



RISK & SUPPORTIVE FACTORS IN MEDICAL PRACTICE

Introduction

It is known that a variety of factors may influence the quality of a physician's practice. Broadly speaking, these factors can be considered to be physician-related (e.g. age or gender) or practice-related (e.g. patient volume or professional isolation). Some factors pose a risk, while others are supportive of practice quality over time.

A recent review, conducted on behalf of Canadian medical regulators, identified more than 900 published articles of relevance to this issue. Even so, our understanding of the various factors that either place a practice at risk or conversely protect against it, is incomplete. While the presence of risk and supportive factors is clear, their relative strength (i.e. the magnitude of positive or negative influence) and the ways in which they interact (i.e. potentially reinforce or mitigate one another) are less well understood.

Factors are only predictive in a general sense and tend to exert their influence over time. The impact of any one factor on an individual physician's practice is difficult to quantify and never absolute. For example, although physician performance tends to decline with advancing age, the degree to which this happens varies and is undoubtedly influenced by other factors, including physician health, education, practice environment, and scope.

Ultimately, each physician's factor profile is unique. For this reason, it is important that individual physicians be alert to the various factors at play in their practice and take steps to reduce risks and optimize supports wherever possible, to avoid care becoming compromised.

From a systems perspective, attention to physician factors, both collectively and individually, has the potential to benefit care quality. Health authorities could use an understanding of risk and supportive factors to help optimize service delivery models or policy (e.g. by choosing multidisciplinary over single-practitioner clinics or reducing on-call demands for older physicians). In circumstances where risk is unavoidable, such as for a geographically isolated practitioner, specific mitigating strategies and supports could be put in place. It is likely that most physicians have an intuitive understanding of risks and supports to practice. If so, systems strategies that mitigate practice risk might actually have a positive effect on the recruitment and retention of physicians to challenging practice circumstances.

Medical regulators in Canada (the provincial and territorial Colleges) have an understandable interest in physician factors. All Canadian regulatory colleges have a mandate to promote quality in practice, usually through some form of practice assessment program. Some regulators are already using physician factors, either alone or in combination, to direct their quality initiatives. The Collège des Médecins du Québec uses multi-factor rubrics to direct the activities of its quality assurance programs. In Nova Scotia, selection into different categories of the Peer Review program may be influenced by a review of a physician factor profile. Several other provincial regulators are either using or considering factors as a means of prioritizing physicians for quality programs or directing the nature of a physician's practice assessment.

Manitoba Quality Improvement Program – Role of Physician Factors

The CPSM takes physician factors into account when allocating the limited resources of our Quality Improvement program. To this end, an analysis of risk and supportive factors is used to decide the nature of each physician's participation in the program. Physicians with relatively more risk than supportive factors in practice may be assigned to a Category 2 review (review of submitted practice information and off-site chart review or multisource feedback) or a Category 3 review (review of submitted practice information, multisource feedback, and on-site office visit by CPSM). Physicians with a preponderance of supportive factors may be assigned to a Category 1 review (review of submitted practice information).

This document will provide CPSM reviewers as well as reviewed physicians with a qualitative overview of important risk and supportive factors. It is not intended to be a comprehensive review of the literature, however source articles of potential interest to the reader are listed in Appendix A. Appendix B provides a quick-reference summary of important factors.

Risk Factors for Practice Quality

Advancing Physician Age and Time-in-Practice

Physician age and 'time in practice' are highly correlated and may, to a significant degree, be considered together. The risk to practice quality associated with physician aging is multifactorial and complex. It is important to note that advancing physician age is more commonly associated with other risk factors such as male gender, solo practice, or lack of certification. However, when these potentially confounding factors are accounted for, there remains a consistent and significant negative correlation between advancing age and practice quality.

This decline in performance for the older physician may be thought of in terms of three broad domains:

To a significant degree, the practice risk associated with advancing age relates to the currency of the physician's knowledge base. Medical knowledge changes rapidly. Without specific efforts to keep current, time in practice will inevitably erode competence, regardless of the practitioner's age. Because memory tends to decline with age, this risk to currency in knowledge may accelerate over time.

The cognitive decline that occurs with aging is beyond dispute, though there is considerable individual variation in terms of when and how this is manifested. Beginning as early as the sixth decade of life, it may impact such faculties as memory and clinical reasoning. While the impact of aging on a physician's practice will vary, it would be naïve to assume that any practice will be entirely immune.

It is likely that age and work experience confer some benefits on some aspects of practice. Research shows that older, experienced physicians may actually be better at making certain sorts of decisions or diagnoses, particularly when pattern recognition plays a key role. Conversely, these same physicians may be at greater risk for making errors when faced with ambiguous presentations or unfamiliar conditions. The reason appears to be a reduced ability to engage complex reasoning skills, resulting in a flawed reliance of pattern recognition and leading to premature diagnostic closure. In simpler terms, older physicians may function very effectively in familiar circumstances, when managing typical examples of a condition. Faced with rare or unfamiliar conditions, or conditions manifesting in an atypical manner, they are at greater risk for making mistakes.

Physical and physiologic changes are another variable yet inevitable consequence of aging. Balance, strength, manual dexterity, visual and auditory acuity all decline with age. To a varying extent, each may be relevant to a physician's performance in practice.

While there is no specific antidote to aging, mitigating strategies of particular relevance to the older physician may include:

- Paying particular attention to your physical and mental well-being;
- Reducing the pace of practice;
- Allowing more time for decision making, particularly in uncertain circumstances;
- Avoiding practice environments with a high degree of diagnostic uncertainty, e.g. episodic or emergency care;
- Avoiding shift work, particularly night shifts, whenever possible;
- Reducing practice scope to focus on areas of strength and familiarity;
- Employing memory aids, algorithms and point-of-care resources;
- Wherever possible, working and interacting clinically with capable colleagues and learners; and
- Making specific additional efforts to stay current through continuing professional development.

Professional Transitions / Changes in Scope of Practice

Scope of practice is often thought of in terms of the numbers and types of patients cared for, the conditions commonly encountered, and the procedures performed in practice. Beyond this traditional view, scope should also consider the environment (facility and community) in which care is provided, the colleagues with whom one collaborates, and the material resources available. Finally, some physicians may have academic (education or research) or administrative aspects of scope.

To a varying degree, any change in a physician's scope of practice may pose a risk to quality. Minor changes, such as modifying your approach to a surgical procedure may be reasonably straightforward. Others, such as moving from the practice of General Surgery to Family Medicine are complex and fraught with risk.

Using a broad definition, professional transitions may be thought of as a change in scope of practice. Examples of significant transitions would include moving between: residency training and independent practice, one health care facility and another, countries or cultures, and full practice towards retirement. All may carry significant risks to practice quality, and therefore merit careful planning and support.

Physicians making a major change to their practice scope are, in most jurisdictions, required to consult with their regulatory authority (College). When planning for a change in scope of practice, the following constitute a general approach to reducing risk:

- Take the time to identify what skills or competencies are required to function safely in the new environment. Consider not only the Medical Expert competencies required, but also those required to be an effective Leader, Communicator, or Collaborator;
- Create and follow a formal plan for training and orientation, addressing these required competencies;
- Identify valid forms of assessment (e.g. feedback from others, outcomes data), necessary to measure and modify your performance during and after the transition; and
- If necessary, take on a competent mentor or supervisor.

Male Gender

Male gender is, for obvious reasons, a controversial risk factor for the provision of quality care. In part, this may be a reflection of the degree to which male gender may be confounded by variables such as age, practice location and specialty.

Nonetheless, male gender is frequently identified as an independent predictor for poor outcomes in practice assessments conducted for a variety of purposes. Furthermore, research studies on practice indicate a higher risk for male physicians in a number of important adverse measures,

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including more disciplinary complaints, non-compliance with practice guidelines, poor record keeping, and poor attention to professional development.

Supportive factors relevant to male gender are largely speculative and may be general in nature. For example, it is known that physician communication is a frequent cause of disciplinary complaints. Male physicians may therefore wish to consider their communication style with patients, particularly when addressing an adverse event. Specific attention to record keeping would also seem warranted.

Poor Performance in Certifying or Licensure Examinations

Full licensure in Canada requires that a physician hold both the Licentiate of the Medical Council of Canada (LMCC) and certification by one of our certifying colleges, typically the Royal College of Physicians and Surgeons of Canada (RCPSC) or the College of Family Physicians of Canada (CFPC). Some, but by no means all, international jurisdictions have similar certifying or licensure examinations.

There is good evidence correlating poor performance in national examinations, or lack of specialty certification, with poor performance in various aspects of practice. Negative outcomes include a greater likelihood of disciplinary complaints, incorrect diagnoses, poor performance on practice assessments, and adverse patient outcomes. It is important to note that adverse outcomes are not necessarily directly related or limited to specific areas of poor examination performance. In this respect, poor exam performance may be a general flag for poor practice.

Mitigating the risks of poor examination performance is challenging. Licensing and certifying examinations are not designed to be reliably diagnostic of a physician's specific strengths or weaknesses. Consequently, they may offer little concrete guidance to test takers in terms of further professional development.

Nonetheless, both passing and failing candidates are well advised to take note of the examination domains in which they performed poorly. Physicians who have repeatedly failed examinations should look for patterns of strength and weakness over time; weaknesses consistently identified over multiple attempts at an examination are more likely to be valid and worthy of attention.

A healthy approach to continuing professional development, ideally guided by assessment and data from practice, is a physician's best defence against gaps in skill or knowledge.

Practice Volume

Numerous studies have been published linking improved outcomes, particularly for medical procedures, to higher volume in practice. Implicit in this is that the practitioner has been trained

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to perform the procedure in the correct manner. Conversely, low volume practices may not offer sufficient exposure to refine and maintain one's skill.

What is not clear is how overall practice volume (i.e. patients seen per hour or days worked per week) correlates with outcome. In part this is due to difficulty in defining a 'high or low volume' practice from one specialty or practice context to another. Identified outliers (i.e. unusually high or low) in terms of patient numbers per unit time likely carry risk. This risk may be more pronounced for older practitioners, whose ability to cope safely with high volumes is more limited. Conversely, very low volume or intermittent practice may lead to erosion of skills and lower standards of care.

Mitigating strategies will vary:

- Be aware of practice norms and apply caution if you are an outlier in terms of either very high volume or low volume practice;
- Be aware that there may be a lower competence limit for some procedures/types of care; Engage with peers and follow established guidelines for procedural practice;
- Tailor volume to physician factors (e.g. age or wellness) and context (e.g. patient complexity or practice resources); and
- Seek educational strategies such as simulation to manage risk related to uncommonly encountered clinical scenarios or procedures.

Training Outside the Current Practice Jurisdiction

Numerous studies have addressed the risk associated with having trained outside one's current practice jurisdiction, typically in another country. However, the consistency and strength of association is unclear. In part this is likely due to the significant differences in training between and even within jurisdictions. Although risk may, in some circumstances, be a quality of training issue it is likely that there are numerous other factors at work in what constitutes for many physicians a major change in scope of practice. Embedded issues may include:

- Changes in the types of conditions encountered;
- Differences in available resources;
- Relative lack of professional contacts/professional isolation;
- Practicing in a new/secondary language;
- Cultural differences; and
- Different expectations for professional behaviour.

Mitigation strategies are outlined above in the section on changing scope of practice.

Support Factors for Practice Quality

Physician Wellness

Human performance is inextricably linked with physical and mental well-being. This is by no means unique to the practice of medicine.

As a physician, you are arguably your practice's most valuable resource and central to the quality of care provided. While the great majority of physicians enjoy the practice of medicine, it is time-consuming and sometimes stressful. Professionalism in medicine often requires that we place the needs of our patients ahead of our own needs. However, doing this exclusively over the long term is unlikely to benefit either party.

Wellness strategies are not unique to medical practice, and may include:

- Paying attention to work-life balance, including time for family, friends and self;
- Doing regular exercise;
- Having regular meals with nutritious foods;
- Paying attention to sleep hygiene, particularly around on-call and shift work;
- Practising mindfulness;
- Attending to preventive and active health issues through your own physician(s); and
- Adapting workload and scope to accommodate physical and mental health, stress and aging.

Peer Engagement

Numerous studies have identified a negative correlation between professional isolation and quality of practice. Professional isolation should be considered less in terms of geography and more in terms of the number and types of interactions enjoyed by a physician with their medical colleagues in the course of their work. Using this latter definition, it is easy to see that an urban physician may, in some circumstances, be more professionally isolated than their counterpart in a rural setting.

Regular interactions with medical colleagues and trainees, particularly in the clinical environment, provide a strong opportunity and stimulus for learning. New knowledge and ideas are exchanged. Outdated assumptions and practices may be challenged. Consultations with competent peers, whether formal or informal, are an important way of either affirming an approach to patient care or raising appropriate alternatives. Conversely, the absence of regular professional interaction creates an environment in which a good practice may stagnate over time, become outdated or fall into poor habits.

Examples of potentially beneficial professional interactions include:

- Collaborative patient care (e.g. multidisciplinary teams or units);
- Clinical and non-clinical teaching of (or by) others; and
- Interactive professional development (e.g. rounds, journal clubs, on-line discussion forums).

Some physicians' practice circumstances do not readily allow for daily interaction with peers through collaborative practice. In such cases it may be appropriate to seek out collegial interaction through other activities, such as:

- Interactive professional development (as above);
- Volunteering to participate in standard setting exercises or the assessment of peers (e.g. acting as a peer reviewer, writing test items, volunteering as an observer or examiner for a local examination);
- Hosting trainees in your practice;
- Spending time in another physician's practice (Operating room assist, observation of care); and
- Seeking feedback on your approach to care, such as from consultants to whom you regularly refer.

Continuing Professional Development (CPD)

As pointed out earlier, medical knowledge and best practices change at an extraordinary rate. It therefore stands to reason that CPD is not only a support for quality practice but is arguably essential to maintaining quality over time. All medical regulators in Canada require that physicians participate in a recognized CPD framework as a condition of licensure.

Despite this, simply participating in CPD and logging credits may have only a modest effect on practice quality. In part, this may reflect how physicians choose their CPD activities. Physicians frequently pursue CPD in areas for which they have a specific interest and may already excel. However, CPD is more likely to be impactful when it is undertaken to address an identified gap in a relevant aspect of practice.

Practice assessment is key to effective professional development. Physicians too often rely on intuition when identifying their strengths and weaknesses in practice. The unfortunate reality is that all human beings, not just physicians, are quite limited in their ability to identify the things they do poorly. Seeking external sources of assessment or feedback is far more likely to drive effective learning and practice change but is not commonly used. Obtaining external data can be challenging and time consuming, but a culture of quality improvement is making this easier over time.

Using external assessment methods to identify weaknesses, drive learning and assess the impact of change are key elements of a Quality Improvement (QI) approach.

The educational literature does offer some guidance on how to maximize the impact of CPD on practice quality, including using a QI strategy.

- Choose CPD activities because of their clear relevance to your scope of practice, rather than out of habit, ease of access or pleasant geography.
- Think broadly about the competencies necessary to practice effectively, including your ‘non-medical expert’ roles. Your ability to communicate with patients, manage a practice or critically appraise an article in the literature may be just as important.
- Use data, feedback from others, formal and informal practice assessments (e.g. self-audit, peer review) to identify performance gaps and then deliberately seek out CPD resources to address them. Again, assess your practice broadly, not just your medical expertise.
- Consider what sort of learning environments you find most effective and seek them out. Most likely, different learning environments will be identified to fill different needs.
- While unaccredited activities such as self-directed reading may be of benefit, include high-quality accredited activities in your CPD plan.
- Include interactive group activities in your learning. Group learning is a form of peer engagement, offering opportunities to debate, contrast or reinforce approaches to practice.
- Develop and execute a specific plan to incorporate new learning into practice. Will new resources be required? Will successful change require the engagement of others? What might get in your way?
- Assess the impact of any practice change on quality and outcomes. What does the feedback or data tell you? Did you achieve the desired effect? If not, consider what further action may be required.

The Action Plan activity in the final stages of the CPSM QI program will involve identifying a practice change or learning opportunity and will incorporate some of the above points.

Summary

Physician and practice-related factors undoubtedly influence the quality of medical care. Although we can identify factors that either pose a risk to or support practice quality over time, their relative influence and interactions are incompletely understood.

A physician’s factors profile is certainly unique and subject to change over time. Individually, physicians must remain alert to their factors profile, taking steps to mitigate risk and promote quality wherever possible. From a systems perspective, attention to risk and supportive factors provides an opportunity to support at-risk physicians and improve care quality.

Appendix A

Articles and Resources of Potential Interest to the Reader

Wenghofer E et al, Factors Affecting Physician Performance: Implications for Performance Improvement and Governance. Healthcare Policy, Vol. 5, No. 2, 2009

Eva KW, The Aging Physician: Changes in Cognitive Processing and Their Impact on Medical Practice. Academic Medicine, Vol. 77, No. 10 / Oct supplement 2002

Skowronski GA, The greying intensivist: ageing and medical practice – everyone’s problem. Med J Australia 196 (8) 2012. 505-507

Physician Practice Improvement, The Federation of Medical Regulatory Authorities of Canada (FMRAC); <http://fmrac.ca/wp-content/uploads/2016/04/PPI-System>

Canadian Medical Association. New in Practice Guide; <https://www.cma.ca/Assets/assets-library/document/en/practice-management-and-wellness/NewInPractice2015-e.pdf>

Kruger J, Dunning D, Unskilled and Unaware of It: How Difficulties in Recognizing One’s Own Incompetence Lead to Inflated Self-assessments. Psychology, 1, 2009. 30 – 46

Lipner R, et al, Factors that Influence General Internists’ and Surgeons’ Performance on Maintenance of Certification Examinations. Academic Medicine, 86 (1) 2011. 53-58

Wenghofer E et al, The Relationship Between Physician Participation in Continuing Professional Development and Physician In-practice Peer Assessments. Academic Medicine, 89, 2014, 920-927

Appendix B

Quick Reference to Risk & Supportive Factors in Medical Practice

Factor	Background	Strategies
<p>Advancing Age (Time in Practice)</p> <p>RISK</p>	<ul style="list-style-type: none"> • Multifactorial and variable in effect • Onset as early as 6th decade of life (50's) • Potentially outdated knowledge • Challenged to resolve complex/unfamiliar situations • Variable physical limitations 	<ul style="list-style-type: none"> • Attention to physician wellness • Adapt pace (practice volume) • Focus on areas of strength/familiarity • Reduce exposure to diagnostic uncertainty • Reduce shift work • Use memory aids, point-of-care resources • Avoid professional isolation • Optimize professional development
<p>Transitions (Change in Scope)</p> <p>RISK</p>	<ul style="list-style-type: none"> • Consider broad definition of scope • New patients, conditions, procedures • Level of autonomy, responsibility • New jurisdiction, culture • New facility, colleagues • Change in resources, practice patterns, expectations 	<ul style="list-style-type: none"> • Follow regulatory policy and direction • Identify necessary competencies using a broad framework, such as CanMEDs • Create a formal learning plan and orientation • Take on a mentor or supervisor • Assess and monitor progress/outcomes
<p>Male Gender</p> <p>RISK</p>	<ul style="list-style-type: none"> • More disciplinary issues • Poorer adherence to CPGs • Less attention to CPD • Interactions with age, scope, certification 	<ul style="list-style-type: none"> • Attention to communication style • Attention to record keeping • Identify and follow important clinical practice guidelines • Optimize professional development

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Factor	Background	Strategies
<p>Poor Examination Performance/Lack of Certification</p> <p>RISK</p>	<ul style="list-style-type: none"> • May signify a general risk to practice quality • Greater risk of disciplinary issues • Poor patient outcomes • Exam reports may offer little guidance 	<ul style="list-style-type: none"> • Seek additional sources of assessment / performance data • Cross reference areas of poor exam performance with other sources of assessment, performance data • Focus CPD on areas of consistently identified weakness • Remain aware of threat to overall quality
<p>Practice Volume (Extremes of high or low)</p> <p>RISK (variable)</p>	<ul style="list-style-type: none"> • Precise definitions problematic • Risk likely modified by other factors such as age • Likely some base level of procedural and clinical volume necessary to quality 	<ul style="list-style-type: none"> • Avoid being and extreme outlier in terms of high or low volume • Adapt volume to practice circumstances / resources / physician factors • Use education strategies to maintain skill in uncommon but important domains (observation, simulation)
<p>Training outside current practice jurisdiction</p> <p>RISK</p>	<ul style="list-style-type: none"> • May represent risk in the form of a major transition in practice • Possibility of specific educational differences or deficits • May extend beyond expertise to language, culture, professional standards 	<ul style="list-style-type: none"> • As for Transitions

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Factor	Background	Strategies
Physician Wellness SUPPORT	<ul style="list-style-type: none"> • Multifactorial • Essential ingredient for quality 	<ul style="list-style-type: none"> • Have your own primary care physician • Pay attention to preventative and active health care • Regular exercise • Good nutrition • Sleep hygiene • Mindfulness • Maintain work-life balance
Continuing Professional Development (CPD) SUPPORT	<ul style="list-style-type: none"> • Purposeful professional development is essential to quality • Not all CPD is created equal • Simply “counting credits” may have relatively little value 	<ul style="list-style-type: none"> • Use a Quality Improvement approach wherever possible • CPD should be relevant to scope of practice, considered broadly • Identify priorities by assessing your practice • Plan implementation and anticipate barriers • Assess for impact
Peer Engagement SUPPORT	<ul style="list-style-type: none"> • Including medical colleagues, trainees, allied health professions • Clinical collaboration ideal 	<ul style="list-style-type: none"> • Collaborate in the provision of care • Participate in clinical or didactic teaching • Engage in standard-setting and assessment activities • Include interactive CPD activities • Visit another physician’s practice • Invite a colleague to visit your practice • Solicit feedback from peers

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