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Tobacco Cessation Programs for Pregnant Women and Mothers of Young Children

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Introduction

Healthy People 2020 has set a goal for the United States of having no more than 12% of adults who smoke by 2020.[1] Current trends suggest that cessation rates among pregnant women are increasing.[2] Evidence also suggests that mothers of young children may be especially responsive to smoking cessation interventions.[3] Unfortunately, 19% of women of childbearing age (18 to 44) continue to smoke and few women maintain pregnancy-related cessation beyond pregnancy.[4] Intensive and targeted intervention efforts are needed to take full advantage of the parenting life stage for promoting smoking cessation and achieving reductions in the prevalence of smoking.

Subject

Pregnant women and mothers of young children, in particular those with low income and education, are a critically important target group for smoking cessation efforts because their smoking rates are highest and cessation offers health benefits for them and for their children.[5] In

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addition, women in the childbearing stage of life have multiple contacts with health-care systems and other service providers (e.g. schools and daycares) that could encourage and support smoking cessation.

Problems

- **Among the sizeable proportion of women who quit smoking for the duration of pregnancy, the rates of postpartum relapse are disappointingly high.** Pregnancy and parenting provide a powerful inducement for many women to quit smoking. Indeed, population surveys indicate that almost half of pregnant women report having quit smoking during pregnancy.[2,6] These cessation rates are substantially higher than those achieved by formal interventions with non-pregnant adults. Unfortunately, the majority of women who quit smoking for pregnancy will relapse after the child's birth.

- **An intimate partner's smoking undermines smoking cessation and maintenance among pregnant and parenting women.** Living with an intimate partner who smokes has been a consistent predictor of continued smoking during pregnancy and postpartum relapse.[7,8,9] Moreover, partners' smoking has been shown to influence the type and level of support provided.[10] Despite evidence to suggest the possible benefits of conjoint cessation and that partner's efforts to quit along with the woman are viewed as important supportive behaviour, partner cessation has not been emphasized.

- **Effective cessation interventions are lacking for heavily nicotine-dependent pregnant smokers and for those with multiple social-psychological barriers to cessation.** Important questions remain concerning the optimal over-the-counter nicotine replacement therapies (now including the gum, the patch and lozenge) and how to encourage compliance to facilitate smoking cessation during pregnancy. The available delivery systems have different advantages and limitations related to fetal nicotine exposure and maternal compliance. Yet the scientific evidence base suggests that over-the-counter nicotine therapies maintain or even lower fetal exposure to nicotine, avert carbon monoxide exposure and could enhance maternal cessation.[11] Lacking are clinical guidelines for counselling women regarding use of over-the-counter nicotine replacement therapies for smoking cessation during pregnancy and early postpartum.
  Evidence also suggests that psychosocial barriers to cessation may cluster for some groups of women.[7,12,13] For example, women with depression are likely to have other co-occurring barriers, such as partners who smoke, low income and stressful lifestyles that may make

cessation particularly difficult.[7] These women may need more intensive interventions and ongoing support. The clinical linkages between obstetric and pediatric care could be capitalized on to provide ongoing cessation support services to pregnant women and new mothers. Systems are needed for tracking women through this transition and providing intervention. Despite the potential benefit of this approach for helping women maintain long-term abstinence, few cessation programs that bridge obstetric and pediatric care are operational.[14]

- **Family-based approaches that link parents' smoking to child health and smoking initiation have had little attention**. Up to 40% of children in the U.S. and Canada are exposed to environmental tobacco smoke (ETS).[15,16] Moreover, parental smoking is a consistent predictor of youth experimentation and initiation of smoking.[17] Evidence suggests that parents do not want their children to start smoking and concerns about children motivate smokers to consider cessation.[18] Intervention programs that address smoking as a family problem are needed, particularly for households in which one or both parents are smokers themselves. A noteworthy challenge for these interventions will be to incorporate them into existing service systems so they can be maintained.

- **Sustainable clinical systems for identifying pregnant women and mothers of young children who smoke and counselling them for cessation are not widespread**. Cessation support services have not been integrated consistently into clinical care settings, particularly those that serve low-income populations.[14] New models for providing ongoing support services that are appropriate for resource-poor settings, such as public-health clinics, may need to be considered.

Research Context

Despite the significant potential public-health benefit of reducing rates of smoking among this important target group, there has been surprisingly little research to identify optimal smoking cessation or relapse prevention interventions for pregnant women and mothers. Meta-analyses of pregnancy and postpartum cessation intervention trials[19] have been conducted, but no equivalent summary analyses are available for interventions targeting mothers of young children.

Despite the promise of nicotine replacement therapies, their use with heavily nicotine-dependent pregnant women and new mothers has been evaluated in only a few small trials. Similarly, few evaluations of couple- and family-based interventions have been conducted to date.

Key Research Questions

- How do we incorporate efficacious cessation/maintenance interventions into obstetric and pediatric care settings?
- What is the optimal way to involve intimate partners and other household smokers in cessation/maintenance interventions? And how might these interventions be incorporated into existing service systems (e.g. health-care settings, schools, etc)?
- How do we maintain women's prepartum levels of motivation for cessation into postpartum, and can health service linkages facilitate this process?
- What information is essential for women to make informed decisions regarding use of nicotine replacement therapies during and immediately after pregnancy?
- How do we communicate information about the link between adult smoking and child health outcomes (e.g. environmental tobacco smoke exposure) in ways that motivate adult smoking cessation and deter children from starting to smoke?

Recent Research Results

Pregnant women: Consistent with clinical practice guidelines,[20] multi-component interventions are most effective and typically include provider advisement, print self-help materials, and telephone counselling.[21,22,23] However, a recent meta-analysis of cessation trials targeted to pregnancy and/or postpartum indicates that there has been substantial variability in the intensity of interventions evaluated.[19] Interventions have been provided during pregnancy[21,22] and in some cases intervention activities have been extended to[23] or exclusively focused on postpartum.[24]

Most interventions have shown improvements over usual care for cessation during pregnancy. However, most of these programs have been evaluated in managed-care settings.[21,23,24] Evaluations of programs provided in low-income public-health clinic settings[22,25,26] have not found consistent benefits above usual care. Intervention benefits also have been shown in improved birth outcomes.[19] Unfortunately, interventions have not shown significant benefits in relapse prevention.[19]

Mothers of young children: Interventions targeted to mothers who smoke have been focused on encouraging smoking cessation as a strategy to reduce children's exposure to environmental tobacco smoke (ETS) exposure.[27,28,29,30] Parents of children with asthma have frequently been the

target groups for these studies.[29,30] While most have shown improvements in self-reported smoking topography, e.g. not smoking in the same room as the child, these interventions have had mixed success in increasing cessation rates.[27,29] It has been suggested that the somewhat contradictory message that ETS exposure can be reduced by limiting the proximity of smoking may undermine cessation efforts.[27] Most recently, a community organization approach was used to reduce smoking among low-income women of childbearing age[31] and showed promise by reducing overall smoking prevalence by 2 percentage points and reducing daily cigarette consumption among women in intervention communities.

Conclusions

Promoting smoking cessation among pregnant women and mothers is needed to reduce the overall population prevalence of smoking and related health harms. Currently, the context of pregnancy and postpartum, a time when women who smoke are receptive to smoking cessation encouragement, is not being capitalized on fully to encourage permanent smoking cessation. Additional consideration should be given to developing interventions that address smoking as a family issue and include intimate partners and children in the household to eliminate smoking within the family. Health-care system and community resources should also be brought to bear on this important public-health problem. Forging linkages between prenatal and pediatric care merits greater attention and would make it possible to provide ongoing services and support that will be needed to sustain smoking cessation in the long term. However, community involvement to influence social norms regarding smoking cessation will also be important.

Implications

Eliminating smoking among pregnant women and mothers has substantial importance for several areas of child development policy. Reducing exposure to tobacco smoke by the fetus and growing child will reduce low birth weight, sudden infant death syndrome, and morbidity. Smoking-attributable neonatal costs are appreciable and estimated at $367 million annually in the United States.[32] Reduction of environmental tobacco smoke will improve children’s health in the short and long terms and reduce children’s likelihood of becoming cigarette smokers themselves. Because children do not have the power to negotiate smoke-free households for themselves, indoor air policies should be strengthened and broadened wherever possible to reduce exposure in public settings and daycares and reinforce non-smoking as a normative behaviour. Pediatric organizations should consider sponsoring public-health campaigns aimed at families to increase

awareness of and shift norms towards the importance of smoke-free households for family well-being. Lastly, as recommended by others,[33] health-insurance coverage is needed for smoking cessation treatments to overcome any cost barriers to their use.

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