

7. The ASSIST Newspaper Tracking System

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7. The ASSIST Newspaper Tracking System

To determine whether media interventions and media advocacy influenced newspaper coverage of tobacco control issues, the American Stop Smoking Intervention Study (ASSIST) evaluation analyzed newspaper coverage of ASSIST priority policy areas. The ASSIST Newspaper Tracking System, a comprehensive database of newspaper coverage of tobacco control efforts in the United States from 1993 to 2000, compiled over 124,000 articles from newspapers across the country with the assistance of a national newspaper clipping service. This database was subsequently used to describe trends in media coverage for ASSIST policy areas over time as well as differences in news coverage between ASSIST and non-ASSIST states.

Articles were judged for relevance on the basis of a three-tiered key-word search of tobacco-, legislative restriction-, and policy-related terms as well as a subjective content review. These articles were then coded for subsequent analysis along indices such as policy type, topic, circulation, article type, and point of view. Four state-level metrics were produced from this scoring system: raw frequency of articles; relative (percentage) frequency; a rate variable comparing number of articles to the number of newspapers per state; and a media advocacy variable (MAV), a per capita index of prohealth coverage computed from multiple factors.

Although a subsequent trend analysis of these scoring data could not establish evidence of changes in coverage over time, this study provided evidence that ASSIST media intervention efforts had an effect on newspaper coverage of tobacco control policy activities. The ASSIST Initial Outcomes Index was used to control for baseline differences between states, revealing a significant positive difference in the rate variable between ASSIST states and non-ASSIST states, with a plausible explanation being the presence of ASSIST media interventions. This database and its associated study serve as a valuable basis for future research efforts involving media outcomes in tobacco control and how to quantify them relative to policy intervention efforts.

Introduction

This chapter describes (1) the database created to track newspaper coverage of ASSIST's four priority policy areas during the project, (2) the methods developed to code and analyze the data, and (3) a state-level scoring system created to characterize the newspaper coverage. Several analyses are presented to demonstrate the score's potential uses, including

- Trend analyses of coverage by topic, to highlight the potential use of the scoring system to determine whether media interventions are stimulating adequate newspaper coverage to engender support for the proposed policies;

- Comparison of newspaper coverage in ASSIST states with coverage in non-ASSIST states;
- A case study of newspaper coverage in one specific state, North Carolina, related to the successful promotion of stronger youth tobacco access laws.

Although this database was not ultimately used as part of the formal ASSIST evaluation analysis, it represents a valuable first effort in measuring the results of media advocacy efforts for tobacco control.

In a social-environmental public health approach, interventions that

change public and private tobacco use policies are among the most powerful interventions available to tobacco control advocates. Policies that promote nonsmoking behavior lead to the development of a social norm that holds tobacco use unacceptable. One of the three principal interventions of the ASSIST model was media intervention, including media advocacy, a highly effective tool for promoting policies as part of a public health agenda. The ASSIST Newspaper Tracking System represented an effort to determine the success of the ASSIST media interventions by analyzing the amount and type of newspaper coverage

Media Advocacy

“Media advocacy is the strategic use of mass media as a resource for advancing a social or public policy initiative.”^a Media advocacy stimulates community involvement in defining policy initiatives that influence the social environment in which individuals make choices—for example, choices about tobacco use. Media advocates react to unexpected events and breaking news and create events to draw media attention and coverage to an issue.^b When traditional media relations and interventions—for example, publicizing special events, marking health observances, and publicizing research results—are used strategically, not just informatively, they are tactics in the approach of media advocacy. In all the ASSIST states, ASSIST staff and volunteers were trained to use all media interventions in ways that were strategic and community based. In this way, ASSIST advanced the state of the art in media advocacy for tobacco control.

“Media advocates must know the relevant policy issues, know how to frame an issue for public debate, and know how the media function—what types of stories are deemed newsworthy, how editors decide what stories get covered, and what deadlines and logistic issues might influence coverage. Therefore, ASSIST conducted media advocacy training to impart knowledge and skills to advocates and to encourage and empower their involvement in tobacco control. A communication network among advocates for sharing information on local and national activities helped ASSIST advocates implement media advocacy efforts. Newsletters, listservs, and computer newsgroups supported timely communication and creativity among the national, state, and local advocates.”

Source: National Cancer Institute. 2005. *ASSIST: Shaping the future of tobacco prevention and control* (Tobacco control monograph no. 16, NIH publication no. 05-5645). Bethesda, MD: National Cancer Institute (pp. 127, 129).

^aNational Cancer Institute. 1989. *Media strategies for smoking control: Guidelines* (NIH publication no. 89-3013). Bethesda, MD: National Institutes of Health (p. 8).

^bWallack, L., K. Woodruff, L. Dorfman, and I. Diaz. 1999. *News for a change: An advocate's guide to working with the media*. Thousand Oaks, CA: Sage.

of the policy areas promoted by the ASSIST intervention: clean indoor air, restrictions on minors' access to tobacco, excise tax increases, and restrictions on tobacco advertising and promotion (see Monograph 16, chapter 5, pp. 149–152).

The Challenge of Measuring the Effect of Media Interventions

The idea that news media coverage brings issues to the attention of the public and of policy makers may seem intuitive, if not obvious. The challenge in evaluation, however, is demonstrating that news media coverage does in fact influence the thinking, decisions, and behavior of the public and of policy makers. Although determining such a cause-and-effect relationship for some very focused and geographically limited topics might be possible, researchers in the field of evaluation are still grappling with how to do so for wide-scale public health interventions. When ASSIST was initiated in 1991, there was little published literature on methods for evaluating the effects of media interventions,¹ which are important interventions of the ASSIST model. Therefore, designing a method of evaluation was essential. Evaluating media intervention effects would entail determining actual news media coverage, tracking coverage trends, and comparing those trends with levels or types of media intervention efforts. National Cancer Institute (NCI) and ASSIST Coordinating Center staff members developed methods that not only measured the effects of ASSIST but

also contributed to advancing the field of evaluation in this regard.

Though an appropriate method to evaluate ASSIST media interventions was not available, the development of the newspaper tracking system was influenced by the work in media studies that documented the relationship between news media coverage of social problems and the effects of that coverage on audience perceptions of those problems. Early research was on agenda setting, and that research posited that the public's attention, over time, would be focused on issues occupying time or space in the mass media.² In the words of Bernard Cohen, "The press may not be successful much of the time in telling people what to think, but it is strikingly successful in telling readers what to think about."^{3(p13)} However, subsequent work in media studies revealed that the model described in Wallack et al.² was too limited and suggested that by presenting social problems as such, the media do help individuals to think about a problem in a certain way. The media provide arguments for and against social issues and thereby define the terms in which the topics are considered.^{4(p231)} This study and more recent studies suggest that the public agenda, news media coverage, and public policy are mutually influential and, of course, multifaceted.⁵ If so, media advocacy interventions should be capable of influencing news media coverage. Recently and since the end of ASSIST, researchers documented the interrelationships among media, advocacy, and health promotion. They found that during the 1980s organized groups and institutions that sought to

place cardiovascular disease issues on the public agenda stimulated an increase in news media coverage of heart disease as a social problem.⁶

ASSIST conducted media advocacy for many of its media interventions. Media advocacy grew out of the work of social movement organizations in many arenas, but only recently has it become a formal element of approaches for affecting public health policy. The objective of media advocacy is to influence how the media present issues, and the goal is to thereby shape policy agendas and regulatory or legislative actions. (For a full discussion of these concepts and how they were applied in ASSIST, see Monograph 16, chapter 5.)

The steps in this first stage of developing an evaluation approach to the media interventions of a wide-scale public health intervention were the following:

- Establish a tracking system for identifying and collecting newspaper articles about ASSIST-relevant tobacco control topics.
- Code the articles for characteristics that could be used for meaningful analyses.
- Maintain a database of the coded data.
- Create indices from the database for use in analyses.
- Conduct trend analyses for the entire ASSIST implementation phase (1993–99), comparing ASSIST states with non-ASSIST states.
- Provide the 17 ASSIST states with trend analyses of newspaper coverage on a quarterly basis as feedback on their media intervention efforts.

These efforts are described in the subsequent sections of this chapter.

The newspaper tracking effort was unprecedented in scope, though it tracked only newspaper coverage. The omission of broadcast and electronic media (television, radio, and the World Wide Web, which was in its infancy when data collection began) does not detract from the overarching purpose of the tracking system. Newspaper coverage has been found to parallel coverage in the electronic media.⁷ In fact, newspaper coverage of issues, especially in the *elite press* (a term used in the industry to refer to influential agenda-setting media), has been shown to be the source of much of what is covered by the electronic media. Research has also documented the importance of newspaper coverage in the decision-making process for policy makers and legislators in many areas of public policy.⁵ Thus, the ASSIST Newspaper Tracking System is an important resource for additional kinds of analyses and for further hypothesis testing about tracking and evaluating news media coverage to determine the effectiveness of tobacco control interventions designed to promote a tobacco-free social norm.

Tracking the Articles

From October 1993 through December 2000, the ASSIST Coordinating Center tracked all daily newspapers in the United States for articles covering the tobacco control policy areas established in the ASSIST model: clean indoor air, restrictions on minors' access to tobacco, excise tax increases, and restrictions on tobacco advertising and promotion.

Collecting the Articles

Following a pilot study to examine the feasibility and specificity of tracking newspaper coverage of tobacco control issues in three states,⁸ a national newspaper-clipping service was selected as the data collection agent. This service monitors 17,247 different publications and claims an estimated capture ratio of 80%, meaning that 80% of all articles germane to a particular search strategy will be identified and clipped by a reader.

Between October 1, 1993, and December 31, 2000, this service monitored all daily newspapers in the United States using a search strategy devised by ASSIST Coordinating Center researchers. In December 2000, 1,766 newspapers were in the sampling frame, but this number had varied over time due to newspaper openings, closings, and mergers.

National newspapers—such as *USA Today*, the *Wall Street Journal*, and the *Christian Science Monitor*—were excluded from the search strategy because determining their readership in each state would be difficult. The *New York Times* and the *Washington Post* were included in the search, even though they have national circulations, because they are primarily city newspapers with a section that covers only local news. Advertisements, movie reviews, restaurant reviews, and obituaries that had tobacco-related content were excluded from the search. Syndicated columns were counted as one article (identified by the newspaper of origin and attributed to that state) to capture an important source of editorial opinion, to credit its influence, and to limit redundancy.

The newspaper-clipping service obtained potentially relevant articles from the universe of daily newspapers. Potentially relevant news and feature articles, letters to the editor, and editorials about tobacco control policies were identified with a three-tiered search strategy. The first tier consisted of tobacco key words, the second tier consisted of legislative key words, and the third of policy-related key words. Examples of key words are listed in table 7.1. See appendix 7.A for a list of the coding topics; see appendix 7.B for a complete list of search strategies.

To enhance the likelihood of identifying the most relevant articles, this strategy required that one word from each tier appear in the article or headline in order for it to be clipped. For example, appearance of the word *tobacco* by itself did not qualify an article for selection—the article could have been about tobacco farming and not about tobacco control policy. However, the appearance of the words *tobacco* and *bill* and *tax* would qualify an article for selection. The chief advantages of the search strategy were its simplicity and replicability. No decisions about the content of the article were necessary other than to note the appearance of the key words. The above criteria could not be applied to single-paragraph articles, such as letters to the editor. In these cases, a key word from two of the three tiers was sufficient for selection.

Determining the Relevance of the Articles

The clipping service identified each clipping by the newspaper's name, cir-

Table 7.1. Examples of Key Words for Search Strategy

Tier 1: Tobacco	Tier 2: Legislative restrictions	Tier 3: Policy	
ASSIST	Ban/banned/banning	Advertising	Pharmacy
Cigarettes	Bill	Airport	Promotion
Nicotine	Law/lawsuit	Arena	Public places
Smoking	Legislation/legislative/legislator	Billboard	Restaurants
Smoke-free	Ordinance	Bowling alley	School(s)
Snuff	Policy	Buildings	Stores
Tobacco	Prohibit/prohibition	Children	Tax
	Regulation/regulatory	Coliseum	Vending machines
	Restrictions	Jail	Workplace(s)
		Mall	Youth
		Minor(s)	

ulation, and date of publication. The service shipped all clipped articles in bulk to the ASSIST Coordinating Center on a monthly basis. Each article was then reviewed to ensure that it met the search criteria and that it was indeed relevant. Trained research staff of the ASSIST Coordinating Center performed this task. First, each article was screened to verify that a key word from each tier was used in it. This criterion, however, was not sufficient to determine relevance because even though an article might include the key words, it might be only tangentially related to the topic of tobacco control. For example, a story about a politician's personal life might mention his or her efforts in tobacco control but might not be about tobacco control policy. Articles that were determined to be relevant were entered into the database. See Stillman and colleagues⁹ for additional details.

Coding the Articles and Maintaining a Database

The coding process began once an article was accepted as relevant and was added to the database. The challenge posed by the coding process was to characterize the information from each article sufficiently to clearly represent how the tobacco control issues were treated. The data from the ASSIST Newspaper Tracking System were most suitable for identifying what tobacco control issues were discussed across the United States. The data were less suitable for revealing details about the discussion, about the quality of the discussion, and about the approach to the discussion. The sheer volume of articles made it necessary to choose between two very different types of coding: conducting a surface analysis of the entire scope of newspaper coverage of tobacco control policy, or coding

and analyzing a small percentage of the clippings in depth.

As an example of the coding process, all hard news stories were coded as neutral, whereas editorials, letters to the editor, and editorial cartoons were coded as either neutral, prohealth, or protobacco. Such articles were coded as neutral when the author addressed both sides of an issue and expressed no dominant theme or position. The argument could be made that hard news stories express a bias even though they should be neutral, in accordance with journalistic principles; however, assessing bias in news stories would have required far greater staff resources, monetary resources, and in-depth textual analysis than were possible for this study.

The ASSIST Coordinating Center developed a codebook to provide background and instructions for coders. New tobacco control topics that appeared in the newspaper clippings and that had implications for the coding were addressed at bimonthly meetings of coders and project administrators. Addenda to the coding manual were written as needed. Coders were in a training period until they achieved an intercoder reliability rate of 100%. Every month thereafter, for quality control, the coding supervisor made spot reliability checks of 20 clips from each coder. Any clips that did not meet coding standards were recoded to meet the standards. The reliability scores remained high, at 95%–99%, throughout the project.

Each article was coded on six variables: policy type, topic code, circulation of source newspaper, type of

article, front page, and origin of story. Articles that were editorial in nature were coded on a seventh variable, point of view. These variables are described in table 7.2.

Table 7.3 provides examples of the tobacco policy topics coded by the tracking system. The final coded database consists of 124,401 articles. The record of each article contains a set of coded variables and the article's identifiers—newspaper's name, circulation, and date of publication.

Developing Indices from the Database

To render the data useful for trend analyses, a number of indices were created: raw frequency, relative frequency, rate variable, and media advocacy variable. The purpose of these indices was to reduce complex data to manageable constructs for meaningful analysis and to test theoretical assumptions about the relationship between news media coverage and social-environmental outcomes. For example, agenda-setting theory proposes that the quantity and specific characteristics of coverage influence the public debate about policy issues.¹ To test such assumptions parsimoniously, an index that captured these characteristics was necessary.

The first index of the articles was raw frequency, simply the number of articles designated by one value of a specific variable (e.g., the number of articles published during 1994). The second index was relative frequency, the percentage of articles with a given characteristic, such as the percentage of stories on the front page in a year.

Table 7.2. Definitions of Coded Variables

Variable	Operational definition
Policy type	Four policy areas were coded to correspond with ASSIST objectives: clean indoor air, restrictions on minors’ access to tobacco, excise tax increases, and restrictions on tobacco advertising and promotion. A fifth category, referred to as miscellaneous, includes lawsuits against the tobacco industry, national settlement talks, and proposed regulation of nicotine by the U.S. Food and Drug Administration (FDA).
Topic code	Since 1996, specific topic codes were entered to specify content of articles (e.g., state excise tax) beyond policy type.
Circulation	This variable refers to the number of copies of the publication that are distributed daily. (For the <i>New York Times</i> and the <i>Washington Post</i> , these were further divided into specific circulation figures for each adjacent state—New York/New Jersey/Connecticut, and Virginia/Maryland/District of Columbia, respectively.)
Type of article	Articles were classified as being one of three types: news story (a factual account of an event or issue), editorial (an opinion of an event or issue written by newspaper staff), or letter to the editor (usually written to the newspaper by a member of the community).
Front page	This variable was created in an attempt to identify the visibility of a specific article in the particular newspaper.
Point of view	The points of view of editorials, letters to the editor, and editorial cartoons were coded as neutral, prohealth, or protobacco. Hard news stories were coded as neutral.
Origin of story	To assess the salience of the tobacco control policy issue, the articles were coded as either national or local in focus. Stories from a national wire service (e.g., Associated Press, United Press International, Reuters) were coded as national; stories from a local journalist (whose name was stated in the byline) were coded as local. When the media analysis first started, this variable was not included in the coding protocol. This variable was added after 6 months of coding—when it became apparent that many articles in local papers were covering national tobacco policy issues taken from national wire services.

Table 7.3. Examples of Tobacco Topics

Clean indoor air	Minors’ access to tobacco	Excise tax increases	Advertising and promotion	Miscellaneous
Smoke-free bowling alley	Licensing vendors	Federal excise tax	Banning billboards in a state	Cigarette package labeling
Sports arena restricts smoking	Youth purchase attempts	State excise tax	Removing billboards from sports arenas	FDA regulation of nicotine content
Restricting smoking in schools	Banning vending machines		FDA regulation of cigarette advertising	Lawsuits

Note: FDA indicates U.S. Food and Drug Administration.

Relative frequency enables comparisons among variables over time and from year to year.

Neither the raw frequency nor the relative frequency can be the basis for valid comparisons between states because the number of newspapers published varies by state. The number of newspapers would affect the number of articles published (i.e., the more newspapers in a state, the greater the number of articles published). Yet, comparisons between states are important because the unit of analysis in ASSIST is the state.

To address this problem, a third index was calculated, a rate variable: the number of articles clipped in a state divided by the number of newspapers in that state. This quotient yielded the rate variable of tobacco control articles per newspaper per state. The rate variable could be calculated for specific time units—for example, a rate per month, per quarter, or per year. Since the newspaper business is volatile (subject to new starts, mergers, and closures), the clipping service provided the number of newspapers included in the monthly set of clippings.

The fourth index was the media advocacy variable (MAV), which was created as an index of prohealth coverage. This index included the amount, prominence, and point of view of the coverage. MAV was adjusted for a state's population; thus, it could be used to make state-to-state comparisons of prohealth coverage. MAV was calculated as follows:

$$\frac{\text{type} \times \text{point of view} \times \text{front page} \times (\text{circulation} \times 2.2)}{\text{state population}}$$

where

type: 0 = cartoons;

1 = all other articles

point of view: -2 = protobacco;

1 = neutral; 2 = prohealth

front page: 2 = yes; 1 = no

circulation × 2.2: This product is an estimate of the circulated paper's total readership.

Weighting of the MAV components was based on previous media advocacy research methods¹⁰ and expert recommendations. MAV has been applied in modeling the overall effects of ASSIST on hypothesized long-term health outcomes (such as change in tobacco use prevalence) and in modeling associations between ASSIST and tobacco control policy outcomes. Although MAV has not been incorporated into analyses presented in this monograph, it can be used to measure overall population exposure to prohealth coverage. It has significant potential for application in future news media analyses.

Trend Analyses

The ASSIST Newspaper Tracking System is the most comprehensive available record of newspaper coverage of tobacco control from 1993 to 2000. The database can be used for various types of analyses—for example, for overall news coverage trend analyses that assess changes in the quantity and characteristics of coverage over time or for detailed content analyses of news articles focused on understanding the coverage of a specific topic or set of topics.

In general, the analyses reported here were based on the frequency of articles within each of the coded variables (table 7.2). For descriptive analyses, a chi-square analysis was used to compare frequencies of articles within each of the categories, and each observation was assumed to be independent. In addition, articles grouped by years of publication were considered to be independent samples. In other words, the appearance of an article about a particular tobacco control policy or topic at a single point in time was considered independently of the appearance of another article during subsequent time periods. The tracking system did not track articles appearing in specified newspapers over time. The assumption of independence is consistent with defining the article as the unit of observation.

The next sections present three examples of analyses conducted during the ASSIST evaluation: (1) trend analyses of types of articles, (2) comparison of trends in ASSIST and non-ASSIST states, and (3) a case study of a specific policy initiative in an ASSIST state.

Trend Analyses of Types of Articles

Because the sampling frame of the ASSIST Newspaper Tracking System included all daily newspapers, the data can be used to assess the characteristics of coverage during the data collection period. Researchers from NCI and the ASSIST Coordinating Center conducted a series of descriptive analyses resulting in an overall characterization of trends in coverage during the implementation phase of ASSIST. Trends were characterized as changes in quantities, rates, or characteristics of coverage over time.

From October 1, 1993, through December 31, 2000, 124,401 articles were coded and entered into the database. Of those articles, 67% were news stories, 15% were letters to the editor, 17% were editorials, and 1% consisted of cartoons. Some variations in the relative frequencies of the types of articles occurred throughout the years of observation (figure 7.1). For example, the percentage of news stories gradually rose over time, whereas the percentage of letters to the editor fell. News stories constituted 58% of all articles in 1993, 71% in 1997, and 76% in 2000. Similarly, the relative frequency of editorials increased from 13% in 1993 to 21% in 1998 but declined to 16% in 1999 and to 14% in 2000. In contrast, the relative frequency of letters to the editor declined from 28% in 1993 to 10% in 1997. After a small rebound to 15% in 1998, the relative frequency of letters to editors declined to 12% in 1999 and to only 9% in 2000.

The largest proportion of newspaper articles across the data collection period concerned clean indoor air policies (40%), followed by minors' access issues (15%), tobacco excise taxes (10%), and tobacco advertising and promotion policies (6%). The miscellaneous category accounted for more than 29% of all coded articles in the database because this category included the high-attention topics of lawsuits against the tobacco industry and the Master Settlement Agreement, which affected all states (see figure 7.2), and Food and Drug Administration (FDA) regulations. The percentage of articles about each policy area varied over time. In 1993, clean indoor air accounted for 63% of all articles; this number dropped to 24% in 1996 and rose to 40% in 1999 and 2000.

Figure 7.1. Article Type by Year, 1993–2000

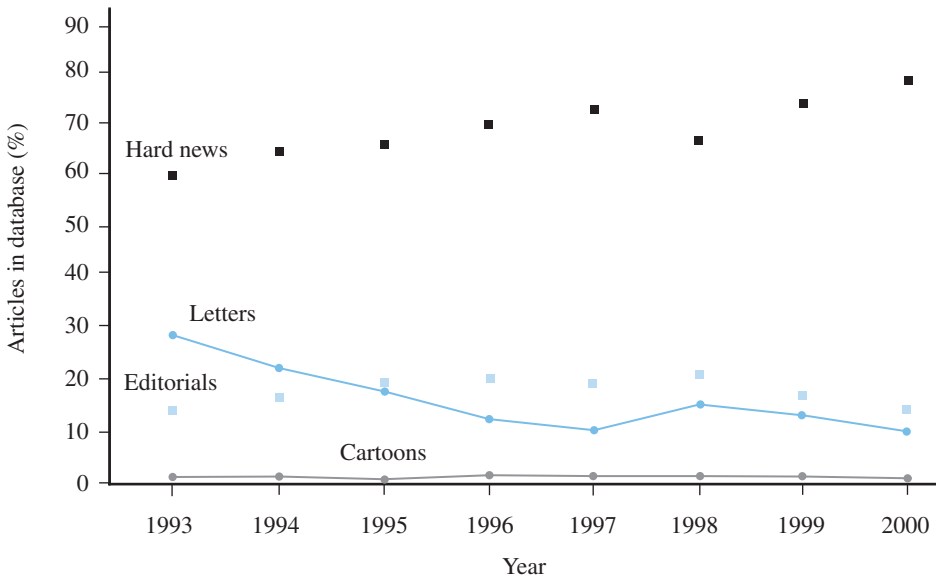
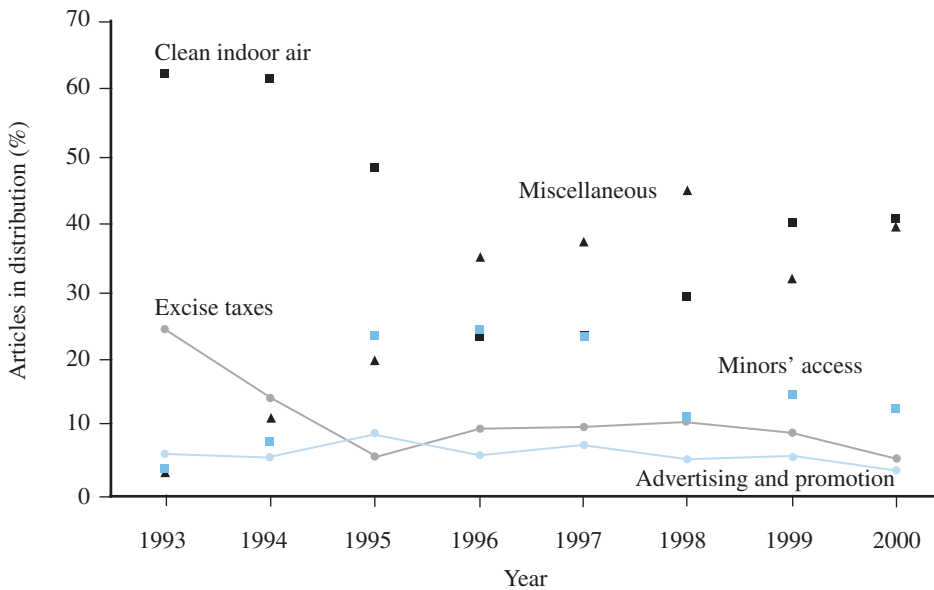


Figure 7.2. Policy Topic by Year, 1993–2000



The relative frequency of articles on excise taxes dropped from a high of 25% in 1993 to 5% in 1995. Coverage of minors' access issues peaked in 1996. The relative frequency of articles in the miscellaneous category steadily increased and peaked in 1998 and represented 40% of all articles in 2000.

Overall, the proportion of news stories was relatively consistent among the four policy types and ranged from 67% for clean indoor air to 71% for youth access, with advertising and promotion restrictions and miscellaneous each at 70%. However, for the excise tax issue, only 49% of coverage was news stories. The distribution of type of stories by topic was similar for all years.

In the overall database, editorials, letters to the editor, and cartoons were coded for point of view. In the following analysis, we examined only editorials and excluded those with a neutral point of view (i.e., percentage comparisons are between prohealth and protobacco editorials only). The prohealth point of view outweighed the protobacco point of view by nearly a 2:1 margin (22,282 to 12,441, with 3,087 neutral). The data also show year-by-year variations. In 1993, 58% of all editorials expressing an opinion were prohealth, and 42% were protobacco, with prohealth peaking at 76% in 1996 and dropping to 60% in 1998. All the comparisons between prohealth and protobacco percentages within individual years were statistically significant ($p < .001$). The percentages of articles voicing prohealth points of view remained relatively unchanged from 1998 to 2000.

Readiness for Media Interventions

“For ASSIST to conduct media interventions successfully, three elements had to be in place:

1. An infrastructure of organizational units clearly responsible for the interventions
2. A system of communication throughout the infrastructure that would enable timely implementation of media interventions
3. Technical assistance to equip ASSIST personnel and coalition volunteers with needed skills and to provide them continued support in planning and implementing media interventions

“These three elements were developed and established during ASSIST’s 2-year planning phase. . . . By mid-1993, the 17 states were ready to implement media intervention strategies described in their annual action plans.”

Source: National Cancer Institute. 2005. *ASSIST: Shaping the future of tobacco prevention and control* (Tobacco control monograph no. 16, NIH publication no. 05-5645). Bethesda, MD: National Cancer Institute (pp. 123–24).

Regarding tax issues, the prohealth point of view peaked at 73% in 1996, but in 1998, editorials expressing protobacco views outnumbered the prohealth position by almost 2:1 (64% versus 36%). For clean indoor air issues, the percentage of protobacco editorials ranged from 62% to 72% in 1993–97, dropped to 56% in 1998, but climbed to 70% in 2000. Editorials on the issue of youth access were consistently prohealth over time. In the miscellaneous category, the percentage of editorials on advertising and promotion policies expressing prohealth views decreased from 82% in 1994 to 59% in 1996 and rose to 71% in 1998, to 80% in 1999, and to 84% in 2000.

In terms of the visibility of the policy types, minors' access to tobacco products was most frequently found on the front page of the newspapers (17.7% versus 13.2% for all others, $p < .001$).

Analyses of ASSIST Versus Non-ASSIST States

The ASSIST Newspaper Tracking System was designed in part to assess whether newspaper coverage would follow ASSIST efforts to implement media interventions. One research question was whether newspaper coverage of tobacco control issues would be greater and more favorable to tobacco control in ASSIST states than in non-ASSIST states.

The ASSIST states were not selected randomly; rather, they were selected according to the criteria of a competitive contract review process. Thus, the analyses were based on a quasi-experimental design that would compare newspaper coverage of tobacco control in ASSIST and non-ASSIST states prior to the intervention and then at several points afterward (i.e., a pretest, multiposttest design). However, the ASSIST Newspaper Tracking System did not include data prior to the ASSIST implementation phase, and attempts to reconstruct

a baseline using electronic data sources (e.g., Lexis-Nexis) proved unsuccessful.⁹

Given these limitations, a two-step approach was used to (1) control for between-groups differences at baseline using a construct that accounted for relevant tobacco control policy variables and (2) test for an ASSIST-by-year interaction. Step 2 was based on the hypothesis of an increasing intervention effect over time: as the project progressed, ASSIST staff would gain experience in media advocacy and consequently would become more successful at media interventions.

The outcome measure used to control for baseline differences was the ASSIST Initial Outcomes Index. (See chapter 4 for details.) The Initial Outcomes Index is a summary measure of three tobacco control variables: the percentage of workers covered by 100% smoke-free workplaces, cigarette price, and rating of local and state clean indoor air policies. The Initial Outcomes Index measured at the baseline also predicted the volume of newspaper coverage of tobacco control issues.

The dependent variable was the rate variable, defined as the number of articles published in each state during the year divided by the number of newspapers. Table 7.4 presents the average rates for

Table 7.4. Average Rate Variables for Each Year Analyzed (District of Columbia Excluded)

States	1994	1995	1996	1997	1998
ASSIST					
<i>Mean</i>	18.31	10.80	10.95	14.73	13.78
<i>SD</i>	9.43	7.81	8.02	9.74	7.11
Non-ASSIST					
<i>Mean</i>	12.13	7.64	7.31	11.10	10.25
<i>SD</i>	8.05	5.57	4.91	9.25	9.16

each year analyzed. Data from the District of Columbia were considered outliers and were omitted from these analyses because it is the home of *The Washington Post*, which is not only a “local” newspaper, but is one of the premier national newspapers. In addition, the District of Columbia is not a state.

The analytic methods were as follows (see Stillman and colleagues⁹ for additional details):

- Conduct a repeated-measures analysis to account for the presence of correlations between the observations for the same state over time.
- Use the PROC MIXED procedure in the statistical computer package SAS¹¹ for mixed linear regression equations. (Mixed models are more general than standard linear regression models in that they allow for the modeling of the variances and covariance of the observations and the means.)
- Perform a log transformation of the dependent variable, and calculate an average article rate for each state to normalize the error terms.
- Enter ASSIST status, Initial Outcomes Index rate, year, and interactions between these terms into the model.

The primary results of these analyses were as follows:

- Main effects for the Initial Outcomes Index ($p < .0003$) and year ($p < .0003$)
- No observed ASSIST-by-year interaction, contrary to what was hypothesized
- An observed main effect for ASSIST ($p < .0007$), indicating greater news

coverage in ASSIST states than in non-ASSIST states

The hypothesis of a change in coverage over time was not confirmed, but the analyses provided evidence that ASSIST media intervention efforts had an effect on newspaper coverage of tobacco control. While the quasi-experimental design does not allow causal conclusions, a plausible explanation of the greater newspaper coverage of tobacco control efforts in ASSIST states is the presence of the ASSIST media interventions. See Stillman and colleagues⁹ for details on methods and findings.

A Case Study of Newspaper Coverage in North Carolina

The data in the ASSIST Newspaper Tracking System database can be analyzed at the individual state level with a case study approach. Data on the coverage of a specific event or sequence of events can be combined with firsthand accounts of tobacco control activities to explain the observed patterns of coverage. Reports of such analyses to program managers can help them determine the effectiveness of specific media interventions and media advocacy efforts and can guide them in developing their annual strategic action plans. Case study 7.1, from North Carolina, illustrates how newspaper coverage can be related to specific events and issues. The frequencies of editorials on youth access policy were assessed for 90 days before and 90 days after the passage of two youth access laws by the North Carolina General Assembly, the first in 1995 and the second in 1997.

Case Study 7.1

Editorials Promote a Stronger Youth Access Law in North Carolina

In April 1995, North Carolina passed a relatively weak law to restrict the sale of tobacco products to minors. The law contained the word *knowingly* and thereby gave retailers an escape hatch if they were caught selling to minors. At this point, ASSIST had been in its implementation phase in North Carolina for about 18 months. Media advocacy activities were in their early developmental phase at the time.

The data show that eight editorials appeared in newspapers across the state in the 6-month period surrounding the passage of the law. One editorial appeared before the passage of the law, and seven appeared after passage. The point of view of the editorials was overwhelmingly prohealth. Only one editorial written after passage of the law was protobacco.

Anecdotal evidence from tobacco control advocates in the state indicates that health groups in North Carolina were outraged at the passage of such a weak youth protection law. Tobacco control activists met with the editorial boards of several North Carolina newspapers to inform them about the dangers of allowing the word *knowingly* to remain in the law. These activities may account for the high percentage of prohealth editorials that appeared after the law was passed.

Nearly 2 years later, in February 1997, tobacco control advocates in North Carolina were successful in getting the legislature to pass a youth access bill that was stronger than the 1995 measure. The 1997 bill removed the word *knowingly* and required retailers to check the identification of anyone appearing to be younger than 18 years of age. By this time, ASSIST had been in its implementation phase for almost 4 years, and media advocacy training and practice were in full swing throughout the state.

During the 90 days before and after the passage of the second bill, 42 editorials were published—21 before and 21 after the law was passed. Before the law was passed, the editorials were overwhelmingly prohealth (91%). After the law was passed, the point of view of the editorials was almost evenly split: 52% prohealth and 48% protobacco.

Tobacco control advocates reported that the tobacco industry and the retail merchants' lobby tried to influence the language of this stronger law. The industry framed the issue of youth access as an equal responsibility between retailers and minors. Thus, they sought to include language making it illegal for minors to possess tobacco products as well as to purchase or attempt to purchase them. Not only would retailers be legally responsible for selling tobacco products to minors, but also minors would be legally responsible for attempting to purchase those products. Additional analyses could determine whether the prohealth editorials after the passage of the law reflected these lobbying efforts of the tobacco industry.

Source: Ulasevich, A., and W. D. Evans. 2001. *Tale of two laws: Case study approach using the ASSIST Media Analysis System*. Poster presented at the 129th annual meeting of the American Public Health Association, Atlanta.

Summary

The ASSIST Newspaper Tracking System is a rich source of data on tobacco control newspaper coverage and can serve as a resource for future quantitative and qualitative analyses. Analyses of the data have numerous applications—for

example, to reveal needs and opportunities for program improvement, to help program planners develop more effective strategic plans, and to identify trends in coverage of specific issues that might require counteractions. In addition, the system is an important step toward

developing methodologies that can be applied by other public health programs relying on changing social norms about health behaviors.

The ASSIST Newspaper Tracking System also is a major contribution to the field of news media analysis. In addition to content analysis, this system offers the opportunity to evaluate correlations between news media coverage and changes in the social environment surrounding a public health issue. A major contribution of the system is a demonstration of how to monitor news coverage on a continuous basis and in tandem with the implementation of a large-scale public health intervention. The system now serves as a model that can be expanded further or revised, based on insights from its applications to ASSIST. Building on the model, new initiatives might seek to extend the system to capture additional variables on important concepts¹² and to test previously held assumptions about the need for census (or near census) sampling and coding methods.¹³ The ASSIST newspaper tracking system was the first such tracking system in which newspaper coverage of tobacco control efforts was systematically collected, analyzed, and used as part of an evaluation effort. As a result, analysis of newspaper coverage is now a component of other tobacco control program evaluations, including the current evaluation of the Robert Wood Johnson Foundation's SmokeLess States National Tobacco Policy Initiative.¹⁴

Limitations

In advancing to the next development in methods for tracking and evaluating media, it is important to take into

consideration the limitations of the ASSIST Newspaper Tracking System and changing context. For example, limited resources required a somewhat superficial classification of the article variables rather than an in-depth assessment of the content. In particular, the purpose of providing ongoing feedback to activists would be served better if analyses could be made of the arguments in editorial materials. Also, fine-tuning the coding categories might be considered. Although recent evidence suggests that newspaper-clipping services appear to miss a significant proportion of relevant articles,¹⁵ during the intervention period there was high consistency between the national clipping service reports and ASSIST state reports of newspaper coverage.

The goal of this project was to capture the universe of newspaper articles on ASSIST-relevant tobacco issues across all daily newspapers in the United States and thereby establish a database from which analyses could be conducted to identify trends in coverage and correlations to ASSIST media interventions. Because newspaper editorial boards control which stories are actually published, newspaper editorial policies are an important variable in a full evaluation of the data. For example, one might argue that editorial policy is a mediating variable capable of explaining some portion of a variance between media advocacy efforts (independent variable) and amount or characteristics of newspaper coverage (dependent variable). The ASSIST Newspaper Tracking System does not contain an editorial policy variable, so no analysis of the effect of editorial policy has been conducted.

Strategic Elements for Success

Through media advocacy and other media interventions, the 17 ASSIST states made tobacco and health an issue of public priority. The media interventions brought media attention to the four priority policy areas of the ASSIST model: clean indoor air, restrictions on minors' access to tobacco, excise tax increases, and restrictions on tobacco advertising and promotion. "Although no single strategy worked in every state, the following important elements were in place throughout the project and contributed to the success of the media interventions:

- Technical assistance and training in media communications
- Strategic communication plans
- Mechanisms for sharing information, ideas, and successes
- Communications with the ASSIST Coordinating Center, which provided a national perspective on tobacco issues
- A dedicated media staff person at the local level
- Access to national experts
- Access to materials that could be adapted locally for news stories, editorials, press releases, and other formats
- A clear understanding of the audiences to be reached
- Familiarity with the media markets
- Well-established media relations
- Skills in media advocacy"

Source: National Cancer Institute. 2005. *ASSIST: Shaping the future of tobacco prevention and control* (Tobacco control monograph no. 16, NIH publication no. 05-5645). Bethesda, MD: National Cancer Institute (p. 152).

Future Directions

Challenges for future analyses include the following:

- How can editorial policy be captured? Are there regional or state variations in media bias? Could these variations be coded?
- How can one assess whether policy makers read the newspaper coverage and whether the articles influence their thinking and policy decisions on tobacco control issues?
- Can the readership of specific newspapers be measured and coded by meaningful demographic characteristics?
- How can program intervention activities be captured for a later analysis of their relationship to media output?
- How can coding terms for articles be related to program intervention activities?
- Can the quality of program media interventions be assessed and coded, and can an analysis be conducted to determine whether certain types of interventions yield more newspaper coverage of the desired sort? In Indiana, a study synchronizing the process evaluation tracking system of a program with a news media tracking system is under way.
- Is there a theoretical base on which to build and test a model of the relationship between newspaper coverage and policy change?
- What would be the measure of an appropriate time lag between newspaper coverage and expected policy change?

- Are there elements of the newspaper tracking system that can be extrapolated to a model for other types of media (broadcast and Internet)?
- Is there a direct relationship between the amount of newspaper coverage of tobacco control issues and reported awareness of those issues?
- To what extent do changes in the amount of news media coverage of tobacco control lead to changes in knowledge, attitudes, or beliefs about specific tobacco control issues?

Conclusions

1. The ASSIST Newspaper Tracking System established a method to systematically identify and collect newspaper coverage from all daily newspapers across the United States about ASSIST-relevant tobacco control policy topics. These articles were subsequently coded and entered into a database.
2. Newspaper articles were coded for policy type covered, topic covered, newspaper circulation, article type, front page story location, point of view, and origin.
3. An assessment of changes in media coverage over time reflected changing interest in various tobacco control policy areas, such as clean indoor air, taxation, and advertising, as well as tobacco industry lawsuits, the Master Settlement Agreement, and U.S. Food and Drug Administration regulations.
4. Additional research conducted as part of the ASSIST evaluation found that ASSIST media advocacy efforts were associated with higher levels of newspaper coverage and coverage that was more positive toward tobacco control.
5. While the newspaper tracking system data were not a part of the final ASSIST evaluation model, such data served important functions. The data provided valuable information to the ASSIST states that allowed them to track their own progress in obtaining positive media coverage for their tobacco control policy initiatives. In addition, the data documented the entire history of tobacco control policy coverage from 1993 through 1999. This leaves a legacy for future researchers to delve into more deeply and analyze the complex factors associated with newspaper coverage.

Appendix 7.A. Coding Topics

Policy 1

1. Ban smoking in worksites/public buildings/prisons
2. Ban smoking in bars/gaming clubs/parlors
3. Ban smoking in recreation buildings
4. Ban smoking in airports
5. Ban smoking on transportation/metro
6. Ban smoking in malls
7. Ban smoking in parks/beaches/playgrounds
8. Ban smoking in restaurants
9. Ban smoking in schools/daycare centers
10. Ban smoking in stadiums/arenas
11. Ban smoking around entrances/on grounds and outdoors in general
12. Secondhand smoke/lawsuits due to secondhand smoke (i.e., flight attendants or prisoners)
13. Secondhand smoke in multiple family dwellings/nursing homes

Policy 2

1. ASSIST mention (coded as policy 5)
2. Access to minors regulation
3. Sting operations/compliance checks (includes smokeless)
4. Student fines/suspensions/policies for possession by a minor
5. Banning vending machines
6. Regulating the licensing of vendors/sales/violations/Internet sales
7. Banning the selling of “loosies” single cigarettes
8. “Underage Sales Prohibited” labels
9. Sales banned near schools
10. Lawsuits dealing w/selling tobacco to minors (California...)
11. Banning sales of cigars to minors

Policy 3

1. Federal tax on tobacco
2. State tax on tobacco

Policy 4

1. Banning billboards/advertising in a state or metropolitan area
2. Banning billboards/advertising from sports arenas
3. Banning billboards around schools/playgrounds/parks
4. Restricting tobacco company sponsorship of sport/entertainment events
5. Banning advertising on race cars

6. Banning tobacco advertising on clothes
7. FDA regulating advertising of cigarettes/voluntary
8. Banning cigarette displays in stores/self-service/window ads
9. Regulation of cyber (Internet) tobacco ads
10. Banning free samples
11. Banning advertising ads in magazines, newspapers, TV, radio (any media)/transportation
12. Banning Joe Camel/Marlboro Man/cartoon characters (including lawsuits against these characters)
13. Foreign banning or phase out of advertising overseas

Policy 5

1. Regulating tobacco package labeling/ingredient disclosure law
2. FDA regulating/banning nicotine content/as a drug delivery system/prohibition/prohibit retail sales/tobacco legislation mentions/National Tobacco Policy mentions
3. Lawsuits dealing with states/insurance companies [i.e., Medicare/Medicaid suing tobacco companies] as well as class action lawsuits
4. Lawsuit dealing with discrimination [employers not hiring smokers]/firing employees/law prohibiting employees to smoke at all
5. Pharmacies and stores banning tobacco products
6. Banning smokeless tobacco products
7. Cigarette price increases by manufacturers/government tobacco bills to increase prices (no mention of it as a tax)
8. Tobacco industry contributions to state politicians
9. Tobacco industry contributions to national (House and Senate) politicians
10. National Center/Campaign for Tobacco-Free Kids
11. Centers for Disease Control/IMPACT
12. Centers for Disease Control/Office on Smoking and Health
13. Overseas/International tobacco marketing/promotion
14. Settlement talks
15. Cigar/cigarette disposal laws
16. International lawsuits
17. Supreme Court debates/decisions on tobacco

Subjects Not Included in the Search

Articles related to tobacco farming
Financial position of tobacco companies
Cessation counseling
Tobacco tax revenues and their use (e.g., tobacco tax used for cancer research)
Lawsuits involving tobacco companies suing another party (e.g., ABC, EPA)
How Settlement money is to be spent
Lawyers' fees lawsuits/discussions
Veterans' issue with VA

Appendix 7.B. Search Strategies

ASSIST Media Analysis

All references from all dailies. Exclude radio and television.
 ASSIST (Amer. Stop Smoking Intervention Study)
 Amer. Stop Smoking Intervention Study

Original features from all dailies. Confine syndication to the 10 largest cities. Include all references from dailies (no exclusions) in connection with ASSIST (Amer. Stop Smoking Intervention Study). Exclude radio, television, photos without stories, syndicated columns, syndicated Sunday supplements, police reports, foreign publications, *Christian Science Monitor*, *USA Today*, *Wall Street Journal*.

ATF (Bureau of Alcohol, Tobacco & Firearms) in connection with tobacco control laws & policies re: sting operations, licensing of retail stores, or youth buying operations

BATF (Bureau of Alcohol, Tobacco & Firearms) in connection with tobacco control laws & policies re: sting operations, licensing of retail stores, or youth buying operations

Bureau of Alcohol, Tobacco & Firearms in connection with tobacco control laws & policies re: sting operations, licensing of retail stores, or youth buying operations

Cigarettes in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

FBI (Fed. Bureau of Investigation) in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Law enforcement in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Nicotine in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Police in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Smokeless tobacco in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Smoking in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Snuff in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Tobacco in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Tobacco, smokeless in connection with tobacco control laws re: sting operations, licensing of retail stores, or youth buying operations

Original features from all dailies. Confine syndication to the 10 largest cities. Include all references from dailies (no exclusions) in connection with ASSIST (Amer. Stop Smoking Intervention Study). Exclude radio, television, photos without stories, syndicated columns, syndicated Sunday supplements, movie reviews, obituaries, weddings, police reports, restaurant reviews, foreign publications, *Christian Science Monitor*, *USA Today*, *Wall Street Journal*.

Advertising in connection with bans re: cigarettes, nicotine, smoking, snuff, or tobacco

Cigarettes in connection with advertising bans

Cigarettes in connection with bans re: public places (i.e., airports, restaurants)

Cigarettes in connection with lawsuits

Cigarettes in connection with legislation

Cigarettes in connection with limiting availability to minors (i.e., vending machines, retail stores)

Cigarettes in connection with prisons re: banning of

Cigarettes in connection with prohibitions

Cigarettes in connection with taxes

Nicotine in connection with advertising bans

Nicotine in connection with bans re: public places (i.e., airports, restaurants)

Nicotine in connection with lawsuits

Nicotine in connection with legislation

Nicotine in connection with limiting availability to minors (i.e., vending machines, retail stores)

Nicotine in connection with prisons re: banning of

Nicotine in connection with prohibitions

Nicotine in connection with taxes

Prisons in connection with cigarettes, nicotine, smoking, snuff, or tobacco re: banning of

Prisons in connection with smokeless tobacco re: banning of

Smokeless tobacco in connection with advertising bans

Smokeless tobacco in connection with bans re: public places (i.e., airports, restaurants)

Smokeless tobacco in connection with lawsuits

Smokeless tobacco in connection with legislation

Smokeless tobacco in connection with limiting availability to minors (i.e., vending machines, retail stores)

Smokeless tobacco in connection with prisons re: banning of

Smokeless tobacco in connection with prohibitions

Smokeless tobacco in connection with taxes

Smokeless tobacco in connection with workplace re: banning of

Smoking in connection with advertising bans

Smoking in connection with bans re: public places (i.e., airports, restaurants)

Smoking in connection with lawsuits

Smoking in connection with legislation

Smoking in connection with limiting availability to minors (i.e., vending machines, retail stores)

Smoking in connection with prisons re: banning of

Smoking in connection with prohibitions

Smoking in connection with taxes

Snuff in connection with advertising bans

Snuff in connection with bans re: public places (i.e., airports, restaurants)

Snuff in connection with lawsuits

Snuff in connection with legislation

Snuff in connection with limiting availability to minors (i.e., vending machines, retail stores)

Snuff in connection with prisons re: banning of

Snuff in connection with prohibitions

Snuff in connection with taxes

Taxes in connection with cigarettes, nicotine, smoking, snuff, or tobacco

Taxes in connection with smokeless tobacco

Teenagers in connection with limiting availability of tobacco prods. to minors

Tobacco in connection with advertising bans

Tobacco in connection with bans re: public places (i.e., airports, restaurants)

Tobacco in connection with lawsuits

Tobacco in connection with legislation

Tobacco in connection with limiting availability to minors (i.e., vending machines, retail stores)

Tobacco in connection with prisons re: banning of

Tobacco in connection with prohibitions

Tobacco in connection with taxes

Tobacco, smokeless in connection with advertising bans

Tobacco, smokeless in connection with bans re: public places (i.e., airports, restaurants)

Tobacco, smokeless in connection with lawsuits

Tobacco, smokeless in connection with legislation

Tobacco, smokeless in connection with limiting availability to minors (i.e., vending machines, retail stores)

Tobacco, smokeless in connection with prisons re: banning of

Tobacco, smokeless in connection with prohibitions

Tobacco, smokeless in connection with taxes

Tobacco, smokeless in connection with workplace

Workplace in connection with smokeless tobacco re: bans

Original features from all dailies. Confine syndication to the 10 largest cities. Include all references from dailies (no exclusions) in connection with ASSIST (Amer. Stop Smoking Intervention Study). Exclude radio, television, photos without stories, syndicated columns, syndicated Sunday supplements, movie reviews, police reports, restaurant reviews, foreign publications, *Christian Science Monitor*, *USA Today*, *Wall Street Journal*.

Americans With Disabilities Act—fed. legis. in connection with tobacco control laws and policies

Camel Cigarettes in connection with Joe Camel—advertising character re: advertising ban

Camel, Joe—advertising character in connection with cigarettes re: advertising ban

Cigarettes in connection with bans re: public transportation

Joe Camel—advertising character in connection with cigarettes re: advertising ban

Nicotine in connection with bans re: public transportation

Public transportation in connection with bans re: smoking, snuff, tobacco, cigarettes, nicotine, or smokeless tobacco

Smokeless tobacco in connection with bans re: public transportation

Smoking in connection with bans re: public transportation

Snuff in connection with bans re: public transportation

Tobacco in connection with bans re: public transportation

Tobacco in connection with restrictions re: indoor air quality

Tobacco companies in connection with sponsorship of sporting or cultural events re: advertising ban

Tobacco, smokeless in connection with bans re: public transportation

Transportation, public in connection with bans re: smoking, snuff, tobacco, cigarettes, nicotine, or smokeless tobacco

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