A Content Analysis of Tobacco Content in UK Television **Authors** Alexander Barker¹, Kathy Whittamore¹, John Britton¹, Jo Cranwell² ¹UK Centre for Tobacco and Alcohol Studies, Division of Epidemiology and Public Health, University of Nottingham, Clinical Sciences Building, City Hospital, Nottingham NG5 1PB, United Kingdom ²UK Centre for Tobacco and Alcohol Studies, Department for Health, University of Bath, 1 W 5.124, Claverton Down, Bath BA2 7AY, United Kingdom, *Corresponding author E-mail: alexander.barker@nottingham.ac.uk (AB) Word Count: 2031 **Declaration of Interests** None to declare.

Funding This work was supported by the Medical Research Council [grant number MR/K023195/1] and the UK Centre for Tobacco and Alcohol Studies, with core funding from the British Heart Foundation, Cancer Research UK, Economic and Social Research Council and the Department of Health under the auspices of the UK Clinical Research Collaboration. The funders had no role in the study design, data collection and analysis, decision to publish or preparation of the manuscript. What this paper adds Exposure to audio-visual tobacco content in media is a risk factor for smoking in young people. Advertising legislation and broadcasting regulations are in place to protect children from smoking imagery in UK television, however a previous content analysis found that tobacco content is shown on prime-time UK television.

- Audio-visual tobacco content remains common in prime-time UK television

 programmes and is likely to be a significant driver of smoking uptake in young

 people.
 - Guidelines on tobacco content need to be revised and more carefully enforced to
 protect children from exposure to tobacco imagery and the consequent risk of
 smoking initiation.

Abstract

Aims: Exposure to audio-visual tobacco content in media is a risk factor for smoking in young people. Whilst tobacco content in films has been extensively documented, content in mainstream television has received relatively little attention. We report an analysis of tobacco content in a sample of UK free-to-air prime-time television broadcasts in 2015, and compare this with a similar analysis from 2010.

76 **Design:** Content analysis of all programmes and advertisements or trailers broadcast on the 77 five national UK free-to-air channels in the UK between 6 and 10p.m. during three separate 78 weeks in September, October and November 2015. 79 **Setting:** Great Britain. 80 **Participants:** None (media analysis only) 81 Measurements: Occurrence of any tobacco, tobacco use, implied use, other tobacco 82 reference/related objects and branding in every one-minute coding interval. 83 Findings: Tobacco content occurred in 33% of all programmes and 8% of all adverts or 84 programme trailer breaks. Actual tobacco use occurred in 12% of all programmes broadcast. 85 Tobacco-related objects, primarily no-smoking signs, occurred in 2% of broadcasts; implied 86 tobacco use and tobacco branding were also rare. The majority of tobacco content occurred 87 before the 9p.m. watershed. **Conclusions:** These findings are virtually unchanged from our earlier analysis of programme 88 89 content from 2010. Audio-visual tobacco content remains common in UK television 90 programmes. 91 92 93 Introduction 94

Smoking uptake is a major threat to the health of children. Most adult smokers become regular smokers during childhood or adolescence, and those who continue to smoke sustain a loss of one day of life for every four days of smoking after the age of around 35 (1, 2).

Preventing smoking uptake is therefore a public health priority.

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There is strong evidence that exposure to tobacco imagery in films increases smoking uptake in adolescents (3), and this association is causal (4-6). However, whilst children spend more time watching television than films, the tobacco content of television programming has

received relatively little interest. An estimated 28 million British homes have at least one television (7) and in 2017 average viewing was 3 hours, 23 minutes per person per day (8). Tobacco advertising, promotion and sponsorship, including all television advertising and paid product placement, is prohibited in the UK by the 2002 Tobacco Advertising and Promotion Act (9) However, tobacco imagery included in television programmes, including trailers, for artistic or editorial purposes is exempt from the Act, instead covered by the Office of Communications (OfCom) Broadcasting Code (10, Section 1.10). Since 2005 (11), The OfCom Broadcasting Code has protected under-18s by restricting depictions of tobacco use in programmes made for children and preventing the glamorisation of smoking in programmes broadcast before the 9p.m. watershed (the time when TV programmes which might be unsuitable for children can be broadcast, 12), or in programmes likely to be widely seen, heard or accessed by under-18's without editorial justification. However, 13% of 4-15 year olds in the UK view programmes after the 9p.m. watershed (13) when programmes unsuitable for children are allowed to be broadcast (12), while an estimated 62% of 12-15 year olds have access to a TV in their bedroom, and 45% of children watch TV on devices such as tablets, allowing television viewing without parental control (13). In a previous analysis of UK prime-time TV using content from 2010 (14), we found that tobacco content occurred frequently before the 9p.m. watershed in both programmes and advertisement/trailer breaks, and that this exposed British child and adolescent audiences to smoking messages and tobacco branding. Since the previous analysis, the Tobacco Display Regulations (15) have been introduced which prohibit tobacco point-of-sale displays. Pointof-sale displays were a regular occurrence in the previous analysis from 2010 (14). To determine whether the findings of the previous analysis remain representative we now report the results of a study of tobacco audio-visual content in all programmes and

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advertisements/trailers broadcast on all five UK free-to-air channels in 2015 and compare this to our findings from 2010.

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Materials and Methods

All programmes and advertisements/trailers broadcast on the five national UK free-to-air channels (BBC1, BBC2, ITV1, Channel 4, and Channel 5) were recorded during the peak viewing hours of 6 to 10 p.m., capturing data for the three hours before and one hour after the Ofcom 9p.m. watershed. All programmes and advertisements/trailers were recorded in three separate weeks (Monday to Sunday) in 2015, with a four-week gap between each $(21^{St} - 27^{th})$ September, $18^{th} - 25^{th}$ October, $16^{th} - 22^{nd}$ November). At the time of the study these five channels were the most watched channels in the UK (16), and remain so today, with the 5 channels accounting for 51% of all TV viewing (17). Two of these channels, BBC1 and BBC2, are public service channels with no commercial advertising, whilst ITV1, Channel 4 and Channel 5 all feature commercial advertising. All recorded footage was viewed and coded using the one-minute interval period method as described in a previous analysis of television content (14). The method includes recording the presence or absence of audiovisual tobacco content every one-minute in the following categories: Actual Use: Actual observed use of tobacco onscreen by any character, coded as cigarette, cigar, pipe or other (such as water pipe or chewing tobacco). Implied Use: Any inferred tobacco use without any actual use onscreen (eg, holding a cigarette without actual smoking or a comment about going for a cigarette), coded as verbal or non-verbal. Tobacco-related objects: The presence of tobacco or tobacco related materials, coded by the type of appearance (including cigarette or other tobacco pack, matches, lighter, ashtray, no smoking or smoking area signs).

Brand Appearance: The presence of clear and unambiguous tobacco branding, including cigarette or other tobacco packs, secondary advertising (advertisements appearing within other programmes) and branded merchandising. *Any tobacco content:* Any of the above. Tobacco appearances were recorded if they appeared on screen in any one-minute coding period. Multiple instances of the same category in the same one-minute period were considered a single event, however, if two instances of different categories occurred this was recorded as two different events (for example, actual tobacco use and inferred use). The coding categories used were mutually exclusive, for example if a person is seen smoking, this is coded as actual use rather than implied or tobacco-related object however, if a scene featured both paraphernalia and implied use, both were recorded in the same one-minute interval. When the same appearance transitioned into a new one-minute period it was coded as two separate events as the appearance occurred in two, one-minute intervals. One third of the recorded footage was coded separately by two authors (AB and KW) to ensure accuracy and reliability in the coding method. Short trailers for other programmes are shown between programmes on BBC1 and BBC2, and both adverts and trailers between programmes on other channels. These have been coded as a single category of content, rather than code each individual advert/trailer these have been grouped together in each advertisement/trailer periods between regular broadcast programming. Both the commercial (ITV, Channel 4, Channel 5) and non-commercial (BBC1, BBC2) channels broadcast adverts for other programmes on the service during advert breaks, however, we coded advertisement breaks on non-commercial channels (trailers) separately to commercial channels (advertisements). We categorised the genre of each programme based on information from Box of Broadcasts (18) and the researcher's discretion when genre not available. We also categorised whether any

part of the programme occurred after the 9p.m. watershed. Short trailers for other

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175 programmes are shown between programmes on BBC1 and BBC2, and both adverts and 176 trailers between programmes on other channels. These have been coded as a single category 177 of content. Descriptive analyses were conducted in IBM SPSS Statistics (version 23) and 178 Microsoft Excel (2013). 179 180 **Results** 181 We analysed 420 hours of footage including 611 programmes, 909 adverts and 211 trailers. A 182 total of 27083 one-minute intervals were coded, of which 22960 were from programmes, 183 3663 from adverts and 460 from trailers. The most frequent genres were News and Current 184 Affairs, Documentaries, and Soaps with a total of 137, 126, and 76 programmes respectively. 185 The genres which accounted for the highest broadcast time were Documentaries, News and 186 Current Affairs, and Entertainment, comprising of 5482, 3573, and 2408 minutes, respectively. 187 188 **Any Tobacco Content** 189 There were 291 broadcasts (programmes and adverts/trailers for other programmes) which 190 included any tobacco content (17% of all programmes), consisting of 751 intervals containing 191 tobacco appearances (3% of all intervals) (Figure 1). 192 The channel containing the most tobacco appearances was Channel 5 (197 intervals; 26% of 193 any tobacco intervals) and the lowest BBC2 (99 tobacco appearances; 13% of total). The 194 channel with the largest proportion of tobacco content was Channel 5, at 3% of all intervals 195 (See Table 1). 196 *Figure 1 here* 197 198

Table 1: Proportion of intervals containing tobacco by television channel

Channel	Proportion of intervals containing tobacco (Intervals containing tobacco content/total number of intervals coded)
Overall	3% (751/27083)
BBC1	3% (153/5214)
BBC2	2% (99/5167)
ITV	2% (113/5456)
Channel 4	3% (189/5547)
Channel 5	3% (197/5699)

Of the 611 programmes broadcast, 201 (33%) contained any tobacco content, occurring in 650 one-minute intervals (3% of one-minute intervals in programmes). The genres containing the highest tobacco content were Animation (67% of programmes), Comedy Show (57% of

Table 2: Percentage proportion of genres containing tobacco content

programmes), and Drama (50% of programmes) (Table 2).

Genre Total %		Pre-watershed %	Post-watershed %
	(Number of	(Number of	(Number of
	programmes	programmes	programmes
	containing tobacco	containing tobacco	containing tobacco
	content/Total	content/Total	content/Total
	number of		number of
	programmes)	programmes)	programmes)
Soap Opera	32% (24/76)	32% (24/76)	n/a
Documentary	47% (57/126)	40% (33/82)	55% (24/44)
News and Current	34% (47/137)	35% (47/135)	0% (0/2)
Affairs			
Feature Film	43% (6/14)	33% (3/9)	60% (3/5)

Chat Show	33% (5/15)	33% (5/15)	n/a
Game Show	5% (2/42)	7% (2/29)	0% (0/13)
Sport	7% (1/14)	0% (0/8)	17% (1/6)
Comedy	57% (8/14)	50% (5/10)	75% (3/4)
Cookery	14% (4/28)	14% (4/28)	n/a
Drama	50% (17/34)	38% (5/13)	57% (12/21)
Animation	66% (10/15)	66% (10/15)	n/a
Consumer	20% (1/5)	20% (1/5)	n/a
Political	0% (0/2)	0% (0/2)	n/a
Interests	19% (7/36)	19% (6/31)	20% (1/5)
Entertainment	22% (11/51)	9% (3/32)	42% (8/19)
Religious	0% (0/1)	0% (0/1)	n/a
Educational	0% (0/1)	0% (0/1)	n/a

Of the 1200 adverts/trailers analysed, 90 (8%) contained any tobacco content, occurring in 101 of 4123 one-minute intervals (2% of the total advert/trailer intervals). The 75% of programming in our sample broadcast before the 9p.m. watershed contained 65% (486 intervals) of the one-minute intervals of observed tobacco appearances and references.

Actual Tobacco Use

Actual tobacco use appeared in 207 intervals (1% of the total), in 76 (12%) of programmes and 13 (1%) of adverts / trailers. The highest proportion of tobacco use was cigarette smoking (164 intervals, 79% of all tobacco use), followed by pipe smoking (25 intervals, 12%), cigar smoking (16 intervals, 8%), and e cigarette use (7 intervals, 3%). One instance of tobacco use was unidentified. Tobacco use occurred in 14 out of the 20 genres and featured in 53% and 36% of all Animation shows and Feature Films respectively. Most of the tobacco use in Animation featured in the show *The Simpsons* (occurring in 5% of all Simpson's intervals). Most (52%) of the intervals containing tobacco use were broadcast after the 9p.m. watershed. Five feature films (36%) contained tobacco use, of which three were broadcast before the 9p.m. watershed, and all five of which were classified by the BBFC as suitable for viewing by children (One of them with no age restriction: U). Of the 207 intervals containing actual tobacco use, 104 (50%) occurred pre-watershed.

Implied tobacco use and tobacco-related objects

Implied tobacco use was found in 203 intervals (1% of all intervals) and in 118 of all broadcasts (programmes/adverts/trailers combined). Smoking behaviour (e.g. holding a cigarette) accounted for 163 intervals of implied use, 39 intervals contained a verbal mention of tobacco, and in 10 intervals of other implied use. 116 intervals (57%) containing implied tobacco use occurred before the 9p.m. watershed. Tobacco-related objects accounted for the most content appearing in 438 tobacco intervals (2% of total) and in 202 of all broadcasts. 260 intervals (66%) containing tobacco-related objects occurred before the 9p.m. watershed. No-smoking signs accounted for the most tobacco-related objects (see table 3).

Table 3: Tobacco-related object types

Tobacco-related	Total number of
object Type	intervals
Cigarette packet	66
Matches	6
Lighter	57
Ashtray	75
No-smoking sign	226
Other (E.g. signs or	100
posters mentioning	
tobacco, smoking	
mentioned as part of	
quit smoking adverts)	

Tobacco Brands

There were 11 intervals (37 actual appearances) which contained tobacco branding, occurring in 7 different programmes. Most of these appearances arose from cigarette packets or tobacco boxes shown during two news reports on illegal cigarettes (5 intervals, 45.5% of the total branding intervals) or from appearances of the fictitious brand 'Laramie', which featured in 'The Simpsons' (5 intervals, 45.5% of the total branding intervals). There was only one appearance during a TV programme, in one interval (see Table 4 for a breakdown of programmes and total number of appearances by each tobacco brand).

Table 4: Programmes and total number of appearances by each tobacco brand

Genre of programm e	Title of program me	Date program me aired	Programme aired pre or post watershed	Number of tobacco brands shown in programme	List of tobacco brand name shown in programme (Number of appearances)	Description of brand appearance
ITV (News)	News	25.9.15	Pre	14	Drum (2); Amber Leaf (3); Marlboro (2); Victory (2); L&M (2); Gold Mount (1); Jin Ling (2); Gold Classic (3); G&B (3); Richman (2); M&G Gold (1); Grand (3); 821 (1); Mayfair (1)	Branding seen on packets of illegal cigarettes in news item
BBC1 (News)	News	25/9/15	Pre	2	Richmond (1); Mayfair (1)	Branding seen on packets of illegal cigarettes in news item
Channel 4 (Animatio n)	The Simpson s	Four episodes: 25/9/15; 21/10/15; 22/10/15; 20/11/15	Pre	1	Laramie, fake brand (5)	Moe's Tavern, advert for Laramie cigarettes is visible; Qwik-e-mart a poster for Laramie stating 'Smoke em'; Supermarket, Selma and Patty buy packets of Laramie cigarettes; Truck has Laramie logo on the side; Moe's bar, a

	TI.		Pre	1	Drum (1)	poster on wall which says 'Try Laramie'
(Dromo)	The Catch	21/9/15				
(Drama)	Catch	21/9/13				The skipper smokes a cigarette on
						the bridge with a non-smoking
						deckhand. In the galley, a branded
						tobacco packet can be seen.

Comparison to previous analysis

In comparison to the previous content analysis of UK broadcast television, the amount of intervals containing any tobacco content increased from 731 intervals to 751 intervals, see table 5.

Table 5: Comparison of the number of one-minute intervals containing tobacco content in 2010 and 2015

	Number of one-minute	Number of one-minute
	intervals from the 2010	intervals from the 2015
	analysis	analysis
Any Tobacco Content	731	751
Actual Tobacco Use	245	207
Implied Tobacco Use	82	203
Tobacco-related objects*	576	438
Tobacco Branding	27	11

^{*}Combined 'Paraphernalia' and 'Other' categories from the 2010 data

Discussion

This study demonstrates that despite regulations restricting tobacco content being broadcast, tobacco imagery still occurs commonly on UK television. While the majority of tobacco depictions occurred after the 9p.m.watershed, tobacco depictions were observed both the watershed on the most popular television channels. Although tobacco branding was rare and primarily comprised brands seen in news items about illicit tobacco or a fictional brand in *The Simpsons*. There is strong causal evidence that exposure to tobacco imagery increases smoking uptake in adolescents (3-6). It is likely that the amount of tobacco content shown on UK broadcast television in the current study leads to experimentation and uptake. The levels of tobacco imagery in the categories we coded are very similar to those reported in our earlier analysis of programming in 2010 (14), suggesting that UK prime-time television is a constant source of exposure to tobacco imagery for young people. If the amount of tobacco content shown on TV remains consistent over time, tobacco use will remain normalised in society

and continue to lead to subsequent adolescent use and uptake, while curtailing any trend towards decreasing smoking prevalence. We coded only terrestrial channels since the majority of households have access to these channels and programmes aired on these channels consistently receive the highest viewing share in the UK (16). Given the large viewing audience of these channels, and the fact that the majority of viewing by 4-15 year olds in the UK occurs in early morning or early evening (7p.m.-9p.m.)(13), it is very likely that children and young adults will have access to, and be viewing, the five main channels. However, we acknowledge that it is equally likely that children will have access to and view other channels. The sample method we used, three 1week periods, is potentially susceptible to seasonal influences on television programmes and news stories, however this is unlikely to have distorted our findings as the main sources of tobacco content were programmes which are aired throughout the year. We chose to code programmes broadcast between 6p.m. and 10p.m. since programmes shown in this time period are the most viewed throughout the week, however, without viewing figures it is impossible to know whether these channels were the most viewed for the three weeks coded. Whilst there is strong evidence that exposure to advertising and/or other tobacco imagery increases subsequent use in adolescents (4-6), this study did not explore exposure through viewing figures or subsequent tobacco use and uptake following viewing UK prime-time TV. Tobacco content in broadcast television could act as a smoking cue, eliciting a smoking urge in the viewer, which could lead to reinforcing the smoking behaviour and relapse in former smokers (19-21). Consistent with earlier work (14) our coding of tobacco-related objects includes no-smoking signage, while less likely to be a driver of smoking behaviour than imagery arising from actual smoking, could potentially be unintentionally acting as a smoking cue (22-24). As with other categories of tobacco content, the proportion arising from signage was very similar between the 2010 and present studies.

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While the majority of tobacco depictions occurred after the 9p.m. watershed, instances from all coding categories were shown pre-watershed. According to the OfCom Broadcasting Code (10, Section 1.10), tobacco depictions are restricted before the 9p.m. watershed unless editorially justified, to protect children and young people from potentially harmful imagery (12). In the current study we observed almost 500 one-minute intervals which contained tobacco content broadcast pre-watershed. Given that the majority of viewing by 4-15 year olds in the UK occurs in early morning or early evening (7p.m.-9p.m.)(13), and there is a causal link between viewing tobacco content and subsequent use (3-6), the OfCom 9.p.m. watershed, is currently not fulfilling its purpose.

This study demonstrates that tobacco content, including smoking, occurs frequently on UK prime-time television in programmes which are likely to be viewed by young people, as such, this is likely to lead to experimentation and uptake among young children. We suggest that guidelines on tobacco content need to be revised and more carefully enforced to protect children from exposure to tobacco imagery and the consequent risk of smoking initiation.

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