

# Smoke-free parks policy baseline evaluation

Philadelphia Department of Public Health

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## Executive summary

Protecting residents from the harms of secondhand smoke is a key priority for the Philadelphia Department of Public Health (PDPH). The US Surgeon General has concluded that there is no risk-free level of exposure to secondhand smoke,<sup>1</sup> and studies have shown outdoor tobacco smoke levels can be as high as secondhand smoke indoors, especially in close proximity to smokers.<sup>2</sup> In April 2014, PDPH visited 11 parks throughout the city to collect data on smoking behavior and smoking-related litter, prior to the announcement of a new citywide smoke-free parks policy adopted by Philadelphia Parks and Recreation (PPR). Key findings are summarized below.

- Smoking behavior was rare, with only 3.5% of the 2,600+ observed park patrons seen smoking.
- Smoking behavior appeared to peak in the early evening.
- Smoking-related litter was abundant, with over 15,000 cigarette butts counted across 11 park sites.
- Cigarette butts, packaging, matchbooks, lighters, and mouthpieces accounted for nearly 9 out of 10 pieces of all litter counted.

## Background

Smoking is a critical public health issue in Philadelphia. Of the 10 largest cities in the US, Philadelphia has the highest prevalence of adult smoking at 23.3%.<sup>3,4</sup> Philadelphia has more tobacco retailers per capita than any other large city, except Washington, DC., and three-quarters of them are within two blocks of a school.<sup>5</sup> In 2011, smoking contributed to nearly 2,300 deaths in Philadelphia, which accounted for 16% of all deaths in the City, and resulted in \$680 million in productivity losses.<sup>6</sup>

While efforts to reduce exposure to secondhand smoke have largely focused on indoor spaces, secondhand smoke presents a potential health threat in outdoor spaces as well. Studies have shown that outdoor secondhand smoke exposure is detectable up to approximately 10 to 14 feet from a lit cigarette.<sup>7</sup> Smoking is also an environmental hazard, as the toxic chemicals found in cigarette butts pose a threat to humans, wild and domestic animals, and the ecosystems of Philadelphia's rivers.<sup>8,9,10</sup> Finally, since children are more likely to smoke if frequent exposure to

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<sup>1</sup> U.S. Department of Health and Human Services. 2006. *The Health Consequences of Involuntary Exposure to Tobacco Smoke, A Report of the Surgeon General*. Available at: <http://www.ncbi.nlm.nih.gov/books/NBK44328/#rpt-smokeexp.ch1.s6>

<sup>2</sup> Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. 2000. *Highlights: Clean Indoor Air Regulations*. Available at: [http://www.cdc.gov/tobacco/data\\_statistics/sgr/2000/highlights/clean/index.htm](http://www.cdc.gov/tobacco/data_statistics/sgr/2000/highlights/clean/index.htm)

<sup>3</sup> Public Health Management Corporation. 2012. *2012 Southeastern Pennsylvania Household Health Survey*.

<sup>4</sup> Centers for Disease Control and Prevention. 2012. *2012 Behavioral Risk Factor Surveillance System Survey*.

<sup>5</sup> Philadelphia Department of Public Health. 2010. *The Challenge of Youth Smoking in Philadelphia: Prevalence, Tobacco Access, and Illegal Sales, 2010*.

<sup>6</sup> Philadelphia Department of Public Health. 2011. *2011 Vital Statistics Report*.

<sup>7</sup> Supra note 2.

<sup>8</sup> Bronstein AC, Spyker DA, Cantilena LR Jr, Green JL, Rumack BH, Heard SE, American Association of Poison Control Centers. 2008. 2007 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 25th Annual Report. *Clinical Toxicology*, 46(10), 927-1057.

adult smoking suggests smoking as the norm, restrictions on outdoor smoking may reduce the youth smoking rate.<sup>11</sup>

In May 2011, the Philadelphia Department of Public Health (PDPH) partnered with the Philadelphia Department of Parks & Recreation (PPR) to develop a smoke-free policy for all City-owned recreation centers, playgrounds, and pools. The policy was intended to provide a cleaner environment, reduce children's and adults' exposure to secondhand smoke, and reduce smoking rates by changing social norms. In April 2014, the policy was expanded to all City-owned parks, including over 100 neighborhood parks and watershed parks like Fairmount Park, Penny Pack Park, and Wissahickon Valley.

In order to evaluate the effectiveness of the smoke-free policy at Philadelphia parks, a strategy was developed to assess compliance by comparing the prevalence of smoking and tobacco-related litter before and after the formal announcement of the policy.

## Methods

Data were collected at 11 locations throughout the City (Map 1). These included Belmont Plateau and Lloyd Hall in Fairmount Park, Rittenhouse Square Park in Center City, Marconi Plaza in South Philadelphia, Elmwood Park in the Southwest, Clark Park and Malcolm X Memorial Park in West Philadelphia, Fairhill Square and Vernon Park in North Philadelphia, and Russo Park and the Fish Hatchery in the Northeast.

Data collection was a two-part process, comprising behavioral observations and litter audits. All data collection was completed in April 2014.

Smoking behavior among adults and adolescents was assessed using observational methods. Researchers visited each selected site and observed smoking behavior for 30 minutes at each of several designated vantage points (e.g., park entrance, park center). They tallied all smokers, non-smokers, and children under 12.

Smoking litter was assessed using litter audits, in which researchers tallied all pieces of smoking (e.g., cigar/cigarette butts/packaging) and non-smoking (e.g., food packaging, bottles/cans) litter. Like observations of smoking behavior, litter audits were completed in several designated areas of each selected site.

## Results

Researchers observed over 2,600 park patrons across the 11 selected locations. More than 4 out of 5 patrons observed were adults, but only 4.2% of them (3.5% of all patrons) were seen smoking. The percentage of smokers varied widely by site, with the less popular – or less

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<sup>9</sup> Novotny TE, Hardin SN, Hoyda LR, Novotny DJ, McLean MK, Khan S. 2011. Tobacco and cigarette butt consumption in humans and animals. *Tobacco Control*, 20(Suppl 1), i17-20.

<sup>10</sup> Slaughter E, Gersberg RM, Watanabe K, Rudolph J, Stransky C, Novotny. 2011. Toxicity of cigarette butts, and their chemical components, to marine and freshwater fish. *Tobacco Control*, 20(Suppl 1), i25-29.

<sup>11</sup> Wakefield MA, Chaloupka FJ, Kaufman NJ, Orleans CT, Barker DC, Ruel EE. 2000. Effect of restrictions on smoking at home, at school, and in public places on teenage smoking: cross sectional study. *British Medical Journal*, 321(7257), 333-337.

populated – parks seeming to attract more smokers. The 564 patrons observed in the Lloyd Hall area of Boat House Row included just one smoker, but the fewer than 40 patrons observed at Vernon Park and the Fish Hatchery included 6 smokers each (Figure 1).

The percent of smokers varied somewhat throughout the day, with an apparent peak in the early evening, between 6 and 7 PM (Figure 2). Since different parks were visited at different times, it is difficult to draw a distinction between the effect of location and the effect of time of day.

Despite the infrequency of observed smoking behavior, litter audits revealed an abundance of smoking-related litter. Cigarette butts and other smoking paraphernalia accounted for nearly 9 out of 10 pieces of litter counted across all sites (Figure 3).

Researchers found over 15,600 pieces of smoking litter. More than 95% of this litter consisted of over 15,000 cigarette butts, but researchers also counted nearly 500 pieces of packaging, matchbooks, lighters, and mouthpieces (Figure 4a). Most of the non-smoking litter consisted of food packaging and, at Belmont Plateau, hundreds of beer bottle caps (Figure 4b).

The ratio of smoking to non-smoking litter varied by site, as did the pieces of smoking litter per minute of audit time – a proxy for litter density (Figure 5).

Finally, there was considerable variation in the pieces of smoking litter counted per smoker observed. Across all sites, researchers counted an average 172 pieces of smoking litter for each person observed smoking, a considerable discrepancy between these two indicators of smoking in parks.

## **Recommendations**

Although observable smoking behavior was rare, the abundance of smoking-related litter suggests one of two things. First, that parks are indeed home to quite a bit of smoking. Or second – assuming, instead, the litter has accumulated over long stretches of time – that there is a pressing need for park cleanups. Only additional data collection, in tandem with scheduled cleanup efforts, could further elucidate the contradictory findings. Meanwhile, the following actions should be taken to ensure maximum compliance with the policy:

- Installation of prominent smoke-free signage in areas of the parks where majority of the litter was observed, such as entrances, seating areas, playgrounds, structures, and walkways.
- Consistent promotion of the smoke-free policy through traditional and social media.
- Enlistment of support and partnership with neighborhood associations and park groups.
- Development and implementation of an education plan to inform and remind PPR staff, neighborhood park groups, and the community about the smoke-free policy.

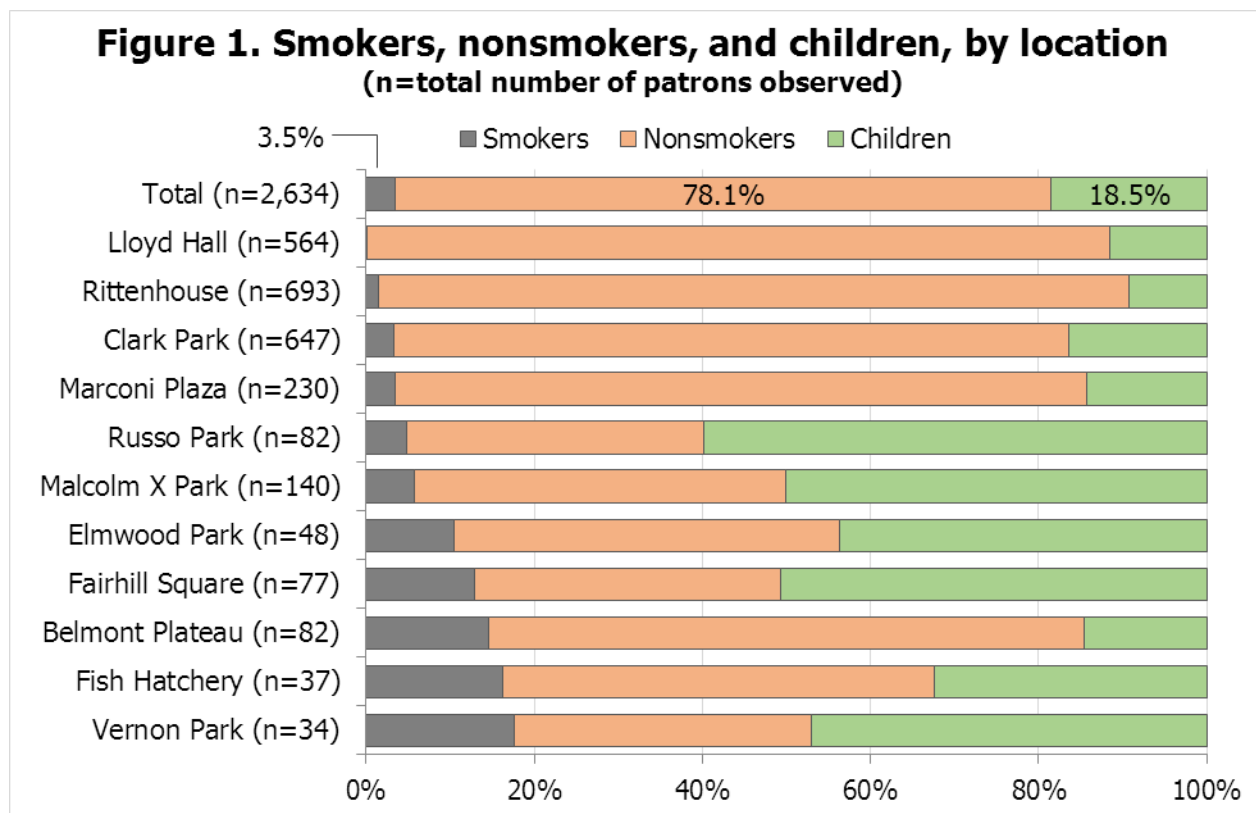
Both smoking behavior and smoking-related litter should be reassessed once these elements of implementation process are in place.

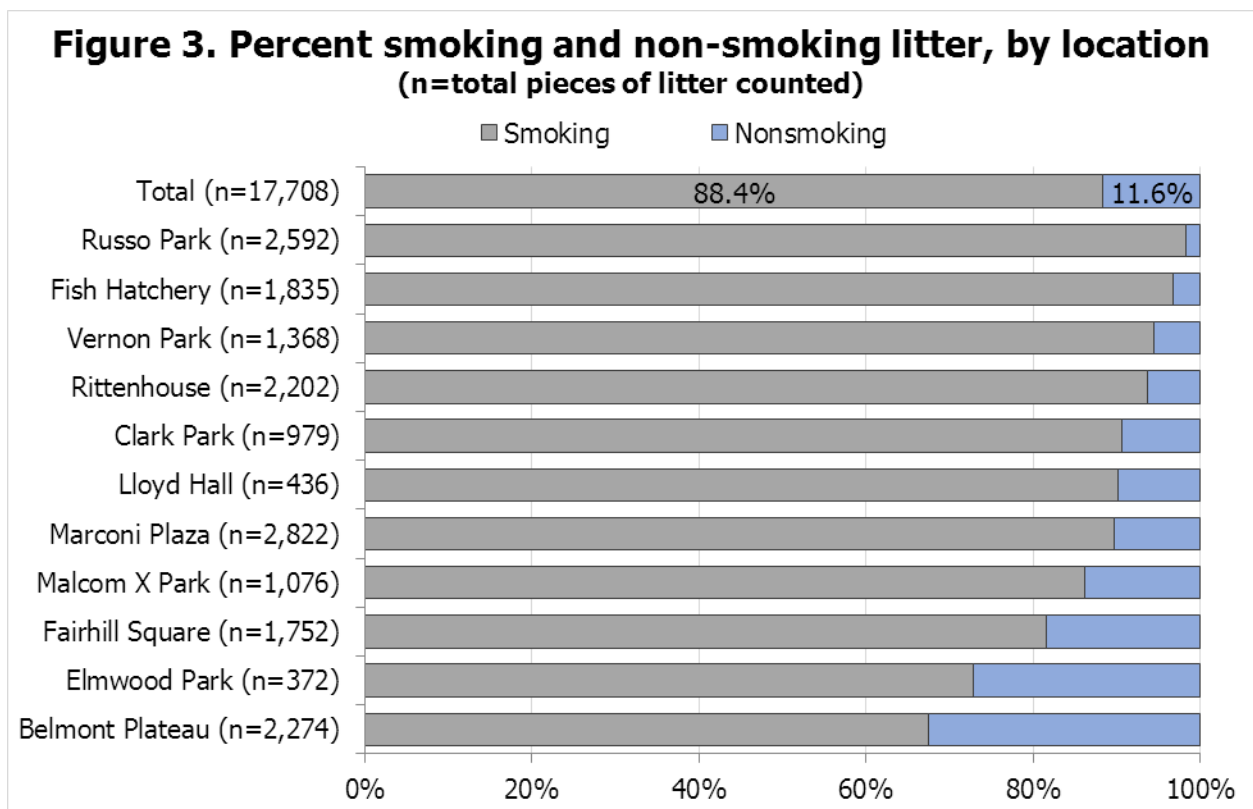
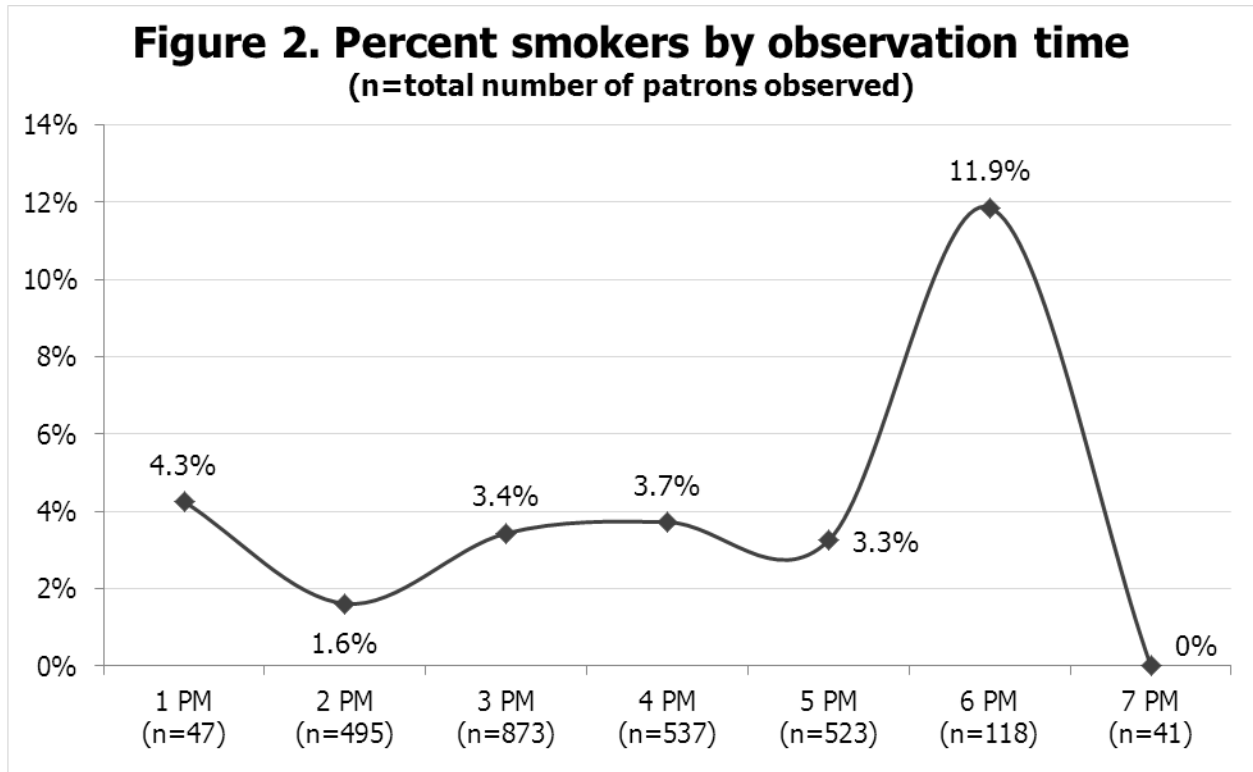
# Map 1. Smoke-free parks policy evaluation sites



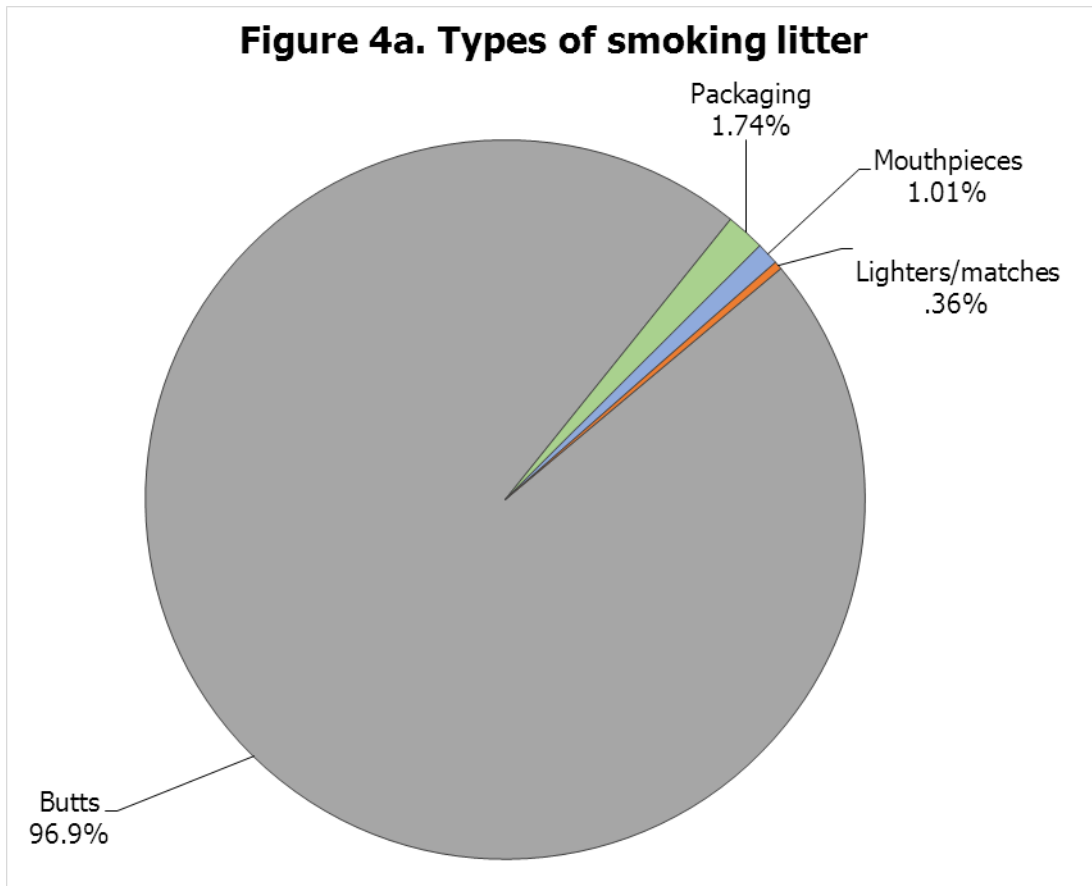
**Table 1. Summary findings, smoking behavior and litter**

Location	Percent smokers	Smoking litter
Belmont Plateau	14.6%	1,535
Clark Park	3.2%	888
Elmwood Park	10.4%	271
Fairhill Square	13.0%	1,429
Fish Hatchery	16.2%	1,777
Lloyd Hall	0.2%	393
Malcolm X Park	5.7%	927
Marconi Plaza	3.5%	2,530
Rittenhouse	1.4%	2,062
Russo Park	4.9%	2,550
Vernon Park	17.6%	1,293
<b>Total</b>	<b>3.5%</b>	<b>15,655</b>





**Figure 4a. Types of smoking litter**



**Figure 4b. Types of non-smoking litter**

