



Region of Waterloo
PUBLIC HEALTH

Collected: Jan 08-Dec 08

Analyzed: October, 2009

Monitor Introduction

This Rapid Risk Factor Surveillance System (RRFSS) Monitor relates to two topic areas, the use of artificial tanning equipment, and sun protection.[†] This monitor describes the extent to which Waterloo Region adults aged 18 and older are exposed to ultraviolet (UV) radiation from both natural and artificial sources, and quantifies the measures the public have taken to limit their exposure to the sun. For additional information please see <http://chd.region.waterloo.on.ca/> and search “skin cancer”. Questions related to the use of artificial tanning equipment were asked from January to December 2008 resulting in a sample size of 1,201 adults. Questions regarding sun safety (sunburns) were also asked during the same time period for a sample size of 1,201 adults while questions about sun safety behaviours were only asked May through September 2008 for a sample size of 501 adults. Estimates are presented with 95% confidence intervals (CI) and appear in the following format: (CI: XX.X-XX.X).

Data was analyzed by: age, sex, level of educational attainment, presence of children aged 17 and younger in the household, household income, and municipality of residence. All significant differences within demographic groups have been presented in full along with other proportions or trends of note.

Artificial tanning equipment use

Background

People are exposed to ultraviolet (UV) radiation from solar radiation and human-made radiation through artificial tanning devices, which are widespread, with sites across Ontario and throughout the Waterloo Region. The practice of exposing the human body to UV radiation, a known human carcinogen, causes skin and eye damage and is linked to an increased risk of developing cancer of the eye, cataracts, weakening of the immune system, melanoma, and other skin cancers later in life.^{1,2} This risk is enhanced when total UV exposure includes additional exposure from artificial sources such as tanning beds, sunlamps, or tanning lights before 30 years of age.³

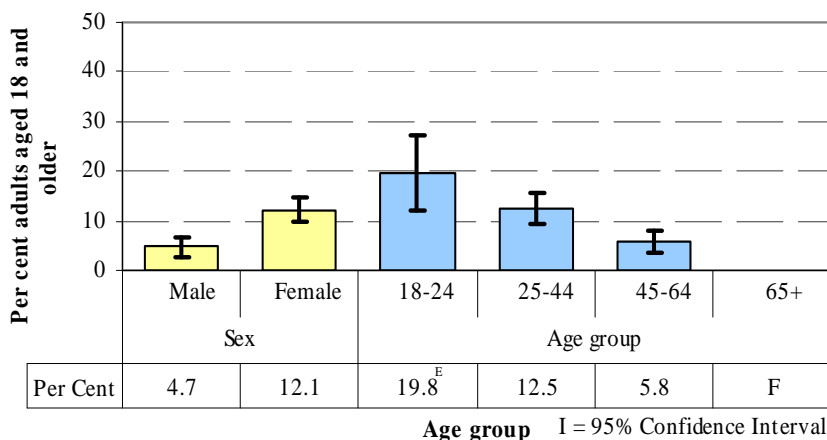
Artificial tanning equipment use in the past year

In the 12 months prior to the 2008 survey, **8.8%** (CI: 7.2-10.4) of Waterloo Region adults aged 18 and older, used artificial tanning equipment. Tanning equipment includes the use of tanning beds, sunlamps, or tanning lights. Use of these artificial tanning devices was highest among adults 18 to 24 and decreased with increasing age (Figure 1). Figure 1 also illustrates the difference by sex; women were significantly more likely than men to have used tanning equipment in the past year (**12.1%** CI: 9.6-14.6 VS. **4.7%**^E CI: 2.9-6.5). Of adults who had used tanning equipment in the previous 12 months more than two-thirds (**66.9%** CI: 57.7-76.1) had tanned up to 11 times (Table 1, page 2).

Artificial tanning equipment use in the past month

Tanning equipment use in the month prior to the survey was more frequent in the fall and winter months (October-April) as compared to the spring and summer months (May-September) (**64.6%** CI: 48.3-80.9 VS. **35.4%**^E CI: 19.1-51.7); however, this difference was not significant.

Figure 1. Use of artificial tanning equipment in the past year, by sex, or age group, Waterloo Region, 2008



Fast Facts

% of Waterloo Region artificial tanning equipment users who said “getting a base tan or prepare for a vacation” was a very important reason to artificially tan **94.9%** (CI: 92.7-97.1)

% of Waterloo Region adults who took no protective measures for the skin when in the sun **24.2%** (CI: 20.4-28.0)

% of Waterloo Region artificial tanning equipment users that tanned up to 11 times in the past 12 months **66.9%** (CI: 57.7-76.1)

[†] “Sun safety” has been replaced throughout this monitor with “sun protection” to reflect current practice within this subject.

Adults cited many reasons as “very important” for using tanning equipment. The most frequent response, multiple responses permitted, was to “get a base tan or prepare for a vacation,” provided by **94.9%** (CI: 92.7-97.1) of tanning equipment users. Other reasons cited for using tanning equipment, included, “to look fit, healthy, or improve appearance” (**70.6%** CI: 65.9-75.3), “to relax or feel better” (**61.9%** CI: 56.9-66.9), “to increase vitamin D” (**44.7%** CI: 39.6-49.8), and “to boost your immune system” (**33.0%**^E CI: 28.2-37.8). Note that some of these are myths, since the use of tanning equipment does not increase vitamin D, nor does it boost the immune system.

Table 1. Proportion of artificial tanning equipment users by frequency of use in previous year, Waterloo Region, 2008

	1 to 5 times	6 to 11 times	12 to 24 times	25+ times
Frequency of tanning in previous 12 months	34.7% (CI: 25.4-44.0) ^x	32.2% (CI: 23.1-41.3) ^y	23.8% ^E (CI: 15.5-32.1) ^z	9.4% ^E (CI: 3.7-15.1) ^{x,y,z}

^{x,y,z}...Represent statistically significant differences between two proportions (%) at p<0.05, e.g. two proportions with an “xxx” next to them are statistically different from each other

Sunburns

Adults 18 to 24 experiencing a sun burn

A sunburn is defined as any reddening or discomfort to the skin lasting longer than 12 hours after exposure to the sun or other ultraviolet sources. In 2008, **37.9%** (CI: 35.2-40.6) of adults in Waterloo Region reported having experienced a sunburn in the 12 months prior to the survey. This proportion remains statistically unchanged from 2006 (**38.3%** (CI: 35.0-41.7)). Adults aged 18 to 24 were significantly more likely than all other age groups to have had a sunburn in the previous 12 months (Table 2). Although reported percentages appear to differ greatly, in some cases upwards of ten or more percentage points, it is important to note that these proportions are not statistically significantly different from each other. For instance, the proportion of adults aged 18 to 24 who have experienced a sunburn has changed from **69.5%** (CI: 59.5-79.5) in 2006 to **60.7%** (CI: 51.4-70.0) in 2008, but the point estimates have a high degree of variance (wide confidence intervals) and are not significantly different from each other.

Table 2. Proportion of adults experiencing a sunburn in the past 12 months, by age group, Waterloo Region, 2006 & 2008

	18 to 24	25 to 44	45 to 64	65+
Experienced a sunburn (2008)	60.7% (CI: 51.4-70.0) ^{v,w}	51.5% (CI: 46.7-56.3) ^{x,y}	33.3% (CI: 29.0-37.6) ^{v,x,z}	10.6% ^E (CI: 6.1-15.1) ^{w,y,z}
Experienced a sunburn (2006)	69.5% (CI: 59.5-79.5) ^{a,b,c,d}	48.3% (CI: 42.6-54.0) ^{a,b,c,d}	30.3% (CI: 25.0-35.5) ^{a,b,c,d}	11.9% ^E (CI: 5.8-18.0) ^{a,b,c,d}

^{a,y,z}...Represent statistically significant differences between two proportions (%) at p<0.05, e.g. two proportions with an “xxx” next to them are statistically different from each other

Additionally, tanning equipment users from the past year were significantly more likely to have reported receiving a sunburn, either from natural or artificial sun exposure, than non-users of tanning equipment (**59.0%** CI: 49.6-68.4 vs. **36.0%** CI: 33.2-38.8).

Protective measures for the skin

Only one significant difference existed for protective measures for the skin between users and non-users of tanning equipment. Users of tanning equipment were significantly less likely to wear protective clothing, including a hat, as a protective measure against natural sun exposure to the skin (Table 3).

Table 3. Proportion of adults always or often taking protective measures against natural sun exposure, by use of tanning equipment, Waterloo Region, 2008

Always or often taking a protective measure for the skin	Tanning equipment Users	Tanning equipment Non-users
Any (at least one) protective measure	64.6% (CI: 51.1-78.1)	77.1% (CI: 73.1-81.1)
Using sunscreen	39.6% ^E (CI: 25.8-53.4)	40.7% (CI: 36.1-45.3)
Avoiding peak periods of sun exposure (11AM to 4PM)	33.3% ^E (CI: 20.0-46.6)	43.3% (CI: 38.7-48.1)
Wearing protective clothing (including a hat)	22.9% ^E (CI: 11.0-34.8) ^z	42.4% (37.8-47.0) ^z
Always or often taking a protective measure for the eyes		
Wearing sunglasses	69.6% (CI: 56.3-82.9)	62.6% (CI: 58.1-67.1)

^{a,y,z}...Represent statistically significant differences between two proportions (%) at p<0.05, e.g. two proportions with an “xxx” next to them are statistically different from each other

Overall, avoidance of peak periods of sun exposure (11AM to 4PM), was the most common measure identified to protect against sun exposure to the skin in 2008 at **42.5%** (CI: 38.1-46.9); in 2006 the most common measure was the use of clothing including a hat (**45.7%** CI: 41.3-50.1). Other methods of protection against sun exposure to the skin included the use of sunscreen (**40.8%** CI: 36.4-45.2), statistically unchanged from 2006 (**39.7%** CI: 35.4-44.0), and the use of clothing, including a hat (**40.6%** CI: 36.2-45.0) also statistically unchanged from 2006.

Sunscreen as a protective measure against sun exposure to the skin

Sunscreen was used 'always' or 'often' by women (**47.7%** CI: 41.7-53.7) significantly more than men (**32.6%** CI: 26.5-38.7); both proportions remain statistically unchanged from 2006 (**47.9%** CI: 42.1-53.7 and **28.7%** CI: 22.6-34.8 respectively). Regular sunscreen use was most common among adults aged 25 to 44 who were significantly more likely than adults aged 65 years or older to have used sunscreen as a protective measure against sun exposure to the skin (Table 4). Again, although reported proportions may appear to differ greatly, often due to a small sample size, it is important to note that they are not statistically significantly different, unless explicitly stated.

Table 4. Proportion of adults always or often using sunscreen as a protective measure against sun exposure to the skin, by age group, Waterloo Region, 2006 & 2008

	18 to 24	25 to 44	45 to 64	65+
Always or often 2008	35.0% ^E (CI: 20.2-49.8)	50.8% (CI: 43.5-58.1) ^a	38.6% (CI: 31.6-45.6)	24.7% ^E (CI: 15.1-34.3) ^a
Always or often 2006	50.0% (CI: 35.6-64.4) ^y	43.2% (CI: 35.9-50.5) ^z	40.7% (CI: 33.4-47.9)	25.7% ^E (CI: 15.6-35.6) ^{y,z}

^{x,y,z}...Represent statistically significant differences between two proportions (%) at p<0.05, e.g. two proportions with an "xyz" next to them are statistically different from each other

Avoidance of peak periods as a protective measure against sun exposure to the skin

Avoidance of peak periods, examined as a protective measure against sun exposure to the skin, did not differ by age, sex, level of educational attainment, presence of children aged 17 and younger in the household, household income, or municipality of residence; proportions also remain statistically unchanged from 2006 (RRFSS Sun Safety Monitor 2006).

Clothing as a protective measure against sun exposure to the skin

Men were significantly more likely than women to have used clothing as a protective measure (**51.8%** CI: 45.3-58.3 vs. **30.9%** CI: 25.3-36.5); these proportions are lower than in 2006 (**56.7%** CI: 50.0-63.4 vs. **37.6%** CI: 32.0-43.2), but not significantly. The proportion of adults who used clothing as a protective measure did not differ between groups by age, level of educational attainment, presence of children aged 17 and younger in the household, household income, or municipality of residence.

Protective measures for the eyes

Wearing sunglasses with ultraviolet (UV) protection as a measure against sun exposure to the eyes

Wearing UV protective sunglasses protects one's eyes from UV exposure. Wearing sunglasses was the most commonly used protective method against sun exposure overall with **63.3%** (CI: 59.0-68.2) of adults indicating they 'always' or 'often' used the measure; a proportion that is statistically unchanged from 2006 (**64.0%** CI: 59.8-68.2).

Adults with more than a high school education (**71.5%** CI: 66.2-76.8) were significantly more likely than adults with a complete high school education or less (**51.5%** CI: 44.5-58.5) to wear UV protective sunglasses; in 2006 the proportions were **66.8%** (CI: 62.3-71.3) and **49.3%** (CI: 37.7-60.9) respectively. Adults with children 17 and younger in the household were significantly more likely than adults without young children in the household to have used sunglasses (**72.3%** CI: 66.0-78.6 vs. **57.5%** CI: 51.8-63.2)

Significant differences also existed between age groups (Table 5) as well as income groups (Table 6, page 4).

Table 5. Use of sunglasses as a protective measure against sun exposure by age group, Waterloo Region, 2006 & 2008

	18 to 24	25 to 44	45 to 64	65+
2008 'Always'/'Often'	46.3% (CI: 31.0-61.6) ^x	70.2% (CI: 63.5-76.9) ^{x,y}	65.9% (CI: 59.0-72.8)	48.7% (CI: 37.6-59.8) ^y
2006 'Always'/'Often'	44.7% (CI: 30.5-58.9) ^{a,b}	66.7% (CI: 59.8-73.6) ^a	70.3% (CI: 63.7-77.0) ^b	56.0% (CI: 44.8-67.2)

^{x,y,z}...Represent statistically significant differences between two proportions (%) at p<0.05, e.g. two proportions with an "xyz" next to them are statistically different from each other

Table 6. Use of sunglasses as a protective measure against sun exposure by household income group, Waterloo Region, 2006 & 2008

	<\$40,000	\$40,000 to \$69,999	\$70,000 to \$99,999	\$100,000+
2008 'Always'/'Often'	50.7% (CI: 39.4-62.0) ^{x,y}	61.1% (CI: 51.3-70.9)	73.7% (CI: 63.8-83.6) ^x	73.2% (CI: 64.4-82.0) ^y
2006 'Always'/'Often'	46.8% (CI: 32.5-61.1) ^{a,b}	62.7% (CI: 55.1-70.4)	71.6% (CI: 62.5-80.6) ^a	74.2% (CI: 65.3-83.1) ^b

^{x,y,z...} Represent statistically significant differences between two proportions (%) at $p < 0.05$, e.g. two proportions with an "x" next to them are statistically different from each other



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About RRFSS survey

Information here is presented from the Rapid Risk Factor Surveillance System (RRFSS). RRFSS is an on-going telephone survey occurring in participating public health units across Ontario. On a monthly basis, a random sample of approximately 100 adults aged 18 and older are interviewed regarding risk behaviours of importance to public health. The survey is conducted by the Institute for Social Research (ISR) at York University on behalf of Region of Waterloo Public Health. For more information, please visit www.rfss.on.ca.

Analyzed Questions (Total Weighted Sample = 1,201)

- In the last 12 months, has any part of your body been sunburned? (n = 1,200)
- How often do you avoid the sun between 11AM and 4PM? (n = 484)
- How often do you wear sunglasses with UV protection when in the sun? (n = 486)
- How often do you wear protective clothing, including a hat, when in the sun? (n = 488)
- How often do you use sunscreen? (n = 489)
- In the last 12 months have you used any artificial tanning equipment? (n = 1,199)
- In the past 12 months how many times have you used artificial tanning equipment? (n = 105)
- In the past month how many times have you used artificial tanning equipment? (n = 99)
- Why do you use artificial tanning equipment and how important are those reasons? (n = 368)

Analyzed Indicators

- Per cent of adults (18+) who report a sunburn in the last 12 months
- Per cent of adults (18+) who practice sun safety practices
- Per cent of adults (18+) who report always or often avoiding the sun between 11AM. and 4 PM
- Per cent of adults (18+) who report always or often wearing sunglasses with UV protection
- Per cent of adults (18+) who report always or often wearing protective clothing against the sun
- Per cent of adults (18+) who report always or often using sunscreen in the last 12 months
- Per cent of adults (18+) who report using artificial tanning equipment in the last 12 months

Important definitions and cautions:

- All data were analyzed according to the RRFSS Manual of Operations. The superscript "E" denotes high sampling variability, and estimates must be interpreted with caution. "F" denotes unacceptable sampling variability, and estimates or conclusions based on these data will be unreliable and most likely invalid. The sample was weighted to reflect the number of adults in a household.
- Tests of significance were performed using non-overlapping confidence intervals at the 95% confidence level using a probability (p) value less than 0.05. The terms "significant" or "significance" indicates a statistically significant difference.
- The survey was only administered in English, using a random digit dialling methodology and represents the behaviours, attitudes, and beliefs of adults in Waterloo Region.
- A module is a group of topic related questions.

¹U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program (2005). Report on Carcinogens, Eleventh Edition. Retrieved July 31, 2009, from <http://ntp.niehs.nih.gov/ntp/roc/toc11.html>

²Lucas,R., Mc Michael,A., Armstrong B., & Smith, W. 2008. Estimating the global disease burden due to ultraviolet radiation exposure. *International Journal of Epidemiology*, 37, 654-667.

³WHO International Agency for Research on Cancer Monograph Working Group (2009). A review of human carcinogens-Part D: radiation. *The Lancet Oncology*, 10: 751-752. Retrieved August 04, 2009 from <http://press.thelancet.com/tlosunbeds.pdf>