

Micro-credentials in the Applied Health Sciences: A Cautionary Tale about Quality

**A Report from the School of Applied Health Sciences at the
Michener Institute of Education at UHN for eCampusOntario**

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In November 2020, the Ontario Online Learning Consortium (OOLC) via eCampusOntario contracted with the School of Applied Health Sciences (SAHS) at the Michener Institute of Education at UHN, to consider issues, challenges and design of a useful micro-credential framework in the applied health sciences.

The School of Applied Health Sciences at the Michener Institute is ideally suited to conduct this analysis. It is the only postsecondary institution in Canada with programs exclusively in the applied health sciences. Its programming is inextricably and intimately linked to the applied sciences health care sector as the programs are funded by the Ontario Ministry of Health and are embedded within the University Health Network (UHN) and multiple other hospital and clinical settings. In addition, Michener's programs are informed by and responsive to the labour market and health human resource needs of the province and country, both current and emerging. Finally, Michener offers a wide range of applied health sciences programs and deals with a host of the regulatory and accreditation bodies that govern credentialling and entry-to-practice in these professions.

The analysis was to focus on several issues regarding micro-credentials in applied health science professions. Specifically;

- What are the particular issues and/or challenges of a micro-credentialling framework in general and more specifically in the applied health sciences?
- How could, or would a micro-credential framework in the applied health sciences align with the requirements, skills and competencies of the various regulatory colleges that regulate entry-to practice and license-to-practice in the applied health sciences?
- How does any proposed micro-credential framework in the applied health sciences align, support and advance the eCampusOntario Micro-credentialling Framework?
- How could a micro-credential framework in the applied health sciences assist student mobility and learning?

To conduct this analysis and to address the questions above, the SAHS assembled a Working Group on Micro-credentials including Lori Pepler-Beechey (chair of the Working Group and academic chair of the SAHS's Respiratory Therapy, Cardiovascular Perfusion and Anesthesia Assistant programs), the academic chairs of the applied health programs at Michener, Jordan Holmes (Senior Manager, Centre for Learning Innovation and Simulation), Mohammad

Salhia (Director, School of Continuing Education and International Centre for Education, Michener Institute of Education at UHN), and Sydney Redpath (former Dean of Students and Senior Director Academic Operations and Quality). Fiona Cherryman, the SAHS Head of Academic Affairs and Operations and Harvey P. Weingarten (Principal, SAHS) also participated in the analyses and discussions of the Working Group.

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The analyses of the Working Group included consideration of the need and utility of micro-credentials in the applied health sciences, an environmental scan of current micro-credential offerings across Canada, and how the concept of micro-credentials aligned with the approach and requirements of various regulatory and licensing colleges that regulate and control entry- and right- to practice in the applied health science professions.

Our analysis, as instructed, was focussed on micro-credentials in the applied health sciences area. It is important, therefore, to be articulate about what areas of study constitute the applied health sciences.

Typically, the term “applied (or “allied”) health sciences” refers to a host of disciplines and professions in the health care sector but which are not programs to educate doctors or nurses, the two professions that dominate discussion of health human resource discussions.¹ The Rehabilitation Sciences, physiotherapy and occupational therapy, are considered applied health sciences. But then there are a host of other applied health science disciplines and professions that are integral to the health care system and to health care delivery, and they are critical to the functioning of a modern, contemporary health care sector; without these applied health science professionals, the health care system would simply collapse. These health care professionals are often invisible or unknown to many when they think about the health care system. These professions include regulated health professionals such as medical laboratory technologists (MLT’s) who, in Ontario, are responsible for conducting about 500,000 medical and diagnostic tests every day. It also includes respiratory therapists (who were so highly profiled in the COVID pandemic), cardiovascular perfusionists (who run the heart-lung machines in open-heart surgeries), radiation therapists (who provide radiation-based cancer treatments), and a host of imaging disciplines such as MRI, ultrasound, CT and X-ray technologists. A list of all of the regulated health professions in Ontario can be found here:

<http://regulatedhealthprofessions.on.ca/professionscolleges.html>

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What are the particular issues and/or challenges of a micro-credentialing framework in general and specifically in the applied health sciences?

The most ubiquitous and prominent challenge and issue that one confronts immediately when venturing into the world of micro-credentials is that there is no consistent or agreed-upon definition of the term. As a result, the term “micro-credential” is used in a wide range of ways.

To some a micro-credential is no more than the fact that someone has learned a technique, e.g., how to perform CPR or a nasal swab for COVID testing. To others, the term micro-credential is reserved for a deeper and more extensive engagement and learning in a specific domain.

To some, a micro-credential is granted based simply upon attendance in some training program or attending a lecture or viewing something online. In these cases, a micro-credential is granted as essentially a certificate of attendance. To others, a micro-credential is granted only after assessment has shown that the student has demonstrated the knowledge, skills and competencies deemed relevant and necessary for the micro-credential.

The disparate use of the term “micro-credential” creates significant problems for anyone attempting to evaluate the value of the micro-credential. When presented with documentation that someone has obtained a micro-credential, one cannot know whether the credential has been obtained in a low- or high-quality program or setting, whether the micro-credential represents a minor or extensive knowledge and skill set, or whether anyone ever validated whether the holder of the micro-credential actually learned what the micro-credentialled program was designed or intended to teach.

This confused state of affairs serves no one – neither the student nor employers. It is particularly problematic for those rightfully enthusiastic about the possibility of using micro-credentials as a form of prior learning assessment and as the evidentiary base for decisions about laddering or scaffolding from one program to a subsequent one.

Simply put, for a micro-credentials framework to be helpful and useful, there needs to be some standardization, quality control or rigour applied to the use of the term. Right now, there is not.

Based on our analyses, we think it is important to distinguish between programs, and students, who have acquired a “skill” versus those that truly merited a designation as a “micro-credential”. We suggest that there are programs that teach stand-alone skills, e.g. CPR, nasal swabbing, blood pressure measurement or provide the student with the skills to perform some rote task. A micro-credential, though, should imply that students not only can perform that task but also have learned and understand the context, critical thinking and decision-making relevant to the understanding and use of that skill. In short, a micro-credential should imply a certain depth of knowledge, context for that knowledge and ability to understand and interpret that knowledge, not just the ability to perform a certain manipulation or technique.

We appreciate that there are other criteria that are important in the definition of a micro-credential (see later section on the relationship between our analysis and the eCampusOntario micro-credentials framework). But what we stress here is the importance of reserving the micro-credential definition and credential for learning that goes beyond simple learning of rote skills.

Who is to exert this standardization or quality control on the use of the term “micro-credential”? Typically, two strategies at different ends of the distribution are used to approach this problem. The first is to simply let the market decide whether a micro-credential granted by a particular institution or organization has value and merit. Presumably, based on experience and cases, employers and students will over time come to value and prefer the micro-credential given by some organizations and eschew those offered by others. This sorting out process takes some time. It is the strategy that by default is the one now being used. An alternative strategy typically preferred by Canadian governments, is to regulate the use of the term and establish criteria for its use. This is the logic behind the adoption of program and degree qualifications frameworks, e.g., the Ontario Qualifications Framework for various credentials offered by Ontario colleges and universities. Somewhere in the middle, is the creation of bureaucratic processes and organizations, like the COU Quality Assurance Framework and PEQAB that must grant approval to an institution before they are permitted to designate or offer a credential, such as a micro-credential.

Currently, the reality is that any organization that wishes to designate some course or program as a “micro-credential” simply decides on its own to do so. The central point being made here is the absence of standardization and systematicity in the use of the term, and the need for introduction of a quality dimension in the use of the term. We have suggested above, the important

distinction between designation of a “skill” versus a “micro-credential”. In the absence of some introduction of standardization or regularization of what a “micro-credential” is, and what the bearer of some a credential can be assumed to have learned (if anything), the worth, utility and value of the entire micro-credentials concept may well evaporate.

The existence of the regulatory colleges is an important consideration in the development of any micro-credentials framework in the applied health sciences. The competency frameworks of the regulatory colleges cannot be ignored in any such exercise.

Relationship to the regulatory colleges.

As noted above, many applied health professions are regulated. These regulatory colleges have the duty to protect the public by ensuring that all regulated professionals practice in a safe, competent and ethical manner. Regulatory colleges develop and utilize entry to practice competency profiles and standards of practice that govern both entry to practice for the profession and continuing competency of members.

At Michener, the following programs are subject to regulation and licensure by the Regulatory Colleges indicated:

- Chiropody – College of Chiropodists of Ontario
- Diagnostic Cytology - College of Medical Laboratory Technologists of Ontario
- Genetics Technology - College of Medical Laboratory Technologists of Ontario
- Magnetic Resonance Imaging – College of Medical Radiation and Imaging Technologists of Ontario
- Medical Laboratory Science – College of Medical Laboratory Technologists of Ontario
- Nuclear Medicine Molecular Imaging - College of Medical Radiation and Imaging Technologists of Ontario
- Radiation Therapy - College of Medical Radiation and Imaging Technologists of Ontario
- Radiological Technology - College of Medical Radiation and Imaging Technologists of Ontario
- Respiratory Therapy – College of Respiratory Therapists of Ontario
- Ultrasound - College of Medical Radiation and Imaging Technologists of Ontario

In addition, one of our prominent programs, cardiovascular perfusion, is not regulated by a college but practitioners are members of the Canadian Society of Cardiovascular Perfusion.

Finally, Michener offers two other programs: Anesthesia Assistant and Advanced Foot and Wound Care that report to the College of Respiratory Therapists of Ontario or College of Nurses of Ontario and the College of Chiropractors of Ontario, respectively.

The existence of the regulatory colleges is an important consideration in the development of any micro-credentials framework in the applied health sciences. The competency frameworks of the regulatory colleges cannot be ignored in any such exercise. Rather, any useful micro-credentials framework in the applied health sciences must align with and accommodate the entry-to-practice learning frameworks and standards of practice of the profession.

At first pass, the existence of different regulatory bodies may suggest complexity and difficulty in establishing a micro-credentials framework in the applied health sciences. The reality, though, is that the different bodies espouse and require some common skills and competencies.

The Working Group conducted a review and mapping exercise to determine the extent to which core professional competencies are shared across the allied health professions offered at Michener. Entry to practice competency profiles and standards of practice documents were collected and reviewed for common core competencies. Common competencies were found across all professions in the following categories: Evidence Informed Practice, Professional Behaviours, Communication, Interprofessional Care, Patient Education, Critical Thinking / Reasoning, Administrative Function, Health and Safety, Accountability, Quality Management.

These common categories indicate that the allied health professions offered at Michener share some common outcomes and competencies. Common competencies found within each of the categories, along with profession specific competencies guide not only entry to practice but also continuing competency within each of the professions. Because of the significance and role of the regulatory colleges in the applied health science professions, these shared competencies will inform Michener's micro-credential offerings to ensure that they meet the needs of the profession and the health care workforce / industry. Any micro-credentials in the applied health sciences offered by other institutions should, in our opinion, be similarly vigilant.

More problematic are those instances where an applied health care field is not regulated. Perhaps the most illustrative case in Ontario now is personal support workers (PSW's). PSW's have received a lot of attention recently because of the dearth of such professionals and the degree to which this may have contributed to the inordinately high percentage of COVID-related deaths in Ontario's long-term care system. There are a host of PSW programs in the province, but there may well be considerable variability in the knowledge, skill set and competencies of those graduating with these designations. This confusion may be exacerbated by the recent Resident Support Assistant (RSA) program deigned by the Ontario government to upskill displaced hospitality workers to work as assistants to residents in Long-Term Care homes.² The RSA program itself is seen by some as a pathway to PSW programs. Again, though, whether elements of an RSA or PSW program are ripe for a micro-credential designation is unclear until a clearer articulation of the basic elements or standards of such programs are clearer. In addition, consistent with our observation above, the articulation of required skills and competencies is but just the first step. The critical second step is to establish how these skills and competencies will be assessed and credentialled, a requirement before any micro-credential framework can be useful to employers or students. PSW programs may be the prototype for analysis of a micro-credential framework in the unregulated applied health science professions. All of this suggests that PSW may be a particularly fruitful one to use as an initial promising place to explore a meaningful micro-credential.

How does any proposed micro-credential framework align, support and advance the eCampusOntario Micro-credentialling Framework?

The eCampusOntario micro-credentialling framework contains the following elements:

- *Issuing Body: Micro-credentials will be issued by an established agency, organization, institution, or employer.*
- *Summative Assessment: Micro-credentials will require evidence of achievement of outcomes. Evidence will be embedded and visible to employers.*
- *Competency/Skills targeted: Micro-credentials will adhere to harmonized skills and competency language and will be aligned with a common competency framework such as ESCO1.*

- *Transcriptable: Micro-credentials will be compatible with traditional transcripts, where possible.*
- *Outcomes: Micro-credentials will recognize performance competencies explicitly aligned to underlying knowledge, attitudes and skills.*
- *Partner Endorsement: Micro-credentials will be informed and validated by industry partners/external bodies, where possible. This validation will confirm 1) the competency is in demand by industry and; 2) the established assessment is reflective of job performance in that industry.*

The Working Group found this framework very useful and helpful in thinking about how to advance the use of micro-credentials in applied health science areas. Like many frameworks, though, the devil is in the details and we offer the following commentary on the details of applying the eCampusOntario framework to the applied health sciences.

First, given where applied health science programs are offered, the bulk of these micro-credentials will be offered by accredited and recognized public colleges and universities. We can be comforted by the quality considerations characteristic of these institutions. Also, public post-secondary institutions are highly protective of the credentials they offer and are vigilant, therefore, to assuring the quality of the programs that lead to these credentials. No doubt, there will be differences among institutions as to the depth, rigour and comprehensiveness of programs that lead to a micro-credential, but this is not different than the situation that exists now where institutions surely differ in these dimensions when they offer the same credential, such as a diploma or bachelor's degree. Of more concern, perhaps, particularly because there is no mechanism now for quality assurance in the use of the term or credential of a "micro-credential", is how these may be offered by private colleges or other non-public or unregulated institutions. This speaks, most generally, to an important theme of this report; specifically, how to assure some standardization or quality control in the use of the term micro-credential.

Second, with respect to summative assessment, we are concerned that in some cases micro-credentials are offered without a rigorous or appropriate assessment process. In general, what constitutes an appropriate assessment in higher education of any credential or learning is a significant challenge and debate.³ In some cases that we reviewed, a micro-credential is granted essentially as a testament that the student has participated in some program, i.e., a certificate of attendance. This does not constitute an adequate assessment in our opinion for granting a micro-credential. Any institution or

organization offering a micro-credential must be prepared to defend the assessment procedure it uses to grant the credential.

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Third, particularly in the applied health care professions, the language and culture of skills and competencies is well embedded. It should not represent any difficulty or stretch to apply this nomenclature or perspective to micro-credentials in these areas.

Fourth, and similarly, institutions in the applied health sciences area should have no difficulty incorporating micro-credentials in their current suite of credentials and transcripts offered.

Fifth, the applied health sciences areas, perhaps because of the requirements of the regulatory colleges, are already well versed and accustomed to think about outcomes. It is the assessment of outcomes that may be more controversial than adoption of a competency outcomes lens to programs and to micro-credentials.

Sixth, the Working Group agrees that partner endorsement is an important element in the Ontario micro-credential framework and equally in the applied health sciences area. To some extent, the requirements of the regulatory colleges validate that the skills and competencies are necessary for practice, even given the arguments of some that in some cases these competency frameworks lag developments and emerging issues in these professions. More problematic, though, is how to validate the market demand for these micro-credentials and for workers who have them. Aside from the conceptual problem of the relationship between a particular field of study and the jobs graduates eventually have, many formal and quantitative labour market analyses depend on the existence of the National Occupational Codes (NOC). These NOCs were established many years ago when the architecture and landscape of the health professions were quite different and when some current occupational titles did not even exist. It is largely acknowledged that the NOC system in the applied health sciences is outdated and does not map well onto the current ways that health care is organized and the job titles and categories that exist. This makes labour market projections based on NOC codes problematic, if not useless. This difficulty has been reinforced in labour market analyses we have conducted with organizations such as the Labour Market Information Council of Canada (LMIC). While NOC-based analyses may be problematic, there are other ways of establishing labour market demands. Entire sections of the provincial

Ministry of Health are dedicated to identifying and quantifying health human resource demands. At Michener, we subject all of our programs to the rigorous test of demonstrating labour market demand for graduates and for credentials we offer. These explorations may use analyses of the demographics of the applied health care professions, job postings and vacancies, and extensive consultation with industry and potential employers of graduates. In general, analyses of the labour market demand for applied health care professionals reveal considerable concern about the worker gap and current or impending labour shortages in the applied health sciences. One factor that encourages the micro-credentials movement in the applied health sciences, is that their use will facilitate and enable better and more rapid meeting of labour shortages that currently exist or that we know are looming.

Finally, a recent report from eCampusOntario⁴ quoted the authors to say that a good micro-credentials framework is one where the:

“...framework that sees micro-credentials built on trust, value and

exchange. Trust ensures that learners are assessed to verify skills gained; Value refers to the relevance of skills gained to meet workplace needs; Exchange allows for a portable record of micro-credential activity that is accessible and transferable for learners”.

...there remains a significant challenge of micro-credentials to meet the trust factor, in the applied health sciences and in higher education more generally.

The assessment of the Working Group is that a micro-credentials framework in the applied health sciences would not have any difficulty meeting the test of *value* (because there are already demonstrable and future labour shortages) and *exchange* (because incorporating micro-credential credentials into the current suite of credentials and transcripts offered should not be difficult). But, the absence of the insistence on appropriate assessment processes indicates that there remains a significant challenge of micro-credentials to meet the *trust* factor, in the applied health sciences and in higher education more generally.

How could a micro-credential framework in the applied health sciences assist student mobility and learning?

One of the great promissory notes of the micro-credentials perspective is that it will accelerate and facilitate smoother, faster and more seamless pathways for student learning and credentialing. For example, if a student possesses a micro-credential in “data analytics” it makes no sense to require a student to repeat that learning if that is an element of their new program. Similarly, properly used,

micro-credentials can be a boon to prior learning assessment which, again, would eliminate delay and duplication in student programs.

This promissory note, though, will only be achieved if there is confidence and trust in the meaning and validity of a micro-credential offered by an institution. The absence of a standardization or quality control processes in the current granting of micro-credentials, undermines this promissory note. If there is suspicion at one institution that a micro-credential offered by another may be of low quality or rigour, then they will be reluctant to simply grant credit for that credential. Rather, they will engage in some process that requires them to validate the credential offered by the other institution, which minimizes the promise of the framework. To be candid, this is the situation that already exists in the Ontario post-secondary system. One university or college, for example, may be reluctant to recognize course credit for seemingly similarly-labelled courses from another institution. There is no reason to believe that these concerns and sentiments would not operate in the micro-credential world. The government attempts to obviate these concerns by establishing a mechanism in bodies such as *OnCat* to work out these credit and course recognition agreements in advance. While we do not propose a similar body or process for micro-credentials, we simply point out that in the absence of trust or confidence in the use and validity of a micro-credential, it may do little to facilitate faster and more seamless student mobility. In fact, it may end up, as in many cases it is now for other credentials, that whether a micro-credential is recognized by another institution reflects the perception by that institution of the quality and rigour of the institution that granted the micro-credential. The requirement for industry and corporate partnership to validate a micro-credential and the insistence on serious assessment to determine whether granting of a micro-credential is warranted, may obviate some of these concerns.

Summary of key observations and recommendations:

1. The term “micro-credential” should imply a certain extent and depth of learning that goes beyond the learning of specific knowledge and rote skills. Rather, the term “micro-credential” should be reserved for those occasions where students also learn the context around that specific knowledge or skill so that they can appreciate, understand and interpret that knowledge, not just the ability to perform a certain manipulation or technique.
2. There should be some consideration of how to introduce quality control concepts into the world of micro-credentials.
3. Any useful micro-credentials framework in the applied health sciences must align with and accommodate the learning requirements and the knowledge, skills and competencies frameworks established by the regulatory colleges that control entry-to-practice and licensure of individuals in the applied health care professions. In fact, the skills and competencies frameworks of the regulatory colleges may serve as a good template to shape and influence the creation of a core set of micro-credentials in the applied health sciences.
4. Personal Support Worker (PSW) programs may be a fruitful and informative case study for the development of micro-credentials in unregulated applied health science professions.
5. The eCampusOntario Micro-credentials Framework is a useful and appropriate guide for the establishment of micro-credentials in the applied health sciences.
6. As with any other credential, there must be debate and consideration of relevant and appropriate assessment tools to support the validity and utility of any micro-credential offered in the applied health sciences.
7. In the applied health sciences, demonstrations and identification of labour market demand for professionals in these areas may often require analyses that go beyond traditional NOC-based labour market analyses. Current analyses suggest a considerable need for applied health

professionals, both now and in the future, and micro-credentials can assist the speedy education of these individuals.

8. The absence of standardization or quality control processes in the current granting of micro-credentials undermines the promissory note of micro-credentials offering the opportunity for faster, non-duplicative and seamless mobility and graduation of students in the applied health sciences.

Respectfully submitted.

Endnotes

¹ Rosalie Wyonch. *Help wanted: How to address labour shortages in healthcare and improve patient access*. C.D. Howe Institute, Commentary #590, February 2021.

https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_590.pdf

² <https://news.ontario.ca/en/release/59108/province-launching-recruitment-program-to-support-long-term-care-sector>

³ Harvey P. Weingarten, Martin Hicks and Amy Kaufman (eds.) *Assessing Quality in Postsecondary Education: International Perspectives*. Montreal and Kingston, McGill-Queens University Press, 2018.

⁴ Mary Chaktsiris, Karen McCallum, Robert Luke, Wendy Cukier, Lena Patterson, Nirvana Garreffa and Emma Gooch. *Is the Future Micro? Unbundling learning for flexibility and access*. eCampusOntario, March 2021.

[https://micro.ecampusontario.ca/wp-content/uploads/2021/03/Is the Future Micro-1.pdf](https://micro.ecampusontario.ca/wp-content/uploads/2021/03/Is_the_Future_Micro-1.pdf)