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Letter from the Editors

Dear readers,

We are pleased that you have joined us for the inaugural issue of the University of Manitoba Journal of Medicine (UMJM). Some time has passed since our medical school last had a student-run journal, and we are pleased to pick up where our predecessors left off.

Thank you to our reviewers, supporters, editorial team, and the numerous staff and faculty at the University of Manitoba (including the Neil John MacLean Health Sciences Library personnel) with whom we have been fortunate to collaborate, and without whom this journal would not be possible.

Within our pages you will find articles written by medical students at the University of Manitoba exploring a diverse scope of topics. Our authors dive into questions of medical ethics — is it constitutional to withhold medical assistance in dying from mature minors? And how can we, as medical professionals, be ethical stewards of data collected from unethical medical experiments? Our authors also traverse topics relevant to today's medical students, such as recent trends in the Canadian Resident Matching Service and the resultant impacts on career prospects for current and future medical students. Also covered is the need to improve procedural learning for medical trainees, as attitudes shift in favour of competency-based residency programs. Our authors also appeal to the reader to find meaning within medicine: what does a doctor's stethoscope have in common with a sled perched on the arctic ice? And can doctors who are decades into their careers continue to enjoy the rewards of delivering care?

We hope this journal will provide a forum for medical students across Canada to develop their ideas through scholarly writing, and encourage us all to engage with current topics in medicine.

Happy reading!

Sincerely,

Graham McLeod & Emma Avery
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The next *Carter*? Medical assistance in dying and mature minors

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Abstract

In 2016, Parliament legalized medical assistance in dying (MAID) under certain limited circumstances. However, the criminal code provisions relating to MAID remain quite restrictive. A minor cannot ever legally access MAID regardless of their individual maturity or personal circumstances. In this brief article, I review the constitutionality of this restriction in light of the Supreme Court's prior decision in *AC v Manitoba (Director of Child and Family Services)*. In that case, the Court recognized the importance of an individualized approach when assessing the capacity of minors to refuse life-saving medical treatment. I argue that the Court's approach in *AC* is in significant tension with the categorical restriction on MAID for even the most mature minors. I conclude by briefly reviewing some countervailing considerations, which remain to be addressed by Parliament and the courts going forward.

Keywords: medical assistance in dying, mature minors, capacity, parliament

In 2016, Parliament amended the Criminal Code to permit medical assistance in dying (MAID) under certain limited circumstances.[1] Among other restrictions, MAID is only available to persons 18 years of age and older.[2] A healthcare professional cannot legally provide a minor with MAID, regardless of the minor's individual level of maturity or any other relevant personal circumstances.[3] While opinion remains sharply divided, recent evidence suggests that some Canadian physicians believe that this categorical prohibition is too restrictive. For example, in a survey of physicians conducted at a recent Canadian Medical Association session on assisted dying, 69% of respondents favoured expanding MAID to include mature minors who have sufficient decision-making capacity.[4] Notably, the federal government is actively examining the issue and a review is expected to be completed some time this year.[5]

In this article, I will briefly discuss the legal dimension of this debate. In particular – is Parliament's decision to deny mature minors MAID constitutional? In *Carter v Canada (Attorney General)*,[6] the decision which prompted Parliament to legalize MAID, the Supreme Court held that it is unconstitutional to prohibit assisted dying for competent adults (who meet specified criteria), but left the question of mature minors open. Still, the existing jurisprudence gives us some clues as to how the courts would approach the issue. I will outline some of the potential arguments on this question, without considering the actual legal framework under the relevant provisions of the charter. I will focus on one case, *AC v Manitoba (Director of Child and Family Services)*,[7] which is particularly relevant to this analysis.

AC was a 2009 Supreme Court case about a 14-year-old girl who wished to refuse a life-saving blood transfusion because of her religious beliefs as a Jehovah's Witness. Three psychiatrists assessed the girl and found that she understood the reasons for the transfusion and the consequences of refusing to have one. This assessment corresponds with the typical legal definition of capacity, which requires that a person understand the relevant information and appreciate the reasonably foreseeable consequences of different courses of action.[8] Nonetheless, Manitoba Child and Family Services (CFS) apprehended the girl and sought a court order compelling her to receive the blood transfusion. Section 25(8) of Manitoba's child protection legislation allows a Court to order medical treatment for a child in CFS custody if they are under 16 and the treatment

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[1] *Criminal Code*, RSC 1985, c C-46, ss 241-241.3.

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[6] 2015 SCC 5 [*Carter*].

[7] 2009 SCC 30 [*AC*].

[8] See e.g. *Health Care Consent Act*, SO 1996, c 2, Sched A, s 4(1).

is in the "best interests of the child,"[9] whereas section 25(9) of the legislation states that a Court *cannot* order treatment for a child *over 16* unless they lack capacity.[10] The girl in *AC* challenged the constitutionality of section 25(8) to the extent that it purportedly allowed a Court to order treatment for a child under 16 even if that child had sufficient capacity to evaluate the treatment and wished to refuse the treatment.

The Supreme Court held that section 25(8) was constitutional, but only after giving the phrase "best interests of the child" a nuanced interpretation. The court held that the "best interests of the child" must take into account a child's own views in a manner commensurate with their level of maturity.[11] Indeed, "[i]n some cases, courts will inevitably be so convinced of a child's maturity that .... the child's wishes will become the controlling factor."[12] Although there must be intense scrutiny of a child's maturity when their life or health is endangered, the child must still have the opportunity to demonstrate that they have the requisite capacity.[13] Most importantly for our purposes, the court observed that if section 25(8) could *not* sustain this nuanced interpretation, it would be "arbitrary and discriminatory" (and therefore presumably unconstitutional, although the court did not say this explicitly).[14] The Court observed:[15]

> If ss. 25(8) and 25(9) did in fact grant courts an unfettered discretion to make decisions on behalf of all children under 16, despite their actual capacities, while at the same time presuming that children 16 and over were competent to veto treatment they did not want, I would likely agree that the legislative scheme was arbitrary and discriminatory. A rigid statutory distinction that completely ignored the actual decision-making capabilities of children under a certain age would fail to reflect the realities of childhood and child development.

The categorical prohibition on MAID for minors, regardless of their level of maturity, is arguably inconsistent with this reasoning. It is inconsistent to say that a sufficiently mature minor must have their views considered in determining whether they receive life-saving treatment, but a minor cannot *ever* access MAID, no matter their level of maturity. There are, of course, legitimate concerns about the vulnerability of minors and the difficulties of assessing their capacity on an individual basis. However, the Supreme Court's reasoning in *Carter*, speaking about adults, already addresses this point:[16]

> Concerns about decisional capacity and vulnerability arise in all end-of-life medical decision-making. Logically speaking, there is no reason to think that the injured, ill, and disabled who have the option to refuse or to request withdrawal of lifesaving or life-sustaining treatment, or who seek palliative sedation, are less vulnerable or less susceptible to biased decision-making than those who might seek more active assistance in dying.

If a minor's capacity can be reliably assessed in the context of life saving care, it stands to reason that it can also be assessed in the context of MAID. Moreover, it is noteworthy that the provision in *AC* pertained to minors under 16, whereas the MAID restriction is for all minors under 18. Presumably, the argument that the provision at issue in *AC* was unconstitutional would have been much stronger had the provision differentiated between persons over and under 18, because the number of minors with the capacity to refuse life saving treatment will obviously tend to increase with age.

There are several important caveats here. Firstly, it is beyond the scope of this brief article to assess these arguments within the current framework for deciding constitutional issues of this nature, which has shifted since *AC*.[17] Secondly, there are numerous situations where age-based distinctions have been upheld by the courts. As the Court stated in *Gosselin v Québec (Attorney General)*, "age-based distinctions are a common and necessary way of ordering our society."[18] These distinctions "determine when a person can marry, vote, drive, consent to sexual intercourse and sell property."[19] That said, the nature of the interest in medical treatment situations is arguably among the most fundamental and deeply implicates many constitutionally protected values. This is particularly true of a decision to seek MAID. Finally, regarding the *AC* case specifically, there is an arguable difference between the ability of a court to *compel an undesired treatment*, and the ability of a child to *request a treatment*. It remains to be seen how courts would address this distinction.

[9] *Child and Family Services Act*, CCSM c C80, s 25(8) [*CFS Act*].

[10] *ibid* at s 25(9). Specifically, the provision states that a Court cannot order treatment for a child over 16 unless they are unable to "understand the information that is relevant to making a decision" or "appreciate the reasonably foreseeable consequences of making a decision to consent or not consent." As stated above, this is a typical legal definition of capacity.

[11] *AC, supra* note 7 at para 87

[12] *ibid.*

[13] *ibid* at para 86. See also *Carter, supra* note 6 at para 116.

[14] *AC, supra* note 7 at para 116. I note that an arbitrary law that infringes the right to life, liberty or security of the person violates section 7 of the charter, and section 7 violations are rarely upheld under section 1. See e.g. *Carter, supra* note 6 at para 95.

[15] *AC, supra* note 7 at para 116

[16] *Carter, supra* note 6 at para 115. See also *ibid* at para 116.

[17] Regarding s. 7. of the charter, see e.g. *Canada (Attorney General) v Bedford*, 2013 SCC 72.

[18] 2002 SCC 84 at para 31.

[19] *AC, supra* note 7 at para 110.

A Star Trek exploration into the usage of data obtained from unethical medical experiments

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Abstract

Although the medical community has conclusively agreed that unethical research should not be performed, it is less clear what to do with data obtained from previous unethical experiments. It is difficult to discard data that may hold potential to improve or even save lives; unfortunately, the data will never exist separately from the unethical conditions in which it was generated. Using a relevant *Star Trek: Voyager* episode as a framework, this paper considers how to be ethical stewards of data that was obtained unethically.

Keywords: medical ethics, medical research, data stewardship

Star Trek: Voyager is a futuristic television series set in outer space. The show features an episode titled *Nothing Human* in which the central premise is the ethical struggle between wanting to save a life but having no means to do so other than to use a therapy developed through unethical experimentation. In this episode, one of the characters, Lieutenant Torres, is attacked by a fatal alien virus for which the lieutenant's physician, known as 'The Doctor,' has no treatment. It becomes apparent that without urgent medical therapy Lieutenant Torres will suffer an untimely death. All hope in saving Lieutenant Torres appears lost until The Doctor learns that an astrobiologist, Crell Moset, holds knowledge of a treatment that will save Torres. However, The Doctor faces an ethical dilemma: Moset discovered this treatment by performing grossly unethical experiments on test subjects – specifically, he had intentionally infected his test subjects with the fatal virus to perform his experiments

Though fictional in nature, this scenario parallels unethical human experiments such as those carried out by Nazi Germany (the Nuremberg experiments) and the Japanese (Unit 731) during World War II. The decision to use or to not use data sourced from unethical experimentation remains contentious when the resultant data could be of potential benefit to humankind. Some argue that the use of unethically-obtained knowledge is justified by the moral obligation to treat those in need, whereas others contend that the use of such knowledge sets a dangerous precedent for future research, and further disrespects the victims of these experiments. Using the ethical dilemma established in *Nothing Human* as a framework, this paper will explore three questions regarding the use of data obtained from unethical experimentation: (1) Should The Doctor treat Lieutenant Torres with the therapy provided by Moset? (2) Should the data collected by Moset be released to the public? and (3) Is there a proverbial tipping point of benefit versus harm at which it becomes morally acceptable to use data obtained from unethical experimentation?

1 Should the Doctor treat Lieutenant Torres?

In* Nothing Human, *The Doctor cannot bring himself to let Torres die and chooses to use the information from Moset to save her life.

The development of the life-saving therapy used to treat Lieutenant Torres in *Star Trek Voyager* involved research performed on humans who were coerced into giving up their lives or well-being. Specifically, these individuals were enemies of Moset, whose lives were deemed to have no value. The unethical experimentation presented in *Star Trek* mirrors that which has occurred in real life. During WWII, several armies across the world were reported to have performed medical experiments on their prisoners. For example, investigations into potential effective treatments for hypothermia were performed by subjecting human prisoners to sub-physiological temperatures, and then rewarming these individuals via various re-heating methods.[1] By today's standards, it would be considered unethical to try to replicate these experiments. However, some scientists believe that the data obtained from these experiments could be highly beneficial in guiding modern hypothermia treatment;[2] others have questioned the va-

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lidity of these experiments.[1]

Physicians have a moral obligation to hold their patient's best interests in mind. Formally, this describes the ethical principle of *beneficence* — the goal of maximally promoting the welfare of the patient. If a patient was on the verge of death, it would be tragic if a lifesaving treatment was available, but withheld. Extrapolating from that situation — if lifesaving medical knowledge could be gained from data collected unethically during World War II, would it be "wrong" to use it now, knowing the suffering that occurred in generating it? Or is it ethically preferable to try to achieve some good at the present time, since the harm to the experimental subjects has already been done? Then there is the question of how best to honour the experimental subjects. Some suggest that we should decline to use the experimental information out of respect, while others propose that using the information for benevolent purposes constitutes a form of respect. We might also consider that if we decline to learn what we can from the experiments conducted, to what extent are we inadvertently "punishing" the people whose lives could be saved or improved by resultant treatments?

Beneficence may suggest that ethical violations in the past do not give license in the present to withhold, forsake, or fail to develop effective treatments. However, the principle of *justice* may suggest a different course of action. A Justice framework should be considerate of the extreme human rights violations and the severe physical and emotional trauma experienced by many prisoners of war during the mid-twentieth century conflicts. Although use of the data may provide benefit to patients now, such data will always be tainted by its means of collection.

2 Should the data collected by Moset be released to the public?

In* Nothing Human, *it is decided that the experiments were too brutal to justify releasing the information to public.

Thus far this paper has explored the ethical considerations of using unethically sourced medical knowledge at an individual patient level. What are the effects at the population level? Releasing such data to the public may implicitly validate the unethical experimentation. This can be particularly harmful to the individuals and groups who have been wronged in the past by unethical experimentation. For instance, despite the Tuskegee syphilis experiment having been terminated in 1972, the negative effects from this unethical experiment still resonate today; it is hypothesized that the negative sequelae have fostered a distrust of the healthcare system within the African American community (which some researchers believe has been experimentally detected).[3] Thus it is reasonable to conclude that public distribution of unethically sourced medical information, such as that which was procured during WWII, could lead the public to perceive the healthcare system as condoning unethical research on vulnerable individuals.

The release of data obtained from unethical medical experiments may also set a dangerous precedent for future research. In *Nothing Human*, the cure for Torres's viral infection was obtained by Moset by intentionally infecting Bajorans, a humanoid extraterrestrial species, in the experimental process. This scenario mirrors the development of the first ever vaccine, created by Dr. Edward Jenner.[4] Jenner, often referred to as the father of immunology, made the observation that milkmaids exposed to the cowpox virus were less likely to be infected by smallpox. To prove that prior inoculation with cowpox rendered individuals immune to smallpox, Jenner inoculated his gardener's son with cowpox and then exposed the child to the deadly smallpox virus. (Perhaps Jenner considered his gardener's son to be more expendable than his own children, mirroring Moset's selection of experimental subjects.) Such an experiment would certainly be deemed unethical by today's standards; however, Jenner's experiments saved countless lives and pioneered the concept of a vaccine. While Jenner's methods lie within a moral grey area, especially by modern standards, it is reasonable to assume that most people, and certainly most physicians, support the continued use of vaccines. Most would agree that ethics are (at least partially) relative to the society in which they arise; a large amount of medical knowledge would have to be withheld if we chose to disregard all research conducted in a manner unethical by today's standards.

3 Is there a proverbial tipping point at which it becomes morally acceptable to implement medical knowledge obtained from unethical experimentation?

There are numerous considerations to be made in determining if the data collected from previously-conducted, unethical medical research should be used to guide current medical practice. Firstly, while all research that disregards human rights is unethical, some research is more unethical than others. Thus we must consider the *degree* of egregiousness and disregard for ethical standards, as well as the extent of actual harm inflicted on the research participants. It is also worth noting that as society and technology have evolved, so too has medical ethics. Therefore, in considering whether or not it is appropriate to implement medical knowledge obtained by means considered unethical by today's standards, it may be prudent to view these scenarios under a lens of cultural relativism, rather than to simply judge the past as unethical based on today's expectations.

Secondly, the research in question should be critically assessed for its potential to improve patient quality of life and/or contribute to science. Jenner's method for creating immunity against smallpox was unethical by current standards, however, the alternative means for smallpox prevention at the time had been via variolation, a method that killed many individuals. Further,

Jenner's experiments were also performed prior to the development of formal codes of ethics, and the findings from his experiment were hugely beneficial. Conversely, the experiments performed on prisoners during WWII were particularly inhumane and in clear violation of the contemporaneous ethical standards. It is also not obvious that the data from the WWII experiments would have a significant impact on medicine or science. Despite these concerns, the WWII experiment data have been referenced in at least 45 written works.[5]

The ethics surrounding the practice of publishing such data remains unclear. As there is clearly a moral greyscale in assessing whether the results of a study can be used ethically, herein must lie a proverbial tipping point at which we decide "Yes, the information gained from this medical research should be used," or "No, it should not." Different people may perceive the tipping point to be in different locations, and it may be more of a "gradual transition" than "strict point," but there must be a place where the shades of grey begin to look more black than white. An in-depth philosophical or psychological examination of this transition point is beyond the scope of the paper; however, this would be a fascinating topic for future work.

Conclusion

The medical community agrees that unethical research should not be performed. This is borne out by the rigorous scrutinizing that prospective research studies undergo when being assessed by research ethics committees. However, the ethics of when to use data obtained from previous unethical experiments are considerably less clear. It is rightfully challenging to discard data that could improve or save lives; unfortunately, this data will never exist separately from the unethical means by which it was obtained.

The medical experiments performed in *Nothing Human* were deplorable from a modern cultural perspective. However, the data from these experiments contained great potential to improve human health. Provided that Torres was presented information regarding the source of the data and given the opportunity to appropriately consent or not consent to the treatment, I agree with The Doctor's decision to treat her. This decision underscores the value of Torres's life, which I believe outweighs the potential downsides of using the data. However, releasing the data to the public would involve additional downsides, such as (1) setting a poor public precedent for future research, and (2) possibly contributing to further isolation of vulnerable individuals from the healthcare system. As such, I also agree with the decision in *Nothing Human* to withhold the data from the public.

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The increase in unmatched Canadian medical graduates: who is to blame and should we be concerned?

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Abstract

2017 and 2018 saw increased numbers of Canadian medical graduates (CMGs) go unmatched to residency programs following the second iteration of the Canadian Resident Matching Service (CaRMS) match. This increase has been partly attributed to (1) changes to residency programs in Quebec, and (2) students generally ranking more competitive specialities as their first choice in their CaRMS application. It is unclear if the number of unmatched CMGs will continue to rise, but the increase has caught the attention of the Association of Faculties of Medicine of Canada, medical schools and students across Canada.

Keywords: Canadian medical graduates, CaRMs, unmatched graduates, residency

The most recent Canadian Resident Matching Service (CaRMs) matches have had the highest number of unmatched Canadian medical graduates (CMGs) in over 10 years.[1;2] Recent projections suggest that over 190 prior-year medical graduates will participate in the CaRMS match of 2021, and over 140 medical students graduating in 2021 will remain unmatched following the second CaRMS iteration.[3] In 2018, 2980 CMGs applied for residency programs through CaRMS,[4] and although the vast majority of these students will have begun residency this summer, the proportion of unmatched CMGs is continuing to rise. For instance, 46 CMGs chose not to re-enter in the second iteration of matching, while 69 fourth-year medical students in 2018 and 54 prior year CMGs did enter the second iteration, but again did not match. This totals to 169 CMGs who did not match to a Canadian residency program in the 2018 match.[4]

Responding to the rise in unmatched graduates during the 2017 match, President and CEO of the Association of Faculties of Medicine of Canada (AFMC) Dr. Geneviève Moineau stated; "Based on historical trends we know that some students will not re-enter the match, choosing instead an alternate career that does not lead to practicing medicine... to the detriment of all Canadians."[1] Responding one year later to the 2018 results, Moineau stated, "It is taxpayers' dollars that goes to support the training of these [Canadian] medical students, who are the best and brightest... and to me [that] creates this moral imperative that we should have to actually enable them to complete their training so that they can care for patients."[5] These remarks, as well as other recent comments from the Canadian Federation of Medical Students (CFMS), the Canadian Medical Association (CMA), and the AFMC, combined with the formation of an AFMC Resident Matching Committee (ARMC), suggest that the increase in unmatched CMGs has reached a point to where action will be taken. Two big questions remain to be answered: (1) Which parties are responsible and to what extent are they responsible for the recent increase in unmatched CMGs? and (2) can we expect the number of unmatched students to rise or fall in the future?

Responsibility for the current increase in unmatched CMGs

Provincial governments, which fund a large proportion of medical education costs through taxpayers, decide the number of available residency spots in each general practice or specialty program.[6] A "quick fix" solution to the high number of unmatched graduates would be to increase the number of available residency placements. However, in a 2013 survey of unemployed Royal College-certified physicians and surgeons, 90% reported that one factor responsible for their lack of work was that too few positions in their specialty are available in Canada.[7] In light of this circumstance, it may not be sensible to create more residency spots without also creating more jobs, as simply increasing the number of

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residency positions runs the risk of creating new doctors who will be unable to find work once they have completed their residency training.

Medical students must also bear some responsibility for their failure to match to residency positions. While 69 students went unmatched in 2018, 78 residency programs had vacancies that same year. With 65 of those vacancies being in family medicine programs, this suggests that simply increasing the number of residency position is unlikely to result in fewer unmatched CMGs.[4] Thus, students may need to re-evaluate their chances of matching to competitive residency programs.

Nevertheless, some responsibility falls to the medical schools. If the rise in unmatched CMGs continues, universities may need to consider if they are matriculating an appropriate number of medical students each year, as some medical schools have recently increased their graduating class size by 10% or more. In addition, it may be prudent for medical schools to improve their provision of pre-CaRMs counseling for students entering the match, and, similarly, increase support for graduating students who do not match after completing their undergraduate medical training.

In the past, the ratio of residency positions to medical graduates was 110:100, whereas in 2017 it was 102:100.[3] Although lower than it once was, the current ratio reveals that there should be enough residency positions for all CMGs applying for residency. In the 2017 match, 64 positions went unfilled.[8] Compared to applicants in the 2015 and 2016 CaRMS match, participants in the 2017 match were more likely (56.5%) to choose disciplines in which the number of applicants was greater than the number of positions available.[8] Most of the unfilled residency positions (91%), were for positions at universities in Quebec. Of the 58 vacant residency spots in Quebec, 56 of them were in French-speaking family medicine programs – programs which English-speaking students cannot fill.[6] In the 2017 match, 11% of Quebec graduates matched outside of Quebec, while 1% of the rest of Canadian graduates matched to programs in Quebec.[3] This may contribute to the high proportion of residency program vacancies seen in Quebec. In addition, recent changes were made by the Quebec government restricting where family doctors can practice. This restriction is suggested to be responsible for the number of vacant family medicine residency positions in Quebec more than doubling over the past four years, as Quebec graduates seek post graduate education in other provinces.[2] This recent trend in Quebec demonstrates how government policies at a provincial level can influence how medical students choose to rank programs in their CaRMS applications, and therefore influencing which residency spots are left vacant. Similar trends were noted in the 2018 match, with 85% of the vacant residency placements being at universities Sherbrooke, Laval, and Montreal.[4]

Moving forward, it is important for AFMC, CMA, and CFMS to reach out to students, government officials, and universities to discuss how to reduce the number of medical students who graduate without having secured a residency position.

Future matches

A recent (2018) report from the AFMC stated: "Data modelling indicates that the number of unmatched CMGs after the [second] iteration is projected to exceed 140 by 2021, with over 190 prior year graduates participating in the match that year. The ratio of post graduate positions to eligible candidates is projected to fall below 1:1 by 2019."[3] These projections assume that there will be no change in the number of graduates, residency positions, matching patterns, and matching rules.[3] To decrease the number of unmatched CMGs, the AFMC intends to work with provincial funders to (1) increase the number of residency positions available, (2) work with undergraduate medical faculties to provide appropriate support for unmatched CMGs, and (3) evaluate the application and selection process.[3] The report suggests that various strategies to deal with this issue will require cooperation from both the provincial and federal governments, as well as the medical schools and the AFMC, itself. These strategies include: (1) reestablishing a minimum student to residency position ratio of 1:1.1, (2) adding a one-time increase in residency positions to acutely deal with the increase in unmatched CMGs, and (3) shifting a portion of the international medical graduate quota into the CMG quota.[3]

Recently, the AFMC report on strategies to reduce the number of unmatched CMGs was approved by the CFMS, who also expressed their concerns over "the alarming number of unmatched students."[9;10] As the number of unmatched graduates increases each year, it is reasonable to suggest that CaRMs-related anxiety amongst Canadian medical students will continue to grow. As such, there may be an increased demand for career counseling and emotional support amongst fourth year medical students, a need, which according to the 2018 AFMC report , medical schools intend to address.[3]

Even with the implementation of new policies targeted to address high rates of unmatched CMGs, it is difficult to say with any certainty that the proposed strategies will have the desired result. However, with that said, the recent rise in unmatched graduates has caught the attention of the AFMC, CMA, universities, and students alike, suggesting that the future of Canadian medical graduates in upcoming CaRMs matches may be more optimistic.

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See one, do one, teach one: re-thinking the teaching of procedural skills in medicine

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Abstract

"See one, do one, teach one" ("SODOTO") is an educational model used for training residents and medical students in procedural skills. However, evidence is mounting that current training models, such as SODOTO, may not be producing adequate competencies particularly with procedural skills. Therefore, attitudes have recently began shifting towards "competency-based" frameworks. This article explores the usefulness of the SODOTO framework, and reports on key developments in possible future models of medical education.

Keywords: medical education, procedural skills, resident training, competency-based training

For the past century, "see one, do one, teach one" ("SODOTO") has been a guiding principle in medical education for procedural learning. This teaching strategy was first espoused by William Halstead in the wake of the first residency training program at Johns Hopkins. SODOTO supplanted the prior practice of self-directed learning, or apprenticeship under a senior physician.[1] SODOTO has practical advantages over many "more traditional" educational models. For example, it is known that being actively involved in one's learning (i.e. witnessing a procedure rather than solely reading about it in a textbook, or hands-on practice rather than solely visualizing the technical steps) has been shown to increase the efficiency with which learning takes place. Further, SODOTO leverages the fact that the more sensory modalities are involved in a learning experience, the higher the rate of retention.[2] In contemporary times, SODOTO is a common method by which to learn routine procedures.

Over the years, the SODOTO method has evolved alongside technology. "Seeing one" was once limited to a student standing at a physician's side or gazing down from an operating room gallery; now, with the advance of digital technologies, trainee observation has expanded to include surgical live-streams, pre-recorded video-tapes with voice-over explanation, and even virtual reality simulations. "Doing one" has also been revolutionized, with high-fidelity manikins that can speak, sweat, and bleed like a real patient, as well as computer and virtual reality simulations that can mimic a broad range of clinical situations, including surgical procedures.

While the methods of teaching procedural skills have progressed in parallel with advancing technology, the framework for teaching these skills has not progressed to reflect our improved understanding of how students best learn. As Dr. Steven Lubet notes in his 2003 review of Dr. Atul Gawande's work, the SODOTO model relies on a learning curve that can be unavailingly steep, and which, if not achieved, puts patients at risk.[3] Indeed, evidence is emerging that the learning curve for young doctors may be inappropriately steep. In a report released by the Joint Commission for the Accreditation of Healthcare Organizations, adverse events that resulted in the harm or death of a patient were attributable to the root cause of inadequate training or orientation more than 50% of the time.[4] In a British study of senior house officers (the equivalent of third-year residents), more than 50% reported having administered intravenous drugs multiple times despite feeling that they were inadequately trained to do so safely.[5] Several other studies, including a survey of emergency medicine residents at Cambridge University, report similarly low levels of self-confidence in the participant's own abilities to adequately perform procedural tasks.[6] The results from these studies strongly suggest that there is room for improvement within our educational models. Perhaps it is time to move beyond the "see one, do one, teach one" model and onto one which better encapsulates the realities of how people learn and acquire skills.

Fortunately, there are already new models on the horizon. In a recent paper by Dr. Rodriguez-Paz of Johns Hopkins University, a new four-step model is proposed: "knows," "knows how," "shows how," and "does."[4] Structured similarly to the SODOTO method,

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this model incorporates multiple rounds of monitored practice with consistent evaluation until the trainee becomes proficient. Only after proficiency is attained can the trainee go on to teach others. Dr. Joshua Lenchus created and tested a similar framework in his 2010 study of 52 internal medicine residents and 4 third-year medical students, in which he used a 12-step training curriculum to teach the study participants new procedural skills — specifically, minor procedures including lumbar puncture and central venous catheterization.[7] Before any training took place, the participants' pre-existing knowledge and baseline procedural skills were assessed via a pre-instruction written test, as well as a pre-instruction procedural attempt on a manikin, with no immediate feedback given. After the pre-instruction checks for knowledge and skill level, participants were made to view instructional videos on the procedure, given a review of informed consent for the procedure, and lastly, given a review of aseptic technique. The trainees were then given the opportunity to perform the procedure on manikins under supervision by an attending physician who provided feedback to the trainees. After each practice, the students would review their procedural documentation and re-take the same knowledge-based test; however, this time their answers were reviewed and feedback was shared. In conclusion of the study, Dr. Lenchus found that the student's procedural knowledge significantly improved ($p < 0.001$) immediately after training, with test scores improving by 2-3 points (out of a possible 10-14 points).[7]

The concept of competency-based' training has already gained traction, with many North American centres (including Manitoba) currently transitioning to a competency-based model for resident training. Moving towards a competency-based system that includes opportunities for continual practice and evaluation in low-pressure settings will not be easy; it will require substantial initial investments into training equipment such as manikins and models, as well as the installation of extra time into medical curricula that are already highly compacted. However, perhaps the most difficult challenge to overcome will be the re-training of resident teachers, faculty, and staff. In their editorial on competency-based teaching, Drs. Gorrindo and Beresin comment on the difficulty of re-training faculty to teach using novel methodology, especially within the context of budget cuts and "increased service demands and new administrative requirements" already placed on senior physicians.[8] These issues — which are particularly salient in Manitoba's current political and economic climate — pose a significant challenge. As such, creative solutions will be required in order to fill this gap.

One excellent example of a forward-thinking training program is the student-staffed vaccination clinics at the University of Manitoba, implemented and run by Dr. William Libich. This program gives second-year medical students (on a voluntary basis) the opportunity to practice their injection skills by administering routine vaccines to the Faculty of Health Sciences students at the university. These clinics offer a non-judgmental arena in which students can practice their skills under careful physician observation. These immunization clinics are similar to models proposed by Dr. Rodriguez-Paz and Dr. Lenchus. As a student who has both volunteered at and attended these clinics myself, I can attest to the positive effect on both my confidence and technical skill as a trainee, and the safe and professional environment as a recipient.

Other steps are being taken towards competency-based training. The College of Physicians and Surgeons of Canada has unveiled a plan to transition all residency programs into competency-based evaluation. Competency-based residency programs will have residents progress through stages of learning, each encompassing a detailed list of competencies ("Entrustable Professional Activities") that the residents must master before progressing to the next stage. The resident's level of competency must be assessed by an attending physician to confirm that a required standard of proficiency has been met. This may mean that students will need to undergo several rounds of practice and feedback to meet this standard — similar to the system proposed by Dr. Lenchus. Two residency programs at the University of Manitoba — Anesthesiology, Perioperative and Pain Medicine; and Otolaryngology, Head and Neck Surgery — have already transitioned to competency-based residency programs. Extending competency-based models into the training of medical students could prove an excellent way to improve the skills and confidence of junior trainees prior to entering their clerkship years — provided that logistical and financial challenges can be overcome.

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Legalizing Mary Jane: past, present, and future use of cannabis in medicine

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Abstract

Recreational marijuana (or cannabis) is scheduled to be legalized by the Federal Government of Canada on October 17th, 2018 with passing of the Cannabis Act, ending a 95 year prohibition. Before the drug ban, cannabis was used throughout the western hemisphere for both recreational and medicinal purposes. Notwithstanding prohibition, in recent decades, the medical field has become interested in the therapeutic benefits of cannabis. Physicians currently prescribe cannabis for a number of conditions, including cancer pain and chemotherapy–induced nausea and vomiting, as well as multiple sclerosis–related spasticity, amongst others. Despite the medical benefits of cannabis, there are important considerations of safety to be made, as cannabis has (1) been shown to have neurotoxic effects in the developing brain, (2) may potentiate psychiatric illness in some individuals, and (3) when smoked, can lead to harmful disease sequelae. These deleterious side effects are relevant to both recreational and medical cannabis use. This article provides a very brief history of medical marijuana and outlines some of the key events leading to the prohibition and subsequent legalization of cannabis. It also touches on some of the physician considerations surrounding medical and recreational cannabis use.

Keywords: Cannabis, cannabinoids, marijuana, cannabis act, medicine

Cannabis was introduced to Western medicine in the 1830s by Irish physician Dr. William O'Shaughnessy, who recognized that cannabis appeared to have both analgesic and anticonvulsant effects.[1] This discovery led to the eventual popularization of medicinal cannabis throughout Europe and the United States.[1] Interestingly, despite widespread use in North America, cannabis would not gain popularity in Canada (medicinally or otherwise) until after the country's drug ban. The total prohibition on drugs in Canada began in 1912 when the International Convention Relating to Dangerous Drugs made recommendations to restrict the international exportation of opium and cocaine.[2] The convention would later expand its scope to include the prohibition of cannabis cultivation; and in 1923, the Canadian parliament criminalized both medicinal and recreational cannabis use.[2;3] However, similar to other illegal substances, prohibition did not prevent the use of cannabis, which was beginning to gain popularity in 1960s.[4] It was around this time that the medical field regained an interest in cannabis as cancer patients were reporting symptom relief from chemotherapy–induced nausea and vomiting and cachexia.[5] In response to the reported benefits, countries began to decriminalize the use of cannabis, and in 2001 Canada established the Marijuana for Medical Purposes Regulations (MMPR), allowing physicians to prescribe cannabis to patients who fit a prescribed eligibility criteria.[6] Since then, increasingly more countries have recognized the economic and social burden of criminalizing the personal use of cannabis, and have begun to decriminalize and/or legalize cannabis, and later this year it is anticipated that Canada will join the list of countries to legalize the cannabis.

On April 4th, 2017, the Canadian Minister of Health announced the government's plan to legalize recreational cannabis by passing Bill C–45, (referred to as the Cannabis Act), which will also serve to amend the current Controlled Drugs and Substances Act.[7] While initially anticipated that the Cannabis Act would be passed on July 1st of 2018, signing has since been delayed to October 17th, 2018. The passing of Bill C–45 will allow individuals 18 years and older to purchase cannabis for recreational use.[7]

Many physicians believe that the proposed minimum age for legal marijuana use is inappropriate, as cannabis has been shown to have deleterious effects on neurologic development, which is incomplete until the mid–twenties.[8] For this reason, under the current MMPR system, some physicians will not prescribe cannabis to patients under 25. Nonetheless,

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recreational use of cannabis is not uncommon amongst adolescents, as certain components of the cannabis plant (when ingested or inhaled) can elicit psychoactive effects.[9] These psychoactive effects are caused by terpenophenolic compounds, or phytocannabinoids, of which over one hundred have been isolated from the cannabis plant.[9] The most notable of these compounds is delta–9–tetrahydrocannabinol (THC), which is responsible for the inebriated effect that is often desired by recreational users.[9] THC acts directly on the endocannabinoid system (ECS) through partial agonist activity of cannabinoid receptors type 1 and 2 (CB1 and CB2).[10] CB1 receptors are ubiquitous throughout the central and peripheral nervous systems (CNS and PNS), and are found in high concentrations in neurons and non–neuronal cells of the brain.[11] CB1 stimulation can lead to release of norepinephrine (NE) and serotonin (5–HT); this is the likely basis of the psychogenic and emotional effects of cannabis.[10] Conversely, CB2 receptors are found primarily in peripheral tissues of the immune system, the gastrointestinal tract, and to a lesser extent, in the CNS and PNS.[10]

While many cannabinoids, including THC, alter perception and behaviour, there are some, such as cannabidiol (CBD), that have zero psychomimetic effects.[12] In fact, CBD, which constitutes approximately 40% of the plant's extract, and has been shown to mitigate some of the cognitive impairment and anxiety associated with psychoactive cannabinoids, particularly THC, via a mechanism of action which is unclear at this time, but is likely polypharmacological.[13;14]

Due to the widespread biological distribution of cannabinoids receptors and their many neuromodulating effects, it is not surprising that cannabis use and targeted activation or repression of the ECS has gained medical interest, and certain uses of cannabis have been demonstrated to have medical benefit. For example, access to medical cannabis has been associated with reduced opioid requirements in patients with chronic pain, and significantly lower rates of opioid overdoses.[15;16;17] Beyond pain control, cannabis may confer improved seizure control in patients with epilepsy.[18] However, cannabis is not currently a recommended anti–epileptic medication, especially in the pediatric population, due to the undesired psychoactive and neurotoxic effects of THC.[8] However, animal models have demonstrated that CBD, the non–psychoactive component of cannabis, has a better anticonvulsant profile than THC and does not elicit negative neurological side effects, suggesting that there may be a future therapeutic role for purified cannabis–derived products such as CBD.[14] Interest in CBD as a pharmacological agent has led to altered cannabis breeding practices aiming to increase the ratio of CBD to THC in plants, and companies are beginning to develop synthetic cannabis products for medicinal use.[19]

Although the use of medical marijuana in Canada has nearly a two–decade history, and the creation of a commercial market for cannabis has been anticipated for several years, some physicians remain uncomfortable prescribing cannabis to patients. One basis for this hesitation lies in a lack of knowledge and education on effective dosing.[20] For example, the maximum blood concentration of THC (and other psychoactive cannabinoids) with which it is safe to operate vehicles and heavy machinery is unknown; nonetheless, physicians must make decisions on how much cannabis is safe to prescribe for regular, daily use. Additionally, the mode of delivery (i.e., inhalation versus ingestion) is yet another factor that complicates precise dosing.[14] There is also significant apprehension surrounding the detrimental effects of prescribing cannabis to certain populations, primarily pregnant women and persons under 25, due to neurotoxic effects in the developing fetal and adolescent brain, respectively.[8;21] Beyond this, some physicians are apprehensive in prescribing marijuana in general, as studies have shown that cannabis use is associated with an increased incidence of psychiatric illness.[22] To assist consumers in making positive and informed choice about their cannabis use, it has been suggested that the government should regulate the amount of the psychoactive cannabinoids, particularly THC, in recreational cannabis, or at least mandate that THC levels in any given cannabis product be clearly advertised such that consumers are aware of the amount of THC to which they are exposed. Such mandatory reporting of THC concentrations is reasonable, as (1) provincial governments already enforce similar laws for ethanol content in alcoholic beverages, and (2) as with alcohol, there will be ramifications if consumers are unaware the amount of THC that they are ingesting.[23] There is also concern pertaining to the negative health effects of smoking dried cannabis. Legalizing marijuana may raise the number of individuals engaging in this activity, thus increasing the burden of lung disease and the funds needed to treat inhalation–related disease sequelae.

Notwithstanding the wide array of opinions on recreational cannabis use and marijuana as a treatment modality, it is evident that recreational and medical marijuana are here to stay. As such, physicians and healthcare practitioners must become familiar with best practices regarding cannabis in order to meet the needs of their patients. Agencies such as *Patients Out of Time* and *The Medical Cannabis Institute* provide continuing medical education (CME) focusing on clinical cannabis, and provide CME credits for course completion.[24;25]

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Narrative medicine: a personal interview with expert Rita Charon

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Abstract

Narrative medicine is a simple phrase that serves as a thumbnail for a vast web of ideas that have the power to enhance manifold aspects of medicine. This is an interview with Dr. Rita Charon, Founder and Executive Director of the Narrative Medicine MSc Program at Columbia University, discussing physician burnout, medical education, and finding meaning in one's work as a doctor.

Keywords: Narrative medicine, physician burnout, physician wellness, medical education

"Narrative medicine" is the literary comparative to "a quadrillion" – a short, compact name for a giant, expansive thing – a noun whose smallness on the page belies the vastness to which it signals.

I met Rita Charon last year at the *Creating Spaces VII* conference in Winnipeg, at which she was the keynote speaker. Enchanted by the work she was doing, I immediately made plans to visit her in New York that summer to learn more. Dr. Rita Charon established the field of Narrative Medicine and is the Founder and Executive Director of the Narrative Medicine MSc program at Columbia University. Equipped with a medical degree from Harvard and a doctorate in English from Columbia, she has developed her ideas in numerous scholarly journals, such as The *New England Journal of Medicine*, *Literature and Medicine*, and *The Lancet*, and has authored several books on narrative medicine – one of which she warm-heartedly gifted to me in New York.

I had not heard much of narrative medicine before meeting Rita. But in New York that summer I was given a small project as a summer intern for the Narrative Medicine program: interview program alumni and find out how they were using their narrative medicine training. These encounters granted a real–world look into the transformative power of the concepts of narrative medicine, and only increased my interest. So in the fall of 2017 I met Rita on a video call to discuss all things narrative medicine. What follows is an interview with Dr. Charon covering physician burnout, medical education, and finding meaning in one's work as a doctor. Cheers.

How would you describe narrative medicine?

Narrative medicine is a way to fortify clinical practice with sophisticated skills of listening, understanding, writing, of receiving what patients say. My description [of narrative medicine] depends on who I am talking to. If I'm talking to a literary scholar, I will say that narrative medicine is a way to bring into healthcare what literary scholars know about form, content, and structure of text (written text and oral text). If I'm talking to a philosopher, I might say more about narrative medicine's reliance on continental philosophy and phenomenology, and how it distinguishes itself from what is called bioethics.

How would you describe narrative medicine to a doctor or a medical student?

I would say [it is a method to] help us understand deeply what it is the patient is trying to tell us. It's also a way to help us understand what we ourselves and our colleagues think about patients, about our work, and about what we do. And I do think, for clinicians, the duality of the benefit is very important. When we practice these skills, we make available to ourselves the rewards of care that don't otherwise come from clinical practice.

Do you think a lot of doctors aren't getting the rewards of care?

Yes, absolutely. I was giving a talk last week, and I realized the word *burnout* – this dysphoric, unhappy, exhausted, disillusioned, drained state that afflicts doctors, nurses, dentists, and teachers – it came to me that calling this state *burnout* was similar to calling a slave who attempted to escape from slavery a *drapetomanic*. *Drapetomania* was the name given to the mental illness that caused some slaves to attempt to escape from slavery. It was defined in 1851 by the American physician Samuel Cartwright. So, the escaping slave was thought to have a psychiatric problem that caused him to want to escape slavery.

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Oftentimes a burnt-out physician is doing what any person of ordinary good sense would do, which is to try to escape from a terrible condition, and the terrible condition in this case is the current practice of medicine. And instead of saying "We ought to fix this medical practice so that our physicians can give good care and be grateful for the chance of giving it," [and] fixing the system that causes this exhaustion, we say "Oh no, this physician has a new disease: burnout." But what else would you have him do? We caused this exhaustion. And the only effective or even humane response is to fix the conditions that led to it. We can't just say "Oh, are you burnt out? Why don't you come to our yoga session." It's not an individual problem of particular doctors, nurses, dentists, and teachers who suffer from this condition of burnout. Instead, it's like slavery, in that you have to abolish the conditions that force people into this state of burnout.

What are the larger conditions that force people into a state of burnout?

We know very well what the larger conditions are. Commodification, corporatization, money controlling what happens to patients and what kind of care is given to patients. It's different in different countries based on the economics and the workforce issues, but even in Canada, there are conditions that are forced upon patients and clinicians that come about through public policy.

What it comes down to is somebody, somewhere, in some legislative body deciding that the province of Quebec, for example, is going to invest x-millions or -billions of dollars into primary healthcare. Somebody decides that. And they decide to do that instead of building a bridge, or whatever. There are decisions made all the time, and there are clear forces that make what we have now continue.

When it comes to addressing burnout, so many of us have been working around the very margins. "Maybe we can have sparkling water instead of still." Little itsy-bitsy things. I believe sometimes that when we work to bring the humanities and visual arts into medical school, it can remain at the level of itsy-bitsy. What we need to do is see the drapetomania. Whose slavery is it? Who is running from it? Who is it hurting? Who does it benefit? The humanities and the arts, when used in their full strength, can make visible these very conditions. And *then* we can do something about burnout.

All of what I'm saying pertains much, much more to the United States than other countries. I know that. But I also know that even in Canada things aren't so rosy.

I think in addition to the systemic factors contributing to physician burnout, practising medicine is itself challenging. You've spent a decade training, people are sick, you're working long hours – that seems enough to burn a person out.

Yes, but you have to think of what gives you gratitude. Where do the rewards come from? What kinds of things make you say "Boy, am I glad I'm a doctor – look at what I get to do!" Are you on the wards? Have you done a lot of clinical work? You may not know yet, and that's okay.

I'm still in the phase where it's exciting to get the medicine right – to formulate a reasonable management plan, or correctly recall the symptoms of a disease. Other than that, I haven't done much clinical work to really know for myself. But I think it's important to feel useful, like you have something to offer when patients come in and they're sick. I think that would be rewarding. And things I've heard you talk about, like making contact with patients.[1]

It's the simple things. The things of feeling that you're of use. That your being there mattered. Certainly, the contact, the intimate contact that we're able to have with patients, is very stunning. That a person, over time, will really let you into their inner world. It's stunning.

And then the very ordinary things. I was at a high-level meeting last Thursday, presenting some of the recent work in Narrative Medicine to a big committee of the university, and there was a bit of a medical crisis. In the middle of the meeting, one of the committee members seemed to faint, his head suddenly dropped to his chest. I'm there in a flash, and I said "Put him on the floor." So, we put him on the floor, put something under his head, put his legs up, and took his pulse – we did all the things. He didn't lose consciousness, but he was disoriented. He regained awareness within a minute. I didn't know what was going on, but I knew enough to put him on the floor, put something under his head, and take his pulse. It felt great to know to how do that. The other people at the table said "Rita, wow, you were there by his side so fast – how did you know?" And I said... "C'mon." How many times do I have to stay up all night on call to know what to do?

That feeling, to know what to do, that never goes away. And that's just the technical part! So, whatever type of medicine you're doing, you've got to get some real deep, deep gifts out of it. And such the shame is that many practicing physicians are not getting the gifts anymore. And it's not because they're doing a poor job, it is because they are being pushed beyond anybody's capacity to do what needs to be done, what should be done, and what patients deserve to have done. Patients in and out in eight minutes after they've waited four months for an appointment – that doesn't give you the gifts. That makes you feel like a fraud, like you're cheating somebody.

That reminds me of *reciprocity*, an idea that

[1] this is a theme in Rita's TEDx Talk.

comes up towards the end of your latest book, *Principles and Practice*.

Yes, that's a particularly useful notion for those healthcare professionals who don't often dare expect that they get some kind of reward from their practice. Now we're back to my drapetomania. The reciprocity is that they are doing something for the patient, and meanwhile, the patient is doing something for them. That's not cheating, that's part of what makes it work! And it is very important that patients know that, that their doctor is taking care of them, and they're taking care of their doctor.

Looking back on your career in narrative medicine, is it fair to say that it started with your PhD in English at Columbia?

That's what gave me the intellectual background to know something beyond "Oh isn't that interesting, patients have stories." It was working very hard for ten years, (while also working fulltime as a doctor) to get through a really rigorous graduate program and get a grip on some complex literary and philosophical ideas. What happens in an autobiography? What happens when a person writes about themselves or tells about themselves? How does a person, a writer, or a teller convey anything to anybody? It gets to be very basic – learning and thinking about language, about emotion, about exposure. I could talk to you for hours and never expose a thing about myself! And at the very same time, I know that every sentence I speak or write is stamped by who I am. It could only be written by me. And I keep having, more and more, and with more and more intensity, the experience of writing something and then saying "Oh, that's what I think!" only after I've written it. That happens every day now.

Did you have a sense at the time that your PhD was laying the groundwork for something much larger? Did you have a master plan?

It was pure pleasure! I was a reader but I didn't know very much about reading. I knew a number of people who were literary scholars doing work in medicine – something that was just beginning, in the 70s and 80s. And so, I started to say "Well gee, the university's right there! Why don't I just go to the English department and take a course? That would be so fun." That's all I was trying to do, was go take a course. So, I talked to some people and they said "Oh, don't take a course, take a Master's." And I said "Okay." That's how it started; it was very incidental. I took two seminars per semester, and some in the summer as well. I would run from my clinic over to the campus. It was thrilling! It wasn't because I had some grand plan of what I was going to do at the end. It was just "Wow, this is great!" And then when they said "Well, do you want to stay for the PhD?" I said "Sure." I didn't have a plan, I just loved the process.

What do you think should be the role of narrative medicine in the medical school curriculum? I think there's probably a minimum amount of anatomy that every doctor should know. Likewise, do you think there is a minimum amount of narrative competence a doctor should maintain?

If you had to pick the parts of anatomy that were essential, you would pick the parts that, if the doctor didn't know, they could really do damage. So, you need to know where the aorta is so that if you're doing abdominal surgery you won't cut into it. If you think about it in that way, what everybody really needs to know is that, in taking care of patients, someone is trying to tell you something about themselves. The very central event of healthcare is one person telling another person that something's the matter. And that's a very complex thing. And there are a lot of ways to get it wrong. There's a lot of risk involved in really receiving what it is that that person's trying to tell you. I think that's where I'd start. I wouldn't start with reading fiction or poetry. Those are some of the methods that can help us. But I think the curriculum has to begin with "How can I train myself to comprehend what this person is trying to convey to me?"

So, I think the cardinal contribution that everybody ought to get from narrative medicine is how to radically listen. We've been calling it "radical listening" these days, which helps make the point that it's not just "every now and then your head bobs up and you ask another question and you listen to the answer and you write it down." It isn't that! It's deep. It's risky. You're making yourself available to somebody who's going to tell you something that they're not going to tell everybody! They've chosen you to tell, and if you're not the right person when they come into the office, you won't get to hear it. Maybe there are some routine things, where if you go have your teeth cleaned, or go get your flu shot, this isn't going to happen. But other than that? You're in the doctor's office because you're mortal. That's why you're there. So I guess one thing this suggests is that there needs to be a great attention to words, to language. That's why we make the students write and read.

End

Thank you to Rita Charon for being so generous with her time and energy; and thank you to Tayla Curran, Program Director of the Narrative Medicine MSc at Columbia, for allowing me to work with her and the rest of the team last summer. Dr. Charon is working on a new book exploring the topic of creativity and doubt as the foundations of science, art, and medicine. You can learn more about narrative medicine by visiting the following sites:

Narrative Medicine MSc website
Rita Charon TEDx Talk
Charon R, NEJM, 2004

Glacies Incognita

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Abstract

This is the view from the Naujaat Health Centre, on the northern edge of Hudson Bay. Even in early May, the Bay here is still frozen solid, and one is confronted with ice that goes to the horizon and beyond. Taken during Rural Week 2016.

Keywords: Medical humanities, northern medicine, rural medicine

What do a stethoscope and a sled perched on the ice of Hudson Bay have in common?

Both allow us, ever so gingerly, to explore the surface of something, the depths of which we don't fully comprehend.

The ice seems placid viewed from above, but just beneath it is motion and chaos.

The ice sometimes pushes up into towers, or splits along fissures, giving clues to the forces contending beneath it.

Finally, the unwary traveller on the ice may cross an unseen boundary and suddenly find himself in over his head and sinking fast.

So too the unwary physician.

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