

**Overdose Prevention Site Acceptability Among Residents and Businesses  
Surrounding a Proposed Site in Philadelphia, USA**

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## **ABSTRACT**

Overdose prevention sites (OPS) are places where people use previously obtained drugs under the supervision of a health professional. They have been proposed in six United States of America (USA) cities, including Philadelphia, to help reduce opioid-related overdose deaths and public injection. Philadelphia has the highest overdose rate among large cities in the USA, which has led a local community-based organization to plan the implementation of OPS. Kensington, a neighborhood with the highest drug overdose rates in the city, is a likely site for the proposed OPS. Given the dearth of research systematically assessing public opinion towards OPS prior to implementation, we enrolled 360 residents and 79 business owners/staff in the Kensington neighborhood in a cross-sectional acceptability study. Face-to-face surveys assessed participant characteristics, experiences with drug-related social problems, and OPS acceptability. Using descriptive statistics we estimated factors associated with favorability towards opening an OPS in the Kensington neighborhood. Ninety percent of residents were in favor of an OPS opening in Kensington. Support was significantly higher among unstably housed individuals and persons who currently use opioids. In the business sample, 63% of owners/staff were in favor of opening an OPS in Kensington. A greater proportion of Asian/Pacific Islanders, Hispanic/Latinx respondents, and Non-Hispanic/Latinx Black respondents were in favor an OPS opening in Kensington compared with white respondents ( $p < 0.04$ ). While details about implementation are still being considered, results indicate general acceptability among Kensington residents and businesses for an OPS, especially if it can deliver benefits that curb drug-related social problems. Should an OPS be implemented in Philadelphia, it will be important to monitor changes in drug-related social problems and acceptability post-implementation.

## INTRODUCTION

The United States of American (USA) is struggling with an unprecedented public health crisis from opioid-related overdose deaths. In the past decade, opioid-related overdose has become a leading cause of mortality, claiming over 47,000 lives in 2017<sup>1</sup>. Philadelphia has the highest overdose mortality rate (65.9 per 100,000) among large US cities, recording more than 1,074 unintentional fatal overdoses involving opioids in 2017<sup>2</sup>. Within Philadelphia, the 19134 ZIP code, which includes the Kensington neighborhood, has been hardest hit by the opioid-related overdose crisis<sup>3</sup>. In 2017, there were 209 fatal overdoses within the 19134 ZIP code. This accounts for 17% of all recorded fatal overdoses in the city and is more than double the prevalence in the next highest ZIP code (19124 for reference)<sup>4</sup>. Residents and business owners in Kensington<sup>i</sup> have expressed frustration with drug-related social problems in their community, such as discarded syringes, drug sales, public injection, and violence, which has been a focal point in community meetings about the impact of the crises on these neighborhoods<sup>6</sup>.

To help prevent opioid overdose deaths, six cities in the USA are considering implementation of overdose prevention sites (OPS), places where people can use their previously obtained drugs under the supervision of a health professional. OPS are also referred to as supervised consumption sites, safe injection facilities, medically supervised injection centers, and drug consumption rooms. In the USA, there has been a shift to use the term OPS to focus on the urgent need to address the opioid-related overdose crisis and reduce stigma towards people who use drugs (PWUD), both of which may lead to increased support for policies to combat the crisis<sup>7,8</sup>. While operating rules at OPS vary globally, they are commonly staffed by health personnel trained to reverse an overdose, provide harm reduction education and support, and supply clients with sterile syringes and equipment for drug use. Many OPS also provide wound care, and referrals to substance use treatment, housing, or other social services.<sup>9,10</sup> Often, peers are part of the service delivery staff which has been shown to facilitate uptake of OPS

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<sup>i</sup> During the data collection period for this paper, “Kensington” was popularly used to refer to the adjoining Kensington and Harrowgate neighborhoods.<sup>5</sup>

services and engagement in harm reduction behaviors by PWUD, as well as provide peer workers with employment opportunities that are more meaningful and rewarding than those typically available to PWUD<sup>11</sup>.

The first OPS opened in 1986 in Switzerland<sup>12</sup>. As of 2018, there were approximately 120 sites operating in over 10 countries worldwide<sup>13</sup>. No fatal overdoses have ever been recorded within any OPS<sup>10</sup> and research demonstrates that OPS increase the number of PWUD entering drug treatment,<sup>14</sup> decrease the prevalence of public injection, discarded syringes, and injection-related litter near the site<sup>15</sup>, and are cost-effective<sup>16</sup>. Moreover, OPS provide a safe, nonjudgmental environment where PWUD avoid factors that rush injection, thereby reducing risk for overdose and other drug-related harms<sup>17,18</sup>. Despite evidence documenting public health benefits, there are no sanctioned sites operating within the US. However, cities like Baltimore, Ithaca, New York City, Philadelphia, San Francisco, and Seattle are considering opening OPS<sup>19</sup> and an unsanctioned site has been operating somewhere in the USA since September 2014<sup>20</sup>.

Prior research has shown that 29% of adults in the USA who participated in a nationally representative web-based survey (N=1,004) support legalizing OPS<sup>21</sup>. Arguments opposing legalization were more strongly rated than those supporting legalization in this sample<sup>19</sup>. Despite low levels of acceptability in the USA, acceptability is high and has been shown to increase after implementation in international settings<sup>22-25</sup>. A 2019 systematic review of 47 peer-reviewed and grey literature articles found acceptability is influenced by the perceived benefits associated with OPS, which include improvements in drug user health, tempered by perceived barriers such as concerns about crime, disorder, condoning drug use, placement/siting issues, and operating rules within the site<sup>26</sup>.

In Philadelphia, researchers have used geospatial methods to determine that Kensington is the ideal location for an OPS<sup>27,28</sup> and focus groups to assess acceptability, primarily among PWUD<sup>29</sup>. Harris et al found that PWUD would use an OPS to limit risk of harm, theft, and arrest while also avoiding drug use in a public space where they might be visible to community members<sup>29</sup>. Despite high acceptability among PWUD, news stories in the local media have suggested many Philadelphians are

unsupportive of OPS because they are perceived to condone illegal drug use, heighten drug-related crime and violence near the sites, and reflect racial biases<sup>30-32</sup>. Additionally, city officials justify not implementing an OPS due to fear of disrupting businesses and ongoing urban renewal initiatives in Kensington<sup>33</sup>. Rigorous analysis of public opinion at the local level is necessary since neighborhood acceptability and buy-in is essential for successful implementation<sup>21</sup>. The formation of Insite, the first sanctioned OPS in North America (in Vancouver, Canada), was largely due to local community organizing that demanded an OPS and later influenced implementation<sup>34</sup>.

Compared with other public health emergencies, public opinion plays a greater role in the enactment of drug policy<sup>21</sup>. However, research that systematically assesses public opinion towards OPS in the Kensington neighborhood, which has been named as the likely setting for the city's first sanctioned OPS<sup>28,35</sup>, has yet to occur. To address this research gap, we conducted a study to measure acceptability about OPS among residents and business owners/staff in Kensington.

## **METHODS**

We conducted anonymous face-to-face surveys of residents (n=360) and business owners and staff (n=79) in the Kensington neighborhood of Philadelphia. Screening, enrollment, and interviewing were done by a group of seven trained research assistants, including four who were graduate students in public health and three who were professional research staff. Prior to field placement, all completed training on the ethical conduct of research, study specific procedures, and opioid overdose reversal. Participants who completed the study received tokens for public transportation or a gift card to a local food chain valued at \$4.50. All procedures were approved by the Drexel University Institutional Review Board.

### *Resident Eligibility Criteria/Recruitment*

For residents, eligibility criteria were reporting age  $\geq 18$  years and living/staying within the 19134 ZIP code. To ensure that unstably housed residents were not oversampled, we stopped enrolling unstably housed residents once one quarter of the planned sample-size was determined to be unstably housed (n=80), per the following screening question: *“How would you describe where you are currently living?”* Those responding *“on the street,” “in a shelter,” “in a squat/abando,” “single room occupancy”* and *“any form of recovery housing”* were considered unstably housed. Those responding *“my own home or apartment”* or *“a family member/friend’s home”* were considered stably housed.

To enroll the resident sample, we conducted street intercept-based surveys between November 2018 and February 2019 over the course of 19 data collection days which included 3 Saturdays. Residents were recruited between 10 am and 3 pm at nine intersections along a 1.5-mile section of Kensington Avenue, between Huntingdon Street and Venango Street, which has a well-known open-air drug market and sex work stroll<sup>36,37</sup>. Recruitment occurred on both east and west sides of Kensington Avenue resulting in a total of 18 unique locations where intercept-surveys were conducted. No more than 10 participants were recruited per intersection. Residents were screened for eligibility at main street intersections and then escorted to a more discreet place to complete the approximately 10-minute interviewer-administered survey via an iPad (Apple Inc, Cupertino, CA) once agreeing to participate. Of 521 persons screened for the resident survey, 360 (69.1%) were deemed eligible and were interested in participating.

### *Business Eligibility Criteria/Recruitment*

Eligible business owners/staff members were aged  $\geq 18$  years and owned or worked at a business located on a 1.3-mile stretch of Kensington Avenue between Lehigh Avenue and Venango Street. To recruit participants, a research assistant entered a storefront that was open between 10 am and 3 pm on one of 15 data collection days (including 2 Saturdays) between January 2019 and March 2019. They invited one person per business to participate. When multiple individuals were interested in

participating, priority was given to the business owner followed by the employee who had been working there longest. Among the 138 businesses approached, 57% participated, 22% refused participation, and 20% were not completed after 3 attempts. We did not collect information on rationale for refusal. Interviewer-administered surveys on iPads with business owners/staff took approximately 10 minutes and were conducted within a quiet corner of the business.

### *Measures*

Surveys were administered in English or Spanish and assessed frequency of witnessing drug-related social problems in the neighborhood in the past month including public injection, publicly discarded syringes, selling of drugs, and overdoses. Items were rated on a 4-point scale with options “Never,” “Rarely,” “Sometimes,” or “Frequently.” One item measured whether participants knew someone who died of an overdose (yes/no). Before assessing opinions on OPS, participants were read the following statement:

*“Before we continue, I want to make sure we are on the same page about overdose prevention sites which are sometimes called safer consumption sites or safer injection facilities. Worldwide, there are over 100 overdose prevention sites. These sites operate like medical clinics where users go to consume drugs. Drug users are supplied with clean paraphernalia and inject under medical supervision. Wound care, linkage to drug treatment and referrals to housing programs are often provided at these sites. Drugs are not provided to drug users within these sites. Currently there are no overdose prevention sites in the USA. However, cities like Philadelphia, are considering them as an important intervention to combat the opioid crises. Kensington is a possible location for Philadelphia's first overdose prevention site. As a community member, we'd like to get your opinion about these sites.”*

Participants were asked about whether they agree with 8 statements related to OPS acceptability on a 4-point scale from “Strongly Disagree” to “Strongly Agree.” Participants were read the main acceptability statement of interest, “*I am in favor of an OPS opening in Kensington,*” after responding to 6 other acceptability statements, e.g., “*OPS should be made available if it can be shown that they reduce public injecting of drugs.*” Eleven items measured age, gender, race, ethnicity, employment status, level of education, housing status, length of residence in Kensington, current opioid use, knowing someone who had died of an overdose, and perceived sufficiency of city response to the

opioid-related overdose crises. Specific only to the business sample, we assessed length of time working in Kensington, position (owner or staff), and impact of drug-related social problems on their business with 7 items.

### *Data Analysis*

Distributions of categorical and continuous variables were reviewed and the following recategorizations were performed: All responses that used the 4-point scale of agreement were recategorized to strongly agree/agree versus strongly disagree/disagree. Age (in years), a continuous variable, was collapsed into 4 categories: less than 30, 30-39, 40-49, and 50 or greater. Participants who chose not to respond to the opioid use variable (n=24) and one missing response were removed from all drug-related analyses. To understand factors associated with OPS acceptability, we used Pearson and Fisher Chi-square tests to assess bivariate relationships. All tests were two-tailed and used  $p < 0.05$  as the level of significance. We used SAS 9.4 (Cary, NC, USA) for all data analyses.

## **RESULTS**

The majority of the resident sample were stably housed people of color who had been living in Kensington for >5 years, and had heard of OPS prior to enrollment in the study (Table 1). Less than half reported current opioid use. The vast majority knew someone who had died of an overdose and believed the city response to the opioid-related overdose crises to be insufficient. Nearly all business owners/staff were stably housed people of color. Most had worked in the neighborhood for more than 5 years, and nearly half reported also living in Kensington. Among those who lived in the neighborhood, two-thirds had done so for more than 5 years. No business owners/staff reported current opioid use. The majority of business owners/staff had heard of OPS prior to enrollment, knew someone who had died of an overdose, and believed the city response to be insufficient. Among both residents and business owners/staff, more than 90% had witnessed a public injection or observed discarded syringes



in the past 30 days and most had been solicited to buy drugs or had witnessed an overdose in the past 30 days.

Among residents and business owners/staff, 90% and 63% were in favor of an OPS opening in Kensington, respectively (Table 2). Furthermore, 88% of residents and 71% of business owners/staff were in favor of opening multiple OPS across Philadelphia. The majority agreed that OPS can help reduce overdose deaths and that OPS should be made available if they conferred public health benefits observed in other settings such as reductions in public injection, publicly discarded syringes, overdose, and infectious disease as well as increasing access to drug treatment. Enforcing the law and punishing drug users was endorsed by 22% of residents compared to 58% of business owners/staff as the best way to deal with the opioid epidemic.

Among residents, housing status (unstably housed vs. housed) and current opioid use (yes vs. no) were associated with being in favor of a Kensington OPS among residents (Table 3). However, acceptability was high regardless of housing status and current opioid use, ranging from 85% to 97%. Among business owners/staff, only race/ethnicity was associated with being in favor of Kensington OPS (Table 4). A greater proportion of Asian/Pacific Islanders, Hispanic/Latinx respondents, and Non-Hispanic/Latinx Black respondents were in favor an OPS opening in Kensington compared with white respondents ( $p < 0.04$ ).

## **DISCUSSION**

We used street-based intercept methods to recruit a large and diverse sample of persons living and working in the Kensington neighborhood of Philadelphia. Most reported experiencing a great deal of drug-related social problems, knowing someone who had died of an overdose, and believed the city response to the crisis was insufficient. The vast majority of residents and business owners/staff were in favor of an OPS opening in Kensington, and most also favored multiple OPS opening in neighborhoods across the city. The Kensington residents and business owners/staff in this sample expressed higher levels of support for an OPS compared to two recent citywide surveys of Philadelphia residents<sup>38,39</sup> We

posit this may be attributable to frequent exposure to drug-related social problems in the neighborhood, such as public injections, discarded syringes, and persons overdosing in public, which is much less common in other city neighborhoods, even those with high overdose rates.

In the resident sample, a greater proportion of unstably housed individuals and people reporting current opioid use were in favor of the OPS opening in the neighborhood. High levels of acceptability have been documented in other samples of PWUD in other cities in the USA.<sup>40,41</sup> Members of a Philadelphia-based focus group study of PWUD in 2018 also reported overwhelming support for the implementation of an OPS<sup>29</sup>. We offer two possible explanations for this finding of greater support for OPS among PWUD in our sample. First, PWUD recognize the benefits of having a safe space to use drugs in a neighborhood highly affected by fentanyl entering its drug market and high rates of fatal overdoses<sup>18</sup>. Second, they prefer to use drugs indoors to preserve community order, avoid police attention, and minimize stigma<sup>29,42</sup>.

In the business sample, a greater proportion of people of color endorsed OPS than white respondents, which is in contrast to news reports from local media and was an unexpected finding<sup>30</sup>. Further, the majority of business owners/staff indicated they suspected someone had injected drugs on their premises in the past year and most had called 911 or administered naloxone on someone they suspected was overdosing. While drug-related social problems and its impact on business was not associated with OPS acceptability in this sample, this finding highlights the significant challenges facing businesses operating in neighborhoods with high rates of opioid-related overdose. Despite this, OPS acceptability among Kensington businesses prior to opening the neighborhood OPS is higher than what has been found among businesses in other cities pre-implementation<sup>24,43</sup>. For example, Thein et al (2005) reported that only 58% of 209 business staff completing telephone surveys supported the establishment of the Sydney Medically Supervised Injecting Centre prior to its opening<sup>24</sup>. Likewise, Wenger and colleagues (2011) found limited stakeholder support in a qualitative study set in the Tenderloin district in San Francisco<sup>43</sup>. However, some community stakeholders were open to discussing how OPS might benefit neighborhood goals, especially if community input is obtained during

the planning and implementation processes<sup>43</sup>. The cautionary tale here is that public opinion, which is often shaped by vocal community stakeholders, influences opioid-related policy adoption<sup>21</sup>. Cities considering OPS should work with community stakeholders to increase buy-in long before initiating implementation-related activities, such as OPS siting.

Our findings should be considered in light of potential study design limitations. First, a small, non-random sample limits the generalizability of study findings. In particular, our results may only reflect the opinions of residents who were walking along Kensington Avenue during the recruitment period (i.e., primarily weekdays) and businesses open during this same timeframe. To limit bias in our estimations, we used street-based intercept surveys, a systematic sampling approach, which reduces some forms of bias but does not guarantee generalizability<sup>44</sup>. Thus, findings may not generalize beyond the research setting and may not be inclusive of community members who do not walk or work along this corridor. Second, recall and/or social desirability bias may have been introduced through the use of an interviewer-administered survey (as opposed to self-administered) with a 30-day recall window. This approach is commonly used in epidemiological studies of vulnerable populations and/or people who use drugs<sup>45,46</sup>.

We conducted an exploratory, cross-sectional study of OPS acceptability in a Philadelphia neighborhood disproportionately impacted by the opioid-related overdose crisis. Since Kensington has been acutely affected by this crisis, this neighborhood is being considered as the proposed site for the city's first sanctioned OPS. Among a large and diverse sample of residents and business owners/staff, our results suggest wide acceptability for the OPS, especially if public health benefits observed elsewhere also occur in Philadelphia. While many details about exact location and characteristics of the OPS are still being considered, these data indicate general acceptability for the concept in Kensington. Should an OPS be implemented in Philadelphia, it will be important to monitor changes in drug-related social problems and acceptability post-implementation.

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**Table 1. Socio-Demographic Characteristics of Kensington Neighborhood Residents and Business Owners/Staff in Philadelphia, 2018-2019**

	Resident Characteristics (N=360)		Owner/Staff Characteristics (N=79)	
	N	%	N	%
<b>Gender</b>				
Male	262	72.8%	51	64.6%
Female	95	26.4%	28	35.4%
Other	3	0.8%	0	0.0%
<b>Age</b>				
< 30	84	23.4%	26	32.9%
30-39	98	27.2%	17	21.5%
40-49	85	23.6%	18	22.8%
50 +	93	25.8%	18	22.8%
<b>Race/Ethnicity<sup>1</sup></b>				
Asian/Pacific Islander/Other	16	4.5%	16	20.2%
Hispanic/Latinx	101	28.1%	39	49.4%
Non-Hispanic Black	104	29.0%	13	16.5%
Non-Hispanic White	138	38.4%	11	13.9%
<b>Housing Status</b>				
Stably Housed	280	77.8%	76	96.2%
Unstably Housed	80	22.2%	3	3.8%
<b>Education Status</b>				
Primary-11th Grade	101	28.0%	15	19.0%
Completed High School or GED	164	45.6%	34	43.0%
Post High School Education	95	26.4%	30	38.0%
<b>Employment Status</b>				
Employed	138	38.4%	79	100.0%
Not Employed	205	56.9%	-	-
Retired	16	4.4%	-	-
Full-Time Student	1	0.3%	-	-
<b>Employed/Position</b>				
Staff/Manager	-	-	56	70.9%
Business Owner	-	-	23	29.1%
<b>Length of Time Living in Kensington<sup>2</sup></b>				
Less than 1 year	34	10.4%	1	1.3%
1-2 years	34	10.4%	5	6.3%
2-5 years	58	17.7%	6	7.6%
Greater than 5 years	201	61.5%	24	30.4%
Not a Kensington Resident	-	-	43	54.4%
<b>Length of Time Working in Kensington</b>				
Less than 1 year	-	-	5	6.3%
1-2 years	-	-	15	19.0%
2-5 years	-	-	22	27.9%
Greater than 5 years	-	-	37	46.8%
<b>Heard of OPS Before Enrollment<sup>3</sup></b>				
Yes	240	66.6%	41	51.9%

	No	118	32.8%	36	45.6%
	Unsure	2	0.6%	2	2.5%
<b>Opioid Use<sup>4,5</sup></b>	Yes	147	43.9%	0	0.0%
	No	188	56.1%	76	100.0%
<b>Know someone who died of overdose<sup>2,4</sup></b>	Yes	262	85.3%	40	50.6%
	No	45	14.7%	39	49.4%
<b>Frequency of witnessing injection<sup>6</sup></b>	Frequently	333	92.5%	65	82.3%
	Sometimes	19	5.3%	9	11.4%
	Rarely/Never	8	2.2%	5	6.3%
<b>Frequency of observing discarded syringes<sup>1,6</sup></b>	Frequently	336	93.9%	73	92.4%
	Sometimes	13	3.6%	5	6.3%
	Rarely/Never	9	2.5%	1	1.3%
<b>Frequency of being solicited to buy drugs<sup>6</sup></b>	Frequently	289	80.3%	35	44.3%
	Sometimes	31	8.6%	7	8.9%
	Rarely/Never	40	11.1%	37	46.8%
<b>Frequency of witnessing an overdose<sup>6</sup></b>	Frequently	203	56.4%	49	62.0%
	Sometimes	110	30.6%	19	24.1%
	Rarely/Never	47	13.0%	11	13.9%
<b>City doing enough to combat opioid crisis<sup>7</sup></b>	Strongly Agree/Agree	105	29.2%	16	20.2%
	Strongly Disagree/Disagree	255	70.8%	63	79.8%

<sup>1</sup>resident response(s) missing

<sup>2</sup>original question was changed/added after some data collection therefore smaller N for residents

<sup>3</sup> question read: "Before today, had you ever heard of overdose prevention sites?"

<sup>4</sup>only including participants who chose to respond.

<sup>5</sup>opioid use was defined as, "I currently use opioids, e.g., heroin, fentanyl, pain pills

<sup>6</sup> frequency questions were asked regarding the past 30 days

<sup>7</sup> question read: "How much do you agree with the following: "The city is doing enough to combat the opioid crises"

**Table 2. Acceptability of Overdose Prevention Sites Among Kensington Residents and Business Owners and Staff**

	Residents (N=360)		Business Owners/Staff (N=79)	
	Strongly Agree/Agree (%)	Strongly Disagree/Disagree (%)	Strongly Agree/Agree (%)	Strongly Disagree/Disagree (%)
I am in favor of an OPS opening in Kensington.	89.7%	10.3%	63.3%	36.7%
I am in favor of opening multiple OPS in many different neighborhoods in Philadelphia.	88.3%	11.7%	70.9%	29.1%
OPS should be made available if it can be shown that they reduce public injecting of drugs.	91.4%	8.6%	79.8%	20.2%
OPS should be made available if they increase drug users' enrollment in drug treatment programs.	91.1%	8.9%	76.0%	24.0%
OPS can help reduce overdose deaths. <sup>1</sup>	90.8%	9.2%	69.6%	30.4%
OPS can help reduce the amount of discarded syringes on the street.	90.6%	9.4%	76.0%	24.0%
OPS can help prevent blood borne illnesses like HIV or Hepatitis C among people who inject drugs.	87.2%	12.8%	73.4%	26.6%
Enforcing the law and punishing drug users is the best way to deal with the opioid epidemic. <sup>1</sup>	22.6%	77.4%	58.2%	41.8%
<sup>1</sup> one resident response missing				

**Table 3. Person-level characteristics associated with acceptability of OPS opening in Kensington among residents (N=360)**

	<b>Strongly Agree/ Agree (N=323; 89.7%)</b>	<b>Strongly Disagree/ Disagree (N=37 ; 10.3%)</b>	<b>p-value</b>
<b>Gender</b>			0.077
Male (N=262)	91.6%	8.4%	
Female (N=95)	85.3%	14.7%	
Other (N=3)	66.7%	33.3%	
<b>Race/Ethnicity<sup>1</sup></b>			0.608
Asian/Pacific Islander/Other (N=16)	93.7%	6.3%	
Hispanic/Latinx (N=101)	87.1%	12.9%	
Non-Hispanic Black (N=104)	88.5%	11.5%	
Non-Hispanic White (N=138)	92.0%	8.0%	
<b>Age</b>			0.479
< 30 (N=84)	89.3%	10.7%	
30 – 39 (N=98)	90.8%	9.2%	
40 – 49 (N=85)	92.9%	7.1%	
50 + (N=93)	86.0%	14.0%	
<b>Education</b>			0.545
Primary – 11 <sup>th</sup> Grade (N=101)	91.1%	8.9%	
Completed High School or GED (N=164)	87.8%	12.2%	
Post High School Education (N=95)	91.6%	8.4%	
<b>Housing Status</b>			0.006
Unstably Housed (N=80)	97.5%	2.5%	
Stably Housed (N=280)	87.5%	12.5%	
<b>Length of Kensington Residency(N=327)<sup>2</sup></b>			0.649
Less than 1 year (N=34)	91.2%	8.8%	
1-2 years (N=34)	94.1%	5.9%	
2-5 years (N=58)	91.4%	8.6%	
> 5 years (N=201)	87.1%	12.9%	
<b>Opioid Use (N=335)<sup>3,4</sup></b>			<0.001
Yes (N=147)	96.6%	3.4%	
No (N=188)	85.1%	14.9%	
<b>Willingness to Use OPS among people who reported opioid use (N=146)<sup>3</sup></b>			0.082
Would use (N=131)	97.7%	2.3%	
Would not use (N=15)	86.7%	13.3%	
<b>Know someone who died from an overdose (N=307)<sup>2,3</sup></b>			0.601
Yes (N=262)	89.3%	10.7%	
No (N=45)	86.7%	13.3%	
<b>City Response to Opioid Crises is Sufficient<sup>5</sup></b>			0.762
Strongly Agree/ Agree (N=105)	90.5%	9.5%	
Strongly Disagree/ Disagree (N=255)	89.4%	10.6%	
<b>Heard of OPS before enrollment (N=358)<sup>6</sup></b>			0.417
Yes (N=240)	88.7%	11.3%	
No (N=118)	91.5%	8.5%	

<sup>1</sup>1 response missing

<sup>2</sup>original question was changed/added after some data collection therefore smaller N for residents

<sup>3</sup>only includes participants who chose to respond

<sup>4</sup>opioid use was defined as, “I currently use opioids, e.g., heroin, fentanyl, pain pills

<sup>5</sup>question read: "How much do you agree with the following: "The city is doing enough to combat the opioid crises"

<sup>6</sup>question read: "Before today, had you ever heard of overdose prevention sites?"; 2 respondents who selected 'I'm not sure' excluded from analysis

\*italicized text denotes significant results at a  $p < .05$

**Table 4. Person-level characteristics and perceived impact of drug-related social nuisance associated with acceptability of OPS opening in Kensington among local businesses (N=79)**

	<b>Strongly Agree/ Agree (N=50; 63.3%)</b>	<b>Strongly Disagree/ Disagree (N=29 ; 36.7%)</b>	<b>p- value</b>
<b>Gender</b>			0.401
Male (N=51)	66.7%	33.3%	
Female (N=28)	57.1%	42.9%	
<b>Race/Ethnicity</b>			0.040
Asian/Pacific Islander/Other (N=16)	81.2%	18.8%	
Hispanic/Latinx (N=39)	66.7%	33.3%	
Non-Hispanic Black (N=13)	61.5%	38.5%	
Non-Hispanic White (N=11)	27.3%	72.7%	
<b>Age</b>			0.348
< 30 (N=26)	69.2%	30.8%	
30 – 39 (N=17)	76.5%	23.5%	
40 – 49 (N=18)	50.0%	50.0%	
50 + (N=18)	55.6%	44.4%	
<b>Education</b>			0.948
Primary – 11 <sup>th</sup> Grade (N=15)	66.7%	33.3%	
Completed High School or GED (N=34)	61.8%	38.2%	
Post High School Education (N=30)	63.3%	36.7%	
<b>Position</b>			
Staff/Manager (N=56)	69.6%	30.4%	0.068
Business Owner (N=23)	47.8%	52.2%	
<b>Housing Status</b>			-
Stably Housed (N=76)	63.2%	36.8%	
<b>Kensington Resident</b>			0.713
Yes (N=36)	61.1%	38.9%	
No (N=43)	65.1%	34.9%	
<b>Length of Work in Kensington</b>			0.357
Less than 1 year (N=5)	40.0%	60.0%	
1-2 years (N=15)	73.3%	26.7%	
2-5 years (N=22)	72.7%	27.3%	
> 5 years (N=37)	56.8%	43.2%	
<b>Know someone who died from an overdose</b>			0.750
Yes (N=40)	65.0%	35.0%	
No (N=39)	61.5%	38.5%	
<b>City Response to Opioid Crises is Sufficient</b>			0.146
Strongly Agree/ Agree (N=16)	81.2%	18.8%	
Strongly Disagree/ Disagree(N=63)	58.7%	41.3%	
<b>Heard of OPS before enrollment (N=77)<sup>1</sup></b>			0.228
Yes (N=41))	56.1%	43.9%	
No (N=36)	69.4%	30.6%	
<b>The public injection of drugs in this neighborhood has hurt this business in the past year.</b>			0.193
Strongly Agree/Agree (N=67)	59.7%	40.3%	
<b>The public sale of illegal drugs in this neighborhood has hurt this business in the past year.</b>			0.932

Strongly Agree/Agree (N=65)	63.1%	36.9%	
<b>I have heard customers complain about people injecting drugs near this business in the past year.</b>			0.092
Frequently (N=61)	62.3%	37.7%	
Sometimes (N=10)	90.0%	10.0%	
Rarely/Never (N=8)	37.5%	62.5%	
<b>I have seen discarded syringes near this business in the past year.</b>			0.900
Frequently (N=65)	61.5%	38.5%	
Sometimes (N=8)	75.0%	25.0%	
Rarely/ Never (N=6)	66.7%	33.3%	
<b>I have suspected someone of injecting drugs on my premises in the past year. (N=72)<sup>1</sup></b>			0.558
Yes (N=56)	64.3%	35.7%	
No (N=16)	56.2%	43.8%	
<b>I have seen or suspected someone of overdosing on my premises in the past year. (N=75)<sup>1</sup></b>			0.099
Yes (N=49)	69.4%	30.6%	
No (N=26)	50.0%	50.0%	
<b>I have called 911 or administered Narcan on someone I suspected was overdosing on my premises in the past year. (N=78)<sup>1</sup></b>			0.480
Yes (N=47)	66.0%	34.0%	
No (N=31)	58.1%	41.9%	
<sup>1</sup> excluding those who were unsure			
*italicized text denotes significant results at a p <.05			