

Tobacco-related medical education and physician interventions with parents who smoke

Survey of Canadian family physicians and pediatricians

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ABSTRACT

OBJECTIVE To examine the relationship between physicians' tobacco-related medical training and physicians' confidence in their tobacco-related skills and smoking-related interventions with parents of child patients.

DESIGN Mailed survey.

SETTING Canada.

PARTICIPANTS The survey was mailed to 800 family physicians and 800 pediatricians across Canada, with a corrected response rate of 65% (N=900).

MAIN OUTCOME MEASURES Physicians' self-reported tobacco-related education, knowledge, and skills, as well as smoking-related interventions with parents of child patients. Cochran-Mantel-Haenszel χ^2 tests were used to examine relationships between variables, controlling for tobacco-control involvement and physician specialty. Data analysis was conducted in 2008.

RESULTS Physicians reporting tobacco-related medical education were more likely to report being "very confident" in advising parents about the effects of smoking and the use of a variety of cessation strategies ($P < .05$). Furthermore, physicians with tobacco-related training were more likely to help parents of child patients quit smoking whether or not the children had respiratory problems ($P < .05$). Physicians with continuing medical education in this area were more likely to report confidence in their tobacco-related skills and to practise more smoking-related interventions than physicians with other forms of training.

CONCLUSION There is a strong relationship between medical education and physicians' confidence and practices in protecting children from second-hand smoke. Physicians with continuing medical education training are more confident in their tobacco-related skills and are more likely to practise smoking-related interventions than physicians with other tobacco-related training.

EDITOR'S KEY POINTS

- Physician advice to quit smoking is an effective component of a smoking cessation strategy.
- This study examines the association between tobacco-related medical education—during and after training—and physicians' confidence in their tobacco-related skills, and the advice and assistance offered to parents of pediatric patients to quit smoking.
- Overall, most physicians reported high levels of confidence in discussing the effects of smoking and the effects of second-hand smoke on child health with patients and parents of child patients. Physicians were more likely to have such discussions if the children had respiratory problems.
- Compared with those who had no training, physicians who reported tobacco-related education during medical training were more likely to report high levels of confidence in advising parents on the effects of smoking and second-hand smoke on child health and in the use of pharmacotherapy, as well as following up on quit progress. Confidence and practice in tobacco-related skills was strongest among those with continuing medical education.

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Éducation médicale sur le tabagisme et interventions du médecin auprès des parents fumeurs

Enquête auprès de médecins de famille et de pédiatres canadiens

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RÉSUMÉ

OBJECTIF Vérifier la relation entre la formation des médecins sur le tabagisme et leur confiance en leur habileté d'intervenir à ce sujet auprès des parents de jeunes enfants.

TYPE D'ÉTUDE Enquête postale.

CONTEXTE Le Canada.

PARTICIPANTS L'enquête a été adressée à 800 médecins de famille et à 800 pédiatres du Canada, le taux de réponse corrigé étant de 65 % (N=900).

PRINCIPAUX PARAMÈTRES À L'ÉTUDE Déclarations des médecins concernant leur formation, connaissances et habiletés au sujet du tabagisme, de même que leurs interventions à ce sujet auprès de parents de jeunes enfants. On a utilisé les tests de χ^2 de Cochran-Mantel-Haenszel pour examiner les relations entre les variables, en tenant compte de l'engagement envers la réduction du tabagisme et de la spécialité du médecin. L'analyse des données a été faite en 2008.

RÉSULTATS Les médecins qui disaient avoir reçu une formation sur le tabagisme étaient plus susceptibles de se dire « très confiants » pour conseiller les parents sur les effets du tabac et sur l'utilisation de plusieurs stratégies pour cesser de fumer ($P < ,05$). En outre, ceux qui avaient eu une formation sur le tabac étaient plus susceptibles d'aider les parents de jeunes patients à arrêter de fumer, que les enfants souffrent ou non de problèmes respiratoires ($P < ,05$). Par rapport à ceux qui avaient eu un autre type de formation, les médecins qui profitaient d'une formation médicale continue sur ce sujet étaient plus susceptibles de se dire confiants en leur habileté dans le domaine du tabac et de faire des interventions à ce sujet.

CONCLUSION Il existe une forte relation entre la formation médicale et la confiance et les pratiques des médecins pour protéger les enfants de la fumée secondaire. Les médecins qui reçoivent une formation médicale continue sont plus susceptibles de se dire confiants en leurs habiletés en matière de tabagisme et d'intervenir dans ce domaine que ceux qui ont reçu un autre type de formation.

POINTS DE REPÈRE DU RÉDACTEUR

- Les conseils d'un médecin sont efficaces pour convaincre d'arrêter de fumer.
- Cette étude examinait le lien entre l'éducation médicale portant sur le tabagisme – durant et après une formation – et la confiance du médecin en ses habiletés dans ce domaine, et les conseils et le soutien offerts aux parents de patients d'âge pédiatrique pour les inciter à cesser de fumer.
- En général, la plupart des médecins se disaient très confiants de pouvoir discuter avec les patients et les parents de jeunes enfants des effets du tabac et de la fumée secondaire sur la santé des enfants. Ils étaient plus susceptibles d'avoir de telles discussions si les enfants souffraient de problèmes respiratoires.
- En comparaison de ceux qui n'avaient pas eu de formation sur le tabagisme durant leur cours, les médecins qui avaient été formés étaient plus susceptibles de rapporter des niveaux élevés de confiance pour conseiller les parents sur les effets du tabac et de la fumée secondaire sur la santé des enfants, pour utiliser les médicaments, et aussi pour suivre les progrès de l'abandon du tabac. Ceux qui profitaient d'une formation médicale continue avaient les plus forts niveaux de confiance et le plus d'habiletés en matière de tabagisme.

Cet article a fait l'objet d'une révision par des pairs.
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In 2006, the US Surgeon General's report on the health consequences of exposure to second-hand smoke (SHS) concluded that there is no "risk-free level" of exposure to SHS, and that exposure leads to increased risk of sudden infant death syndrome, respiratory infection, ear problems, and severe asthma among children.¹ It is recognized that minimizing children's exposure to SHS should be a priority for physicians who treat children.²⁻⁶

Physician advice to quit smoking is an effective component of a smoking cessation strategy.⁷ Several studies have examined the proportion of patients receiving advice to quit smoking⁵⁻¹² but few have examined the level of advice offered to parents when children are the patients.¹³ In one US population-based survey, about half of parents who had children seen by physicians in the past year reported that they were asked about household smoking; of parents who smoked, less than half recalled being advised of health consequences of SHS exposure.¹⁴ In earlier surveys of pediatricians in Maine and Vermont, most pediatricians reported advising parents to quit smoking and spent on average 4 to 5 minutes with parents. However, negative parental expectations, lack of time, lack of skills or confidence, and perceptions of professional norms were noted as barriers to providing this advice.¹⁵⁻¹⁷

Several studies demonstrate that physician education on tobacco counseling is associated with increased comfort and practice in advising patients who smoke, and, in one randomized controlled trial with pediatric residents, with advising parents to quit.¹⁸⁻²¹ Also, tobacco cessation training might increase the success rate of helping patients to quit smoking.²² However, the tobacco-related content in medical curricula remains limited,²³⁻²⁵ as is research into its relationship with assisting parents of child patients to stop smoking.

This study examines the association between tobacco-related medical education, during and after training, and physicians' confidence in their tobacco-related skills, and the advice and assistance offered to parents of pediatric patients to quit smoking.

METHODS

Sample

In 2003, random samples of 800 family physicians and 800 pediatricians across Canada were obtained with the help of the College of Family Physicians of Canada and the Canadian Paediatric Society (CPS). A sample size of 1600 was chosen to provide 95% confidence intervals with at least 0.05 half-width precision around proportions estimates stratified by specialty and assuming a 50% response rate.

The survey employed methods recommended by Dillman for self-administered mailed surveys, including

an introductory letter, a reminder postcard, and 2 follow-up mailings for nonrespondents.²⁶

Inclusion and exclusion criteria

Practising members of the College of Family Physicians of Canada and the CPS whose primary practices were located in Canada were considered eligible to be surveyed. For the purposes of these analyses, those who reported no patient care (n=26, 2.8%) were excluded. Furthermore, the CPS permits nonpediatrician members; therefore, to ensure participants were family physicians or pediatricians, respondents were excluded if they did not indicate a specialty or if they indicated a specialty other than pediatrics or family medicine (n=4, 0.4%).

Questionnaire

The questionnaire was drafted based on a literature review, with input from family physicians and pediatricians. It was pretested with practising physicians from both specialties. The goal of the questionnaire was to assess the tobacco-related role perceptions and practices of primary care physicians in addressing parental smoking when a child is the patient. We also assessed tobacco-related education, knowledge, and attitudes. The study was approved by the Centre for Addiction and Mental Health Research Ethics Board.

Respondents

Completed questionnaires were received from 437 family physicians and 493 pediatricians (corrected response rate²⁷ was 65% after ineligible respondents [eg, retired, moved out of Canada, no medical licence] were removed from the denominator, n=169).

Approximately 47% of respondents were family physicians. About 54% were women. On average they had been practising for 19.7 years (range <1 year to 65 years). Only 2.7% of respondents were current smokers of cigarettes, and 4.4% had used tobacco in any form within the last 6 months. Characteristics of respondents' primary practices are presented in **Table 1**.

Variables

Dependent

Confidence in knowledge and skills: Participants were asked 7 questions about their confidence in their knowledge and skills to advise patients and parents of child patients on tobacco-related issues (**Box 1**). To examine the relationship between education and elevated confidence, responses to each item were dichotomized as "very confident" versus "somewhat" or "not very confident."

Tobacco-related practice: Participants were asked 6 questions about their practices with the parents of child patients with and without respiratory disease (**Box 2**). Responses were dichotomized as "all or most parents" versus "some" or "few or no parents" to examine the

relationship between education and a high-degree of tobacco-related practice. Respondents indicating that the question was “not applicable” were excluded from analysis.

Table 1. Characteristics of respondent physicians' primary practices, N = 900*: *The mean (SD) number of h/wk devoted to medical practice was 49.4 (17.2), and the mean (SD) number of patients seen in an average clinical week was 96.0 (60.9).*

CHARACTERISTIC	% (N)
Specialty	
• Family medicine	47.0 (423)
• Pediatrics	53.0 (477)
Practice setting	
• Solo practice	19.9 (178)
• Group practice or clinic	36.8 (329)
• Community health centre	3.0 (27)
• Hospital (general or pediatric)	23.6 (211)
• University	5.7 (51)
• Other	4.9 (44)
• Multiple sites	6.0 (54)
Community size where practice located [†]	
• Rural community	13.4 (120)
• < 100 000	16.1 (144)
• 100 000-500 000	24.4 (218)
• > 500 000	46.2 (413)

*Not all respondents answered all of the questions.

[†]Study conducted across all provinces in Canada, 2003.

Box 1. Survey questions used to ascertain confidence in tobacco-related knowledge and skills: *Possible responses included very confident; somewhat confident; and not very confident.*

How confident are you in your knowledge and skills to ...

- advise patients and parents on the effects of smoking on health?
- advise patients and parents on the effects of second-hand smoke on children's health?
- advise patients and parents on the use of nicotine patches or gum?*
- advise patients and parents about or prescribe bupropion?*
- advise patients and parents on behavioural strategies for quitting?
- refer patients and parents who smoke to community resources such as toll-free quit lines or smoking programs?
- follow up and support patients' or parents' quit progress?

*Responses to these questions were combined to reflect the recommendation of any pharmacotherapy (ie, nicotine replacement or bupropion).

Box 2. Survey questions used to ascertain tobacco-related practice: *Possible responses included all or most parents; some parents; few or no parents; or not applicable.*

In the past year, approximately how many smoking parents of child patients with (without*) respiratory problems did you ...

- advise to cut down on or quit smoking?
- assist in quitting smoking (eg, set a quit date, refer)?
- recommend should use nicotine patches or gum?[†]
- recommend should use bupropion?[†]
- follow up on quit progress with?
- discuss the effects of second-hand smoke with?

*Each practice question was asked twice: once for child patients with respiratory disease, and once for child patients without respiratory disease.

[†]Responses to these questions were combined to reflect the recommendation of any pharmacotherapy (ie, nicotine replacement or bupropion).

Independent

Previous tobacco-related training: Participants were asked if, during medical training, they had participated in any full courses, lectures (≥ 1 hour), seminars or workshops, or clinical placements that dealt specifically with nicotine, tobacco, or smoking cessation. A second question asked respondents if they had taken any continuing medical education (CME) programs that dealt with nicotine, tobacco, or smoking cessation. Respondents were categorized into 1 of 3 categories: those who had taken tobacco-related CME, those who had not taken tobacco-related CME but had some tobacco-related education during their medical training, and those who reported no prior tobacco-related education or training.

Covariates

Involvement in tobacco control: The goal of this analysis was to examine tobacco-related education as it relates to practice. However, physicians involved in tobacco-related public education or advocating policy might be more likely to seek tobacco-related training and be more confident in their practices.¹⁸ Respondents were asked if they had participated in tobacco-related activities (ie, advocating smoke-free spaces, tobacco-control policies, sales, advertising, etc; educating groups about tobacco and smoking cessation; or other). Respondents who had participated in any of these activities (21.9%) were considered to be involved in tobacco control and were accounted for in the analysis.

Family physicians and pediatricians differ in their medical training and patient populations. These differences might affect their confidence and skills in addressing tobacco cessation with parents of child patients. Therefore, specialty was also controlled for in the analysis.

Statistical analyses

All data analyses were conducted using SAS, version 9.1. Cochran-Mantel-Haenszel χ^2 tests were used to compare confidence in practice and tobacco-related practice dependent variables with previous tobacco-related training, controlling for both tobacco-control involvement and physician specialty. For tobacco-related practices, separate analyses were conducted for pediatric patients with and without respiratory problems. Breslow-Day tests of homogeneity, with a cutoff of $P=.10$, were used to confirm the assumption of homogeneity of odds ratios.

RESULTS

Confidence in tobacco-related skills

Overall, most physicians reported high levels of confidence in discussing the effects of smoking and the effects of SHS on child health with patients and parents of child patients (Table 2). However, confidence in discussing cessation aids or strategies was lower. Compared with those with no training, physicians reporting tobacco-related education during medical training were more likely to report high levels of confidence in advising parents on the effects of smoking and SHS on child health, the use of pharmacotherapy, and following up on quit progress ($P<.05$). Moreover, the odds of reporting high levels of confidence were 1.5 to 2.5 times greater for those with tobacco-related CME compared with those with tobacco-related education during their medical training ($P<.05$).

Tobacco-related practice

Almost half of physicians reported asking the smoking status of all or most mothers ($n=469$, 52%) and fathers

($n=440$, 49%) of child patients when the smoking status was unknown. Overall, about three-quarters of physicians reported discussing the effects of SHS with all or most parents of child patients with respiratory problems when they knew the parents smoked; and more than four-fifths reported advising parents to cut down on or quit smoking (Table 3). However, less than one-third of physicians reported suggesting pharmacotherapy or providing specific assistance to all or most of these parents. When child patients had no respiratory problems, less than half of physicians reported discussing the effects of SHS or advising all or most parents who smoked to cut down or quit; less than 20% reported advising all or most parents about pharmacotherapy or giving assistance with quitting (Table 4).

When child patients had respiratory problems, physicians with any tobacco-related education during medical training were more likely to discuss the effects of SHS with parents compared with physicians without tobacco education; CME did not increase the likelihood of discussing SHS. Tobacco-related education during training was not related to other interventions. Physicians with tobacco-related CME were more likely to intervene in all ways, except discussing the effect of SHS, compared with physicians with other training ($P<.05$) (Table 3).

When the child patients did not have respiratory problems, physicians with tobacco-related education during their medical education were more likely to assist most parents with quitting (Table 4) compared with physicians reporting no tobacco-related education. However, the odds of physicians with CME advising, following up with, and discussing SHS with all or most parents were at least 1.7 times greater compared with physicians with tobacco-related education only during their medical training (Table 4). This association was consistent regardless of the respiratory status of the child patients (Tables 3 and 4).

Table 2. Physicians' confidence in tobacco-related skills with parents of child patients, overall and by tobacco-related medical education: Study conducted across all provinces in Canada in 2003.

TOBACCO-RELATED SKILLS	PROPORTION OF PHYSICIANS VERY CONFIDENT					
	OVERALL (N=900)	TOBACCO-RELATED MEDICAL EDUCATION			CME vs DURING MEDICAL TRAINING, OR (95% CI)*	DURING MEDICAL TRAINING vs NONE, OR (95% CI)*
		CME (N=279)	DURING MEDICAL TRAINING (N=223)	NONE (N=398)		
Advise on effects of smoking	80.1	91.6	82.1	71.9	2.22 (1.27-3.88) [†]	1.78 (1.17-2.69) [†]
Advise on effects of SHS on children	76.5	81.3	75.7	73.6	1.38 (0.88-2.18)	1.49 (1.01-2.18) [†]
Advise on the use of nicotine replacement therapy or bupropion	47.1	70.7	52.8	26.2	2.49 (1.38-4.48) [†]	1.92 (1.19-3.09) [†]
Advise on behavioural strategies	30.4	48.2	31.8	16.9	1.75 (1.16-2.67) [†]	1.11 (0.70-1.76)
Refer to community resources	21.7	32.8	19.0	15.1	1.84 (1.19-2.86) [†]	0.99 (0.61-1.60)
Follow up on quit progress	31.3	46.9	34.1	18.1	1.47 (1.01-2.17) [†]	2.33 (1.58-3.43) [†]

CI—confidence interval, CME—continuing medical education, OR—odds ratio, SHS—second-hand smoke.

*Cochran-Mantel-Haenszel OR and 95% CI controlled for involvement in tobacco control and physician specialty.

[†]Statistically significant, $P<.05$

Table 3. Physicians' tobacco-related interventions with parents who smoke when child patients have respiratory diseases, overall and by tobacco-related medical education: Study conducted across all provinces in Canada in 2003.

INTERVENTION	PROPORTION OF PHYSICIANS INTERVENING WITH ALL OR MOST PARENTS WHO SMOKE					
	TOBACCO-RELATED MEDICAL EDUCATION				CME vs DURING MEDICAL TRAINING, OR (95% CI)*	DURING MEDICAL TRAINING vs NONE, OR (95% CI)*
	OVERALL (N = 900)	CME (N = 279)	DURING MEDICAL TRAINING (N = 223)	NONE (N = 398)		
Advise cutting down on or quitting smoking	83.2	87.1	83.6	80.4	1.61 (1.02-2.54) [†]	1.42 (0.87-2.32)
Give assistance to quit smoking (eg, set a quit date)	31.2	43.9	30.5	21.6	1.62 (1.08-2.41) [†]	1.10 (0.72-1.70)
Recommend the use of nicotine replacement therapy or bupropion	25.0	34.3	18.9	21.1	1.91 (1.21-3.02) [†]	0.52 (0.32-1.02)
Follow up on parents' quit progress	28.8	36.5	26.4	24.2	1.50 (1.00-2.28) [†]	1.21 (0.79-1.87)
Discuss the effects of SHS	75.6	79.1	76.2	72.9	1.30 (0.82-2.06)	1.64 (1.06-2.55) [†]

CI—confidence interval, CME—continuing medical education, OR—odds ratio, SHS—second-hand smoke.

*Cochran-Mantel-Haenszel OR and 95% CI controlled for involvement in tobacco control and physician specialty.

[†]Statistically significant, *P* < .05.

Table 4. Physicians' tobacco-related interventions with parents who smoke when child patients do not have respiratory diseases, overall and by tobacco-related medical education: Study conducted across all provinces in Canada in 2003.

INTERVENTION	PROPORTION OF PHYSICIANS INTERVENING WITH ALL OR MOST PARENTS WHO SMOKE					
	TOBACCO-RELATED MEDICAL EDUCATION				CME vs DURING MEDICAL TRAINING, OR (95% CI)*	DURING MEDICAL TRAINING vs NONE, OR (95% CI)*
	OVERALL (N = 900)	CME (N = 279)	DURING MEDICAL TRAINING (N = 223)	NONE (N = 398)		
Advise cutting down on or quitting smoking	45.7	54.1	44.4	36.9	2.00 (1.35-2.97) [†]	1.43 (1.00-2.04) [†]
Give assistance to quit smoking (eg, set a quit date)	15.7	23.1	18.4	8.6	1.17 (0.72-1.91)	1.85 (1.05-3.23) [†]
Recommend the use of nicotine replacement therapy or bupropion	11.9	18.2	10.3	8.4	1.71 (1.01-3.12) [†]	0.84 (0.43-1.61)
Follow up on parents' quit progress	13.4	20.4	11.2	9.0	1.78 (1.01-3.14) [†]	1.22 (0.65-2.28)
Discuss the effects of SHS	43.6	50.2	38.1	42.0	1.73 (1.16-2.57) [†]	1.03 (0.70-1.52)

CI—confidence interval, CME—continuing medical education, OR—odds ratio, SHS—second-hand smoke.

*Cochran-Mantel-Haenszel OR and 95% CI controlled for involvement in tobacco control and physician specialty.

[†]Statistically significant, *P* < .05.

DISCUSSION

We found that most physicians who treat children advise parents about the effects of SHS when children have respiratory problems. Physicians reporting any tobacco-related education are significantly and consistently more likely to have increased confidence in skills in promoting tobacco cessation and to intervene with the parents of child patients (*P* < .05). Nonetheless, there is room for improvement. Although those with previous tobacco-related education are more likely to advise and assist parents with smoking cessation, the proportion of physicians performing these interventions remains at or below 50%. Burnett and Young¹³

also found that levels of advice and assistance for parents are low, unless the child patients had illnesses exacerbated by SHS.

The finding that those with tobacco-related CME are more likely to discuss the effects of SHS with parents when children do not have respiratory problems compared with physicians with only education during medical training underscores the importance of continuing education during medical training and supports the call for increased tobacco-related education at all levels for all primary care physicians who care for pediatric patients.^{25,28}

That tobacco-related CME is related to both confidence and practice might be a function of the temporal proximity of CME and practice, or could indicate

that physicians who are interested in tobacco issues are more likely to take related CME and to be involved in cessation practices with parents of child patients. Nevertheless, the association between CME and increased confidence and intervention remained after controlling for tobacco-control involvement.

Limitations and strengths

Data from self-completed questionnaires might be subject to response bias; however, the validity of the data are maximized when response rates are high. We achieved a 65% corrected response rate, which is relatively high for surveys of physicians.²⁹ Responses to practice questions might have been subject to "social desirability bias." We attempted to minimize this effect by asking 3-point Likert questions. Respondents not wishing to identify little or no practice with parents would be able to indicate "some parents." Although we asked about tobacco-related education during medical training before practice, the self-report and cross-sectional nature of this survey precludes causal inference, and those practising cessation techniques might be more likely to recall this training.

Our sampling did not limit respondents to pediatricians and family practitioners practising with a general patient population. The practice behaviour of physicians is complex, and this analysis does not allow us to conclude that education is the only factor related to practice. Despite these limitations, the strength of the associations between CME and confidence and practice suggests that tobacco-related training and, in particular, CME is beneficial.

Conclusion

The findings provide evidence that tobacco-related education is important in promoting physicians' confidence in tobacco-related skills and in increasing interventions with parents who smoke when children are the patients. Furthermore, they suggest that ensuring tobacco-related content in the curricula of medical schools will be beneficial to the health of children and their parents. Continuing education after completion of training is particularly important to enhance and maintain physicians' tobacco-related practice.

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Contributors

Mr Victor and **Dr Brewster** were responsible for developing the research question, analyzing the data, and presenting results. All authors were involved in the research design, the development of the questionnaire, and the writing of this manuscript. **Mr Victor** had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Competing interests

None declared

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References

- US Department of Health and Human Services. *The health consequences of involuntary exposure to tobacco smoke: a report of the surgeon general*. Pittsburgh, PA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2006.
- Binns HJ, O'Neil J, Benuck I, Ariza AJ; Pediatric Practice Research Group. Influence on parents' decisions for home and automobile smoking bans in households with smokers. *Patient Educ Couns* 2008;74(2):272-6. Epub 2008 Oct 19.
- Rumchev K, Jamrozik K, Stick S, Sprickett J. How free of tobacco smoke are 'smoke-free' homes? *Indoor Air* 2008;18(3):202-8. Epub 2008 Mar 10.
- Wipfli H, Avila-Tang E, Navas-Acien A, Kim S, Onicescu G, Yuan J, et al. Secondhand smoke exposure among women and children: evidence from 31 countries. *Am J Public Health* 2008;98(4):672-9. Epub 2008 Feb 28.
- Klerman L. Protecting children: reducing their environmental tobacco smoke exposure. *Nicotine Tob Res* 2004;6(Suppl 2):S239-53.
- Polanska K, Hanke W, Ronchetti R, van den Hazel P, Zuurbier M, Koppe JG, et al. Environmental tobacco smoke exposure and children's health. *Acta Paediatr Suppl* 2006;95(453):86-92.
- Stead LF, Bergson G, Lancaster T. Physician advice for smoking cessation. *Cochrane Database Syst Rev* 2008;(2):CD000165.
- Brewster JM, Victor JC, Ashley MJ. Views of Ontarians about health professionals' smoking cessation advice. *Can J Public Health* 2007;98(5):395-9.
- Collins BN, Levin KP, Bryant-Stephens T. Pediatricians' practices and attitudes about environmental tobacco smoke and parental smoking. *J Pediatr* 2007;150(5):547-52.
- Doescher MP, Saver BG. Physicians' advice to quit smoking. The glass remains half empty. *J Fam Pract* 2000;49(6):543-7.
- Lopez-Quintero C, Crum RM, Neumark YD. Racial/ethnic disparities in report of physician-provided smoking cessation advice: analysis of the 2000 National Health Interview Survey. *Am J Public Health* 2006;96(12):2235-9. Epub 2006 Jun 29.
- Lucan SC, Katz DL. Factors associated with smoking cessation counseling at clinical encounters: the Behavioral Risk Factor Surveillance System (BRFSS) 2000. *Am J Health Promot* 2006;21(1):16-23.
- Burnett KF, Young PC. Ask, advise, assist: pediatricians and passive smoke exposure. *Clin Pediatr (Phila)* 1999;38(6):339-45.
- Winickoff JP, McMillen RC, Carroll BC, Klein JD, Rigotti NA, Tanski SE, et al. Addressing parental smoking in pediatrics and family practice: a national survey of parents. *Pediatrics* 2003;112(5):1146-51.
- Frankowski BL, Secker-Walker RH. Advising parents to stop smoking. Opportunities and barriers in pediatric practice. *Am J Dis Child* 1989;143(9):1091-4.
- Frankowski BL, Weaver SO, Secker-Walker RH. Advising parents to stop smoking: pediatricians' and parents' attitudes. *Pediatrics* 1993;91(2):296-300.
- Zapka JG, Fletcher K, Pbert L, Druker SK, Ockene JK, Chen L. The perceptions and practices of pediatricians: tobacco intervention. *Pediatrics* 1999;103(5):e65.
- Hymowitz N. Pediatric residency training on tobacco: review and critique of the literature. *J Natl Med Assoc* 2006;98(9):1489-97.
- Hymowitz N, Schwab J, Haddock CK, Pyle S, Meshberg S. The pediatric residency training on tobacco project: interim findings. *J Natl Med Assoc* 2006;98(2):190-203.
- Lindsay EA, Ockene JK, Hymowitz N, Giffen C, Berger L, Pomrehn P. Physicians and smoking cessation. A survey of office procedures and practices in the Community Intervention Trial for Smoking Cessation. *Arch Fam Med* 1994;3(4):341-8.
- Kottke TE, Solberg LI, Brekke ML, Conn SA, Maxwell P, Brekke MJ. A controlled trial to integrate smoking cessation advice into primary care practice: Doctors Helping Smokers, round III. *J Fam Pract* 1992;34(6):701-8.
- Steinemann S, Roytman T, Chang J, Holzman J, Hishinuma E, Nagoshi M, et al. Impact of education on smoking cessation counseling by surgical residents. *Am J Surg* 2005;189(1):44-6.
- Ferry LH, Grissino LM, Runolfá PS. Tobacco dependence curricula in US undergraduate medical education. *JAMA* 1999;282(9):825-9.
- Powers CA, Zapka JG, Bognar B, Dube C, Hyder Ferry L, Ferguson KJ, et al. Evaluation of current tobacco curriculum at 12 US medical schools. *J Cancer Educ* 2004;19(4):212-9.
- Geller AC, Zapka J, Brooks KR, Dube C, Powers CA, Rigotti N, et al. Tobacco control competencies for US medical students. *Am J Public Health* 2005;95(6):950-5.
- Dillman DA. *Mail and Internet surveys: the tailored design method*. New York, NY: Wiley; 2000.
- American Association for Public Opinion Research. *Standard definitions: final dispositions of case codes and outcome rates for surveys*. 4th ed. Lenexa, KS: American Association for Public Opinion Research; 2006.
- Stein RJ, Haddock CK, O'Byrne KK, Hymowitz N, Schwab J. The pediatrician's role in reducing tobacco exposure in children. *Pediatrics* 2000;106(5):e66.
- McMahon SR, Iwamoto M, Massoudi MS, Yusuf HR, Stevenson JM, David F, et al. Comparison of e-mail, fax, and postal surveys of pediatricians. *Pediatrics* 2003; 111(4 Pt 1):e299-303.