Health Policy and Risk Communication for Indoor Tanning in Canada

by

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ABSTRACT

HEALTH POLICY AND RISK COMMUNICATION FOR INDOOR TANNING IN CANADA

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Though the most preventable cancer in Canada, skin cancer is the most common. Indoor tanning (IT) equipment emits ultraviolet radiation (UVR), a known cause of skin cancer. This research explores provincial and territorial IT legislation in Canada with a content analysis, and indoor tanners’ perceptions of the current federally-mandated health warning label (HWL) plus pictorial alternatives in focus groups. All provinces and one territory currently regulate indoor tanning, and all of these restrict youth access to IT. However, certain important legislative aspects are receiving little coverage. The federal HWL is informative, but may not attract attention due to its lack of images, small font, and large amount of text. Images may assist this HWL in engaging indoor tanners to better communicate the risks of IT. Improvements in key areas of IT legislation and risk communication, identified in this thesis, may help develop effective IT and skin cancer prevention strategies.
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STATEMENT OF WORK

Chapter 1: Sydney Gosselin prepared the literature review. I would like to acknowledge Dr. Jennifer McWhirter for assisting with the planning and editing of this chapter, and Drs. Scott McEwen and Andrew Papadopoulos for assisting with editing.

Chapter 2: Sydney Gosselin contributed most significantly to the study design, codebook development, acquisition of the results, and drafting of the manuscript in this chapter. Dr. Jennifer McWhirter is the co-author of this paper, and contributed to the study design, codebook development, analysis, and revision of the manuscript.

Chapter 3: Sydney Gosselin contributed to the study design and development of focus group materials (test warning labels, questionnaires, focus group moderator guide), recruited participants, moderated the focus groups, transcribed the focus group audio, analyzed the qualitative and quantitative data, and drafted the paper. Dr. Jennifer McWhirter, co-author, contributed to the study design, test warning label development, and focus group material development; provided guidance for the analysis; and edited the paper. Drs. Scott McEwen and Andrew Papadopoulos, co-authors, provided guidance in the design and planning of this study and edited the paper. Dr. Seema Mutti-Packer, co-author, provided input and guidance in the development of the test warning labels.

Chapter 4: Sydney Gosselin prepared the discussion and conclusion chapter. I would like to acknowledge Drs. Jennifer McWhirter, Scott McEwen, and Andrew Papadopoulos for assisting with the editing of this chapter.
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LIST OF ABBREVIATIONS

EPPM – Extended Parallel Process Model
FDA – US Food and Drug Administration
HBM – Health Belief Model
HWL – Health warning label
IT – Indoor tanning
KC – Keratinocyte carcinoma
UVR – Ultraviolet radiation
Chapter 1: Literature Review

1.1 Skin Cancer is a Growing Public Health Issue

Of all types of cancer diagnosed in Canadians, skin cancer is the most common (Canadian Cancer Society [CCS], 2014). It is typically classified as either melanoma skin cancer, or keratinocyte carcinoma (KC, also known as non-melanoma skin cancer; Karimkhani, Boyers, Dellavalle, & Weinstock, 2015; CCS, 2014). KC, which includes basal cell carcinoma and squamous cell carcinoma, is the most common of the two varieties (CCS, 2014): the Canadian Cancer Society (2014) estimates that 40 percent of all newly diagnosed cancer cases in Canada are KC. However, melanoma is the most fatal form of skin cancer (CCS, 2014). In 2017, it was projected that 7200 Canadians would be diagnosed with melanoma and that 1250 would die, making it the 8th most commonly diagnosed cancer in Canada and the 15th among cancers in terms of projected mortality (CCS, 2017). Further, the incidence rate of melanoma has been increasing steadily each year – between 1992 and 2013, it increased in males by 2.1% each year and in females by 2.0% per year (CCS, 2017). Additionally, melanoma is one of the most commonly-diagnosed cancers among youth ages 15-29 (CCS, 2017). In 2010, it was projected that the economic burden of skin cancer in Canada would total $922 million by 2031: 75.5% of this burden would be attributable to melanoma, 13.3% to basal cell carcinoma, and 11.2% to squamous cell carcinoma (Krueger, Williams, Chomiak, & Trenaman, 2010).

In addition to cutaneous variations of melanoma and KC, these cancers can also arise in the eye (American Cancer Society, 2018; Gichuhi & Sago, 2016). Ocular melanoma can develop in the iris, choroid, ciliary body, and, very rarely, the conjunctiva of the eye (American Cancer Society, 2018). Squamous cell carcinoma can also affect the conjunctiva of the eye (Gichuhi &
Sagoo, 2016). Given how common skin cancer is, and its potential to have damaging effects in many areas of the body, it is of public health importance to prevent this disease.

1.2 Ultraviolet Radiation and Indoor Tanning

1.2.1 Overview

Though the most common type of cancer, skin cancer is also the most preventable, as the main risk factor is exposure to ultraviolet radiation (UVR; CCS, 2014). The World Health Organization’s International Agency for Research on Cancer has classified UVR, both solar and artificial, as a human carcinogen, placing it in the same category as agents such as tobacco, arsenic, and asbestos (International Agency for Research on Cancer [IARC], 2012). UVR has also been associated with ocular melanoma (choroid and ciliary body) and SCC of the conjunctiva (IARC, 2012; Gichuhi & Sagoo, 2016). The main source of UVR is the sun (CCS, 2014). However, indoor tanning (IT) equipment is also an important, and deliberate, source of UVR. In Canada, 7 percent of melanoma cases, 5.2 percent of BCC cases, and 7.5 percent of SCC cases were attributed to UV exposure from IT equipment in 2015 (O’Sullivan et al, 2019). A dose-response relationship has also been associated between use of IT equipment and melanoma and KC (Lazovich et al., 2010; Boniol et al., 2012; Zhang et al, 2012). The risk is particularly elevated when first use occurs before the age of 35 – an estimated 59% increase in risk, compared to never-tanners (Boniol et al., 2012). Early exposure to UVR emitted by IT equipment has also been associated with a higher risk of KC (Wehner et al., 2012), as well as ocular melanoma (IARC, 2012).

Along with melanoma and KC, UVR can contribute to a host of short- and long-term conditions. These include, but are not limited to, skin burns (Health Canada, 2017), premature
skin aging (Lim et al., 2011), photokeratitis (Health Canada, 2017), photoconjunctivitis (Health Canada, 2017), cataracts (Gallagher & Lee, 2006), pterygium (a growth in the conjunctiva; Gallagher & Lee, 2006; Roat, 2018), and immunosuppression (Ullrich, 2005). Research also suggests that dependence on IT is possible (Lim et al., 2011; Mays et al., 2017).

1.2.2 Indoor Tanning Attitudes, Beliefs, and Behaviours

In a 2014 survey, 1.35 million Canadians over age 12 were estimated to have used IT equipment in the past year (Qutob et al., 2017). Additionally, despite the heightened risk of skin cancer associated with early exposure to the UVR emitted by IT equipment, youth ages 18 to 34 reported the highest use (Boniol et al., 2012; Wehner et al., 2012; Qutob et al., 2017). Females were also more likely than males to have reported tanning indoors (Qutob et al., 2017). In this survey, the most common reasons given for IT were to obtain a “base tan” (a common belief that IT prior to sun exposure, particularly on vacation, will help prevent sunburn and other skin damage [U.S. House of Representatives Committee on Energy and Commerce – Minority Staff, 2012]), for aesthetic purposes, and to relax or improve mood (Qutob et al., 2017).

Along with the Canadian data on appearance as a common reason for IT, the literature has demonstrated that appearance is an important motivator for this activity. The Second National Sun Survey in 2006 found that 78 percent of Ontario indoor tanners surveyed had used IT equipment to improve their appearance (Ontario Sun Safety Working Group, 2010). In a study of Scottish adolescents, 22 percent of respondents reported that they felt better about themselves when they were tanned, while 19 percent felt that others found them more attractive when they were tanned (Kyle et al., 2014). Among preteens and adolescents, IT intentions and behaviours have been associated with finding the tanned look attractive or preferred (Cokkinides,
Additionally, in a survey of female university students, Cafri, Thompson, Jacobsen, and Hillhouse (2009) found that appearance reasons to tan – including the belief that IT generally improves one’s appearance, improves acne, and improves the appearance of one’s body – influence IT behaviours, with intentions to tan mediating this relationship. It is important to note, however, that while tanned skin is a common beauty ideal (Cokkinides et al., 2002; Kyle et al., 2014), this is far more common among Western cultures (Xie & Zhang, 2013).

Social norms and influences appear to be connected to the desire for a tanned appearance in terms of motivations to tan. Cafri et al. (2009) demonstrated that the effect of socio-cultural influences from peers, family, and the media on IT behaviour is mediated by appearance reasons to tan and IT intentions, showing a complex relationship between these factors. Kyle et al (2014) reported that 42 percent of Scottish adolescents surveyed believed that their friends thought being tanned was “a good thing,” and 26 percent felt that their family members shared this belief. Further, among children and adolescents, individuals who have friends that tan indoors, or believe that at least some of their friends tan indoors and prefer the tanned look are more likely to engage in IT (Geller et al., 2002; Lazovich et al., 2004; Hoerster et al., 2007). The media is also known to promote tanned skin as a beauty ideal in articles and images in women’s magazines (McWhirter & Hoffman-Goetz, 2015).

Though many studies have identified appearance and social norms as major motivators for IT, the main reason Canadians tanned was to protect their skin from sunburn (Qutob et al., 2017). This is concerning because this concept of “base tans” is a myth commonly promoted by the IT industry (Autier, 2004; Greenman & Jones, 2010; U.S. House of Representatives
Committee on Energy and Commerce – Minority Staff, 2012; Green, 2018). In reality, a tan provides very little UV protection – the equivalent of sunscreen with an SPF of about 3 (Autier, 2004). Other false and/or misleading health claims by the IT industry and IT proponents include (but are not limited to) IT as an effective means of obtaining Vitamin D (Autier, 2004; Schulman & Fisher, 2009; Lim et al., 2011; U.S. House of Representatives Committee on Energy and Commerce – Minority Staff, 2012; Greinert et al., 2015; Green, 2018), as a treatment for seasonal depression, (Autier, 2004; Green, 2018), and as a way to prevent various cancers (Autier, 2004; Schulman & Fisher, 2009; Lim et al., 2011; U.S. House of Representatives Committee on Energy and Commerce – Minority Staff, 2012). Because of the large amount of misinformation in the public regarding the risks of IT, it is important to regulate IT marketing claims and develop effective methods of providing accurate information to the public.

1.3 Indoor Tanning Legislation

1.3.1 Overview

IT is regulated through legislation in many parts of the world. Currently, Brazil and Australia are the only two countries to completely ban the commercial use of tanning equipment (Pawlak et al., 2012; Sinclair et al., 2014). However, there are a number of jurisdictions with some form of restriction on tanning equipment, including several European nations, some South American countries, and numerous US states and Canadian provinces and territories (Pawlak et al., 2012; Reimann, McWhirter, Papadopoulos, & Dewey, 2018; Government of Canada, 2014). These laws regulate aspects of tanning facility operation such as youth access, protective eyewear, and warning signage (Reimann et al., 2018). In Canada, regulation of IT occurs at multiple levels of government: the federal government is responsible for tanning equipment sold
in Canada, which is covered in the Radiation Emitting Devices Regulations (C.R.C., c. 1370). The Radiation Emitting Devices Regulations contain provisions for the structural requirements for IT equipment, as well as a mandatory health warning label (HWL). The provincial and territorial governments regulate the operation of tanning facilities, such as age restrictions and tanning facility signage (Government of Canada, 2014).

1.3.2 Effectiveness

Health policy is an important strategy for changing social norms and health beliefs, and can impact health behaviours across populations, including those related to IT (Holman et al., 2013; Reimann, McWhirter, Cimino, Papadopoulos, & Dewey, 2019). The impact, and potential impact, of IT legislation has been the subject of a number of studies. In one US study, it was estimated that prohibiting IT in youth under 18 years of age would prevent 61,839 lifetime cases of melanoma and 6,735 deaths caused by melanoma, which would reduce overall melanoma treatment costs by $342 million in that country (Guy, Zhang, Ekwueme, Rim, & Watson, 2017). Another study in the US found that the odds of IT among female high school students were significantly lower in states with any IT legislation, compared to those without (Guy et al., 2014). These findings are supported by a systematic review evaluating the impact of IT legislation in the United States (Reimann et al., 2019), which found that in general, IT legislation is associated with reduced IT among youth. This review also found lower rates of IT among youth in states where IT legislation had been in place for a longer amount of time, compared to those with recently-enacted IT legislation (Reimann et al., 2019). In Canada, the impact of Ontario IT legislation has been studied by the Ontario Sun Safety Working Group, which found no reduction in adolescent (grade 7-12 and under 18) IT in the year following enactment of the
Ontario Skin Cancer Prevention Act (Nadalin et al., 2018). However, the authors reported that more adolescents were refused IT services and noticed warning signage following enactment of the Skin Cancer Prevention Act, though these results were not significant. Additionally, the study found that less adolescent indoor tanners reported that they were not required to wear protective eyewear while tanning in a commercial tanning facility (Nadalin et al., 2018). Some reasons for these mixed results suggested by the authors were the fact that the study was conducted a short time after enactment of the legislation, and the possibility for inadequate compliance and enforcement (Nadalin et al., 2018). Indeed, compliance has been found to vary widely around the world in aspects of IT legislation such as age restrictions, posting of warning signage, provision of risk information, and restrictions on health benefit claims (Reimann et al., 2019).

In order to fully evaluate the effectiveness of IT legislation in Canada, it is important to understand what this legislation covers across Canada. However, a comprehensive analysis of Canadian provincial and territorial IT legislation has not been conducted – a policy research gap which this thesis seeks to address (Chapter 2).

1.4 Health Communication

1.4.1 Applications for Indoor Tanning

Like legislation, health communication strategies have been utilized to inform the public of the risks of IT and discourage this activity (Holman et al., 2013). The use of mass and social media has seen some success in increasing public awareness (Holman et al., 2013). In Denmark, a general sun-safety campaign became very popular and was widely shared on social media, and has been associated with a subsequent reduction in IT (Holman et al, 2013). In Australia, public campaigns and advocacy related to the risks of IT by Clare Oliver and Jay Allen, two individuals
who had developed melanoma, were widely spread in the mass media (Sinclair & Makin, 2008; Holman et al., 2013; Sinclair et al., 2014). This led to greater public awareness, debate, and ultimately, IT bans in Australia (Sinclair & Makin, 2008; Holman et al., 2013; Sinclair et al., 2014). The potential for social media as communication tool for engaging users and targeting social norms, particularly those promoting the tanned ideal, has also been highlighted in the literature (Falzone et al., 2017). This may be particularly effective since it has been shown in the US that social media is often utilized by the IT industry to promote IT to youth and propagate the tanned beauty ideal (U.S. House of Representatives Committee on Energy and Commerce – Minority Staff, 2012; Ricklefs et al., 2016; Falzone et al., 2017).

A number of communication-related interventions for IT have been developed and tested in the literature. Some of these have involved loss-framed messages (i.e., messages which highlight IT risks; Mays & Zhao, 2016); text messages (Evans & Mays, 2016); appearance-focused messages (Hillhouse et al., 2008); pamphlets and postcards (Lazovich et al., 2013); informative websites (Stapleton et al., 2015; Hillhouse et al., 2017); and media literacy interventions (Cho, Yu, Cannon, & Zhu, 2018). Additionally, interventions featuring UV photography, which reveals otherwise invisible UV damage of the skin, have been associated with decreased self-reported use of indoor tanning equipment (McWhirter & Hoffman-Goetz, 2013).

1.4.2 Theory

Health communication and behaviour theories can assist in the development and evaluation of effective health-related messages, including those promoting UV protection and avoidance (Fishbein & Cappella, 2006; Stephenson & Witte, n.d.). Health behaviour theories can
reveal important health beliefs to target in health communication campaigns, while health
communication theory can inform messages that will prompt health prevention behaviours
(Fishbein & Cappella, 2006). The communication research in this thesis (Chapter 3) draws from
the Extended Parallel Process Model (EPPM), a health communication theory which predicts
individuals’ responses to fear appeals (messages intended to change behaviour by eliciting fear;
Witte, 1992), as well as the Health Belief Model (HBM), a health behaviour theory which
predicts individuals’ health behaviour changes based on a number of factors (Rosenstock, 1974).

According to the EPPM, when an individual encounters a fear appeal, they first consider
the level of threat posed by the described hazard, which, if moderate to high, leads to fear in the
individual (Witte, 1992). This level of threat consists of the individual’s perception of their
susceptibility to the consequences of the hazard, and the severity of these consequences (Witte,
1992). If fear is evoked, the individual then considers the level of efficacy, which consists of the
perceived effectiveness of the action recommended by the fear appeal (response efficacy), as
well as their perception of their own ability to carry out this action (self-efficacy; Witte, 1992).
The balance between fear and perceived efficacy is important in determining how an individual
acts in response to the fear appeal (Witte, 1992). When a message heightens an individual’s
perceptions of both threat and efficacy, the individual is more likely to make positive behaviour
changes (Witte, 1992). The EPPM has been used to develop and evaluate messages promoting
sun safety behaviours, and it has been shown that messages which evoke high levels of the threat
of skin cancer, while also eliciting a high perceived efficacy of sunscreen, resulted in more
positive attitudes about sun protection and greater intentions toward sun safe behaviours
(Stephenson & Witte, n.d.).
Like the EPPM, the Health Belief Model (HBM) posits that for behaviour change to occur, an individual must believe that they are susceptible to a particular outcome (perceived susceptibility), and that this outcome is serious (perceived severity) (Rosenstock, 1974). According to this theory, however, the individual must also believe that they would benefit from the behaviour change (perceived benefits) and that there are minimal obstacles to overcome in order to make the behaviour change (perceived barriers; Rosenstock, 1974). Finally, there must be a cue to action to prompt the behaviour change (Rosenstock, 1974). The HBM has informed communication-related interventions for UV protection in the literature – for example, one experimental study found that an intervention based on the constructs of the HBM led to an increase in Iranian farmers’ sun protective behaviours (Jeihooni & Rakhshani, 2019).

1.5 Health Warning Labels

1.5.1 Overview

Health warning labels (HWLs) are at the intersection of health communication and health policy. They have been used and studied for a variety of applications, including tobacco, alcohol, and cannabis packaging (Noar et al., 2016; World Health Organization Regional Office for Europe, 2017; SOR/2018-144). An HWL is also required on all IT equipment in Canada by the federal government (C.R.C., c. 1370). This HWL is intended to inform users of the hazards of the UVR emitted by IT equipment and provide instructions for harm reduction (C.R.C., c. 1370). While the federal government is responsible for tanning equipment labelling, the provinces and territories regulate warning signage posted in tanning facilities (Government of Canada, 2014).

The federal HWL was updated in 2014 to reflect more recent research on the link between IT and skin cancer, and the layout was also updated in response to US research which
found that bulleted lists are more likely to be read (Government of Canada, 2014; U.S. Food and Drug Administration [FDA], 2007). Though the current version of the federal HWL was developed in consultation with government, public health and industry stakeholders, there is no published research on the effectiveness of this label at informing indoor tanners of the risks of IT and deterring this behaviour (Government of Canada, 2014). One objective of this thesis research is to address this research gap (Chapter 3).

1.5.2 Characteristics of Effective HWLs

A number of characteristics are associated with effective warnings. The first of these is the ability to attract attention, which can be increased by placing the warning in a conspicuous location, making the warning large, and using contrasting colours and reader-friendly formats for the text (e.g., lists with bullet points, rather than long paragraphs; Laughery & Wogalter, 2014). Warnings must also affect knowledge (either by providing new information or reminding the viewer of prior knowledge) by informing the viewer of the nature and consequences of the hazard described, as well as how to avoid the hazard (Laughery & Wogalter, 2014). This can be achieved with pictorial symbols that are easy to understand; signal words; colours such as red, orange, and yellow to convey the presence of a hazard; terminology that is familiar to the target audience; short text passages; list formats; and explicit, specific language (Laughery & Wogalter, 2014). The end result of effective warnings is compliance by the viewer, the likelihood of which can be increased with the elements mentioned previously (Laughery & Wogalter, 2014).

The recommendations by Laughery and Wogalter (2014) were developed for warnings in general, including those for chemicals and equipment. However, the elements of effective HWLs specifically have also been studied, particularly for tobacco labels. In a meta-analysis of tobacco
HWLs, Noar et al (2016) developed a message impact framework to describe HWL effects. Similar to the model developed by Laughery & Wogalter (2014), the message impact framework requires that warning labels first attract the attention of potential viewers (Noar et al., 2016). Once the viewer’s attention has been attracted, they react to the HWL, and these reactions affect the viewer’s attitudes and beliefs about smoking (Noar et al., 2016). Subsequently, these attitudes and behaviours affect intentions and behaviours (Noar et al., 2016). Social interactions are also included in the message impact framework, as they can result from viewing HWLs and can influence attitudes, beliefs, and HWL reactions (Noar et al., 2016).

1.5.3 Images in HWLs

Images can also impact the effectiveness of HWLs (Noar et al., 2016). In the tobacco control literature, pictorial HWLs have been experimentally shown to be more effective than text-only warnings at attracting attention (Bansal-Travers, Hammond, Smith, & Cummings, 2011; Cantrell et al., 2013); prompting smokers to attempt to quit smoking (Brewer et al., 2017); causing smokers to think about the risks of smoking (Fathelrahman et al., 2010; Brewer et al., 2017); evoking fear and negative affective reactions to warning labels (Schneider, Gadinger, & Fischer, 2012; Brewer et al., 2017); prompting smokers to think about quitting smoking (Fathelrahman et al., 2010); promoting intentions and motivations to quit smoking (Schneider et al., 2012; Cantrell et al., 2013; Brewer et al., 2017); and improving smokers’ knowledge of the health risks of smoking (Fathelrahman et al., 2010). Studies have also associated pictorial cigarette pack warnings with social interactions about the HWLs, the risks of smoking, and about quitting smoking (Hall et al, 2015; Morgan et al, 2018). Canada is a world leader in pictorial
cigarette pack labelling, as the first nation to add images to tobacco HWLs in 2001 (Hammond, 2011).

Compared to tobacco HWLs, images in IT HWLs have received less attention in the literature. There have been two studies on warning messages for IT (Mays & Tercyak, 2015; Sontag & Noar, 2017). In one experimental study, Mays and Tercyak (2015) tested two conditions among female participants between the ages of 18 and 30: gain-framed (describing the benefits of avoiding IT) versus loss-framed (describing the consequences of IT) warning messages, and graphic image of a woman versus a graphic image of skin. These were compared to a text-only control message (Mays & Tercyak, 2015). The loss-framed images depicted a skin cancer lesion on skin, or a young woman following surgical removal of skin cancer (Mays & Tercyak, 2015). The gain-framed messages depicted a healthy skin, or a woman’s face with healthy skin (Mays & Tercyak, 2015). In this study, the loss-framed graphic warnings decreased intentions to tan indoors and increased intentions to quit IT compared to the text-only control (Mays & Tercyak, 2015). The gain-framed pictorial warnings also increased intentions to quit IT compared to the control, though the loss-framed messages elicited greater quit intentions than the gain-framed (Mays & Tercyak, 2015).

Sontag and Noar (2017) also conducted an experimental study, where they tested pictorial warnings for IT which depicted health effects (skin cancer, immunosuppression, eye damage), appearance damage (premature skin aging and wrinkling, blisters, scars), or immediate risks (skin burns, rashes, eye infections) among female university students. The experimental design also included a text-only control condition (Sontag & Noar, 2017). This study found that the pictorial warnings elicited greater negative affective reactions (i.e. fear, disgust, worry,
uneasiness, feeling upset), compared to the text-only control (Sontag & Noar, 2017). The pictorial health effects and appearance damage warnings were also perceived as more effective than both the pictorial immediate risk warnings and the control condition (Sontag & Noar, 2017). However, the text-only control was perceived as more believable than the pictorial messages and, despite the positive findings reported by Mays and Tercyak (2015) of pictorial IT warnings on intentions to tan indoors, Sontag and Noar (2017) did not find a significant effect of any pictorial message condition on tanning intentions. In this study, the authors also analyzed the effects on perceived effectiveness within each message condition, and found that the messages with the highest perceived effectiveness were those that depicted eye damage, premature aging, blisters, scarring, eye infections, and skin rashes (Sontag & Noar, 2017). These studies suggest that the addition of images would benefit IT HWLs. However, the mixed results on the impact of images on IT intentions reveal a need for further study on the effectiveness of images in IT HWLs, and which images are the most effective (Sontag & Noar, 2017). Additionally, though the text-only control labels in the study by Mays and Tercyak (2015) were based on the warning label required by the US Food and Drug Administration (FDA), neither of these studies evaluated an existing HWL. The only published research on public perceptions of an IT HWL is a focus group study conducted by the FDA, which evaluated participant perceptions of the current, text-only HWL, and a text-only alternative (US Food and Drug Administration, 2012). Thus, research on current IT HWLs and the impact of images is limited, particularly in a Canadian context.
1.6 Research Objectives

Based on theory and previous research, it is clear that legislation and communication could address the individual and social motivations to tan indoors, the frequency of IT, and the rising incidence of melanoma. In Canada and around the world, these approaches have been introduced in the form of indoor tanning legislation covering a variety of aspects of IT, as well as HWLs. However, little is known about what is currently covered by IT legislation across Canada. This is especially important since each province and territory is responsible for regulating tanning salon operation within their own jurisdictions (Government of Canada, 2014), which could result in variation in this legislation across Canada. Additionally, very little is known about the impact of the current federal IT HWL, which is the only federally-mandated risk communication strategy for IT. This represents another important research gap. Thus, the overall goal of this research is to expand our knowledge about which aspects of IT facility operation are currently regulated across Canada, the impact of current federally-regulated risk communication strategies, and how each of these could be improved. The specific research objectives are:

1) to determine the presence, content, and comprehensiveness of IT legislation across Canada, as well as explore strengths and gaps in the legislation (Chapter 2); and

2) to determine past-year indoor tanners’ perceptions of the current federal HWL, as well as pictorial, evidence-based alternatives (Chapter 3).

This research will provide greater insight into the scope and effectiveness of legislation and risk communication related to IT in Canada. Based on the results, recommendations are outlined in each chapter for stronger legislation and HWLs, which policymakers and other
stakeholders can consider when introducing or updating new skin cancer prevention strategies.

The methods and results of this research could also be applied to other jurisdictions in Canada, as well as globally, to contribute to the development of comprehensive IT legislation and effective HWLs.
1.7 References


*Cannabis Regulations, SOR/2018-144.*


Radiation Emitting Devices Regulations, C.R.C., c. 1370.


2 Chapter 2: Assessing the content and comprehensiveness of provincial and territorial indoor tanning legislation in Canada

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2.1 Abstract

**Introduction:** Canadian provincial and territorial governments have enacted legislation in response to health risks of artificial ultraviolet radiation from indoor tanning. This legislation, which differs from jurisdiction to jurisdiction, regulates the operation of indoor tanning facilities. The content and comprehensiveness of such legislation—and its differences across jurisdictions—have not been analyzed. To address this research gap, we conducted a systematic, comprehensive scan and content analysis on provincial and territorial indoor tanning legislation, including regulations and supplementary information.

**Methods:** Legislative information was collected from the Canadian Legal Information Institute database and an environmental scan was conducted to locate supplementary information. Through a process informed by the content of the legislation, previous research and health authority recommendations, we developed a 59-variable codebook. Descriptive statistics were calculated.

**Results:** All provinces and one of three territories have legislation regulating indoor tanning. Areas of strength across jurisdictions are youth access restrictions ($n = 11$), posting of warning signs ($n = 11$), penalties ($n = 11$) and restrictions on advertising and marketing targeted to youth ($n = 7$). Few jurisdictions, however, cover areas such as protective eyewear ($n = 4$), unsupervised tanning ($n = 4$), provisions for inspection frequency ($n = 4$), misleading health claims in
advertisements directed toward the general public \((n = 2)\) and screening of high-risk clients \((n = 0)\).

**Conclusion:** All provinces and one territory have made progress in regulating the indoor tanning industry, particularly by prohibiting youth and using warning labels to communicate risk. Legislative gaps should be addressed in order to better protect Canadians from this avoidable skin cancer risk.

**Keywords:** health policy, ultraviolet radiation, skin cancer, melanoma, indoor tanning, suntan, ultraviolet rays, skin neoplasms

**Highlights**

- All Canadian provinces and one of three territories have enacted indoor tanning legislation.
- There was a strong emphasis in the legislation on restricting youth access to indoor tanning and advertising and marketing of indoor tanning services to youth.
- Other well-covered areas were presence of warning signs and indication of penalties for infractions.
- Areas that likely require stronger legislative action include risk information provided to clients, client protection with respect to areas such as eyewear and exposure dose and restrictions on advertising and marketing to the general public.
- Very few jurisdictions identified inspection frequency, which may have implications for compliance by indoor tanning businesses.
2.2 Introduction

Skin cancer, commonly classified as either melanoma or non-melanoma skin cancer (NMSC), is the most common type of cancer in Canada.¹ The incidence of melanoma, the most fatal form of skin cancer, is increasing steadily—2.1% in males and 2.0% in females¹,² every year between 1992 and 2013. In 2017, it was projected that 7200 Canadians would be newly diagnosed with melanoma and 1250 would die from this cancer.² Exposure to ultraviolet (UV) radiation, including that from tanning equipment, has been demonstrated to increase the risk of skin cancer, including potentially fatal cutaneous and ocular melanomas.³,⁴ UV radiation has been classified by the World Health Organization (WHO) as a human carcinogen.³

The risk of skin cancer due to indoor tanning is especially pronounced if first use occurs at an early age: there is a 59% higher risk of cutaneous melanoma among people who begin using indoor tanning devices before the age of 35 than among those who have never used tanning beds.⁵ Studies have also reported increased odds of ocular melanoma if exposure to tanning equipment begins before age 20.³ The use of these devices before the age of 25 can also increase the risk of developing non-melanoma skin cancer, including basal cell carcinoma and squamous cell carcinoma.⁴ Table 2-1 summarizes the risks associated with UV tanning found in the literature.³⁴,⁶⁻¹⁰

Despite these risks, an estimated 1.35 million Canadians participated in this activity in 2014.¹¹ In addition, though the risk of skin cancer is higher if first use of indoor tanning devices occurs early in life⁴,⁵ and melanoma is one of the most commonly diagnosed cancers in youth aged 15 to 29,¹² use of indoor tanning devices is highest among young people, particularly young women.¹¹ These trends may be due in part to the propagation of tanned skin as a beauty ideal,
conflicting information on the dangers of indoor tanning in the media\textsuperscript{13} and misleading claims from the indoor tanning industry.\textsuperscript{14}

Legislation regulating indoor tanning facilities influences the use of these devices, especially by young people. For example, a study in the United States of America (USA) determined that adolescent females in states with indoor tanning legislation were less likely to tan indoors.\textsuperscript{15} In addition, legislation has been noted as possibly contributing to declines in smoking rates and changes in attitudes toward smoking, as well as reduced incidence of traffic deaths related to impaired driving and absence of seatbelts.\textsuperscript{16-18} As it has for these issues, health policy may impact indoor tanning behaviours.

In Canada, legislation addressing indoor tanning exists at the federal level as the \textit{Radiation Emitting Devices (RED) Act} and Regulations.\textsuperscript{19,20} This legislation regulates certain features of indoor tanning equipment sold in Canada, such as timers and UV bulbs used in the devices, and manufacturers’ labels.\textsuperscript{20} Health Canada has also developed the voluntary \textit{Guidelines for Tanning Salon Owners, Operators, and Users}, which contain recommendations for the use of indoor tanning devices.\textsuperscript{6} However, the responsibility of regulating tanning salon operation falls on the provincial and territorial governments, who, along with some municipalities, have enacted legislation in this area. These laws are often described in Acts enacted by provincial legislative assemblies.\textsuperscript{21} Acts may also designate a person or group to develop additional rules and further guide the Act through pieces of legislation known as regulations.\textsuperscript{21}

Though it is known that provincial and territorial indoor tanning legislation does exist, a comprehensive analysis of this policy across provinces and territories has not yet been
conducted. Analyses of such legislation in the USA by Woodruff et al. and Gosis et al. have provided useful comparisons in the indoor tanning legislation between states and across several key aspects of tanning facility operation.\textsuperscript{22,23} They have also highlighted areas of strength and areas for potential improvement in the legislation.\textsuperscript{22,23} Similarly, analyses of other forms of health legislation covering areas such as tobacco, alcohol and behaviours surrounding obesity have been conducted.\textsuperscript{24-28} These have provided valuable information on the state and coverage of these health policies.\textsuperscript{24-28} Analyzing the content of Canadian indoor tanning legislation will therefore allow for the collection of information that may assist in future policy developments in this field. To obtain this information and fill the current gap in the research on Canadian indoor tanning legislation, we collected all provincial and territorial legislative and supplementary information and conducted a content analysis of these laws.

This paper outlines the collection of this legislative information; development of a codebook to conduct the content analysis; and the results and applications of this research.

\subsection*{2.3 Methods}

Content analyses are a useful approach for studying and comparing legislative content.\textsuperscript{29} The methodology of this study involved systematically collecting all Canadian provincial and territorial indoor tanning legislation; locating any material supplementary to the legislation; developing a codebook to analyze the legislation; and conducting a comprehensive content analysis on all information collected.
2.3.1 Collection of Legislation and Supplementary Information

We located current Acts and regulations in the “Legislation” category of the Canadian Legal Information Institute (CanLII) database using the “Document Text” search function. Search parameters were restricted to one province or territory at a time. Search terms included the disease (“skin cancer”), the activity (“tanning”) and the exposure (“ultraviolet light,” “UV light,” ultraviolet radiation,” “UV radiation”). For each piece of legislation, CanLII provided links to regulations and enabling statutes where applicable. Some pieces of indoor tanning legislation also described additional Acts that address areas such as enforcement. These Acts were collected in CanLII with the name of the legislation as the search term. Table 2-2 contains all legislative and supplementary information collected, as well as the enforcement status of each law.

Indoor tanning legislation was not located for Nunavut and Yukon on CanLII. The absence of indoor tanning legislation in these territories was confirmed using each territory’s legislative website.

In many cases, provincial and territorial indoor tanning legislation was accompanied by supplementary materials to provide information beyond the legislative contents and to help tanning salon operators and clients interpret the legislation. Common examples of this supplementary information included guidelines for tanning salon operators, copies of warning signs for posting on the premises and webpages provided by provincial or territorial health authorities with more information on areas such as enforcement and inspection.
An environmental scan was used to collect any relevant supplementary information or materials related to each province’s indoor tanning legislation. We obtained this information using the search functions on provincial and territorial health ministry websites. Search terms used on each of these websites included “tanning” and “indoor tanning.” To obtain more information on inspection, we also included the search term “tanning inspection” on all health ministry websites. In Quebec, we also included the search term “bronzage” in order to capture material in French.

2.3.2 Codebook Development and Application

Once all legislative information was collected, we developed a comparison chart of indoor tanning legislation to highlight common features of Canadian indoor tanning legislation, which we incorporated into the codebook. The codebook was also informed by research and recommendations from major public health authorities. For example, variables sourced from guidelines developed by WHO for tanning salon operators included the refusal of services to clients prone to sunburn and prohibition of misleading health claims in advertisements.8 Some variables sourced from Health Canada’s 2014 Guidelines for Tanning Salon Owners, Operators, and Users included compliance with tanning device manufacturers’ recommended maximum exposure duration and use of protective eyewear.6 These recommendations from WHO and Health Canada served as examples of contents that the ideal indoor tanning legislation may have.

Some variables used in the studies on US indoor tanning legislation, such as enforcement authority,23 proof of operator training22 and provisions for checking client age identification,23 were also incorporated in this codebook. One of these studies did not provide the full scoring tool used in the research; this was obtained by contacting the principal investigator.
We developed the codebook and applied it to the legislation through a consensus-based process. A draft incorporating the information described above was created, and then applied to a sample of provinces or territories while any coding issues were discussed among the research team. We then revised the codebook, and repeated this process until a final version was developed. We applied this final codebook to all legislative contents while regularly discussing the process and any remaining issues. Throughout the codebook development and final coding process, we obtained and incorporated feedback from policy experts and public health professionals in cases where the legislative language was ambiguous.

The final codebook consists of 12 categories, which are subdivided into 59 variables, each aligned to one legislative component. For most variables, coding was dichotomous and on a “presence” or “absence” basis for legislative components. However, some required more coding options to convey more detail about the legislative components. For example, it was necessary to create three coding options in the variable that analyzed indoor tanning prohibitions for youth: these options were “no,” “minimum age to access tanning services is 1–17” and “minimum age is 18 or 19.” When it was important to determine the specificity of the legislative language for a particular variable, coding options were created to reflect this. For example, in the inspection authority variable under the enforcement category, there were three main coding options: “no,” “nonspecific person/group given as inspector” and “specific person/group given as inspector.” This methodological approach was informed by the scoring tool developed by Gosis et al.\textsuperscript{23} Other variables required information that was specific to each province or territory, such as the number of warning signs required and details of penalties for violation of the legislation. In these
cases, there were no coding options but the information was entered directly into the data spreadsheet.

Once all materials were coded, we calculated descriptive statistics (frequencies) using SPSS version 25.0 for Mac (IBM, Armonk, NY, USA). These statistics included the proportions of provinces and territories that were given each coding option for each variable.

### 2.4 Results

All 10 provinces and one of the three territories in Canada have introduced legislation to regulate indoor tanning; this equates to a national legislative coverage of 85%. Table 2-3 summarizes the results across all variables for the 11 provinces/territories that have indoor tanning legislation.

#### 2.4.1 Access Restrictions

All provinces/territories prohibit youth under the age of 18 or 19 (minors) from accessing indoor tanning services. However, no region has placed such prohibitions on those beyond this age group (i.e. adults are not prohibited from tanning in any jurisdiction). No jurisdiction allows exemptions to these laws for minors who have parental consent. However, five provinces/territories allow minors who have a medical prescription to access indoor tanning services.

All provinces and territories require salon operators to check the ages of potential clients through photo identification to ensure that they meet the minimum age requirement. Nine have this requirement for persons who appear to be under the minimum age of 18 or 19, and two have this requirement for any potential client appearing to be under the age of 25.
2.4.2 Advertising and Marketing

Of the 11 provinces and territories with indoor tanning legislation, seven have some restriction on advertising and marketing of indoor tanning services. All of these prohibit indoor tanning advertisements directed to youth, while none prohibit these advertisements from targeting members of other age groups (i.e. adults). Four provide specific language to explain provisions against youth-oriented advertisements (e.g. prohibitions on advertising in certain locations or media accessed frequently by youth). Five prohibit advertisements with misleading health claims directed to youth, while two prohibit these claims from targeting other age groups. Two jurisdictions with advertising restrictions require advertisements to disclose the minimum age requirements and health risks of indoor tanning with respect to people of all ages.

2.4.3 Warning Signs

All provinces/territories with indoor tanning legislation require at least one warning sign to be posted in tanning facilities. The number of unique warning signs to be posted in indoor tanning facilities ranges from one (BC, SK, MB, PE) to four (AB, ON). Warning signs in all jurisdictions inform clients of the minimum age to access indoor tanning services. All but one province/territory require warning signs to indicate at least one health risk of indoor tanning (e.g. “skin cancer,” “serious injury” or “burns”). Eight include warning signs that indicate at least one aesthetic risk of indoor tanning (e.g. “premature aging” or “skin wrinkling”). In addition, about half mandate warning signs to communicate at least one personal characteristic (e.g. certain medical conditions, medications and skin types) that would increase a person’s likelihood of experiencing the adverse effects of indoor tanning.
The number of unique locations for warning signs in a tanning facility ranges from one (BC, SK) to four (AB, ON). The legislation for seven provinces/territories provides specific descriptions of required warning sign locations, such as maximum distance from tanning equipment or cash registers at point of sale. Four provide vague descriptions by stating that signage must be “prominent” or “easily viewed.” In terms of exact locations, five jurisdictions require warning signs to be posted on or near an entrance door to the premises, 10 require a sign to be visible to the client at point of sale, three require a sign to be visible to employees at the point of sale to remind them of the minimum age requirement and eight require a warning sign to be posted on or near tanning equipment. Two describe other or vague locations where warning signs must be posted: in Saskatchewan, the sign must be placed in a prominent or easily viewed location; in Manitoba, there is an option to place one of the required signs in any location where it can be seen by a person entering the facility.

2.4.4 Protective Eyewear

In total, four provinces/territories contain provisions for client use of protective eyewear while using indoor tanning equipment. All four also require that this eyewear comply with the specifications laid out in the RED Regulations and two of these provinces/territories state that the eyewear must securely cover the eyes of the user. Requirements for the provision of protective eyewear to clients varied across jurisdictions. One province allows clients to provide their own eyewear for use, but does not specify that operators must examine the eyewear to determine compliance with the legislation. Another province states that clients may provide their own eyewear, but the operator must inspect it for compliance, while two other provinces/territories mandate that the tanning facilities provide the eyewear for purchase or use. In addition, two
require operators to instruct clients on the proper use of protective eyewear before allowing access to indoor tanning equipment.

2.4.5 Unsupervised Tanning

Four provinces/territories prohibit indoor tanning facilities from selling access to equipment that does not require monitoring by an attendant (i.e. coin-operated devices or any other equipment that clients can operate on their own).

2.4.6 Operator Training

Salon operator training is mentioned in the legislation of three provinces/territories. One of these jurisdictions provides further information on how this training is to be conducted. None of the collected pieces of legislation state that operators must have proof of training.

2.4.7 Exposure Dose

No jurisdiction requires tanning facilities to comply with the maximum exposure times or the minimum interval times between consecutive exposures, as recommended by the manufacturer.

2.4.8 Client Information and Acknowledgement of Risks

Two provinces/territories require risk information be provided to clients in a format above and beyond warning signs. The client information provided by salon operators in both of these jurisdictions must contain at least one health risk of indoor tanning. However, only one jurisdiction (NL) requires that client information disclose at least one aesthetic risk and at least one personal factor that could increase a client’s risk of adverse effects. No province or territory
requires clients to acknowledge verbally or with a signature that they understand the risk information provided.

2.4.9 Screening

No Canadian jurisdiction has made it mandatory for operators to recommend or require that certain high-risk potential clients (e.g. those with type 1 skin [highly sensitive, always burns, never tans]) avoid using indoor tanning devices.

2.4.10 Enforcement

2.4.10.1 Reporting of Operation

Six provinces/territories require indoor tanning facilities to be registered with a health authority. All of these either describe methods of keeping registries of active tanning facilities accurate and up-to-date or mention authorities responsible for this task.

2.4.10.2 Compliance and Inspection

All provinces/territories with indoor tanning legislation require inspections of indoor tanning facilities to help ensure compliance. Two jurisdictions (SK, ON) mandate that inspections of indoor tanning facilities occur primarily in response to complaints. The legislation in five jurisdictions also indicates the possibility for proactive inspections (i.e. those that are not in response to complaints). Four provinces/territories clearly indicate a requirement for these proactive inspections by providing a frequency at which indoor tanning facilities must be inspected: one provides a specific interval (“yearly” in NT) and three give vague frequencies (“regularly” in NL, “from time to time” in NS, “routinely” in PE).
In 10 jurisdictions, the legislation identifies at least one specific person or group responsible for conducting inspections, most commonly environmental health officers/consultants \((n = 5)\) or public health inspectors/officers \((n = 5)\). It is explicitly stated in the legislation of three provinces/territories that these inspectors may enter indoor tanning facilities without providing prior notice to owners or operators.

### 2.4.10.3 Penalties

Specific penalties are outlined in the legislation for all provinces/territories. Penalties are either described in the indoor tanning legislation or included in general penalties for violations of all provisions within public health acts. All penalties increase in severity for repeated or continued offences, or repeat for each day an offence continues. All provinces/territories describe fines as penalties for offences. However, some public health acts also mention imprisonment as the penalty for an offence. In Nova Scotia, suspensions from providing indoor tanning services are also possible penalties. In Quebec, there is a $100 fine for minors who were found accessing indoor tanning services.

### 2.5 Discussion

Most provinces and territories have introduced legislation to protect Canadians from the health risks associated with artificial tanning, which represents important progress considering no provincial or territorial indoor tanning legislation existed seven years ago. This legislation is very much focused on youth access restrictions. Coverage of warning signs, penalties and advertising directed to youth were also strong. However, there were some gaps across jurisdictions in terms of other forms of risk communication, screening of potential clients, unsupervised tanning restrictions, compliance with manufacturer exposure recommendations and
protective eyewear requirements. In addition, while all jurisdictions mandate inspections, the way these provisions are laid out in the legislation may not ensure sufficient enforcement.

Indoor tanning legislation was not present in Nunavut and Yukon, each with a population of 36,000.\textsuperscript{30,31} An Internet search indicates there are few tanning facilities operating in each territory. We are not aware if these territories have the resources for regulating these issues. However, it may be possible for them to adopt other provincial laws. In addition, an existing bylaw in the City of Whitehorse, Yukon, likely covers the majority of tanning salons in Yukon.\textsuperscript{32}

The fact that all jurisdictions with indoor tanning legislation prohibit the sale of indoor tanning services to minors is likely due to findings that the risks of indoor tanning are especially pronounced in this group, as well as to the legal precedent of restricting alcohol and tobacco to youth. This is an important step, as it was found that female high school students in the USA, for example, were less likely to use these services if they live in states with age restriction laws;\textsuperscript{15} in Canada, the highest prevalence of indoor tanning is among young women.\textsuperscript{11} However, although the risk of developing cutaneous melanoma from indoor tanning devices is particularly high in those who first use them before age 35,\textsuperscript{5} incidence is higher in older Canadians.\textsuperscript{1} Despite this, no laws in Canada prevent those over 18 or 19 from using indoor tanning beds.

Other high-risk Canadians may also be permitted to undergo harmful exposure to UV radiation under provincial and territorial legislation, since most jurisdictions do not require that clients be screened prior to using indoor tanning devices. For example, 28% of Canadian indoor tanning device users are reported to have skin that is susceptible to sunburn\textsuperscript{11} while Health
Canada recommends that people who always burn and never tan should be advised against indoor tanning.\textsuperscript{6}

Most, but not all, provinces and territories with indoor tanning legislation require that health and aesthetic risks, as well as personal risk factors, of indoor tanning be displayed in warning labels in tanning facilities. This is promising, given the success of tobacco warning labels. However, and of concern, approximately half of indoor tanning users do not consult the posted warning signs each time they tan.\textsuperscript{11} Thus, there is a need for risk information through other means, such as documents or verbal communication provided by salon operators. However, only two provinces currently require operators to do this, representing a potential area for improvement.

While warning signs are important, the people seeing them are already somewhat committed to the behaviour. Therefore, communicating health risks and preventing misinformation through advertisements is also important. However, most jurisdictions do not require tanning facilities to disclose this risk information when advertising their services. In addition, in most—but not all—provinces and territories, regulation of misleading advertisements directed toward youth was common, while misleading advertisements directed toward the remainder of the public were rarely restricted. The indoor tanning industry is known to downplay the risks of indoor tanning while emphasizing the supposed benefits, and many of their claims have been disproven.\textsuperscript{14} Limited regulation of these claims may contribute to misinformation about the hazards of indoor tanning. For example, 62\% of indoor tanning users aged 12 and over have said that obtaining a base tan—a misleading claim used by indoor tanning salons—as the reason for their usage of these devices.\textsuperscript{11,33} The potential for misinformation does
not end at the age of 18, and thus protection from misleading advertisements for all ages is necessary.

The ocular effects of indoor tanning are important to consider when regulating tanning facilities. Thus, it is a concern that less than half of provinces and territories with indoor tanning legislation require clients to use protective eyewear. The federal RED Regulations require protective eyewear with certain specifications to be included with indoor tanning equipment sold in Canada, but do not contain provisions for client use of this eyewear. The provinces and territories must shoulder some responsibility to ensure that clients are adequately protected by eyewear while tanning.

The RED Regulations require tanning device manufacturers to label each piece of equipment with the recommended exposure schedule, yearly maximum exposure time and minimum interval between indoor tanning sessions. However, no provinces or territories had legislation mandating that these recommendations must be followed, despite Health Canada’s *Guidelines for Tanning Salon Owners, Operators, and Users*, which state that the first and maximum exposure times on these labels are not to be exceeded. There appears to be a gap between federal and provincial legislative coverage in all jurisdictions, despite evidence suggesting a dose–response relationship between indoor tanning and skin cancer. The extent to which indoor tanning facilities are following these recommendations is unclear, though 18% of indoor tanning users have reported not following the exposure schedule recommended by manufacturers. This is also a concern since only four provinces/territories prohibit unsupervised use of indoor tanning equipment and only three mention operator training in the legislation. Thus, there may be more opportunities for the misuse of these devices. To reduce
risks to clients, WHO advises against the use of unsupervised tanning equipment and recommends the presence of an operator who is trained in procedures such as recognizing clients’ personal risk factors and emergency protocols.  

Legislative impact can only be maximized through comprehensive enforcement protocols by authorities and compliance by salon operators. All provinces and territories require inspections for compliance and outline specific penalties, which may help to deter tanning facility operators from violating the legislation. However, the legislation in most provinces/territories does not mention how often indoor tanning facilities must be inspected for compliance. In those provinces and territories that do state a frequency, only one is specific. In a study of 3647 indoor tanning facilities in the USA, Pichon et al. found that facilities were more likely to comply with youth access restrictions if there were frequent inspections. Regular inspections may therefore have an impact on compliance with indoor tanning legislation, and should be outlined in more detail in provincial and territorial laws.

Based on legislative gaps that we have identified in our analysis, we provide recommendations for provincial and territorial governments (Table 2-4). In addition, we recommend that the federal government issue an evidence-based document to inform provincial and territorial indoor tanning legislation. This may help provinces and territories incorporate additional, evidence-based regulations or strengthen existing ones. We acknowledge that additional evidence would make these recommendations more robust.
2.5.1 **Strengths and Limitations**

This study is the first comprehensive analysis of provincial and territorial indoor tanning legislation in Canada. By incorporating laws, regulations and supplementary information, we have conducted a content analysis that is significant in both breadth and depth. This enabled us to highlight areas of strong coverage, as well as limitations within each jurisdiction and across Canada. This research lays the necessary foundation for future comparisons and evaluations, and provides policy stakeholders with the information necessary to investigate effectiveness and advocate for improved legislative coverage. It also provides provincial and territorial authorities with detailed information about the landscape of indoor tanning legislation across the country, which may motivate legislative improvements and, ultimately, gold standard legislation.

Though the enforcement content of the legislation was analyzed in this study, the actual enforcement practices were not included because published enforcement data were not readily available at the time of writing. In order for true legislative effectiveness to be examined, future research should investigate the practices of enforcement authorities with respect to indoor tanning legislation. Compliance with the legislation was also not measured in this study. If compliance with the provincial and territorial legislation is low, these laws will not be effective. Indeed, there is evidence from the USA that compliance with some aspects of indoor tanning legislation (labelling, risk communication, false claims) is low.\(^{33,36}\) To accurately measure the effectiveness of indoor tanning legislation, it is important to investigate compliance in each province and territory. For example, mixed results have been found regarding the success of the provincial indoor tanning legislation in Ontario.\(^{37}\)
One of the challenges of this research was interpreting the legal language. It has been said that “the law is a profession of words” and, as such, the meaning of words within legal documents is sometimes ambiguous in the same way they can be in other contexts. Although we addressed ambiguity in legal language by consulting with public health and policy experts and health authorities in some of the jurisdictions studied, there may be alternative interpretations.

2.5.2 Future Research

It would be helpful to have an objective, numerical method for between-jurisdiction comparisons of indoor tanning legislative coverage. The results of this content analysis could inform the development and validation of a scoring tool for Canadian provincial/territorial indoor tanning legislation, similar to those introduced by Gosis et al. and Woodruff et al. The scores may also be useful in determining whether higher legislative coverage, indicated by a higher score, corresponds to higher levels of compliance and enforcement, and lower prevalence of use, especially among youth.

Though this research focused on provincial and territorial legislation, analyses of indoor tanning bylaws should also be conducted. This will provide valuable information on what is being covered by municipalities and allow for comparisons between these bylaws and provincial and territorial legislation. While collecting legislation for this analysis, we found indoor tanning bylaws in British Columbia (Capital Regional District), Ontario (Region of Peel, Mississauga, Brampton, Oakville, Belleville) and Yukon (Whitehorse). Because the bylaws in these municipalities may contain different provisions than their respective provinces, it is important their content be analyzed in future work.
2.6 Conclusion

All Canadian provinces and one of three territories have enacted legislation to regulate the operation of indoor tanning facilities. This represents an encouraging response by governments to the research on the health risks of this activity and related public health recommendations. Most of these laws focus on youth. Legislative coverage of warning sign requirements, penalties, advertising directed toward youth and inspection requirements were also strong. Good first steps have been made in terms of legislation to protect Canadians from skin cancer and other health effects related to indoor tanning, but amendments in some areas could protect the public more effectively. We recommend more legislative attention in the areas of client information, client protection (e.g. protective eyewear, screening of high-risk clients and restrictions on duration and frequency of use), advertising in general (especially health claims) and inspection frequency to ensure that Canadians are well-protected and facilities are following the law.

The results of this study provide policy stakeholders with a detailed overview of the current state of indoor tanning laws across Canada, including how the content of this legislation varies across the country, as well as legislative areas that are receiving high coverage and areas where increased legislative efforts may be needed. Combined with future research needed to determine compliance with, and impact of, indoor tanning legislation, this research contributes to a clearer picture of indoor tanning legislation and activity in Canada.
2.7 Acknowledgements

This research did not receive any specific funding. SG is supported through the University of Guelph’s OVC MSc Scholarship and Graduate Tuition Scholarship, as well as a Canada Graduate Scholarship-Master’s from the Canadian Institutes of Health Research.
2.8 References


31. Statistics Canada. **Yukon [Territory] and Canada [Country]** (table). **Census Profile.**


### 2.9 Tables

#### Table 2-1 Negative Outcomes Associated with UV Tanning

<table>
<thead>
<tr>
<th>Skin effects</th>
<th>Melanoma, skin burns, premature skin aging (wrinkling, changes in pigmentation, loss of elasticity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye effects</td>
<td>Ocular melanoma, photokeratitis, photoconjunctivitis, cataracts, pterygium</td>
</tr>
<tr>
<td>Other effects</td>
<td>Immune suppression, dependence</td>
</tr>
<tr>
<td>Province/Territory</td>
<td>Act</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>British Columbia (BC)</td>
<td><em>The Public Health Act, 2008</em></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Saskatchewan (SK)</td>
<td><em>The Public Health Act, 1994</em></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Province/Territory</td>
<td>Act</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ontario (ON)</td>
<td><em>Skin Cancer Prevention Act (Tanning Beds), 2013</em></td>
</tr>
<tr>
<td>Quebec (QC)</td>
<td><em>An Act to Prevent Skin Cancer Caused by Artificial Tanning, 2013</em></td>
</tr>
<tr>
<td>Prince Edward Island (PE)</td>
<td><em>Public Health Act, 1988</em></td>
</tr>
<tr>
<td>Province/Territory</td>
<td>Act</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Northwest Territories (NT)</td>
<td><em>The Public Health Act, 2007</em></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Yukon (YT)</td>
<td>n/a</td>
</tr>
<tr>
<td>Nunavut (NU)</td>
<td>n/a</td>
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</table>
Table 2-3 Comprehensiveness of indoor tanning legislation in eleven Canadian provinces/territories

<table>
<thead>
<tr>
<th>Legislative provision</th>
<th>Provinces/territories with provision</th>
<th>Number of jurisdictions with provision, $n$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access restrictions (general public)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoor tanning prohibited for all ages</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Access restrictions (youth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoor tanning prohibited for youth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum age is 1–17</td>
<td>—</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Minimum age is 18 or 19</td>
<td>BC, AB, SK, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>11 (100)</td>
</tr>
<tr>
<td>Exception for parental consent</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Exception for medical prescription</td>
<td>BC, AB, SK, MB, PE</td>
<td>5 (45.5)</td>
</tr>
<tr>
<td>Provisions for checking age identification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under minimum age of 18 or 19</td>
<td>BC, SK, MB, QC, NB, NS, NL, PE, NT</td>
<td>9 (81.8)</td>
</tr>
<tr>
<td>Under age of 25</td>
<td>AB, ON</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Advertising and marketing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising/marketing restricted</td>
<td>AB, SK, MB, ON, QC, NB, PE</td>
<td>7 (63.6)</td>
</tr>
<tr>
<td>Advertising and marketing (youth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative provision</td>
<td>Provinces/territories with provision</td>
<td>Number of jurisdictions with provision, n (%)</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Prohibited if directed toward youth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (nonspecific)</td>
<td>QC, NB, PE</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td>Yes (specific)</td>
<td>AB, SK, MB, ON</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>False claims prohibited toward youth</td>
<td>SK, MB, ON, QC, NB</td>
<td>5 (45.5)</td>
</tr>
<tr>
<td>Disclose age ban in advertisements</td>
<td>AB, QC</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Disclose health risks specific to youth in advertisements</td>
<td>AB, QC</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Advertising and marketing (general public)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prohibited toward the general public</td>
<td>—</td>
<td>0 (0)</td>
</tr>
<tr>
<td>False claims prohibited toward general public</td>
<td>QC, NB</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Disclose health risks specific to general public</td>
<td>AB, QC</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Warning signs</td>
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<td></td>
</tr>
<tr>
<td>Required</td>
<td>BC, AB, SK, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>11 (100)</td>
</tr>
<tr>
<td>Entrance door</td>
<td>AB, ON, QC, NB, NS</td>
<td>5 (45.5)</td>
</tr>
<tr>
<td>Point of sale (facing client)</td>
<td>AB, BC, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>10 (90.9)</td>
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<tr>
<td>Point of sale (employee reminder)</td>
<td>AB, ON, NS</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td>Legislative provision</td>
<td>Provinces/territories with provision</td>
<td>Number of jurisdictions with provision, n (%)</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>---------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>On or near tanning equipment</td>
<td>AB, MB, ON, NB, NS, NL, PE, NT</td>
<td>8 (72.7)</td>
</tr>
<tr>
<td>Other or vague location</td>
<td>SK, MB</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Additional location requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (vague)</td>
<td>BC, SK, QC, NB</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>Yes (specific)</td>
<td>AB, MB, ON, NS, NL, PE, NT</td>
<td>7 (63.6)</td>
</tr>
<tr>
<td>At least one health risk conveyed</td>
<td>AB, SK, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>10 (90.9)</td>
</tr>
<tr>
<td>At least one personal risk factor conveyed</td>
<td>MB, NB, NS, NL, NT</td>
<td>5 (45.5)</td>
</tr>
<tr>
<td>At least one aesthetic risk conveyed</td>
<td>SK, MB, QC, NB, NS, NL, PE, NT</td>
<td>8 (72.7)</td>
</tr>
<tr>
<td>Age ban conveyed</td>
<td>BC, AB, SK, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>11 (100)</td>
</tr>
<tr>
<td>Protective eyewear</td>
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<tr>
<td>Required</td>
<td>MB, ON, NL, NT</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>Compliance with federal regulations</td>
<td>MB, ON, NL, NT</td>
<td>4 (36.4)</td>
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<tr>
<td>Securely covers eyes</td>
<td>MB, ON</td>
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<tr>
<td>Legislative provision</td>
<td>Provinces/territories with provision</td>
<td>Number of jurisdictions with provision, n (%)</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Provision of eyewear</td>
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<tr>
<td>Clients can provide their own (operator not required to check for compliance)</td>
<td>ON</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td>Clients can bring their own (operator must check for compliance)</td>
<td>MB</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td>Provided by operator</td>
<td>NL, NT</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Operator must instruct client on proper use</td>
<td>MB, ON</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Unsupervised tanning</td>
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<td></td>
</tr>
<tr>
<td>Prohibited</td>
<td>AB, MB, ON, NL</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td>Operator training</td>
<td></td>
<td></td>
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<tr>
<td>Training required</td>
<td>BC, MB, ON</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td>Training information provided</td>
<td>BC</td>
<td>1 (9.1)</td>
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<td>Proof of training</td>
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<tr>
<td>Exposure dose</td>
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<td>Compliance with recommended exposure duration</td>
<td>—</td>
<td>0 (0)</td>
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<tr>
<td>Compliance with recommended exposure frequency</td>
<td>—</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Client information/Acknowledgement of risks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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| Legislative provision | Provinces/territories with provision | Number of jurisdictions with provision, $n$ (%)
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Information other than warning signs provided</td>
<td>AB, NL</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Client must acknowledge risks</td>
<td>—</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Information must convey at least one health risk</td>
<td>AB, NL</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Information must convey at least one personal risk factor</td>
<td>NL</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td>Information must convey at least one aesthetic risk</td>
<td>NL</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td>Screening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refuse tanning services for high-risk clients</td>
<td>—</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Enforcement (reporting of operation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration of tanning facilities</td>
<td>SK, ON, QC, NL, PE, NT</td>
<td>6 (54.5)</td>
</tr>
<tr>
<td>List of tanning facilities kept up-to-date</td>
<td>SK, ON, QC, NL, PE, NT</td>
<td>6 (54.5)</td>
</tr>
<tr>
<td>Enforcement (compliance and inspection)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspections conducted</td>
<td>BC, AB, SK, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>11 (100)</td>
</tr>
<tr>
<td>Legislative provision</td>
<td>Provinces/territories with provision</td>
<td>Number of jurisdictions with provision, $n$ (%)</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td><strong>Enforcement authority</strong></td>
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</tr>
<tr>
<td>Non-specific</td>
<td>QC</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td>Specific</td>
<td>BC, AB, SK, MB, ON, NB, NS, NL, PE, NT</td>
<td>10 (90.9)</td>
</tr>
<tr>
<td><strong>Inspection frequency</strong></td>
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<td></td>
</tr>
<tr>
<td>Vague</td>
<td>NL, NS, PE</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td>Specific</td>
<td>NT</td>
<td>1 (9.1)</td>
</tr>
<tr>
<td><strong>Complaint-only inspections</strong></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>SK, ON</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td><strong>Proactive inspections</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>SK, ON</td>
<td>2 (18.2)</td>
</tr>
<tr>
<td>Unclear</td>
<td>—</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Yes</td>
<td>BC, AB, MB, QC, NB</td>
<td>5 (45.5)</td>
</tr>
<tr>
<td>Yes, and frequency given</td>
<td>NS, NL, PE, NT</td>
<td>4 (36.4)</td>
</tr>
<tr>
<td><strong>Inspector must provide notice</strong></td>
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<tr>
<td>Not Stated</td>
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</tr>
<tr>
<td>No</td>
<td>BC, SK, NT</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td><strong>Penalties</strong></td>
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<td></td>
</tr>
<tr>
<td>Legislative provision</td>
<td>Provinces/territories with provision</td>
<td>Number of jurisdictions with provision, ( n ) (%)</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Penalties for non-compliance</td>
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</tr>
<tr>
<td>Yes (nonspecific)</td>
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<td>Escalating/repeating penalties</td>
<td>BC, AB, SK, MB, ON, QC, NB, NS, NL, PE, NT</td>
<td>11 (100)</td>
</tr>
</tbody>
</table>

**Abbreviations:** AB, Alberta; BC, British Columbia; MB, Manitoba; NB, New Brunswick; NL, Newfoundland and Labrador; NS, Nova Scotia; NT, Northwest Territories; ON, Ontario; PE, Prince Edward Island; QC, Quebec; SK, Saskatchewan.
Table 2-4 Recommendations for provincial and territorial governments for more comprehensive indoor tanning legislation

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising and</td>
<td>Introduce or broaden restrictions on misleading advertisements to include those targeted toward all members of the public.</td>
</tr>
<tr>
<td>Marketing</td>
<td>Require tanning advertisements to contain a statement describing the known health effects of tanning</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective Eyewear</td>
<td>Mandate the use and provision of protective eyewear during indoor tanning sessions</td>
</tr>
<tr>
<td></td>
<td>Require that protective eyewear complies with federal regulations and securely covers the eyes of the user</td>
</tr>
<tr>
<td></td>
<td>Require operators to provide protective eyewear to clients and instruct clients on proper use of the eyewear</td>
</tr>
<tr>
<td>Unsupervised</td>
<td>Prohibit unsupervised or self-serve indoor tanning services</td>
</tr>
<tr>
<td>Tanning</td>
<td></td>
</tr>
<tr>
<td>Operator Training</td>
<td>Require training for tanning salon operators and explicitly state what this training should include</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure Dose</td>
<td>Require compliance with manufacturer-recommended exposure duration and frequency</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Information</td>
<td>Require the distribution of additional information on the risks of indoor tanning to clients to supplement warning sign contents</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening</td>
<td>Prohibit operators from providing UV tanning to high-risk individuals (i.e. those who are highly susceptible to sunburn, taking certain medications)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Enforcement</td>
<td>Mandate the frequency at which protective inspections of indoor tanning facilities must occur</td>
</tr>
</tbody>
</table>
3 Chapter 3: “I think there should be photos”: Indoor tanners’ perceptions of health warning labels for tanning beds

3.1 Abstract

Introduction: Incidence of melanoma continues to increase, while Canadians continue to use indoor tanning (IT) equipment. To inform users of the risks, the federal government requires a health warning label (HWL) on all IT equipment sold in Canada. This label does not contain images, despite the success of pictorial tobacco HWLs and promising research on pictorial IT warnings. We sought to determine indoor tanners’ perceptions of the current federal HWL and pictorial, evidence-based alternatives.

Methods: We created 10 pictorial test HWLs based on evidence from health communication research. Test HWLs depicted skin health effects, eye damage, premature aging, and death. Past-year indoor tanners discussed these, along with the current federal HWL, in focus groups.

Results: While informative, the current federal HWL was not recognized by several participants and many said that they would not read it due to the small text, wordiness, and lack of an image. Graphic images, particularly those depicting permanent conditions affecting the face, eyes, and/or appearance, were seen as effective. These images must be believable, relatable, and understandable. While concise text was important for encouraging reading, many participants expressed a desire for more information in the test HWLs. Premature aging was of great concern to many participants, but the images selected for these HWLs were not effective. While the text was seen as effective in the death HWLs, most participants dismissed the images.
Conclusion: This research has implications for IT HWLs in Canada and globally. These results suggest that graphic images have the potential to be impactful in IT HWLs. Images must be supplemented with informative text which increases believability, relatability, and comprehensibility. These modifications would create HWLs which are engaging, informative, able to combat misinformation about IT, and which form part of a wider effort to spread awareness about IT.

3.2 Introduction

Skin cancer is the most common form of cancer in Canada (Canadian Cancer Society [CCS], 2014). The incidence of melanoma, its most fatal form, has been increasing significantly each year since the early 1990s (CCS, 2017). This trend persists despite the fact skin cancer is one of the most preventable cancers: its main risk factor is ultraviolet (UV) radiation (CCS, 2014), to which, in 2015, was attributed 62 percent of melanomas (CCS, n.d.).

UV radiation from indoor tanning equipment has been classified by the World Health Organization’s International Agency for Research on Cancer as a human carcinogen, and a dose-response relationship has been found between indoor tanning (IT) and melanoma and other skin cancers (International Agency for Research on Cancer, 2012; Lazovich et al., 2010; Boniol, Autier, Boyle, & Gandini., 2012; Zhang et al., 2012). In addition, there is a 59% higher risk among those who first use tanning equipment before the age of 35, compared to never-users (Boniol et al., 2012). There are also increased odds of ocular melanoma when first use of tanning equipment occurs before age 20 (IARC, 2012), and an increased risk of keratinocyte (non-melanoma) skin cancer (basal cell carcinoma and squamous cell carcinoma) if first use occurs before age 25 (Wehner et al., 2012). Exposure to UV radiation is also associated with other
health and appearance effects, including skin burns (Health Canada, 2017); premature skin aging (including wrinkles and changes in pigmentation) (Lim et al., 2011); photokeratitis and photoconjunctivitis (Health Canada, 2017); pterygium (a growth of the conjunctiva which can affect vision and cause discomfort of the eye) (Gallagher & Lee, 2006; Roat, 2018); cataracts (Gallagher & Lee, 2006); immune suppression (Ullrich, 2005); and dependence (Lim et al., 2010; Mays, Atkins, Ahn, & Tercyak, 2017).

Despite the numerous risks posed by UV, IT remains a common activity in Canada – in a 2014 survey, 1.35 million Canadians ages 12 and over reported having used tanning equipment in the past year (Qutob et al., 2017). The groups with the most reported tanners were females and those between the ages of 18 and 34 (Qutob et al., 2017).

To address the growing problem of skin cancer and the prevalence of IT, it is important to effectively communicate the risks and promote avoidance of this activity. This can be accomplished legislatively with health warning labels (HWLs). These have been successful in other areas of public health. For example, studies have linked tobacco HWLs to greater perception of the risks of smoking among smokers, and smokers have reported that HWLs have prompted them to smoke fewer cigarettes, and to quit smoking altogether (Hammond, 2011).

Effective warnings must succeed in three main areas: attracting attention; impacting the reader’s knowledge of the hazard, its outcomes, and how to avoid them; and influencing behaviour related to the activity or product (Laughery & Wogalter, 2014). Wogalter, Conzola, and Smith-Jackson (2002) have outlined the elements of effective warnings: these include a strong ability to attract attention; text which consists of a signal word, description of the danger,
negative effects of the danger, and how to avoid the danger; intuitive layout; and readable, comprehensible symbols. Images have also been widely studied and utilized for effective HWLs on tobacco packages. For example, Huang, Chaloupka, and Fong (2014) estimated that following the introduction of pictorial cigarette pack HWLs in Canada, smoking prevalence among adults decreased by 12%. Because IT and tobacco smoking are similar in that both are voluntary exposures to known carcinogens, it is therefore worth studying the potential impact of pictorial warnings for IT.

There have been some quantitative studies on images as elements of warning messages for IT equipment reported in the literature. Mays and Tercyak (2015) found that among young women who had tanned in the past year, graphic, loss-framed warning messages generated lower intentions to tan indoors and greater intentions to quit, compared to text-only messages modelled after the U.S. Food and Drug Administration (FDA) indoor tanning HWL. Additionally, Sontag and Noar (2017) found pictorial IT warnings performed better than text-only messages in eliciting negative affective reactions and being perceived as effective by female U.S. university students. These results suggest that images have the potential to enhance warning messages for IT.

In Canada, the federal government requires an HWL on all tanning equipment sold in Canada (Figure 3-1; C.R.C., c. 1370). This HWL, updated in 2014 to reflect more recent research on the effects of IT (Government of Canada, 2014), is an important step in addressing the growing issue of skin cancer in Canada. However, despite the research on tobacco and IT warning messages, it does not contain images apart from a hazard symbol in the top right corner (C.R.C., c. 1370). Additionally, while the text was reorganized in 2014 to reflect FDA research
which found that bulleted lists are easier to read in IT HWLs than paragraphs (US FDA, 2007; Government of Canada, 2014), the federal HWL contains a large amount of text. This does not align with Canadian Public Health Association plain language guidelines (CPHA, 1998). There is no published research which investigates IT HWLs in the Canadian context. These factors, along with the promising research on pictorial messages for tobacco packages and IT equipment indicate a need for research on the effectiveness of the current federal HWL in informing people of the risks of IT and deterring this behaviour. To explore this, we conducted a series of focus groups of current indoor tanners, where they discussed their perceptions of the current federal IT HWL and pictorial, evidence-based test IT HWLs. This paper outlines the development of pictorial test HWLs, and presents the results of a thematic analysis of the focus group discussions, as well as the legislative implications of this research.

3.3 Methods

In this study, we developed 10 pictorial test HWLs (Table 3-1) for IT equipment. In focus group sessions, past-year indoor tanners first completed a questionnaire in which they rated the effectiveness of each test label, as well as the English version of the current federal HWL. Finally, they expressed and exchanged views on these HWLs in group discussions. Study procedures were approved by an institutional Research Ethics Board.

3.3.1 Test Label Development

Each test label contained an image and text describing a negative outcome of UV exposure. Based on known risk factors, we grouped these labels into four risk categories: skin health, premature aging, eye damage, and death. Images were collected from Internet searches of
the known risks of UV, stock image repositories, and sources known to the researchers (i.e., media stories of people with melanoma).

We created text information based on warning label guidelines by Wogalter et al. (2002). While the current federal HWL describes a number of negative effects of UV exposure (Figure 3-1), each test HWL described a single effect in order to explore whether some messages about UV effects are more effective than others, as has been done in previous research (Sontag & Noar, 2017). The test label text was informed by plain language guidelines (CPHA, 1998), including less text, larger fonts, and shorter words compared to the current federal HWL. The signal word (“DANGER”) and tagline (“TANNING EQUIPMENT CAN CAUSE SKIN CANCER”) on the federal label was maintained in the test labels, except in the eye damage HWLs, where the tagline read “TANNING EQUIPMENT CAN DAMAGE EYES.” The test HWL text was in all capital letters, consistent with World Health Organization alcohol label guidelines (World Health Organization Regional Office for Europe, 2017). All text was in bold type to increase salience (Wogalter et al., 2002).

The test HWLs had a yellow background since colourful labels are more noticeable than colourless labels (Wogalter et al., 2002). Yellow was chosen to align with Canadian cannabis HWLs, several current Canadian tobacco HWLs, and health communication research (Cannabis Regulations, 2018; Government of Canada, 2011; Bernardini, Ambrogi, Fardella, Perioli, & Grandolini, 2001).
3.3.2 Participants

Eligible participants were recruited from a Southwestern Ontario university and included university students of any gender between the ages of 18 and 34 who were proficient in English and had used UV tanning equipment within the past 12 months. Recruitment took place via departmental email listservs, student social media groups, and on-campus posters. We conducted four focus groups between October 2018 and January 2019. We recruited and secured up to 12 participants for each focus group. However, due to no-shows, one group had 2 participants, two had 4, and one had 5.

3.3.3 Focus Group Materials

Participants completed a background questionnaire on their age, gender, skin type, history of skin cancer, prior education on UV and its effects, tanning behaviours and intentions, and concern that IT will damage their skin, eyes, and appearance (Qutob et al., 2017; Propel Institute, n.d.; Hillhouse, Turrisi, Stapleton, & Robinson, 2008). They also completed a rating questionnaire before the group discussion, adapted from a tobacco label focus group guide developed by Hammond and Reid (2011), which instructed them to rate the effectiveness of the text and image (if applicable) and the overall effectiveness of each HWL (federal and test labels), as well as identify the labels they found most and least effective (Appendix A). This provided an opportunity to reflect on the HWLs without the influence of others in the group (Hammond & Reid, 2011).

We developed a moderator guide (Appendix B) based on tobacco label focus group guidelines by Hammond and Reid (2011), outcomes from IT and tobacco label experiments (Noar et al., 2016; Sontag & Noar, 2017), and a focus group guidebook (Krueger & Casey,
Key questions explored participants’ recognition of the current federal HWL; perceived effectiveness of the HWLs; likes and dislikes about the image and/or text; knowledge acquired from each HWL; comprehensibility; perceived effectiveness; and suggested modifications.

### 3.3.4 Procedures

Each focus group lasted approximately 2 hours. Participants were provided with food, water, and a $20 café gift card. Following informed consent procedures and opening questions, participants were given the background questionnaire, copies of the eleven warning labels to be discussed, and a copy of the rating questionnaire for each label. The order of the labels was randomized between participants using a random sequence generator (Hammond & Reid, 2011).

Once all participants had completed the questionnaires, they were invited to share the HWLs they found most and least effective in a Dotmocracy activity (Diceman, n.d.). Dotmocracy is an interactive method of identifying areas of agreement and disagreement, and encouraging discussion (Diceman, n.d.). In this activity, we provided participants with three red stickers and three green stickers. Next, we placed the HWLs on a table and instructed participants to place a red sticker on each HWL they found least effective, and a green sticker on each HWL they found most effective (Diceman, n.d.). The discussion was followed by a debrief in which we provided participants with information about IT, instructed them to consult with a health professional if they have any concerns about their own health and IT, and answered any questions about the HWLs.
3.3.5 Analysis

Focus group discussions were transcribed verbatim, and transcripts were analyzed using an inductive thematic analysis approach in NVivo 12 Plus for Windows (Braun & Clarke, 2006; QSR International Pty Ltd., 2018): within each transcript, codes were created to represent segments of text which were either of interest to the research objectives and/or were seen multiple times in the data (Braun & Clarke, 2006). These codes were arranged into themes (Braun & Clarke, 2006). For questionnaire data, descriptive statistics were calculated using SPSS version 24.0 for Windows (IBM Corp., Armonk, NY).

3.4 Results

3.4.1 Participants and Questionnaire Data

Participant background information is given in Table 3-2. Participant ages ranged from 19 years to 27 years. Though gender was not part of the eligibility criteria for this study, all 15 participants identified as female. Eleven (73.3%) participants reported tanning 11 or more times in the past year. Label ratings and rankings are shown in Tables 3-3, 3-4, and 3-5.

3.4.2 Thematic Analysis

Thematic analysis revealed the following themes: perceptions of the current federal HWL, fear and worry, image-specific perceptions, text-specific perceptions, perceptions of HWL design, and practicality of HWLs. Table 3-6 gives a summary of the themes and subthemes, with example quotations from focus group participants.
3.4.2.1 Perceptions of the Current Federal HWL

Many participants commented that the current federal HWL contains factual, useful, and important information, particularly statements referring to risk factors (early and repeated exposure to tanning equipment, drugs and cosmetics, etc.). The government logos were said to add a sense of authority and legitimacy, which some believed would increase the likelihood of reading this label. While some participants also mentioned that the hazard symbol increased their perception of risk given its resemblance to symbols used in the Workplace Hazardous Materials Information System (the Canadian system for labelling hazardous materials), others did not understand it. Finally, some participants reported that if they were to read the federal HWL, it would motivate them to change their IT attitudes, intentions, and/or behaviours.

While the current federal HWL is informative, most participants either did not recognize it, had not read it, or were unsure if they had seen it. Many also expressed that they would not read it in a tanning salon owing to its text-heaviness, small font size in the body (the large signal word “DANGER” was generally perceived as eye-catching), and lack of an image. Many participants said that the federal label could be very effective if it were made more eye-catching with a graphic image and larger text. Some also suggested including less text, or breaking the information up in an infographic format.

3.4.2.2 Fear and Worry

Participants expressed fear when confronted with the notion that a seemingly small lesion could be a serious issue (as in the Skin Cancer Treatment labels); when photo subjects appear to be in pain (as in Skin Cancer Treatment (topical)); when large, open wounds are depicted; when a condition appears permanent and likely to have a lasting impact on an individual’s life; when
the eyes are involved; and when a condition not previously known by participants to be caused by UV was depicted (as in Pterygium). Labels that evoked worry and/or concern were Skin Cancer Treatment (surgical) (due to the depiction of scarring on the face); Pterygium (growths were seen as concerning); and Skin Cancer Treatment (topical) (the word “disfiguring” evoked concern).

Most participants dismissed the Skin Burn label because burns are common and temporary; tanning for less time can prevent burns; and they had only experienced skin burns from the sun. With the exception of one participant, the death-related labels were also seen as neither fear-evoking nor concerning because participants believed they would detect melanoma before it could cause death, because death was seen as unlikely, and because death was seen as an obvious attempt at evoking fear. Finally, aging in general was seen as a fear-evoking and worrying topic, particularly due to the potential for an activity one participates in to improve their appearance, may in fact age them prematurely. However, the images chosen for these labels did not elicit this response.

3.4.2.3 Image-Specific Perceptions

3.4.2.3.1 Importance of Believability

Believability was an important issue mentioned by many participants. The Skin Burn label mostly received negative comments because most participants had never experienced severe burns in tanning equipment. Additionally, the photo subject was wearing a bathing suit, which led some participants to suspect that the burn was acquired outdoors. The death-related labels were not perceived as believable since the photos used resembled stock images and were not taken seriously. Some participants also believed that they would detect skin cancer before
they died, and that the risk of death was not as imminent as other risks, including skin cancer, eye damage, and premature aging. However, while the photos were not seen as believable, some participants saw the text as true, effective, and not requiring an accompanying image. In addition, The Skin Cancer Treatment (topical) image was sometimes seen as “extreme” or digitally altered. Finally, in some cases, participants questioned whether the conditions in the graphic images had actually happened to someone who used tanning equipment.

3.4.2.3.2 Importance of Relatability

Participants often expressed a need for relatability in warning labels for indoor tanning. Labels that were often viewed as relatable were those depicting younger people and fully visible faces. In addition, the Toe Tag label photo was not perceived as relatable because the image seemed “impersonal” and did not depict a situation that people are commonly exposed to. Finally, because all HWLs with images of faces were of White women, one participant was concerned with their ability to relate to indoor tanners who did not fit this group.

3.4.2.3.3 Ability to Attract and Maintain Attention

Most participants agreed that images, particularly graphic and fear-evoking images, are effective at attracting attention. This was particularly seen for the eye damage HWLs and Skin Cancer Treatment (surgical). In many cases, the presence and nature of HWL images influenced participants’ likelihood of reading the text. For example, many participants mentioned the current federal HWL needed an image to encourage reading. However, some images were identified as having a negative impact on a label’s likelihood of being read: while aging was identified as a concern, several participants stated that the images chosen for the premature aging labels would deter them from reading the text.
3.4.2.3.4 Level of Severity of Condition Depicted

Conditions often perceived as effective in the test HWLs included those involving the face and/or eyes, those that appear permanent, those affecting appearance or self-esteem (e.g., by being highly visible or difficult to conceal), and those that appear painful. The skin cancer treatment and eye damage labels were typically associated with these characteristics. The Skin Cancer Treatment labels were also seen as effective because they suggest a lesion which appears small or insignificant can cause serious outcomes. In fact, many suggested adding a photo of the skin cancer before treatment to better highlight this idea. However, several participants expressed concern the scar in the Skin Cancer Treatment (surgical) label, which depicted both the surgical wound and resulting scar, was not severe enough, and some suggested removing the scar image from the label. Sunburns were also seen as temporary, and therefore less serious, than other conditions by some participants. The Melanoma label was also seen as less effective by some because since it contained a close-up image of a melanoma, participants could imagine having it on a less visible area of the body, such as the arm. Some suggestions for conveying greater severity were to include a more severe photo (Skin Burn, Lip Aging), indicate the size of the lesion (such as displaying a finger or coin beside the lesion in the Melanoma label), and depict the condition on a more visible area of the body (Skin Burn).

3.4.2.3.5 Comprehensibility

Of the test labels, the UV Photo label was the least commonly understood: most participants were not aware that skin damage was being revealed with UV photography, which drastically reduced its perceived effectiveness. Other labels where comprehensibility was an issue were Pterygium (some participants wondered whether the photo subject was “born with it”
and wished the photo was zoomed out to make it clear that it depicted an eye); Eye Burn (some thought the burn looked “bloodshot” and resembled pink eye); Lip Aging (the photo subject looked happy, the image brightness drew some comparisons to skin care advertisements, and the participants could not determine the subject’s age); Melanoma (some thought it was not immediately obvious what the image was depicting or how big the lesion was); Skin Cancer Treatment (surgical) (some participants were not sure of the order of the events depicted by the two images); and Skin Cancer Treatment (surgical) (some participants thought the image resembled a burn or injury).

3.4.2.4 Text-specific Perceptions

3.4.2.4.1 Cues to Action

The two cues to action in the test HWLs were discussed to some extent in each focus group. Some participants found “avoid tanning to lower your risk” effective and straightforward. However, many found it unnecessary because they are already aware of the risks, the labels already imply that avoiding IT will lower risk, and because anyone seeing a label on tanning equipment is already going to tan indoors anyway. Some participants preferred the harm reduction strategies in the federal label (e.g., follow instructions, wear protective eyewear) over “avoid tanning to lower your risk.” Regarding the statement, “wear protective eyewear,” some participants appreciated that it gave a harm reduction strategy rather than recommending avoidance of indoor tanning. However, others expressed this statement would lead people to believe they are safe as long as they are wearing protective eyewear, which some said contradicts the statement, “avoid tanning to lower your risk.”
3.4.2.4.2 Amount of Information

The amount of text and font size played an important role in determining willingness to read the warning labels. Labels that were seen as too wordy or contained small text (as seen in the current federal HWL) were not seen as likely to be read, while participants mentioned that concise labels with larger fonts were more likely to attract attention and encourage reading.

While conciseness was important to participants, a common suggestion was to add more text to the test labels. Images were often seen as needing to be coupled with information that increases believability, relatability, likelihood of reading, degree of severity, and comprehensibility. This information included facts, explanations of images, statistics, and more information on the photo subject (e.g., photo subject’s age and tanning habits). Finally, participants wished for educational information, particularly on the types of skin cancer and how to recognize suspicious moles or other lesions. Some participants recommended that HWLs direct viewers to detailed information with links, QR codes, and brochures.

3.4.2.5 Perceptions of HWL Design

Design features that participants found effective at encouraging reading were large fonts, short and concise messages, and large signal words (i.e., “Danger”). Some participants said that the yellow backgrounds in the test labels are attention-attracting, while others preferred the colour scheme of the current federal HWL. Additionally, some participants preferred the layout of the text under the photo compared to text beside photo. Some also stated that the design of the federal HWL is more professional-looking than that of the test labels.
3.4.2.6 Practicality of HWLs

In addition to the HWL features in this study, participants also discussed external factors which may influence the practicality and effectiveness of IT HWLs in general. In each focus group, it was pointed out that within tanning facilities, there are posters advertising the purported benefits of IT (particularly as a means of obtaining Vitamin D), and some mentioned that these signs are more noticeable than those warning of the risks. Time constraints were also discussed by several participants: some expressed that there is a limited amount of time between the purchase of the tanning services and when the tanning equipment turns on. During this time, the user is typically preoccupied with preparing for the tanning session, limiting the time they are able to spend reading warnings. Finally, many participants stated that because they have already paid for or committed to tanning once they enter a tanning booth, a warning label on the tanning equipment is unlikely to immediately change their intentions to tan. To address this, some participants recommended awareness campaigns in high schools, dermatology clinics, and social media.

3.5 Discussion

In the first study on IT HWLs in Canada, we found the federal HWL is strong in terms of information and authority. However, many of our participants had never seen or read this label, and expressed that indoor tanners would not read it due to the large amount of text, small font, and, in particular, lack of an image. Images, particularly graphic images, may be beneficial additions to IT HWLs since they have the potential to evoke fear and other negative reactions, attract attention, and can communicate the severity of IT effects. This was especially true of
images depicting conditions that affect the face and/or impact appearance, involve the eyes, and appear permanent. It is important that these images are believable, relatable, and understandable.

The finding that images often evoke fear and worry has also been reported in other studies on IT HWLs. Mays & Tercyak (2015) found graphic, loss-framed warnings resulted in reduced in intentions to tan indoors and greater intentions to quit IT compared to a text-only control message and graphic, gain-framed messages. Sontag and Noar (2017) found no significant difference in tanning and quit intentions between pictorial warnings and text-only warnings. However, the authors acknowledged the labels used in their study were not graphic in nature (Sontag & Noar, 2017). Sontag and Noar (2017) did find that pictorial warnings are more effective at eliciting negative affective reactions, including fear, disgust, worry, and uneasiness/upset, compared to text-only warnings. This is significant since in the tobacco literature, evoked fear has been demonstrated to mediate the effect of pictorial warnings on intentions to quit smoking, has been associated with quitting and attempting to quit smoking, as well as reducing cigarette consumption (Hammond, Fong, McDonald, Brown, & Cameron, 2004; Kees, Burton, Andrews, & Kozup, 2010). Thus, graphic images could potentially play an important role in deterring indoor tanning.

The current federal HWL has the potential to effectively inform indoor tanners of the risks of IT, as demonstrated by our participants’ comments in the group discussions, as well as the fact that it was often indicated in participants’ choices for most effective warnings in the rating questionnaires. However, the effectiveness of information is limited when it is neither seen nor read. This is especially important given that our participants described the claims made by the tanning industry as more salient than risk information, demonstrating a need for more
engaging HWLs and signage. In the federal HWL, the signal word, hazard symbol, and association with the government may engage viewers. However, we found that its lack of images reduces its ability to attract attention, while our participants thought that images, particularly those that were graphic, assisted in attention capture and maintenance. Additionally, photos were often the first thing our participants reported that they noticed, and often the first topic of discussion. These findings are consistent with the tobacco HWL literature (Les Études de Marché Créatec, 2006; Noar et al., 2016). While the federal HWL text is organized in bulleted lists to reflect US IT label research (US FDA, 2007; Government of Canada, 2014), the small font and text-heaviness of the federal HWL were also said by participants to discourage reading, and the conciseness of the test labels was thought to maintain attention. Our participants found much of the information in the federal HWL useful, and often expressed a desire for more information in the test HWLs. Methods of developing concise, attention-grabbing IT HWL text without sacrificing important information should be researched further.

Images of severe UV effects, such as those that appear painful, permanent, affect the vision, occur on the face, and would impact a person’s appearance, self-esteem, or lifestyle, were also seen as effective. Additionally, many participants found the skin cancer treatment labels effective because they give the perception that a small lesion can in fact have very serious implications. This finding is supported by the Health Belief Model (HBM) and Extended Parallel Process Model (EPPM) (Rosenstock, 1974; Witte & Allen, 2000), which identify perceived severity as a factor in behaviour change. Thus, images of severe UV effects should be considered in IT HWLs. Of note, the fact that skin cancer is deadly was mentioned far less often in the focus group discussions than the previously mentioned indicators of severity. Additionally, some
participants dismissed death-related messages because they perceived death as unlikely and believed they would detect skin cancer and receive treatment before it became fatal. This may suggest that the potential for melanoma to cause death, and therefore the seriousness of this disease, was not appreciated. Thus, methods of developing HWLs and other interventions which increase beliefs that skin cancer can be fatal should be explored further. For example, while the death-related HWL images were not seen as impactful, some participants found the text “skin cancer can be deadly” effective. The current federal HWL does not state that skin cancer can lead to death. It may be beneficial to add this statement to the HWL, as long as it is combined with other information that increases perceived severity, such as pain, permanence, and impact on appearance.

The effectiveness of IT HWLs focusing on appearance damage in this study is also consistent with the success of appearance-focused interventions for IT (Blashill, Rooney, Luberto, Gonzales, & Grogan, 2018; Hillhouse et al., 2008), as well as the tobacco HWL literature (Hammond, 2011). Sontag and Noar (2017) also found both health effects and appearance damage were effective topics for IT HWLs. The current federal HWL mentions appearance damage (premature aging) once. It may be worthwhile to emphasize the impact that IT can have on appearance and target this concern held by many indoor tanners. However, while appearance damage was generally seen as an effective topic and most of our participants were concerned with premature aging, the images we selected for the appearance damage labels in our study were not seen as highly effective. This was especially true of the UV photo, though UV photography has been successful at reducing tanning equipment use in other studies (Gibbons, Gerrard, Lane, Mahler, & Kulik, 2005; McWhirter & Hoffman-Goetz, 2013) and in popular
social media (Leveritt, 2014). In the case of the UV photo, this may be because the label lacks an explanation of the image. Additionally, in UV photography interventions in the literature, the participants were themselves the subjects of the UV photography (Gibbons et al., 2005) and this was not feasible for HWLs. The photo chosen for this HWL was at a low resolution, which may also have impacted perceived effectiveness. Future research should explore aging-related messages to determine which images have the most impact.

Although severe, fear-inducing images were often impactful, it is clear that they must also be believable and relatable. Participants often dismissed messages and photos that they did not believe, and if they did not connect with the image. While this was seen most often with the death-related HWLs due to the images, in other labels it was also mentioned that the images were “too extreme,” and that there was not enough factual information, statistics, or stories/testimonials in the test labels to create more than a scare tactic. This is similar to what has been found in the tobacco literature – messages that seem “fake” to the viewer are likely to be rejected (Hammond, 2011). Additionally, Les Études de Marché Créatec (2006) found that combining emotional messages with factual information created the most effective warnings. Sontag & Noar (2017) also found that text-only messages were seen as more believable than pictorial warnings, and called for further research into more believable images. To increase believability and relatability, our participants commonly recommended statistics and testimonials/story information. The literature is inconclusive as to which of these, if any, is more persuasive in messaging (Baesler & Burgoon, 1994; Baesler, 1997; De Wit, Das, & Vet, 2008; Han & Fink, 2012; Greene, Campo, & Banerjee, 2010; So, Jeong, & Hwang, 2017). Thus, more
research is needed on whether statistical and/or testimonial information would be beneficial in IT HWLs, and if so, what this information should include.

There are factors, such as time constraints and individual commitment to tanning (i.e., having already paid) that affect a label’s effectiveness even before potential viewers enter the tanning booth. In addition, and of concern, while many of our participants had never seen the federal label, they were familiar with misleading signage posted in tanning facilities. The indoor tanning industry is known to use false and misleading claims to market their services (Greenman & Jones, 2010; Green, 2019). This highlights the need for a combination of interventions from all levels of government and other organizations to inform potential tanners and combat misinformation propagated by the industry. For example, as our participants mentioned, campaigns in high schools and on social media may be effective. Mass media has been recommended in the literature as an avenue for informing the public about the risks of indoor tanning, as well as including celebrities in these campaigns (Holman et al., 2013). The federal government also intends for the current HWL to be part of a larger awareness effort that includes public campaigns (Government of Canada, 2014). Improved warnings can form a key component to these risk communication strategies because they are visible at the time of use (Hammond, 2011).

3.5.1 Limitations

Though we did not restrict recruitment to any particular gender, all participants in this study identified as women. While the majority of Canadian indoor tanners are women and girls (Qutob et al., 2017), it is known that men do tan (Qutob et al., 2017; Yeung & Chen, 2016) and sexual minority men tan at similar rates compared to women (Yeung & Chen, 2016). In addition,
the current federal HWL is required in both English and French (C.R.C., c. 1370). Because we recruited at an English-speaking institution, we tested only the English version and created test labels in English only. Finally, our study population was composed of University participants, and as such, their responses may be different from those of the general public due to potential differences in age and education level. The education of our participants may have influenced their desire for more text and numerical information in warning labels, and their comprehension of the text may have been higher than in other groups. Future research should explore perceptions of IT HWLS in a variety of subpopulations, including men, French speakers, and across education levels.

3.6 Conclusion

Given the consistent increase in melanoma incidence and the proportion of Canadians that tan indoors, it is important to develop impactful warnings to communicate the risks of IT. The current federal HWL, while informative, is lacking in ability to attract attention. Images, particularly those that are graphic and depict permanent conditions affecting the face, eyes, and appearance, are effective at attracting attention, evoking fear and worry, and conveying a greater degree of severity. It is important that these images are believable, relatable, and understandable. More research is needed on effective images to communicate the aging-related risks of IT, the effect of adding statistics, testimonials, and other facts, as well as effective text information to include in HWLs. Based on the results of this study, it is clear that stronger warnings are currently needed in order to address the public health issue of skin cancer. By adding images and incorporating other evidence, such as concise, helpful information, we can create HWLs that form a valuable component of a greater awareness effort.
3.7 Acknowledgements

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3.8 References


*Cannabis Regulations* (2018), SOR/2018-144


*Radiation Emitting Devices Regulations, C.R.C., c. 1370.*


3.9 Figure

Figure 3-1 Current Federal Warning Label for Indoor Tanning Equipment (English) (C.R.C., c. 1370).
Table 3-1 Indoor Tanning Test HWLs and Descriptions

<table>
<thead>
<tr>
<th>Test Label Category &amp; Type</th>
<th>Pictorial Test Label</th>
<th>Description of Test Label</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Health Labels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin Burn</td>
<td></td>
<td>Image depicts a skin burn on a woman’s back.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. ULTRAVIOLET (UV) RADIATION CAN ALSO CAUSE SKIN BURNS. AVOID TANNING TO LOWER YOUR RISK.”</td>
</tr>
<tr>
<td>Melanoma</td>
<td></td>
<td>Image depicts a superficial spreading melanoma.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. TANNING EQUIPMENT GIVES OFF ULTRAVIOLET (UV) RAYS THAT CAUSE SKIN CANCER. AVOID TANNING TO LOWER YOUR RISK.”</td>
</tr>
<tr>
<td>Skin Cancer Treatment (topical)</td>
<td></td>
<td>Image depicts a young woman undergoing topical treatment for skin cancer and pre-cancerous lesions.</td>
</tr>
</tbody>
</table>
Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. TREATMENT FOR SKIN CANCER CAN BE PAINFUL AND DISFIGURING. AVOID TANNING TO LOWER YOUR RISK.”

Skin Cancer Treatment (surgical)

Images depict the lesion created by excision of a squamous cell carcinoma on a woman’s face, and the scarring after an undefined amount of time.

Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. TREATMENT FOR SKIN CANCER CAN BE INVASIVE. AVOID TANNING TO LOWER YOUR RISK.”

Death Labels

Toe Tag

Image depicts a toe tag on the foot of a deceased person.

Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. MELANOMA SKIN CANCER CAN BE DEADLY. AVOID TANNING TO LOWER YOUR RISK.”
Funeral

Image depicts a young woman mourning beside a casket.

Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. MELANOMA SKIN CANCER CAN BE DEADLY. AVOID TANNING TO LOWER YOUR RISK.”

Eye Damage Labels

Pterygium

Image depicts an eye with pterygium.

Text: “DANGER. TANNING EQUIPMENT CAN DAMAGE EYES. UV RAYS CAN CAUSE GROWTHS ON THE EYE. WEAR PROTECTIVE EYEWEAR. AVOID TANNING TO LOWER YOUR RISK.”

Eye Burn

Image depicts a burned eye with visible inflammation.

Text: “DANGER. TANNING EQUIPMENT CAN DAMAGE EYES. UV RAYS CAN CAUSE EYE BURNS. WEAR PROTECTIVE EYEWEAR. AVOID TANNING TO LOWER YOUR RISK.”
## Premature Aging Labels

<table>
<thead>
<tr>
<th>UV Photo</th>
<th>Image depicts a woman in normal conditions, and in a UV photograph.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image-1.png" alt="UV Photo" /></td>
<td>Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. UV RAYS ALSO CAUSE PREMATURE AGING. AVOID TANNING TO LOWER YOUR RISK.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lip Aging</th>
<th>Zoomed-in image of a woman with wrinkles around her lips.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image-2.png" alt="Lip Aging" /></td>
<td>Text: “DANGER. TANNING EQUIPMENT CAN CAUSE CANCER. UV RAYS ALSO CAUSE PREMATURE AGING, INCLUDING THE LIPS. AVOID TANNING TO LOWER YOUR RISK.”</td>
</tr>
</tbody>
</table>
Table 3-2 Participant background information (N=15)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean or n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>22.13</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>15 (100)</td>
</tr>
<tr>
<td>Ever received training on the effects of UV</td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>3 (20.0)</td>
</tr>
<tr>
<td>no</td>
<td>11 (73.3)</td>
</tr>
<tr>
<td>not sure</td>
<td>1 (6.7)</td>
</tr>
<tr>
<td>How many times tanned indoors in the past year</td>
<td></td>
</tr>
<tr>
<td>3 to 5</td>
<td>3 (20.0)</td>
</tr>
<tr>
<td>6 to 10</td>
<td>1 (6.7)</td>
</tr>
<tr>
<td>11 to 15</td>
<td>6 (40.0)</td>
</tr>
<tr>
<td>15 or more</td>
<td>5 (33.3)</td>
</tr>
<tr>
<td>Intend to tan indoors in next month</td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>6 (40.0)</td>
</tr>
<tr>
<td>no</td>
<td>7 (46.7)</td>
</tr>
<tr>
<td>not sure</td>
<td>2 (13.3)</td>
</tr>
<tr>
<td>Belief that indoor tanning will cause skin cancer</td>
<td></td>
</tr>
<tr>
<td>disagree</td>
<td>2 (13.3)</td>
</tr>
<tr>
<td>neutral</td>
<td>2 (13.3)</td>
</tr>
<tr>
<td>agree</td>
<td>7 (46.7)</td>
</tr>
<tr>
<td>strongly agree</td>
<td>4 (26.7)</td>
</tr>
<tr>
<td>Belief that indoor tanning will cause premature skin aging</td>
<td></td>
</tr>
<tr>
<td>neutral</td>
<td>3 (20.0)</td>
</tr>
<tr>
<td>agree</td>
<td>3 (20.0)</td>
</tr>
<tr>
<td>strongly agree</td>
<td>9 (60.0)</td>
</tr>
<tr>
<td>Belief that indoor tanning will damage eyes</td>
<td></td>
</tr>
<tr>
<td>disagree</td>
<td>1 (6.7)</td>
</tr>
<tr>
<td>neutral</td>
<td>2 (13.3)</td>
</tr>
<tr>
<td>agree</td>
<td>7 (46.7)</td>
</tr>
<tr>
<td>strongly agree</td>
<td>5 (33.3)</td>
</tr>
<tr>
<td>Ever diagnosed with skin cancer</td>
<td>15 (100)</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Family member ever diagnosed with skin cancer</td>
<td>5 (33.3)</td>
</tr>
<tr>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>10 (66.7)</td>
</tr>
<tr>
<td>Skin sensitive to burns from UV</td>
<td>8 (53.3)</td>
</tr>
<tr>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>7 (46.7)</td>
</tr>
<tr>
<td>HWL</td>
<td>% Rated 1 to 3</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Current Federal HWL</strong>*</td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>13.3</td>
</tr>
<tr>
<td><strong>Skin Burn</strong></td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>26.7</td>
</tr>
<tr>
<td>Image</td>
<td>46.7</td>
</tr>
<tr>
<td><strong>Melanoma</strong></td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>13.3</td>
</tr>
<tr>
<td>Image</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Skin Cancer Treatment (topical)</strong></td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>—</td>
</tr>
<tr>
<td>Image</td>
<td>—</td>
</tr>
<tr>
<td><strong>Skin Cancer Treatment (surgical)</strong></td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>6.7</td>
</tr>
<tr>
<td>Image</td>
<td>—</td>
</tr>
<tr>
<td>Toe Tag</td>
<td>Text</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
<tr>
<td>Funeral</td>
<td>Text</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
<tr>
<td>Pterygium</td>
<td>Text</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
<tr>
<td>Eye Burn</td>
<td>Text</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
<tr>
<td>UV Photo</td>
<td>Text</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
<tr>
<td>Lip Aging</td>
<td>Text</td>
</tr>
<tr>
<td></td>
<td>Image</td>
</tr>
</tbody>
</table>

*Participants were instructed to leave the image rating section blank if no image was present and, as such, most participants left this section blank when rating the current federal HWL.
### Table 3-4 Overall HWL scores from rating questionnaire (N=15)

Scale of 1 (not at all effective) to 5 (very effective)

<table>
<thead>
<tr>
<th>HWL</th>
<th>% Rated 1 or 2</th>
<th>% Rated 3</th>
<th>% Rated 4 or 5</th>
<th>% Missing**</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Federal HWL</td>
<td>40</td>
<td>13.3</td>
<td>40</td>
<td>6.7</td>
<td>3.00</td>
</tr>
<tr>
<td>Skin Burn</td>
<td>66.7</td>
<td>13.3</td>
<td>20.0</td>
<td>—</td>
<td>2.40</td>
</tr>
<tr>
<td>Melanoma</td>
<td>13.3</td>
<td>26.7</td>
<td>60.0</td>
<td>—</td>
<td>3.73</td>
</tr>
<tr>
<td>Skin Cancer Treatment (topical)</td>
<td>6.7</td>
<td>13.3</td>
<td>80.0</td>
<td>—</td>
<td>4.07</td>
</tr>
<tr>
<td>Skin Cancer Treatment (surgical)</td>
<td>6.7</td>
<td>13.3</td>
<td>73.3</td>
<td>—</td>
<td>4.00</td>
</tr>
<tr>
<td>Toe Tag</td>
<td>33.3</td>
<td>40.0</td>
<td>26.7</td>
<td>—</td>
<td>3.00</td>
</tr>
<tr>
<td>Funeral</td>
<td>46.7</td>
<td>26.7</td>
<td>26.7</td>
<td>—</td>
<td>2.73</td>
</tr>
<tr>
<td>Pterygium</td>
<td>6.7</td>
<td>13.3</td>
<td>80.0</td>
<td>—</td>
<td>4.27</td>
</tr>
<tr>
<td>Eye Burn</td>
<td>13.3</td>
<td>13.3</td>
<td>73.3</td>
<td>—</td>
<td>3.67</td>
</tr>
<tr>
<td>UV Photo</td>
<td>73.3</td>
<td>6.7</td>
<td>13.3</td>
<td>6.7</td>
<td>2.00</td>
</tr>
<tr>
<td>Lip Aging</td>
<td>53.3</td>
<td>33.3</td>
<td>13.3</td>
<td>—</td>
<td>2.53</td>
</tr>
</tbody>
</table>

**Values were reported as missing if the section was left blank, or if 2 ratings were circled in the same section.**
Table 3-5 Proportion of participants who selected each HWL as most or least effective (N=15)

<table>
<thead>
<tr>
<th>HWL</th>
<th>% of Participants who selected as most effective</th>
<th>% of Participants who selected as least effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current federal HWL</td>
<td>40.0</td>
<td>46.7</td>
</tr>
<tr>
<td>Skin burn</td>
<td>6.7</td>
<td>60.0</td>
</tr>
<tr>
<td>Melanoma</td>
<td>26.7</td>
<td>—</td>
</tr>
<tr>
<td>Skin Cancer Treatment (topical)</td>
<td>53.3</td>
<td>—</td>
</tr>
<tr>
<td>Skin Cancer Treatment (surgical)</td>
<td>60.0</td>
<td>—</td>
</tr>
<tr>
<td>Toe Tag</td>
<td>13.3</td>
<td>26.7</td>
</tr>
<tr>
<td>Funeral</td>
<td>6.7</td>
<td>53.3</td>
</tr>
<tr>
<td>Pterygium</td>
<td>46.7</td>
<td>—</td>
</tr>
<tr>
<td>Eye Burn</td>
<td>33.3</td>
<td>—</td>
</tr>
<tr>
<td>UV Photo</td>
<td>6.7</td>
<td>73.3</td>
</tr>
<tr>
<td>Lip Aging</td>
<td>6.7</td>
<td>40.0</td>
</tr>
</tbody>
</table>
### Table 3-6 Summary of Themes and Example Quotations from Focus Group Participants

<table>
<thead>
<tr>
<th>Theme</th>
<th>Key Points</th>
<th>Example Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceptions of the Current Federal HWL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Contains important and helpful information</td>
<td>...It’s just extra information that’s interesting. “Risk factors include skin type, photosensitivity, and history of skin cancer, drugs and cosmetics may increase UV effects…”</td>
</tr>
<tr>
<td></td>
<td>• Government logos attract attention and give a sense of authority and legitimacy</td>
<td>I think [the federal label would grab attention] just because of like it’s government-issued. Like I feel like because it looks official I feel like I should read it.</td>
</tr>
<tr>
<td></td>
<td>• Hazard symbol reminded some participants of a WHMIS symbols, which was seen as effective. However, some participants found it difficult to understand</td>
<td>...WHMIS symbols to me are like… I thought that was like “whoa” ‘cause normally you see like the poison or the flammable or toxic. Stuff right? so to me that’s like “huh” like people in their day-to-day life try to avoid radiation yet here I am just signing up for it for fun.</td>
</tr>
<tr>
<td></td>
<td>• Many participants did not recognize this HWL</td>
<td>But like to me at first glance [the hazard symbol] looked like a shower.</td>
</tr>
<tr>
<td></td>
<td>• Generally was not seen as attention-attracting due to lack of image, small text, and large amount of text.</td>
<td>...it’s useful and if you were interested you could read it and get some info, but you need something else</td>
</tr>
</tbody>
</table>

I think there should be photos [on HWLs in general].

My personal thing is I think a picture says a thousand words – I’m not gonna read that. But I’ll look at a picture.

...a picture that was like more graphic I think… would make me like look at [the current federal HWL] and then like follow up and read it.

...too much writing so it’s easy to look past it like “ah- I’m sure that says something about why this is bad”

...like I would have to be up close so I think that’s- that’s one reason that I would be easily- it would be easier for me to look past it.

| Fear and Worry | Fear-inducing labels were those that show a small lesion causing severe issues (i.e. Skin Cancer Treatment labels); large, open wounds; pain; permanence; serious impact on | [Skin Cancer Treatment (topical)] also looks painful like so- she’s frowning like she looks like she’s in pain - which is also like a scare mechanism. |
| | | [on the Skin Burn label] ...I feel like everyone’s gotten burned in their life and they’re like ‘eh’ you like you get over it in a couple days. So it’s not really that like scary kinda thing. Or off-putting. |
| | | I think the goal is to freak people out to get them to stop I don’t think something sensible like [Funeral] is gonna get them to stop...Whereas something that’s |
lifestyle; eye damage; and conditions that participants are not familiar with (e.g. pterygium)

- Skin Cancer Treatment (surgical), Skin Cancer Treatment (topical), and Pterygium elicited feelings of worry
- Skin Burn and the death-related labels were not generally seen as concerning or fear-evoking
- The topic of aging (but not the photos chosen) is fear-evoking and worrying going to be with you forever, like your eyesight or your face, that’s- that’s scary. Well I m- death is scary but it’s a lot less likely than these things I would think.

... [death labels] might grab my attention but… I like still wouldn’t put the connection together so…it like might grab it for a minute and then I’d be like “K this is like just some fear mongering going on. Like this is not actually concerning to me.”

... Usually when you go in they - like you go in for three minutes the first time you’re usually not gonna get a burn if you follow the three, five, seven, nine minute intervals so I just think [Skin Burn] wouldn’t scare people away.

...I sort of tan...because the fact that it was...aesthetically pleasing to look more tanned...but I’m also concerned with like if I look older like I don’t wanna look older...

[on the perceived ineffectiveness of the UV Photo label] I feel like they could have done so much with aging too ‘cause that’s like such a big thing with like women especially like everyone’s so scared of aging and I feel like - people forget that like the sun and UV really ages your skin so like – they - I feel like they could have terrified people.

Image-specific Perceptions

<table>
<thead>
<tr>
<th>Importance of Believability</th>
<th>• Death-focused labels were not generally seen as believable because death was not perceived as an immediate risk of IT, and the photos were not taken seriously</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Skin Burn label was not believable because participants did not believe that severe burns occur in tanning equipment</td>
</tr>
<tr>
<td></td>
<td>• Some thought that the image in Skin Cancer Treatment (topical) had been digitally altered</td>
</tr>
</tbody>
</table>

...if you’re walking in for a tanning session [death is] not sort of the first thing on your mind, so I think…it’s too far removed from like more salient risks, that are like very visible such as like any of the ones that are like very um sort of graphic like these ones over here.

...that’s [death] so many decades away if I ever get there, that that’s not even in my books.

...going from tanning in a bed straight to death is kind of like an exaggeration... I just think the [death-related] photos make it look super like childish like someone in like a Grade Eight like presentation made it”

I personally think that that burn is more likely to happen outside than it is in the controlled tanning bed situation, I’ve- I’ve only ever seen that type of burn on people from outside.

[on Skin Cancer Treatment (topical)]...I do think it’s a bit extreme could that
<table>
<thead>
<tr>
<th>Importance of Relatability</th>
<th>Relatability was an important feature in warning labels</th>
<th>...so I feel like the more you can relate to it, the easier it is like some of them are a little bit far-fetched and you're like I don't really care...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full faces and younger photo subjects were seen as more relatable</td>
<td>[on the Lip Aging label] ...for all we know like she is that age and she looks her age. I dunno like we don’t know her. It’s just a cheek.</td>
</tr>
<tr>
<td></td>
<td>Toe Tag was seen as “impersonal” and not relatable</td>
<td>Yeah [Skin Cancer Treatment (topical)] was more relatable...like she’s probably around our age, she’s clearly was just doin’ it for fun... now she has to deal with all that.</td>
</tr>
<tr>
<td></td>
<td>One participant expressed a need for diversity in the test HWL photo subjects.</td>
<td>...[Toe Tag is] really impersonal – Almost like it’s like you’re not even like a human at a funeral like you just have a tag on your toe.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ability to attract and maintain attention</th>
<th>Images are effective at attracting attention, and are often the first HWL element that is seen (and often is what determines whether the text is read or not)</th>
<th>...you look at the photo first and then if like you have an opinion on it or, you know, a question about it then you go to the text I think.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mention of premature aging (but not necessarily the photos chosen for these HWLs) attracts attention</td>
<td>I like the more like graphic images as like warnings, um I think they’re...more like visual, um so I’d rather look at a picture and then that’s gonna make me wanna read the rest of the text...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I agree with the aging being...the... scary part of it, however when I looked at [UV Photo] I didn’t even really read the text initially... if it was up in something I would look at...that picture and say “no” and I wouldn’t read the text so I think if the picture was more effective then I would be more likely to read the text and...absorb what they’re trying to tell me...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Severity of Condition Depicted</th>
<th>Effective labels were often those with photos depicting conditions that affect the face and/or eyes, appear permanent, appear to impact</th>
<th>I like that [Skin Cancer Treatment (surgical)] shows an aftermath of what happened. So like she had the problem, fixed it, but it’s not ever gonna be fixed.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>...once it’s done it’s done like the skin stuff you could have it removed, you could do treatment, whatever, um but your eyes are like – it’s way more permanent.</td>
</tr>
</tbody>
</table>
appearance and/or self-esteem, and appear painful.

- Skin Cancer Treatment labels convey that a small spot on the skin can have serious effects, which was seen as effective. However, the scar depicted in Skin Cancer Treatment (surgical) was sometimes seen as not severe enough.

- To increase perceived severity, participants suggested indicating the size of lesions, replacing some photos with more severe-seeming images, and depicting conditions on a more visible area of the body, such as the face.

I do think it’s good I think they target the face [in Skin Cancer Treatment (surgical)] because I feel like the face is something everyone cares about like it’s the most visible to everybody else...

I think [Skin Cancer Treatment (surgical)] should have shown what this like was maybe before they cut all the skin out too? Just to show...like it could be the smallest little thing and then that’s what has to happen to get rid of it. And like I think that would scare me even more.

This scar one though I didn’t find that that bad ’cause like the scar doesn’t look horrendous like yeah it’s on their face which everyone would not be pumped about but like it’s not that bad like you could have a lot worse scarring than that.

...it’s almost not- um important enough? Like when they say a skin burn, OK but like it’s gonna heal after so like what are you warning me against? You know?

[on the Melanoma label] ...I imagine it immediately on my arm and I was like “oh! Good! Good thing it’s on my arm...”

...I still think [Melanoma is] like a lot more effective than some of the other ones, I think um it’s just- just kind of like “oh it’s like, a mole?”... like it looks like it would be kinda painless. And...like obviously that popped up like I wouldn’t wanna see it, but like it doesn’t look like you know like someone’s face is scabbed up here...and it also looks like very zoomed in so like I question like how big this mole actually is.

Comprehensibility

- UV Photo was not understood by most participants.

- Some participants also had difficulty understanding the images in Pterygium, Eye Burn, Lip Aging, Melanoma, Skin Cancer Treatment (surgical), and Skin Cancer Treatment (topical).

I do think it’s good I think they target the face [in Skin Cancer Treatment (surgical)] because I feel like the face is something everyone cares about like it’s the most visible to everybody else...

I think [Skin Cancer Treatment (surgical)] should have shown what this like was maybe before they cut all the skin out too? Just to show...like it could be the smallest little thing and then that’s what has to happen to get rid of it. And like I think that would scare me even more.

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...I still think [Melanoma is] like a lot more effective than some of the other ones, I think um it’s just- just kind of like “oh it’s like, a mole?”... like it looks like it would be kinda painless. And...like obviously that popped up like I wouldn’t wanna see it, but like it doesn’t look like you know like someone’s face is scabbed up here...and it also looks like very zoomed in so like I question like how big this mole actually is.

UV Photo was not understood by most participants.

- Some participants also had difficulty understanding the images in Pterygium, Eye Burn, Lip Aging, Melanoma, Skin Cancer Treatment (surgical), and Skin Cancer Treatment (topical).

I do think it’s good I think they target the face [in Skin Cancer Treatment (surgical)] because I feel like the face is something everyone cares about like it’s the most visible to everybody else...

I think [Skin Cancer Treatment (surgical)] should have shown what this like was maybe before they cut all the skin out too? Just to show...like it could be the smallest little thing and then that’s what has to happen to get rid of it. And like I think that would scare me even more.

This scar one though I didn’t find that that bad ’cause like the scar doesn’t look horrendous like yeah it’s on their face which everyone would not be pumped about but like it’s not that bad like you could have a lot worse scarring than that.

...it’s almost not- um important enough? Like when they say a skin burn, OK but like it’s gonna heal after so like what are you warning me against? You know?

[on the Melanoma label] ...I imagine it immediately on my arm and I was like “oh! Good! Good thing it’s on my arm...”

...I still think [Melanoma is] like a lot more effective than some of the other ones, I think um it’s just- just kind of like “oh it’s like, a mole?”... like it looks like it would be kinda painless. And...like obviously that popped up like I wouldn’t wanna see it, but like it doesn’t look like you know like someone’s face is scabbed up here...and it also looks like very zoomed in so like I question like how big this mole actually is.
and I can see that, but it wasn’t a - it didn’t strike me as much as the actual growth.
…I found [Eye Burn] just kinda looked like pink eye to me but [Pterygium] was scary.

One thing I didn’t like about this photo [in Skin Cancer Treatment (topical)] was it almost just looks like a really bad burn. Like it could be like a burn from something else...
…you just don’t really know what [the photo in the Melanoma label] is so you can’t really like have an opinion on it almost

Text-Specific Perceptions

Cues to Action
- Some found “Avoid tanning to lower your risk” effective, but others found it unnecessary
- Some found “Wear protective eyewear” effective because it provided instructions for harm reduction, while others thought it made it seem safe as long as eyewear is worn.

Amount of information
- Short, concise text was seen as more likely to be read
- More text should be added to the test HWLs to increase believability, relatability, severity, likelihood of being read, and comprehensibility
- Statistics, testimonials, and facts about UV effects were suggested
- Adding links to more information was also suggested

...this “avoid tanning to lower your risk” - I know the risk. I already know I’m gonna get cancer.
...it’s like “wear protective eyewear” so it kinda just makes you feel like if like I wear the eyewear like that could never happen, so...then when it says like “avoid tanning to lower your risk,” it’s kind of like well if I’m wearing my protective eyewear why would it matter if I have to avoid tanning?

But I...didn’t like the text. It says “wear protective eyewear.” I think that’s telling people that tanning’s OK if you have your goggles on.

...like that’s [Skin Burn] something like you can read while you’re like taking your socks off like you know it’s like super easy while I’m about to jump in but I’ll still read it whereas this one [current federal HWL] you’d have to focus a little bit more right?

I feel like if you hear numbers and those sorts of things you start digging deeper...you’ll...think about it more. you’ll be like “I could be that number....”

I know for me like I personally trust things when it’s like real people. You know? So like saying like “this person is this much years old, um she’s been tanning for this long,” like those sorts of things just...will persuade me way more than just
Many participants wanted to know more about the types of skin cancer and how to detect them seeing a photo of a random person of who knows if they even got that from tanning

...perhaps like saying who these people are or something like that...like maybe like personifying these images a bit more 'cause kinda seems like very far removed but if you’re like “oh this is like Stacy...” ‘cause then it sort of feels as if like - obviously not your friend, but it’s kind of like you have like a story behind it...

I just wish like the pictures itself gave a bit of a description... Like how did this person attain that?

“including the stats might be like more informative and like more interesting to read, ‘cause once you start reading the message like “oh this can cause cancer” you’re like “OK like I already know that like whatever”...so you’re less inclined to read them

...like have the person want to learn more is also just as effective if more, right? ‘Cause then they can become more educated on it- on it themselves right? Rather than just scaring them out of it completely...

<table>
<thead>
<tr>
<th>Perceptions of HWL Design</th>
<th>Practicality of HWLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label design can assist in encouraging viewers to read HWLs</td>
<td>IT facilities often post conflicting messages, which some said is more noticeable than risk information</td>
</tr>
<tr>
<td>Elements identified as attention-grabbing were large fonts, short messages, and signal words</td>
<td>Time constraints limit the amount of text that can be read before using tanning equipment</td>
</tr>
<tr>
<td>The “danger”‘s huge. Compared to everything else so that’s what you’re gonna see immediately.</td>
<td>Many people who are tanning have already paid for or committed to tanning, and a warning label on the</td>
</tr>
<tr>
<td>...I appreciate the huge like fonts, and colour choices and sizes...</td>
<td>...on the back of my tanning salon door there’s a huge list of why you should go tanning.</td>
</tr>
<tr>
<td>...I did like the fact that the text was at the top and the bottom and not beside the picture.</td>
<td>...there’s like posters that say like doctors recommend [IT] or like a priest recommends it...”</td>
</tr>
<tr>
<td></td>
<td>I definitely notice the positive posters more than the negative ones</td>
</tr>
<tr>
<td></td>
<td>...I know when you’re tanning too you have five minutes to get undressed - you’re not reading [the current federal HWL]</td>
</tr>
<tr>
<td></td>
<td>Yeah you’re gonna feel guilty but she just started your timer and you’re still gonna go.</td>
</tr>
</tbody>
</table>
equipment is unlikely to change
their behaviour immediately
4 Chapter 4: Discussion and Conclusion

This thesis sought to achieve two objectives related to IT legislation and risk communication in Canada. The objective in Chapter 2 was to examine the presence, content, comprehensiveness, and areas for improvement of IT legislation across Canadian provinces and territories, including those related to risk communication. Chapter 3 explored a specific, federally-legislated risk communication strategy, with the objective being to explore past-year indoor tanners’ perceptions of the current Canadian federal HWL and pictorial, evidence-based test HWLs. Generally, there has been a great deal of legislative progress both federally and at the provincial and territorial level. In the provinces and territories, this was particularly with respect to youth access restrictions, but also in the presence of warning signs, advertising and marketing restrictions toward youth, and outlining penalties for non-compliance in the legislation. However, more progress could be made in advertising and marketing toward the general public, protective eyewear, unsupervised tanning, operator training, exposure restrictions, client information other than warning signs, screening of high-risk individuals, and routine inspections. In terms of risk communication at the federal level, we found that while the federal HWL provides a great deal of useful and valuable information, in many cases it may not be attended to due to the lack of images, small font, and large amount of text. Images that were generally seen as effective at attracting attention, evoking fear and other emotional reactions, and communicating severity were those depicting UV effects which involve the face or eyes, impact appearance, and appear permanent, while remaining relatable, believable, and comprehensible.

The limited ability of the current federal IT HWL to attract and maintain indoor tanners’ attention, as seen in the focus group study (Chapter 3), is concerning since this is currently the
only federally-mandated risk communication strategy for IT and the only label affixed to IT
devices. Further, there is research which suggests that in some cases this may be the only visual
risk communication present in tanning facilities – a process evaluation of the provincial IT
legislation in Ontario found that failure to post warning signage was the most common violation
by IT facility owners and operators (Reimann et al., 2019). With provincial labels sometimes
absent from tanning facilities, the federal label (affixed by manufacturers to the devices
themselves) becomes especially important. Additionally, as several participants mentioned in the
HWL focus groups, IT industry signage in tanning facilities (e.g., posters) which promotes
unfounded health claims and purported aesthetic benefits is more visible and engaging than
government-mandated signage. This evidence suggests that improvement is needed in terms of
risk communication at both the federal and provincial/territorial levels. For example, based on
the possibility of limited risk communication within tanning facilities and the prominence of pro-
tanning industry messages, the federal government should optimize HWLs in order to encourage
people to read them. Additionally, more work should be done by the provinces and territories to
ensure that IT facilities are complying with requirements for warning signage.

Along with the low attention-attracting ability of the federal HWL, the lack of regulation
of IT advertisements provincially is also a concern. While it is promising that many provinces
have restricted the marketing of IT to youth, no provinces or territories currently restrict IT
advertisements toward the general public, and most do not restrict misleading advertisements
toward the general public. The IT industry continues to promote misleading information (Autier,
2004; U.S. House of Representatives Committee on Energy and Commerce – Minority Staff,
2012; Green, 2018), and the literature shows that these myths are being accepted by many indoor
tanners, particularly the idea of the “base tan” (Qutob et al., 2017). Additionally, the use of IT to improve appearance, a common reason for IT (Qutob et al., 2017), is a prominent theme in individuals’ personal beliefs, social norms, the media, and industry marketing (Ontario Sun Safety Working Group, 2010; Cafri, Thompson, Jacobsen, & Hillhouse, 2009; McWhirter & Hoffman-Goetz, 2015; Green, 2018). In Ontario, one province which does restrict misleading advertisements toward youth only, many IT businesses continue to make misleading claims about the impact of IT on their websites (Green, 2018). For these reasons, it is imperative that we optimize legislation to reduce the frequency of misleading claims, particularly regarding the health benefits of IT. Additionally, more work is needed to combat this misleading information, as well as the idea of the tanned look as attractive, with effective risk communication, such as HWLs.

The fact that warning signage and HWLs are mandated at the federal and provincial/territorial levels demonstrates that governments are in support of communicating the risks of IT to indoor tanners. If, through research and HWL revisions, we improve the ability of HWLs to engage viewers and ensure that all tanning facilities are posting the correct warning signage, these risks can be better communicated. An example of the potential for updated warning signage to better attract attention can be seen in Ontario. Following the introduction of yellow warning signs in Ontario tanning facilities, more youth reported noticing these signs (Nadalin et al., 2018). Thus, an updated federal HWL and more stringent enforcement of provincial and territorial IT legislation may ensure that more indoor tanners are informed of the risks of IT.
It is important to note that Canada is known as a world leader in tobacco labelling, as the first country to introduce pictorial cigarette pack labels (Hammond, 2011). Recently, in May 2019, the federal government also joined several other nations in implementing plain packaging for tobacco products (Health Canada, 2019). This shows a commitment within the government to discourage the use of carcinogenic tobacco products. As it has with tobacco labelling, the federal government also has the opportunity to demonstrate the same leadership in labelling IT equipment by implementing strategies that will ensure that this HWL is reaching and connecting with its intended audience. This could include the addition of evidence-based graphic images to IT HWLs, which were shown in Chapter 3 to be preferred by indoor tanners.

In order to create a strong legislative effort to address IT and skin cancer in Canada, the improvements to risk communication recommended in this thesis should take place concurrently with other legislative improvements at the provincial/territorial level. For example, in Chapter 2, we found that very few provinces/territories require tanning salon operators to be trained in any way, and that few jurisdictions restrict unsupervised IT services. If operators are not trained in the proper use of IT equipment and harm reduction strategies, and IT equipment users are able to operate this equipment on their own, the risk of severe health effects may be heightened (Sinclair, 2003). The fact that no provinces or territories restrict certain high-risk individuals, such as those who always burn and never tan, or those using certain medications or cosmetics, is also a concern (Sinclair, 2003). These individuals are more sensitive to UVR than others, and the legislation should require tanning salon operators to consider these factors when providing IT services to clients in order to reduce the risk of harm (Sinclair, 2003). Additionally, more legislative coverage is needed for protective eyewear across provinces/territories, given the risk
of severe and long-term eye damage posed by UVR. Finally, provincial and territorial legislation should prioritize routine inspections of IT facilities to ensure compliance with the legislation. In Ontario, where inspections are only required in response to complaints, it has been found that the majority of infractions are discovered during routine inspections (which are not required by law), compared to these complaints-based inspections (Reimann et al., 2019). Thus, it is possible that in jurisdictions where regular inspections are not legally required, many violations of the legislation are not being detected. These legislative modifications, along with improvements to IT risk communication, can help ensure that the public is not only better informed about the risks of IT, but also better protected from these risks.

This research focused on the legislative aspect of health communication with respect to IT. However, there are other means of communication with the potential to challenge the norms and ideals surrounding IT. Appearance-focused messages have shown promise (Hillhouse, Turrisi, Stapleton, & Robinson, 2008), as have communication tools addressing social norms and media regarding IT (Greene, Campo, & Banerjee, 2010; Cho, Yu, Cannon, & Zhu, 2018). Additionally, melanoma advocacy campaigns in the past have reached a wide range of audiences and promoted awareness of the link between skin cancer and IT (Sinclair & Makin, 2008; Holman et al., 2013; Sinclair et al., 2014). Campaigns and other communications strategies such as these could complement legislative efforts to address the use of IT. Intentional exposure to UVR, including IT, is a complex issue which will require an equally complex set of strategies in order to successfully address it. By optimizing legislation and HWLs, one component of a wider public health effort to deter IT and help prevent skin cancer can be strengthened.
4.1 Strengths, Limitations, and Future Research

This research is the first to evaluate the content of Canadian provincial and territorial IT legislation (Chapter 2) and the federal IT HWL (Chapter 3). The content analysis of IT legislation was highly comprehensive, as it evaluated the legislation on a large number of criteria, and included not only Acts and Regulations but also supplementary information. The HWL focus group study is the first qualitative study of IT HWLs, and the first to explore perceptions of these HWLs among their intended target audience. This qualitative nature allowed for a deeper understanding of indoor tanners’ perceptions of the warning labels studied and why they have those perceptions (Kitzinger, 1995). Both studies provide insight into current IT legislation in Canada, and have created a foundation for future research into IT legislation and risk communication. With this future research, it will be possible to gain a more accurate understanding of how IT is being regulated in Canada and inform future health policy decisions related to IT. Additionally, the methods and results can be applied elsewhere: the methods used in the content analysis of Chapter 2 can be applied to the legislation in other jurisdictions around the world, and the focus group methods and findings about effective labels could inform future studies both within Canada, and globally. For example, as revealed in Chapter 2, each Canadian province and territory requires warning signs in IT facilities. The findings from Chapter 3 could inform efforts to improve these warning signs.

Research on strategies to promote IT avoidance through legislation is still in its early stages, and as such, a number of questions remain which could be answered in future studies. The study in Chapter 2, for example, provides insight into what IT legislation covers across Canada, without exploring the effectiveness of this legislation, actual enforcement practices, or
compliance by IT facilities. Impact, enforcement, and compliance with respect to IT legislation have been studied previously (Reimann, McWhirter, Papadopoulos, & Dewey, 2018; Reimann, McWhirter, Cimino, Papadopoulos, & Dewey, 2019; Reimann et al., 2019). This, along with future research in a Canadian context, will provide greater knowledge of IT legislation in Canada, its effectiveness, and how to improve it. This research assists in answering these questions by providing information on the content of provincial and territorial IT legislation. For example, now that it is known what is being regulated across provinces and territories, a next step could be to assign numerical scores to each province and territory’s IT policy. This will allow easier comparisons between jurisdictions. Additionally, these scores could be compared to data on the prevalence of IT, in order to determine whether IT legislation, or parts of it, is affecting IT behaviours across Canada.

For Chapter 3, it is important to consider that there are infinite combinations of text, images, and designs that could form an HWL. Though this study tested multiple messages and images across 4 themes – and suggests that certain images and messages would be beneficial for IT HWLs – it is possible that more effective variations exist. This highlights the importance of conducting multiple studies on effective HWLs, and this study provides an opportunity for future research to build on these findings. For example, while premature aging messages were seen as impactful by many participants in this study, the images for the aging-related test HWLs were not. Future research should investigate whether alternative images for this theme would create more impactful HWLs. In terms of the text, many participants in this research mentioned that factual information, statistics, and testimonials would improve IT HWLs. Future research may be able to pinpoint which, if any, of these strategies is the most effective in IT HWLs. To build on
the findings from this research, a next step could be to conduct additional qualitative research where indoor tanners create impactful warning labels themselves. It will also be important to evaluate HWLs in an experimental study in order to obtain quantitative evidence regarding effective components of IT HWLs.

4.2 Conclusion

It is promising that IT legislation and HWLs exist at the federal and provincial/territorial levels. However, it is also important that these efforts are developed in such a way that they are effective at addressing the public health issue of IT. Though there are several areas of IT legislation, including youth access, at the provincial and territorial level that are receiving a high degree of legislative attention, others have very limited coverage, including important areas such as protective eyewear and screening of high-risk individuals. Additionally, while the federally-legislated HWL is an important step in communicating the risks of IT to users of this equipment, its potential to do this could be maximized with modifications such as images and other formatting changes.

Currently, as melanoma rates continue to rise, Canadians continue to tan indoors and the IT industry continues to circulate harmful myths about this activity. While important efforts have been made to address these issues, there is more to be done in order to regulate IT in Canada and communicate the risks. This research has begun to fill important knowledge gaps in terms of IT policy in Canada by identifying key strengths and areas of improvement in provincial/territorial legislation, as well as federal risk communication strategies. In combination with further research, these studies will provide policymakers with information on next steps in combatting IT, and ultimately, the important public health issue of skin cancer.
4.3 References


APPENDIX

Appendix A. Focus group label questionnaire

RATING QUESTIONNAIRE FOR LABELS

Instructions: Please complete the following page for EACH warning label.

Note: the purpose of a warning label is to affect people’s knowledge and attitudes, and influence their behaviour. By “effectiveness,” we mean its ability to carry out its purpose.

Thinking about the TEXT in this label, please rate the effectiveness of the text in this label by circling one number on the scale below. Next, jot down a few things you like and dislike about the text in this label (point form is fine).

<table>
<thead>
<tr>
<th>Not effective at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Very effective</th>
</tr>
</thead>
</table>

LIKES about the text | DISLIKES about the text

Thinking about the PICTURE in this label (if applicable), please rate the effectiveness of the picture in this label by circling one number on the scale below. Next, jot down a few things that you like and dislike about the picture in this label (point form is fine).

<table>
<thead>
<tr>
<th>Not effective at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Very effective</th>
</tr>
</thead>
</table>

LIKES about the picture | DISLIKES about the picture

Thinking about this label in general...

<table>
<thead>
<tr>
<th>Not at all effective</th>
<th>Not very effective</th>
<th>Neutral</th>
<th>Somewhat effective</th>
<th>Very effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>How effective is this label?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Instructions: Please complete the following considering ALL the warning messages.

Please identify the three (3) labels you think are most effective, in your opinion (write one label code per box).

Please identify the three (3) labels you think are the least effective, in your opinion (write one label code per box).
Appendix B. Focus group moderator guide

Hello and welcome. Thank you all very much for taking the time to be here today. My name is (name), and I will be conducting the group discussion today. This is (name), who will be taking notes. We are conducting a study on how well the warning labels for indoor tanning equipment, like tanning beds, inform people of the risks of indoor tanning. You were all invited to participate because as people who have recently used tanning beds, your thoughts and feelings about these warnings are very important to us. Today we'll be asking you to complete a demographics questionnaire and an individual rating questionnaire for each label, and then participate in a group discussion about your thoughts on these labels.

First, you should all have a consent form in front of you. It’s identical to the one you should have received by email, but please take some time to go over it again. I'll go over some key information: We will be recording the audio from the group discussion. This is because we don’t want to miss anything during the discussion. We will only use the recording to help us analyze the results, and we'll delete them as soon as we transcribe them. We won’t share the recordings, or any of your personal information, with anyone else. No names or other personal details will be included in any reports or presentations that come from this study, but we might use a quote from you without identifying you. Maintaining privacy is the responsibility of everyone here, as well: it's important that you don’t discuss the identity or anything that might reveal the identity of anyone participating here today, and that you also don’t discuss any comments. Also, during the discussion you might find that some images we’ll be looking at today are graphic. If you’re uncomfortable with any of these images, or if you don’t wish to answer a question or participate in part of the discussion, you don’t have to. Just stay silent or if someone addresses you directly, you can tell us you’d like to “pass.” You can leave the focus group at any time and still get the gift card for coming.

If you are comfortable with continuing, then please sign the consent form in front of you after reading the details. If you have any questions, please let one of us know.

(Allow up to 10 minutes for participants to read, sign, and ask questions. Assistant moderator collects consent forms).

(assistant moderator hands out background form, individual questionnaires, and warning label copies)

Before we start, I'll go over some ground rules and other details for the group. First, if you haven’t already, please turn off your phones or put them on “silent.” If you do have to respond to it, please just step out of the room to do that. There’s pizza and drinks at the side of the room, so feel free to get up and help yourself whenever you’d like.

Keep in mind that there are no right or wrong answers to anything we’re discussing. Your views are important, so we would like you to tell us your honest opinions. It’s helpful for us to know the different thoughts, experiences, or ideas that people have, so please feel free to share
them even if they’re different from what others are saying. If you have the same thoughts as someone else, you can share that, too.

If you want to follow up on something that someone has said, or if you agree or disagree, please do so. You don’t have to respond to me all the time: feel free to address one another if you have comments. We’d like to hear each of your opinions, so if you’ve been talking a lot, I might ask you to give others a chance. If you aren’t saying much, I might invite you to share your thoughts. This is just because we want everyone to share their views. I might also have to stop the discussion and move on to the next point, to make sure we finish on time. If I do that and you still have more to say, there will be time at the end to add any other thoughts.

OPENING QUESTION

Let’s start by learning a bit about each other. Could we go around the group and please tell us your first name or the nickname you’ve chosen, what program you’re in, and about how often you’ve tanned indoors in the last year? (If you can’t remember the past year, then just think of sometime more recent)

INTRODUCTORY QUESTIONS

What makes you want to tan indoors?

Before learning about our study, did you think about the risks of indoor tanning?
  - What did you think about?
  - If yes, what risks? How risky? Who is at risk?
  - If no, why not?

TRANSITION I

Have you ever seen any warning labels when you’ve gone tanning?

  - If yes, can you describe them? (i.e., what did they say? What did they look like? Where we they?)

QUESTIONNAIRE

At this point, we have a short questionnaire about your background, initial thoughts about tanning and skin health, and tanning behaviour. You can leave any questions blank if you don’t want to answer. We’re also giving you some time now to look at all the labels we’ll be talking about today and fill out another questionnaire based on your thoughts. Make sure as you’re filling out the rating sheet for each label that the code on the label matches the code at the top of the sheet you’re working on. At the end, there’s a page where you can write down the codes for the 3 labels you find most effective, and the 3 you find least effective. If the label
you're rating doesn’t have any pictures on it, skip the picture section of the rating questionnaire.

**TRANSITION II**

What did you think about the labels we just saw?

**KEY QUESTIONS**

**Activity**

I've put all the labels (up on the wall, on the table, etc). I'd like everyone to take your sheet of stickers, and put green ones on the 3 labels you think are most effective and red ones on the 3 that you think are the least effective. Place your dots where you feel they should go, regardless of where others are putting theirs. You can refer back to your ratings sheets if that's helpful.

(Discuss labels one at a time, starting with federal label)

**Current federal label ONLY:** Let’s have a show of hands: how many people have seen this label before?

**All labels**

**Effectiveness:**

What made you put your dots next to this label?

**Attention:**

Does anything stand out to you about this label?

- (if yes) what grabs your attention?
- (if no) why doesn’t it grab your attention?

**Likes/Dislikes:**

Tell us about some of your **likes**, or things that work well, about the text or the picture or text and picture together. Tell us about some **dislikes, or things that don’t work well.**

- Prompts for likes and dislikes: believability, relevance, fear, understandability

**Knowledge:**

Did you learn anything from this label? Was the label easy to understand?
Attitude:
Does this label influence how you feel about tanning?

Behaviour:
Would this label make you think about changing your tanning habits? (cutting down, quitting?)

Changes:
Is there anything you would change about this label?
(if yes) what suggestions do you have?

**Note:** Look for patterns in discussions of similar labels/labels with shared characteristics

**Concluding Questions**

Overall, do you think tanning equipment should have warning labels?
- Why/why not?
- What is/isn’t effective about them?

Do you have any other ideas you want to share?
- Why do you think it’s important to add that?

**Conclusion from Moderator**

(Moderator provides 1-2 minute summary of the group discussion and inquires if anything has been missed)

Does that sound about right to you? Have we missed anything?

**Thank you** all again for coming to our focus group today and sharing your thoughts and opinions. We greatly appreciate all your comments, and they are highly valuable for our study.

We have some information sheets for you about indoor tanning and skin cancer. If you have medical questions or concerns after our discussion, please see your doctor or other health care provider. If you have any questions or concerns about the research, please reach out to us. Our contact information is on the information and consent forms you received at the beginning of the study. Once again, thank you all for your time, and have a good evening.
Probes:

- Would you explain further?
- Would you give me an example of what you mean?
- Would you say more?
- Tell us more.
- Is there anything else?
- Please describe what you mean.
- What experiences have you had to make you feel that way?
- Does anyone see it differently?
- Has anyone had a different experience?
- Are there other points of view?
- What makes you feel that way/think that?