recent evolutions in medical education are creating changing needs for employers and employees. For instance, most collective agreements have historically been developed with the tertiary urban teaching hospital in mind, but with the increase in distributed medical education models, residents are required to provide medical service in community-based and rural settings. Employers within these new areas of responsibility need orientation and support to effectively provide what is required with regards to accommodations, transportation, occupational health, and infrastructure at these distributed host sites.

At a minimum, the employer is expected to provide safe working conditions, provide worker support, appropriate orientation and training and proper infrastructure, and have policies in place to outline standard operating procedures as well as to address workplace problems if they arise.

## Employment Legislation and Jurisdictional Matters

Provincial health and safety legislation obligates employers to ensure the health and safety of every employee while they are working. Provincial employment legislation may also set out employee responsibilities to prevent occupational injuries, including diseases. Employees have a responsibility to take all reasonable and necessary precautions to ensure their health and safety and that of anyone else that may be affected by their work or activities.

The legislation differs slightly from province to province, but it is nationally accepted that the provincial housestaff organizations that represent residents negotiate with the employers to establish the terms of the provincial collective agreement in their province. The various collective agreements outline obligations of both the employer and employee on issues like position security, remuneration and benefits, parental leave, vacation, maximum on-call work hours, facilities, and grievance procedures. The collective agreements also define the employer-employee relationship and mutual obligations. For example, the Professional Association of Residents of Alberta (PARA) contract commences by stating that “[it is the desire of the parties to this Agreement to provide excellence in education and patient care; to maintain professional standards and to promote and maintain an effective and professional working relationship between the Regional Health Authorities, Faculties of Medicine, Program Directors and the Residents”.<sup>32</sup> As noted below, employers must also meet any standards required by applicable provincial employment legislation as well as national standards imposed by accrediting agencies.

In addition, some of the provincial labour legislation does not apply to residents, depending on the province. For example, in Ontario, residents are exempt from certain provisions of the *Employment Standards Act (ESA)*. Parts VII (hours of work and eating periods), VIII (overtime pay), IX (minimum wage), X (public holidays) and XI (vacation pay) of the *ESA* do not apply to

“persons employed in medicine”.<sup>33</sup> In at least one situation where residents were unable to resolve an academic vs. employee status issue, residents have turned to other sources to deal with their issues. Specifically, in 2009 Quebec medical residents launched a grievance contending that the 24-hour on-call schedule permitted under their provincial contract violates the Canadian Charter of Rights and Freedoms.<sup>34</sup> In some cases, it is clear that the university has jurisdiction over residents; however, in other cases, it is unclear whether the employer or the university retains jurisdiction. For example, the university retains jurisdiction over whether the institution can terminate a resident; programs are required to appear before a university tribunal with the power to decide whether a resident should undergo remediation (and likely increase the length of training).

Currently, there are efforts being made across the country to try to ensure that residents work in healthy workplaces. This is in response to the recognition that healthy workplaces are positively correlated with increased job satisfaction, improved morale, reduced injuries, better worker health, safer patient care and increased productivity.<sup>35</sup> Worker wellness programs are developing concepts of how to build healthy workplaces and trying to incorporate healthy practices into the daily activities of employees in health care workplaces.

### Accreditation Standards

In addition to collective agreements and employment legislation, employers must also meet accreditation standards set out by the RCPSC and the CFPC. The General Standards of Accreditation, in addition to setting out standards and content of education programs, also require institutions to provide certain levels of support for learning. These include, for example, sufficient faculty to provide appropriate supervision, a residency program committee that reviews the program at least annually, service assignments that allow residents to achieve their educational objectives, and adequate resources including necessary equipment, computer and library access, and patients. These standards impose positive obligations on employers that mold the learning environment in which residents work.

## Needs of the Health Care System

### Supply and Demand of the System

There are a large number of postgraduate residents currently employed across academic health care organizations in Canada. Changes to the numbers of residents or number of hours worked per resident have the potential to impact upon the quality and effectiveness of health care delivery.

The number of postgraduate residents has increased substantially in the past ten years. Since 2000/01, when the number of first year post-M.D. residents was 1,548, there has been a 77% increase in number to 2,740. As well in the same time period, among the proportion of first year post-M.D. residents, the proportion of international medical graduates (IMG) has increased from 5 to 17%.<sup>36</sup>

The increase in number of residents has occurred during a time when there has been no significant growth in in-patient beds and in the number of open operating room facilities.<sup>37</sup> The increased learner numbers and limited capacity to provide training in the traditional academic centres has been one of the factors leading to the engagement of community affiliated institutions to help facilitate a distributed learning model. Each new institution that becomes a site for resident training must meet the requirements of both the accrediting bodies and the provincial resident associations with regards to providing an appropriate learning and working

environment. There is a cost to the health care system for the development of this infrastructure as these new sites become engaged in the education enterprise.

## Duty Hours

As noted earlier, residents are governed by provincial agreements between their representative organizations and the provincial ministries of health. All agreements speak to limits of work hours and call hours, but none define lower limits of work hours per week. By comparison, the Accreditation Council for Graduate Medical Education (ACGME) in the United States has mandated an 80-hour limit.<sup>38</sup>

Residents bear an enormous burden of responsibility for the nature and quality of patient care in the hospitals in which they are employed, and residency training has traditionally been a period of demanding and rigorous service. In 2003, the ACGME instituted duty-hour regulations in which residents of all specialties were limited to 80 hours per week. In 2009, the Institute of Medicine (IOM) issued a report, *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety*, in which they recommended additional changes to duty-hour regulations, including protected sleep periods and additional time off.

The IOM report reviewed the literature through 2008 and reported that there had been no significant detriment to patient outcomes since the introduction of the rules. Studies published since the IOM report, including several large observational studies, have suggested that the 2003 ACGME regulations resulted in neither substantial detriment nor substantial medical benefit to patients.<sup>39-40</sup>

A single major evidence-based analysis of labor costs associated with changes in duty hours as proposed in the IOM report has been conducted<sup>41</sup> following the approach used by the same team to examine costs associated with 2003 duty-hour regulations.<sup>42</sup> The analysis considered the impact of shifting work to more residents or to substitute providers, as well as potential costs or savings from changes in preventable adverse events, from the perspective of both teaching hospitals and society as a whole. The study concludes that the cost burden to society due to the potential improvements in patient safety would be negligible, but there would be a high net cost to teaching institutions in the United States in the order of 1.6 billion dollars per year. Clinical studies of alternative duty-hour schedules in both the United States and England have documented few measurable effects on patient safety.<sup>43-45</sup>

## Moonlighting

Resident moonlighting is defined as any medical-related professional activity that occurs outside the course and scope of the approved residency or fellowship program.<sup>57</sup> Prior to 1993, learners were granted a general license to practice after completion of a rotating internship. After receiving their general license, they could practice medicine or return for specialized training. "With a general license, residents were able to bill their provincial Health Insurance Plans for their service".<sup>46</sup> Residents who elected to complete additional training would often take on additional shifts outside of their training programs and provide essential services to understaffed hospitals.

In 1993, the changes in the licensure process resulted in new restrictions on obtaining an independent practice license. Residents were now required to receive their certification through one of two channels, the RCPSC or the CFPC, before acquiring an independent practice license. "This was one of the single most important policy changes that resulted in a shortage of physicians".<sup>46</sup>

The RCPSC and the CFPC have taken a neutral stance on the issue, neither promoting nor prohibiting moonlighting. By not taking a stance, the RCPSC appears to be balancing the risks and rewards associated with residents working additional hours outside of their residency program. Currently, eight of 10 provinces provide for and benefit from some form of restricted registration for residents allowing them to moonlight.<sup>46</sup>

Proponents of moonlighting cite several key benefits: additional learning and financial opportunities for the resident; potential to improve recruitment and retention particularly in under-serviced areas and improvement in availability of human health resources for the community. If not properly structured, there are also potential negative outcomes related to moonlighting: a lack of appropriate supervision of the resident and the potential for impact on patient safety; a decrease in resident satisfaction with working conditions; and issues with continuity of care.<sup>47</sup>

There is evidence that, due to financial considerations, residents moonlight even in academic programs where it is not allowed. Residents with higher debt loads are also more likely to moonlight.<sup>47</sup>

## **Discussion**

Residents, health care institutions and educational programs are faced with the challenge of supporting the dual roles of a resident – they are both working and learning in a complex, ever-changing health care environment. As workers, residents are entitled to a safe and functional workplace that meets the requirements outlined in their collective agreement (e.g., remuneration, benefits, vacation, and work hours). As learners, they are entitled to meaningful workplace learning experiences taught by qualified instructors with well-structured curriculum processes and approaches to adult learning needs.

Best practices suggest that PGME as work-based learning might benefit from an educational program that includes such features as participation in practice under expert supervision with focused constructive feedback, opportunities for reflection on experience and appraisal on practices. As work and skills evolve, physicians will repeatedly need these skills to solve problems they encounter when diagnosing and treating patients and to remedy weaknesses in their knowledge and skills through continuing medical education.

In moving forward, significant work must be done to develop appropriate workplace curricula that focuses on the quality of education versus simply “putting in the time” with long work hours. There should be caution around viewing residents as a ‘cheap’ source of medical expertise.

As the resident population continues to increase in Canada, there is a need for the health care system to accommodate this growth and provide optimal learning and working environments. This support includes additional facilities where residents are exposed to meaningful medical practices and are not enticed to moonlight outside of regular work hours to gain that experience.

## Conclusions

As education models for training future residents are changed to better meet the learning needs of the residents, consideration must be taken impact of any changes on both the status of the resident as a worker and the impact upon the health care system and society.

Residents are workers and learners. They are integral to the delivery of health care in academic health sciences centres. Support for their needs as workers, with improvements in working conditions and remuneration have occurred over the past decades. As well, increasing attention is being directed to better models of teaching and learning. Tension will continue to exist between residents' learning needs and service requirements of the institutions in which they are employed. The solutions to this tension must be rooted in the reality of the Canadian health care system and will have implications, requiring PGME to balance the needs for medical education, patient safety, and health care costs. In finding solutions, more research is needed to find solutions that are data driven and evidence based, and best meet the needs of the multiple stakeholders.

Three key messages that arose from this research related to resident as workers and learners include the following:

1. There is no single educational approach that can easily incorporate all of the needed facets to meet the complexity of residents learning in the workplace. That said, an active, learner-centered use of the work-based apprenticeship model, which utilizes a curriculum that clarifies educational directions, competencies, needs and progress, seems to be a viable integrated approach.
2. As education models for training future residents are changed, consideration must be paid to the impact of these changes on both the status of the resident as a worker and the impact upon the health care system and society. Changes to the numbers of residents or number of hours worked per resident have the potential to impact upon the quality and effectiveness of health care delivery and on the educational experience.
3. Resolving the tensions that exist between the residents' learning needs and service requirements of the institutions in which they are employed must be evidence based and must meet the needs of all stakeholders. The solutions must be rooted in the reality of the Canadian health care system and the impact on medical education, patient safety, and health care costs.

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## Appendix 1: About the Authors



Dr. Patricia Houston graduated in medicine from the University of Toronto in 1978 and completed her anesthesiology residency in Toronto in 1983. She is the Anesthetist-in-chief and Vice-President Education at St. Michael's Hospital, Toronto. She oversees the Education Portfolio which encompasses all activities, the Center for Faculty Development, the Waters Family Simulation Center and the Health Sciences Library. Dr. Houston joined St. Michael's in 1997 after having been faculty at University Health Network in Toronto and has been in her current position since 2000.

Dr. Houston is a Professor in the Department of Anesthesia at the University of Toronto. She oversees the undergraduate, postgraduate and fellowship educational programs within the department and provides support to an ongoing faculty development program for the departmental membership. She holds an M.D. and Masters in Education from the University of Toronto and is a Fellow of the Royal College of Physicians and Surgeons of Canada.



Dr. Robert Conn (FRCS(C)) is the CEO of the Professional Association of Internes and Residents of Ontario (PAIRO). A graduate of the University of British Columbia medical school, Dr. Conn completed a rotating internship at Memorial University followed by general surgery training at the University of Alberta and a specialization in cardiovascular and thoracic surgery at the University of British Columbia.

In 1987 he subspecialized in cardiac surgery at the University of Alabama's Birmingham Medical Centre and in 1988 became Chief Fellow in children's heart surgery at the Hospital for Sick Children in Toronto and was awarded the McLaughlin Fellowship in 1990. He became a fellow of the Royal College of Physicians and Surgeons of Canada in 1991 with a specialist certificate in Cardiovascular and Thoracic Surgery in 1990.

While training in Alabama, Dr. Conn gained experience in all facets of heart transplantation, including organ harvesting. Seeing that the majority of heart donors were young people who died as a result of preventable injuries, he turned down the McLaughlin Fellowship and founded the Canadian Injury Prevention Foundation in 1991, (later renamed SMARTRISK). During his tenure as CEO of SMARTRISK, Dr. Conn spearheaded the development of numerous programs to empower youth in injury prevention and established the Ontario Injury Prevention Resource Centre, which provides services to injury practitioners across the province. He also oversaw the expansion of SMARTRISK outside of Canada.



Maya Rajan graduated from Concordia University with a Master of Arts in Public Policy and Public Administration in 2009. Most of her academic interests lie in health policy where she has gained valuable experience as a junior policy analyst with the Public Health Agency of Canada and as a research associate for the Centre of Genomics and Policy. Currently, she is employed by the Professional Association of Internes and Residents of Ontario (PAIRO) where she works closely with medical residents looking at

post-graduate medical education training with a special focus on curriculum. She feels privileged at the opportunity to work on the FMEC project.



Dr. Roona Sinha completed medical school at the University of Ottawa and then went on to complete her paediatrics residency at the University of Alberta. Currently she is a third year subspecialty resident in pediatric hematology, oncology, and bone marrow transplant at the University of British Columbia. Dr. Sinha is also a fellow in the University of British Columbia's Centre for Health Education Scholarship. In addition, she is completing a Master's in Health Professionals Education through the University of Maastricht. Dr. Sinha has been very involved with medical leadership as past presidents of both the Professional Association of Residents of Alberta (PARA), and the Canadian Association of Interns and Residents (CAIR). Dr. Sinha is currently a board member of the Canadian Medical Association (CMA) and a past board member of the Canadian Post-M.D. Education Registry (CAPER). Dr. Sinha co-authored "The happy docs study", a CAIR well-being survey examining resident physician health and satisfaction within and outside of residency training in Canada. She has also co-authored modules on disruptive physicians for [ephysicianhealth.com](http://ephysicianhealth.com). Dr. Sinha was a member of the steering committee for the Future of Medical Education Undergraduate Project and is currently on the Scientific Steering Committee for the Future of Medical Education Postgraduate Project.

## Appendix 2: Annotated Bibliography

**Eraut, M. (2007). Learning from Other People in the Workplace. *Oxford Review of Education*, 33(4), 403-422.**

In this paper Eraut examined the Early Career Learning at Work of accountants, engineers and nurses. This included a typology of learning trajectories (what is being learned over a period of time), a two-triangle model of factors affecting learning and their mutual interaction, and an epistemology of practice. Working alongside others allows for observation as well as discussion. This was noted to be particularly important as it allows students to observe and listen to others at work, and participate in shared activities. This enables them to learn new practices and perspectives, to become aware of different kinds of knowledge and expertise, and to gain some sense of other people's tacit knowledge.

**Morris, Clare and Blaney, David. Work-Based Learning. In: Swanick (ed) *Understanding Medical Education*, pp. 69-82. 2010. Association for the Study of Medical Education, London.**

Clare Morris and David Blaney revisit medical education training models in light of changes in health care services and delivery. They argue that the traditional apprenticeship model of resident training poses more challenges to effective medical training than benefits. By drawing on theories of social learning, Morris and Blaney propose that apprenticeship training models and medical education curricula must be revived to incorporate work-based learning. They conclude by offering recommendations that can be adapted by clinical teachers and medical.

**Schwartz A et al. "Conceptual frameworks in the study of duty hour changes in graduate medical education: An integrative review". Report to the Accreditation Council for Graduate Medical Education. 2009. Access online at: [http://acgme-2010standards.org/pdf/Uofl\\_-\\_Conceptual\\_frameworks\\_in\\_the\\_study\\_of\\_duty\\_hour\\_changes\\_in\\_GME.pdf](http://acgme-2010standards.org/pdf/Uofl_-_Conceptual_frameworks_in_the_study_of_duty_hour_changes_in_GME.pdf)**

Schwartz et al (2009) reviewed 203 articles to identify outcomes of duty hour changes subsequent to the 2003 Accreditation Council for Graduate Medical Education (ACGME) regulation limiting resident duty hours. They conclude that there is conflicting evidence with regards to the impact of the change in duty hours on outcomes including patient safety and resident quality of life. They recommend future investigations be designed to study the net trade-off between key outcomes of patient safety, resident safety, resident education, resource costs (to society and programs) and quality of life for resident and attending physicians.

**Temple, Sir John. "Time for Training: A Review of the impact of the European Working Time Directive on the Quality of Training". Prepared by Medical Education Europe. May 2010. Access online at: <http://www.mee.nhs.uk/PDF/14274%20Bookmark%20Web%20Version.pdf>**

Temple chaired an expert panel to review the impact of the European Working Time Directive (EWTD) and the 48-hour work week for the delivery of health care and the education of physicians in the National Health Service (NHS). The report makes the following recommendations: 1. Implement consultant delivered service making consultants more directly responsible for care; 2. Ensure that service delivery explicitly supports training; 3. Ensure that training is planned and focused to 's needs; 4. Recognize, develop and reward trainers; 5. Monitor the quality of training with a range of indicators that measures impacts and outputs.