

AN ASSESSMENT OF THE FIRST YEAR OF A BAN ON TANNING BEDS AND LAMPS AMONG ADOLESCENTS IN ONTARIO, CANADA

**SURVEY RESULTS
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Authors:

John Atkinson*
Caroline Cawley
Loraine Marrett*
Jennifer McWhirter
Vicki Nadalin*
Cheryl F. Rosen*

Canadian Cancer Society
Cancer Care Ontario
Cancer Care Ontario
University of Guelph
Cancer Care Ontario
University of Toronto,
Canadian Dermatology
Association
Ryerson University

Thomas Tenkate*

*Steering Committee Members





Acknowledgements

Steering Committee

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The Ontario Sun Safety Working Group is acknowledged as playing a central role in guiding this project.

The Sun Safety Working Group is a partnership of individuals and organizations working together to reduce the impact of solar and artificial ultraviolet (UV) radiation (including indoor tanning equipment) on human health, such as skin cancer and eye diseases

The goal of the group is to raise awareness of the effects of solar and artificial UV radiation on human health, advocate for the development of policy to reduce UV radiation exposure, and support the delivery of a consistent public health approach to skin cancer prevention in Ontario.



Ontario Sun Safety Working Group Member Organizations:

Canadian Cancer Society
Canadian Dermatology Association
Canadian Journal of Optometry
Cancer Care Ontario
Carleton University, Department of Health Sciences
Central West Skin Cancer Prevention Network
Champlain Region Cancer Prevention & Screening Network
Division of Dermatology, Department of Medicine, Toronto Western Hospital, University of Toronto
Environment Canada
Hamilton Public Health Unit
Melanoma Network of Canada
Middlesex London Health Unit
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Ryerson University, School of Occupational and Public Health
Ryerson University, Department of Architectural Science
Southwest Ontario Regional Sun Safety Network
Southeastern and Eastern Regional Cancer Prevention Network
Sudbury & District Health Unit
Toronto Public Health
University of Guelph, Department of Population Medicine

Contents

Executive Summary.....	2
Background	2
Key Findings	2
Summary and Conclusions	3
Recommendations	3
Background	4
Purpose	4
Methods	5
Funding	5
Survey.....	5
Data Analysis.....	6
Survey Results	6
Tanning Methods and Use	6
<i>Figure 2: Use of tanning bed or lamp in the 12 months prior to survey</i>	8
<i>Figure 3: Use of tanning bed or lamp in the 12 months prior to survey – by grade</i>	8
Location of Use	9
Refusal of Use	10
Warning Signs	13
Attitudes of Adolescents towards Tanning.....	14
Discussion and Recommendations	14
Limitations	15
Recommendations	16
References	17
Appendix A: Pre-Enactment Questionnaire.....	18
Appendix B: Post-Enactment Questionnaire	21
Appendix C: Estimates and 95% Confidence Intervals.....	25



Executive Summary

Background

Ultraviolet (UV) radiation exposure from tanning bed/lamp use is an important risk factor for skin cancer; this risk is higher among those who start using tanning beds or lamps at an early age. As such, many countries have restricted tanning bed/lamp use among adolescents.

Ontario's *Skin Cancer Prevention Act (Tanning Beds)*, 2013, S.O. 2013, c. 5 and its regulation (i.e. *Ontario Regulation 99/14: General*)^{1,2} came into effect on May 1, 2014. The main provision of the Act is the prohibition of sale of 'tanning services or ultraviolet light treatments for tanning' to those under 18 years of age. Other provisions relevant to this report include:

- Requirements for service providers to request identification from anyone who appears to be under 25 years old;
- Requirements for signage regarding the age restriction and the health risks associated with tanning services or treatments;
- Requirements that protective eyewear be worn.

To determine if the Act has impacted adolescents' use of tanning beds and lamps, two surveys were conducted one year apart: the first, immediately before the Act came into effect (spring 2014), included 1,561 adolescents (in grades 7-12 and under the age of 18 years); and the second, one year later (spring 2015), included 2,305 adolescents. The surveys focused on tanning behaviours in the previous 12 months. This report describes the results of these two surveys.

Key Findings

- There was no reduction in the percentage of adolescents reporting use of tanning beds or lamps one year after the Bill was enacted
 - This was the case for both males and females, and for every school grade
 - Overall, 6.9% had used tanning beds or lamps in the 12 months prior to the Act vs. 7.9% in the year following, however this difference was not statistically significant
- Adolescents used tanning beds and lamps primarily in commercial establishments, which are covered by the legislation
 - Only a small proportion of tanners used tanning beds or lamps solely in a residential location (their own or someone else's home) and this was not significantly different before compared to after the Act
- The majority (78%) of those using tanning beds or lamps reported having started within the past year, after the Act came into effect

¹ <https://www.ontario.ca/laws/statute/13s05>

² <https://www.ontario.ca/laws/regulation/140099>



- There was a small increase (17% to 21%) in the percentage of tanning bed or lamp users who were refused tanning services at least once, however this result was not statistically significant
- In the year the Act came into effect, most (72%) of those who were refused service at least once did not use tanning beds or lamps
- There was an increase (from 57% to 71%) in the percentage of tanning bed/lamp users who noticed health warning signs
- Significantly more tanning bed/lamp users were required to use protective eyewear in the year after the Act came into effect (92% to 99%)

Summary and Conclusions

In the first year after the Act came into force, there was no reduction in the proportion of adolescents using tanning beds and lamps. However, there were some improvements in practice (e.g., more adolescents used protective eyewear), and those refused service were unlikely to access services again. Further work is needed to determine the ongoing effectiveness of the Act in achieving its desired outcome.

Recommendations

1. Continue to evaluate awareness, compliance with and enforcement of the Act, identifying issues that require improvements or changes.
2. Increase education about the Act and about the dangers of using tanning beds and lamps.
3. Increase financial support for enforcement activities.
4. Disseminate these findings to relevant stakeholders to increase awareness about the Act and the need to promote compliance.



Background

Skin cancer is a significant public health issue in Canada. It is estimated that 78,300 cases of non-melanoma skin cancer, and 6,800 cases of melanoma were diagnosed in Canada in 2015.¹ Ultraviolet (UV) radiation exposure from tanning bed/lamp use is a risk factor for skin cancer of all types, and risk is higher among those who started using tanning beds/lamps at an early age, and used them for a longer period of time.²

The increased risk of skin cancer associated with early use of tanning beds/lamps is a concern because adolescent are frequent users of such equipment. In Ontario, a report published in 2009 about grade 10 students in London found that 14% had ever used tanning equipment, with greater use among females.³ An unpublished report commissioned by the Canadian Cancer Society (CCS) Ontario division in 2012 found that 9% of adolescents aged 12-17 reported having ever used tanning beds/lamps, and that use was higher (16%) in grades 11 and 12.⁴ Restricting adolescent access to tanning equipment is a potentially effective method of reducing skin cancer in the population.⁵

Many countries around the world have legislated to restrict the use of tanning equipment, particularly among teens. In Canada, tanning equipment itself is regulated federally, while limits on the use of the equipment, including age restrictions, fines, signage requirements, and advertising vary by province, and in a few cases even by municipality (where provincial legislation is lacking).

In the spring of 2014, the *Skin Cancer Prevention Act (Tanning Beds)* (referred to as “the Act” in this report) came into effect in Ontario (note: it was previously passed into law in October 2013.) The Act and its associated Regulations^{6,7} prohibit the sale and marketing of tanning services to those under 18 years of age. The Act prohibits the sale and marketing/advertising of tanning services to those under 18 years of age; requires tanning bed operators to request identification from anyone who appears to be under 25 years of age; requires signage indicating the age restriction and health risks; requires the provision of protective eyewear and instructions on its use; and requires an attendant be present during tanning sessions (no self-tanning). Under the Act, tanning bed operators are also required to register with their local public health unit, which are then responsible for enforcing the Act and ensuring compliance.

Purpose

The purpose of this report is to describe and compare the use of tanning equipment by Ontario adolescents (less than 18 years old and in grades 7-12) before and after the Act came into effect. This was undertaken using an online survey methodology. The key outcomes of interest of this study were:

- The percentage of adolescents who used tanning equipment in the 12 months prior to each survey;



- The percentage of adolescents who tried to use tanning equipment in the 12 months prior to each survey, but were denied;
- The percentage of adolescent tanning equipment users who noticed health warning signs and who used protective eyewear; and
- Where adolescent tanning equipment users obtained their tans (e.g., in a salon, at home, etc.).

Methods

Funding

Three not-for-profit organizations represented on the Ontario Sun Safety Working Group (Canadian Cancer Society - Ontario Division, Cancer Care Ontario, and Ryerson University) pooled financial resources to cover the costs of the two surveys. External grant funding was not sought because the time between when the Act was passed (October 2013) and when it came into effect (May 2014) was very short.

Survey

Because of the time constraints noted above, a survey methodology that could easily and quickly be implemented was required. Ipsos Reid, a professional survey company, had carried out a similar survey of adolescent tanning for the Canadian Cancer Society in the past, and had the required methodology in place. Therefore, Ipsos Reid was contracted to conduct a pre-legislation online survey (in the spring of 2014) of Ontario adolescents under age 18 in grades 7-12, and subsequently contracted to repeat the survey one year after commencement of the legislation (in spring 2015).

Ipsos Reid maintains a panel of members who participate in surveys in exchange for points that can be accumulated and redeemed for rewards, and has background information on panelists, including the age, sex, and number of children in the household. For both surveys, panel members (adults) with children in the target demographic were contacted by email. The email described the questionnaire, study purpose, and number of points to be awarded to the child for participation, and asked that one child (in grades 7-12 and under the age of 18) come to the computer and answer an online questionnaire. Consenting parents then passed control of the computer to the child. Some respondents were obtained through non-panel sources when school grade quotas could not be reached (e.g., through community sites, social networks, etc.).

The 10 minute pre- and post-questionnaires were designed by Project Steering Committee members, based on the original Canadian Cancer Society questionnaire, and included questions about basic demographics, methods used to obtain or keep a tan, length and location of tanning bed/lamp use, signs/warning labels posted in tanning establishments, tanning beliefs and knowledge, and if eye protection was used when tanning. There were slight differences between the first and the second questionnaires (see Appendices A and B).



Ipsos Reid provided sampling weights to ensure representativeness with respect to sex and geographic region, according to the 2011 National Household Survey; the same weights were employed for both surveys. Additionally, within each survey, grade-specific weights ensured equal weighting across the six grades.

Data Analysis

Estimates and 95% confidence limits were generated for each survey separately, applying the appropriate sample weights, using SAS 9.4 software (SAS Institute Inc., Cary, NC). Estimates stratified by sex and/or grade were produced where numbers were large enough. Pre- and post-survey responses were considered 'different' only when pre and post estimates differed significantly and 95% confidence limits did not overlap. Estimates and their respective 95% confidence intervals can be found in Appendix C.

Survey Results

In 2014, 1,561 adolescents participated in the survey (10% response rate) and 2,305 adolescents participated in 2015 (14% response rate). Table 1 demonstrates the unweighted demographics for each year. As this table shows, the percentages of males and females were quite similar between years, though in 2015, there were proportionally fewer participants in grade 12.

Table 1: Demographics

Demographic		2014 % (n)	2015 % (n)
Sex	Male	49 % (765)	52 % (1189)
	Female	51 % (796)	48 % (1116)
School Grade	Grade 7	16 % (246)	17 % (403)
	Grade 8	17 % (269)	18 % (425)
	Grade 9	19 % (297)	17 % (395)
	Grade 10	19 % (291)	18 % (424)
	Grade 11	18 % (275)	19 % (443)
	Grade 12	12 % (183)	9 % (215)
Region	Central Ontario	7 % (118)	6 % (147)
	East Ontario	13 % (208)	14 % (323)
	GTA 416*	20 % (308)	23 % (523)
	GTA 905*	27 % (419)	26 % (604)
	Northern Ontario	6 % (87)	6 % (103)
	Southwestern Ontario	27 % (421)	26 % (605)

* Telephone area codes

Tanning Methods and Use

Participants were asked about the types of tanning methods they had ever used. Figure 1 shows the tanning methods used by the overall sample of Ontario adolescents in 2014 and 2015. In both years, 27% of participants reported they did not try to get a tan. For participants who did try to get a tan, most chose being or playing outside as their method of tanning (61% in 2014 and 60% in 2015), followed by



laying in the sun (48% in both years). Of particular relevance to the Act, **the use of tanning bed/lamps did not change after the legislation**, with 7% of participants reporting ever using tanning beds and 2% of participants reporting ever using tanning lamps in both 2014 and 2015 (note: participants reported using multiple tanning methods, with some using both tanning beds and tanning lamps).

The percentage of the overall sample who reported tanning bed/lamp use in the past 12 months (Figure 2) did not differ significantly in those surveyed before the legislation came into effect (6.9%, 104 participants), and those surveyed one year later (7.9%, 171 participants). In the overall sample, tanning bed/lamp use in the past 12 months also did not differ significantly before or after the legislation came into effect for males or females (Figure 2), or for any individual school grade (Figure 3). Of note, **the percentage of females using tanning beds/lamps was approximately twice that of males**, in both those who were surveyed before and after the legislation came into effect.

Figure 1: Tanning methods ever used

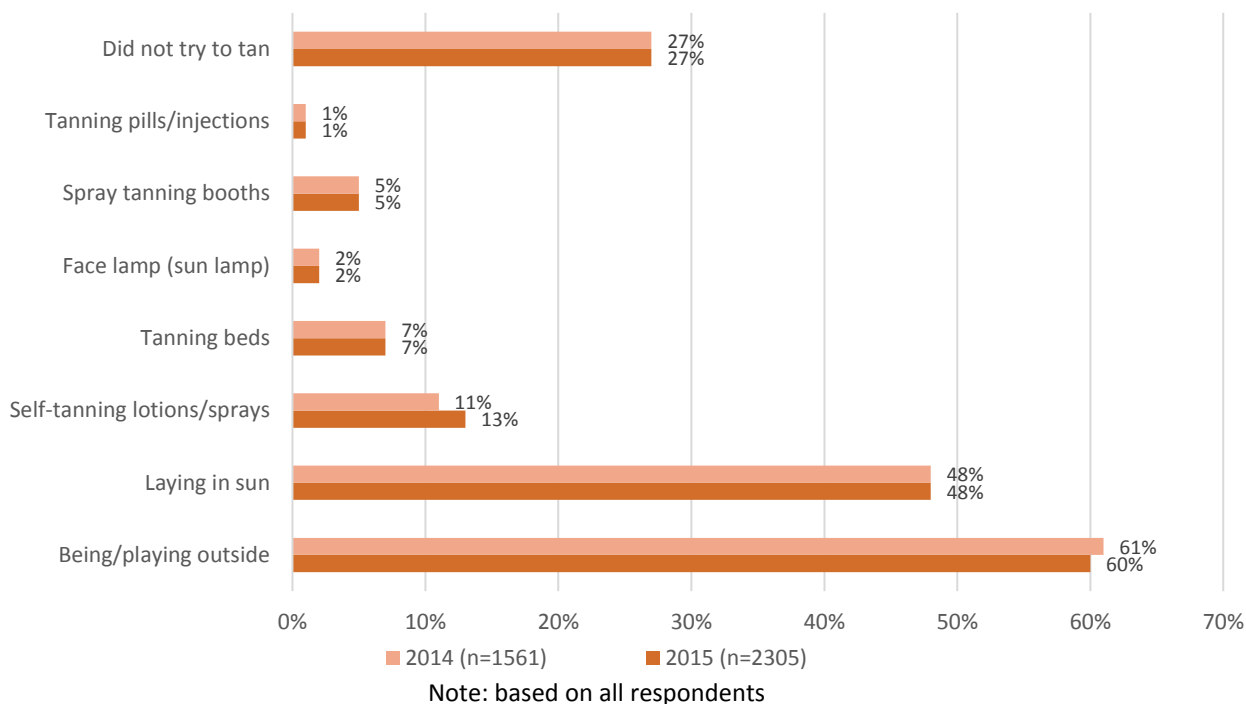


Figure 2: Use of tanning bed or lamp in the 12 months prior to survey

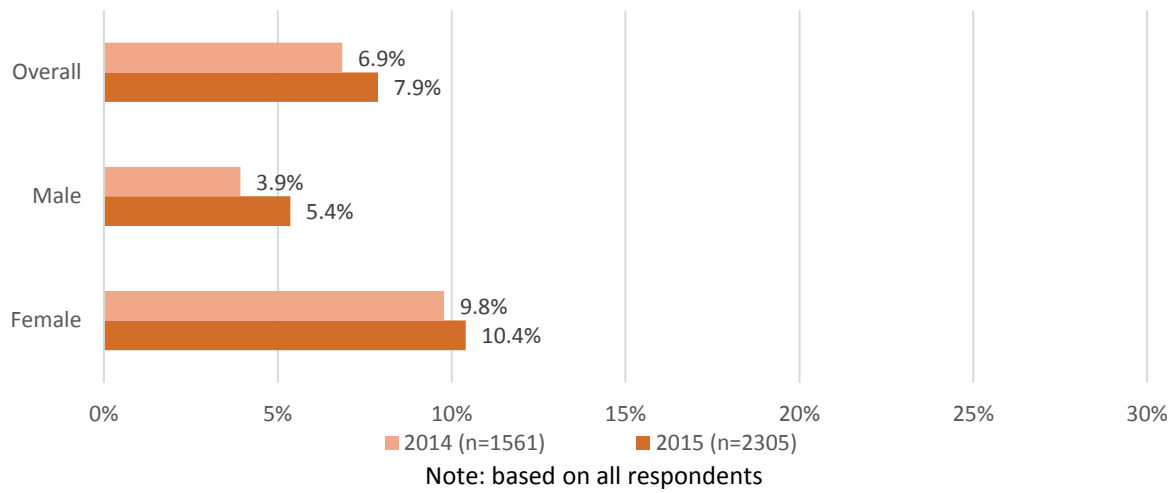
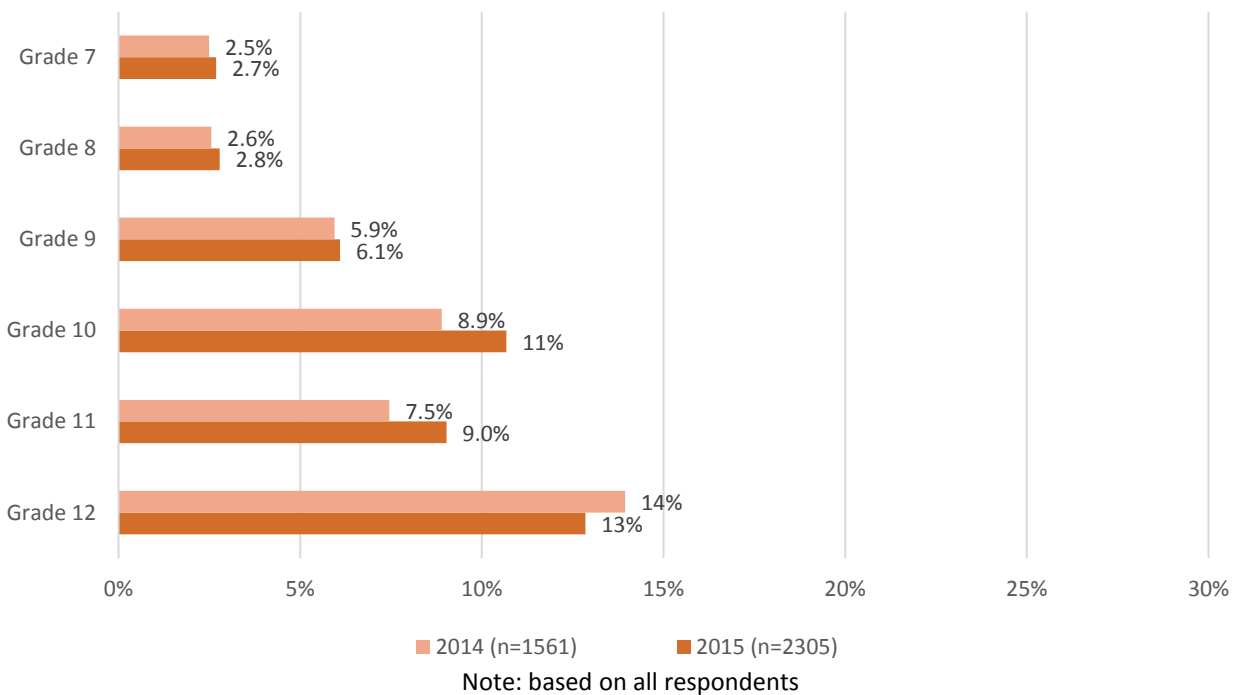


Figure 3: Use of tanning bed or lamp in the 12 months prior to survey – by grade

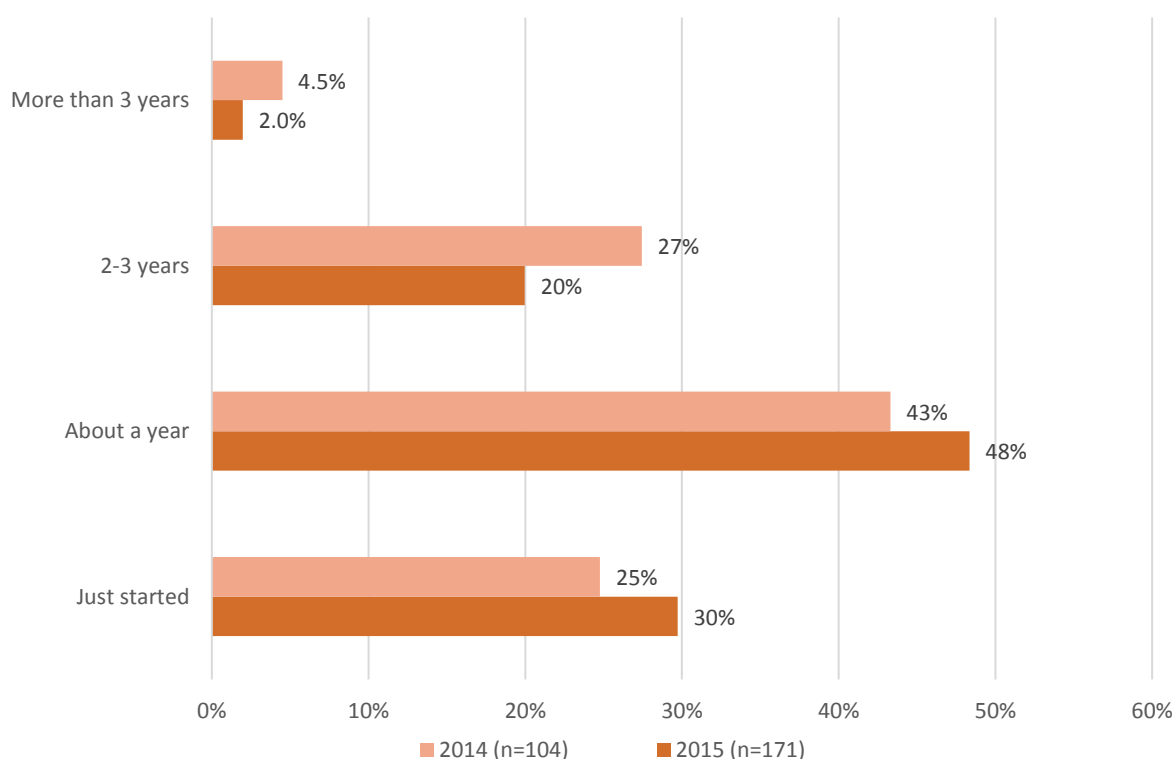


To assess if tanning bed or lamp use decreased over time after the Act came into effect, tanning bed/lamp use was further examined by season. No significant differences were found between 2014 and 2015 for any season (winter, spring, summer, or fall).



The majority of participants who had ever used tanning beds/lamps had either just started or had been using the devices for about a year, and this percentage was higher in the year after the Act came into effect (68% prior to the Act and 78% after the Act came into effect) (Figure 4), but this increase was not statistically significant. When these data were explored further by school grade, no significant differences were found between survey years. Before the Act came into effect, the greatest number of participants who recently initiated tanning bed/lamp use were in grade 7 and 8 (93%); whereas after commencement of the Act, the greatest number were in grade 9 and 10 (83%) (Data not shown). It is of note that in the year that followed enactment of the legislation, 68% of the 7.9% who used tanning beds/lamps were using the equipment for the first time.

Figure 4: Length of time using tanning beds/lamps



Note: based on respondents who reported tanning in the last 12 months

Location of Use

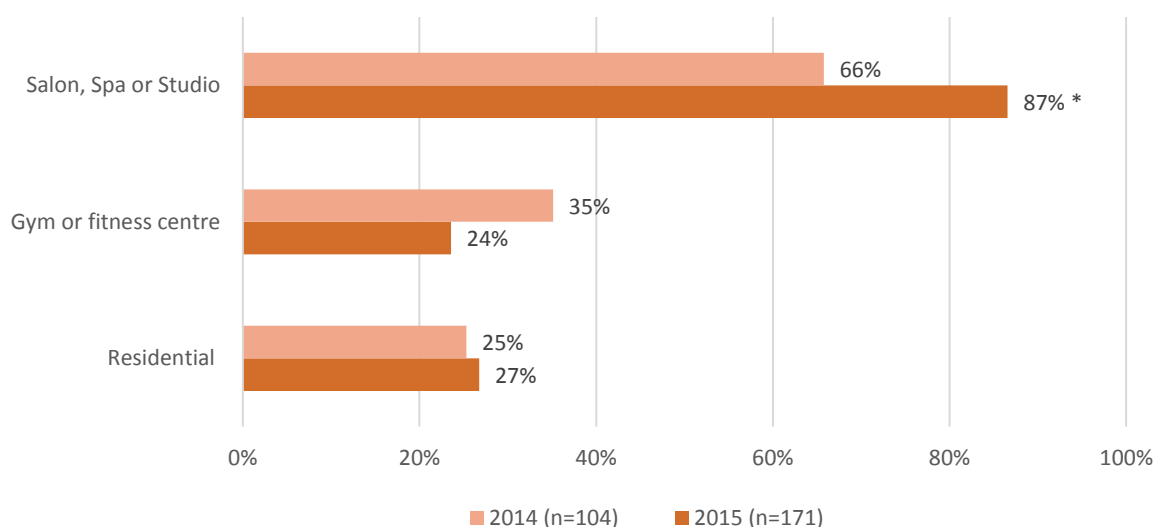
To determine whether the Act led to less commercial, and more home use of tanning beds and lamps, location of use in 2014 and 2015 was compared (Figure 5). As Figure 5 demonstrates, the **majority of adolescents who reported use of tanning beds and lamps in the 12 months prior to the post-survey had done so in commercial establishments, despite legislation banning such use.** Use within a commercial establishment other than a gym/fitness centre, i.e. at a salon, spa or tanning studio was significantly greater after the Act came into effect, while gym/fitness centre use declined non-significantly. Residential tanning bed/lamp use (at one's own or someone else's home) remained the same. Unfortunately, use in establishments where the primary business is tanning (i.e. tanning salons



and studios) cannot be separated from that in hair/beauty salons or spas, where tanning is not the primary business, because these response options were combined in the 2014 survey.

Prior to the enactment of the legislation, only 3% of tanning bed/lamp users reported that they did so only in a residential location, and after commencement, this increased to 7%; however, the actual numbers were small, and the difference was non-significant (data not shown). Further exploration of location of use by grade did not yield significant findings. After the Act came into effect, the greatest number of users of tanning equipment at home were those in grades 11 and 12, in contrast to the year before the Act, when the greatest number were in grades 7 and 8.

Figure 5: Location of tanning bed/lamp use



Notes: 1. based on respondents who reported tanning in the last 12 months
2. * denotes statistically significant result at 0.05

The post-legislation survey asked respondents for greater detail about residential tanning bed/lamp use, i.e., whether it was their own or someone else's private space, in the communal space of their own or someone else's residential building (e.g. fitness facilities in a condo building), or in the communal space of a residence/ dorm. **Private space (house or apartment) was the most common residential tanning location** (93% of those reporting residential use); 25% of residential users said their tanning took place in the communal space of a residential building (data not shown).

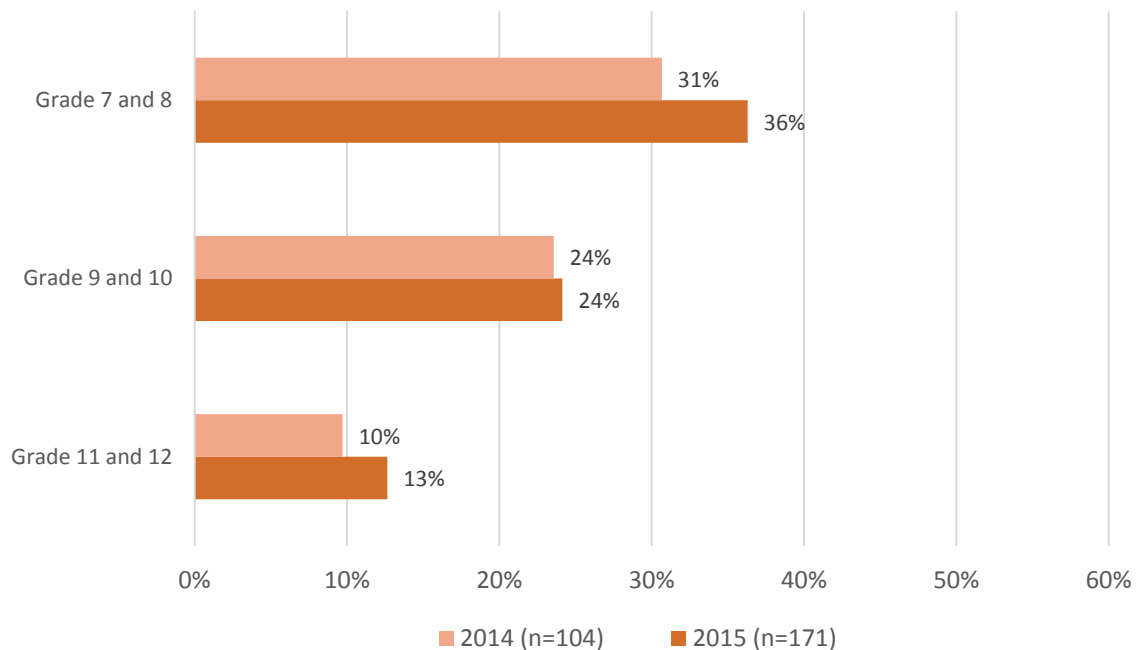
Refusal of Use

To explore whether there was an increase in adolescents being refused the use of tanning beds/lamps following the Act coming into effect, those who had used tanning beds/lamps in the last 12 months were asked if they had ever been refused (i.e., they tried to use tanning beds/lamps but the operator did



not allow them to). Prior to enactment of the legislation, 17% reported that they had been refused access to tanning equipment in the last 12 months, compared to 21% of respondents in the year following enactment (data not shown). In both survey years, higher proportions of younger tanners were refused the use of tanning beds/lamps, relative to older tanners. However, **there was no significant increase in refusals overall after the Act came into effect** (Figure 6).

Figure 6: Refused the use of tanning bed/lamp – by grade grouping

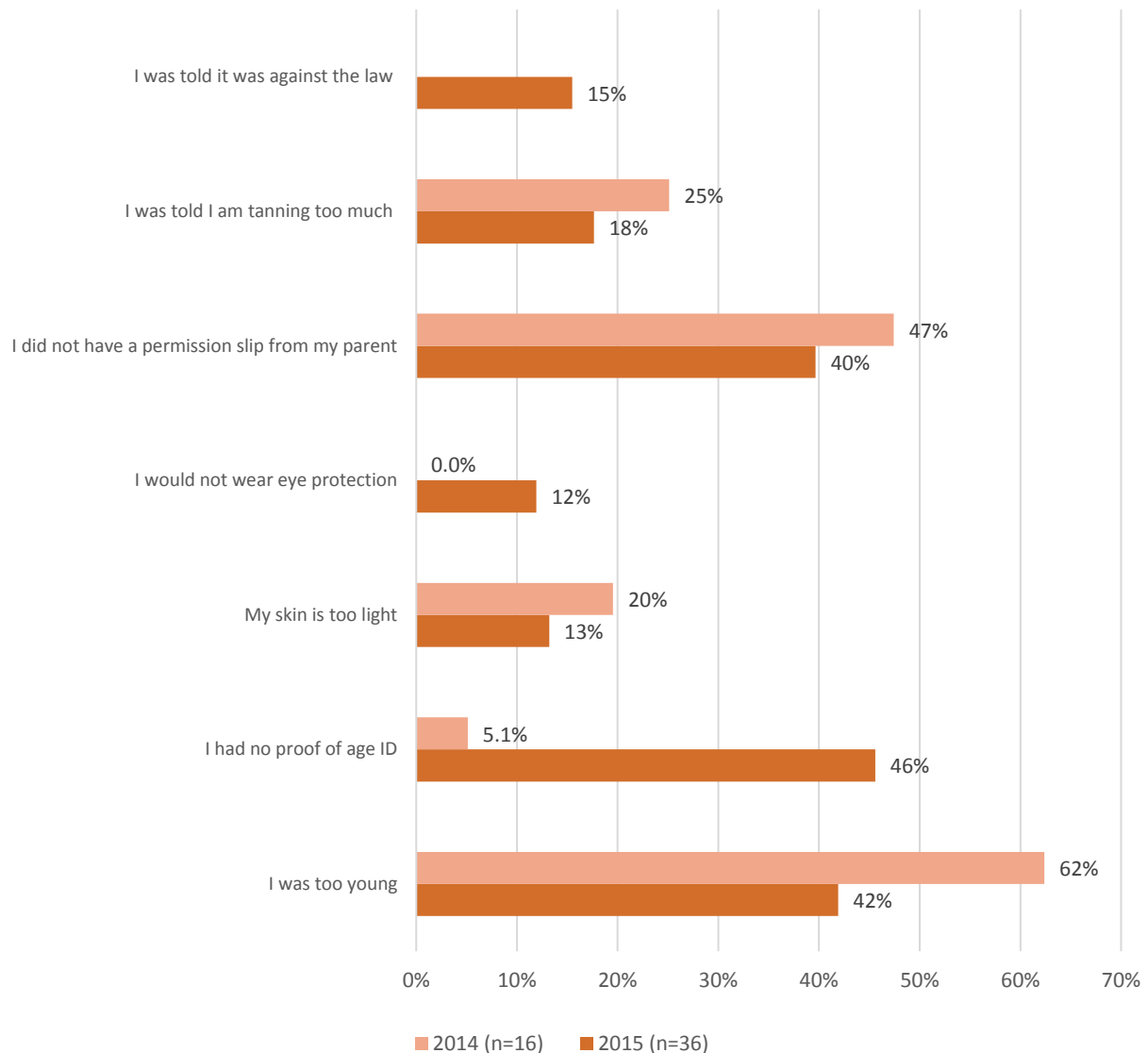


Note: based on respondents who reported tanning in the last 12 months

Respondents who were refused the use of tanning equipment were asked why they were refused. One response option was in the second survey but not the first survey: “I was told it was against the law”, to reflect the Act having come into effect. In Figure 7, the response option **“I had no proof of age ID”** was one of the least commonly reported reasons for refusal (5.1%) prior to the Act coming into effect, but afterward, it was the most commonly reported reason (46%). After the Act came into effect, 15% of refused tanners were told that using tanning equipment was against the law. The percentage of participants who reported being refused for not wanting to wear eye protection also increased markedly (2014: 0%; 2015: 12%).



Figure 7: Reason tanners were refused the use of tanning equipment



Notes: 1. single fill indicates that response option was only available in 2015 survey;
 2. based on respondents who reported being refused the use of commercial tanning facilities in the last 12 months

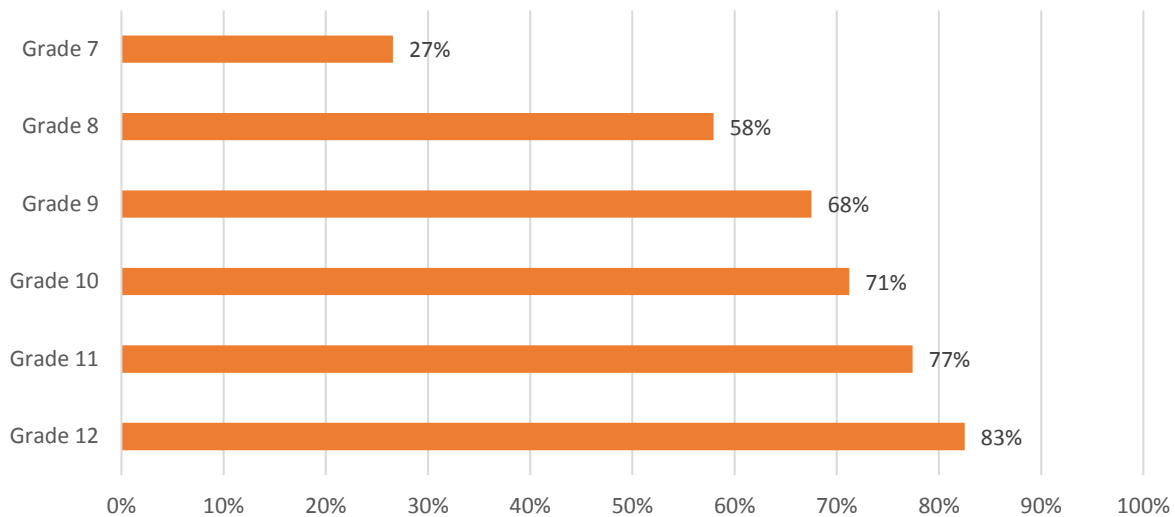
In the post-legislation survey, respondents who reported that they did not use tanning beds/lamps were also asked whether they had been refused the use of tanning equipment in the last 12 months. About 5% of these non-users reported having been refused the use of tanning equipment in the last 12 months. **For nearly three-quarters of the 137 refused respondents, the refusal stopped them from using tanning equipment during that 12-month period.** However, 28% of these participants found a way to tan in the 12 months before they were surveyed, despite experiencing at least one refusal.



Warning Signs

The Act mandates the posting of health warning signs where there are tanning beds in commercial settings, whereas this was not a requirement prior to the Act commencing. **The percentage of tanners who reported noticing signs about health risks while they were tanning in a commercial setting in the preceding 12 months increased from 57% in 2014 to 71% in 2015**, though this change was not statistically significant (data not shown). Figure 8 shows the percentage of post-legislation tanners who noticed signs about health risks while tanning in a commercial setting, by grade.

Figure 8: Noticed signage warning of the health risks of using tanning equipment –by grade



Note: based on respondents who reported using commercial tanning facilities in the previous 12 months
■ 2015 (n=158)

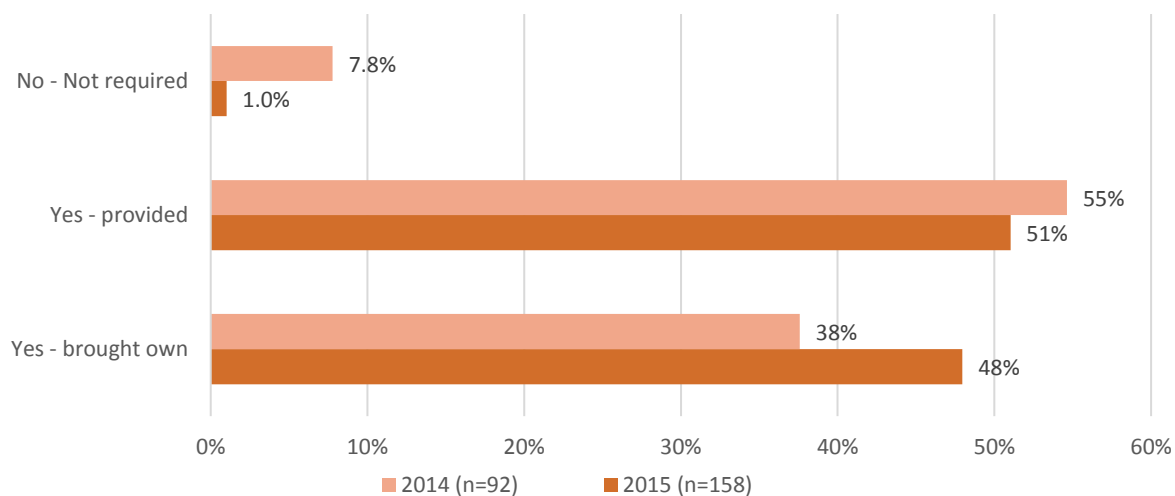
With the exception of grade 7 students, at least half of those who tanned in a commercial setting in the 12 months following the Act coming into effect noticed signs about health risks. The likelihood of noticing warning signs increased with grade.

Use of Protective Eyewear

The Act mandates the use of protective eyewear. Figure 9 demonstrates the use of protective eyewear by respondents who tanned in the last 12 months, both before and after the Act came into effect. Notably, **fewer tanning facilities allowed adolescents to tan without protective eyewear after the legislation was enacted**. The proportion of tanners who were not required to wear protective eyewear in commercial settings decreased from 8% of 92 participants in 2014 to 1% of 158 participants in 2015.



Figure 9: Use of eyewear when using tanning equipment



Note: based on respondents who reported using commercial tanning facilities in the previous 12 months

Attitudes of Adolescents towards Tanning

All Ontario adolescents who participated in the surveys (users and non-users of tanning beds/lamps) were asked a number of questions about their attitudes towards tanning. Although most believed that tanning is harmful to their health, a notable minority continue to believe that using tanning equipment was safer than getting a tan in the sun (16% in 2015, vs 15% in 2014), that tanning equipment use won't age their skin as much as the sun (15% in 2015, vs 13% in 2014) or that tanning is not harmful to their health (15% in 2015, vs 13% in 2014). In both survey years, tanning bed/lamp users were more than twice as likely as non-users to agree with these 'incorrect' statements about the safety of tanning and the use of tanning beds/lamps. After the Act came into effect, more tanning bed/lamp users agreed that using a tanning bed/lamp is less risky than getting a tan in the sun (37% in 2015, vs 33% in 2014), that it won't age their skin as much as the sun (44% in 2015, vs 35% in 2014) and that it's not harmful to their health (35% in 2015 vs 26% in 2014). **Even among those who tan using tanning beds/lamps, the majority were aware of the health risks, but continue to tan.**

Discussion and Recommendations

This survey research examined attitudes and behaviours concerning tanning bed/lamp use among a sample of Ontario adolescents immediately prior to, and 12 months following enactment of the *Skin Cancer Prevention Act (Tanning Beds)*, that bans tanning bed/lamp use among those under the age of 18 in Ontario.

The results indicate that **an important minority of adolescents use tanning beds and lamps, and the proportion of adolescents using tanning beds or lamps remained similar before and after the**



legislation came into effect (7% and 8%, respectively). Most adolescents who use tanning beds and lamps do so in commercial tanning salons, spas, and studios; hence, the Act did not result in adolescents taking up tanning at home instead of at commercial establishments. Taken together, these results suggest **the Act, at one year after coming into effect, did not lead to a decline in, or elimination of, tanning bed/lamp use by adolescents in Ontario**. Although 27% of Ontario adolescents report that they do not seek a tan, most of the adolescents continue to tan, primarily by being outside, playing outside, or laying in the sun. This would not be expected to change after the Act came into effect.

Although not statistically significant, it is surprising that although there was legislation in place to prohibit adolescents from tanning, a higher percentage of tanning bed/lamp users reported having just started using tanning equipment (25% in 2014 and 30% in 2015) and having used it for about a year in the first year after the Act came into effect (43% pre-Act, and 48% in post-Act). The reasons for this were not investigated in this research.

There was no significant increase in adolescents being refused tanning service before and after the Act came into effect, although younger adolescents were refused the use of tanning beds/lamps more often than were older adolescents. While actual numbers are small, **after the Act came into effect, the number of adolescents reporting that they had been refused service due to a lack of proof of age identification increased. Importantly, this initial refusal was a significant deterrent and was effective in stopping many of them from using (or trying to use) tanning equipment**. These results suggest that if adolescents are refused service (as they are required to be by the Act), they are unlikely to try and get service elsewhere. Therefore, ensuring that adolescents, under 18 years of age, are refused service is very important for the Act to be effective.

Although behaviours were largely not influenced by the Act, more adolescents who were using tanning beds/lamps reported noticing health warning signs after the legislation came into effect. As expected, **positive attitudes towards tanning among Ontario adolescents did not change** after the Act came into effect as the legislation addressed tanning bed/lamp use only.

The lack of significant change in the numbers of adolescents who continue to use tanning beds/lamps and the lack of change in their attitudes towards tanning does not indicate a large impact of the Act during its first year. It is possible that a greater change may be noted in subsequent years; the passage of the legislation was not accompanied by any educational campaign about the dangers of tanning and tanning bed/lamp use. The lack of impact on rates of tanning bed/lamp use may be related to limited/inconsistent enforcement. While laws regulating access have the potential to change adolescent behavior, enforcement of legislation is often inadequate.^{8,9} Research is needed to examine how the *Skin Cancer Prevention Act (Tanning Beds)* is enforced in Ontario and the extent to which tanning businesses are compliant with all aspects the legislation.

Limitations

While the survey samples may be biased by the methods of data collection as outlined in Methods, since the study method was applied consistently in both surveys, it is believed that differences between pre- and post- legislation behaviours and attitudes have been measured. While some of the participants may have taken part in both surveys, Ipsos Reid panels are continuously refreshed, and samples change from



year to year. Further, the post-Act sample was created to match the pre-Act sample demographically, and responses were weighted according to the age, sex and regional distribution of the Ontario population, based on the 2011 census data.

It is a limitation of this survey that the locations of use in commercial settings were not considered in greater detail. An additional limitation relates to a lack of knowledge about the experiences of those who never used tanning beds/lamps due to refusal of service, because in the pre- legislation survey, this question was only asked of tanning bed/lamp users.

Recommendations

1. Conduct a comprehensive evaluation of the *Skin Cancer Prevention Act (Tanning Beds)* that examines both the incidence of tanning bed/lamp use and the enforcement of, and compliance with, the Act and provides greater detail on location of use.
2. Enhance education of adolescents and their caregivers about the risks of tanning bed/lamp use. Knowledge of health risks does not always result in a change in adolescent behaviour, therefore efforts to increase awareness and education among parents and caregivers might be used to supplement the Act. This approach would account for the fact that a parent/caregiver who uses tanning beds/lamps is a strong predictor of use among adolescents.^{10, 11} Further, since tanning bed/lamp use is mainly motivated by appearance, it might be reasonable to focus efforts aimed at adolescents on the impact of tanning bed/lamp use on photo-ageing and on how early such effects may be observed.
3. Enhance enforcement of the legislation and education of tanning bed operators. As this study identified, in the rare instances where service refusal occurred, this significantly deterred adolescents from accessing and using tanning equipment. As such, enhanced education of operators/service providers as well as enhanced enforcement could increase service refusals and reduce adolescent access and use of tanning equipment.
4. Disseminate findings to relevant stakeholders to increase awareness about the Act and the need to promote compliance.



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Appendix A: Pre-Enactment Questionnaire

1. Are you in....

- ☐ Grade 6 or lower [THANK AND CLOSE]
- ☐ Grade 7
- ☐ Grade 8
- ☐ Grade 9
- ☐ Grade 10
- ☐ Grade 11
- ☐ Grade 12
- ☐ College- part-time [THANK AND CLOSE]
- ☐ College-full-time [THANK AND CLOSE]
- ☐ University-part-time [THANK AND CLOSE]
- ☐ University-full-time [THANK AND CLOSE]
- ☐ Not in school [THANK AND CLOSE]

2. How old are you today?

- ☐ 11 years or younger
- ☐ 12 years
- ☐ 13 years
- ☐ 14 years
- ☐ 15 years
- ☐ 16 years
- ☐ 17 years
- ☐ 18 years or over [THANK AND CLOSE]

3. Which of the following ways have you ever used to get or keep a tan? (check all that apply)

- ☐ Laying in the sun
- ☐ Spray tanning booths (e.g., Mystic Tan)
- ☐ Self-tanning lotions or sprays (home use)
- ☐ Tanning beds or lamps
 - ☐ Tanning bed
 - ☐ Stand-alone face lamp (i.e. sun lamp)
- ☐ Being outside/playing outside
- ☐ Tanning pills or injections
- ☐ Other
- ☐ I have not tried to get a tan

4. Are you male or female?

- ☐ Male



☐ Female

5. For how long have you been using tanning beds/lamps?

- ☐ I've never used a tanning bed or lamp [GO TO Q 13]
- ☐ I just started
- ☐ For about a year
- ☐ 2 to 3 years
- ☐ More than 3 years
- ☐ I don't know

6. In the last 12 months, have you ever tried to use a tanning bed or lamp but were refused? Why?

- ☐ I did not try to use a tanning bed or lamp in the last 12 months [GO TO Q 13]
- ☐ I was able to use a tanning bed or lamp any time I tried in the last 12 months
- ☐ I am too young
- ☐ I had no proof of age ID
- ☐ My skin is too light
- ☐ I would not wear eye protection
- ☐ I did not have a permission slip from my parent or guardian
- ☐ I was told I am tanning too much
- ☐ Other
- ☐ I don't know

7. Thinking back over the last 12 months, please indicate the number of times you used a tanning bed/lamp during each season

- ☐ Winter
- ☐ Spring
- ☐ Summer
- ☐ Fall
- ☐ Don't know

8. Thinking about when you used a tanning bed or lamp in the last 12 months, where did you use it? Check all that apply.

- ☐ At home
- ☐ At someone else's home
- ☐ At a beauty or hair salon/spa (including a tanning salon/studio)
- ☐ At a gym or fitness club
- ☐ Other
- ☐ Where? _____
- ☐ I don't know



9. Thinking about when you used a tanning bed or lamp in the last 12 months, did you notice any signs or labels warning about the health effects of tanning bed or lamp use?

☐ No [GO TO Q12]
☐ Yes

10. What health effects did the label or sign describe? [PICK ALL THAT APPLY]

☐ Tanning equipment can cause cancer
☐ Tanning equipment can turn your hair white
☐ Some drugs and cosmetics can increase the UV effects of tanning beds and lamps
☐ You can catch an infection from using tanning equipment
☐ UV exposure can contribute to premature ageing
☐ Tanning beds and lamps can cause eye problems

11. When you used a tanning bed/lamp, did you notice any of the following on a label or sign?

[PICK ALL THAT APPLY]

☐ Those under 18 cannot use this equipment
☐ Use protective eyewear
☐ Wear sunscreen
☐ Those with fair skin shouldn't use this equipment

12. When you used a tanning bed/lamp, were you required to wear something on your eyes?

☐ Yes, I brought my own eye protection
☐ Yes, I was provided with eye protection
☐ No
☐ I don't know

13. Please read the following statements and select a score on a scale of 1 to 5. (5=strongly agree, 1=Strongly disagree, 6=I do not know)

- a. People look more attractive when they have a tan
- b. People with a tan look healthy
- c. Using a tanning bed/lamp is not at all harmful to my health
- d. Getting a tan from a tanning bed/lamp will not age my skin as much as from the sun
- e. I like to suntan outside in the summer
- f. Using a tanning bed/lamp to get a tan is safer than getting a tan from the sun (and risking a burn)
- g. I use tanning beds/lamps because it increases my vitamin D levels
- h. Using tanning beds/lamps actually helps prevent some forms of cancer



Appendix B: Post-Enactment Questionnaire

The purpose of the survey is to gather feedback on youth attitudes toward indoor tanning. The survey is being sponsored by the Canadian Cancer Society and is for research purposes only. All responses will be confidential and anonymous.

KIDAGE

What is your age?

KIDGEN

What is your gender?

Male

Female

C. Are you in..? (Select one)

Grade 6 or lower [THANK AND CLOSE]

Grade 7

Grade 8

Grade 9

Grade 10

Grade 11

Grade 12

College – part-time [THANK AND CLOSE]

College – full-time [THANK AND CLOSE]

University – part-time [THANK AND CLOSE]

University – full-time [THANK AND CLOSE]

Not in school [THANK AND CLOSE]

1. Which of the following ways have you ever used to get or keep a tan? Please select all that apply:

Laying in the sun

Spray tanning booths (e.g. Mystic Tan)

Self-tanning lotions or sprays (home use)

Tanning beds

Stand-alone face lamp (i.e. sun lamp)

Being outside/playing outside

Tanning pills or injections

Other [anchor]

I have not tried to get a tan [anchor last; single punch]

[IF CODE 4 or 5 at Q1, CONTINUE; ALL ELSE SKIP TO Q10]



2. Thinking back over the last twelve months, please select the number of times you used a tanning bed/lamp during the following seasons (winter, spring, summer, fall)?

Winter [OPEN NUMERIC]

Spring [OPEN NUMERIC]

Summer [OPEN NUMERIC]

Fall [OPEN NUMERIC]

[IF 0 TO ALL SEASONS, SKIP TO Q9; OTHERWISE CONTINUE TO Q3]

3. For how long have you been using tanning beds/lamps?

I just started

For about a year

2 to 3 years

More than 3 years

3a. Thinking about when you used a tanning bed or lamp in the last 12 months, where did you use it? Please check all that apply:

At home

At someone else's home

At a beauty/hair salon or at a spa

At a tanning salon or studio

At a gym or fitness club

Other: specify [anchor]

I don't know [anchor last; single punch]

[If code 1 or 2 continue; otherwise skip to Q4]

3b. You've indicated that you tan [if code 1 in 3a: at home; if code 2 in 3a: at someone else's home; if code 1 and 2 in 3a: at home and at someone else's home]. Please choose all of the locations that apply:

In my house, condo unit, apartment or dorm room

In the public areas of my condo or apartment building

In the public areas of my university/college residence

In someone else's house, condo unit, apartment or dorm room

In the public areas of someone else's condo or apartment building

In the public areas of someone else's university/college residence

4. In the last 12 months, did you try to use a tanning bed or lamp but were refused?

No

Yes



[IF NO, SKIP TO Q6; IF YES, CONTINUE TO Q5]

5. Why were you refused the ability to use a tanning bed or lamp?

I was too young

I had no proof of age ID

My skin is too light

I would not wear eye protection

I did not have a permission slip from my parent or guardian

I was told I am tanning too much

I was told it was against the law

Other [anchor]

I don't know why I was refused [anchor last; single punch]

6. Thinking about when you used a tanning bed or lamp in the last 12 months, did you notice any signs or labels warning about the health effects of tanning beds or lamp use?

Yes

No

[IF NO, SKIP TO Q9; IF YES, CONTINUE TO Q7]

7. What health effects did the label or sign describe? Please select all that apply:

Tanning equipment can cause cancer

Tanning equipment can turn your hair white

Some drugs and cosmetics can increase UV effects of tanning beds and lamps

UV exposure can contribute to premature aging

Tanning beds and lamps can cause eye problems

Other [anchor last]

8. When you last used a tanning bed/lamp, did you notice any of the following on a label or sign?

Those under 18 cannot use this equipment

Use protective eyewear

Wear sunscreen

Those with fair skin shouldn't use this equipment

Other [anchor]

I did not see any specific restrictions on these signs [anchor last; single punch]

9. When you last used a tanning/bed lamp, were you required to wear something on your eyes during your tanning session?

Yes, I brought my own eye protection

Yes, I was provided eye protection

No, I was not required to wear eye protection



10. Please read the following statements and select a score on a scale of 1 to 6 (where 1 = strongly disagree and 5 = strongly agree and 6 = I don't know)

I use tanning beds/lamps because it increases my vitamin D levels

Using tanning beds/lamps actually helps prevent some forms of cancer

People look more attractive when they have a tan

People with a tan look healthy

Using a tanning bed/lamp is not at all harmful to my health

Getting a tan from a tanning bed/lamp will not age my skin as much as from the sun

I like to suntan outside in the summer

Using a tanning bed/lamp to get a tan is less risky than getting a tan from the sun (and risking a burn)

I like to work out at the gym

I take care of my body and tan to show it off

I don't think tanning will impact me, personally

The negative effect of tanning is so far in the future that it doesn't matter



Appendix C: Estimates and 95% Confidence Intervals

Ever use of tanning equipment – Ontario adolescents, by sex, 2014, 2015

	2014	95% C.I.	2015	95% C.I.
Overall	7.1%	(5.9%, 8.4%)	8.2%	(7.1%, 9.3%)
Male	4.1%	(2.7%, 5.4%)	5.4%	(4.1%, 6.7%)
Female	10.2%	(8.1%, 12.4%)	11%	(9.2%, 12.8%)

Use of tanning bed or lamp in the 12 months prior to survey – Ontario adolescents, by sex, 2014, 2015 (Figure 2)

	2014	95% C.I.	2015	95% C.I.
Overall	6.9%	(5.6%, 8.1%)	7.9%	(6.8%, 9.0%)
Male	3.9%	(2.6%, 5.3%)	5.4%	(4.1%, 6.7%)
Female	9.8%	(7.7%, 11.9%)	10.4%	(8.6%, 12.17%)

Use of tanning bed or lamp in the 12 months prior to survey – Ontario adolescents, by grade, 2014, 2015 (Figure 3)

Grade	2014	95% C.I.	2015	95% C.I.
7	2.5%	(0.6%, 4.4%)	3.3%	(1.5%, 5.2%)
8	2.6%	(0.7%, 4.5%)	3.9%	(2.0%, 5.8%)
9	5.9%	(3.1%, 8.8%)	6.6%	(4.2%, 9.1%)
10	8.9%	(5.5%, 12.3%)	10.9%	(7.9%, 14.0%)
11	7.5%	(4.3%, 10.6%)	9.6%	(6.7%, 12.6%)
12	13.9%	(9.7%, 18.2%)	12.9%	(9.5%, 16.4%)

Length of time using tanning beds/lamps – Ontario adolescents, 2014, 2015 (Figure 4)

Started tanning	2014	95% C.I.	2015	95% C.I.
Just started	25%	(17%, 33%)	30%	(23%, 36%)
About a year	43%	(34%, 53%)	48%	(41%, 56%)
2-3 years	27%	(19%, 36%)	20%	(14%, 26%)
More than 3 years	4.5%	(0.5%, 8.4%)	2.0%	(0%, 4%)

Location of tanning bed/lamp use – Ontario adolescents who tanned in the last 12 months, 2014, 2015 (Figure 5)

Location	2014	95% C.I.	2015	95% C.I.
Salon, Spa, Studio	66%	(57%, 75%)	87%	(82%, 92%)
Gym, Fitness	35%	(26%, 44%)	24%	(17%, 30%)
Residential	25%	(17%, 34%)	27%	(20%, 33%)



Refused the use of tanning bed/lamp – Ontario adolescents who tanned in the last 12 months, by grade grouping, 2014, 2015 (Figure 6)

Grade	2014	95% C.I.	2015	95% C.I.
Overall	17%	(10%, 25%)	21%	(15%, 26%)
Grade 7 and 8	31%	(5.6%, 55%)	36%	(18%, 54%)
Grade 8 and 9	24%	(10%, 37%)	24%	(14%, 34%)
Grade 9 and 10	10%	(1.9%, 18%)	13%	(5.6%, 20%)

Reason tanners were refused the use of tanning equipment – Ontario adolescents who tanned in a commercial setting the last 12 months, 2014, 2015 (Figure 7)

Reason	2014	95% C.I.	2015	95% C.I.
I was too young	62%	(38%, 86%)	42%	(26%, 58%)
I had no proof of age ID	5.1%	(0%, 16%)	46%	(29%, 62%)
My skin is too light	20%	(0%, 40%)	13%	(2%, 24%)
I would not wear eye protection	0.0%	-	12%	(1%, 22%)
I did not have a permission slip	47%	(23%, 72%)	40%	(24%, 56%)
I was told I am tanning too much	25%	(3.7%, 47%)	18%	(5.1%, 30%)
I was told it was against the law	-	-	15%	(3.6%, 27%)

Noticed signage warning of the health risks of using tanning equipment – Ontario adolescents who tanned in a commercial setting in the last 12 months, 2014, 2015

Noticed signage	2014	95% C.I.	2015	95% C.I.
Overall	57%	(47%, 67%)	71%	(64%, 77%)

Use of eyewear when using tanning equipment – Ontario adolescents who tanned in a commercial setting in the last 12 months, 2014, 2015 (Figure 9)

Wore eyewear	2014	95% C.I.	2015	95% C.I.
Yes – own	38%	(28%, 47%)	48%	(40%, 56%)
Yes – provided	55%	(45%, 65%)	51%	(43%, 59%)
No	7.8%	(2.4%, 13%)	1.0%	(0%, 2.5%)

Agreement with statements on the safety of tanning equipment – Ontario adolescents, 2014, 2015

Statement	2014	95% C.I.	2015	95% C.I.
Tanning equipment is not harmful to health	13%	(11%, 15%)	15%	(14%, 16%)
Tanning equipment won't age skin as much as sun	13%	(11%, 15%)	15%	(14%, 16%)
Tanning equipment is safer than the sun	15%	(13%, 17%)	16%	(15%, 18%)



Agreement with statements on the safety of tanning equipment – Ontario adolescents who did not tan in the last 12 months, 2014, 2015

Statement	2014	95% C.I.	2015	95% C.I.
Tanning equipment is not harmful to health	12%	(10%, 14%)	13%	(12%, 15%)
Tanning equipment won't age skin as much as sun	11%	(10%, 13%)	12%	(11%, 14%)
Tanning equipment is safer than the sun	14%	(12%, 15%)	14%	(13%, 16%)

Agreement with statements on the safety of tanning equipment – Ontario adolescents who tanned in the last 12 months, 2014, 2015

Statement	2014	95% C.I.	2015	95% C.I.
Tanning equipment is not harmful to health	26%	(18%, 35%)	35%	(28%, 42%)
Tanning equipment won't age skin as much as sun	35%	(26%, 44%)	44%	(37%, 51%)
Tanning equipment is safer than the sun	33%	(23%, 41%)	37%	(30%, 45%)





For more information contact:
info@UVOntario.ca

