



THIRD EDITION

SMOKE-FREE

MOVIES:

FROM EVIDENCE TO ACTION



World Health
Organization

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3RD EDITION



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Contents

Acknowledgements	4
Introduction	5
1. Tobacco on screen: why this is a problem?	7
1.1 Films reach every corner of the world	8
1.2 Films are effective in promoting smoking	8
1.3 Films have escaped tobacco control scrutiny until recently	17
2. Protecting young people from smoking in films: policy options	20
2.1 Smoke-free films and the WHO Framework Convention on Tobacco Control	20
2.2 Primary objective and core policy principles	21
2.3 Recommended measures	22
2.4 Strategies for older films	27
2.5 Measures with potentially limited effect	27
2.6 Measures that are not recommended	28
3. Country responses	29
3.1 China	30
3.2 India	32
3.3 The United Kingdom: Kingdom-wide and national experience	36
3.4 The United States of America	38
4. Conclusions	41
4.1 Lessons learnt	41
4.2 Research priorities	41
4.3 Going forward	42
References	43
Annex 1. Measuring exposure to tobacco imagery in movies	50
Annex 2. Estimated public subsidies for top-grossing films with tobacco content, 2010–2013	52

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Introduction

Imagery in motion pictures (“films”, “movies”) continues to give misleadingly positive impressions of tobacco use. Such images have been identified as a cause of smoking initiation among adolescents. In 2008, the National Cancer Institute of the United States of America (the USA) concluded that:

the total weight of evidence from cross-sectional, longitudinal, and experimental studies, combined with the high theoretical plausibility from the perspective of social influences, indicates a causal relationship between exposure to movie smoking depictions and youth smoking initiation (1).

In 2012, the US Surgeon General reviewed the empirical evidence on smoking by adolescents and young adults put forward by the National Cancer Institute report and came to a similar conclusion:

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 (2).

Parties to the WHO Framework Convention on Tobacco Control (WHO FCTC) are required to implement a comprehensive ban on tobacco advertising, promotion and sponsorship, according to Article 13 of the treaty (3). The guidelines for implementation of this Article include a statement that the depiction of tobacco use in films is a form of promotion that influences tobacco use, particularly by young people (4), and include specific measures, which are addressed more fully in this report. In some countries, many youth-rated films that contain tobacco imagery are recipients of significant government production subsidies. These subsidies indirectly promote tobacco use through the media and therefore counter WHO FCTC Article 13 and its guidelines. The issue of subsidies is also discussed in greater depth.

In the past, films have been an important vehicle for placing cigarettes and other tobacco products¹ (5, 6) as a form of advertising as well as a source of social learning² (7) about smoking. The marketing of tobacco in films, particularly those originating in countries with the most active film industries, remains very common and continues to promote smoking; the films include those rated as suitable for children and adolescents.

Voluntary agreements with the tobacco industry to limit smoking in films have not and cannot work, because the fiduciary interests of the tobacco industry are opposite to those of the public health community. Although the major USA cigarette companies agreed voluntarily to limit payments for smoking in films in the early 1990s, that had no impact on the prevalence of tobacco brand placement or smoking in films during that decade. The 1998 Master Settlement Agreement in the USA between states’ attorneys general and the major domestic tobacco manufacturers included a provision in which the manufacturers agreed to a prohibition on paid tobacco product placement in films (8), a provision that was subsequently enforced by the attorneys general (see (1), Appendix 10C, page 422 for an example).

1 As cigarettes have been by far the most common tobacco product depicted in films, this report concentrates on smoking in this medium. The major cigarette companies have recently acquired smokeless tobacco firms and often promote these products with the same brand names as their major cigarette brands. In addition, e-cigarettes have been promoted through motion picture tie-ins. Policy-makers should integrate these changes in the tobacco marketplace when preparing and implementing policies on tobacco product promotion in films and other media.

2 Bandura’s social learning theory (7) emphasizes the importance of observing and modelling the behaviour, attitudes and emotional reactions of others, especially role models with high status. The names of film stars are internationally recognized; they set fashion trends and promote items like cars, watches and perfume. Young people look up to them and emulate their actions on and off screen.

After implementation of the Master Settlement Agreement, placement of brands in films decreased, and there was also a large short-term decrease in film smoking, suggesting that a large share of brand appearances and about one third of the film smoking seen before 1999 were paid for, despite assurances of self-regulation (9). Subsequent trends, however, show that agreements like the Master Settlement Agreement are not adequate alone to fully control film smoking; smoking incidents increased in films released subsequent to implementation of the Agreement in 1998, peaked in 2005, then fell to a minimum in 2010 before rebounding in 2011; the number of incidents remained above 2010 levels in 2014 (10, 11).

Logic and scientific evidence show that enforceable policies can substantially reduce smoking imagery in all film media. Measures to limit film smoking, including those outlined in the Article 13 guidelines, and to end public subsidies for the production of films with smoking can ensure that motion pictures will no longer promote smoking among young people. Strong, enforceable policy measures should be supported by programmes to educate the public, policy-makers and the entertainment industry on the value of reducing the exposure of young people to tobacco imagery.

This document summarizes current knowledge about smoking in films as well as current and proposed approaches to reduce the impact of such imagery. The aim of the report is to help countries understand the basis for taking action to limit the depiction of smoking in films. This can help the Parties to the WHO FCTC in implementing specific recommendations on smoking in films in the Article 13 guidelines. The report is expected also to be useful in those countries that are not yet parties to the treaty by helping them to implement this important component of a comprehensive ban on tobacco advertising, promotion and sponsorship.

1. Tobacco on screen: why this is a problem?

In the past, the tobacco industry spent millions in today's US dollars to develop and maintain the portrayal of smoking in films (12). Tobacco companies have paid film producers to feature specific tobacco brands and funded advertising campaigns for film studios' latest films and their top stars. The role of films as vehicles for promoting smoking has become even more important as other forms of tobacco promotion are constrained. As shown in Figure 1, this investment³ is part of a wider, more complex marketing strategy to support pro-tobacco social norms, including product placement in mass media and sponsorship. Cinema is a core element in mass media approaches to normalizing smoking. It is important, because smoking in films is not perceived as advertising and therefore does not draw the scepticism that advertising engenders.

The British Medical Association (9), the US National Cancer Institute (1), the US Centers for Disease Control and Prevention (7) and other sources cite several reasons why smoking in films should be addressed as a public health problem: films reach every corner of the globe, films effectively promote smoking, and films have escaped public health scrutiny until now. Increasingly however, public health researchers and institutions are paying close attention to this important exposure. For example, in 2012 the US Centers for Disease Control and Prevention began reporting smoking in box office hits in the USA as a health indicator (14) on its website (15), and projects have been launched to monitor smoking in nationally produced films in China, Europe, India and Latin America. Furthermore, the WHO FCTC, which has been ratified by 180 countries, clearly includes smoking in films as indirect tobacco marketing that requires policy action.

Figure 1: Nested relations among advertising, marketing communications, consumer marketing and stakeholder marketing in tobacco promotion



Source: National Cancer Institute (1).

³ For the monetary value of tobacco companies' documented spending on Hollywood product placement agencies in 1979–1994, see <http://www.smokefreemovies.ucsf.edu/problem/bigtoobacco.html>. In 2014, *The Wall Street Journal* reported paid placement of a Canadian e-cigarette brand in a film produced in the USA (13).

1.1 Films reach every corner of the world

At least 6500 feature-length films were produced and released in 2014 (many directly to video) in 50 countries, including 1966 (30% in India, 1603 (25%) in the European Union, 707 (11%) in the USA, 618 (10%) in China, 615 (9%) in Japan, and 248 (3%) in the Republic of Korea (16). The small fraction of all films produced in the USA nevertheless accounts for half of global investment in film production and distribution (17) and has consistently earned more than 60 percent of global box office receipts (18, 19).⁴ A study of the exposure of German adolescents to smoking in top box office hits showed that Hollywood films delivered over 80% of exposure (20). Between 2002 and 2013, the USA films comprised 75–85% of the top 100 box office films in Argentina, Brazil and Mexico (21–23), and the dominance continued through 2014 (16). In 2014, domestically produced films accounted for most box office receipts in only seven countries: the Islamic Republic of Iran (99%), the USA (95%), India (83%), Turkey (59%), Japan (58%), China (54%) and the Republic of Korea (50%) (16).

The tobacco industry knows that motion pictures are one of humanity's most common entertainment experiences. Consumer spending on filmed entertainment will surpass US\$ 100 billion in 2017, with emerging markets such as China growing more quickly than established markets such as Japan, the United Kingdom and the USA. Consumer choices for where they view films are also shifting. In 2013, in-cinema viewing accounted for 40% of global film revenue, physical in-home video such as DVD and Blu-ray for 40% and electronic in-home video such as video-on-demand and Internet-based streaming for 20%. By 2018, as digital cinema screens multiply and satellite and high-speed data connections proliferate, analysts estimate that in-cinema viewing will generate 45% of global filmed entertainment revenue, electronic in-home video 30% and physical in-home video only 25% (24). Canada and the USA, with 40160 screens (28% of the 142215 global total), accounted for 29% of all film box office sales in 2014. Africa, Europe and the Middle East contributed another 29%, Asia and the Pacific region 34% and Latin America 8% (16, 19). India leads all countries in actual admissions (1.9 billion in 2014), followed by the USA (1.2 billion), China (830 million) and Mexico (240 million) (16). One fourth of the world's households will have satellite dishes, and nearly half will view online television and video by 2020 (25, 26). About 45% of the world's households now have Internet access, including nearly one third of households in developing countries. Worldwide, one in three individuals now has a mobile-broadband ("smart phone") subscription, which is five times the number in 2008 (27). The rapid spread of multiple media platforms for viewing films outside of cinemas, across cultures and economies, means that exposure to film content is vastly underestimated by cinema attendance alone.

1.2 Films are effective in promoting smoking

The fact that smoking in films causes smoking is not surprising

The social environment greatly influences the behaviour of children and adolescents. Young people are keen observers of the environment: they watch others, especially those they admire, and emulate their behaviour (7). Film characters, who provide the illusion of a face-to-face relationship with viewers, are "para-social" (28) agents of ambition, aspiration and transformation: they can encapsulate dreams, craft hopes and provide moments of excitement. Films offer not only para-social relationships with world-famous stars but also a fantasized view of life; insofar as adolescents hope to take part in the glamorous and exciting lifestyles depicted in films, they may adopt the behaviour they see in them (29). Thus, for the tobacco industry, films provide an opportunity to convert a deadly product into a status symbol or token of independence. In contrast to traditional advertising, films from Hollywood,

4 In 2014, the six largest film companies in the USA released 136 films, which grossed US\$ 22.5 billion (62%) of the world's US\$ 36.4 billion of cinema ticket sales, including US\$ 14.1 billion (54%) of the US\$ 26 billion in sales outside the USA.

Bollywood and other production centres provide powerful information about the “benefits” of smoking. It is not only the smoking behaviour of “positive” characters that young people emulate: the villain who smokes can have even more influence on adolescents than the hero (30).

Smoking continues to be found in about half of all Hollywood films and one third of films marketed to young people

An analysis of more than 1800 feature films, accounting for 95% of all ticket sales in the USA between 2002 and 2014, showed that tobacco imagery permeated both youth-rated (G, PG and PG-13) and adult-rated (R) films, with 59% of top-grossing⁵ (11) films featuring tobacco imagery. More specifically, 78% of all R-rated films included smoking, and smoking appeared in 60% of films rated PG-13 and 25% of films rated G or PG. Altogether, top-grossing films of all ratings distributed in the USA between 2002 and 2014 contained approximately 35500 *tobacco incidents*⁶. Of these incidents, 57% were in films rated R, 39% in films rated PG-13 and 4% in films rated G or PG (see Box 1 for an explanation of the USA rating system). The number of tobacco incidents peaked in 2005, at 3960, declining to 1825 in 2010 (10); subsequently, the number rebounded. In 2014 the number of tobacco incidents in PG-13 films with smoking was the highest in more than a decade (11). Several PG-13 films in 2013 contained upwards of five minutes of screen smoking; for example, the film 42 contained nine minutes of screen smoking.

Box 1

The film rating system in the USA

Since 1968, film ratings in the USA have been assigned by the Motion Picture Association of America, the trade group of the major film studios, and by the National Association of Theatre Owners, which jointly operate the Classification and Rating Administration. Submission of a film for classification is voluntary, as is observance of the ratings by cinemas and video retailers. However, the ratings are virtually universally observed by distributors of commercial, non-pornographic films and videos.

Motion Picture Association of America rating categories

- G: General audiences: all ages admitted
- PG: Parental guidance suggested: some material may not be suitable for children
- PG-13: Parents strongly cautioned: some material may not be suitable for children under 13
- R: Restricted: children under 17 must be accompanied by a parent or adult guardian
- NC-17: No one under 17 admitted (32).

Between 2002 and 2014, 21% of films widely released to cinemas in the USA were rated G or PG, 45% were rated PG-13, 33% were rated R, and almost none were rated NC-17 (11).

The film rating system in the United Kingdom

Films in the United Kingdom are classified by the British Board of Film Classification, an independent nongovernmental body that was set up by the film industry in 1912 to bring a degree of uniformity to film ratings throughout the United Kingdom. Significantly, the Board's ratings are only advisory to local councils, which license films for exhibition. Thus, statutory powers on film remain with the local councils, which may overrule any Board decision (148). While local councils have generally followed the advice of British Board of Film Classification, many local authorities have not. As of November 2014, the Board criteria for films to receive an “18” rating (similar to an “R” rating in the USA) were as follows:

where material or treatment appears to the British Board of Film Classification to risk harm to individuals or, through their behaviour, to society – for example, any detailed portrayal of violent or dangerous acts, or of illegal drug use, which may cause harm to public health or morals (149)

5 “Top-grossing” films are those that ranked among the top 10 in box office earnings in the “domestic” (Canada and the USA) film market for at least 1 week of their initial (first run) release. Between 2002 and 2008, this sample included 83% of all films released to cinemas and 96% of all tickets sold in the domestic market.

6 “Incidents” can be counted in two ways, depending on back and forth sequences in a single scene. In one approach, used at Dartmouth University, the USA (and when discussing their work in this report), use of tobacco by an individual in a single scene is counted as one incident, even if the camera cuts back and forth between a smoker and a non-smoker. In a second approach, used in the Thumbs Up! Thumbs Down! Project (<http://www.scenesmoking.org>) and the US Centers for Disease Control and Prevention, each cut is counted as a separate incident. These two approaches yield closely correlated results: the counts obtained with the Thumbs Up! Thumbs Down! approach are, on average, 3.4 times those obtained with the Dartmouth approach. The two methods are equally valid for tracking changes over time. See Annex 1 for a more detailed discussion of these two approaches to quantifying the amount of onscreen smoking.

A survey conducted in 2003 to examine exposure to tobacco smoking in 532 films released up to 5 years before the survey found 3830 smoking incidents. The films had delivered over 6 billion impressions⁷ of smoking to the USA adolescents (33); the most popular films had delivered over 100 million of impressions each, and 30 actors had each delivered over 50 million smoking impressions, with just 1.5% of actors delivering one quarter of all such impressions.

The exposure of adolescents to tobacco imagery from motion pictures can also be estimated from publicly available data on the composition of cinema audiences and box office sales. The USA adolescents aged 12–17 watch an average of 20 films at home and on mobile screens each year, and are also consistently reported to be among the most frequent filmgoers. Although they represent only 8% of the USA population, they account for about 15% of the cinema audience. With an average of 11 visits to cinemas per year, one in five of all frequent filmgoers was an adolescent in 2008 (34). In 2014, the USA adolescents and young adults aged 18–24 saw twice as many films in cinemas, on average, as younger children and older adults (35).

Surveys of film audiences in the USA in 2005–2006 showed that adolescents comprised nearly 30% of the audience for G and PG films, more than 20% of that for PG-13 films and more than 10% of that for R-rated films in cinemas (36). In 2005–2006, 4.2 billion tobacco impressions were delivered to audiences aged 12–17, with about 18% from G and PG films, 57% from PG-13 films and 25% from R-rated films, which have substantially greater tobacco content. Adolescents received about 19% of all in-cinema tobacco impressions, while children aged 6–11 received about 8% (1.8 billion).

Between 2005 and 2014, there was a decrease in tobacco incidents (10), most markedly in G and PG films. If the age composition of audiences for youth- and adult-rated films observed in 2005–2006 is applied to 2013–2014, films in the latter period delivered 3.1 billion in-cinema tobacco impressions to the USA adolescents, with about 1% from G and PG films, 46% from PG-13 films and 52% from R-rated films. Adolescents received about 16% of all in-cinema tobacco impressions, and children aged 6–11 received about 3% (0.7 billion). Future trends in children's and adolescents' total exposure are, however, uncertain, as media platforms have multiplied and digital access to films has accelerated.

In another study, university students were given mobile devices that prompted them at random times during the day to record their exposure to pro-smoking media and the media channels of that exposure; they carried the devices for 21 days (37). The participants recorded over 1000 pro-smoking media incidents in response to nearly 7000 random prompts. The majority (66%) were related to point-of-sale locations, but 20% were related to seeing smoking on television or in films.

Film trailers also communicate smoking to adolescents. In a study of 216 film trailers shown on television in 2001, 14% included images of tobacco use (38). That year, film trailers showing tobacco use were seen 270 million times by adolescents. In an experimental study of adolescents' response to trailers with smoking, characters who smoked were found to be more attractive (39).

Hollywood films containing tobacco imagery continue to earn billions of US dollars globally, including in countries that have taken strong measures against tobacco advertising and promotion (see Box 2 for more information on worldwide exposure to tobacco images in films produced in the USA). For

⁷ Tobacco impressions are calculated by multiplying a film's tobacco incidents by its paid cinema admissions. For example, a film containing 10 tobacco incidents, seen by 5 million people, delivers 50 million tobacco impressions, while a film with 50 tobacco incidents, seen by 3 million people, delivers 150 million tobacco impressions. Admissions are estimated by dividing the film's total gross domestic box office sales (reported by authoritative industry sources) by the average ticket price for the year in which the film was released. The National Association of Theatre Owners in the USA establishes the average ticket price (<http://www.nato-online.com>). The share of impressions by age group can be estimated on the basis of the age composition of film audiences by rating class.

example, in China in 2014, the USA-produced film *Transformers: Age of Extinction* earned US\$ 301 million while delivering a total of 2.6 billion impressions of tobacco use to cinema audiences⁸ (31).

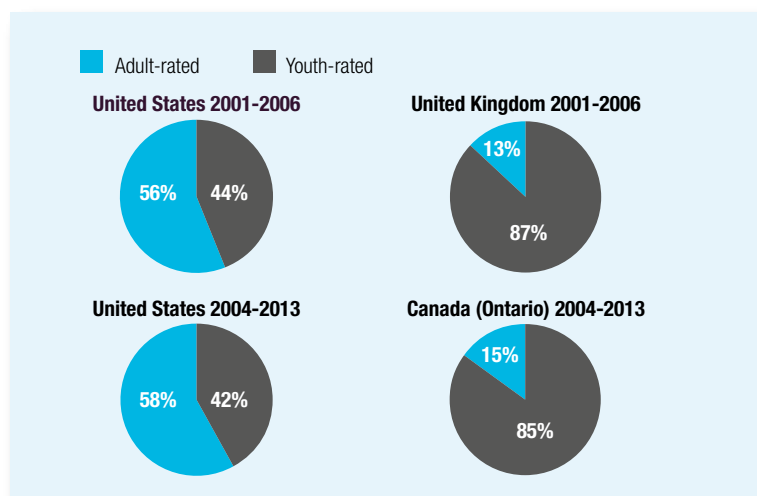
Films produced in countries other than the USA often contain even more smoking than Hollywood films

Smoking is even more prevalent in films produced elsewhere than Hollywood. For example, tobacco use was analysed in top-grossing films produced in six European countries (Germany, Iceland, Italy, Poland, the Netherlands and the United Kingdom) and two Latin American countries (Argentina and Mexico) that have significant regional distribution of films (40). 9/10 Icelandic and Argentine films contained smoking, including films rated for young people (94% and 88%, respectively). Films from the remaining countries were either more likely than the USA-produced films to contain tobacco imagery (in Germany, Iceland, Italy, Mexico and Poland) or equally likely to contain tobacco imagery (in the Netherlands and the United Kingdom). Films rated for young people in all countries were more likely to contain tobacco imagery than the USA-produced films.

Film classification policies shape adolescent exposure

Adolescent exposure to on-screen smoking is substantially higher in countries where film classification regimes assign youth ratings to many films that are rated R in the USA. A survey of top-grossing films released in Ontario, Canada, and in the USA in 2004–2013 showed that the rating agency in Canada's most populous province classified two thirds of films that were rated R in the USA as suitable for people under 18 years of age without restriction. Consequently, films delivering 86% of tobacco impressions were accessible to adolescent filmgoers in Ontario but to only 55% of adolescents in the USA⁹ (41). In the United Kingdom between 2001 and 2006, 79% of films rated R in the USA were marketed to adolescents without restriction, so that films that were youth-rated in the United Kingdom delivered 93% of in-cinema tobacco impressions and increased adolescent exposure by an estimated 28% over that in the USA (42). A large majority of tobacco incidents were found in films that were youth-rated in Canada and the United Kingdom, while about half were in youth-rated films in the USA (Figure 2).

Figure 2: Shares of total tobacco incidents in youth- and adult-rated films in the USA and the United Kingdom, 2001–2006, and in the USA and Canada, 2004–2013



Source: Anderson et al, 2010

8 Calculated from the number of tobacco incidents in the film (<http://www.scenesmoking.org>) multiplied by paid admissions to the film in China from reported box office earnings and ticket price (<http://www.hollywoodreporter.com>).

9 Similar patterns were observed with all provincial rating schemes in Canada. Available at: http://www.smoke-free.ca/pdf_1/2010/tobaccovector.pdf, accessed 25 October 2014.

A study of 464 films screened in Europe and the United States between 2004 and 2009 found that smoking was portrayed in 69% of films; 85% of films with smoking were rated as suitable for youth in Europe but only 67% in the United States (43). Similarly, top-grossing films from 2002–2009 that were rated for adults in the United States were assigned youth ratings in Argentina, Brazil and Mexico (21). Of the-top grossing films that contained tobacco use, 75% in Argentina, 76% in Brazil, and 87% in Mexico were rated for youth, significantly more than in the United States, where 62% of films containing tobacco were rated for youth.

Evidence that exposure to smoking in films affects adolescent smoking

The USA National Cancer Institute in 2008 (1) and the USA Surgeon General in 2012 (2) concluded that smoking in films causes adolescent smoking. This conclusion was based on a broad range of evidence, which has continued to accumulate since publication of those reports.

- Exposure of young people to smoking in films is common;
- The mechanisms by which film smoking influences adolescent smoking have strong theoretical grounds;
- Population-based scientific surveys of exposure to smoking in films showed that such exposure is linked to adolescent smoking in a variety of sociocultural contexts;
- Indirect scientific surveys of exposure showed that it is linked to adolescent smoking;
- Trend studies show that the prevalence of smoking, both generally and among adolescents, tends to parallel trends in film smoking;
- Randomized experiments have shown that smoking in films affects short-term attitudes and that anti-smoking advertisements shown prior to films with smoking diminish those effects;
- A brain imaging study showed that showing smokers film clips with smoking stimulated the part their brain that generates pleasurable feelings as well as the part of their brain that controls moving their hand, which helps explain how seeing onscreen smoking stimulates smoking;
- Cinema exit studies among smokers show greater craving among those who had seen films with smoking.

The evidence is briefly summarized below.

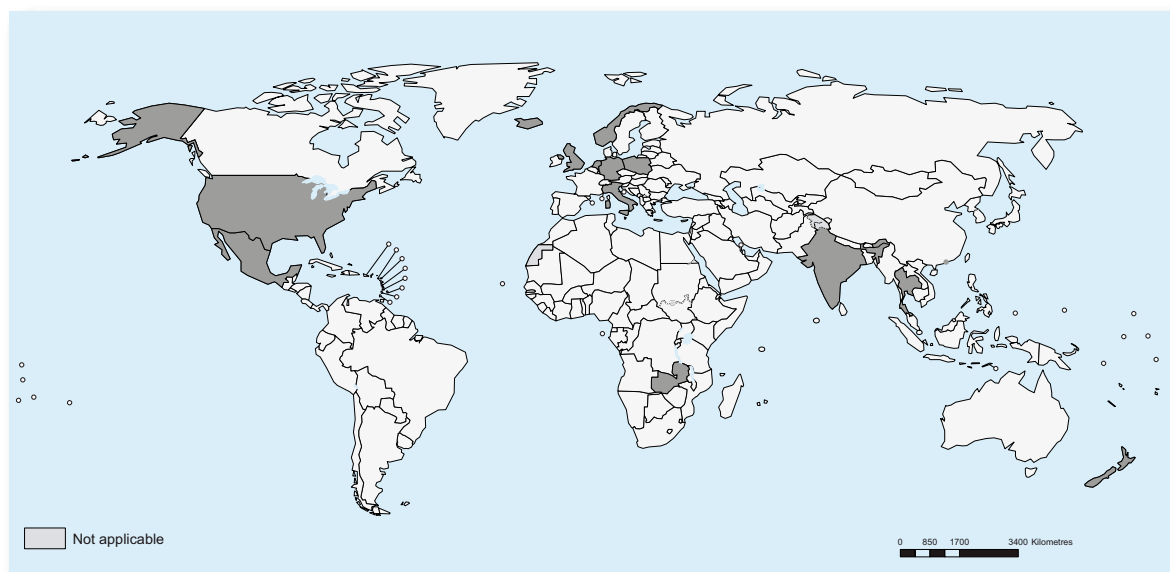
■ Population-based scientific surveys link exposure to smoking in films with adolescent smoking

In numerous studies, adolescents were recruited by telephone and at school to determine the films they had seen and, on the basis of the amount of smoking in each, how much film smoking they were exposed to. Almost all the epidemiological studies showed a dose–response relation: the more on-screen smoking adolescents see, the more likely they are to smoke.

The studies can be grouped by country, their design (cross-sectional, with a snapshot at one time, or longitudinal, in which young people are followed over time to observe how much on-screen smoking they are exposed to and whether they start smoking) and the smoking outcome studied (Figure 3). The cross-sectional studies linking smoking onset with film smoking were conducted in the USA (29, 44, 45), the United Kingdom (46, 47), Mexico (48), continental European countries (49, 50) and India (51).

In one study in the USA (45), an association was found between smoking in films and smoking by young adults, indicating that the effects may not be confined to adolescents. Smoking in Hollywood films comprises the main exposure of adolescents in western countries; the study in India deserves special consideration because films made in India constitute the primary exposure in the country.

Figure 3: Countries and areas in which film smoking has been linked to smoking by young people



The countries and areas in which smoking in films has been linked to smoking by young people are:¹⁰ China (Hong Kong), Germany, Iceland, India, Italy, Mexico, the Netherlands, New Zealand, Norway, Poland, Thailand, the United Kingdom (England and Scotland), the USA and Zambia.

Longitudinal studies show that exposure of people who have never smoked to smoking in films at one time predicts the onset of smoking in the future. Longitudinal studies that show that film smoking predicts future smoking onset have been conducted in the USA (52–57), Mexico (58) and Europe (20, 49). In a large study (49), 9987 adolescents who had never smoked were recruited in 2010 in schools in Germany, Iceland, Italy, the Netherlands, Poland and the United Kingdom. They were followed up 1 year later, when it was found that 17% had started smoking. After control for age, gender, family affluence, school performance, television screen time, personality and the smoking status of peers, parents, and siblings, exposure to each additional 1000 tobacco occurrences increased the adjusted relative risk for smoking onset by 13%.

Several studies have linked film smoking with more advanced stages of smoking, such as smoking in the previous 30 days (58, 59) or having smoked 100 or more cigarettes in their lives (60–63). In one study (61), exposure to film smoking at the age of 10–14 (when none of the children were smoking) predicted established smoking 8 years later, when they were young adults. Those in the highest quartile of baseline exposure to film smoking were twice as likely to be established smokers 8 years later than those in the lowest quartile. Other studies have shown an association between film smoking and more favourable attitudes towards smoking (64–66). Changes in how children perceive smoking explain some of the connection between exposure and behaviour (45, 48, 65–67). In summary, of the 24 published studies to date, only one cross-sectional study of Scottish young adults failed to find an association between seeing smoking in films and smoking by adolescents or young adults¹¹ (68).

10 Studies available at <http://smokefreemovies.ucsf.edu/research>, accessed 10 October 2015.

11 In the Scottish study, many of the respondents were daily cigarette smokers, for whom nicotine addiction would be the primary driving force behind continued smoking.

Therefore, the association between exposure to film smoking and adolescent smoking is remarkably consistent in studies with different designs, different mixes of potentially confounding variables, in widely diverse adolescent populations and regardless of whether the exposure represents Hollywood, Bollywood or other national film stars. The strength and robustness of the association between film smoking and adolescent smoking makes it a risk factor comparable to smoking by peers. Some have argued that film stars constitute a “super peer” in mass media effects on adolescent behaviour (69).

In population studies conducted in the USA through 2012, exposure to on-screen smoking accounted for 37% (95% confidence interval, 0.25–0.52) of new adolescent smokers (70). As much of their exposure was from youth-rated films, a long-term follow-up study of the USA adolescents indicated that eliminating smoking from youth-rated films (i.e. awarding an R rating for smoking) would reduce youth smoking in the USA by 18% (71). As the USA films are widely viewed throughout the world and films rated R in the USA are frequently down-rated and thus accessible to young people in other countries, eliminating smoking from youth-rated films in the USA would probably have an even greater effect on youth smoking in other countries.

■ Otherwise low-risk young people are most affected by smoking in films

Several studies show that young people who are otherwise at low risk for smoking (i.e. those who are doing well in school, better off financially, less prone to risk-taking or have nonsmoking parents) are more influenced to smoke by smoking in films than those at higher risk. For example, German and the USA adolescents whose parents did not smoke were more strongly influenced to smoke by film smoking (20). Additionally, the USA adolescents who were less sensation-seeking were more strongly influenced by film smoking (60). These findings have led some to suggest that film and other media are like political advertising: they tend to influence those who are uncertain about adopting a behaviour rather than those who are strongly resistant or strongly inclined (72).

Several studies have been conducted of effect modification by race or ethnicity. One study of adolescents in the European Union found equivalent responses across race and ethnicity (73), suggesting that all people are susceptible to the influence of films. Studies of the USA adolescents suggest a different picture, showing stronger effects among white and more affluent adolescents (74) and weaker effects among black adolescents (72). Further examination of the weaker associations among black adolescents showed that they are actually responsive to on-screen smoking but only by black actors or in films oriented to black people (57).

Further evidence suggests that characters who are culturally similar to young viewers have a stronger effect on their smoking behaviour. Hence, films that feature local actors and culturally relevant material could play an important role in the effects of film smoking on adolescents around the world. As noted above, studies of films produced in Latin America (Argentina, Brazil, Mexico) and Europe (Germany, Iceland, Italy, the Netherlands, Poland, United Kingdom) showed that they contain more smoking than the USA films (40); they may therefore particularly expose young viewers in the country in which the film was produced.

■ Surveys with indirect assessment of exposure

Several surveys of exposure to film smoking obtained results consistent with those of the studies in which exposure was measured directly: adolescents who reported parental restriction on viewing adult films reported less viewing of such films and lower rates of smoking (75–80). Two other studies

found a relation between the smoking status of a favourite film star and adolescent smoking or attitudes towards smoking. In other studies, respondents were simply asked how often they had noticed smoking in films (81–88). Associations were found between films and smoking among adolescents in Hong Kong (China), Thailand (82, 83, 89) and Zambia (88). The US Centers for Disease Control and Prevention National Youth Tobacco Survey and the Global Youth Tobacco Survey incorporated the following question about film smoking as part of their assessment of exposure to tobacco advertising: “When you watch television, videos or movies, how often do you see actors using cigarettes or other tobacco products?” (90). Among adolescents in 30 low- and middle-income countries, films were the most prevalent marketing exposure, with 78.4% (Lesotho) to 97.8% (Belize) of adolescents surveyed responding “sometimes” or more often. Among students surveyed in the 2012 US Centers for Disease Control and Prevention Youth Tobacco Survey, an association was found between noticing actors using cigarettes and curiosity about tobacco (86).

■ Long-term decreases in on-screen smoking parallel decreases in adolescent smoking

In 2009, trends in smoking in films ranked among the top 25 in box office earnings each year between 1990 and 2007 were compared with trends in smoking by young people in the USA derived from the Monitoring the Future survey (91). Parallel downward trends were found for mean levels of smoking in films and adolescent smoking after 1996. Although many factors could have contributed to this downward trend, the fact that both trends were downward is coherent with the idea that films are one cause of adolescent smoking. In a study (92) with a longer view, the relation between smoking in films selected from the top 30 films each year from 1950 to 2006 was assessed. A downward trend in film smoking after 1964 was found that paralleled the downward trends in per capita cigarette consumption among the USA adults. Nevertheless, exposure to on-screen smoking remains a major stimulus for adolescent smoking.

■ Randomized experiments

Consistent with the findings of these population-level epidemiological studies, one experimental study showed that seeing a film containing smoking shifted the attitude of adolescents in favour of smoking (93). The results of experimental studies have, however, been less consistent than those of epidemiological studies. A study of whether short-term exposure to smoking in films that included a cartoon and a family-oriented film affected smoking cognition in 101 children aged 8–10 years found no effect on implicit smoking association and only small effects on attitudes, which were statistically significant only for social norms (94). In two other studies by the same group of the effects of smoking cues in films on immediate smoking, smokers were exposed to a film with or without smoking and allowed to smoke while watching it. In one study of adult smokers, those who were less involved in the film plot (lower transportation) smoked significantly more cigarettes when they were exposed to smoking characters (95); however, a replication of the study with adolescent smokers showed no effect of film smoking cues in films on immediate smoking behaviour (96). Neither of two experimental studies of the effects of smoking cues in films on adult smokers’ craving after and during a film found an effect, in contrast to the cinema exit study discussed below (97, 98). In another experiment, young adult smokers who viewed a montage that included smoking scenes were more likely to smoke during a break and immediately after the session than were those who viewed a smoke-free montage (55). In a study of the USA middle-school students, the type of smoking scene mattered: in comparison with participants exposed to film scenes showing characters smoking with no clear motive, adolescents exposed to film scenes depicting characters smoking for social or relaxation motives (99) had significantly greater risks for future smoking.

■ Attentional and brain studies

Experimental studies have been conducted to determine whether smokers are more prone to look at film smoking (attentional bias) and whether their brains are more reactive to film smoking. An eye-tracking device was used in a study of attention to dynamic smoking cues in films (100). In comparison with non-smokers, smokers directed their gaze more quickly towards smoking images and focused on them more often and for longer periods of time than non-smokers. In a study of brain response to film segments with smoking in right-handed adult smokers (56), their brains showed activity in areas responsible for craving as well as in prefrontal zones involved in motor planning for the right hand, suggesting that they were preparing to light a cigarette in response to seeing actors smoke. This cue-reactivity study suggests possible underlying biological mechanisms for how films might stimulate smoking behaviour, especially among smokers.

■ Cinema exit studies (and studies of the effect of seeing an anti-smoking advertisement before the film)

In one study, 536 smokers were surveyed about their urge to smoke as they left a large multiplex cinema in Germany (101). After control for film rating, age, gender, time since last cigarette and the heaviness of the smoking index, it was found that attending a film with smoking was associated with a 0.81-point increase in the urge to smoke, *ceteris paribus*. In comparison, a smoking index score of 3 vs 0 was associated with a two-point increase in the urge to smoke, after adjustment for other factors.

One way to counteract the effect of film smoking on smoking attitudes might be to show an anti-smoking spot before any film with smoking. In one experiment, investigators tested the effects of smoking in feature films on young people and whether anti-smoking advertising nullified the effects (102). The investigators found that exposure to film smoking enhanced adolescents' perceptions of smokers' social stature and increased their intention to smoke but that showing an anti-smoking advertisement before the film nullified these effects. Two studies in Australia in actual conditions addressed the effect of an anti-smoking advertisement on young people's perceptions of smoking in films and their intention to smoke (103, 104). Both showed that a higher proportion of non-smokers exposed to the advertisement than the unexposed control group disapproved of film smoking, but they found no attitudinal differences among smokers. In another experimental study, conducted in a multiplex cinema in Germany, 4073 patrons were surveyed over a 4-week period after having viewed a film. In the intervention condition (weeks 1 and 3), a 30-s anti-smoking advertisement accentuating the long-term health consequences of smoking and promoting cessation was shown before all films; in the control condition (weeks 2 and 4) no such spot was shown (105). After control for gender, patrons exposed to the anti-smoking advertisement were more aware of smoking in the films, were less likely to approve of smoking in the films and had a more negative attitude towards smoking in general than those not exposed. Among smokers, smoking in the films increased their urge to smoke; this effect was independent of whether they saw the anti-smoking advertisement before the film. The results of these three studies suggest that placing an anti-smoking advertisement before films with smoking can affect attitudes towards smoking among non-smokers, bolstering existing evidence in support of such policies (106).

Experimental and observational studies show that cigarette smoking in films influences young people's beliefs about smoking-related social norms (94), their beliefs about the function and consequences of smoking and their personal intention to smoke (48, 64, 102). The presentation of smoking in films does not reflect reality. In reality, smoking tends to be most prevalent in lower socioeconomic groups, whereas, in films, most characters, including smokers, are of high socioeconomic status (107). Additionally, the real health consequences of smoking are rarely shown (107–110). Young people,

especially, look to celebrities for personal cues, group references and validation. As they assemble their identities, films offer adolescents a catalogue of looks, attitudes and behaviours, and unrealistic portrayals of tobacco use are common.

1.3 Films have escaped tobacco control scrutiny until recently

Film smoking increases when traditional advertising is restricted, but this has rarely been considered by policy-makers

The WHO FCTC guidelines on banning tobacco advertising, promotion and sponsorship clearly state that the depiction of tobacco in entertainment media, such as films, theatre and games, is a form of tobacco advertising and promotion. Nevertheless, the depiction of tobacco has rarely been regulated.

Between 1978 and 1982, after the USA had banned broadcast advertising of tobacco products, four major USA tobacco companies established contractual relations for product placements in motion pictures (111). Collaboration with the film industry has been documented to 1994. The 1998 Master Settlement Agreement reached between state-level attorneys general in the USA and domestic tobacco companies prohibited tobacco product placement in entertainment accessible to people younger than 18 (112).

The effective substitution of on-screen tobacco imagery for traditional tobacco advertising is suggested by a survey of popular films in India. Tobacco brand display exploded in Bollywood (Hindi language) films after tobacco advertising was banned in all other Indian media in 2004. The display of premium cigarette brands was more or less evenly split between those belonging to British American Tobacco and its long-time Indian partner, the Indian Tobacco Company, and competing brands belonging to Philip Morris International, whose entry into India's market under liberalized trade rules coincided with the nation's tobacco advertising ban (113).

Even in countries with bans on tobacco advertising and promotion, film imagery continues to provide misleadingly positive messages about smoking. In the United Kingdom, where almost all forms of tobacco advertising are prohibited, films from the USA that were youth-rated in the United Kingdom between 2001 and 2006 contained 87% of all tobacco incidents and delivered 89% of tobacco impressions to cinema audiences (42, 114). In Australia in 2008, 70% of top box office films contained smoking depictions, including 75% of the most popular PG-rated films (115). Between 2004 and 2013 in Ontario, Canada, 85% of tobacco incidents appeared in youth-rated films and a full third of these in G and PG films (41). In countries that have successfully limited tobacco image advertising, therefore, films deliver the vast majority of commercial media exposure of young people to tobacco imagery. The impact of this exposure probably increases once direct tobacco marketing has been banned and entertainment media has become the primary vehicle for youth exposure to smoking imagery in mass media (20, 58, 116). Hence, the relative contribution of film smoking to the tobacco epidemic is likely to increase as more and more countries around the world ban direct advertising.

Countries subsidize production of films with smoking imagery

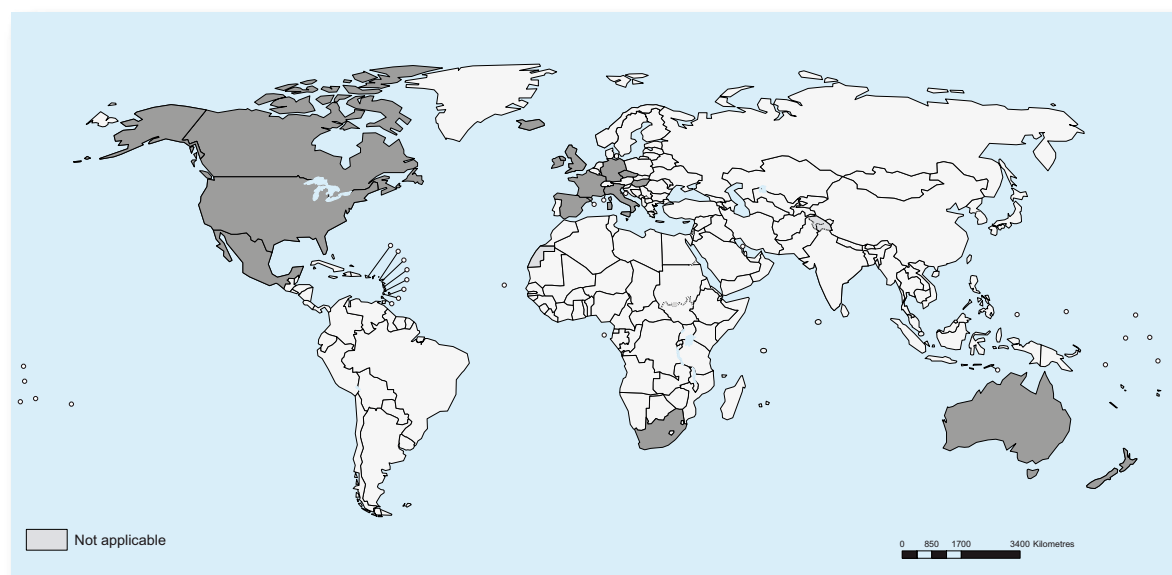
Besides classifying films as an explicit or implicit condition of their distribution and promotion, countries and numerous jurisdictions offer grants or tax breaks in favour of national and international film productions. The objective is often to support a national or language-specific film culture. Public subsidies to larger budget, international film productions are designed to compete for their spending against other locations and, indirectly, to subsidize a local film industry. Between 2010 and 2014, 15 countries or areas awarded an estimated US\$ 5.1 billion to producers of 86% of the 681 films, mainly

produced by companies based in the USA, that achieved top box office status in Canada and the USA. Of the subsidized films, 53% featured tobacco imagery. Over 5 years, subsidized with US\$ 2.4 billion in tax credits, these films delivered an estimated total of 325 billion tobacco impressions to cinema audiences worldwide.¹²

Australia, Canada (provinces and federal government), France, New Zealand, the United Kingdom and the USA (state governments) provided 94% of the subsidies to top-grossing films containing smoking images in 2010–2014, states in the USA contributing 56% (US\$ 1.3 billion) of all subsidies awarded to top-grossing films containing smoking.¹³ Together, the USA states that awarded subsidies to top-grossing films spent as much on films with smoking as they allocated, in total, for tobacco control (US\$ 1.3 billion) in 2010–2014 (117) (Annex 2).

Small national film industries are also often supported by government subsidies. For example, the Argentine National Institute of Cinema and Audiovisual Arts provides subsidies to the majority of films produced there (50–70 films per year) (22). Almost all Mexican films receive subsidies from the Mexican Institute of Cinematography, which supports production, distribution and exhibition costs. Furthermore, companies that invest in Mexican cinema production are given tax breaks. This arrangement has incentivized a variety of relations between companies with products to sell and the Mexican film industry (23). In many countries, government subsidies are critical to financing so-called “national” films, which are gaining audiences only slowly against large-budget, heavily promoted films from India, the USA and other film exporters. Figure 4 contains a list of countries in which top-grossing films with smoking were awarded public subsidies between 2010 and 2013.

Figure 4: Countries in which top-grossing films with smoking were awarded public subsidies, 2010–2013



This is the list of countries subsidizing top grossing films distributed by US companies only. Film industries outside of Hollywood and Bollywood also involve government subsidies for nationally-produced films.

12 Worldwide estimate of in-cinema tobacco impressions based on the ratio between “domestic” Canadian and USA cinema admissions (1.27 billion) and admissions reported in the world’s other film markets (5.28 billion) after adjustment for the market share of films not produced in the USA in those markets (16).

13 To estimate subsidy values, the published production budget of a top-grossing film was multiplied by a net subsidy rate of 17.5%. Nominal subsidy rates range from 20% to 40%, depending on the jurisdiction, but these rates are awarded against production expenditures deemed “eligible” or “qualified” by programme regulations, which vary by jurisdiction. Comparisons of published production budgets with qualified expenditures publicly reported by some (but not all) film subsidy programmes suggest that applying a net 17.5% subsidy rate yields acceptable estimates of subsidies awarded. In addition, before estimating subsidy totals, the 2010–2014 film sample was adjusted to eliminate two classes of film production, produced in California but at the time ineligible for that State’s subsidy: 34 animated feature films (6% with smoking) and 24 live-action films with production budgets over US\$ 75 million (17% with smoking). Of 90 top-grossing films eligible for California subsidies in 2010–2014 and included in the USA total, nearly 60% featured tobacco imagery.

Filmmakers claim “dramatic necessity” and protection of free speech

Film industry representatives sometimes assert that smoking imagery is needed in a film to tell the story. The WHO FCTC asserts that implementation of a comprehensive ban on tobacco advertising, promotion and sponsorship should not prevent legitimate expression. The presentation of smoking on screen is, however, rarely realistic, generally showing images more consistent with cigarette advertising than with authentic representations of the dire health consequences of tobacco use. Some people inside and outside the film industry have raised concern about the impact on free expression of the measures limiting smoking in films. Most of the concern is based on distorted accounts of the policies actually proposed to reduce tobacco imagery in films.

Box 2

Tobacco images in films from the United States have worldwide impact

Exposure to tobacco imagery in films produced by the USA companies is extensive outside Canada and the USA. Of the top 75 box office films worldwide each year between 2010 and 2014 97% were the USA productions or co-productions. In total, the USA studio films earned 39% of their sales revenue (US\$ 41.7 billion) in the USA and the other 61% (US\$ 66.6 billion) in the rest of the world (www.boxofficemojo.com). Films produced or co-produced in the USA accounted for 23 of the top 25 box office films in the European Union in 2014 and for 63% of total ticket sales; 71% of sales in the Russian Federation and the Commonwealth of Independent States; 89% of sales in Canada; 89% in Latin American countries; 88% market share in Australia and New Zealand; the majority of sales in much of Asia and about 40% in China, India, Japan and the Republic of Korea (www.obs.coe.int). It can be estimated that the USA-produced or co-produced films exposed international audiences to about 225 billion tobacco impressions in cinemas alone between 2010 and 2014, an annual average of approximately 45 billion tobacco impressions, 2.5 times the amount that USA companies were delivering to cinema audiences in the USA. (The method used to calculate subsidies is given in footnote 13).

The largest exceptions are China; India, the world's most prolific film producer, where all imported films have less than 10% of the market share and national films are produced in 20 languages; and Japan, where films made in the USA accounted for only 6 of the top 20 box office slots in 2014 (16). Public health experts and policy-makers in China and India are addressing smoking in films produced in national film industries as well as considering the effect of exposure from cross-border blockbusters viewed on home and mobile video media.

2. Protecting young people from smoking in films: policy options

On-screen smoking benefits the tobacco industry and increases the initiation of smoking by young people. Therefore, as outlined in the WHO FCTC, measures to limit film smoking have to form part of any comprehensive tobacco control strategy.

Even without the compelling evidence that smoking in films has been a mainstay of tobacco marketing (12, 111), this medium's tremendous reach calls for measures to reduce adolescents' exposure to tobacco in film substantially and permanently. With bans on tobacco sponsorship of sports and music events in an increasing number of countries, film remains one of the last media in which adolescents can be exposed to smoking imagery without restrictions. Tobacco market leaders (118) benefit the most from any tobacco imagery on film, branded or not. Hamish Maxwell, the then-president of Philip Morris International and later Chief Executive Officer of Philip Morris Companies (forerunner of Altria), recognized this fact in 1983. The important thing, he said, was to "continue to exploit new opportunities to get cigarettes on screen" in order to keep smoking socially acceptable (119).

Policy-makers must also take into account the rapid evolution of the media and the emergence of new platforms in order to provide "future-proof" solutions. The proportion of the world's households with Internet access more than doubled, from 18% to 40%, between 2005 and 2013, and more than one in four individuals carried a broadband-capable smart phone by 2013 (26). In 2000, 7% of the global population had any access to the Internet; in 2013, 40% use the Internet on home computers. In 2000, 12% of the global population were mobile phone subscribers; by 2013, 93% were subscribers, and more than one in four could watch video on a smart phone (27). The number of film screens worldwide grew by 12% between 2009 and 2013, with the fastest growth in China (40%) and the Russian Federation (13%). Fewer than 1/10 of the world's more than 100 000 cinema screens was digital or 3D-ready in 2009; by 2013, nearly 9 in 10 had been modernized (24). Worldwide, upgraded cinema experiences, more broadband access and greater consumer choice are starting to change where, when and how often people watch films on a variety of screens.

2.1 Smoke-free films and the WHO Framework Convention on Tobacco Control

The WHO FCTC came into effect on 27 February 2005. By September 2015, there were 180 Parties to the Treaty (3). Article 13 of the WHO FCTC obliges Parties to enact comprehensive bans on tobacco advertising, promotion and sponsorship within five years of ratification. Article 13 also calls specifically for a ban on cross-border advertising, enabling countries that have enacted national restrictions on advertising and promotion to prevent the entry of banned advertising and promotion into their territories. In November 2008, the Conference of the Parties to the WHO FCTC at its third session unanimously adopted the guidelines for implementation of Article 13 (4).

According to the definitions in Article 1 of the WHO FCTC, a comprehensive ban on all tobacco advertising, promotion and sponsorship applies to all forms of commercial communication, recommendation or action and all forms of contribution to any event, activity or individual with the aim, effect or likely effect of promoting a tobacco product or tobacco use either directly or indirectly. Because films represent commercial communication, this definition would imply that various forms of smoking imagery in films should be included as part of the comprehensive ban that the WHO FCTC recommends. In addition, the Article 13 guidelines specifically recommend that the comprehensive ban should cover traditional media (print, television and radio) and all media platforms, including the Internet, mobile phones and other new technologies, as well as films.

Furthermore, paragraph (4)(e) of Article 13 states that a Party that is not in a position to undertake a comprehensive ban due to its constitution or constitutional principles should “restrict tobacco advertising, promotion and sponsorship on radio, television, print media and, as appropriate, other media ...” (3). This would imply that the film media are included in this provision.

Smoking in films can also be considered under the provisions of paragraph (4)(a) of Article 13, which prohibits advertising, sponsorship and promotion “by any means that are false, misleading or deceptive or likely to create an erroneous impression about its characteristics, health effects, hazards or emissions ...” (3). For example, of more than 950 films with tobacco imagery released by the USA film industry since 1999, very few included characters suffering from a tobacco-related disease. The exceptions are rare, such as *Constantine* (Time Warner, 2005, R-rated) and *The constant gardener* (a joint British–German production, 2005, R-rated), both of which feature smokers with lung cancer. Occasionally, one character warns another about smoking, but these warnings are often ignored or minimized by the character who smokes.

The following section outlines evidence-based measures and recommendations for countries with different media environments and policy contexts.

2.2 Primary objective and core policy principles

Both national and global perspectives should be considered in developing policy. Well-designed, evidence-based public health policy will improve population health both nationally and globally. The primary objective of actions to reduce smoking imagery in the films is to substantially and permanently reduce children’s and adolescents’ exposure. Only options that meet this objective would then be evaluated for political feasibility, legality, sustainability and cost. Two principles guide such evaluation.

- **Principle 1:** Seek “upstream” solutions.

A policy should motivate a change in the film industry’s behaviour so as to reduce the harmful content at the source (“upstream”) instead of burdening adolescents in the audience and their parents with taking protective measures (“downstream”). Films with smoking imagery are causally associated with smoking initiation; therefore, industries that profit from marketing these health risks should be responsible for making them safe.

- **Principle 2:** Leverage national action for global benefit.

Policies in one country can protect young people elsewhere. If tobacco imagery in youth-rated films is greatly reduced in films made in the USA, it will reduce children’s and adolescents’ exposure in the many other countries where Hollywood films are popular. The same is true for France, India, the United Kingdom and all other countries with a film industry that has substantial exports. If countries that are markets for Hollywood exports include smoking in their ratings regimes, make films with smoking ineligible for public subsidy or develop other policies that impact the USA film industry’s production and distribution, these countries create incentives for Hollywood and other filmmakers to alter tobacco imagery practices as a global public good. Certainly, large countries such as China and India can also set important global precedents. In addition, a global approach increases the leverage of countries in which the film market is not large enough to directly influence multi-national corporate behaviour.

2.3 Recommended measures

While Article 13 clearly identifies most depictions of smoking in films as a means of advertising and promoting tobacco, its guidelines state that a comprehensive ban on tobacco advertising, promotion and sponsorship need not interfere with legitimate types of expression, including journalistic, artistic or academic expression. In order to ensure that legitimate forms of expression are not tainted by the influence of tobacco industry interests, while at the same time ensuring that young people are adequately protected from the harmful influence of smoking in entertainment media, the Article 13 guidelines recommend that:

Parties should take particular measures concerning the depiction of tobacco in entertainment media products, including requiring certification that no benefits have been received for any tobacco depictions, prohibiting the use of identifiable tobacco brands or imagery, requiring anti-tobacco advertisements and implementing a ratings or classification system that takes tobacco depictions into account (4).

Certify no payoffs

Article 13(4)(d): “[R]equires ... the disclosure ... of expenditures by the tobacco industry on advertising, promotion and sponsorship not yet prohibited ...” (3). In order to ensure that tobacco companies are not marketing their products by product placement in films, Article 13 guidelines also recommend that Parties should:

[i]mplement a mechanism requiring that when an entertainment media product depicts tobacco products, use or imagery of any type, the responsible executives at each company involved in the production, distribution or presentation of that entertainment media product certify that no money, gifts, free publicity, interest-free loans, tobacco products, public relations assistance or anything else of any value has been given in exchange for the depiction (4).

Films showing tobacco use should include a certificate in the closing credits declaring that no persons involved in the production of the film received anything of value (cash, free cigarettes or other gifts, free publicity, interest-free loans or any other consideration) from anyone in exchange for using or displaying tobacco products in the film. Figure 5 shows a minimal example of a notice that might appear in the final credits of a film.

Figure 5: Final film credit notice about tobacco payoffs



Certification should require a sworn affidavit on public file from the responsible executive at every company credited for the production and distribution of a film. This certification should be backed up by appropriately transparent internal procedures within the companies to assure compliance. Under penalty of perjury or fraud, it would encourage executives to keep productions free of tobacco industry influence. Certification would help discourage tobacco influence through covert, transnational, tobacco-related investments or credit facilities for film productions. Because it is a legal instrument,

the actual certificate, which would be longer and more technical than the notice required to be shown on screen, must be drawn up with expert legal advice.¹⁴ Because side deals by contractors, employees and even actors are difficult to ascertain, eliminating tobacco imagery entirely from films may be the surest way to reduce the certifying companies' legal exposure altogether.

A procedure is required for deciding whether a film contains tobacco imagery and should be certified. This qualification procedure should be categorical, in that any film that refers to, shows or implies tobacco use, a tobacco product or a tobacco brand must be certified. Many countries already have a voluntary or official regime for registering films, rating them and approving them before local distribution. They may offer grants, tax credits, spending rebates, development funding or distribution support to national and international film productions, as discussed in section 1.3. These measures should be amended to make film and television projects with tobacco imagery or reference ineligible for public subsidy. Countries may have specific tax or trade policies for the distribution of imported films, and these existing mechanisms could be amended to require certification that no payoffs have been accepted for films with tobacco images.

Where imported films dominate a country's film market, it should be straightforward to require certification of no payoffs as a condition for granting an exhibition licence. The country simply requires the distributor to ensure that the film does not violate the national policy against paid tobacco advertising. Anti-placement language should be inclusive so as to cover any kind of "consideration", including gifts, barter (including advertisement bartering), discounted services (such as production services), promotional arrangements, house rents and car leases, as well as cash or credit extended to an individual or company.

Stop identifying tobacco brands

The depiction of tobacco brand names in films is clearly a form of tobacco advertising and promotion according to the definitions outlined in Article 1 of the WHO FCTC. In addition, the Article 13 guidelines recommend that a comprehensive ban on tobacco advertising, promotion and sponsorship should cover advertising and promotion of tobacco brand names. It also recommends that these comprehensive bans extend to such media platforms as films.

While most advertising is fleeting, tobacco brands shown on screen are viewed repeatedly on a growing number of media platforms: their lifetime is measured in decades. Thus, there should be no tobacco brand identification, tobacco "trade dress", the mimicry of "trade dress"¹⁵ or tobacco brand imagery (such as billboards) in any film scene. Under pressure from states' attorneys general, the USA-based tobacco companies have written to Hollywood film studios to protest against the use of their tobacco trademarks, after the fact, but have not pursued any legal remedies for this use of their trademarked material. The studios, in turn, have publicly stated that they never request permission to use these trademarks. A simple, easily enforced rule would be more effective in eliminating hard-to-detect arrangements for global brand exposure in films. A total ban on brand identification on screen would be the most straightforward extension of national restrictions on tobacco branding in all media.

¹⁴ An example of substantive certification language drafted in 2009 by an USA entertainment attorney for the University of California, San Francisco, Center for Tobacco Control Research and Education: "No person or entity participating in or in any way associated with the development, production, financing, distribution, exhibition, marketing or any other exploitation of this motion picture in any medium [in the United States][anywhere in the world] has received anything of value (including money, merchandise, advertising, publicity or any other opportunity, consideration or incentive of whatever nature), nor entered into any agreement, understanding or other arrangement with respect to any of the foregoing, in connection with any use, depiction or appearance of or reference to any products containing tobacco in this [or any other] motion picture or the marketing or exploitation thereof."

¹⁵ "Trade dress", a form of intellectual property, refers to the visual characteristics of a product identifiable by the consumer. Films and television series produced in the USA have used tobacco packages that mimic the trade dress of best-selling tobacco products, with altered lettering.

Require strong anti-smoking advertisements

Article 13(4)(b) of the WHO FCTC “[R]equire[s] that health or other appropriate warnings or messages accompany all tobacco advertising and, as appropriate, promotion and sponsorship ...” (2). The recommended approach, according to the guidelines, is to “require the display of prescribed anti-tobacco advertisements at the beginning of any entertainment media product that depicts tobacco products, use or images” (4).

Experiments in classrooms (102) and cinemas (103–105) show that an anti-tobacco advertisement before a film that includes tobacco imagery helps inoculate both younger and older adolescents against the promotional effects of such imagery in the film. A strong anti-smoking advertisement (not one produced or influenced by a tobacco company) should run before a film with any tobacco presence and in any distribution channel, regardless of its rating. It should be culturally appropriate and targeted to specific audiences (120). Such spots are important because, even if tobacco images are cleared from youth-rated films, adolescents may be exposed to adult-rated films through new digital technology. In the USA, for example, adolescents obtain about half their tobacco exposure from R-rated films (33); adolescents in countries in which the film classification regime commonly makes films that are R-rated in the USA accessible to young people receive substantially more exposure. Because all media are converging on digital technology and because it is increasingly likely that adolescents in many countries can also access this technology, effective anti-tobacco spots should be added to videos and other distribution channels, including cable and satellite, video-on-demand and Internet downloads after distribution.

The World Lung Foundation web site (<http://www.worldlungfoundation.org/>) hosts a series of anti-tobacco advertisements (121) that have been selected for their potential applicability around the world, having been shown to be effective in a number of countries. The spots of the American Legacy Foundation’s “truth” campaign (<http://www.thetruth.com/archive/>) and television advertisements developed by the State of California, the USA (<http://www.tobaccofreeca.com/ads.html>) have also been shown to be effective in discouraging young people from smoking (122–124).

Governance is a significant consideration in this kind of policy intervention. National rules must be drawn up to determine how the advertisements will be prepared and selected for use, who will test and pay for them and how many will be required to avoid “audience fatigue” (Figure 6). In addition, rules will be needed for distribution and monitoring procedures.

As this policy may least disrupt the status quo and may provide the film industry with an opportunity to demonstrate corporate social responsibility, anti-tobacco advertisements may be the easiest policy to promote. While research shows that anti-tobacco spots do not affect the audience opinion of a film, their presence may be inconvenient enough that they may contribute to an eventual reduction in the number of new films with smoking imagery.

Figure 6: Government-produced anti-tobacco public service announcements are regularly rotated to accompany films with smoking in India (left) and the USA (right)



Source: World Lung Foundation

In India, since 2012, films with smoking are accompanied by Government-produced anti-smoking announcements, such as this one promoting new smoke-free rules in public places. The USA film studios have voluntarily included anti-smoking announcements (this one from the State of California) on DVDs in which there is smoking and which have been distributed in the USA since 2008, but not in cinemas.

Require adult ratings for films with tobacco imagery

As there is a dose–response relation between exposure to on-screen smoking and initiation of tobacco use by young people, a key goal should be to reduce the level of exposure (the dose) of young people to on-screen smoking. Age classification of films in existing rating systems is useful for reducing exposure, because doing so creates an economic incentive for producers to leave smoking and other tobacco imagery out of films that will be marketed to young people.

The USA Surgeon General concluded that conscientious R-rating of future films with smoking would reduce youth smoking rates in the USA by 18% and avert 1 million tobacco-related deaths among today's children and adolescents (125, 126). In countries where films with heavy smoking that are rated “R” in the USA are rated so as to be accessible to younger adolescents, an adult rating could bring greater public health benefits (43).

Because film ratings, with genre, inform and affect the film-viewing of audiences of all ages, they also influence the choices made by film producers (studios) and distributors. The public response to adult ratings¹⁶ as a cue to film content strongly associates ratings with cinema box office earnings. For example, half as many tickets are sold for films rated R in the USA as for films rated G, PG or PG-13, on average.¹⁷ One consequence is that fewer R-rated films are made and released: between 2002 and 2013, only one third of all widely released, top-grossing films were R-rated.¹⁸

16 Adult ratings are those that restrict admission of people younger than 18 to view a film in a cinema. They may flatly prohibit entry or require that adolescents be accompanied by a parent or guardian.

17 A comparison of the 804 youth-rated (G, PG or PG-13) and 514 adult-rated (R or NC-17) films that grossed US\$ 1 million or more at the box office in 2007–2013 showed that, on average, a youth-rated film grossed twice as much as an adult-rated film (US\$ 66.3 million vs US\$ 33.5 million). While nearly 40% of films that grossed at least US\$ 1 million in Canada and the USA between 2007 and 2013 were R-rated in the USA, they generated less than 25% of total domestic box office sales (US\$ 17.2 billion vs US\$ 70.6 billion). R-rated films are produced because there is a market for them, albeit smaller; despite lower revenue, they can yield a higher return on investment due to lower production and advertising costs and potential creative advantages (127) and because, with high risks, investment in films is a “status good” that transcends the economics (128).

18 Of the 1709 top-grossing films in 2002–2013, 57 (3%) were G-rated, 307 (18%) were PG-rated, 775 (45%) were PG-13 rated, and 570 (33%) were R-rated.

Cinema box office earnings account directly for 20% of a film's total revenue stream and also determine the value of contracts for the film's "downstream" revenue from foreign cinema distribution, physical and electronic home video media and syndication (129). Consequently, producers tailor motion picture content in advance to achieve the rating that will give the film access to the desired cinema audience and thus yield the projected revenue stream. Because of the economic importance of ratings, film distribution agreements frequently require a film producer to deliver a finished film to the studio with a "minimum rating" that is no more restrictive than the rating specified in the agreement (130). Producers may resubmit films for rating after making edits or may appeal rating decisions¹⁹ (35, 131).

The relations between film ratings, audience composition and film industry revenues explain the market incentive that an adult rating would create to keep smoking out of the films that children and adolescents see most (2, 132). An adult rating for smoking need not mean that more films would be adult-rated; more likely, many fewer films would be produced and distributed worldwide that contain tobacco imagery. Tobacco would be merely added to the types of content (strong language, drug use, brutal violence, nudity, sexual imagery) that producers now routinely calibrate when matching a story to its potential audience. Because fewer children and adolescents view adult-rated films, official ratings for age-appropriateness would be an effective method for reducing adolescent exposure to tobacco use by half or more without dictating film content. Any future film with tobacco imagery should be given an adult rating, with the possible exception of films that unambiguously depict the dangerous consequences of tobacco use or portray smoking by an actual historical figure who smoked. Older films should not be re-rated.

The age of majority varies from country to country, but, in general, an "adult" rating means that people under that age (18 years in many countries) are not allowed to see the film or that viewers under the age of majority must be accompanied by a parent or adult guardian. In a number of other countries, an "18" or "R-18" rating would correspond directly to the age of majority. In the USA, the R rating (people under 17 years of age are not admitted without a parent or adult guardian) comes closest to the age of majority. The next age level identified in specific ratings below "adult" ratings is typically a minimum age of 13–15 years, e.g. PG-13 in the USA (133). Without "adult" rating restrictions for films with tobacco imagery, however, exposure would be allowed or even effectively endorsed in films targeted at adolescents aged 12–17, who are at highest risk for smoking initiation. In the USA, most youth exposure to on-screen smoking is from PG-13 films. Therefore, an appropriate adult rating (such as R-18) would be recommended for films that include tobacco imagery.

Age classification systems are generally developed in accordance with national guarantees of freedom of expression. Therefore, including tobacco imagery in the existing rating framework should raise no rights or censorship issues.

A rating scheme need not be 100% effective in reducing youth access to films in order to make a difference. Insofar as producers leave tobacco imagery out of films in order to obtain a youth rating in their domestic markets, these films will reduce overall exposure of youth to on-screen tobacco use in films released globally by major distributors.

19 Between 2010 and 2013, 1% (32/2904) of Motion Picture Association of America film ratings were appealed: 91% of the appeals (29/32) were for R (n=26) or NC-17 (n=3) ratings. About half of these were successful, lowering the rating from NC-17 to R (n=2) or from R to PG-13 (n=12). (Source: Motion Picture Association of America: Classification and Rating Administration bulletins).

Make media productions with smoking ineligible for public subsidies

Public subsidy of media productions known to promote initiation of youth smoking is counter to WHO FCTC Article 13 and its guidelines. Public support for and policies favouring media producers, whether the rationale is cultural conservation or commercial competition, should be harmonized with the fundamental public health imperative to protect populations from tobacco promotion and with Article 13 of the WHO FCTC. By definition, subsidy programmes transfer public assets to a private interest for a public good; therefore, the statutes and regulations governing subsidy of media productions commonly include or exclude certain types of media production and content. These programme specifications should be amended so that any media production representing or referencing tobacco use or depicting a tobacco product, non-pharmaceutical nicotine device or tobacco brand name, trademark, marketing collateral or paraphernalia is ineligible for any form of public benefit for project development, production, marketing or distribution, including grants, loans, investments, spending rebates, tax credits or other favourable tax or trade treatment.

2.4 Strategies for older films

Films may be popular for decades after their initial release. Thus, warning labels and anti-tobacco messages might be added to DVDs and videos of older films. As most films date quickly, and older films represent a small fraction of the youth market, it would not be practical to re-rate older films.

The same factors that can prevent a country's age classification from shaping exposure (films viewed mostly on video, widespread piracy, lack of ratings enforcement) also make it impractical to attempt to ban imported films with tobacco imagery. Before they are distributed, however, imported films should include a strong anti-tobacco advertisement before the start of the film and a no-payoff notice in the final credits, backed by an affidavit from the original production companies and the distributors. They should also receive an "adult" rating.

2.5 Measures with potentially limited effect

Pixelization is a video- and image-editing technique in which part of an image is blurred by displaying it at a markedly lower resolution. It is primarily a censorship method. Even though the image of a cigarette can be blurred during a scene, this is, however, often an imperfect solution, as viewers can typically infer that the character is indeed smoking. In addition, unlike anti-tobacco spots shown before the film, pixelization does not engage the audience in critical thinking about the tobacco imagery in the film. Although no studies have yet confirmed this, logical reasoning leads to the conclusion that pixelization might actually attract attention to the imagery. The paradoxical result of blocking tobacco images (as opposed to ensuring that they simply do not appear) is that smoking might become more intriguing to adolescents as a model of rebellious behaviour.

If an after-market policy solution is needed, strong anti-tobacco spots that have been proven to be effective are preferable to pixelization, blurring of films or embedding formulaic health warnings or symbols in a film.

2.6 Measures that are not recommended

In order to be effective, policies must be clear, easily interpreted and transparently applied. For example, a rule that grants an exception for an actual historical figure who actually smoked (e.g. Winston Churchill) can be effectively applied. A general “historical character” exception is not an acceptable policy because it opens up an unenforceable loophole. Labels such as “gratuitous smoking”, “pervasive smoking”, “glamourized smoking”, “positive images of smoking”, “imagery that condones smoking”, “editorially justified smoking”, “historically appropriate smoking” and “justified smoking” are examples of criteria that are impossible to define. Such vague terms mean that filmmakers and ratings authorities will not know what is and is not consistent with the policies; this approach leaves much to conjecture, lacks transparency and results in inconsistent implementation.

Equally problematic would be general requirements that rating bodies merely “consider” smoking in films without also providing specific guidelines. Experience in the USA has shown that such ambiguous policies have no practical effect on the exposure of young people to smoking on screen (134). In May 2007, the Motion Picture Association of America stated that it would consider adding descriptors such as “pervasive smoking” or “glamourized smoking” to some ratings, without a “mitigating context”²⁰ (135, 136).

Such content descriptors fail to convey the harmful effect of a film’s smoking imagery. It is the cumulative exposure to smoking in films—not the amount of smoking in a particular film—that best predicts the effect on adolescents. Thus, subjective tobacco rating standards, including non-categorical exceptions, are not recommended.

Box 3

Early WHO recognition of the problem of smoking in films: World No Tobacco Day 2003

WHO recognized smoking in films as an important issue worthy of a serious response. In 2003, WHO chose the theme “Tobacco Free Film, Tobacco Free Fashion” for its annual commemoration of World No Tobacco Day. The organization called on the entertainment industry, in particular the industries of film and fashion, to stop promoting a product that kills every second regular user. It was supported by the Smoke Free Movies project (see below). In particular, Hollywood and Bollywood were invited to join the multinational response to effectively restrict smoking imagery in films. For more information on this event, see:

<http://www.who.int/tobacco/communications/events/wntd/2003/en/index.html>.

²⁰ The published classification and rating rules (effective as of 1 January 2010) of the so-called Classification and Rating Administration jointly governed by the (private) Motion Picture Association of America and the National Association of Theatre Owners make no reference to tobacco, smoking or cigarettes.

3.

Country responses

By 2013, several countries had initiated tangible activities to reduce tobacco imagery in films, either in the cinema environment or in ancillary exposure opportunities on DVDs, the Internet and cable and satellite. Activities in these countries are described in this section without evaluating how well they conform to the recommendations of the guidelines for Article 13 of the WHO FCTC or of this report.

Interest in this area of tobacco control is increasing rapidly at both national and subnational levels. In many cases, the issue has been raised by civil society organizations, such as nongovernmental organizations, which are recognizing this important gap in tobacco control and are advocating for more action. In other cases, governments are beginning to examine the issue more closely.

- In Canada, since 2005, national and provincial health nongovernmental organizations in Ontario (Toronto), British Columbia (Vancouver) and Quebec (Montreal), often with the participation of local health departments, have allied to survey film content, evaluate film ratings, document public subsidies for films with smoking and endorse best practices (137). They have forwarded their endorsement to policy-makers in other parts of Government concerned with film classification and tax policy and embarked on public opinion polling and public education campaigns in support of policy change (138).
- In China, after several surveys of film content were publicized by a nongovernmental organization in Beijing (139), in 2011 the central Government issued a directive banning certain tobacco imagery in films and television programmes and strongly urging film and television producers to limit tobacco imagery. Nongovernmental organizations continue to monitor domestic tobacco content and to alert policy-makers about international films that promote smoking or tobacco brands. Coincident with this policy, the share of new films produced in China that are smoke free has tripled to 36%, and half of television series were smoke free in 2013, from 10% in 2007.
- In October 2012, India implemented new rules on the display of tobacco products, tobacco brands and tobacco use in domestic and foreign films and television programmes. Brand display is banned, with product placement, and producers must provide strong justification for any tobacco content in new productions. A film or television programme with tobacco imagery must now run 100 seconds of Government-supplied anti-tobacco announcements and on-screen health disclaimers, in addition to health warnings beneath scenes with tobacco use.
- In Kenya, the Kenya Film Classification Board is the public regulator of films destined for public exhibition, distribution and broadcasting. The Board considers, among other things, the degree and frequency of use of tobacco products to determine the age suitability of films, although the weight of these criteria in the final rating of the film is not clear. As part of the enforcement of a comprehensive ban on tobacco advertising, promotion and sponsorship of tobacco products in Kenya in 2007, the Board explicitly discouraged the use of tobacco and the appearance of tobacco brands in Kenyan entertainment products.
- On World No Tobacco Day, 2011, Malaysia's Minister of Health urged filmmakers to avoid tobacco depictions to protect the country's young people (140).
- In Nigeria, a regional leader in video production, the Senate passed legislation in 2011 banning any depiction of tobacco products in any medium including "films [and] brand placements" (141).
- In 2009, as part of a comprehensive ban on tobacco advertising, promotion and sponsorship, South Africa banned the depiction of or reference to tobacco products or brand elements in exchange for payment in cash or otherwise in all entertainment media. Film or video transmission outside South Africa and not targeted primarily at people living in the country are exempted.

- In the United Kingdom in 2009, the Council for Liverpool, which has the highest lung cancer rate in the country, considered a move to override national film ratings and adult-rate future films showing smoking. In 2010, the Council decided to defer action until specific evidence linking on-screen smoking to youth smoking in the United Kingdom became available, which occurred in July 2011 (46). Partially in response to Liverpool's actions, in early 2011, the Government convened a national consultation on the problem of on-screen smoking.
- In the USA in 2009, with the support of leading nongovernmental health organizations, the Centers for Disease Control and Prevention announced that it would monitor adolescent exposure to on-screen tobacco imagery (142) and published the results in 2010 and 2011 in its widely read Morbidity and Mortality Weekly Report (10, 142). The USA Department of Health and Human Services made reduced youth exposure in motion pictures a priority in the 2010 official anti-tobacco strategy (143). In 2011, the Centers for Disease Control and Prevention endorsed the four policy solutions (including an adult content R rating for on-screen smoking) outlined by WHO in this report. In addition, the Centers called for state film subsidy programmes to be harmonized with their public health programmes by making films with tobacco ineligible for state subsidies (10).

3.1 China

China, the country with the most smokers in the world, has been taking action to limit smoking on screen, including in films and television productions. In 2006, the State Administration of Radio, Film and Television (SARFT) issued a rule on film screenplay (abstract) registration and film administration, which requires that scenes with “excessive” smoking in films be cut or modified. SARFT's Film Review Committee is authorized to issue a permit or require modification of the reviewed films (144). In 2008, SARFT reaffirmed the requirement in its restatement of the 2006 film review standards. The standards were reviewed again, and, in 2009, SARFT issued a notice on strict control of smoking scenes in television drama, which specifically requires reductions in the length of smoking scenes and bans smoking scenes with minors in them, along with any type of tobacco advertising on television. Teleplays that included too many smoking scenes could not be nominated to any of SARFT “excellent assessment activities”.

In 2011, SARFT issued a notice strictly controlling smoking scenes in films and television drama, which replaced the 2009 notice and strengthened measures to reduce on-screen smoking. The notice acknowledges that smoking scenes have a negative impact on the public, especially minors, and that they are out of line with the Government objective of reducing tobacco use. The notice requires producers to minimize plot lines and scenes involving tobacco use and to show smoking only when necessary for artistic purposes or character development. Other specific measures for films and television drama are included in the notice:

- Tobacco brand identity, related content and disguised tobacco advertisements are banned;
- Smoking shall not appear in scenes in public buildings or other places where smoking is banned or no-smoking signs are displayed;
- Minors shall not be shown smoking or buying cigarettes, nor shall they be present while others smoke;
- The number and length of smoking scenes in television dramas and films should be limited;
- SARFT and its local counterparts will consider the number of smoking scenes before approving a film or television drama for public showing.

The notice further advises film and television producers to find other forms of artistic expression that do not involve smoking and to edit remaining smoking scenes to be as short and infrequent as possible.

It requires that provincial radio and television administrations, China Central Television and the People's Liberation Army General Political Department Propaganda Division Art Office, be responsible for management and supervision, urging producers in their jurisdictions to make smoke-free television dramas and advising directors and actors not to shoot smoking scenes. Provincial film review agencies and television drama broadcasting institutions are required to strengthen the review of films and television dramas before they are screened and to cut or reduce the smoking scenes appearing in them (145).

Although foreign films, including Hollywood blockbusters, are shown in China, the 2011 notice does not specifically mention entertainment media imported from other countries. Foreign films shown in China are already required to follow Article 23 of the 2006 Rule on film screenplay (abstract) registration and film administration. This requires that imported films be reviewed according to Chapter 3 of the Rule, so that restrictions on smoking scenes apply to imported films as well.

It is important to recognize the activities of the Chinese Association on Tobacco Control that helped to materialize these SARFT regulations, by drawing public attention to the issue. The Association has strategically used data showing the high levels of smoking imagery in Chinese films and television productions. It has coordinated press conferences and invited celebrities, including film stars, to advocate for regulations to reduce such imagery. In response to the Association's initiatives, many film directors expressed willingness to take more responsibility by reducing smoking scenes. In 2010, the Association sent open letters to SARFT to appeal for a ban on smoking on screen. Upon the release of the 2011 directive, the Association held a press conference to praise it and to suggest detailed regulations for its implementation. The SARFT has announced that it will continue to review the directive with a view to including more specific implementation guidelines.

In 2013, SARFT joined the General Administration of Press and Publications and the National Copyright Administration to form a larger media regulator, the State Administration of Press, Publications, Radio, Film and Television. It has not changed the 2011 notice limiting tobacco scenes on screen but has focused on enforcing a ban on tobacco brand display and on smoking in films or television programmes for children and adolescents. Producers have been informed that they should limit smoking scenes that lack a creative rationale.

Surveys by the Chinese Association on Tobacco Control of the most popular films and television programmes each year (30 films and 20 series in 2007; 40 films and 30 series since 2009) found that:

- 13% of Chinese-made films were smoke-free in 2007, tripling to 36% in 2013.
- 10% of China's top television series were smoke-free in 2007, climbing to 50% in 2013.
- Tobacco incidents in films decreased by 28% (from 23.2 to 16.6) during the same period.
- Incidents in television series dropped by 71% (from 5.2 to 1.5).
- Screentime spent smoking fell by 61% per film and 73% per television episode.

In 2013, the Association called policy-makers' attention to the many incidents of Marlboro brand display in the Formula One racing drama *Rush* (United Kingdom, Germany and the USA; 2013). SARFT asked the producers to remove the brand images as a condition for importing the film; as of November 2014, the film had not been distributed in China.

3.2 India

In 2003, the Government of India enacted a comprehensive tobacco law, the Cigarette and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, which includes a ban on tobacco promotion, direct and indirect advertising of tobacco products (162), and event sponsorship by tobacco marketers. Because India has a large indigenous film industry WHO conducted a study of tobacco and India's indigenous cinema industry in 2003, before passage of the Act. The findings included (163):

- Of the 395 top-grossing films in India in 1990–2002, 76% depicted tobacco use.
- Tobacco incidents attributed to the lead actors increased from 22% in 1991 to 54% in 2002.
- While tobacco branding constituted fewer than 3% of tobacco incidents, half of all on-screen displays of brands marketed by the Indian Tobacco Company, British American Tobacco's long-time partner, occurred in 2002, immediately before the national advertising ban and the full entry of Philip Morris International onto India's market.

After the Act banned tobacco advertisements in other media in 2004, a second study documented changes in Bollywood's tobacco imagery (164):

- Of 110 Hindi language films produced in 2004 and 2005, 89% depicted tobacco use.
- Smoking incidents were attributed to lead actors in 76% of films.
- Of the films depicting tobacco use in 2004–2005 (41% of the total sample), 46% included tobacco branding.
- 85% of the films in 2004–2005 with tobacco brands displayed either British American Tobacco/ Indian Tobacco Company (58%) or Philip Morris International (27%) trademarks. Philip Morris International's Marlboro brand dominated displays in large-budget films.

The study conducted before passage of the Act demonstrated that popular films from both north and south India paralleled the tobacco content of films produced in the USA in key aspects, including their influence on young people's attitudes to smoking. The study conducted after passage of the Act showed that tobacco imagery, including brand display, had increased markedly in the wake of bans on tobacco advertising in other media.

In 2005, the Act's rules were refined to meet the challenge of smoking in films. When the ban on advertising, promotion and sponsorship came into force, tobacco companies developed new marketing strategies to circumvent it. Violations of the tobacco advertising ban that were brought to the attention of the Ministry of Health and Family Welfare included an increase in smoking and tobacco brand display in films. Consequently, in May 2005, India amended its Act to clarify the requirements in order to ensure full compliance. The amendments included a ban on all depictions of tobacco products and their use in films or on television:

- No individual person or character appearing in films for the cinema or television programmes shall display tobacco products or their use. In films and television programmes produced prior to this notification and depicting smoking situations other than use of tobacco, it shall be mandatory to place a health warning as a prominent scroll at the bottom of the cinema or television screen in a legible black font on a white background. The text of the warning shall be "Smoking causes cancer" or "Smoking kills" for smoking forms of tobacco use and "Tobacco causes cancer" or "Tobacco kills" for chewing and other forms of tobacco. The health warning shall be in the same language(s) used in the film or television programme.

- Wherever brand names or logos of tobacco products form a part of an image in print or outdoor media or in footage to be shown in any form of electronic media, it shall be mandatory for the media to crop or mask the tobacco product brand name or logo to ensure that it is not visible (165).

These rules were to be implemented by the Ministry of Information and Broadcasting, which, however, maintained that flexibility was required and that the entertainment industry's freedom of expression should not be infringed.

During inter-ministerial consultations, it was suggested that a film might be permitted to show tobacco use if there was sufficient creative justification; in such a case, India's Central Board of Film Certification should grant an "A" (adult) film-rating certificate, denying admission to any filmgoer under the age of 18. In October 2006, after numerous consultations, the Ministry of Health and Family Welfare relaxed the provisions of the blanket ban to allow depictions of tobacco in some circumstances, with specific warnings to be shown on the screen at the same time tobacco use was depicted.

- Warnings reading "Smoking kills", "Smoking causes cancer", "Tobacco kills" or "Tobacco causes cancer" should scroll on screen under the depictions of tobacco use.
- Anti-tobacco spots, a minimum of 30 seconds long, should be screened at the beginning, middle and end of domestic and imported films and television programmes displaying tobacco use that were produced before publication of the revised rules, with the exception of:
 - domestic and imported documentaries and public service spots displaying tobacco use, shown in cinemas or aired on television, if they clearly and unambiguously reflect the dangers and dire consequences of tobacco; and
 - live television coverage of news, current affairs interviews, public meetings, sports, cultural events and others in which there is a "purely incidental and completely unintentional" image of tobacco use.
- When there is creative justification for tobacco imagery or depiction of a real historical character who used tobacco, films and television programmes, domestic or imported, will be given an "A" certificate, accompanied by:
 - a recorded disclaimer from the actor who depicts tobacco use in the film or programme regarding the harmful effects of tobacco use; and
 - an anti-tobacco health scroll, starting 60 seconds before the scene with tobacco and ending 60 seconds after it.

The Indian Government's revised rules were challenged in the High Court by a Bollywood film producer, and, in February 2008, the two-judge bench issued a split verdict on the case. In January 2009, a High Court judge struck down the rule banning smoking scenes in future films produced in India. The Government, maintaining that the Constitution allows reasonable restrictions to promote public health, filed an appeal with the Supreme Court in 2009. The Supreme Court stayed the High Court's order and made the stay permanent in 2012, until final disposition of the case, thereby empowering the Ministry to notify the rules. Subsequently, the Government decided to notify the Revised Smoke-free Movies Rules, after negotiating amendments with the Ministry of Information and Broadcasting to make their implementation more practical.

The Ministry of Health and Family Welfare notified the amended rules in October 2011. However, the Ministry of Information and Broadcasting stayed their implementation on the grounds that film producers would encounter practical difficulties. After a series of consultations, the Ministry of Health and Family Welfare notified the amended rules to regulate the depiction of tobacco products or their use in films and television programmes on 21 September 2012. These rules are applicable to all Indian- and foreign-produced films and television programmes.

Films and programmes depicting tobacco products or their use, produced and certified before 2 October 2012, are required to comply with the following:

- Government-produced anti-tobacco health spots (30 seconds minimum) are screened at the beginning and middle²¹ of the film or television programme.
- An anti-tobacco health warning, in the form of a prominent, static message, is shown at the bottom of the screen for the duration of the depiction of a tobacco product or its use (Figure 7).

Figure 7: Every on-screen smoking scene in India is accompanied by a health warning, such as “Smoking causes cancer or smoking kills for smoking forms and tobacco causes cancer or tobacco kills for smokeless forms of tobacco.”



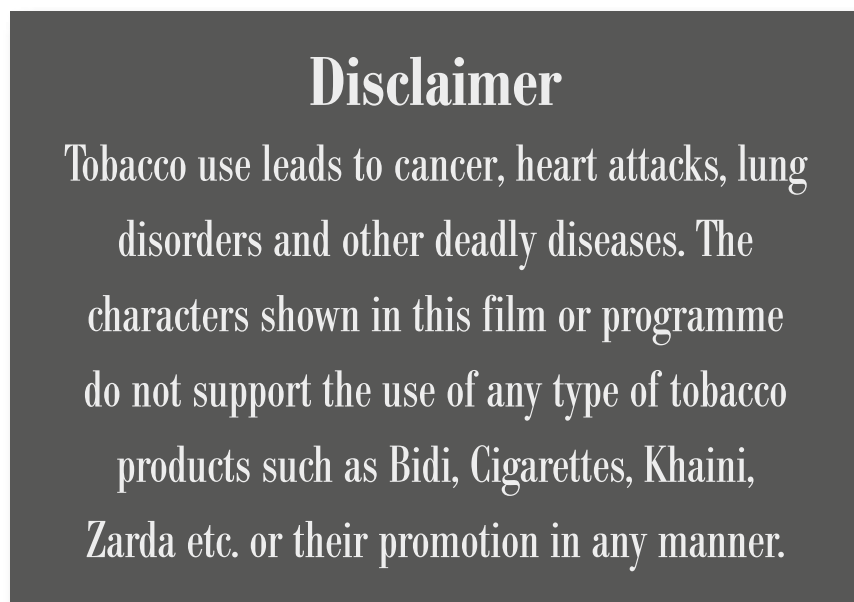
Source: Doordarshan, Indian National Television Channel

Films and television programmes depicting tobacco products or their use, produced and certified after 2 October 2012, are required to comply with the following:

- Producers must provide India’s Central Board of Film Certification, which issues rating certificates, with an acceptable editorial justification for the display of tobacco products or their use in their film.
- Government-produced anti-tobacco health spots (30 seconds minimum) are screened at the beginning and middle of the film or the television programme.
- An anti-tobacco health warning, in the form of a prominent, static message, is shown at the bottom of the screen for the duration of the depiction of a tobacco product or its use.
- An audiovisual disclaimer (20 seconds minimum), explicitly mentioning the ill effects of tobacco use, must appear at the beginning and middle of the film or television programme (Figure 8).

²¹ Intermissions are common in films shown in Indian cinemas.

Figure 8: In India, full-screen disclaimers appear twice with each film or television programme depicting tobacco use



Source: Ministry of Health and Family Welfare, Government of India

The rules implemented in 2011 also prohibit:

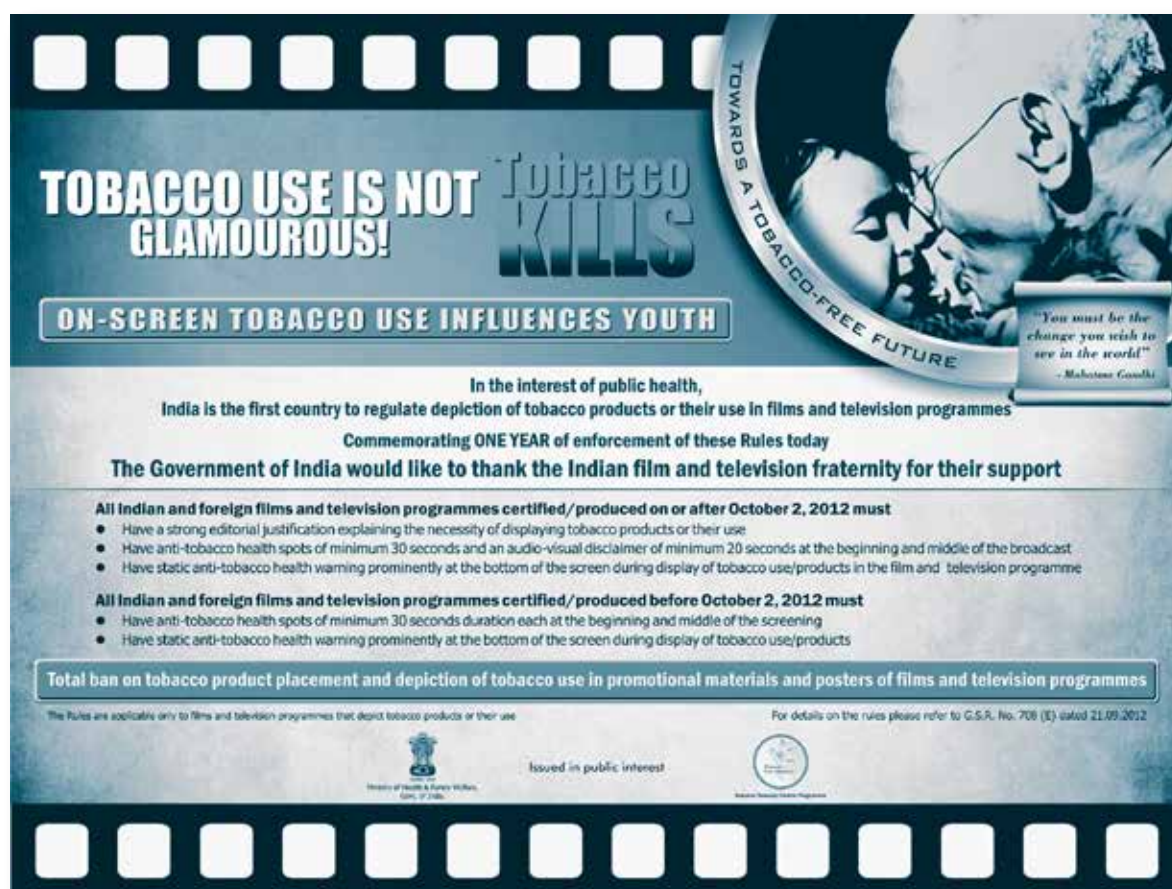
- tobacco product placement;
- display of tobacco products or their use in the posters/advertising and promotional material of films and television programmes;
- display of tobacco brand names and logos in print and electronic media; and
- close-ups of tobacco products and tobacco product packages in any medium, including film and television programmes.

The anti-tobacco health spots and audiovisual disclaimer are provided by the Ministry of Health and Family Welfare. The Ministry periodically rotates the health spots, which are prepared in the evidence-based process under the National Tobacco Control Programme. As implemented, the rules provide scope for public health education on the harmful effects of tobacco through films and television programmes that reach large audiences throughout India.

The amended rules published in 2012 strengthened enforcement and place the obligation for compliance on film exhibitors, broadcasters and the Central Board of Film Certification. Non-compliance can lead to sanctions such as suspension or revocation of operating licenses for exhibitors and broadcasters. The current rules are again under legal challenge but remain in force.

On the first anniversary of publication of the rules, in October 2013, the Ministry of Health placed an advertisement in leading regional and national newspapers, publicly thanking the film and television sector for their cooperation (Figure 9). With technical assistance from the World Lung Foundation, the Ministry has set up an online repository for tobacco prevention resources. The film and television industry can now download high-definition anti-tobacco health spots and disclaimers in 17 languages for cinema exhibition and broadcast (www.ntcptobaccocontrolpsa.in).

Figure 9: National advertisement on the first anniversary of India's smoke-free film and television rules



Source: Ministry of Health and Family Welfare, Government of India

By mandating that all film and television content that depicts tobacco use, also place warnings about tobacco harms through public service announcements, disclaimers and a static message, the Government of India has been able to accrue valuable air time for public health messaging and has been able to raise tobacco control awareness among the masses. World Health Organization and World Lung Foundation have undertaken a research to study compliance of these Rules in movie cinemas and conducted exit interviews with movie goers and the results of the same are being analyzed to guide policy and related enforcement.

3.3 The United Kingdom: Kingdom-wide and national experience

In 2011, the Government of the United Kingdom of Great Britain and Northern Ireland began considering measures to reduce tobacco imagery in films, after initiatives on the issue began in Liverpool.

Under the terms of the United Kingdom's Tobacco Advertising and Promotion Act, tobacco advertising in the print media, on billboards and in direct mail ended in 2003, and sponsorship of sport ended in July 2005. Films, however, remain an important channel through which young people are still regularly exposed to pro-tobacco imagery.

The Centre for Tobacco Control Studies at the University of Nottingham in England estimated the number of tobacco impressions delivered by films in the United Kingdom that were accessible to young people. Merging past, publicly available box office data and tobacco incidence data for films originating in India, the United Kingdom and the USA and released widely in cinemas in the

United Kingdom, researchers found that films rated for young people (below an “18” rating) delivered nearly 90% of tobacco impressions in the United Kingdom (42). A study of the 15 most commercially successful films in the United Kingdom each year between 1989 and 2008 found tobacco in 70% of all films, 56% of which were rated as suitable for viewing by children aged less than 15 years and 92% of which were rated for children aged younger than 18. Brand appearances were nearly twice as likely to occur in films originating wholly or in part in the United Kingdom. Specific brands appeared in 9% of all films, and films rated as “15” had the largest proportion of brand display (146).

In 2010, the Government published a tobacco control strategy for England, a key objective of which was to “stop the inflow of young people recruited as smokers” (147). As part of this strategy, the Government recommended that smoking “must not be featured in programmes made primarily for children (defined as less than 15 years of age) unless there is strong editorial justification” and smoking “must not be condoned, encouraged or glamourised in other programmes likely to be widely seen or heard by under-18s unless there is editorial justification.” Calling only for restrictions on films that “feature” smoking that is “encouraged or glamourised” unless there is “strong editorial justification” still allows for smoking in virtually any film, because such terms are not clearly defined.

In 2011, the Government published a new tobacco control strategy, in which it expressed a commitment to “continue to work to reduce the depiction of smoking in the media, including through bringing together media regulators and the entertainment industry to consider what more can be done” (148).

Concerned about the scientific evidence linking on-screen smoking to youth smoking initiation and considering that the British Board of Film Classification should apply its existing classification rules to include smoking, a group of public health and community groups in Liverpool, collectively called SmokeFree Liverpool (150), has taken a leading role in addressing this issue. The coalition, comprising 10 health care agencies, public bodies, NGOs and private philanthropic organizations in northwest England, advocates that local authorities exercise their licensing authority to apply an “18” rating to films with smoking shown in Liverpool. SmokeFree Liverpool asserts that the existing criteria of the British Board of Film Classification already justify this rating for films that contain smoking.

The strategy developed by public health experts in the SmokeFree Liverpool network is to document the scope of the challenge, build national and international alliances and mobilize young people to press for a change in ratings within the film industry in the United Kingdom, both to protect young people and to influence film industry practices elsewhere. Early in the process, SmokeFree Liverpool and its local partners embarked on a series of briefings and consultations with regional and national partners to share information, gather endorsements and plan strategy. Liverpool sponsored the first international conference on smoke-free films in February 2008, welcoming representatives from the United Kingdom, other European countries and the USA to discuss the role of youth movements (such as Liverpool’s D-MYST and New York’s Reality Check) in community education and advocacy, the place of smoke-free films on national prevention agendas and the global dimensions of smoke-free film policy solutions.

After the British Board of Film Classification turned down a request from D-MYST that new films with tobacco imagery be given an “18” rating, SmokeFree Liverpool began exploring the feasibility of an “18” rating in their own jurisdiction. Through these activities, SmokeFree Liverpool aims both to protect their communities and to influence the practices of film producers and distributors (the majority of which in the United Kingdom are controlled by the USA-based companies) by exercising their right to override the national ratings. As a major export country for films made in the USA, these actions in the United Kingdom would have important implications for the USA film distributors and would probably create an incentive for more youth-marketed films to be smoke free.

SmokeFree Liverpool recognized the importance of communicating clearly to the public and stakeholders the rationale and benefits of the policy, countering any disinformation that arose and preparing a broad base of public understanding and support. This strategy has gained momentum since an announcement in July 2008 by the British Medical Association recommending that the British Board of Film Classification take smoking “into consideration” when classifying films (151). Endorsement from the British Medical Association immediately heightened public awareness of the need to act on smoking imagery in films at local level.

Accordingly, SmokeFree Liverpool implemented a communications plan to advocate for the initiative. The elements of this strategy include:

- raising awareness of the issue among the general public through media relations, paid-for outdoor advertising and road shows;
- demonstrating support for the measures by canvassing local people and collecting signatures for presentation to the British Board of Film Classification and the local council;
- supporting the activities of Liverpool’s tobacco control youth group, D-MYST, who will rally their peers and speak out on the tobacco industry’s manipulation of young people;
- producing fact sheets and paid-for open letters (national and local) calling on the British Board of Film Classification to give an “18” rating to new films with smoking and warning of possible local council action; and
- preparing the case for presentation to the Liverpool City Council if the Board’s (national) approach is unsuccessful.

The case for implementing a local adult rating for films with smoking was prepared and presented to Liverpool City Council in mid-2009. The Council subsequently undertook a 3-month consultation on the proposal; however, it refused to act during a full meeting at the end of 2009, instead asking for more research directly relevant to England and Liverpool. In mid-summer 2011, the Government convened a consultation on on-screen smoking and policy remedies but there was no subsequent action.

3.4 The United States of America

The motion picture and cigarette industries in the USA grew rapidly after the First World War. By the end of the 1920s, studios brokered cigarette endorsement deals for the film stars who they had under contract in return for national advertising campaigns paid for by the tobacco companies. The tobacco industry shifted spending to television in the 1950s, but, after the USA Government banned broadcast advertising of tobacco products in 1970, systematic film placement of tobacco imagery intensified.

In 1989, reports of product placement in Hollywood films spurred the USA Congress to demand more detail of advertising expenditures from the tobacco companies. These data were to be used to improve Federal Trade Commission surveillance of cigarette marketing expenditures; however, the tobacco companies denied they bought product placement in films, and some companies failed to report payments to Hollywood agents as recently as the mid-1990s.

In response, health advocates ran campaigns designed to educate film industry “creatives” (writers, directors, actors) about the harmful effect of tobacco imagery, but these actions were essentially ineffective. In 1998, the states’ attorneys general and the five large USA-based tobacco companies entered into the Master Settlement Agreement. Among other things, this legal agreement prohibited

the participating domestic cigarette companies from tobacco product placement in entertainment media. Because the Master Settlement was an agreement between the USA-based domestic tobacco companies and the states' attorneys general, it did not cover overseas tobacco subsidiaries (112).

In 2002, the Smoke Free Movies project, based at the University of California, San Francisco, Center for Tobacco Control Research and Education (a WHO collaborating centre at the time), set up a web site (<http://www.smokefreemovies.ucsf.edu>) and published a series of paid advertisements in entertainment trade journals. These advertisements suggested that smoking persisted in youth-rated films for one of two reasons: "Either people in Hollywood are still on the take, in which case they're corrupt ... or they're doing Big Tobacco's dirty work for free – in which case they're stupid" (152). Smoke Free Movies and its national nongovernmental organization allies also developed and promoted a set of four evidence-based policy solutions intended to substantially and permanently reduce adolescents' exposure to on-screen tobacco imagery, without intruding on film content. These provided the basis for the policy options described in section 2.3 above (153).

The major motion picture studios, through the Motion Picture Association of America, at first took none of the steps advocated by USA health experts and organizations. Nevertheless, nongovernmental organization tracking of individual studio records and the steady accumulation of evidence on the exposure of adolescents to smoking in films stimulated congressional hearings. In addition, the attorneys general of more than 30 states wrote letters to the companies that owned the major studios, stating that they were knowingly harming children by releasing films with tobacco imagery. In Los Angeles, where the Hollywood studios are located, the County Department of Health Services was the first public health agency in the USA to endorse the four policy goals, beginning in 2002. Since then, its publicity events and media briefings have regularly attracted international attention. Two congressional hearings (2004 and 2007) advanced the issue, leading three major studios to publish corporate policies for reducing smoking depiction in future youth-rated films. The Commissioner of Health of the State of New York, where the parent companies of many of the major studios are based, published full-page advertisements in *The New York Times* and other news media calling for action by the studio heads (154). Other state and local public health officials continue to join this campaign. In 2011, for example, the Chair of the State of California Tobacco Education and Research Oversight Committee joined the Director of the Los Angeles Department of Public Health in calling for films with smoking to be disqualified for State film production subsidies (155).

At the national level, the Institute of Medicine of the National Academies of Science (156), the National Cancer Institute (1) and the Centers for Disease Control and Prevention (10, 14, 126, 142, 157–160) stated that the film industry must change its practices. In 2012, the Surgeon General (2) documented the history of commercial collaboration between the USA film and tobacco industries, reviewed the scientific evidence of harm from exposure to on-screen smoking and endorsed R rating of films with smoking as a means of reducing exposure. In 2014, the Surgeon General found that the USA film industry responses to the problem of on-screen smoking were insufficient and concluded that conscientious R-rating of future films with smoking would reduce the rates of smoking among young people in the USA by 18%. The Centers for Disease Control and Prevention estimated that exposure to on-screen smoking alone would recruit more than 6 million new, young smokers from among USA children alive in 2014, 2 million of whom would ultimately die from tobacco-induced diseases: the R-rating would avert 1 million tobacco deaths in that generation (126).

In 2007, the Motion Picture Association of America announced that it would “consider” smoking in its ratings (134). In practice, however, the Association has not raised film ratings for smoking but merely noted smoking in the rating labels attached to “independent” films given limited release, sparing most youth-rated films with smoking released by the Association’s own member studios (135). In 2008, film studios that were members of the Association agreed to include anti-tobacco spots, but only on youth-rated DVDs of films with smoking that were distributed in the USA and, for some companies, in Canada. By 2013, every film production–distribution company that was a member of the Association had published a policy with the stated intention of discouraging tobacco content in youth-rated films. None of the studios had blanket policies against including smoking or other tobacco imagery in youth-rated films that they produced or distributed. These results led the Centers for Disease Control and Prevention to conclude:

The fact that some major studios have excluded nearly all tobacco depictions from their youth-rated (G/PG/PG-13) movies shows that it is possible to make classes of motion pictures that do not feature smoking and other tobacco use. Inconsistent performance across the motion picture industry, however, threatens continuing progress toward eliminating youth-rated films as a major stimulus for youth smoking. Consistent with the policies adopted by the three studios demonstrating the greatest progress, modernizing the Motion Picture Association of America’s R-rating to include smoking would create a level playing field and ensure that existing progress is not reversed (10).

While each company has shown that it is feasible to eliminate almost all smoking from its G, PG and PG-13 films, each has relapsed after a year, and smoking has returned to PG-13 films. Much of the decrease in smoking in youth-rated films from the peak in 2005 to the low in 2010 was lost by the end of 2013, as smoking incidents and impressions rebounded. While G and PG films are now essentially smoke free and there has been a steady decrease in the percentage of PG-13 films with smoking, the PG-13 films that do have smoking have as many incidents, on average, as R-rated films (11).

In the USA, the public health community has mobilized health and medical professional organizations, youth groups, policy-makers, law enforcement agents, corporate investors and health agencies at national, state and municipal levels. The aim has been to raise the reputation and other costs of continued tobacco depictions in youth-rated films and to promote a consistent set of policy solutions that will reduce the uncertainty of media companies about future liability. Policy-makers have also highlighted the conflict between state tobacco control efforts and state subsidies to films with smoking. In 2011, the Centers for Disease Control and Prevention endorsed efforts by state policy-makers “to harmonize their state film subsidy programs with their tobacco control programs by limiting eligibility for subsidies to tobacco-free films” (10).

4. Conclusions

4.1 Lessons learnt

Experience shows that when tobacco advertising and promotion is restricted in one medium, it migrates to another. Tobacco appearance in films accelerated in the USA when tobacco advertising in other media was being restricted; a similar process occurred in India after tobacco advertising in other media was prohibited. Because smoking on screen is uniquely vivid and because young people see so many films so often, its effect in promoting smoking initiation is striking. Any country seeking to ban or restrict tobacco advertising and promotion must address the issue of smoking on screen or risk severely compromising its public health efforts. The most vulnerable age group, adolescents, should not continue to be exposed to the most powerful promotional channel for smoking imagery available in today's globalized economy. A comprehensive approach to combating smoking imagery in film is therefore required.

By implementing the specific measures included in the guidelines for implementation of WHO FCTC Article 13, countries can reduce the influence of smoking in films on the initiation of smoking by young people. The measures have enormous potential for averting the growing burden of disease due to tobacco use, particularly in low- and middle-income countries.

4.2 Research priorities

Although the causal relation between smoking imagery in films and smoking initiation has now been established, additional research would be desirable on the impact of intervention policies. Suggested research questions are listed below.

Policy and industry

Adult rating for tobacco use

- How are local film ratings regulated (e.g. rating content and processes, censorship), and what are the opportunities for influencing these regulations?
- Which major market countries or administrative subdivisions are the most likely targets for intense lobbying to achieve an adult rating for tobacco use?

Identifying where international tobacco companies are most likely to influence insertion of tobacco use

- What are the economic arrangements among distributors, sponsors, advertisers, producers and public funding and taxation agencies for the production and distribution of films? How can these economic arrangements be leveraged to promote policy action?

International exposure of young people

- What mix of national (local) and internationally distributed films are most successful in cinemas? Distributed on video? Viewed via satellite? Downloaded or streamed from the Internet?
- How common is tobacco imagery in nationally produced films?
- What methods could be effective for measuring national exposure to tobacco imagery?
- How common is tobacco imagery in films that are rated for young people?
- How much would an adult rating for smoking reduce exposure, by country?
- Can other health departments be persuaded to monitor film tobacco use as a key risk factor for young people?
- How important is television programming in delivering media smoking to youth?

Exposure – influence

- Could surveillance of exposure to tobacco use in films be improved by adding questions to international surveys, like the Global Youth Tobacco Survey?
- How do films impact youth smoking initiation in developing countries? In middle-income countries with national film industries?
- Can the effects of smoking in national films be distinguished from those in internationally distributed films?
- Is there a difference between the effects of exposure to smoking on television and in films on the smoking behaviour of young people?

4.3 Going forward

Currently, tobacco kills nearly 6 million people each year. Tobacco is the only legal consumer product that kills half of its regular consumers when used exactly as the manufacturer intended. As a truly toxic, addictive product, it has no place in films that are marketed to young people. With approximately 100 000 young people around the world taking up smoking each day (161), it is imperative that countries avail themselves of best practice recommendations, such as those outlined in the guidelines for implementation of Article 13 of the WHO FCTC (Tobacco advertising, promotion and sponsorship).

Overall, the evidence suggests that voluntary and self-regulatory measures have not been successful. Advocacy approaches to obtain stronger labelling requirements (adult ratings) for films showing smoking imagery as well as anti-smoking messages and assurances that no payoffs are received from the tobacco industry are already receiving wide support in several countries. It is clear that restriction of smoking imagery in films with wide global distribution will serve a larger, multinational public good. Thus, national approaches, and even local approaches, can have wide-ranging positive global effects. Multinational cooperation will also be critical in restricting the global reach of film-based tobacco imagery.

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Annex 1. Measuring exposure to tobacco imagery in films

Assessing exposure to film content is similar to assessing exposure to advertising. The best methods are to measure the reach of a particular film in the population and to assess how much smoking there is in the film (1).

In one popular method, the films that adolescents have watched are determined, and the tobacco content of those films is assessed. Adolescents recall films they have seen with 90% accuracy a year later. As every respondent cannot be asked about all films, researchers instead analyse a large sample (500–600) of recent top-grossing films, then ask participants to identify the films they have seen from a randomly selected subsample of titles (1). The random subsample allows researchers to estimate the population's exposure to a relatively large sample of films; however, exposure will be underestimated because even 500–600 films remains a fraction of all the films available on video discs, broadcast, video-on-demand and Internet download. Using this method and a study population of more 6500 young people, Sargent and colleagues estimated that adolescents in the USA aged 10–14 were exposed to 13.9 billion tobacco impressions in films seen in all media, between 1998 and 2003, half the exposure in youth-rated films (2).

Another method involves use of box office sales to estimate the reach of films in the population. Each film's gross box office earnings are divided by the average ticket price in the year the film was released to obtain the number of people who saw the film. Tobacco incidents in the film are determined by content coding and multiplied by the number of paid admissions in order to estimate the tobacco impressions delivered. Titus, Polansky and Glantz (3) used this method to estimate that more than 1700 top-grossing films released to cinemas in Canada and the USA between 1991 and 2008 delivered a total of 650 billion tobacco impressions to audiences of all ages, representing an average of 34 billion impressions a year in cinemas alone. More recently, the team published results showing that the number of in-cinema tobacco impressions had decreased to 14 billion by 2010 but rebounded to 23 billion by 2013 (4, 5). Applying data on the age composition of the audience, gathered by market research companies, to the same dataset suggested that, on average, US adolescents aged 12–17 years received about 19% of their total exposure, or more than 4 billion tobacco impressions, in cinemas alone each year in 2002–2013.

Anderson and colleagues (6) used a similar method to assess the exposure of British adolescents to smoking in 572 top-grossing films in the United Kingdom. They found 28% higher potential exposure to on-screen tobacco images in the United Kingdom than in the USA because many films that were R-rated in the USA, and consequently with smaller, older audiences, were accessible to British adolescents without restriction. The authors estimated that, between 2001 and 2006, films that were youth-rated in the United Kingdom delivered more than 1 billion tobacco impressions to children and adolescents aged 7–17 years.

Although different methods were used in these studies, the results are on the same scale (billions), probably with substantial underestimation. The delivery of billions of images of smoking on screen, in dramatic, vivid film contexts, contrasts starkly with the messages delivered by traditional tobacco advertising. Because image-based tobacco advertising has been eliminated in many countries through the WHO FCTC, smoking images on screens large and small may now represent the vast bulk of media smoking images seen by adolescents worldwide.

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Annex 2. Estimated public subsidies for top-grossing films with tobacco content, 2010–2013

Country	No. of films ^a	No. of films with smoking	Film subsidies (US\$ million) ^b	Subsidies for films with smoking (US\$ million)	In-cinema tobacco impressions delivered worldwide (million) ^c
Australia (subnational)	10	5	156	61	6 217
Austria	1	0	8	0	0
Canada (national and provincial)	62	20	680	219	3 007
Czech Republic	1	1	12	12	694
France	7	5	73	37	5 700
Germany	6	5	61	57	772
Hungary	4	3	70	30	33
Ireland	2	1	5	5	32
Italy	4	4	35	35	732
Mexico	3	3	3	3	163
New Zealand	7	6	191	175	8 892
South Africa	3	0	29	0	0
Spain (subnational)	2	2	17	17	195
United Kingdom	47	25	876	322	12 582
United States (state)	310	172	2 460	1 201	79 883
Total	469	252	US\$ 4 676	US\$ 2 174	118 984

- a Films ranked in the top 10 of box office earnings in any week of their initial cinema release in the “domestic” market (Canada and the USA), 1 January 2010–31 December 2013.
- b To estimate subsidy values, the published production budget of a top-grossing film was multiplied by a net subsidy rate of 20%. Nominal subsidy rates range from 20% to 40%, depending on the jurisdiction, but these rates are awarded against production expenditures deemed “eligible” or “qualified” by programme regulations, which vary by jurisdiction. Comparisons of published production budgets with qualified expenditures publicly reported by some (but not all) film subsidy programmes suggest that applying a net 20% subsidy rate yields acceptable estimates of subsidies awarded. In addition, before estimating subsidy totals, the 2010–2013 film sample was adjusted to eliminate two classes of film production, produced in California but at the time ineligible for that State’s subsidy: 30 animated feature films (7% with smoking) and 19 live-action films with production budgets over US\$ 75 million (21% with smoking). Of 75 top-grossing films eligible for California subsidies in 2010–2013 and included in the US total, nearly 60% featured tobacco imagery.
- c Worldwide estimate of in-cinema tobacco impressions based on the ratio between “domestic” Canadian and USA cinema admissions (1.34 billion) and admissions reported in the world’s other film markets (2.25 billion) after adjustment for the market share of films not produced in the USA in those markets (1).

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