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# Public Health Obesity-Related TV Advertising

## Lessons Learned from Tobacco

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- Background:** Over the past 25 years, the percent of overweight and obese adults and children in the United States has increased dramatically. The magnitude and scope of the public health threat from obesity have resulted in calls for a national comprehensive obesity prevention strategy, akin to tobacco use prevention strategies undertaken over the past two decades. The purpose of this paper is to describe and compare population exposure to paid media campaigns for tobacco and obesity prevention, draw lessons from tobacco advertising, and compare tobacco and obesity behaviors/influences to identify priorities and pitfalls for further research on obesity advertising.
- Methods:** This is a descriptive study. Ratings data for the years 1999–2003, for the top 75 designated market areas in the U.S. were used to quantify exposure levels to anti-obesity and anti-smoking advertising in the U.S.
- Results:** Anti-tobacco campaigns preceded anti-obesity campaigns by several years, and in each year exposure levels—both total and average—for anti-tobacco media campaigns far outweighed those of anti-obesity campaigns.
- Conclusions:** It is important to compare both similarities and differences between smoking- and obesity-related behaviors, which might affect the potential impact of anti-obesity media campaigns. Given the scope of the public health risks attributable to obesity, and the amount of federal, state, and other resources devoted to anti-obesity media campaigns, there is a clear need to evaluate the potential impact of such campaigns efforts. Nonetheless, the challenges are significant in both motivating and monitoring such complex behavior change, and in attributing changes to a given media campaign.  
(*Am J Prev Med* 2007;33(4S):S257–S263) © 2007 American Journal of Preventive Medicine
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### Introduction

Over the past 25 years, the percent of overweight and obese adults and children in the United States has increased dramatically.<sup>1–5</sup> This trend is alarming because of the increased morbidity and mortality, reduced quality of life, social stigmatization, and increased medical costs associated with obesity.<sup>4,6–8</sup> The magnitude and scope of the public health threat from obesity have resulted in calls for a national comprehensive obesity prevention strategy, akin to tobacco use prevention strategies undertaken over the past 2 decades.<sup>9</sup>

State tobacco control programs vary substantially in scope and intensity, but three central components are common to nearly all: (1) increases in cigarette excise taxes, (2) clean indoor air laws, and (3) paid media campaigns.<sup>10</sup> In the context of obesity prevention, taxation and regulation related to obesity-related behavior remain highly controversial.<sup>11</sup> Television advertising,

however, is among the most effective media for health communication,<sup>10,12</sup> and therefore represents a potentially important and viable component of any public health obesity prevention strategy.

For decades, the public health community has relied on paid and unpaid advertising to communicate health-related messages, ranging from cancer prevention, seat-belt promotion, and oral health to drunk-driving prevention and anti-drug and anti-tobacco campaigns. Generally, research has shown that such campaigns have small-to-moderate effects on attitudes, beliefs, and behaviors related to the primary message.<sup>13–15</sup> Research from tobacco control has shown that paid anti-tobacco advertising is associated with increased anti-tobacco attitudes and beliefs and reduced tobacco use.<sup>16–27</sup> To the extent that obesity reflects modifiable behaviors that have similarities with smoking-related behaviors, public health anti-obesity media campaigns promise to contribute to reductions in population obesity.

The purpose of this paper is to describe and compare population exposure to paid media campaigns for tobacco-use and obesity prevention. Lessons are drawn from anti-tobacco advertising that might apply to anti-obesity advertising, tobacco and obesity behaviors and

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influences are compared, and next steps for further research on anti-obesity advertising are identified.

## Methods

### Data Sources

Two types of data were used for this study. First, advertising ratings data for the largest 75 designated market areas (DMAs) in the U.S. for the years 1999–2003 were purchased from Nielsen Media Research (NMR). A DMA consists of a group of counties that comprise a major metropolitan area and that receive the largest proportion of programming from TV stations within the metropolitan area. The ratings data include information on commercial occurrences, ad sponsor, ad length (in seconds), gross and targeted ratings, and programming information, such as program type and title of all tobacco-related and anti-obesity television advertisements appearing on network, cable, and syndicated television. In addition, digital copies of all televised anti-smoking and anti-obesity advertisements produced by states or other non-profit organizations were obtained from two sources: for the tobacco control ads, from the Centers for Disease Control and Prevention (CDC)'s Media Campaign Research Center (MCRC); for the anti-obesity ads, from NMR.

### Identification and Classification of Advertisements

Ratings data were used to identify and classify the sponsors of all tobacco-related and anti-obesity advertisements<sup>28</sup> and to categorize them as either anti-tobacco or anti-obesity ads. This study included all ads sponsored by state tobacco control agencies, the American Legacy Foundation, state health departments, and the CDC. In the majority of cases, classification as either anti-smoking or anti-obesity was straightforward; tobacco control organizations sponsor only anti-tobacco ads. For ads sponsored by state health departments or the CDC, classification was slightly more complex. In most cases, however, the ad descriptor included information that made it relatively easy to ascertain whether an ad was anti-smoking or anti-obesity. For example, a typical descriptor offered a few words, such as “woman smoking” or “fruits dancing.” When there was ambiguity in the descriptor, the digital copy of the ad was viewed by a research assistant, allowing for definitive classification as anti-tobacco or anti-obesity, or elimination from further consideration if an ad was neither.

Using content analysis of the digital videos of the relevant ads, code descriptors for the content of the ads were developed. Anti-obesity ads were coded for primary message, which included healthy eating, encouraging physical activity, or a combination of the two messages. Because the number and variety of anti-obesity ads were limited, further coding within the healthy eating or physical activity categories was not pursued, but common messages were noted. In contrast, due to the number of different anti-smoking ads and the variety of primary messages, not all of the anti-smoking ads for message content were coded. Rather, a sample of ads was viewed from the four largest state anti-tobacco media campaigns, California, Massachusetts, Florida, and Arizona,<sup>29</sup> their primary message described, and the ads compared across four common anti-tobacco message themes: (1) health effects of smoking, (2) environmental tobacco smoke, (3) tobacco

industry advertising practices and manipulation, and (4) smoking cessation.<sup>30,31</sup> In addition, both the anti-tobacco and anti-obesity ads were coded for target audience which included youth (aged 12–18 years) or general audience, based on the age of the main character(s) in the ad. If the age of the main character(s) was not obvious, the coding rules instructed to code the ad as general audience. Two coders independently coded approximately half the ads; because the message and target audience characteristics were very simple, there was 100% agreement between the coders. For the remaining half of the ads, one coder was used to classify the message and target audience.

### Measuring Exposure to Advertising

Television ratings estimate the mean audience exposure to all television programming, and the advertisements that appear during programs, across media markets in the U.S. It is customary for the advertising industry to sum rating points for a program over a specified time interval, usually weekly or monthly.<sup>28</sup> These summed rating points are called Gross Ratings Points (GRPs) for all households and provide estimates of audience size. For the analyses, ratings data for national broadcast, national cable, national syndication, and local broadcast were used; together, these categories represent the majority of television shows viewed on network and cable television.

Ratings were aggregated by sponsor to derive total GRPs for each campaign type by month and media market for the period from January 1999 to December 2003. To create national-level measures of total annual GRPs, monthly GRPs were summed across media markets by campaign category and by year. All figures were rounded to the nearest integer. Annual average exposure levels were created for each campaign type, by dividing the total annual GRPs in each category by the number of media markets that ran each type of ad. For example, average exposure levels for the national anti-tobacco and anti-obesity campaigns were calculated as the total ratings for a given year, divided by the 75 media markets for which data were available; the average exposure levels for state-sponsored campaigns were calculated as the total ratings for a given year, divided by the number of media markets across the states that ran campaigns.

## Results

### Campaign Emergence

Table 1 lists anti-tobacco and anti-obesity media campaigns, by sponsor for each year, 1999–2003. California was the first state to launch a large-scale and ongoing anti-tobacco media campaign in 1990. Massachusetts initiated a statewide anti-smoking media campaign in 1994, followed by Arizona in 1997, and Florida and Oregon in 1998. The \$206 billion payments to participating states that resulted from the 1998 Master Settlement Agreement (MSA) between 46 states and the tobacco industry enabled 30 more states and the American Legacy Foundation to sponsor additional anti-smoking media campaigns.

In 2000, the first anti-obesity television ads were sponsored by the California Department of Health and

**Table 1.** Year of initiation of state and national anti-tobacco and anti-obesity media campaigns

Year	Anti-tobacco	Anti-obesity
1990	California	
1994	Massachusetts	
1995	Michigan	
1996	Arizona	
1998	Florida, Maine, Oregon	
1999	Indiana, Mississippi, New Mexico, New York, Oklahoma, Utah, Washington, Wisconsin	
2000	Idaho, Kansas, Minnesota, American Legacy Foundation (National)	California
2001	Alabama, Connecticut, Georgia, Iowa, Illinois, Nebraska, New Jersey	
2002	Colorado, Maryland, New Hampshire, Ohio, Pennsylvania, Rhode Island, Texas, Virginia, West Virginia	Hawaii, VERB (National), New Hampshire
2003	Wyoming, Louisiana	Louisiana, Missouri, Ohio, Virginia, Washington

were aired in a single media market (San Diego). In 2001, California remained the only state with an anti-obesity campaign, running its ads in all five of California's major media markets. In 2002, the CDC's VERB campaign,<sup>32</sup> which promotes physical activity, was launched across more than 75 media markets nationally and two additional state-level campaigns, from Hawaii and New Hampshire, aired across three new media markets. In 2003, the VERB campaign continued to run and five more states launched campaigns—bringing the total of anti-obesity campaigns to nine.

### Campaign Audience Target and Exposure Levels

Table 2 describes total U.S. exposure levels across the top 75 media markets in the U.S. for state-sponsored anti-tobacco ads, the national Legacy anti-tobacco ads, state-sponsored anti-obesity ads, and the national CDC anti-obesity VERB campaign, disaggregated by whether they targeted youth or general audiences. The table

shows that most state-sponsored tobacco control and anti-obesity ads targeted a general audience; in contrast, the national Legacy and VERB campaigns exclusively targeted youth.

The table also shows that in 1999, only state-sponsored tobacco control ads were aired, and only in the media markets of the eight states that had campaigns at that time. In 2000, when Legacy launched its media campaign, Legacy ads dominated the ratings, with over 380,000 total GRPs, compared to fewer than 100,000 for state-sponsored anti-tobacco ads, and only 1504 for state-sponsored anti-obesity ads. In 2001, state tobacco control ads achieved higher total GRPs than Legacy, with 273,498 and 165,117 total GRPs, respectively; both far outweighed state-sponsored anti-obesity advertising, with less than 3500 GRPs. In 2002, state and national anti-tobacco ads continued to dominate total ratings, with totals of over 320,000 total GRPs each, but there were significant increases in anti-obesity advertising. GRPs for state-sponsored anti-obesity ads were nearly five times higher in 2002, compared to 2001; the total 131,566 GRPs for the first year of CDC's VERB campaign reflect only 6 months of exposure, since the campaign launched in July. By 2003, state-sponsored anti-obesity ads still significantly lagged in GRPs compared to the state-sponsored anti-smoking ads, but the CDC's national anti-obesity advertising overtook Legacy's national anti-tobacco ads, and also exceeded exposure levels to state-sponsored anti-tobacco ads.

Table 3 shows the annual mean ratings for each type of media campaign, based on the number of markets in which each campaign ran each year. Similar to the total numbers, the averages show that even after controlling for the number of markets in which each type of campaign ran, annual average exposure levels to anti-tobacco media campaigns exceeded the average exposure levels for anti-obesity campaigns.

Reflecting the fact that TV ad space is usually sold in 30-second intervals, an analysis of the length of the anti-tobacco and anti-obesity ads shows that nearly all of the anti-tobacco ads were 30 seconds or longer. While most (over 83%) of the anti-obesity ads were also 30-second spots, it is notable that over 15% were 15-second spots; the shorter spots were all among state-sponsored anti-obesity ads. The reported ratings are not adjusted to

**Table 2.** Total annual ratings for anti-tobacco and anti-obesity advertisements, by sponsor and target audience, 1999–2003

Year	State anti-tobacco			National anti-tobacco (Legacy)			State anti-obesity			National anti-obesity (CDC VERB)		
	General	Youth	Total	General	Youth	Total	General	Youth	Total	General	Youth	Total
1999	66,096	47,140	113,236	0	0	0	0	0	0	0	0	0
2000	66,872	33,025	99,897	0	381,779	381,779	1,120	384	1,504	0	0	0
2001	218,682	54,816	273,498	0	165,127	165,127	3,428	0	3,428	0	0	0
2002	262,281	61,085	323,366	0	329,882	329,882	15,470	338	15,808	0	131,566	131,566
2003	239,232	45,833	285,065	0	255,010	255,010	12,361	4,844	17,205	0	294,443	294,443

**Table 3.** Mean annual ratings for anti-tobacco and anti-obesity advertisements, by sponsor and target audience, 1999–2003

Year	State anti-tobacco			Legacy (National) anti-tobacco			State anti-obesity			National anti-obesity (CDC VERB)		
	General	Youth	Total	General	Youth	Total	General	Youth	Total	General	Youth	Total
1999	1102	655	1757	0	0	0	0		0	0	0	0
2000	1555	508	2063	0	5090	5090	1120	384	1504	0	0	0
2001	3837	1119	4956	0	2202	2202	686	0	686	0	0	0
2002	4857	1388	6245	0	4398	4398	2210	68	2278	0	1754	1754
2003	3680	1273	4953	0	3400	3400	883	404	1287	0	3926	3926

reflect the different ad lengths; comparable ratings levels reflect comparable audience sizes, regardless of ad length.

### Campaign Messages

The messages and target audiences of the state-sponsored and Legacy tobacco control advertisements vary across states and over time. The California media campaign targeted a general audience and focused on changing social norms about smoking to reduce smoking prevalence, with messages about environmental tobacco smoke and encouraging cessation. The Massachusetts media campaign promoted a wide range of anti-smoking messages, including youth-oriented smoking prevention and general audience-targeted messages about the health effects of smoking, encouraging smokers to quit and explaining the dangers of “light” cigarettes. The Arizona campaign included both adult- and youth-targeted messages, focusing on the health effects of smoking and encouraging quitting. Florida’s “truth” campaign used an exclusively youth-targeted message, which aimed to prevent youth smoking and expose the tobacco industry as a manipulator of youth behavior. The Legacy campaign is exclusively youth-targeted, and like the Florida “truth” campaign, emphasizes tobacco industry manipulation.

Table 4 describes national average exposure levels for state-sponsored and national anti-obesity ads by primary message: healthy eating, physical activity, or both. The table shows a dichotomy in ad messages between the state-sponsored and CDC anti-obesity ads, with states accounting for the vast majority of ads promoting healthy eating and the CDC’s VERB campaign accounting for nearly all the ads promoting physical activity. While the early California ads included

messages that addressed both healthy eating and physical activity, very few other states ran ads with a comprehensive message. Most of the state-sponsored ads that promoted healthy eating included the five-a-day message, encouraging the consumption of at least five servings of fruits and vegetable per day. Prior to the launch of CDC’s VERB campaign in 2002, there were no ads on TV that contained a primary message promoting physical activity. In the same year that VERB was introduced, several state-sponsored ads also began to promote physical activity. The CDC’s VERB campaign includes various ads, all of which encourage youth to choose a verb with which they identify, such as run, bounce, skate, or peddle, and engage in that active behavior; most of the dialogue occurs between youth, but adult voiceovers are also featured.

### Discussion

The analyses showed that in 1999 and 2000, there was virtually no anti-obesity advertising on television. In 1999, state-sponsored anti-tobacco ads appeared in 72 of the 75 largest media markets, and by 2000, Legacy ads were broadcast in each of the 75 major media markets in the U.S. State ads tended to target a general audience, and featured a variety of messages, whereas the Legacy ads focused exclusively on youth, and the message was primarily about tobacco industry manipulation and advertising practices. Throughout the observation period, exposure levels to anti-smoking ads remained relatively high, peaking in 2002. Beginning in 2001, state anti-obesity advertising increased, as early adopter states initiated anti-obesity media campaigns. For the most part, these state-sponsored anti-obesity ads promoted healthy eating, and were targeted toward a

**Table 4.** Total annual ratings for anti-obesity advertisements, by primary message, 2000–2003

Year	State			CDC VERB		
	Active	Healthy eating	Both	Active	Healthy eating	Both
2000	0	1,045	459	0	0	0
2001	0	3,338	90	0	0	0
2002	4,129	5,366	6,313	131,566	0	0
2003	2,428	4,272	10,504	294,443	0	0



general audience. The launch of CDC's VERB campaign represented the first large-scale anti-obesity campaign, promoting physical activity, and targeting youth. In the final year of observation, exposure levels to the VERB campaign came close to those of the anti-smoking campaigns.

Several studies have concluded that both national and state-sponsored anti-tobacco advertising are associated with significantly reduced smoking and increased anti-tobacco attitudes and beliefs.<sup>16–26,33,34</sup> Importantly, however, recent research has suggested that the positive effect of state-sponsored anti-tobacco ads was manifest only at a threshold level of at least one unit of exposure over a 4-month period.<sup>27</sup> The implication of this threshold effect is that minimal levels of anti-tobacco advertising do not have a significant association with smoking-related outcomes. If the relationship between exposure to anti-obesity ads and obesity-related behavior is similar to that between the anti-smoking ads and smoking behavior, the relatively modest levels of exposure to state-sponsored anti-obesity ads may not result in measurable changes in obesity-related behavior.

Although the evidence from tobacco control suggests that anti-obesity media campaigns could be expected to contribute to reductions in the nationwide obesity epidemic, it is important to compare both similarities and differences between smoking- and obesity-related behaviors, which might affect the potential impact of anti-obesity media campaigns. First, tobacco use is a relatively easily measured behavior, which is not essential to daily living. Clearly, there are many complex intermediate outcomes related to tobacco use, such as changes in smoking-related attitudes and beliefs and exposure to environmental tobacco smoke, but the ultimate outcome is whether and how much an individual smokes. In comparison, like smoking, it is possible to refer to a single measure, such as body mass index (BMI), as the ultimate outcome of anti-obesity campaigns. However, obesity reflects a chronic positive energy balance that results from a combination of multiple behaviors involving total caloric consumption, the types of food and drink consumed, and amount and type of physical activity, all of which are necessary to modify in some combination in order to affect obesity.<sup>7</sup> Thus, it is arguable, that motivating behavior change related to obesity is a much more complex—and therefore potentially much more difficult—endeavor.<sup>35–37</sup>

The comparison of anti-tobacco and anti-obesity media campaigns also reveals important similarities and differences between the broader contexts in which the ads appear. Few evaluations of anti-tobacco advertising have been able to control for other tobacco control policy variables, or other tobacco-related advertising.<sup>27</sup> Nonetheless, it is feasible to control for several of the important tobacco control policies, as well as the volume and variety of tobacco-related messages. While

reliable data do not exist at a national level on many tobacco control policies, national data on cigarette taxes and clean indoor air laws, two of the most important tobacco control policies, are widely available and used. In contrast, there are currently a limited number of regulations related to obesity, which could be included in evaluation models. For example, most states have school-related policies on physical education requirements, and some have begun to pass laws related to vending machines in school. As state and/or local legislators develop further obesity-related policies, it will be crucial to develop corresponding databases for use as controls in evaluation models of anti-obesity advertising.

Another key difference between anti-tobacco and anti-obesity advertising relates to commercial advertising on TV. Researchers have been able to control for other tobacco-related advertisements in their analyses of tobacco control ads,<sup>27,38</sup> but controlling for other obesity-related messages may prove much more challenging. Anti-tobacco ads face no direct message competition because tobacco companies have not been allowed to advertise cigarettes on TV since 1971, and the 1998 Master Settlement Agreement (MSA) virtually eliminated event sponsorships and other opportunities to promote cigarette brands on TV. The only other tobacco-related messages on TV come from ads produced either by pharmaceutical companies, promoting cessation products, or by the tobacco industry, putatively offering an anti-smoking message or promoting the corporate image.<sup>27,38,39</sup> In contrast, food advertising constitutes the single largest advertising category on children's TV, and ads for sugary children's cereals comprise a substantial proportion of these food ads.<sup>40–45</sup> The overwhelming majority of food products advertised to children are of poor nutritional content, high in sugar or fat.<sup>46</sup> Moreover, food ads in children's programs increasingly link the product to toy and movie products, in effect multiplying the impact of the ads.<sup>47,48</sup> For adolescents, fast-food ads are the most commonly viewed food-related ad category.<sup>45</sup> Empirical evidence shows that commercial food advertising is significantly associated with younger children's food purchase requests, short-term food consumption patterns, and usual dietary intake, though there is insufficient corresponding evidence for teens aged 12–18.<sup>49</sup> Including food and beverage advertising, the volume and variety of advertisements that could be related to obesity is staggering: fast-food restaurants, cereals and snacks, soda and sugary-beverages, recreation opportunities, sports programming, and health club promotions, to name a few. Controlling for the many and diverse competing and complementary messages presents a critical challenge for the evaluation of anti-obesity ads. Finally, it is important to note that anti-tobacco advertising began to appear on television at the same time that tobacco control programs were achiev-

ing widespread and significant policy gains. Smokefree air laws were proliferating across state and local jurisdictions, and substantial increases in cigarette excise taxes were achieved across nearly all states and many local jurisdictions. In addition, during the late 1990s, the tobacco industry was under siege from litigation, which was widely publicized, and which raised public awareness and negative sentiment toward the industry.<sup>50</sup> Therefore, it is arguable that many populations were “primed” by the policy environment for the anti-tobacco messages that appeared on television, similar to how traditional advertising can prime an audience to change behavior.<sup>51–53</sup> Thus, tobacco control policies, such as smokefree air laws, likely made the message of the anti-tobacco ads more salient than it would otherwise have been, resulting in a stronger effect from the ads than could have been achieved absent the policy-priming.

In contrast, anti-obesity ads appear in the context of a near vacuum of anti-obesity policy. While some local jurisdictions or school districts have implemented initiatives, there is minimal upstream policy activity.<sup>54</sup> Indeed, a large proportion of the U.S. population lives in communities where the built environment makes physical activity challenging to perform<sup>37</sup>; healthy food is either inaccessible, relatively more expensive than food of poor nutritional content, or both<sup>55</sup>; advertisements for unhealthy foods permeate the airwaves<sup>44–46</sup>; and product tie-ins seduce youth to demand often unhealthy foods that are advertised by their favorite cartoon character.<sup>46</sup> In this context, it seems unlikely that anti-obesity ads promoting personal responsibility and individual behavior change could be expected to achieve the positive associations observed between exposure to anti-smoking ads and reductions in smoking over time and across communities.

This research is subject to limitations. The most important limitation is that the NMR data are measures of aggregate exposure to smoking-related advertising at the DMA level. They do not reflect actual individual exposures to the various types of smoking-related ads. Additionally, the data were only available through 2003. Therefore, the analyses do not reflect that many tobacco control media campaigns have been severely cut or completely eliminated since 2003; conversely, it is likely that many more states have initiated anti-obesity media campaigns since 2003, which are not captured in our data. In addition, this research focused on general population exposure to public health advertising; it did not examine relative exposure levels across race/ethnic groups. Research has shown that exposure to advertisements for unhealthy foods is even greater among African-American audiences than in the general population,<sup>56,57</sup> but there has been no investigation to date of exposure levels to anti-obesity advertising across racial/ethnic groups. Despite these limitations, the ratings data provide an important description of the

relative volume of the different types of public health television advertisements in the U.S., and can ultimately be used to inform models that relate exposure to such ads to the relevant health outcomes.

This research has shown that it is important to compare both similarities and differences between smoking- and obesity-related behaviors, which might affect the potential impact of anti-obesity media campaigns. The lack of evidence on exposure levels to anti-obesity advertising across race/ethnic groups presents a clear direction for future research. Beyond the individual behaviors, it is also critical to understand the local and national policies that affect both eating patterns and physical activity. Finally, analyzing the potential impact of anti-obesity media campaigns necessitates an understanding of the very complex array of media messages promoting obesogenic behaviors. Given the scope of the public health risks attributable to obesity, and the amount of federal, state, and other resources devoted to anti-obesity media campaigns, there is a clear need to evaluate the potential impact of such campaigns efforts. Nonetheless, the challenges in both motivating and monitoring such complex behavior change, and in attributing changes to a given media campaign are significant.

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No financial disclosures were reported by the authors of this paper.

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