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Understanding professional stakeholders' active resistance to guideline implementation: The case of Canadian breast screening guidelines

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ABSTRACT

Health guidelines aim to improve patient outcomes through the promotion of evidence-based practice. Yet, when a guideline's recommendations significantly differ from, or threaten the interests, values and preferred practices of end-users, organised and often very public resistance to guideline implementation may result. To explore this phenomenon, we theorise a case study consisting of the public discourse following the update to a primary care breast screening guideline in Canada in 2018. Informed by sociological perspectives on the professions and evidence-based medicine, this paper aims to explore: [1] why professional stakeholders form active resistances to the implementation of some clinical guidelines; and, [2] how professional values, perspectives, interests and/or experiences influence the stakeholders' stance. Current understandings have taken a reductive approach in conceptualising the exclusion of experts and their resistance as "conflict of interest." Rather, we suggest that resistance is the product of multiple areas of contention, stemming from tensions related to clinical and professional autonomy, medical jurisdiction, and the role of medical elites. We highlight considerations for future guideline development and implementation process changes to mitigate and resolve issues related to active resistance. These considerations include understanding resistance as a political strategy, increasing transparency of public input and coalition building as a part of the public response to active resistance.

1. Background

Following the update of a primary care breast screening guideline in Canada in 2018, Dense Breasts Canada (an organisation founded by prominent radiologists and patient advocates) circulated an online petition: "Tell Health Minister Petitpas-Taylor that the new screening guidelines for breast cancer must be rejected because they are dangerous and will cause loss of life" (Dense Breasts Canada, 2019a). The guideline, developed by the independent, multidisciplinary Canadian Task Force on Preventive Health Care, also attracted a negative reaction from radiologists, some of whom launched a media campaign to discredit the guideline and prevent its implementation (Joseph, 2019; Yaffe, 2019). Publicly, this manifested as a clinical and scientific debate among experts, potentially generating doubt about the scientific literature and validity of the recommendations.

Clinical practice (CPG) and public health guidelines have the potential to guide clinicians and policymakers to make effective decisions in patient care, policy and health system improvement (Weisz et al., 2007); guideline implementation puts evidence-based recommendations into clinical practice. There have been increasing resources and research dedicated to guideline development and implementation (Grimshaw et al., 2004) and without implementation, the massive amount of resources utilised in the development of guidelines is wasted. When appropriately used, guidelines act as a standard for clinicians to consider when making individualised clinical decisions. However, the majority of guidelines are not effectively implemented (Grol, 2001; Sheldon et al., 2004) and barriers to their uptake have been studied (Fischer et al., 2016).

In some cases, implementation efforts are met with public, active resistance from professionals and other stakeholders in news media, mass media editorials, and academia, which serve to undermine the guideline recommendations (Seely et al., 2017; Yaffe, 2019). As reasons for their resistance, organised professional and patient groups have cited potential patient harm and exclusion of experts (e.g. the specialist clinicians) during the development process (Greenfield, 2017; The Canadian Society of Breast Imaging, 2018). This kind of resistance is particularly evident following the publication of health screening

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Abbreviations

CAR	The Canadian Association of Radiologists
COI	Conflict of Interest
CSBI	The Canadian Society of Breast Imaging
CTFPHC	Canadian Task Force on Preventive Health Care
EBM	Evidence Based Medicine

guidelines, which are developed by and targeted at generalists (e.g. a primary care audience) and healthy individuals (e.g. preventive care), but have implications for the work of specialists (e.g. frequency of screening and screening resulting diagnosis) and the health of people living with disease (e.g. screening may affect the point in a disease progression when diagnosis and treatment occur).

We delve deeper into the issue in a theoretical analysis of a case study, the backlash against the Canadian Task Force on Preventive Health Care breast screening guideline, through using sensitizing concepts drawn from theories of the professions and sociological perspectives on evidence-based medicine (Freidson, 1988, 2001; Timmermans and Berg, 2003). We aimed to explore:

- Why professional stakeholders form active resistance to the implementation of some guidelines; and
- How professional values, perspectives, interests and/or experiences influence the stakeholders' stance.

This study proposes new theoretically informed lines of inquiry to understand optimal stakeholder engagement in guideline implementation to minimise the impact of resistance on the health system and the health of individuals. We first briefly review how the role of stakeholders in guideline development and implementation is conceptualised. Then, we show that within evidence-based medicine, resistance to guideline implementation is typically framed as a problem stemming from the existence of conflicts of interest. We explore the dynamics of clinical and professional autonomy as applied to the case of the Canadian Task Force's breast screening guideline to propose alternative understandings and implementation strategies.

1.1. Guideline implementation

Research in dissemination and implementation of guidelines has mostly been from guideline developers' and disseminators' perspectives. The literature has evaluated numerous dissemination strategies such as: publishing the guideline in academic journals and online, and presenting it at meetings, and implementation strategies that involve opinion leaders, audit-and feedback, education, organizational changes, financial incentives, and technological accessibility to promote guideline use (Lomas et al., 1991; McCormack et al., 2013). Implementation scientists have proposed advanced conceptual and methodological approaches to address the research-to-practice gap, recognizing that implementation is influenced by many factors operating at many different levels, including characteristics of the guidelines themselves, patient characteristics, and individual end users' knowledge, beliefs and value systems (Fischer et al., 2016; Francke et al., 2008). These include instruments to assess guideline implementability (Shiffman et al., 2005), experimental designs to evaluate implementation strategies (Wensing and Grimshaw, 2020), and integration of guideline development and implementation (Gagliardi and Brouwers, 2012). Contextual issues within the end-users' practice environment such as medication availability, local epidemiology, existing policies/practices and health system constraints also need to be taken into account (Francke et al., 2008; NHMRC, 2019).

However, for a guideline to effectively change practice, implementers also recognize that it is essential to gain the collective involvement and endorsement of stakeholders (Grimshaw et al., 2004). Without stakeholder support, guidelines may be ignored and not implemented at all. Stakeholders are defined as "persons interested in the subject of the guideline as well as individuals who will be affected by the recommendations" (World Health Organization, 2014). They can be clinicians, professional societies, policymakers, payers, patients, and members of the public (Schünemann et al., 2014). It is believed that their involvement increases the quality of the guidelines as they incorporate perspectives from their experiences into the guideline development process. In turn, this involvement is expected to increase the likelihood that the end product will be useful to and valued by its end-users and readily understood (World Health Organization, 2014).

In order to change practice, end users of the guidelines (e.g. clinicians) not only need to know about the guidelines and attest to their quality, but the proposed practice changes must also accommodate their existing values, needs, and experiences regarding patient care (Kastner et al., 2015). While this is true for individuals' values, needs, and experiences, collective identities and value systems, such as professional values and interests, are also a key concern for guideline implementation. When guidelines propose changes that are contrary to standard or current practice there may be collective pushback to the implementation of the guidelines, despite it being evidence-based (Greenfield, 2018). The pushback has severe implications for all parties involved in the guideline process. Clinicians may resort to practicing according to their experience and practice norms which may or may not be aligned with the best available evidence and in turn, patients may not receive the best possible care or may receive unnecessary or harmful interventions (Bach et al., 2009; Basky, 1999; Lopes et al., 2010).

1.2. Conflict of interest as the reason for resistance

To explain collective resistance to guideline implementation, methodologists and academics involved in guideline development have suggested conflict of interest may be primarily responsible (Greenfield, 2018; Guyatt et al., 2010; Norris et al., 2012). The Institute of Medicine (IOM) defines conflict of interest as, "*a set of circumstances that creates a risk that professional judgment or actions regarding a primary interest will be unduly influenced by a secondary interest*" (Institute of Medicine Committee on Conflict of Interest in Medical Research Education and Practice, 2009). For example, researchers found that specialty journals were more likely to explicitly reject results from a Cochrane review on breast screening, considered a 'gold' standard in systematic review methods, when compared to general medical journals. The researchers posited that this may be due to many "specialty journals [being] owned by political interest groups … or by medical societies with members whose income may depend on the intervention," which they characterized as a conflict of interest (Rasmussen et al., 2013).

Conflict of interest has been characterized as a "vexing" problem for guideline development with the understanding that evidence is open to interpretation and vulnerable to bias introduced by guideline developers' and third-party interests (Guyatt et al., 2010). Conflicts of interest between guideline developers and industry are associated with potential overstatement of favourable results, and understatement of harms (Lundh et al., 2017; Yank et al., 2007). The influence of medically-related industry over guideline recommendations is a persistent problem as guideline developers frequently have financial relationships with pharmaceutical and medical device companies with a commercial interest in guideline recommendations, and guideline development may be financed by industry (Choudhry et al., 2002; Cosgrove and Krimsky, 2012; Lenzer, 2013; Moynihan et al., 2019). For example, cross sectional analyses of clinical practice guideline development groups internationally suggest that a high proportion of guideline developers have financial conflicts of interest with the pharmaceutical industry (range from 49% to 78%) (Khan et al., 2018; Saito et al., 2019) and the majority of guidelines have authors with industry affiliations (range 86%–92%) (Elder et al., 2020; Norris et al.,

2011). A recent study of Australian guideline developers with no disclosed conflict of interest found that 24% had potentially relevant undisclosed conflicts and of the guidelines examined, 70% included at least one author with a potentially relevant undisclosed financial conflicts of interest (Moynihan et al., 2019). Thus, while studies have found a high prevalence of disclosed conflicts of interest, the true prevalence may be even higher. Consequently, best practices for guideline development recommend that the chairs and majority of panellists be free of financial conflicts of interest, which is increasingly a marker of guideline quality (Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice Guidelines, 2011; Schünemann et al., 2015).

1.2.1. Specialty and intellectual interests

Furthermore, in other cases and notably guidelines for screening and preventive healthcare, intense controversy among various professional and patient stakeholders persists in relation to implementation of evidence-based recommendations (Norris et al., 2012; Parker et al., 2015a). For example, Norris et al. (2012) sought to explore why disparate breast screening recommendations proliferated despite relying on a similar, underlying body of evidence. They posited that the financial, intellectual, and professional interests of the guideline developers may conflict with their fiduciary responsibility to deliver recommendations that promote the health of patients, based on an evidentiary balance of benefit and harm (Norris et al., 2012). They classified physician guideline authors by specialty and the focus of lead authors' related publications, which they termed "specialty and intellectual interests." In doing so, they documented a correlation between intellectual interests in radiology and breast disease to increased recommendations for routine (vs nonroutine) screening (Norris et al., 2012).

Thus, while recognizing that specialists often derive part of their income from screening, diagnosing or treating disease, the subsequent policy focus has been on regulating specialists' values, preferences, and intellectual commitments (Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice Guidelines, 2011; Schünemann et al., 2015; US Preventive Services Task Force, 2015). To combat the supposed biases stemming from 'professional' and 'intellectual' interests, policymakers suggest diversifying panel membership, such as including "a broad array of physician specialties" (Norris et al., 2012) or excluding specialists or content experts from participating on guideline panels (Institute of Medicine Committee on Standards for Developing Trustworthy Clinical Practice Guidelines, 2011; Schünemann et al., 2015; US Preventive Services Task Force, 2015). For example, the US Preventive Services Task Force considers "substantial career efforts/interests in a single topic area" to be a "Significant Nonfinancial Conflict of Interest" and panel members may be recused from all participation in activities related to a particular topic (US Preventive Services Task Force, 2015).

At the guideline implementation stage, however, this creates a few problems. The exclusion of specialists from guideline development can lead to specialist societies developing guidelines with disparate or competing recommendations (Greenfield, 2017, 2018). For example, in a joint statement by International Diabetes Organizations, experts recommend metabolic surgery for type 2 diabetes patients with BMI >30 (Rubino et al., 2016), while the American Diabetes Association guideline suggest surgery for patients with BMI >35 (American Diabetes Association, 2015). Critics of exclusion of specialists argue that such exclusion creates a gap in knowledge, particularly when empirical evidence is lacking or weak, with the result that guideline recommendations are disregarded in practice in favour of usual practices derived from clinical experience (Greenfield, 2018).

However, conflict of interest does not fully capture all the dimensions of resistance to evidence-based guideline implementation, particularly among and within the medical profession. The apparent controversy over the publication the 2018 Canadian breast cancer screening guideline cannot be reduced to any one factor (e.g. conflict of interest), but is the product of multiple areas of contention. We specifically examine how the interrelated concepts of clinical and professional autonomy, medical jurisdiction, and the role of medical elites can better explain the nuances and tensions that arise in these often-public debates about the best course of action in the context of individualised patient care (Table 1). Though the debate ostensibly centered on questions of conflict of interest and independence, it may funadamentally be more so about who may determine the legitimacy of recommendations related to professional work and resistance to perceived encroachment on professional autonomy. In this paper, we analyse and theorise the discourse around the controversy related to the 2018 Canadian breast cancer screening guideline to better understand the implications for guideline development and implementation.

Table 1
Sensitizing concepts and illustrative examples.

Concept	Definition	Illustrative examples
Autonomy		
Professional autonomy	• The ability of a profession to self-regulate resulting in the freedom to organise their own work • Self-regulation also entails controlling professional membership, entry to practice, and running professional organizations • With legal support of the government, neither consumers nor managers are free to employ anyone else for the services that a profession dominates • Only members of the profession have the right to supervise and correct the work of colleagues	• The Canadian Association of Radiologists is an example of a professional organization that produces their own guidelines for clinical practice, offers continuing professional education for radiologists and aims to be the "national voice for radiologists in Canada" • CAR released competing recommendations for breast screening and critiqued the lack of inclusion of radiologists on the guideline development committee
Clinical autonomy	• The control that an individual medical professional has over routine clinical activities and decisions • Guidelines are thus framed as recommendations, but variation can be justified in individual circumstances at the discretion of the professional	• The Task Force states they develop clinical practice guidelines that "support" primary care providers in delivering preventive health care, but do not provide directives
Medical jurisdiction	• The extent of professional autonomy • Any attempts by external stakeholders to regulate clinical practice (e.g. in enforcing guidelines) is seen as intruding on the jurisdiction of the profession	• Publicly funded breast screening programs will likely follow the recommendations put forward by Task Force and thereby may enforce clinical practices through reimbursement mechanisms external to the profession
Medical elite	• In contrast to the 'rank and file,' elites are members of the profession with the power to generate specialised bodies of knowledge, to formulate practice guidelines, and to oversee professional regulation • The emergence of a medical elite in academic and administrative roles has challenged notions of a professional community of equals	• The Task Force guideline was developed by generalists with advanced training in research, evidence synthesis and guideline development; as methodologists, they may, in the eyes of radiologists, represent members of this new "medical elite"

CTFPHC= Canadian Task Force on Preventive Health Care.
References (Dense Breasts Canada, 2019a; Freidson, 2001; The Canadian Association of Radiologists, 2019a, b).

1.3. Clinical practice guidelines and professional autonomy

Clinical practice guidelines are the hallmark of evidence-based medicine (Timmermans and Berg, 2003, pp. 3). The evidence-based medicine paradigm asserts that,

> When possible, clinicians should use information derived from systematic, reproducible and unbiased studies to increase their confidence in the prognosis, usefulness of diagnostic test, and efficacy of therapy. Clinical practise guidelines are necessary to bring this information … to doctors' offices and clinical wards (Timmermans and Berg, 2003, pp. 88).

Arising in the early 1990s, evidence-based medicine promoted the shift away from clinical experience, tradition, anecdote, and theoretical reasoning as the basis for clinical judgement and instead, proposed that practice be guided by the results of high quality randomised controlled trials and observational studies, and rigorous summaries of these studies (Guyatt et al., 1992), supplemented by clinical expertise and the needs and wishes of patients (Greenhalgh et al., 2014). As the evidence-based movement expanded and volume of medical literature increased, it was not possible for individual physicians to review all the available evidence related to a particular clinical question; thus professional societies curated these literatures according to accepted methodologies and offered recommendations in the form clinical practice guidelines (Timmermans and Berg, 2003, pp. 14).

Since the very beginning, critics of evidence-based medicine were concerned that the emphasis on experimental evidence would devalue the tacit knowledge that comes from clinical experience, arguing that blind and uncritical implementation of clinical practice guidelines would result in 'cook-book' medicine, where clinicians failed to account for patients' individual differences (Timmermans and Berg, 2003, pp. 19). Similarly, critics also questioned whether guideline recommendations could accurately inform decisions about 'real-life' patients, who often differed from those included in the research trials that informed the guidelines (Greenhalgh et al., 2014).

These critics reference a particular understanding of expertise manifested through clinical judgment and emblematic of a professional organisation of work (Freidson, 2001, pp.17). This is epitomised by the fact that highly trained and knowledgeable professionals are autonomous, one aspect of this is to organise their own work (Freidson, 2001, pp.17–21). With legal support of the government, neither consumers nor managers are free to employ anyone else for the services that a profession dominates (Freidson, 2001, pp. 2). Furthermore, "only members of the profession have the right to supervise and correct the work of colleagues" (Freidson, 2001, pp. 2). It is assumed that they will not abuse these exclusive rights, because they are more dedicated to doing good work for their own satisfaction and for the benefit of others rather than maximizing their income or personal or third-party gain. Thus, consumers and managers can theoretically count on the work of professionals to be high quality and at a reasonable cost (Freidson, 2001, pp. 2).

Debates about the value of clinical practice guidelines often emphasise their impact on clinical judgment and the clinical content of decision-making. However, the standardization of clinical work through guidelines implementation can also be analysed through the lens of autonomy (Timmermans and Berg, 2003, pp. 84–86). The medical profession, in occupying a position of prestige within society, dominance within the health arena, and independence in terms of self-regulation, education of members, and ability to define their own work, has achieved "organised autonomy" (Freidson, 1988, pp. 350). This level of professional autonomy is rationalised by ideology, or "the claims, values and ideas that provide the rationale for the institutions of professionalism," (Freidson, 2001, pp. 105) which, for example, is a commitment to the ideal of "health" for medical professionals (Freidson, 2001, pp. 122). Through this reasoning, since medical professionals are assumed to know the most about how to better health, any infringement to the profession's autonomy in regulating the profession and/or to the practice of medicine may be perceived as an attack on their commitment to this ideal.

Clinical practice guidelines seek to standardise the content of physicians' work, which creates tensions related to clinical autonomy, or, the individual practitioner's ability to control their work activities and decisions (Timmermans and Berg, 2003, pp. 83). Resistance to infringement on autonomy has manifested as non-compliance to guideline provisions, long a thorny issue for the implementation science literature (Donaldson et al., 1999; Grol et al., 1998). However, clinical autonomy is highly prized, which is reflected in the fact that guideline developers merely offer "recommendations" and guidelines developed by professional societies typically create allowances for professional autonomy in formally recommending adjustment depending on situation (Freidson, 1986). Non-compliance to guideline recommendations within clinical practice is instead widely tolerated if sufficiently justified on a case-by-case basis and by having scientific backing (Timmermans and Berg, 2003, pp. 94–98), a view that is consistent with early definitions of evidence-based medicine: decision-making based on evidence plus the values, preferences, individual characteristics and circumstances of patients (Sackett et al., 1996).

Non-compliance may also stem from power dynamics within the medical profession. With evidence (e.g. RCT and systematic reviews) becoming the basis for clinical practice guidelines, the composition of guideline development groups changed from prominent physicians (sought after for their extensive clinical experience) to academic physicians and methodologists (sought after for their expertise in systematic reviews and evidence synthesis) (Hafferty and Light, 1995). Hafferty and Light (1995) term this latter group the "medical elite," predicting that the lack of contact between "medical elite" and "rank-and-file" physicians would lead to backlash as the elite may not be representing the points of view of the rank and file physicians.

Despite clinicians' perception that guideline compliance is discretionary, non-compliance to guidelines has opened up the medical profession to third party regulation (e.g. government or private health insurance), which occurs when professionals are held accountable to their own standards (Timmermans and Berg, 2003, pp. 99, 108). By using guidelines as a reference point to highlight deviant practice, regulators could threaten to defund non-compliant practice as a cost saving mechanism (Timmermans and Berg, 2003, pp. 112–113), highlighting that control over a specialised body of knowledge and work carries significant economic implications.

Professional and clinical autonomy are further eroded when guidelines are made outside of the profession (Timmermans and Berg, 2003, pp. 99), which is the case with organizations such as the United States or Canadian Task Forces on Preventive Health Care. The rationale for the creation of these groups is to have "an independent, volunteer panel of national experts in prevention and evidence-based medicine" (US Preventive Services Task Force, 2019) developing evidence based guidelines regarding preventive services. These guidelines offer recommendations that are theoretically not dominated by professional or specialty group interests. We next examine how efforts to assert professional autonomy resulted in backlash against a perceived medical elite. We examine tensions arising, related to competing professional claims to legitimacy, to help better understand the public discourse surrounding the publication of a guideline developed by the Canadian Task Force on Preventive Health Care.

2. The production of an independent guideline

Since the inception of breast screening technologies, scientists have conducted numerous randomised controlled trails (RCTs) to investigate its effects on cancer outcomes (Gøtzsche and Jørgensen, 2013). However, the value of breast screening as a means for early detection and treatment of breast cancer and the value of different strategies to

promote breast screening continue to be heavily debated (Gøtzsche, 2012, pp.13). Consequently, although drawing from largely the same evidence base, clinical practice guidelines developed by different countries and clinical associations recommend different frequencies, target populations and techniques for the screening (Cancer Australia, 2004; Public Health England, 2015; Siu, 2016).

A number of issues have led to major disputes and disagreements, including the ways in which guidelines are produced (and the interpretation of underpinning evidence from trials, systematic reviews and meta-analyses) (Seely et al., 2017; Yaffe, 2018), the assumptions they make about the values and experiences of people receiving screening (Parker and Carter, 2016), and the ways that they shape expectations and structures of health services and professional practices (Carter et al., 2015; Welch and Black, 2010). Key areas of contention include the age screening should begin (40 vs 50) (Gøtzsche, 2012, pp.29), frequency of screening (annual vs biannual) (Nelson et al., 2016), and the potential for overdiagnosis in breast screening (Parker et al., 2015a). Particularly, there is ongoing debate about the relative magnitude of benefits (e.g. reduction of mortality) and harms (e.g. false positives, anxiety, radiation exposure) that may arise from screening (Myers et al., 2015; Nelson et al., 2016). The concepts of overdiagnosis and overtreatment are often brought into the debates related to breast screening, which refer to the consequences of screening for and the treating cancers that would likely not have caused harm in a person's lifetime (Parker et al., 2015a; Welch and Black, 2010).

This paper does not attempt to differentiate the merit of the arguments from either side of the debate but seeks to explore this example to illustrate the complex tensions related to professionalism, autonomy, and accountability surrounding guideline development and implementation.

2.1. The Canadian Task Force on Preventative Health Care

The Canadian Task Force on Preventative Health Care (CTFPHC, hereby referred to as the Task Force) was established by the Public Health Agency of Canada (PHAC) to develop clinical practice guidelines that support primary care providers in delivering preventive health care (Canadian Task Force on Preventive Health Care, 2019). It is a federal government-funded independent body that consists of 15 experts in preventative health. Their guideline development process involves using Evidence Synthesis Centres (external systematic review experts) to conduct systematic reviews of scientific evidence according to key questions developed by the Task Force. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology (Canadian Task Force on Preventive Health Care, 2014) is used for grading the quality of evidence and strength of recommendations in guidelines (Guyatt et al., 2008). These methods reflect the internationally recognized gold standards for evidence-based medicine.

2.2. The guideline

The Task Force updated their guideline for breast cancer screening in 2018. The Task Force recommends that women aged 40 to 49 who are not at increased risk should not be screened with mammography but recommends "the decision to undergo screening is conditional on the relative value a woman places on possible benefits and harms from screening" (Klarenbach et al., 2018). This recommendation was made citing concerns about overdiagnosis and that "the balance of benefits and harms from screening is less favourable for women aged 40–49 years than for older women" (Klarenbach et al., 2018). Members of the Task Force argue that the

> net benefit [of screening] for women younger than 50 years was equivocal, given their lower absolute risk as well as their higher probability of being overdiagnosed and having false-positive screens compared with women aged 50–74 years (Klarenbach et al., 2018).

These recommendations are similar to their previous guideline on the topic published in 2011, which already recommended against screening in women aged 40 to 49 (Canadian Task Force on Preventive Health Care, 2011). This recommendation is also present in many international guidelines from the United States, the United Kingdom, and Australia (Cancer Australia, 2004; Public Health England, 2015; Siu, 2016). Yet, the publication of the guideline triggered a response from radiologists (medical doctors specialised in the use and interpretation of radiology in medicine) and associated professional and patient groups that opposed the recommendation. They published commentaries in academic journals, launched a media campaign, attacked the guideline makers' exclusion of radiologists, sought public support for more screening and lobbied the government against the guideline recommendations (Dense Breasts Canada, 2019a; Seely, 2019; Yaffe, 2019).

2.3. Professional and public controversy

The Canadian Association of Radiologists (CAR) is the national specialty society for radiologists in Canada. They are one group representing the voice of radiologists to governments, the public and news media and take responsibility for the continuing education of their membership (The Canadian Association of Radiologists, 2019a). Their stated missions include empowering their members to be more successful in their profession (The Canadian Association of Radiologists, 2019a). CAR issued a statement on the updated guideline criticising various aspects of it, claiming that it "rel[ied] heavily on older research and lack[ed] substantial input from breast imaging experts" (The Canadian Association of Radiologists, 2019b). They instead recommend that "women age 40–49 who are of average risk for breast cancer should have yearly mammographic screening." The Canadian Society of Breast Imaging, a society of imaging professionals who are for the improvement and dissemination of breast imaging, echoed this critique (The Canadian Society of Breast Imaging, 2018).

In support of this counter-recommendation, a petition was circulated by Dense Breasts Canada to "Demand that Canada's Health Minister reject dangerous breast cancer screening guidelines" (Dense Breasts Canada, 2019a). Dense Breasts Canada is a not-for-profit organisation founded by leading radiologists and patients dedicated to "raise awareness about the risks associated with dense breasts and advocating for density notification" (Dense Breasts Canada, 2019b), an idea that the density of breast tissue may alter the effectiveness of screening. A prominent radiologist and frequent critic of the guideline leads this group. The petition has since received >70,000 signatures and argues the Task Force guideline ignored expert advice and ignored the importance of screening for women in their 40s (Dense Breasts Canada, 2019a). The petition states that the guideline ignored current data and the significant benefits of early cancer detection, and that in turn, women are being asked to make decisions about life-saving screening based on inaccurate information (Dense Breasts Canada, 2019a).

3. Areas of contention

In analysing the discourse surrounding the publication of the 2018 Task Force's Guideline for Breast screening, we focus on three main areas of contention. Different professional and patient stakeholders presented contrasting public stances and policy options that reflected their respective ideologies related to:

1. What constitutes expertise;
2. What it means to be evidence-based; and
3. What it means to be patient focused.

3.1. What constitutes expertise

In the arguments and opposition against the 2018 CTFPHC guideline

on breast screening, a key point repeatedly raised was the lack of radiologist input in the guideline development process (Seely, 2019; The Canadian Association of Radiologists, 2019b; Yaffe, 2019). The radiologist associations issued statements highlighting that the inclusion of "recognized experts in breast imaging and breast cancer care" could increase the quality of the guideline recommendations and stated that "CAR is prepared to recommend an extensive list of expert radiologists and researchers who can assist with [a] review [of current recommendations]" (The Canadian Association of Radiologists, 2019b). CAR's stance echoed a common critique of clinical practice guidelines: that the exclusion of experts meant that crucial clinical perspectives were omitted. By situating themselves as 'experts,' radiologists challenged the legitimacy and credibility of the guidelines. However, this could also be read as an example of professionals asserting their autonomy in respect to who may legitimately direct professional action and on what basis and also routine decisions occurring within day-to-day clinical practice (Timmermans and Berg, 2003).

Radiologists were excluded from participating or voting in the development process for the breast screening guideline due to conflict of interest (Canadian Task Force on Preventive Health Care, 2014), which is consistent with several 'gold standard' policies for guideline development (Schünemann et al., 2015; US Preventive Services Task Force, 2015). Radiologists, according to the Task Force's policy, had conflicts of interest related to the fact that they derive income from health services affected by the recommendation, but also because specialisation and content expertise (in terms of publications or grants on the topic) are considered a "non-financial" or "intellectual" conflict of interest (Guyatt et al., 2010; Norris et al., 2012; Schünemann et al., 2015).

In their pursuit for independence and unbiased recommendations, the Task Force requires all members and potential participants in a guideline (e.g. peer reviewer, clinical expert) to declare "any potential conflicts of interest (e.g., financial, business or professional, intellectual)" (Canadian Task Force on Preventive Health Care, 2014). The Task Force places great emphasis on their independence and expertise, stressing that they are "an independent body of 15 primary care and prevention experts" (Canadian Task Force on Preventive Health Care, 2019). Their claim to independence rests on the Task Force's rejection of funding from industry, and strict prohibition on members' personal financial ties with industry. Similarly, while funded by the Public Health Agency of Canada (PHAC), the Task Force declares they have decision-making authority in all aspects of their scientific mission. These include: final decisions about topics to be covered, setting the standards and expectations for review and synthesis of the evidence, and the development, public declaration, and dissemination of its recommendations (Canadian Task Force on Preventive Health Care, 2014). This keen focus on the value of independence stems from the belief that ties to any external body may present a conflict of interest in guideline development, which may in turn bias the recommendations made in the guidelines that they develop (Guyatt et al., 2010).

The resistance may thus be partially about whether a stakeholder group has sufficient autonomy to further their own interests, for example, to determine the recommendations that guide and increasingly govern clinical practice. Historically, when guidelines were mostly developed through a series of expert consensus meetings, the organized medical profession took steps to populate the ranks of the knowledge and administrative elite with physician "insiders," which maximized medicine's control over the process of rationalization and the technical core of medical work (Hafferty and Light, 1995). The rise of evidence-based practice and the emphasis on evidence synthesis set in motion forces that have gradually undermined the control of content experts, like specialists, by privileging methodological expertise in guideline development, giving rise to a new "medical elite" (Hafferty and Light, 1995). In this case, the Task Force guideline was developed by public health and methodology experts who may, in the eyes of radiologists, represent members of this "medical elite." Though the guideline recommendations are ultimately directed at a primary care audience and do not aim to directly change the behaviour of radiologists, the recommendations have implications for radiology practice.

As part of their public resistance, CAR openly suggested a different set of recommendations regarding the frequency and starting age of the breast screening, which they deemed as most appropriate. This is a prime example of professionals (radiologists in this case) seeking to maintain the ability to organise their own work (Freidson, 2001, pp.105). By extension, if their opinion is not heard in the development of technical guidance that affects their work, then the guidance lacks legitimacy, as such standards were set beyond the profession's jurisdiction (Timmermans and Berg, 2003, pp. 85).

3.2. *What it means to be 'evidence-based'*

The contention around what it means to be evidence-based has been central to arguments both in support of and against the guideline recommendations. One of the Task Force's key claims to legitimacy for their guideline recommendations is that they are evidence-based. Within the evidence-based medicine paradigm, an allegation that the evidence underlying recommendations is biased or incomplete, or that accepted evidence synthesis procedures were violated, constitutes a means to undermine the credibility of a recommendation. In attacking the "evidence-basedness" of the guideline itself, radiologists sought to regain their jurisdictional authority in setting the standards that govern their work, a key facet of professional autonomy (Timmermans and Berg, 2003, pp. 85).

The Task Force argues that their guideline development process is trustworthy due to their extensive and explicit procedure manual, which implements 'gold standard' processes for evidence synthesis and evidence-led decision-making (Canadian Task Force on Preventive Health Care, 2014). Characterized as the "bread and butter" of evidence-based medicine (Djulbegovic et al., 2009), recommendations are made on the basis of systematic reviews, which claim to consider the totality of available evidence following an exhaustive evaluation of the current scientific research literature according to pre-specified and transparent inclusion and exclusion criteria (Canadian Task Force on Preventive Health Care, 2014; Higgins and Green, 2011; Higgins et al., 2019). In line with core assumptions underlying the evidence-based medicine paradigm, the rationale follows that the recommendations made from these systematic reviews of the literature are not biased by the other interests of guideline developers, as evidence serves "as a neutral arbiter of competing views" (Djulbegovic et al., 2009) and decisions are consistent with existing evidence and should thus be considered as best practice (Djulbegovic et al., 2009; Guyatt et al., 1992).

Since the early 1990s, evidence-based medicine has influenced all fields of medical practice and allied healthcare practice. It is currently widely accepted, even in the face of criticisms (Greenhalgh et al., 2014), as the central paradigm of medical education, healthcare policy making and clinical practice (Howick, 2011). Thus, the backlash against the Task Force's guideline did not challenge the paradigm in terms of its epistemic claims, but rather focused on technical and procedural criticisms related to what "evidence" constituted the claim of "evidence--based." An argument that echoed throughout public statements made by radiologist and patient groups was that the evidence used to create the guideline was outdated: advocates pointed to new screening technology arguing that such developments made the results of some of the older studies included in the guideline development process obsolete (Dense Breasts Canada, 2019a; The Canadian Association of Radiologists, 2019b; The Canadian Society of Breast Imaging, 2018). In support of this argument, critics marshalled their own evidence, citing more recent studies related to the new technologies associated with breast screening (The Canadian Association of Radiologists, 2019b; The Canadian Society of Breast Imaging, 2018). For example, CAR stated that they "stand by the evidenced based recommendation that women age 40–49 who are of average risk for breast cancer should have yearly mammographic

screening, and that average risk women age 50–74 should have mammographic screening every 1–2 years," citing a different screening frequency and starting age than those recommended by Task Force (The Canadian Association of Radiologists, 2019b).

These higher frequencies of screening are not supported by provincial breast screening programs, who will likely follow the recommendations put forward by Task Force and thereby may enforce practices through funding mechanisms that are opposed by radiologists in regard to the frequency and starting age of breast screening (Ontario Government, 2019). The backlash against the standards may thus be a reaction to perceived erosion of the autonomy of radiologists not only in setting the standards of their own practice, but also enforcing them. Similarly to the phenomenon of health insurers and auditors utilising clinical practice guidelines to enforce clinical accountability (Timmermans and Berg, 2003, pp. 99), the economic implications of this loss of autonomy is profound. The extra screenings recommended by the profession (i.e. earlier starting age and higher frequency of screening) would not be covered by the provincial breast screening programs. This exposes a limit on profession autonomy, as in this case the profession cannot dictate reimbursement for their services.

3.3. What it means to be 'patient focused'

Being 'patient-focused' is another point that the radiologist associations as well as radiologist-affiliated patient groups emphasise to form their case against the Task Force guideline's legitimacy. "Patient-centredness" forms a key rationalization for claims to autonomy, as reasserts the ideological basis for professionalism, which assumes that physicians, for example, are committed to the ideal of "health" and will ensure the primacy of patient interests (Freidson, 2001, pp. 105).

The Canadian Society of Breast Imaging (CSBI) states that their commitment is "saving lives and improving quality of care for patients" (The Canadian Society of Breast Imaging, 2018), while the Canadian Association of Radiologists professes similar commitments to "quality standards for patients" (The Canadian Association of Radiologists, 2019b). This frames their opposition to the Task Force's guideline as firmly patient-centered: protecting patients from risk of cancer. Patient groups state this point even more explicitly in their petition to the Health Minister to "reject dangerous breast cancer screening guidelines" (Dense Breasts Canada, 2019a). They strongly promote the argument that the Task Force's guideline endangers lives and that it does not have public support.

Collectively, critiques of Task Force members' expertise and the integrity of the evidence-led process raises questions of legitimacy, but also raise the broader question, legitimacy for whom? Certainly, radiologists indicated that the recommendations lacked legitimacy from the perspective of professional practice, given that specialists have historically had jurisdiction to internally set standards for work. However, specialists also encounter particular patient subgroups and consequently, claim a particular type of expertise. For example, Greenfield (2018), in the context of preventative healthcare, that the input of specialists is essential for the broad representation of patient subgroups at high risk or who experience severe disease. In response to the Task Force guideline, the online petition from Dense Breasts Canada, a radiologist-patient advocacy group, highlighted severe cases of breast cancer in younger women and breast density as factors that affect the cancer risk of patient subgroups that were ignored by the guideline (Dense Breasts Canada, 2019a).

On the other hand, the Task Force states that they develop "clinical practice guidelines that support primary care providers in delivering preventive health care" and their guidelines are made with "input from patients and the public" (Canadian Task Force on Preventive Health Care, 2019). The Task Force engages the public at various stages of guideline development and dissemination. They can use "both print and social media to make direct contact with the public" (Canadian Task Force on Preventive Health Care, 2014). Also, the recommendation in the guideline that "the decision to undergo screening is conditional on the relative value a woman places on possible benefits and harms from screening" (Klarenbach et al., 2018) was designed to ensure that individuals are provided information about both the harms and benefits of screening and in turn make informed decisions about their participation in the screening programs (Klarenbach et al., 2018).

The ideology of being patient focused is thus, argued by all parties in the debate and forms another basis for claims to legitimacy of their disparate recommendations: yet, on the surface stakeholders disagree about what is best for the patients (Parker et al., 2015b). The Task Force, adopting a population-health perspective, recommended a later starting age due to evidence that harm from the screening process itself out-weighed the benefits for younger populations. Overdiagnosis (e.g. false positives or detection of tumours that may not be aggressive) leading to over-treatment can be detrimental to patients' health outcomes (Norris et al., 2012; Parker et al., 2015a). However, the opposition by radiologists was specifically framed as advocating for patients who were particularly vulnerable to harms and may not be best served by the current recommendations.

These contests around the construction of "patient-focused" are highly gendered and largely pertain to women who are not patients at all, but healthy individuals. For example, the screening guidelines constitute recommendations for a population wide screening program targeted at "women who are not at increased risk of breast cancer" (Klarenbach et al., 2018). Occurring within the context of broader, gendered constructions of health and disease, professional efforts to maintain medical (and in this case, specialist) jurisdiction over breast screening decisions, may be in tension also with individuals' autonomy to determine their own interests and decision in relation to breast screening (Parker and Carter, 2016). For example, debates about breast screening are sustained in part because it remains a popular, highly emotive topic in the media, which has served to raise the profile of breast cancer higher than for any other cancer (Griffiths et al., 2010; Lerner, 1998). Media coverage is often skewed toward reporting breast cancer in younger women, despite breast cancer incidence being much higher in older women (Parker and Carter, 2016). This popularisation of breast cancer and breast screening as a preventive measure may have artificially inflated fear of breast cancer death, belief in the benefits of screening and thus, make women vulnerable to medicalization and its harms (Parker and Carter, 2016).

Feminist scholars have thus demonstrated that while the evidence-based medicine movement first appeared to question the authority of medical 'experts' and upend longstanding medical hierarchies, in reality, it may work to reinforce medicine's jurisdiction and professional autonomy through regulation of medical authority and knowledge (Goldenberg, 2006). Claims to being "evidence-based," for example, assume that these standards are rational, objective, neutral, and universal, but obscure the political interests and transform normative questions into technical issues (Goldenberg, 2006). Further, claims to being "patient-focused" fail to acknowledge the gendered dimensions of evidence production and synthesis. Consequently, evidence-based guidelines, for example, rely on clinical research that is a product of an evidence base rife with gender biases ranging from biased research agendas that disproportionately focus on reproductive-related health issues such as breast cancer, to underrepresentation of women in clinical trials, and evidence hierarchies that privilege certain types of knowledge (Borgerson, 2009; Goldenberg, 2006; Rogers, 2004).

The tensions related to what constitutes expertise and what it means to be "evidence-based" and "patient-focused" thus raise critical questions for guideline development and implementation about how to best account for the experiences of those whose health is ultimately affected by guideline recommendations. These questions are more challenging in instances where recommendations affect population health and pertain to disease prevention, affecting healthy individuals. In the next section, we offer some insights derived from this analysis to suggest how stakeholder involvement in guideline development and implementation

might be broadened to include critical questions related to representation and equity in order to increase professional accountability to the publics they serve.

4. Improving guidelines to anticipate resistance

Understanding the dynamics of efforts to assert and maintain professional autonomy and jurisdiction within the context of guideline implementation can potentially lead to solutions to mitigate active resistance to a guideline. Although conflict of interest issues must be considered throughout the guideline development process, the labelling of issues related to professional jurisdiction as "intellectual" or "professional" conflict of interest may be a red herring and obscure constructive policy solutions.

Guideline methodologists have proposed that increasing stakeholder engagement and transparency of the guideline development process may mitigate some of the backlash following a guideline's publication (Gøtzsche and Ioannidis, 2012; Greenfield, 2018). They recommend that attempts need to be made to engage specialist stakeholders whose experience may be valuable for areas with less clear evidence and patient sub-group intricacies needs to be considered (e.g. breast density as a factor in breast screening) (Greenfield, 2018). If conflict of interest policies limit their membership in the guideline development group, the stakeholders do not necessarily have to be involved in formulating the recommendations, they can be involved in other ways (Canadian Task Force on Preventive Health Care, 2014). For example, stakeholders can be involved in: steering groups forming the scope of the guidelines, external review groups for the recommendations formed by the guideline development group, and/or in the guideline development group but excused on the voting process of recommendation where they have a conflict of interest (World Health Organization, 2014).

However, this analysis suggests that public resistance to guideline implementation may in part be due to professional claims to exclusive jurisdiction rather than mere efforts to ensure representation of particular specialties. Thus, during stakeholder engagement it should be made clear that the opinion of the specialists (i.e. radiologists) only represents the stance of one party in the consortium of stakeholders. For example, the primary audience of the Task Force's guidelines are primary health providers who initiate the referrals for screening. In the case of this guideline, the Nurse Practitioners' Association of Canada and the College of Family Physicians of Canada, in fact, endorse the 2018 breast screening guideline (Canadian Task Force on Preventive Health Care, 2018).

One way to increase transparency is to clearly document the extent of stakeholder engagement and the respective stances of the stakeholders on the recommendations of the guideline. Documentation of the ideas and perspectives presented by the stakeholders needs to be made explicit in the final guideline (e.g. in auxiliary files) even if they contradict or disagree with the recommendations proposed by the guideline development group. This will bring transparency to efforts to consult specialists or other stakeholders in the guideline development process and the exact reasons why some of those perspectives were rejected. The specialists consulted on the guidelines who disagree with the final recommendations can be listed in the author list of guidelines as well to further increase transparency (e.g. a distinct section in the author list for those who opposed the final guideline recommendations and reasons why). However, it is unlikely that transparency will mitigate resistance from other professionals; rather, it may aid in crafting a public response and shoring up the credibility and legitimacy within the public eye.

Our analysis suggests that stakeholder resistance is fundamentally political; thus, more technical solutions such as creating audit trails for transparency will likely fall short in addressing the root causes. In cases where active resistance is expected, guideline development and implementation teams may need to engage in coalition and consensus building among clinicians and public organizations and craft a public-facing strategy. This is particularly the case in contentious areas in preventative medicine and screening that impact healthy populations and health services at the systems level. For example, in the case of the Task Force's breast cancer screening guideline, the voice of the radiologists was much more prevalent in media, academic journals and petitions than the voice of the guideline developers. The guideline was published in the Canadian Medical Association Journal (CMAJ) and received responses from critics directly in the journal when it was published (Yaffe, 2018). The authors of the guideline took a year before they replied to the criticism on the public platform (Klarenbach et al., 2019). Most of the attention to the resistance in the media and public statements by radiologist societies had occurred in the month or two after the publication of the guideline (The Canadian Association of Radiologists, 2019b; The Canadian Society of Breast Imaging, 2018; Yaffe, 2019). We suggest a timely and public response to the criticisms of the guideline through official channels (e.g. publishing responses on the Task Force's website where the guideline is published).

Along with rapid public response, a consortium of stakeholders like the Nurse Practitioners' Association, College of Family Physicians and perhaps most importantly, patient and consumer advocacy groups independent of commercial or speciality interests, could be organised to form a coalition with the Task Force during the guideline development process. In the case of the Task Force's guideline, the patient groups supporting the resistance initiated a petition in a display of public support for their position. In addition to making patient consultations during the Task Forces' guideline development process transparent, the patient groups consulted could also demonstrate their support for the guideline publicly if the coalition was formed during the guideline development process in anticipation for the resistance. In the case of guidelines related to screening, health promotion, or prevention, guideline developers like the Canadian Task Force may also want to consider incorporating a much wider range of stakeholders, with the explicit aim of representing groups that are at greatest risk of harm and those that may be underrepresented in current processes. These efforts could bolster the guideline development process to further work against professional medical claims to exclusive jurisdiction over matters of health and not just treatment of disease.

Breast screening guidelines offered a particularly illustrative case study to understand the dynamics of collective, active resistance to implementation and implications for professional and clinical autonomy. This case also suggests that important avenues for future examinations of guideline development and implementation are to understand how tensions related to expertise, evidence, patient-centredness, and ultimately, medical authority, may reproduce gender and other inequities that are a product of racism, ableism, classism and sexism. Currently, efforts to bring a gendered perspective to evidence-based guidelines are largely restricted to issues of representation, with policy efforts aimed at achieving parity in gender representation on guideline development panels (Bohren et al., 2019); there are few efforts to address representation in terms of racialization or other marginalized identities. Feminist and Black feminist scholars have long critiqued the often reductionist methods of evidence-based medicine that do not well address the intersecting, multi-level social and political determinants of health (Bowleg, 2012; Goldenberg, 2006; Rogers, 2004). Instead, feminist scholars propose that the political interests and normative values that underpin the tensions around the claims to professional autonomy analysed here, be explicitly incorporated into evidence-based processes to allow stakeholders to openly debate the issue of which values should legitimately enter these decision-making processes in an evidence-informed manner (Goldenberg, 2015).

5. Conclusion

Public, professional resistance to evidence-based guidelines cannot be reduced to any one factor such as conflict of interest, but is the product of multiple areas of contention, stemming from professional efforts to preserve autonomy and medical jurisdiction, but also to

represent the needs of diverse patient populations. Understanding resistance as a political strategy should be considered in the future development and implementation of guidelines to mitigate and resolve issues of active resistance to an evidence-based guideline. Currently guideline development groups focus on adequate methodology for evaluating, synthesising the evidence surrounding a health question and using that evidence profile to develop recommendations with an independent panel free of conflicts of interest. With the further considerations related to coalition building, including those most affected by a guideline during the guideline development process, guideline developers and implementers can adjust and expand their methods and policies to accommodate the differences in perspectives in an attempt to positively impact health system and patient outcomes.

Credit author statement

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