



THE ONTARIO TOBACCO RESEARCH UNIT UNITÉ DE RECHERCHE SUR LE TABAC DE L'ONTARIO

Generating knowledge for public health

Youth Exposure to Tobacco in Movies in Ontario, Canada: 2004-2016

Rita Luk
Robert Schwartz

July 2017

Suggested Citation: Luk R and Schwartz R. *Youth Exposure to Tobacco in Movies in Ontario, Canada: 2004-2016*. OTRU Special Report. Toronto, ON: Ontario Tobacco Research Unit, July 2017.

Acknowledgements

Tobacco content data for the movies in this analysis was made available by Thumbs Up! Thumbs Down!, a project of [Breathe California of Sacramento-Emigrant Trails](#). Other assistance was provided by the [Smokefree Movies Project](#) of the Center for Tobacco Control Research and Education, University of California, San Francisco.

Andrea Kita and Lina Hassen, members of the [Ontario Coalition for Smoke-Free Movies](#), provided the top-grossing dataset with movie ratings.

Jonathan Polansky, Principal, Onbeyond LLC and consultant to UCSF and Tracey Borland, Ontario Tobacco Research Unit provided comments on an earlier draft. Sonja Johnston provided editorial comments and production assistance.

Table of Contents

Acknowledgements.....	iii
List of Tables	v
List of Figures	vi
Executive Summary.....	1
Introduction	3
Method	5
Data.....	5
Analysis	6
Results.....	7
Top-Grossing Movies 2004-2016.....	7
Movies with Tobacco Imagery.....	8
Tobacco Incidents	9
Total Tobacco Incidents	9
Tobacco Incidents per Movie.....	11
Tobacco Impressions	12
Comparison of OFRB Tobacco-Related Labels with Reports of Independent Monitors	14
Comparison between Ontario and the US.....	17
Ontario Film Review Board vs Motion Picture Association of America Ratings.....	17
Tobacco Incidents	19
Tobacco Impressions.....	20
Onscreen Smoking’s Impact on Ontario Youth	21
Discussion.....	22
Appendix 1: Movie Rating Systems.....	23
Appendix 2: OFRB Tobacco-Related Detailed Observations and Content Advisories.....	25
Appendix 3: Data Tables	26
References	32

List of Tables

Table 1: Number of Movies Released in the Domestic Market (Canada and US), by OFRB Rating and by Tobacco Imagery Status 2004-2016	7
Table 2: Percentage of Movies with Tobacco Imagery, by OFRB Rating, 2004-2016	26
Table 3: Total Tobacco Incidents in Top-Grossing Movies, by OFRB Rating, 2004-2016.....	26
Table 4: Number of Tobacco Incidents per Movie, by OFRB Rating, 2004-2016.....	27
Table 5: In-Theatre Tobacco Impressions (Millions), by OFRB Rating, Ontario, 2004-2016.....	27
Table 6: Number of Movies with OFRB 'Tobacco Use' Detailed Observations vs. Movies Independently Reported with Tobacco Incidents, August 2008-2016.....	28
Table 7: Number of Movies with OFRB's 'Tobacco Use' Detailed Observations vs. Movies Independently-Reported with Tobacco Incidence, August 2008-2016, by OFRB Rating.....	28
Table 8: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently-Reported with Tobacco Incidents, March 2012-2016.....	29
Table 9: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently-Reported with Tobacco Incidents, March 2012-2016, by OFRB Rating	29
Table 10: Percentage of Movies Youth-Rated, Ontario and US, 2004-2016.....	29
Table 11: Percentage of Tobacco Incidents in Youth-Rated Movies, Ontario and US, 2004-2016	30
Table 12: Percentage of In-Theatre Tobacco Impressions Delivered by Youth-Rated Movies, Ontario and US, 2004-2016	30

List of Figures

Figure 1: Percentage of Movies with Tobacco Imagery, by OFRB Rating, 2004-2016.....	9
Figure 2: Total Tobacco Incidents in Top-Grossing Movies, by OFRB Rating, 2004-2016	10
Figure 3: Number of Tobacco Incidents per Movie, by OFRB Rating, 2004-2016	12
Figure 4: In-Theatre Tobacco Impressions, by OFRB Rating, Ontario, 2004-2016	13
Figure 5: Number of Movies with OFRB 'Tobacco Use' Detailed Observations vs. Movies Independently-Reported with Tobacco Incidents, August 2008-2016.....	14
Figure 6: Number of Movies with OFRB's 'Tobacco Use' Detailed Observations vs. Movies Independently-Reported with Tobacco Incidence, August 2008-2016, by OFRB Rating	15
Figure 7: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently- Reported with Tobacco Incidents, March 2012-2016	16
Figure 8: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently- Reported with Tobacco Incidents, March 2012-2016, by OFRB Rating.....	17
Figure 9: Percentage of Movies Youth-Rated, Ontario and US, 2004-2016	18
Figure 10: Percentage of Tobacco Incidents in Youth-Rated Movies, Ontario and US, 2004-2016	19
Figure 11: Percentage of In-Theatre Tobacco Impressions Delivered by Youth-Rated Movies, Ontario and US, 2004-2016.....	20
Figure 12: OFRB & MPAA Rating Systems.....	23
Figure 13: OFRB Rating Classification Guideline	24
Figure 14: Example Extracted from the OFRB Online Database	25

Executive Summary

Movies are a powerful vehicle for promoting tobacco use. A substantial body of scientific evidence indicates that exposure to smoking in movies is a cause of smoking initiation and progression to regular smoking among youth. Higher exposure to onscreen tobacco increases the uptake of smoking among youth and undermines tobacco prevention efforts.

Since 2014, the Ontario Tobacco Research Unit has collaborated with the Ontario Coalition for Smoke-Free Movies to monitor the onscreen tobacco exposure among Ontario youth, and estimated the impact of the exposure in terms of new smokers recruited, their tobacco associated mortality and healthcare costs. The amount of harm that would be averted if future movies with smoking received an adult (18A) rating was also projected. In 2015 we reported on results for the years 2004 through 2014. This report adds results for 2015 and 2016.

Key findings of this update include:

- Of 1829 top-grossing movies released in Ontario theatres from 2004 to 2016, 91% were youth-rated—10% General, 44% Parental Guidance, 36% 14A (persons younger than 14 must be accompanied by an adult).ⁱ Nine percent were adult-rated
- Nearly half of the top-grossing movies (54%) featured tobacco. Of the movies with tobacco content, 86% were youth-rated in Ontario, a much higher share than in the US (53%). As a result, Ontario youth had unrestricted access to 64% more movies with smoking than their US counterparts and, therefore, substantially greater potential for exposure to smoking on screen
- Top-grossing movies contained a total of 34,099 tobacco incidents. Eighty-four percent (84%) of tobacco incidents were found in movies youth-rated in Ontario, more than double the percentage (40%) found in US youth-rated movies
- Top-grossing movies delivered an estimated 9.8 billion in-theatre tobacco impressions to moviegoers in Ontario from 2004 to 2016. Eighty-five percent (85%) of these tobacco

ⁱ In this report, numbers by rating or by year may not add up to the total due to rounding.

impressions were delivered by youth-rated movies in Ontario whereas only 53% of 229.6 billion impressions in the US were delivered by youth-rated movies

- The Ontario Film Review Board's (OFRB) tobacco-related 'detailed observations' ([available online](#)) and 'content advisories' (online and on promotional material) provided inadequate information about smoking in movies:
 - Nearly nine of every ten (86%) youth-rated top-grossing movies with smoking did not include an OFRB 'tobacco use' content advisory
 - About one of every three (36%) youth-rated top-grossing movies with smoking did not carry an OFRB 'tobacco use' detailed observation
- Adding 2015 and 2016 data did not change the landscape of onscreen tobacco exposure among Ontario youth documented in previous reports. OFRB has not improved on its inadequate performance in protecting youth from exposure to onscreen tobacco
- [In our 2015 report](#), we estimated that at least 185,000 children and teens living in Ontario would be recruited to cigarette smoking by their exposure to onscreen smoking, resulting in at least \$1.1 billion in healthcare costs and 59,000 premature deaths. Adult (18A) ratings for movies released in Ontario that depict onscreen tobacco would save more than 30,000 lives and half a billion dollars in healthcare costs
- The Smoke-Free Ontario Scientific Advisory Committee notes that restricting movies with tobacco imagery to adults in Ontario could substantially decrease smoking initiation, a policy measure recommended by public health stakeholders and institutions provincially, nationally and internationally

Introduction

Smoking among youth remains an important public health issue. According to the latest data available from 2014, more than 18,000 Ontario youth aged 12-17 years were current smokers.^{ii,1}

Exposure to smoking in movies causes smoking initiation and progression to regular smoking. A dose-response relationship between exposure to onscreen smoking and youth tobacco use has also been reported.^{2,3,4,5,6} A meta-analysis pooled five US studies to obtain an overall population attributable risk estimate of 37% (95% CI: 25%-52%) for adolescent smoking due to exposure to tobacco imagery in movies, meaning that 37% of youth smokers in the population are recruited to smoking due to seeing smoking in movies.^{4,7} The evidence is sufficient to conclude that there is a causal relationship between depictions of smoking in the movies and the initiation of smoking among young people.⁸ This summary of the evidence is based on a critical review of population and experimental studies which control for a large number of potential confounding variables including a wide range of characteristics of youth and their environments.

Smoking kills. Researchers have calculated that 32% of teens who smoke will eventually die from tobacco-induced diseases such as heart attack, stroke, lung and other cancers and emphysema.^{8,9}

The Ontario Tobacco Research Unit has collaborated with the Ontario Coalition for Smoke-Free Movies, using a sample of top-grossing movies, to monitor the exposure among Ontario youth to movies with tobacco imagery, and to assess the adequacy of the Ontario Film Review Board's performance in protecting youth from the exposure. Results were documented in two prior reports.^{10,11}

In this update, top-grossing movies in 2015 and 2016 were incorporated to analyze the proportion of movies with tobacco imagery, the number of tobacco incidents and tobacco impressions delivered to Ontario moviegoers, categorized by the OFRB movie rating. The OFRB's tobacco-related notations about onscreen tobacco content were compared to an independent

ⁱⁱ Current smokers are those who smoked in the month prior to the survey and have smoked 100 cigarettes in their lifetime.

database of movies' tobacco content. Finally, the distribution of tobacco incidents and tobacco impressions by youth-rated and adult-rated movies in Ontario and the US were compared.

In a previous report, we provided estimates on healthcare costs and premature deaths that were attributable to onscreen tobacco exposure among Ontario children and youth, and projected the numbers of lives and healthcare costs that could be saved when movies depicting tobacco imagery showing in Ontario theatres were adult (18A) rated.¹¹ This report did not update these estimates as more recent smoking prevalence data needed for the analysis is not yet available.

Method

Data

This study focuses on top-grossing movies in the domestic market—movies released in Canada and the US that ranked among the ten highest-grossing movies in any week of their first-run in-theatre release. The top-grossing list and box office gross sales of these movies were sourced online from [Box Office Mojo](#). Annual average US cinema ticket prices were released by the [National Association of Theatre Owners](#).

A tobacco incident is one occurrence of the use or implied use of a tobacco product (almost exclusively smoking) by an actor in a movie. Each screen appearance of tobacco is counted as one tobacco incident; incidents appearing in different ‘cuts’ may mean a single movie scene has multiple incidents.

The census of tobacco incidents in each of the movies in our sample was provided by independent monitors of the Thumbs Up! Thumbs Down! (TUTD) project at Breathe California of Sacramento-Emigrant Trails. TUTD has consistently tracked tobacco incidents and their characteristics since 1991 and expanded its sample to monitor all domestic top-grossing movies in 2002.

In-theatre tobacco impressions are an index of the total audience exposure to onscreen tobacco imagery. A single tobacco impression is counted as one person seeing one incident. Total tobacco impressions delivered by a movie are computed by multiplying the number of tobacco incidents in the movie by the paid admissions (tickets sold) to that movie. Paid admissions are calculated by dividing the domestic (Canada and US) box office gross sales for the movie by the average US cinema ticket price in the year of the movie’s release. Box office gross sales is available only at the domestic market level; sales are allocated to Ontario and the US based on their population share of the domestic market. Population data were obtained from statistical agencies.^{12,13,14}

In-theatre tobacco impressions substantially underestimate total exposure, because

impressions generated by viewing movies on in-home and on-demand media are not included (due to lack of published data). However, in-theater impressions remain a useful index of overall exposure because a movie's popularity on other platforms is associated with its popularity in theaters.¹⁵

Movies screened in Ontario are required to be classified by the OFRB before release. The current ratings are:

- G (general - suits all ages)
- PG (parental guidance advised)
- 14A (persons younger than 14 must be accompanied by an adult)
- 18A (persons younger than 18 must be accompanied by an adult)
- R (restricted to persons aged 18 or older) (Appendix 1)

G, PG and 14A movies are considered youth-rated while 18A and R are adult-rated.

Ratings are currently assigned taking into consideration coarse language, violence, sexuality and other content, but not tobacco imagery. Aside from its ratings, which are required to be carried in movie advertising, the OFRB may choose to post information about specific movie content using 'detailed observations' and 'content advisories' (Appendix 2). Both notations can be viewed online by searching for the movie on the OFRB's web site; 'content advisories' also appear with the movie rating, on a movie's promotional material. Currently, tobacco-related 'detailed observations' include the notations 'tobacco use' or 'illustrated or verbal references to drugs, alcohol or tobacco'. The tobacco-related 'content advisory' is 'tobacco use'.

Analysis

Tobacco incidents, tobacco impressions and the OFRB's rating practices were analyzed with descriptive statistics.

Results

Top-Grossing Movies 2004-2016

Between 2004 and 2016, 1,829 top-grossing movies were released in Ontario, including 132 and 133 movies in 2015 and 2016 respectively (Table 1).^{iii,iv} Ninety-one percent of these movies were youth-rated (10% rated G, 44% rated PG and 36% rated 14A) while 9% were adult-rated 18A/R (only three movies were R-rated). A list of these movies with their ratings, the number of tobacco incidents, tobacco impressions and the presence of the OFRB’s tobacco-related notations can be found online ([Top-Grossing Movies Released in the Domestic Market \(Canada and US\), 2004-2016 – Excel format](#)).

Table 1: Number of Movies Released in the Domestic Market (Canada and US), by OFRB Rating and by Tobacco Imagery Status 2004-2016

Year ^a	Number of Domestic Movies by OFRB Rating				Total	Tobacco Imagery	
	G	PG	14A	18A/R ^b		Yes	No
2004	14	74	46	10	144	99	45
2005	24	67	40	12	143	97	46
2006	26	75	43	17	161	96	65
2007	17	58	59	23	157	106	51
2008	12	58	55	20	145	86	59
2009	10	61	60	13	144	70	74
2010	11	65	43	16	135	60	75
2011	20	64	40	10	134	62	72
2012	11	56	55	14	136	69	67
2013	11	55	59	10	135	73	62
2014	11	66	45	8	130	59	71

ⁱⁱⁱ The number of Bollywood movies on the top-grossing list has grown in recent years. These movies typically chose not to seek voluntary rating from the Motion Picture Association of American (MPAA) but are obliged to seek a rating from OFRB. To facilitate Ontario-US ratings comparison, our sample excluded these movies, starting in 2015. Specifically, five Bollywood movies in 2015 and two in 2016 were excluded. Among them, six were rated PG and one rated 14A. Four movies were tobacco-free while three contained tobacco imagery: these delivered 638,000 tobacco impressions to moviegoers in Ontario.

^{iv} In this report, numbers by rating or by year may not add up to the total due to rounding.

Year ^a	Number of Domestic Movies by OFRB Rating				Total	Tobacco Imagery	
	G	PG	14A	18A/R ^b		Yes	No
2015	12	54	58	8	132	68	64
2016	9	60	54	10	133	51	82
Total	188	813	657	171	1829	996	833
% of Total	10%	44%	36%	9%	100	54%	46%

^a Numbers may not add up due to rounding.

^b R-rated movies were released in 2006, 2015 and 2016

Movies with Tobacco Imagery

Between 2004 and 2016, 54% (996/1829) of the top-grossing movies released in Ontario featured tobacco imagery. As the restrictiveness of the movie ratings increase, the percentage of movies with onscreen smoking increases, from 16% (31/188) in G-rated movies, to 46% (376/813) in PG movies, 69% (451/657) in 14A and 81% (138/171) in movies adult-rated 18A or R.

The share of movies with tobacco imagery released annually declined from 69% in 2004 to 38% in 2016. However, the rate of decline is not steady and there have been recent years where the proportion of movies with tobacco imagery is considerably higher—for example in 2013 and 2015 (Figure 1). The decline has been greater in youth-rated movies, G and PG movies in particular, than in adult-rated movies.

G-rated movies: The percentage of G-rated movies with tobacco imagery dropped to zero for the first time in 2008, and has been around 10% ever since. Only 10% of all movies in the sample were G-rated

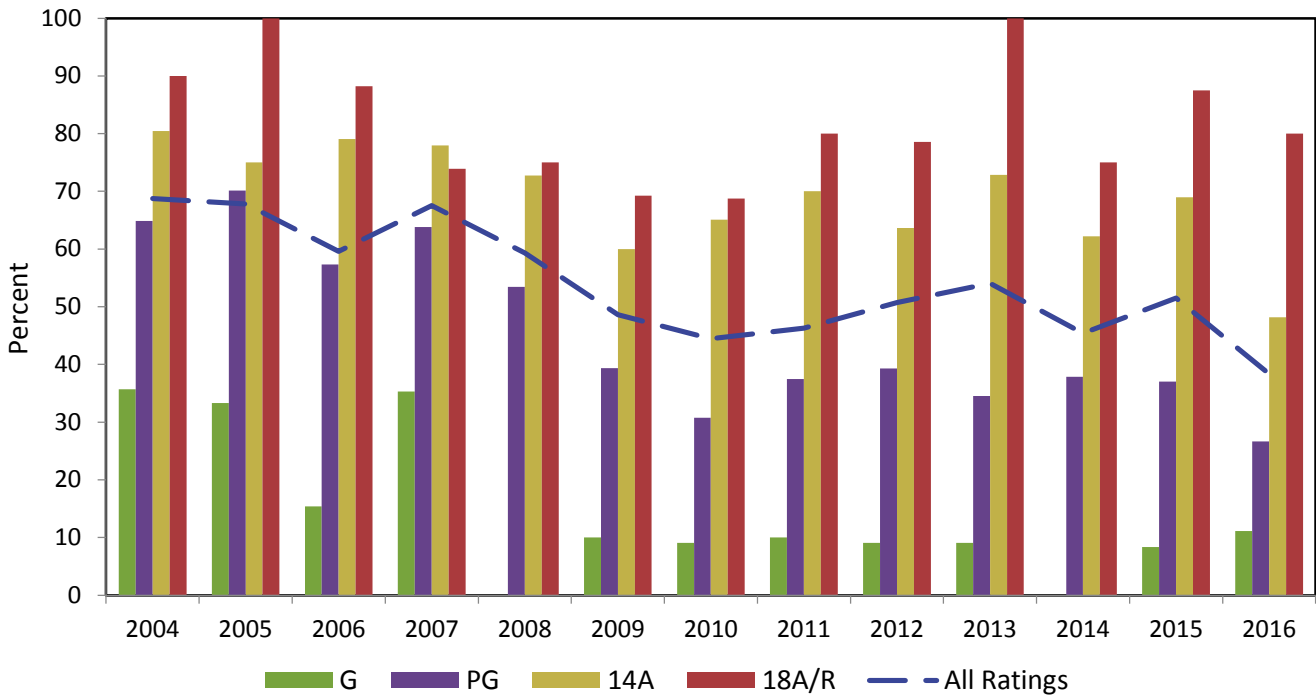
PG-rated movies: The share of PG movies with tobacco depictions declined from 65% in 2004 to 39% in 2009, but there has been no progress since

14A-rated movies: The decline in the percentage of 14A movies that featured tobacco imagery essentially halted in 2009

18A/R-rated movies: The percentage of adult rated movies with smoking has been around 70%

or higher since 2004. Adult-rated movies accounted for 9% of all movies in our sample

Figure 1: Percentage of Movies with Tobacco Imagery, by OFRB Rating, 2004-2016



Note: Tobacco imagery means tobacco incidents, which are occurrences of the use or implied use of a tobacco product in a movie. [Full data table for this graph provided in the Appendix \(Table 2\)](#)

Tobacco Incidents

Total Tobacco Incidents

Between 2004 and 2016, the 1829 top-grossing movies released in Ontario contained a total of 34,099 tobacco incidents. Youth-rated movies contained 84% of these incidents: 2% in G-rated movies, 30% in PG-rated movies, and 53% in 14A-rated movies. No fewer than 69% of tobacco incidents were featured in youth-rated movies between 2004 and 2016.

The total number of tobacco incidents contained in movies released annually declined between 2005 (3,962 incidents) and 2010 (1,817 incidents). A rebound followed during which tobacco incidents returned to a higher level reaching more than 2,700 incidents in 2014 and 2016 (Figure 2).

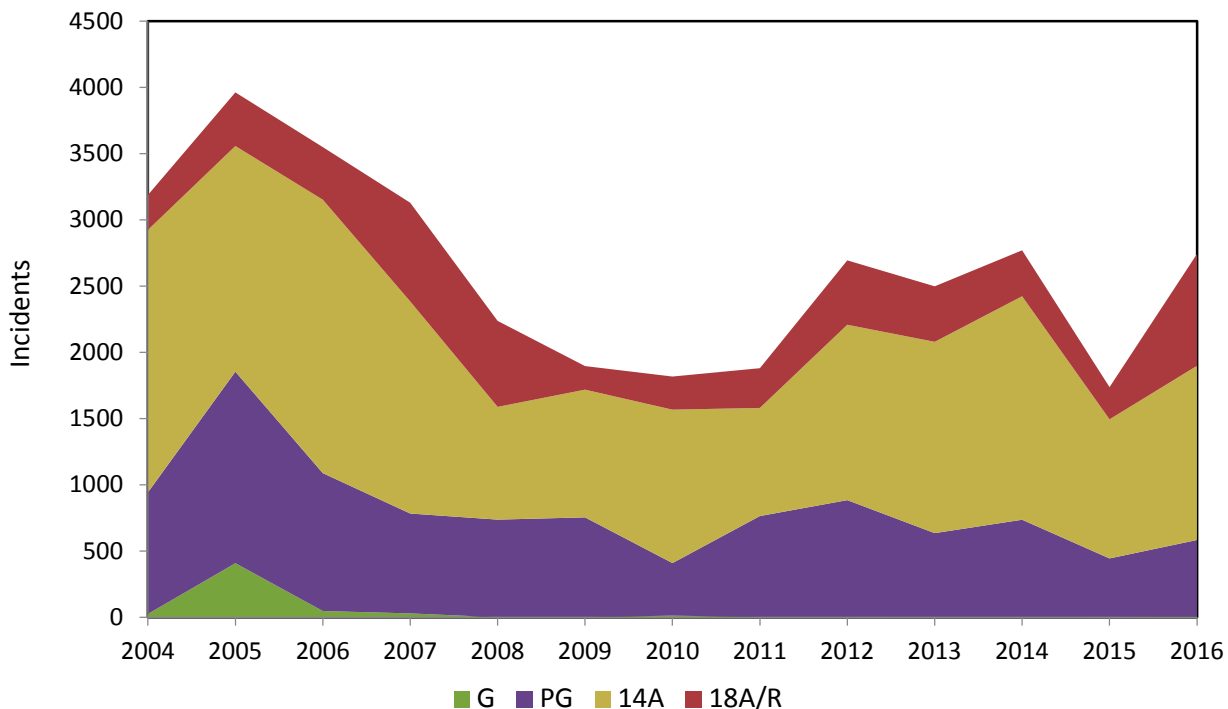
G-rated movies: Since 2008, G-rated movies have contained a negligible number of tobacco incidents.

PG-rated movies: The number of tobacco incidents in PG movies dropped between 2005 (1,446 incidents) to 2010 (397 incidents), then rebounded. The decline since has been slow. In 2016, PG movies contained 579 incidents (21% of the year's total).

14A-rated movies: The number of tobacco incidents contained in 14A movies in 2016 (1,315 incidents) was lower than in 2004 (1,981 incidents), but higher than the historic low in 2011 (816 incidents). 14A movies featured nearly half (48%) of all tobacco incidents in 2016.

18A/R-rated movies: Adult-rated movies, on average, have featured fewer than 500 tobacco incidents annually. 2016 saw the largest number of adult-rated tobacco incidents (844) since 2004 and also the highest percentage (31%).

Figure 2: Total Tobacco Incidents in Top-Grossing Movies, by OFRB Rating, 2004-2016



Note: Total tobacco incidents are the total number of occurrences of the use or implied use of a tobacco product. [Full data table for this graph provided in the Appendix \(Table 3\)](#)

Tobacco Incidents per Movie

To account for fluctuations in the number of movies released annually, tobacco incidents divided by the total number of movies (with or without smoking) in each rating class were analyzed.

Between 2004 and 2016, 14A movies released in Ontario featured 27 tobacco incidents per movie, slightly lower than that in adult-rated movies (32 incidents), but more than double the number in PG movies (12 incidents) and G movies (3 incidents).

Overall, tobacco incidents per movie declined between 2005 (28 incidents) and 2010 (13 incidents). However, by 2016, tobacco incidents per movie had returned nearly to the level seen in 2004 (21 incidents vs. 22 incidents) (Figure 3).

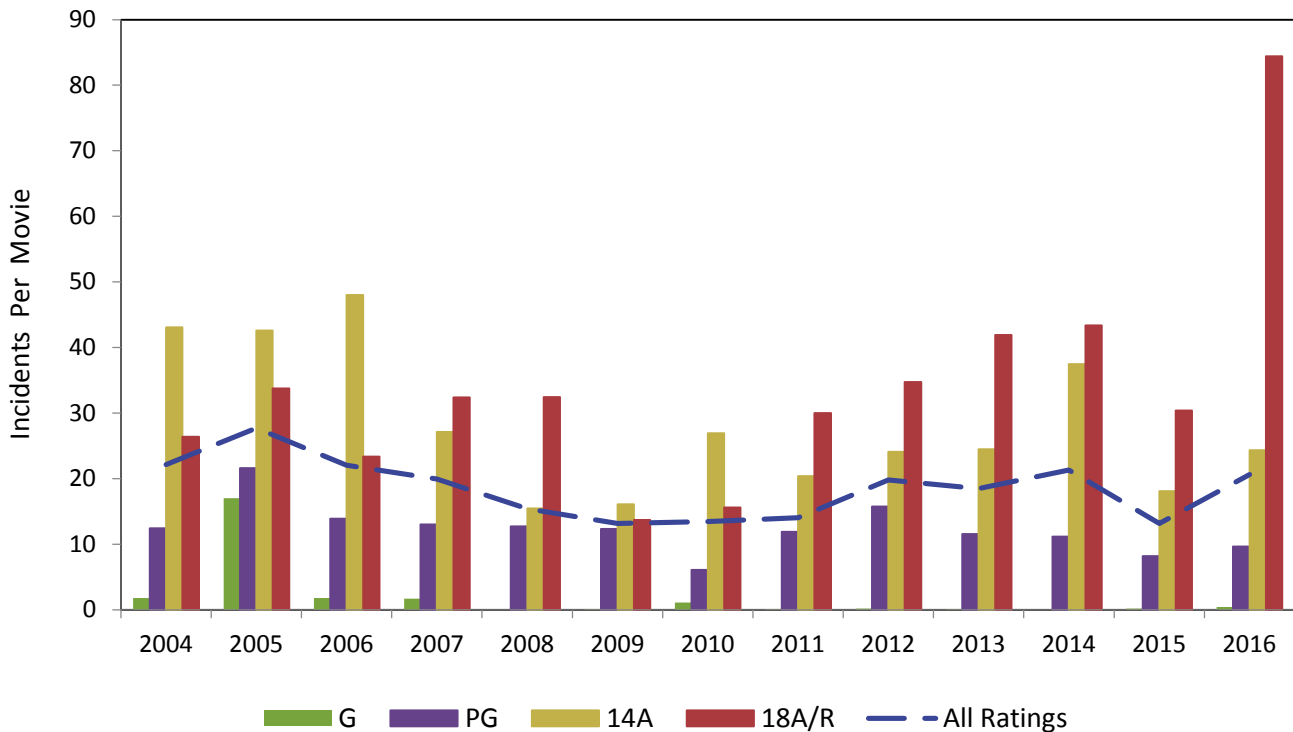
G-rated movies: Tobacco incidents per G-rated movies has been negligible since 2004.

PG-rated movies: Little changed in the number of tobacco incidents per PG-rated movies between 2004 and 2016.

14A-rated movies: Tobacco incidents per 14A movie in 2016 (24 incidents) was lower than in 2004 (43 incidents), but there has been no decline since 2008.

18A/R-rated movies: Tobacco incidents per adult rated movie in 2016 (84 incidents) was much higher than in any other year in the sample. In all other years, incidents per adult rated movies were below 45 incidents.

Figure 3: Number of Tobacco Incidents per Movie, by OFRB Rating, 2004-2016



Note: Tobacco Incidents per movie for a rating is the total number of incidents observed in movies with the rating divided by the number of movies with that rating (with or without smoking). [Full data table for this graph provided in the Appendix \(Table 4\)](#)

Tobacco Impressions

Between 2004 and 2016, top-grossing movies delivered 9.8 billion in-theater tobacco impressions to moviegoers in Ontario. Youth-rated movies delivered 85% (8.3 billion) of these impressions: 1% by G movies, 42% by PG movies and 42% by 14A movies.

Total tobacco impression delivered by youth-rated movies dropped more than half between 2005 (1,043 million impressions, 90% of the annual total) and 2010 (475 million impressions, 87% of the annual total). Yet a subsequent rebound returned tobacco impressions to 815 million impressions (81% of the annual total) in 2012. Youth-rated impressions plunged again in the last two years of the sample, to 257 million (73% of the total) in 2015 and 341 million (62% of the total) in 2016 (Figure 4).

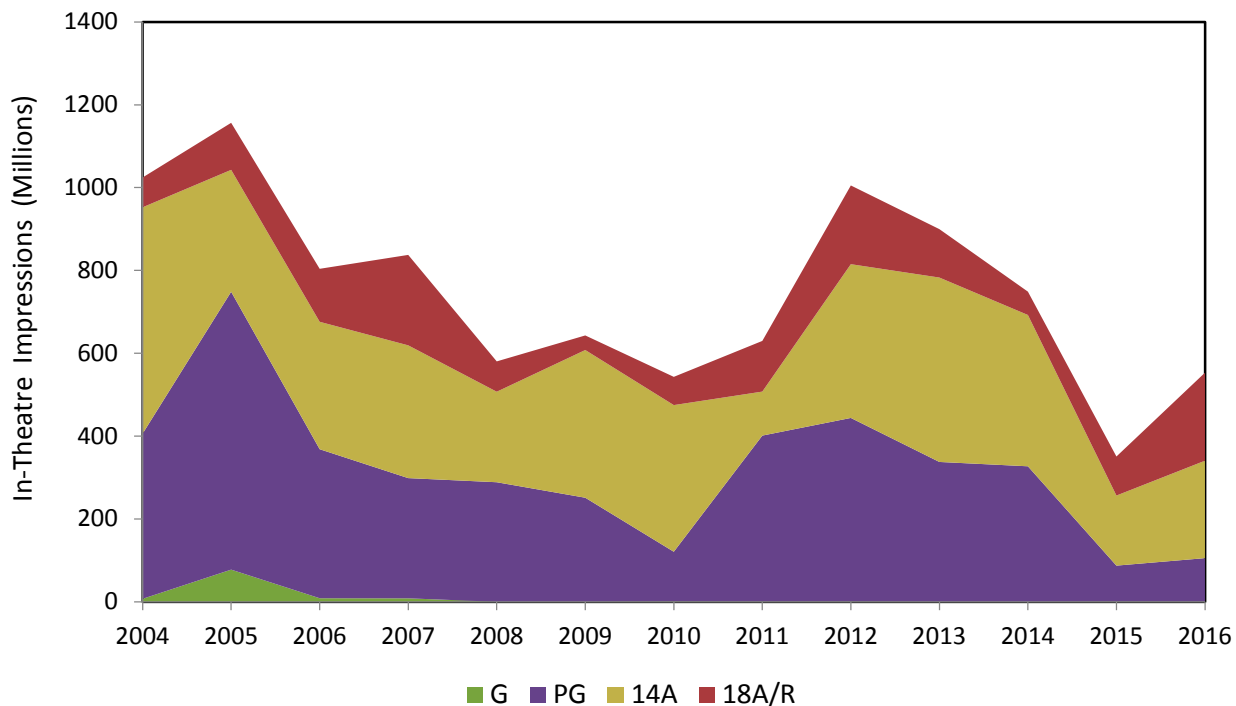
G-rated movies: Negligible tobacco impressions.

PG-rated movies: Tobacco impressions delivered by PG movies in 2016 (105 million, 19% of the annual total) were substantially below their peak in 2005 (671 million, 58% of total), and close to their level in 2010 (120 million, 22% of total).

14A-rated movies: 14A tobacco impressions in 2016 (235 million, 43% of total) were less than half of their historic high in 2004 (546 million, 53% of total), but more than double their historic low in 2011 (106 million, 17% of total).

18A/R-rated movies: Adult-rated tobacco impressions fluctuated between 35 and 218 million (2009 and 2007 respectively), and was 213 million in 2016 (38% of the annual total).

Figure 4: In-Theatre Tobacco Impressions, by OFRB Rating, Ontario, 2004-2016



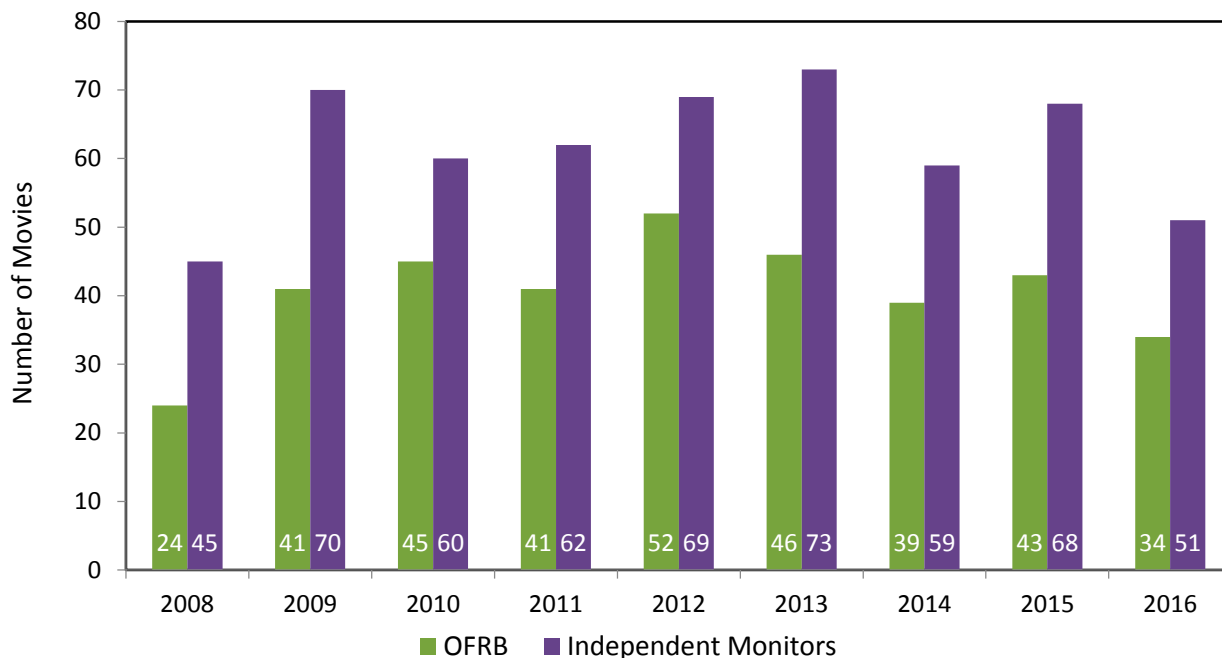
Note: In-theatre tobacco impression of a movie is a measure of total audience exposure to onscreen tobacco imagery. It is obtained by multiplying the number of tobacco incidents in a movie by the paid admission to that movie. [Full data table for this graph provided in the Appendix \(Table 5\)](#)

Comparison of OFRB Tobacco-Related Labels with Reports of Independent Monitors

We compared the numbers of movies for which the OFRB provided tobacco-related ‘detailed observations’ or ‘content advisories’ with the number identified as having onscreen tobacco by independent monitors of the Thumbs Up! Thumbs Down! (TUTD) project at the Breathe California of Sacramento-Emigrant Trails.

From August 2008, when the OFRB began providing tobacco-related ‘detailed observations’, to December 2016, 1144 top-grossing movies were released in Ontario. According to independent monitors, close to half of these movies (557/1144) featured tobacco imagery, yet OFRB posted ‘tobacco use’ observations for only two-thirds (365/557) of the movies identified by independent monitors, leaving one-in-three movies (192/557) with no indication of tobacco content. Figure 5 compares the annual number of movies that the OFRB labelled with ‘tobacco use’ observations and the annual number deemed to include tobacco incidents by independent monitors.

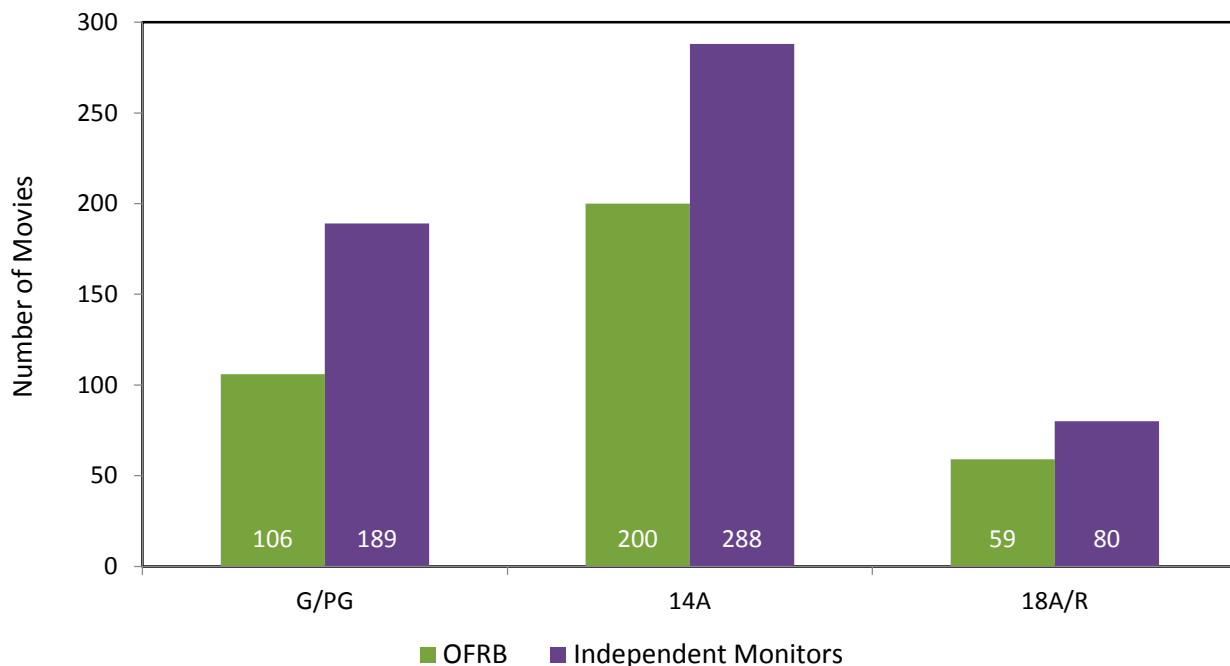
Figure 5: Number of Movies with OFRB ‘Tobacco Use’ Detailed Observations vs. Movies Independently-Reported with Tobacco Incidents, August 2008-2016



Note: Year 2008 was for Aug 15 to Dec 31. [Full data table for this graph provided in the Appendix \(Table 6\)](#)

Of the 557 movies featuring tobacco imagery between August 2008 and December 2016, 477 were youth-rated (189 rated G/PG and 288 rated 14A) and 80 were adult-rated (Figure 6). OFRB attached 'tobacco use' observations to 64% (306/477) of youth-rated movies with smoking, leaving more than one-third (36%, 171/477) without any notation. Seventy-four percent (59/80) of adult-rated movies with smoking included OFRB's 'tobacco use' observations.

Figure 6: Number of Movies with OFRB's 'Tobacco Use' Detailed Observations vs. Movies Independently-Reported with Tobacco Incidence, August 2008-2016, by OFRB Rating



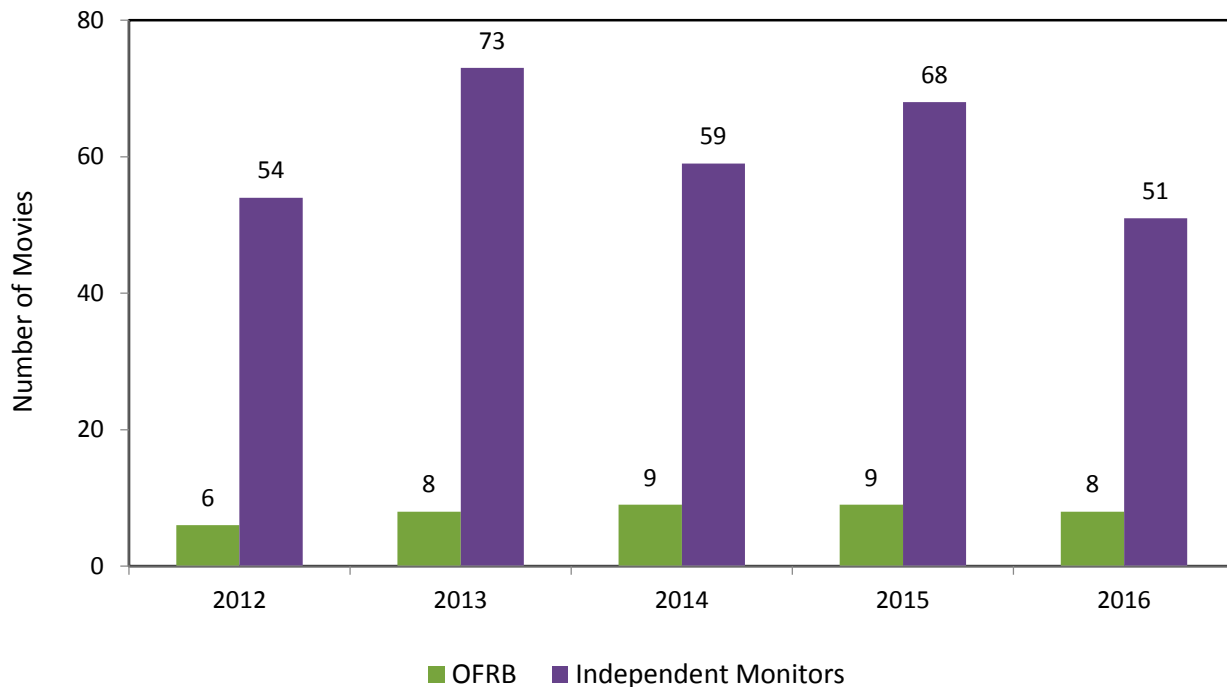
Note: Nine movies (one each in 2009, 2011, 2016; four in 2013; and two in 2015) for which the OFRB provided 'tobacco use' notation were classified as tobacco-free by independent monitors and are not included in this analysis. Independent monitors either identified the substance represented on screen as marijuana, or found no tobacco in the movies. [Full data table for this graph provided in the Appendix \(Table 7\)](#)

Since August 2008, six out of ten (340/557) movies with tobacco imagery have lacked an 'illustrated or verbal references to drugs, alcohol or tobacco' notation from the OFRB. (Chart not shown for this detailed observation).

Of the 632 top-grossing movies released from March 2012 (when the OFRB began implementing tobacco use content advisories) to December 2016, 305 (48%) were identified by independent monitors as having tobacco imagery. The OFRB failed to provide 'tobacco use' advisories for 87%

(265/305) of these movies, meaning that only 13% of top-grossing movies with tobacco imagery shown in Ontario carried any indication of their tobacco content on posters and other promotional material. Figure 7 compares the annual number of movies with the OFRB's 'tobacco use' advisories with the annual number that independent monitors identified featuring tobacco imagery.

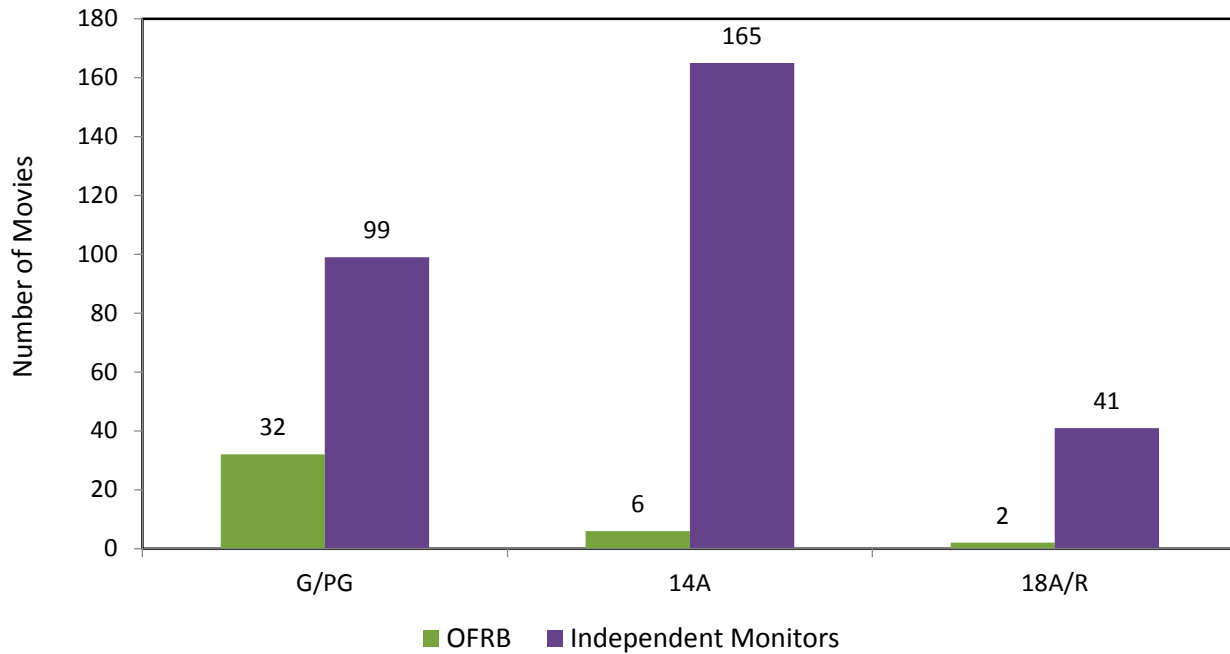
Figure 7: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently-Reported with Tobacco Incidents, March 2012-2016



Note: Year 2012 was from Mar 12 to Dec 31. [Full data table for this graph provided in the Appendix \(Table 8\)](#)

Among the 305 movies that featured tobacco imagery between March 2012 and 2016, 264 were youth-rated (99 G/PG and 165 14A) and 41 were adult-rated (Figure 8). Among youth-rated movies with smoking, 14% (38/264) carried OFRB 'tobacco use' advisories — leaving 86% (226/264) unlabeled. Only 5% (2/41) of adult-rated movies with smoking carried advisories.

Figure 8: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently-Reported with Tobacco Incidents, March 2012-2016, by OFRB Rating



Note: Full data table for this graph provided in the Appendix (Table 9)

Comparison between Ontario and the US

Ontario Film Review Board vs Motion Picture Association of America Ratings

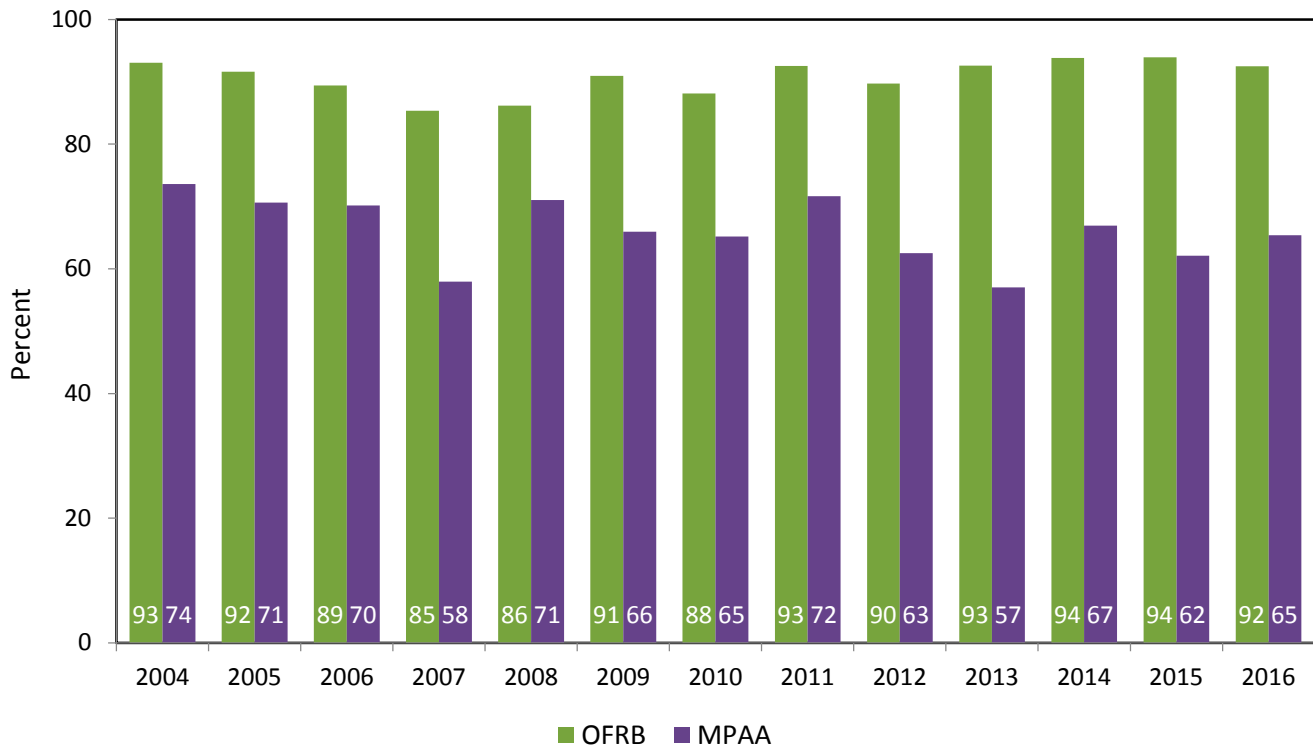
From 2004 to 2016, 72% (447/618) of movies adult-rated 'R' in the US were given a youth rating in Ontario. Ninety-eight percent (437/447) of these 'down-rated' movies were classified as 14A in Ontario.

As a result, the percentage of youth-rated movies in Ontario was substantially greater than in the US. Between 2004 and 2016, the OFRB rated 91% (1658/1829) of the top-grossing movies shown in both Ontario and the US as appropriate for youth (10% G, 44% PG, 36% 14A). In comparison, the Motion Picture Association of America (MPAA) rated 66% (1211/1829) of the same movie

sample as appropriate for youth (3% G, 18% PG, 45% PG-13).^v Figure 9 shows the annual percentage of all movies that were youth-rated in Ontario and in US.

Of the 996 top-grossing movies with smoking released between 2004 and 2016, 86% (858/996) were youth-rated in Ontario whereas only 53% (524/996) were youth-rated in the US. Ontario youth had unrestricted access to 64% more $((858-524)/524)$ movies with tobacco imagery than their US counterparts, giving Canada's young people substantially greater potential exposure to smoking onscreen.

Figure 9: Percentage of Movies Youth-Rated, Ontario and US, 2004-2016



Note: Full data table for this graph provided in the Appendix (Table 10)

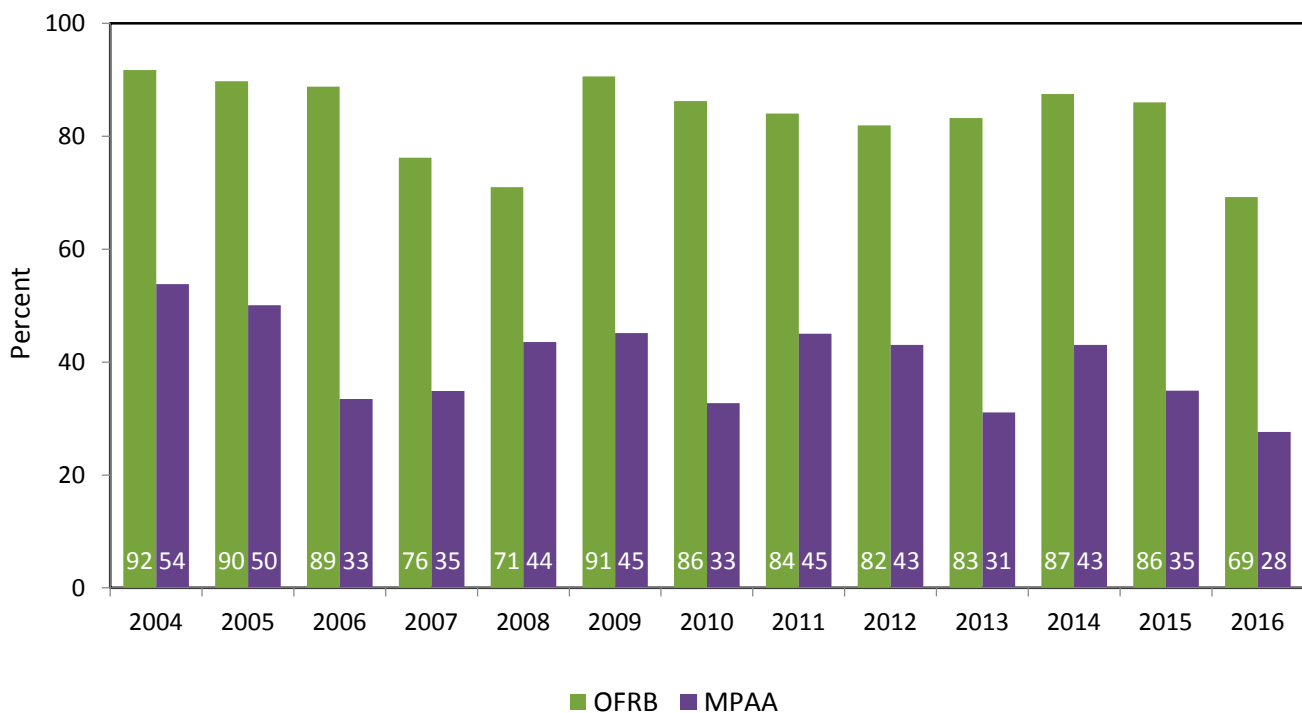
^v MPAA is the trade association for the major US movie studios, which runs the voluntary age-classification system in the US. It also represents these companies' interests in Canada and operates the [Canada Home Video Rating System](#).

Tobacco Incidents

Since Ontario’s rating practices have made more than two-thirds of US R-rated movies accessible to young Ontario audiences and US R-rated movies average more tobacco incidents than PG-13 movies, the share of tobacco incidents found in youth-rated movies was substantially greater in Ontario than in the US.

In Ontario, from 2004 to 2016, youth-rated movies accounted for 84% (28,572/34,099) of all tobacco incidents: 2% in G-rated movies, 30% in PG movies and 53% in 14A movies. In the US, youth-rated movies accounted for 40% (13,742/34,099)—half the share of Ontario—with 4% in G-/PG-rated movies and 36% in PG-13 movies. The percentage of tobacco incidents found in youth-rated movies in Ontario and in US, over time, is shown in Figure 10.

Figure 10: Percentage of Tobacco Incidents in Youth-Rated Movies, Ontario and US, 2004-2016



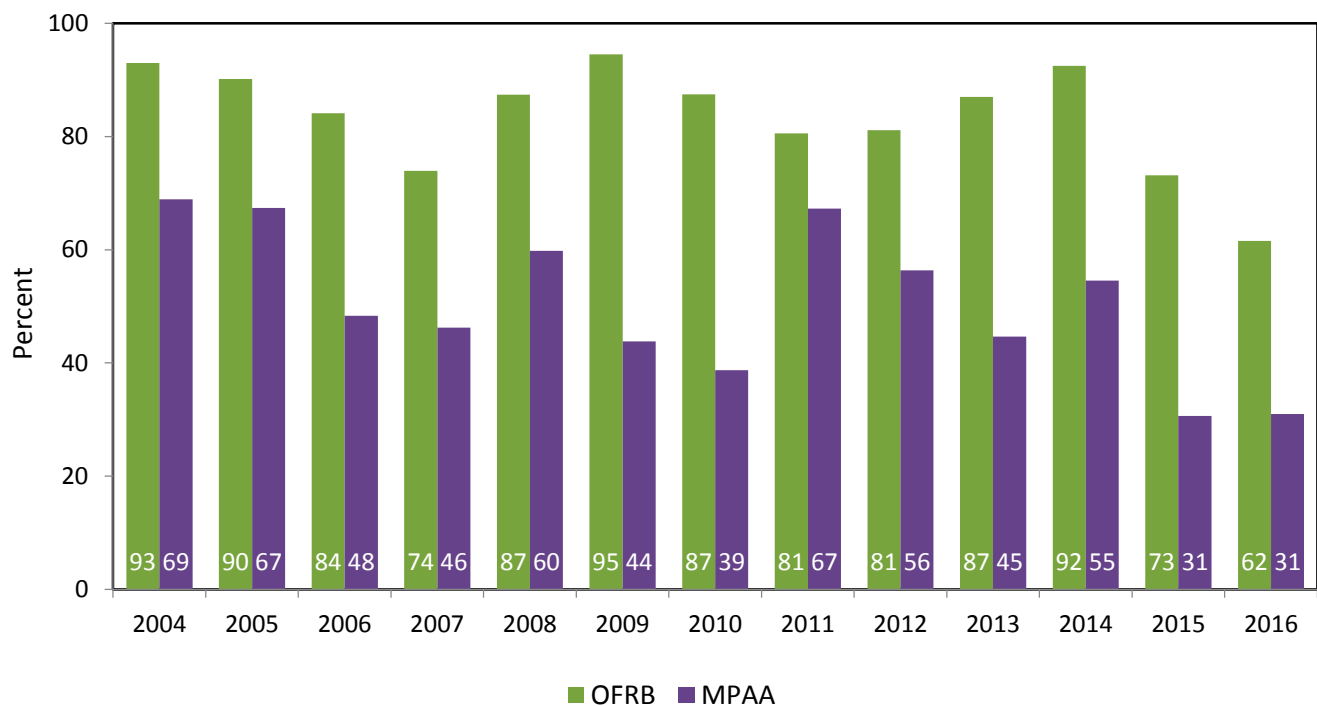
Note: The percentage of tobacco incidents in youth-rated movies is the share of all tobacco incidents in top-grossing movies found in youth-rated movies. [Full data table for this graph provided in the Appendix \(Table 11\)](#)

Tobacco Impressions

Because of the rating practice in Ontario, adolescents in Ontario were potentially exposed to substantially more onscreen tobacco impressions than their US counterparts.

From 2004 to 2016, youth-rated movies in Ontario delivered 85% (8.3 billion) of all in-theatre tobacco impressions (9.8 billion), including 1% in G-rated movies, 42% in each PG and 14A movies. In contrast, US youth-rated movies delivered 53% (121.7 billion) of all in-theatre tobacco impressions (229.6 billion) over the same period. Figure 11 shows the annual percentage of in-theatre tobacco impressions delivered by youth-rated movies over time in Ontario and the US.

Figure 11: Percentage of In-Theatre Tobacco Impressions Delivered by Youth-Rated Movies, Ontario and US, 2004-2016



Note: The percentage of in-theatre tobacco impression delivered by youth-rated movies is the share of total in-theatre exposure to onscreen tobacco from youth-rated movies. [Full data table for this graph provided in the Appendix \(Table 12\)](#)

Onscreen Smoking's Impact on Ontario Youth

In a previous report, it was estimated that exposure to onscreen smoking will recruit more than 185,000 Ontario children and teens aged under 17 to become smokers, resulting in more than 59,000 premature deaths and at least \$1.1 billion in additional healthcare costs.¹¹ An adult rating (18A) for smoking in movies released in Ontario would prevent more than 30,000 premature deaths and save more than half a billion dollars in healthcare costs.

These estimates may underestimate the impact of exposure to onscreen tobacco on Ontario youth. One of the key parameters underlying these estimates was the risk of youth smoking attributable to exposure to onscreen tobacco (37%). It was based on a meta-analysis of US studies. However, Ontario youth are at greater risk of exposure to onscreen tobacco than their US counterparts because most movies R-rated in the US, which have a higher incidence of tobacco imagery, are youth-rated by the OFRB. The risks from exposure are dose-related.

Exposure to onscreen smoking may also have a larger impact on smoking initiation in Ontario than in the US because Canada has much stronger restrictions on conventional tobacco advertising. According to a recent study in New Zealand, where restrictions on traditional cigarette advertising are also stronger than in the US, the risk of youth smoking attributable to exposure to onscreen tobacco was estimated at 54%.¹⁶

For these reasons, the attributable risk of youth smoking due to exposure to onscreen tobacco in Ontario is potentially greater than the US figure of 37%. As a corollary, the beneficial effects of instituting an adult-rating of future movies with smoking in Ontario may also be even more important than US models estimate.

Discussion

This study indicates that from 2004 to 2016, nearly half (54%) of top-grossing movies in Ontario featured tobacco imagery and 86% of these movies were youth-rated. Eighty-four percent of tobacco incidents and 85% of tobacco impressions delivered to Ontario theatre audiences came from movies that were youth-rated by the Ontario Film Review Board (OFRB).

The current practice of the OFRB has consistently provided inadequate information about smoking in movies. Over the period under study, nearly nine of every ten youth-rated top-grossing movies with smoking did not include the required OFRB 'tobacco use' content advisory, which has to appear with the movie rating on a movie's promotional material. While there is a need to properly implement the content advisory requirement, tobacco use advisories have not been shown to be effective at reducing exposure to smoking in movies or to curtailing the effects of exposure. To effectively reduce exposure to smoking in movies, OFRB would have to restrict movies which depict smoking to adults. This policy will create an economic incentive for movie producers to leave tobacco imagery out of films that will be marketed to young people.

The Smoke-Free Ontario Scientific Advisory Committee notes that restricting movies with tobacco imagery to adults in Ontario could substantially decrease smoking initiation.¹⁷ This policy measure has been recommended by public health stakeholders and institutions provincially, nationally and internationally.

Appendix 1: Movie Rating Systems

Figure 12: OFRB & MPAA Rating Systems





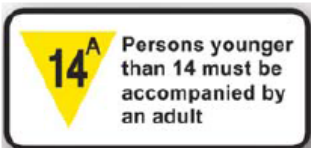
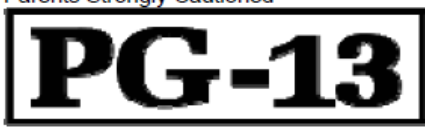




Ontario Film Review Board rating system		Motion Picture Association of America rating system	
	Suitable for viewers of all ages.	General Audiences 	Nothing that would offend parents for viewing by children.
	Parental guidance is advised. Theme of content may not be suitable for all children.	Parental Guidance Suggested 	Parents urged to give "parental guidance." May contain some material parents might not like for their young children.
	Suitable for viewing by persons 14 years of age and older. Persons under 14 must be accompanied by an adult. May contain: violence, coarse language and/or sexually suggestive scenes.	Parents Strongly Cautioned 	Parents are urged to be cautious. Some material may be inappropriate for pre-teenagers.
	Suitable for viewing by persons 18 years of age and older. Persons under 18 may attend but must be accompanied by an adult. May contain: explicit violence, frequent coarse language, sexual activity and/or horror.	Restricted 	Contains some adult material. Parents are urged to learn about the film before taking their young children with them.
	Admittance restricted to persons 18 years of age and over. Content not suitable for minors. May contain: frequent use of sexual activity, brutal/graphic violence, intense horror and/or other disturbing content.	No One 17 And Under Admitted 	Patently adult. Children are not admitted.

Figure 13: OFRB Rating Classification Guideline

Guide to the Elements that Contribute to Classification:
See Glossary for definitions of relevant terms.

	G General	PG Parental Guidance	14^A 14A	18^A 18A	R Restricted	Content Advisories
Age Suitability	Suitable for all.	Parental guidance advised.	Persons younger than 14 must be accompanied by an adult.	Persons younger than 18 must be accompanied by an adult.	Restricted to persons 18 years of age or over.	<ul style="list-style-type: none"> Not Recommended for Children
Language	Infrequent use of mild profanity such as damn, hell, ass and God.	Use of expletives e.g. bastard, shit, f**k (X3) and/or limited slurs; mild sexual references.	Coarse language and/or slurs directed to specific segments of society; excessive use of expletives; sexual references. Infrequent strong, aggressive language.	Very intense and aggressive coarse language usually accompanied by violence directed towards the person(s). Frequent slurs/sexual references.	No restriction.	<ul style="list-style-type: none"> Not Recommended for Young Children Some Scary Scenes Cartoon/ Animation Action
Violence (see Note 1)	Restrained portrayals of limited violence which may result in extremely limited bloodletting.	Restrained portrayals of non-graphic violence, integral to the plot. The portrayals are not prolonged; there are no close-ups; bloodletting and/or tissue damage is limited.	Portrayals of graphic violence resulting in bloodletting and/or tissue damage which may or may not be fatal. Violence should be within the context of the film. Sexual violence.	Frequent and/or prolonged portrayals of graphic violence resulting in bloodletting and/or tissue damage. Limited instances of brief, visually explicit portrayals of violence. Graphic torture/brutality. Graphic sexual violence.	Visually explicit portrayals of violence which may be characterized by extreme brutality, extreme bloodletting and extreme tissue damage, torture, horror and sexual violence.	<ul style="list-style-type: none"> Mature Theme Language May Offend Coarse Language Language Not Evaluated
Nudity	Non-sexual nudity with no close-ups.	Nudity in a non-sexual context, non-exploitative close-up.	Limited nudity in a brief sexual situation.	Limited instances of nudity in a sexual situation.	Nudity in a sexual situation.	<ul style="list-style-type: none"> Subtitled Crude Content
Sexual Activity	Limited embracing and kissing.	Embracing, kissing; mild sexual innuendo.	Fondling, implied sexual activity, sexual innuendo.	Limited instances of simulated sexual activity.	Simulated sexual activity; explicit sexual activity.	<ul style="list-style-type: none"> Violence Graphic Violence
Gore/ Grotesque	Brief moments of mild horror in comedic, historic, or fantasy settings e.g. dragons, giants, wicked witches.	Scenes containing some grotesque images may be allowed in a fantasy or comedic context, but there will be no detailed and/or prolonged focus on gory images or suffering.	Occasional gory moments and some horrific/grotesque images, will be more detailed.	Gory or grotesque imagery are more frequent or detailed, and more prolonged.	Frequent detailed gory/grotesque images have a more prolonged or graphic focus and greater frequency.	<ul style="list-style-type: none"> Brutal Violence Sexual Violence Nudity Sexual Content
Psychological Impact (see Note 2)	Sensitive to scenes or situations related to a child's sense of security and well-being. Tobacco use: Always noted when present.	Scenes and situations that may cause adverse psychological impact on children. May include frightening or emotionally upsetting situations involving threats, injury, illness, family problems or death to young people, family members and animals (particularly pets). Bullying. Substance referencing. Crude Content.	Occasional upsetting scenes that will tend to be more frightening, intense, and disturbing - particularly to younger viewers. More mature themes can be portrayed. Substance abuse.	Frequent upsetting, disturbing or frightening scenes that may cause adverse psychological impact on some mature viewers. Detailed/ graphic portrayals of substance abuse.	Scenes and situations may cause extreme adverse psychological impact. May involve intense and compelling terror, acts of degradation, threats of violence and continuous acts of violence; situations could be accompanied by coarse, abusive and degrading dialogue. Explicit substance abuse.	<ul style="list-style-type: none"> Explicit Sexual Content Gory Scenes Frightening Scenes Disturbing Content Substance Abuse Tobacco Use
<p>Note 1: Portrayals of violence may include armed combat, natural disasters, accidents, hand-to-hand combat, weapons violence and violent sports. The degree, frequency and intensity of the acts of violence will be factors in the classification decision.</p> <p>Note 2: Psychological impact may be a state of mind, mood or feeling and/or other effects on the viewer, resulting from the treatment of scenes and situations within the film. Treatment may include intensity, degree, pace, atmosphere, tone, visual effects and dialogue.</p> <p>Guidelines may be set aside at the Panel's discretion, particularly where social, historic and documentary significance warrants. The reason is to be identified on the Summary Report.</p>						

Appendix 2: OFRB Tobacco-Related Detailed Observations and Content Advisories

Figure 14: Example Extracted from the OFRB Online Database

ontario
film
authority

[Back to OFA Site](#) ▼ Français

Enter a full or partial title to search for:

By Type:

By Classification:

- General
- Parental Guidance
- 14A
- 18A
- Restricted
- Adult

By Format:

By Date Range:

From Date:
 Month Day Year

To Date:
 Month Day Year

[Search Instructions](#)

WALK (THE)

Date Classified:	Sep 10, 2015
Film Number:	2000123276
Distributor / Submitter / Exhibitor:	SONY PICTURES RELEASING CANADA
Running Time (min):	123
Format:	DIGITAL
Language:	ENGLISH
Classification:	PARENTAL GUIDANCE
Content Advisories:	- LANGUAGE MAY OFFEND - TOBACCO USE
Detailed Observations:	- Scenes containing some grotesque images in a fantasy, comedic or historic context - Use of expletives - Limited use of slurs - Nudity in a non-sexual context - Illustrated or verbal references to drugs, alcohol or tobacco - Scenes that may cause a child brief anxiety, or fear - Embracing and kissing - Tobacco use
Classification Restrictions:	
Exhibition Limitation - Time / Premises:	
Reconsideration:	

Ontario Film Review Board, 4950 Yonge Street, Suite 101B, Toronto ON M2N 6K1

ontariofilmauthority

Appendix 3: Data Tables

Table 2: Percentage of Movies with Tobacco Imagery, by OFRB Rating, 2004-2016

Year	OFRB Rating				
	G	PG	14A	18A/R	All Ratings
2004	36%	65%	80%	90%	69%
2005	33%	70%	75%	100%	68%
2006	15%	57%	79%	88%	60%
2007	35%	64%	78%	74%	68%
2008	0%	53%	73%	75%	59%
2009	10%	39%	60%	69%	49%
2010	9%	31%	65%	69%	44%
2011	10%	38%	70%	80%	46%
2012	9%	39%	64%	79%	51%
2013	9%	35%	73%	100%	54%
2014	0%	38%	62%	75%	45%
2015	8%	37%	69%	88%	52%
2016	11%	27%	48%	80%	38%
Total	16%	46%	69%	81%	54%

Note: Data table is for Figure 1

Table 3: Total Tobacco Incidents in Top-Grossing Movies, by OFRB Rating, 2004-2016

Year	OFRB Rating				
	G	PG	14A	18A/R	All Ratings
2004	25	918	1981	264	3188
2005	408	1446	1703	405	3962
2006	47	1041	2064	397	3549
2007	29	754	1601	745	3129
2008	0	737	851	649	2237
2009	1	753	964	178	1896
2010	12	397	1158	250	1817
2011	2	762	816	300	1880
2012	2	882	1324	486	2694
2013	1	634	1444	419	2498
2014	0	736	1687	347	2770
2015	2	442	1050	243	1737

Youth Exposure to Tobacco in Movies in Ontario, Canada: 2004-2016

Year	OFRB Rating				All Ratings
	G	PG	14A	18A/R	
2016	4	579	1315	844	2742
Total	533	10081	17958	5527	34099

Note: Data table is for Figure 2

Table 4: Number of Tobacco Incidents per Movie, by OFRB Rating, 2004-2016

Year	OFRB Rating				All Ratings
	G	PG	14A	18A/R	
2004	2	12	43	26	22
2005	17	22	43	34	28
2006	2	14	48	23	22
2007	2	13	27	32	20
2008	0	13	15	32	15
2009	0	12	16	14	13
2010	1	6	27	16	13
2011	0	12	20	30	14
2012	0	16	24	35	20
2013	0	12	24	42	19
2014	0	11	37	43	21
2015	0	8	18	30	13
2016	0	10	24	84	21
Total	3	12	27	32	19

Note: Tobacco Incidents per movie for a rating is the total number of incidents observed in movies with the rating divided by the number of movies with that rating (with or without smoking). Data table is for Figure 3

Table 5: In-Theatre Tobacco Impressions (Millions), by OFRB Rating, Ontario, 2004-2016

Year	OFRB Rating				All Ratings
	G	PG	14A	18A/R	
2004	7.2	399	546	72	1024
2005	77.6	671	294	114	1156
2006	8.6	360	308	128	804
2007	8.4	290	321	218	838
2008	0.0	289	219	73	580
2009	0.1	251	357	35	643

Year	OFRB Rating				All Ratings
	G	PG	14A	18A/R	
2010	1.0	120	354	68	543
2011	0.5	401	106	122	630
2012	0.7	443	371	190	1005
2013	0.1	337	445	117	900
2014	0.0	327	365	56	749
2015	0.7	87	169	94	351
2016	0.3	105	235	213	553
Total	105.2	4080	4091	1501	9776

Note: Data table is for Figure 4

Table 6: Number of Movies with OFRB 'Tobacco Use' Detailed Observations vs. Movies Independently Reported with Tobacco Incidents, August 2008-2016

Year	OFRB 'Tobacco Use' Detail Observations	Independent Monitors
2008	24	45
2009	41	70
2010	45	60
2011	41	62
2012	52	69
2013	46	73
2014	39	59
2015	43	68
2016	34	51
Total	365	557

Note: Data table is for Figure 5

Table 7: Number of Movies with OFRB's 'Tobacco Use' Detailed Observations vs. Movies Independently-Reported with Tobacco Incidence, August 2008-2016, by OFRB Rating

OFRB Rating	OFRB 'Tobacco Use' Detail Observation	Independent Monitors
G/PG	106	189
14A	200	288
18A/R	59	80
Total	365	557

Note: Data table is for Figure 6

Table 8: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently-Reported with Tobacco Incidents, March 2012-2016

Year	OFRB 'Tobacco Use' Advisories	Independent Monitors
2012	6	54
2013	8	73
2014	9	59
2015	9	68
2016	8	51
Total	40	305

Note: Data table is for Figure 7

Table 9: Number of Movies with OFRB 'Tobacco Use' Content Advisories vs. Movies Independently-Reported with Tobacco Incidents, March 2012-2016, by OFRB Rating

OFRB Rating	OFRB 'Tobacco Use' Advisories	Independent Monitors
G/PG	32	99
14A	6	165
18A/R	2	41
Total	40	305

Note: Data table is for Figure 8

Table 10: Percentage of Movies Youth-Rated, Ontario and US, 2004-2016

Year	OFRB Youth-Rated	MPAA Youth-Rated
2004	93%	74%
2005	92%	71%
2006	89%	70%
2007	85%	58%
2008	86%	71%
2009	91%	66%
2010	88%	65%
2011	93%	72%
2012	90%	63%
2013	93%	57%

Youth Exposure to Tobacco in Movies in Ontario, Canada: 2004-2016

Year	OFRB Youth-Rated	MPAA Youth-Rated
2014	94%	67%
2015	94%	62%
2016	92%	65%
Total	91%	66%

Note: Data table is for Figure 9

Table 11: Percentage of Tobacco Incidents in Youth-Rated Movies, Ontario and US, 2004-2016

Year	OFRB Youth-Rated	MPAA Youth-Rated
2004	92%	54%
2005	90%	50%
2006	89%	33%
2007	76%	35%
2008	71%	44%
2009	91%	45%
2010	86%	33%
2011	84%	45%
2012	82%	43%
2013	83%	31%
2014	87%	43%
2015	86%	35%
2016	69%	28%
Total	84%	40%

Note: Data table is for Figure 10

Table 12: Percentage of In-Theatre Tobacco Impressions Delivered by Youth-Rated Movies, Ontario and US, 2004-2016

Year	OFRB Youth-Rated	MPAA Youth-Rated
2004	93%	69%
2005	90%	67%
2006	84%	48%
2007	74%	46%
2008	87%	60%
2009	95%	44%
2010	87%	39%

Youth Exposure to Tobacco in Movies in Ontario, Canada: 2004-2016

Year	OFRB Youth-Rated	MPAA Youth-Rated
2011	81%	67%
2012	81%	56%
2013	87%	45%
2014	92%	55%
2015	73%	31%
2016	62%	31%
Total	85%	53%

Note: [Data table is for Figure 11](#)

References

- ¹ Statistics Canada. *Canadian Community Health Survey (CCHS), 2014 (master file)*. Ottawa, ON: Statistics Canada, 2015.
- ² Sargent JD, Stoolmiller M, Worth KA, Dal Cin S, Wills TA, Gibbons FX, et al. Exposure to smoking depictions in movies: Its association with established adolescent smoking. *Archives of Pediatrics and Adolescent Medicine* 2007 Sep;161(9):849-856.
- ³ Dalton MA, Beach ML, Adachi-Mejia AM, Longacre MR, Matzkin AL, Sargent JD, et al. Early exposure to movie smoking predicts established smoking by older teens and young adults. *Pediatrics* 2009 Apr;123(4):e551-e558.
- ⁴ Millett C, Glantz SA. Assigning an '18' rating to movies with tobacco imagery is essential to reduce youth smoking (editorial). *Thorax* 2010;65(5):377-378.
- ⁵ National Cancer Institute. *The Role of the Media in Promoting and Reducing Tobacco Use*. Tobacco Use Monography No. 19. Accessed June 1, 2017.
- ⁶ Leonardi-Bee J, Nderi M, Britton J. Smoking in movies and smoking initiation in adolescents: Systematic review and meta-analysis. *Addiction* 2016;111(10):1750-6.
- ⁷ Glantz SA. *Attributable Risk for Smoking due to Exposure to Smoking in Movies*. Accessed June 1, 2017.
- ⁸ U.S. Department of Health and Human Services. *The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014. Accessed June 1, 2017.
- ⁹ Centers for Disease Control and Prevention (CDC). Projected smoking-related deaths among youth – United States. *Morbidity and Mortality Weekly Report* 1996. November 08;45(44):971-974.
- ¹⁰ Babayan A, Luk R, Schwartz R. *Exposure to Onscreen Tobacco in Movies among Ontario Youth, 2004-2013*. OTRU Special Report. Toronto, ON: Ontario Tobacco Research Unit, May 2014. Accessed June 1, 2017.
- ¹¹ Luk R, Schwartz R. *Youth Exposure to Tobacco in Movies in Ontario, Canada: 2004-2014*. OTRU Special Report. Toronto, ON: Ontario Tobacco Research Unit, September 2015. Accessed June 1, 2017.
- ¹² Statistics Canada. *Table 051-0001 - Estimates of Population, by Age Group and Sex for July 1, Canada, Provinces and Territories, Annual*. Accessed June 1, 2017.
- ¹³ U.S. Census Bureau, Population Division. *Intercensal Estimates of the Resident Population by Sex and Age for the United States: April 1, 2000 to July 1, 2010*. Accessed June 1, 2017.
- ¹⁴ U.S. Census Bureau, Population Division. *Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016*. Accessed June 1, 2017.

- ¹⁵ World Health Organization. *Smoke-free Movies: From Evidence to Action, 3rd Edition*. Geneva, Switzerland, 2015. Accessed June 1, 2017.
- ¹⁶ Gendall P, Hoek J, Edwards R, Glantz S. Effect of exposure to smoking in movies on young adult smoking in New Zealand. *PLoS ONE* 2016 Mar;11(3):e0148692
- ¹⁷ Smoke-Free Ontario Scientific Advisory Committee, Ontario Agency for Health Protection and Promotion (Public Health Ontario). *Evidence to Guide Action: Comprehensive Tobacco Control in Ontario (2016)*. Toronto, ON: Queen's Printer for Ontario, 2017. Accessed June 1, 2017.