

# Increasing lead kit return rates among Chicago residents

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BIT | Chicago Department of Water Management (DWM)  
August 19, 2022



Funded by:



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WORKS  
CITIES**

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# Executive Summary (1/4)

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**Policy context:** There is **no known safe level of lead**, and exposure to lead [risks](#) lower IQ, behavioral problems, slowed growth, and anemia among children.\* Eliminating lead hazards could generate approximately [\\$84 billion in long-term benefits](#) per birth cohort. Blood lead levels have [decreased significantly](#) over the past few decades, but roughly **2% of U.S. children continue to have elevated blood levels**. [Disparities](#) persist for **children in low-income households and children of color**.

[Drinking water](#) can make up to 20% of a person's lead exposure and up to 60% of an infant's lead exposure. Lead in water can come from homes with lead service lines that connect the home to the main water line. Steps taken during the last two decades have drastically reduced exposure to lead in tap water.\*\* Still, Illinois has more lead service water pipes than any other state in the nation, and Chicago [more than any other city](#)\*\*\* **Testing household water sources is the most important step Chicago residents can take to ensure their water is safe.**

**The current challenge:** Chicago residents can request a free water testing kit from the Department of Water Management online or by calling 311. **However, only 31% of residents who order a kit return it to the City for testing.** Each kit costs the City \$12.50 – unreturned kits therefore result in residents not getting their water tested and the City wasting taxpayer dollars.

\*Children under 6 years old, pregnant women, adults with occupational exposure to lead, and immigrants from countries without strict lead regulations are at higher risk of exposure.

\*\*These include actions taken under requirements of the 1986 and 1996 amendments to the [Safe Drinking Water Act](#) and the U.S. EPA's [Lead and Copper Rule](#).

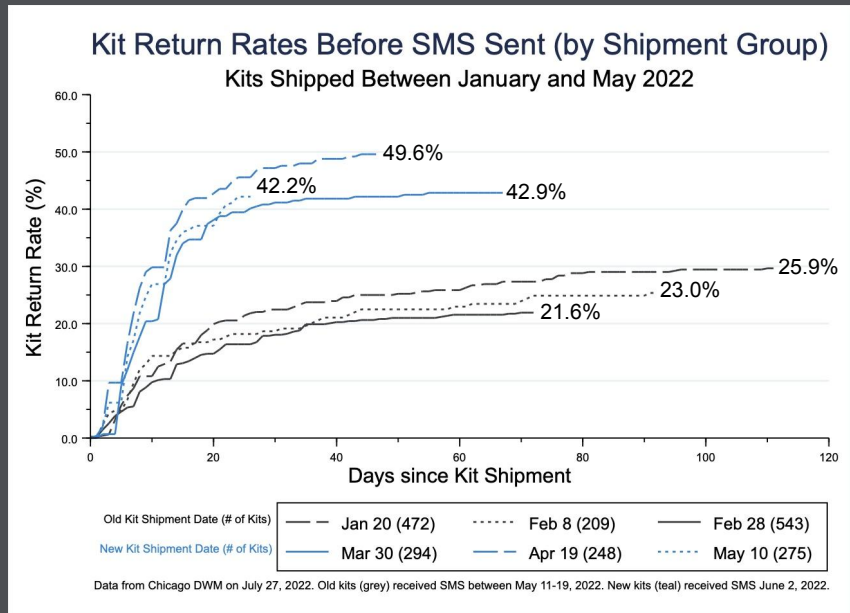
\*\*\*Chicago and other cities around Illinois required the use of lead service lines until 1986, long after other cities had stopped using lead, due to the recognized hazards.

## Executive Summary (2/4)

Chicago DWM and BIT implemented and evaluated **two solutions** to increase return rates:

**Solution 1: A new lead kit, incorporating behavioral science principles**, was designed to address several specific barriers that residents may face when completing the kit.

Chicago DWM continued to monitor kit return rates. We observed return rates for the last three batches of the old kits and the first three batches of the new kits prior to sending out SMS reminders. **Return rates increased by approximately 20pp, or 95%.**

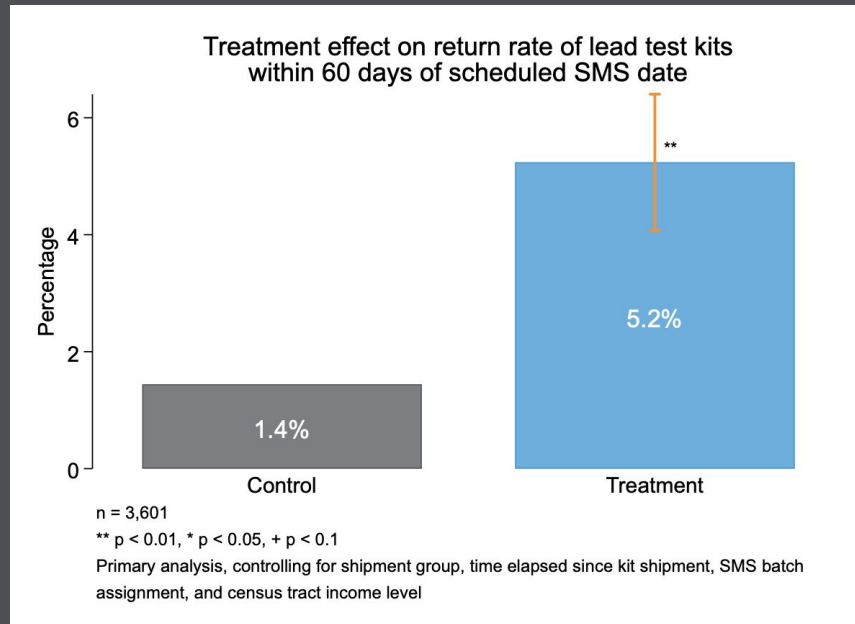


## Executive Summary (3/4)

Chicago DWM and BIT implemented and evaluated **two solutions** to increase return rates:

**Solution 2: A behaviorally informed SMS reminder** was sent to combat forgetfulness, a prominent barrier in the kit return process. In a randomized controlled trial, **residents who received reminders were 3.8pp more likely to return the kit** compared to a control group.

Based on the number of service requests opened in 2021, if the SMS reminder were to be scaled, **we would expect an additional 2,200 lead kits to be returned over the next 5 years.**



## Executive Summary (4/4)

Chicago DWM has **already taken action** based on these results by shipping out the new kit and sending SMS reminders to residents who have not returned their kits after two weeks.

Additionally, we recommend:

- DWM use a **dynamic messaging system** and continue to **test other SMS reminders**
- DWM **test additional solutions** to increase the return rate, outlined in [recommendations](#)
- DWM continue and expand efforts to increase the request rate, **targeting those most at risk**
- For a larger impact, the City should explore ways to **reduce residents' requesting & testing burden**

Thus far in 2022, the highest recorded return rate **pre-interventions** was **29.7%** and highest recorded return rate **post-interventions** was **52.8%\***, which may be the **highest return rates\*\*** of water lead testing kits **in the nation.**

\*Return rates for January 20, 2022 shipment group 111 days after shipment and April 19, 2022 shipment group 99 days after shipment, respectively, to account for when the two solutions were implemented.

\*\*To the best of our knowledge, the highest return rate is 46% in New York City, per the NYC Dept of Environmental Protection.



# Project Background & Context

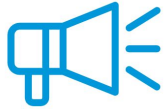
# In April of 2021, Chicago DWM sought support through Bloomberg Associates to increase the rate of return of lead testing kits

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## What is the goal?

- To design and evaluate a project to increase uptake of Chicago DWM's lead testing program
- **31% of residents who request a lead testing kit return it to the City.** We aimed to increase the return rate to **46%**, the return rate for kits in New York City, potentially the highest in the country.



## What is the social impact?

- Lead poisoning is silent and deadly, particularly for children and other at-risk groups
- Low-income neighborhoods and neighborhoods of color are disproportionately affected by exposure to lead
- Water can be a significant source of lead exposure and testing household water sources is the most important step Chicago residents can take to ensure their water is safe



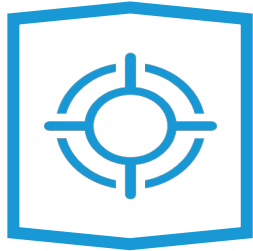
## Why behavioral insights?

- The process of requesting, completing, and returning kits requires significant effort from residents, who must be aware of the potential issue and motivated to address it
- Behavioral barriers can impede accomplishing complex tasks, particularly when there are friction costs and competing priorities, and benefits are not made salient
- Designing solutions that use existing evidence to address specific barriers can be effective in changing resident behavior



# We used BIT's TESTS methodology, applying Behavioral Insights to increase the return rate of lead testing kits

BIT's TESTS methodology applies Behavioral Insights – a more realistic understanding of how people process information, make decisions and behave – to the design, implementation, and evaluation of interventions.



## Target

Identify the behaviors that matter and set goals



## Explore

Review literature and conduct interviews and focus groups



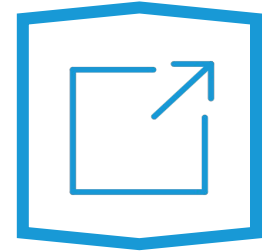
## Solution

Design 2 solutions - kit redesign & SMS reminders



## Trial

Test SMS reminders with a field experiment and monitor new kit return rates

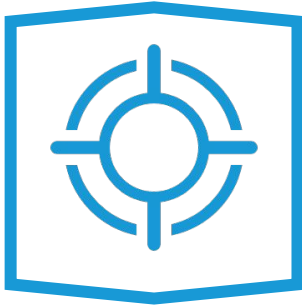


## Scale

Scale up solutions that worked

# Target & Explore: Identified priority behaviors and their surrounding context

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## Target

Identify the behaviors that matter and set goals

### Target Phase Activities

- **Reviewed historical data** on lead testing request, error, and return rates
- **Reviewed return rates in peer cities**
- **Refined target behavior** through conversations with Chicago DWM team

### Target Phase Output

**Target outcome:** Increase kit return rate without increasing error rate

**Target population:** Residents who may be eligible for equity program funds

# Target & Explore: Identified priority behaviors and their surrounding context

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## Explore

Review literature and conduct interviews and focus groups

### Explore Phase Activities

- Reviewed academic and gray literature
- Assessed lead testing kit and associated program materials
- Conducted qualitative research, including:
  - Interviews with 4 Chicago DWM staff
  - Interviews with 3 peer cities
  - Focus groups with 8 Chicago residents, including those who had returned and not returned their kits

### Explore Phase Output

A [behavior map](#) for residents, including the behaviors, barriers, enablers, and touchpoints for residents throughout the process (*see Appendix I*)

# **Solution:** Shortlisted promising ideas and produced detailed intervention designs

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## **Solution**

Design 2 solutions -  
kit redesign & SMS  
reminders

### **Solution Phase Activities**

**We generated solution recommendations in 4 steps**

1. Reviewed each barrier identified in the Behavioral Map
2. Considered available delivery channels
3. Matched behavioral goals and delivery channels
4. Prioritized solutions based on feasibility

### **Solution Phase Output**

**Solution 1** A new lead kit, incorporating behavioral science principles

**Solution 2** A behaviorally informed SMS reminder

# Trial: Monitored return rates of new kits and evaluated the SMS reminders using a randomized control trial



## Trial

Test SMS reminders with a field experiment and monitor new kit return rates

### Trial Phase Activities

- **Chicago DWM monitored the return rates** of new kits (launched March 30, 2022) and compared them to prior return rates
- **BIT designed a field experiment** to test whether SMS reminders increased return rates for kits shipped between September 1, 2021 and March 29, 2022.
- **Chicago DWM implemented the experiment** and provided the dataset for BIT to conduct data cleaning and analysis.

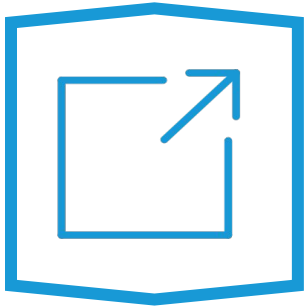
### Trial Phase Output

**Trial protocol:** A detailed research plan that pre-specified the following: study design & research questions, random assignment procedure, sample & setting, outcome measures, statistical analysis approach, trial procedures, and risks and ethical considerations

**Results of data analysis** incorporated into the final report

# Scale: Determined implications of trial results and created recommendations for scaling

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## Scale

Scale up solutions that worked & learn from those that don't

### Scale Phase Activities

- **Present results & recommendations** to Chicago DWM and stakeholders in Mayor's Office
- [planned] **Share results** with peer cities
- [in progress] **Consider other government processes** beyond lead testing that may benefit from similar behavioral solutions
- [in progress] **Collaborate** with Bloomberg Philanthropies, Bloomberg Associates, and Chicago DWM to **disseminate results** widely

### Scale Phase Output

#### Final report

[in progress] **Publicity**, including blogs, articles, and other communication

# **Solution 1: Lead Kit Redesign**

# The new lead testing kit targeted several key barriers identified during the Explore Phase

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We identified several **barriers that could be addressed through the kit design.**

- Residents may lose the kit or never open it.
- They may find the materials confusing or overwhelming.
- Finding a time to stagnate the water can be challenging.
- Residents sometimes incorrectly complete the kit or incorrectly record information.
- They may not know the answers to the questions asked on the form and never complete it.
- Residents may complete the kit but never schedule a pickup.
- Residents may misplace the form before submitting information.
- The kit may be moved or damaged before it is picked up.

Throughout the process, **residents may experience forgetfulness, inattention, lack of urgency, competing priorities, friction costs, or fear of negative outcome**, which could all contribute to not returning the kit.



# We redesigned existing elements of the kit and included stickers

The new kit includes:

- A [3-panel color brochure](#) to replace the 3-page instructions
- An [updated water testing form](#) for residents to fill out
- [2 new stickers](#) for DWM staff to put on the kit box
- [2 new stickers for residents to use](#) when stagnating their water

The cover letter was removed to further simplify the kit.

## HOW TO COMPLETE YOUR LEAD TESTING KIT

### BEFORE YOU BEGIN

- \* Before collecting samples, all members of the household must **stop using the water for a minimum of 6 hours**. This includes all water sources like sinks, toilets, showers and washers, as well as automatic systems like ice machines and sprinklers.
- If you accidentally use the water, please reschedule sampling for a different time. Stagnating is not necessary for other units in a multi-unit building.
- \* Use the stickers provided to remind members of your household not to use the water for 6 hours.
- \* Select a tap where:
  - Water is often used for drinking and cooking, usually the kitchen or bathroom tap.
  - You can turn the tap to **cold**.
  - No filter or aerator is attached. **Bypass any filters, but do not remove them**. More information about filters is on our website.
- \* Have a timer and a pen handy.
- \* Label each bottle with the time the water was last used.

### IS ANY OF THIS CONFUSING?

Watch our instructional video or call the Division of Water Quality (DWQ): (312) 742-2406

Visit [ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)

### 1 START WITH THE YELLOW BOTTLE

EXAMPLE: 7:00 AM

- 1 Write the time on the yellow bottle.
- 2 Place the bottle below the tap. Turn on the cold water and immediately start the timer.
- 3 Fill the bottle up to the neck. Do not turn off the timer.
- 4 Do not turn off the tap.

### 2 AFTER 2 MINUTES HAVE PASSED, FILL THE GREEN BOTTLE

+ 2 minutes

- 1 When the timer reads 2 minutes, fill the green bottle with water.
- 2 Fill the bottle up to the neck. Do not turn off the timer.
- 3 Do not turn off the tap.

### 3 AFTER 3 MORE MINUTES HAVE PASSED, FILL THE BLUE BOTTLE

+ 3 minutes

- 1 When your timer reads 5 minutes, fill the blue bottle with water.
- 2 Fill the bottle up to the neck.
- 3 Turn off the tap.
- 4 Write the time the sample was collected on the green and blue bottles.

### 4 FILL IN THE PAPER RETURN FORM

- 1 Check that the information on the bottle labels is accurate.
- 2 Fill out the paper Return Form.
- 3 Once completed, place the form in the plastic bag provided.

**NOTE:** do not seal the box before scheduling a pickup.

### 5 SCHEDULE OR CONFIRM A PICKUP IMMEDIATELY

- 1 Visit [ChicagoWaterQuality.org](http://ChicagoWaterQuality.org) and click "Schedule or confirm a pickup" or call (312) 742-2406. You must schedule or confirm a pickup date that is within 4 days of completing the kit.
- 2 Follow the instructions on the site.

### 6 PACK THE KIT FOR PICKUP

- 1 After completing the online pickup form, check that all the bottles are tightly capped and place them in the kit box along with the Return Form.
- 2 Close the box and seal with tape. Put the pickup sticker on the box.
- 3 Place the box in a convenient pickup location outside your home.

**EXPECT RESULTS AROUND 4 WEEKS FROM PICKUP. MORE INFORMATION AVAILABLE ON OUR WEBSITE.**

See Appendix II for redesigned materials.

# Chicago DWM implemented the new kits and continued to monitor return rates

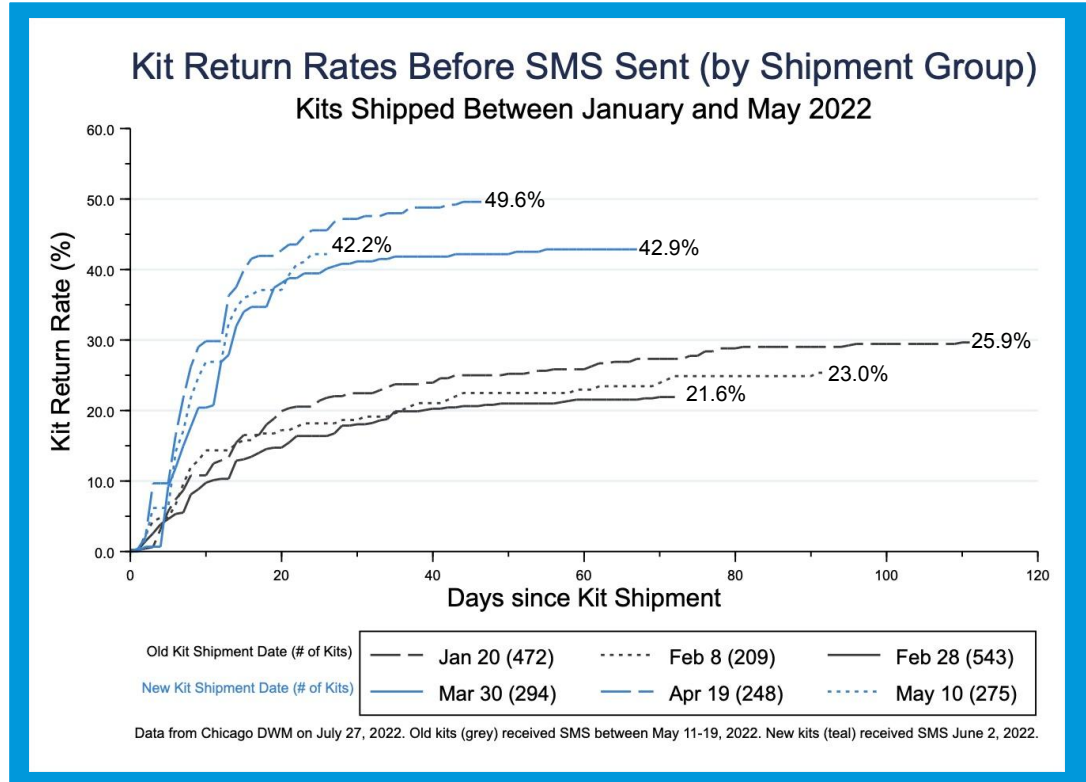
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- Chicago DWM **launched the first batch of new lead testing kits** on March 30, 2022.
- We predicted that the new kits would have a **low risk of backfire**. Implementing a rigorous evaluation would have been **logistically challenging** and results would likely not have been actionable.
- Instead of designing a randomized controlled trial comparing the new and old kits, we recommended that Chicago DWM **continue to monitor return rates**.
- Although this was not a randomized controlled trial and we cannot account for external variables, we attempted to **isolate our comparison of return rates to averages of the new kits vs. the old kits before implementing Solution 2** (SMS reminders).
- Return rates for old kits were calculated after 60 days, prior to the SMS being sent out between May 11-19, 2022 as part of the randomized controlled trial for Solution 2. Return rates for the new kits were calculated after 67, 47, and 26 days respectively, prior to the SMS being sent out on June 2, 2022.



# Residents are more likely to return the new lead testing kits than the old kits

- We observed return rates for the **last three batches of the old kits** and the **first three batches of the new kits** *prior to sending out SMS reminders*.
- Prior to SMS being sent, the average return rate of the old kits was 23.5%, and the new kits, 44.9%. **Return rates increased by approximately 20pp, or 95%.**
- Around 2-3 weeks after shipment, kit returns tend to increase at a slower rate. Very few kits are returned once 2-3 months have passed.



# **Solution 2: SMS Reminders**

# The SMS reminders were designed to address forgetfulness

- **Forgetfulness** was a cross-cutting **barrier** throughout the behavioral journey.
- In focus groups, residents reported forgetting to open kits, stagnate their water, complete the testing process, and schedule pick-ups.
- Residents we spoke with who had not yet returned their kits all indicated that they still had the kits in their home but had not made specific plans to complete the kits.
- Sending SMS reminders could prompt residents to remember that they ordered lead testing kits from the City.

Ideal process steps What does a resident do?	Steps 1-3 Learn about the program, order a kit, & receive it	Step 4 Open kit and read materials		Step 5 Execute testing instructions correctly				Step 6 Schedule pickup				Step 7 Package up return kit, with bottles and paper form	Step 8 Set out kit for pickup
		4a Open kit	4b Read materials & understand key points such as stagnation, timing between bottle draws, and form completion	5a Choose stagnation timing that works for household. Instruct other household members if needed	5b Follow stagnation plan, including removal of water filters and stoppage of automatic water usage	5c Fill and label sample bottles at correct timing intervals	5d Fill out paper form recording sample timing and location	6a Go to DWM website to schedule pickup	6b Enter service request number printed on the label of the kit packaging	6c Enter all information from paper form into contact and sampling sections of online form	6d Enter or skip information on service line and building information sections		

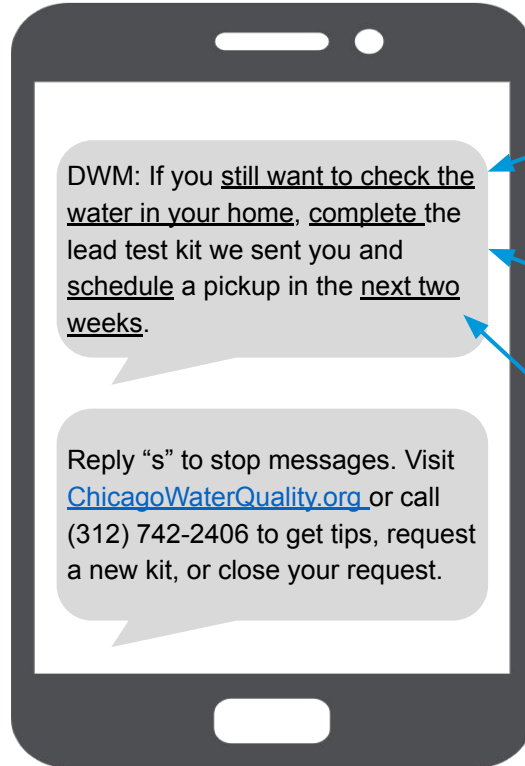
With other competing demands for their time, residents may forget to return the kit at many different points in the journey.

# We incorporated several behavioral principles into the SMS reminder

Chicago residents who ordered a lead test kit but had not returned it either:

1. Received a text message that reminded them to complete and return their kit (treatment), or
2. Did not receive any message (control).

Those who replied “s” to stop messages received a follow up message: “You are unsubscribed. Help is available at (312) 742-2406 and [ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)”



1. Remind residents that they were previously motivated to order lead testing kits

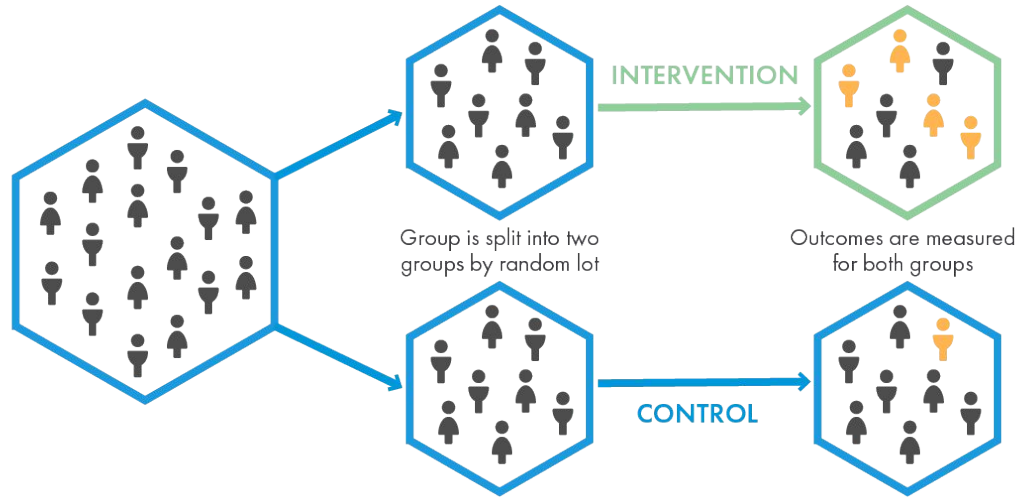
2. Prompt residents to take the necessary actions

3. Provide an external deadline of two weeks to create urgency

Note: Of the 1,800 residents messaged, SMS to only 6 residents failed. 20 residents (<2%) replied “s” or otherwise requested to unsubscribe.

# Our evaluation method, an RCT, enabled us to measure causal impact

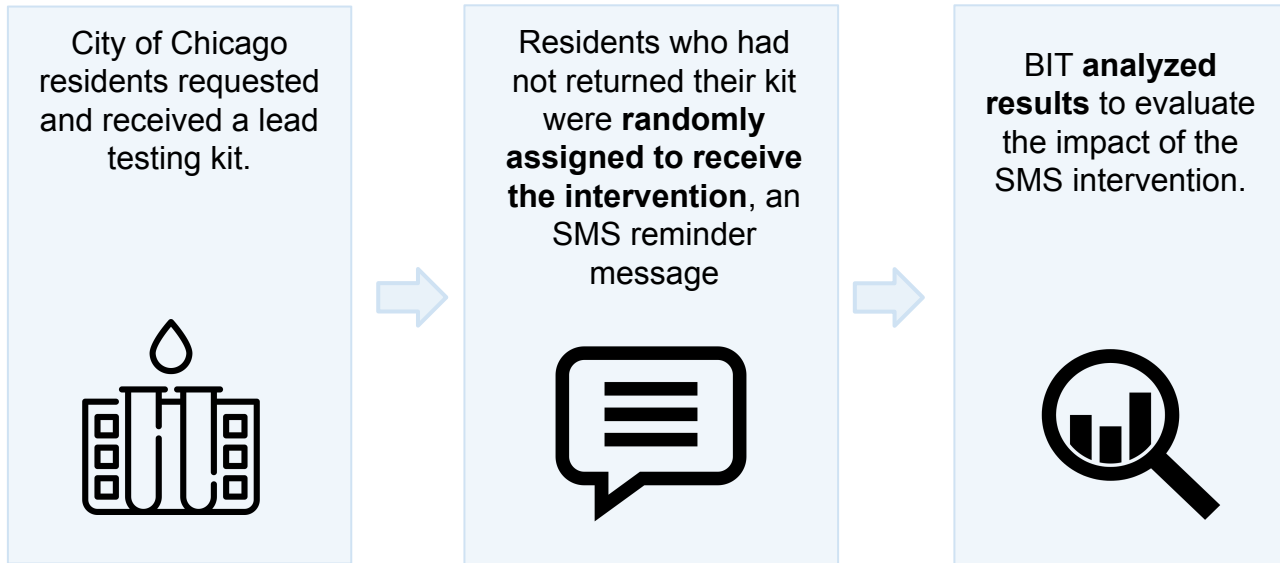
Randomly assigning the interventions allows us to **isolate the impact of the intervention** vs. other factors like seasonal trends or external events.



The SMS reminder has the [potential](#) for [high impact](#)—but Chicago DWM only has access to an unwieldy one-way system, and purchasing a dynamic system has associated costs. **Rigorous evaluation results would be highly actionable and support justification for including a new system in the upcoming budget.**

# Evaluating the SMS Reminders

The RCT included 3,601 residents who had not yet returned their lead testing kit.<sup>1</sup> The outcome measure was kit returns. The messages were sent in 4 batches from May 11-19, 2022. We **randomized individual phone numbers** and measured impact by using **DWM data on kit returns**.



<sup>1</sup> Our sample included all phone numbers for kits that were requested between September 1, 2021 and March 29, 2022 and had not been returned as of March 29, 2022.



## Primary outcome:

# The SMS reminder had an immediate positive impact on kit returns

During the trial period, 119 kits were returned within 60 days of their scheduled SMS date.\*

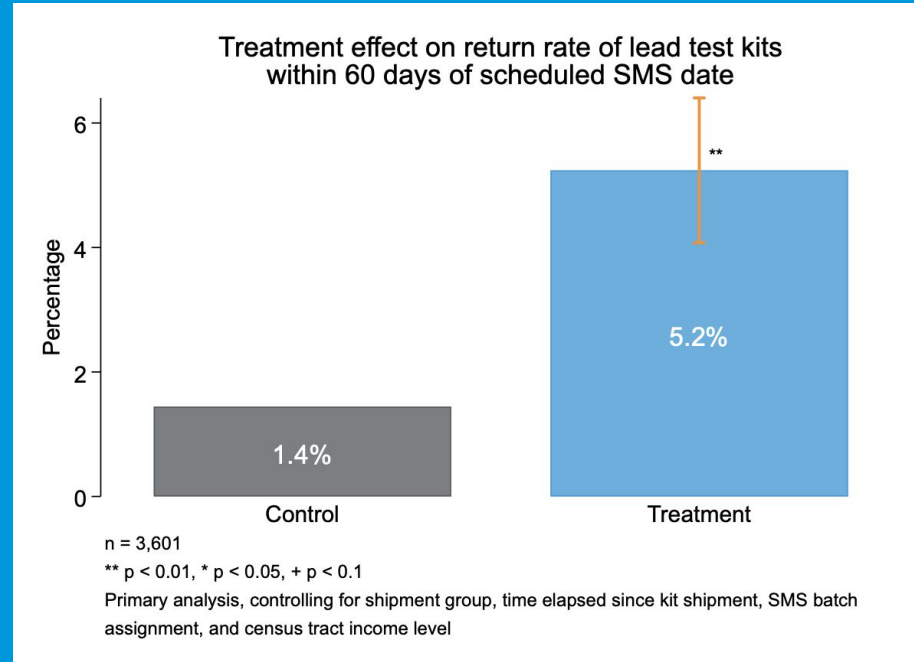
- Of the residents who received the SMS reminder, 93 returned their kit.
- Of the residents who did not receive the SMS reminder, only 26 returned their kit.

**Residents who received the SMS reminder were 3.8pp more likely to return the kit.** 67 more kits were returned due to the SMS. These results were statistically significant.

Based on the number of service requests opened in 2021, if the SMS reminder were to be scaled, **we would expect an additional 2,200 lead kits to be returned over the next 5 years.**

\* For kits in the control group, scheduled SMS date refers to the date scheduled for their assigned batch, despite these residents not receiving the SMS.

\*\* Those who had not returned a kit shipped to them between September 1, 2021 and March 29, 2022



## Secondary outcome:

### Kit acceptance rates between treatment and control groups were similar

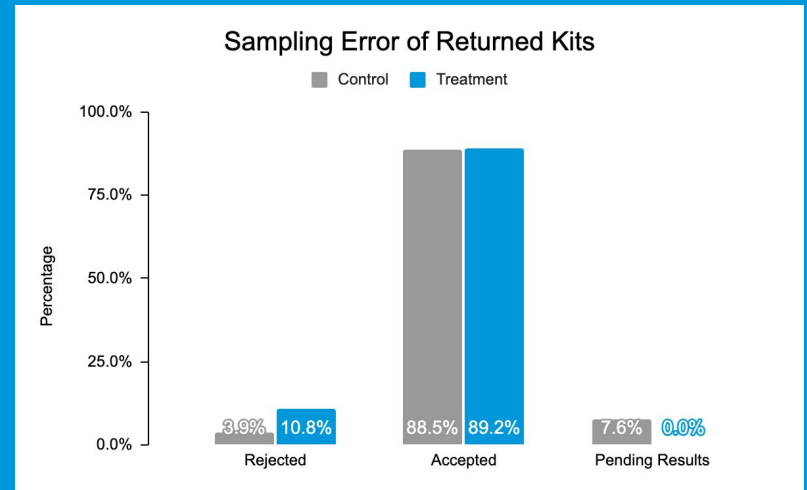
93 residents who received the SMS reminder returned their kits within the trial period. Of these kits, 83 (89.2%) were accepted, and 10 (10.8%) were rejected.

26 residents who did not receive the SMS reminder returned their kits within the trial period. Of these kits, 23 (88.5%) were accepted; 1 (3.9%) was rejected; 2 (7.6%) were still pending results by the end of the trial.

While the error rate (proportion of rejected kits) of the control group is descriptively lower, **the error rate of the returned kits in the treatment group is similar to historical error rates.\***

The findings suggest that **the increase in kit returns is not associated with less accurate water sampling by residents.**

\*Between May 27 and July 26, 2021, the average error rate was 8.7%. Between May 27, 2021 and March 29, 2022, the average error rate was 10.4%



## Exploratory outcomes:

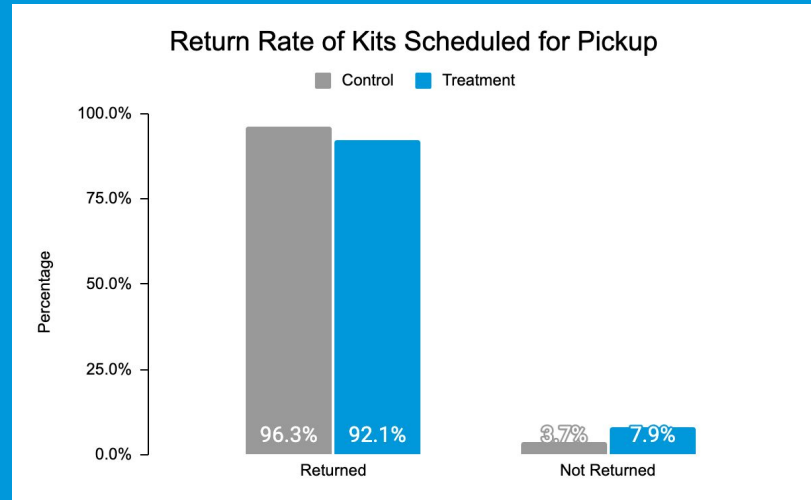
### Most kits scheduled for pickup were sampled and returned

101 residents who received the SMS reminder scheduled a pickup time for their kits. Of these kits, 93 (92.1%) were returned, and 8 (7.9%) were not returned within the trial period.

27 residents who did not receive the SMS reminder scheduled a pickup time for their kits. Of these kits, 26 (96.3%) were returned, and 1 (3.7%) was not returned within the trial period.

**The findings suggest that the SMS is not associated with a loss of city resources in the form of unsuccessful kit pickups (e.g., due to an initial sense of urgency on behalf of the resident followed by a lack of implementation.)**

\* 4 of the kits not returned were returned more than 60 days after their assigned SMS and therefore are not counted as returned within the trial period. 3 were scheduled for pickup on dates following the close of the trial.

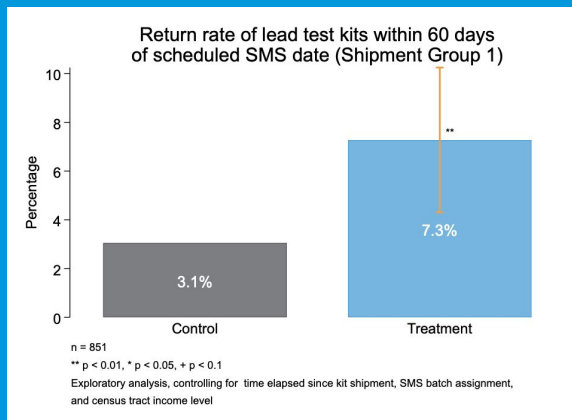


## Exploratory outcomes:

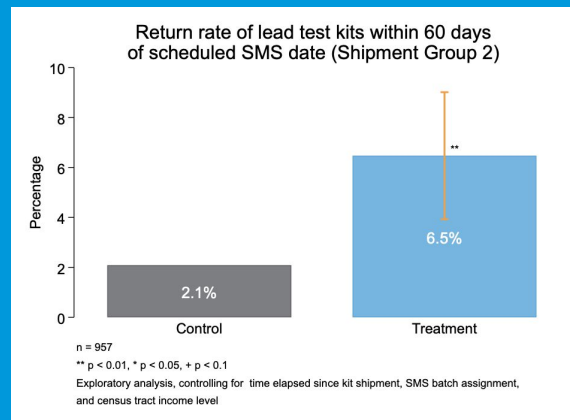
# The city will see benefits if an SMS cycle is implemented to automatically send messages as kits are sent out

Residents who received their lead test kit more recently (Group 1: Jan - March 2022 and Group 2: Oct - Dec 2021) and received the SMS reminder were **~4.3pp more likely to return their kit** than residents who received their test kit in the same period and did not receive the SMS reminder.

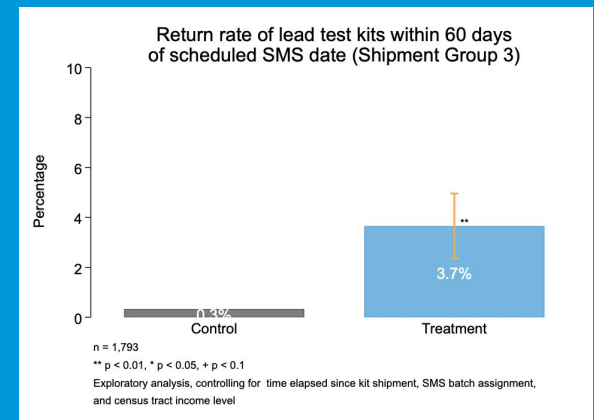
Residents who received their lead test kit in September 2021 (**Shipment Group 3**) and received the SMS reminder were **3.3pp more likely to return their kit** than residents who received their test kit in the same period and did not receive the SMS reminder.



**Shipment Group 1**  
January - March 2022



**Shipment Group 2**  
October - December 2021



**Shipment Group 3**  
September 2021

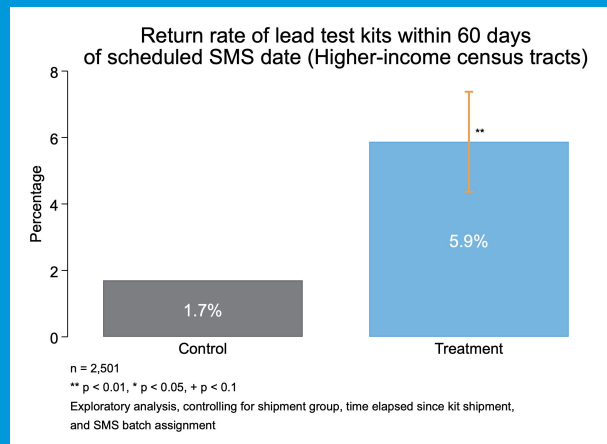
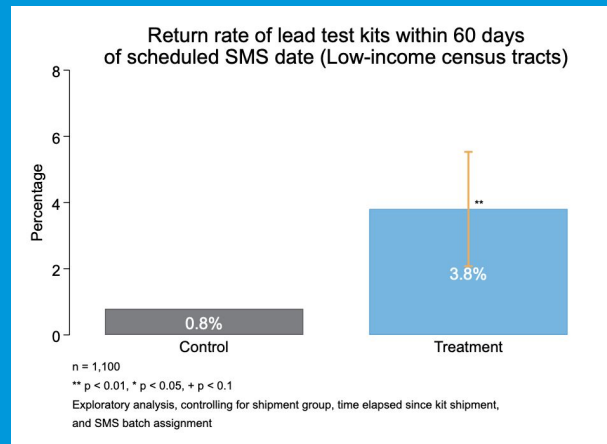
## Exploratory outcomes:

### The SMS was effective in low-income and higher-income census tracts\*

Residents in low-income census tracts who received the SMS reminder were 3pp more likely to return the kit than residents in these census tracts who did not receive the SMS reminder. Residents in higher-income census tracts who received the SMS reminder were 4.2pp more likely to return the kit than residents in these census tracts who did not receive the SMS reminder. These results were statistically significant.

The SMS *appears* to have had a more modest effect in low-income census tracts, but the sub-group analysis does not allow us to conclude if the difference in effect size is statistically significant. The findings should be interpreted carefully as we lack data at the individual level. However, these findings may suggest the importance of barriers other than forgetfulness in low-income areas.

\* Low-income census tracts identified using 2022 Qualified Census Tract Data from the Department of Housing and Urban Development. A low-income census tract must have 50 percent of households with incomes below 60 percent of the Area Median Gross Income or have a poverty rate of 25 percent or more.



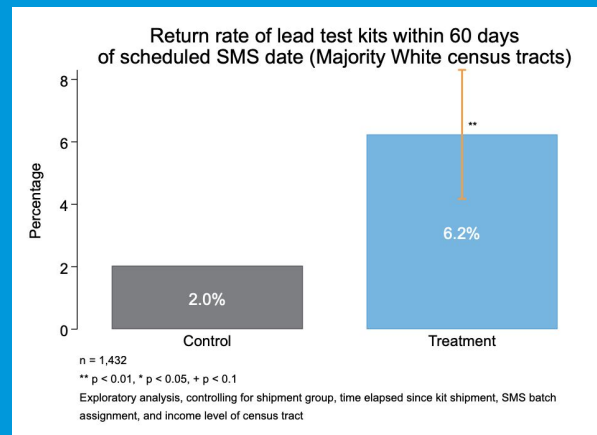
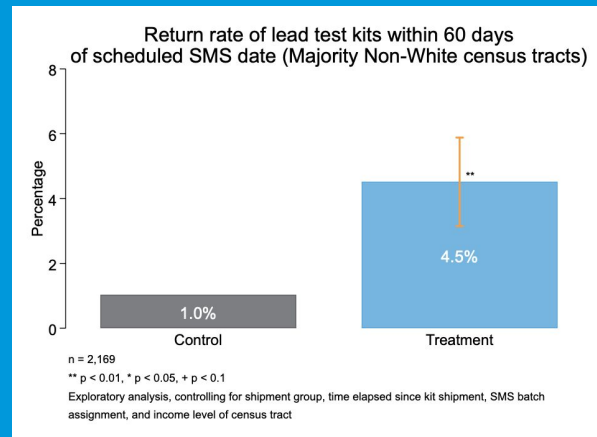
## Exploratory outcomes:

### The SMS was effective in majority non-White and majority White areas\*

Residents receiving the reminders were more likely to return the kit in both non-White majority census tracts (3.5pp) and White majority census tracts (4.2pp) compared to residents in their respective census tracts who did not receive the reminder. These results were statistically significant.

The SMS *appears to have had a more modest effect in majority non-White census tracts*, but this analysis does not allow us to conclude if the difference in effect size is statistically significant. The findings should be interpreted carefully as we lack data at the individual level and believe the effectiveness of the SMS could be correlated with income level. The effect of income is difficult to disentangle from racial characteristics of the census tract as only 1% of the census tracts included in the analysis were majority White and low-income.

\* Variable constructed using 2020 Census Data

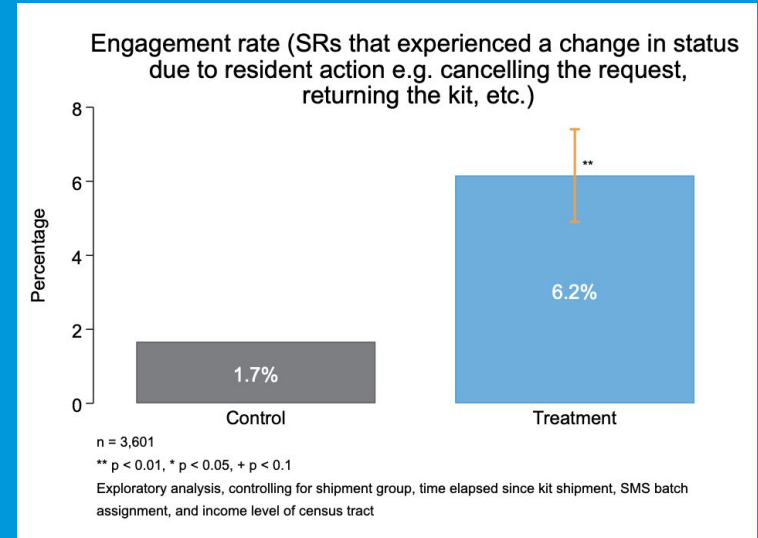


## Exploratory outcomes:

### The SMS reminder helped to clear out additional SRs from the city's backlog

While residents who received SMS reminders were 3.8pp more likely to return their kit, **they were 4.5pp more likely to engage with Chicago DWM**. In addition to residents whose service requests were closed because they returned their kits, the engagement rate includes residents who cancelled their SRs, and residents who scheduled their kits to be picked up.

The effect of the SMS equals a difference of 77 SRs that were cancelled or closed in DWM's backlogs and 3 that would be closed once the kits were picked up. These results were statistically significant.



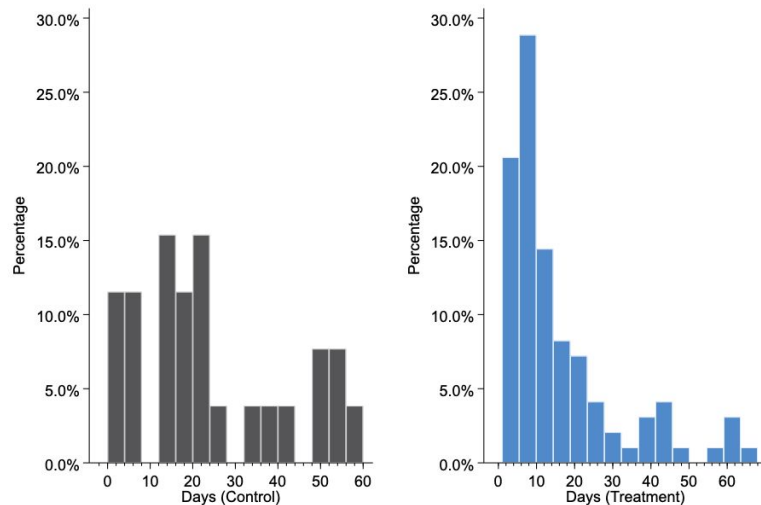
## Exploratory outcomes:

### The SMS seems to prompt more timely kit returns

Residents who received the SMS and returned their kit tend to return their kit within the first 2 weeks after receiving the SMS. On average, the treatment residents returned their kits 16 days after receiving the SMS. On average, the control residents returned their kits 24 days after they would have received the SMS.

Not only does the SMS result in more kits being returned, kits are returned in a more timely manner so residents can learn about lead levels of their water and enter into remediation more promptly, if necessary.

Days between Scheduled SMS Date and Kit Pickup Date





# Recommendations for Scaling

# Recap: What did we learn?

Simplifying and streamlining existing instruction materials **tackled resident barriers without modifying DWM's process or adding additional costs**

- Talking directly with residents gave us a strong understanding of the challenges they faced
- Collecting data and monitoring kit return rates allowed the team to identify changes and learn what works

SMS reminders effectively **increased return rates of lead testing kits**

- They were effective among every subgroup of interest (e.g., non-White, low-income), with variations in effect size
- Residents receiving SMS reminders returned their kits more quickly
- The reminders helped to clear out a backlog of service request numbers, which significantly helps with external reporting

## Key Takeaway

**When complex processes include many barriers, multiple solutions are likely needed to impact the outcome.**

Thus far in 2022, the highest recorded return rate **pre-interventions** was **29.7%** and highest recorded return rate **post-interventions** was **52.8%\***, which may be the **highest return rates** of water lead testing kits **in the nation.**

\*Return rates for January 20, 2022 shipment group 111 days after shipment and April 19, 2022 shipment group 99 days after shipment, respectively, to account for when the two solutions were implemented.

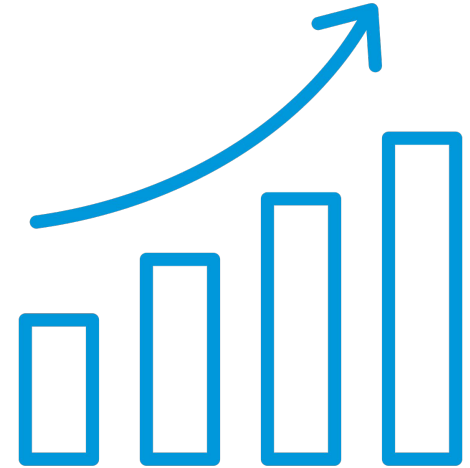
# DWM is already taking action on quick wins to increase the lead testing kit return rate

- Ship the new lead testing kits moving forward
- Send SMS reminders to residents who request a kit
- Send SMS reminders to residents who were in the control group for the trial
- Purchase a dynamic SMS system and continue testing reminder messages for effectiveness

# To further increase the kit return rate, we recommend testing some of the solutions outlined below

---

- Test different / multiple messages on an iterative basis (see *Appendix III for SMS drafts*).
- On the website, include explanations for required fields to provide operational transparency. If possible, identify ways to pre-populate any known fields based on SR number.
- While charging for the kit is not recommended, messaging could be tested to inform residents of the kit cost to the taxpayer to increase the perceived value of the kit.
- On the website, clearly state the importance of having each household tested and that block level data may not correspond to individual exposure.



# To continue reducing traces of lead in tap water, consider the recommendations outlined below

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## Continue to grow efforts to increase the kit request rate

- **Expand outreach** in low-income and non-White communities, areas with older homes (built prior to 1986), and areas where more individuals may qualify for service line replacement
- **Use targeted communications channels** such as schools, moving companies, and healthcare providers to reach those most vulnerable to lead
- **Strengthen strategic partnerships** within the city (e.g., Dept of Public Health, Dept of Housing, Board of Education, Park District, Aldermens' Offices)

## For a larger impact, explore ways to remove the requesting & testing burden from residents

- Broaden **city-led initiatives** to replace lead pipes
- **Proactively publicize testing rates** (e.g.) by ward to encourage residents and officials to meet **pre-specified testing targets**
- Consider how **landlords** should be involved in lead line replacement



THE  
**BEHAVIORAL  
INSIGHTS  
TEAM**

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# Appendix I

## Behavior Map

# Behavior Context Map

Ideal process steps What does a resident do?	Steps 1-3 Learn about the program, order a kit, & receive it	Step 4 Open kit and read materials		Step 5 Execute testing instructions correctly				Step 6 Schedule pickup				Step 7 Package up return kit, with bottles and paper form	Step 8 Set out kit for pickup
		4a Open kit	4b Read materials & understand key points such as stagnation, timing between bottle draws, and form completion	5a Choose stagnation timing that works for household. Instruct other household members if needed	5b Follow stagnation plan, including removal of water filters and stoppage of automatic water usage	5c Fill and label sample bottles at correct timing intervals	5d Fill out paper form recording sample timing and location	6a Go to DWM website to schedule pickup	6b Enter service request number printed on the label of the kit packaging	6c Enter all information from paper form into contact and sampling sections of online form	6d Enter or skip information on service line and building information sections		
<b>Key touchpoints</b>	-DWM website -DWM outreach -311 -News articles/FB groups	-Kit package	-Instructions	-Instructions	-Instructions	-Instructions -Bottles and other sampling materials	-Instructions -Paper form	-Instructions -DWM website -Other websites a resident may try first (Google, 311)	-Instructions -Box label -Paper form	-Instructions -Paper form -Online form	-Online form	-Instructions -Kit materials -Paper form -Box	-Box
<b>Highest-priority barriers by step</b>  If we observe drop-off at this step, what is most likely to be causing it?	-Residents see publicly available block data and do not think they need to test their own water -Kits arrive on varied timelines (up to 6 months after ordering)	- After bringing the kit into their home, resident loses it or ignores it, leaving it unopened	-Materials are intimidating, confusing, and overwhelming -Materials are understood, but the tasks described seem challenging	-Finding 6 hours for stagnation is challenging with household schedules (e.g. varied work shifts, frequent bathroom needs) -Communication with household members is forgotten or unsuccessful	-Household member(s) have an urgent need to use the water -Background uses (e.g. ice machine) aren't easy to stop -Filters are hard to find and/or remove -Household member(s) aren't aware of the stagnation plan, aren't willing to go along with it, or forget not to use the water	-Instructions are not perfectly followed, leading to missing information or errors Frequent error types include: not recording time, not starting timer, using hot water tap, turning off water between draws, and misunderstanding the time for the third bottle	-Form is misplaced -Form is confusing or off-putting, leading to errors or missed information -Form asks for information residents may not know, and residents think they can't move forward if they don't have an answer	-Resident doesn't know how to schedule the pickup. -Resident thinks they need to mail the kit themselves. -Resident finds information confusing or frustrating or cumbersome.	-Resident has misplaced or is unable to locate the SR number on the box label or the paper form	-Resident has misplaced the paper form -Resident has sealed the paper form up in the box already -Entering the information again is irritating or difficult -Resident doesn't know information for these required fields -Form asks for information that makes resident mistrustful or anxious about how it will be used	-Resident doesn't know information and doesn't realize they can skip fields in this section -Resident does not want to share due to privacy concerns, but doesn't realize they can skip fields in this section	-Resident can't find packing tape to seal the box -Box or label has been lost	-Resident does not have a convenient or safe place to keep box
<b>Cross-cutting barriers</b>	Forgetfulness, inattention, lack of urgency, competing priorities, friction costs, fear of negative outcome												
<b>Key enablers by step</b>	-Online order form/process is easy -Ordering kits is free		-Alignment of color coded bottles with instructions -Form is one sided and one page only			-Color coding of bottles	-Instructions include an example of how to fill out the form	-Website for scheduling pickup and return are the same	-Service request number is printed on package		-Resident can skip this information	-All materials (box, label, tape) are provided	
<b>Cross-cutting enablers</b>	Motivation due to life transition or focusing event, e.g. move or pregnancy; sense of urgency due to news stories about lead exposure; readily available help from DWM; desire to get the box out of the house												



# Appendix II

## Lead Kit Intervention Design

# Original Kit Instructions

## Residential Water Sample Collection Instructions for Lead Testing

Para obtener instrucciones en español, visite [www.ChicagoWaterQuality.org](http://www.ChicagoWaterQuality.org).  
W celu uzyskania instrukcji w j. polskim odwiedź stronę [www.Chicago.Water.Quality.org](http://www.Chicago.Water.Quality.org).  
有关 中文说明, 请访问 [www.ChicagoWaterQuality.org](http://www.ChicagoWaterQuality.org).

Thank you for requesting your free water quality test kit! This kit is intended to be used to collect water samples for lead testing at the Chicago residence the kit was mailed to. This kit includes three sample bottles, a mailing box, the Residential Water Sample Form with plastic bag, and these double-sided instructions. Please read the instructions carefully and thoroughly before sampling. A water sample collection instructional video can be viewed at [www.ChicagoWaterQuality.org](http://www.ChicagoWaterQuality.org). If you have any questions regarding the sample collection instructions, please call the Division of Water Quality (DWQ) at (312) 742-2406.

### Step 1: Determine a Time for Sample Collection

- Prior to sampling, you must not use the water in your home for at least SIX (6) hours. This allows the water to stagnate in the plumbing system of your home. Do not flush the toilet or get a quick drink of water during this time. Please refrain from using your shower, dishwasher, washer for clothes, automatic ice machine, and yard irrigation system, as well as anything else that may use water.
- We recommend filling a pitcher with water prior to stagnation to use during this period of no water usage.
- If you live in a multi-unit building, it is not necessary to restrict the use of water in other units of your building. Simply ensure you do not use the water in your unit.
- If you accidentally use water, please do not collect water samples. Reschedule for a different time.

### Step 2: Select a Sample Location

- Choose a sample location based on where the water is most often used for drinking and cooking purposes. This will most likely be your kitchen or bathroom tap.
- You will be collecting water samples with **cold water only**. Select a sample tap that you are familiar with and know how to position to cold water.
- Do not sample through a filter. If there is a filter connected to your sample tap, ensure that you by-pass the filter when collecting water samples.
- Do not sample from a tap that has a water softener attached.
- Do not remove or clean your aerator prior to collecting water samples.

### Step 3: Prepare for Sample Collection

- After not using the water in your home for at least SIX (6) hours, you will fill the three sample bottles with water from your sample tap positioned to cold water. These bottles will be filled immediately after turning on the cold water (YELLOW LABEL), after a total of 2 minutes of flushing water at your sample tap (GREEN LABEL), and after a total of 5 minutes of flushing water at your sample tap (BLUE LABEL).
- Be prepared for water sample collection with a timer to keep track of the flushing time and a pen to note the time when the water samples were collected on the sample bottles. Remove caps from each bottle.
- You will fill each sample bottle with water up to the neck of the bottle.



Double-sided instructions. Please turn over ☐

### Step 4: Collect Water Samples

- First Draw Bottle (YELLOW LABEL)
  1. Note the time on the sample bottle label.
  2. Place the bottle below the tap. Turn on the tap and position it to cold water. Immediately start the timer as you turn on the tap.
  3. Fill the sample bottle with water up to the neck of the bottle, then cap the bottle. **Do not turn off the timer.**
  4. **Do not turn off the tap.** Allow water to continue flushing.
  5. Label the bottle with the time the water was last used.
- 2 Minutes of Flushing Bottle (GREEN LABEL)
  6. Prepare your bottle by noting the time the sample will be collected (2 minutes after the First Draw Bottle was collected) on the bottle label.
  7. When your timer reads 2 minutes, begin filling the sample bottle with water.
  8. Fill the sample bottle with water up to the neck of the bottle, then cap the bottle. **Do not turn off the timer.**
  9. **Do not turn off the tap.** Allow water to continue flushing.
  10. Label the bottle with the time the water was last used.
- 5 Minutes of Flushing Bottle (BLUE LABEL)
  11. Prepare your bottle by noting the time the sample will be collected (5 minutes after the First Draw Bottle was collected) on the bottle label.
  12. When your timer reads 5 minutes, begin filling the sample bottle with water.
  13. Fill the sample bottle with water up to the neck of the bottle, then cap the bottle.
  14. Turn off the tap. You may now use water normally throughout your home.
  15. Label the bottle with the time the water was last used.



### Step 5: Complete Residential Water Sample Form

- After water samples have been collected, fill out the Residential Water Sample Form. Items 1 through 5 must be completed in order for your samples to be processed and analyzed. The remaining items are extremely helpful in evaluating your plumbing system and should be filled out to the best of your knowledge. Sign and date the form at the bottom.

<input type="checkbox"/> Check location where sample was collected from: <input checked="" type="checkbox"/> Kitchen Cold water tap <input type="checkbox"/> Bathroom Cold water tap		Date sample collected: 0 2 / 0 1 / 1 7
Date Water Last Used: 0 2 / 1 0 / 1 7	Water Samples Bottle (Yellow) #1 LCR LC191872 Bottle (Green) #2 LCR LC191872 Bottle (Blue) #3 LCR LC191873	Time sample was collected: (Same as on bottle) 0 2 / 0 1 / 1 7 AM PM 0 2 / 0 1 / 1 7 AM PM 0 2 / 0 1 / 1 7 AM PM
Time Water Last Used: 1 1 / 1 5 / AM PM (24 hours)	Type of residence being tested (check one): <input checked="" type="checkbox"/> Single detached home <input type="checkbox"/> 2-3 flat <input type="checkbox"/> Multi-unit: 4 stories or less <input type="checkbox"/> Multi-unit: 7+ stories	Age of home: 30 years

Example Residential Water Sample Form Items 1 Through 5

### Step 6: Water Sample Pickup

- Ensure all sample bottles are tightly capped. Ensure the bottle labels are accurately filled out and the Residential Water Sample Form is complete. Place the Residential Water Sample Form in the plastic bag provided.
- Place all three sample bottles and the Residential Water Sample Form in the mailing box. Close the box and seal with the tape provided.
- To schedule your kit pickup, please click on "Schedule a pick up" on our website [chicagowaterquality.org](http://chicagowaterquality.org) and follow the INSTRUCTIONS. Samples that are not picked up within FOUR (4) calendar days may be rejected.
- Place the box in a convenient pickup location such as in the entryway of your building or by the front door. Please keep the kits out of reach of dogs.



### Step 7: Processing and Analysis

- Once your water quality test kit reaches the DWQ, it will be accepted or rejected. Unfortunately, due to stringent laboratory rules regarding the collection of the water samples for lead testing, samples that do not follow the sample collection instructions will be rejected. If your test kit is rejected, you will be contacted by the DWQ to schedule another water quality test kit to be delivered to your home or a visit with a DWQ representative to take the water samples.
- Please review the three most common reasons water samples are rejected to prevent the rejection of your water samples:
  1. Water sample bottles were not labeled correctly and completely. Please ensure you label each of your water sample bottles with the date and time the samples were collected and the last time the water was used. Confirm the information on the water sample bottles matches the information on the Residential Water Sample Form.
  2. Water samples were collected over a total of 8 minutes instead of a total of 5 minutes. Please ensure that there is only 5 minutes between collecting your first water sample and collecting your last water sample. You should collect your first water sample (First Draw – YELLOW LABEL), wait 2 minutes and collect your second water sample (2 min. – GREEN LABEL), and then wait 3 minutes and collect your third water sample (5 min. – BLUE LABEL).
  3. Water samples are not picked up by DWQ in the appropriate timeframe. Please call the DWQ within FOUR (4) calendar days of sample collection to arrange pickup of your kit.
- Accepted water quality test kits will be delivered to an independent water testing laboratory for analysis. Results will then be sent to DWQ for review. You will be contacted by a DWQ representative via mail or phone with your results.
- Copies of the results will be provided to the Illinois Environmental Protection Agency and the Chicago Department of Public Health. These results will also be posted on the City of Chicago Department of Water Management's website. These results will be coded by the "block level", meaning the last two digits of your address will be removed and replaced with "XX" (example "12XX N. Main St.).

Thank you for your time and participation!  
If you have any questions, please contact the Division of Water Quality.  
(312) 742-2406 [www.ChicagoWaterQuality.org](http://www.ChicagoWaterQuality.org)

# Pamphlet Solutions

Barrier	Solution(s)
<p>Materials are <b>intimidating, confusing, and overwhelming</b> / Materials are understood, but the <b>tasks described seem challenging</b></p>	<ul style="list-style-type: none"> <li>● Reduce <b>cognitive load</b> by:               <ul style="list-style-type: none"> <li>○ <b>Simplifying</b> language</li> <li>○ Using larger text to make it <b>easy</b> to read and fill in</li> <li>○ <b>Chunking</b> the directions and using a <b>list</b> to guide residents through the steps</li> </ul> </li> </ul>
<p><b>Finding 6 hours for stagnation is challenging</b> with household schedules (e.g. varied work shifts, frequent bathroom needs) / Communication with household members is forgotten or unsuccessful</p>	<ul style="list-style-type: none"> <li>● <b>Prompt residents to make implementation intentions</b> to help them follow through</li> <li>● Use a <b>deadline</b> to improve motivation</li> <li>● Provide Tips and Tricks to help household members refrain from using water during the stagnation period</li> </ul>
<p><b>Instructions are not followed, leading to missing information or errors</b>            Frequent error types include: not recording time, not starting timer, using hot water tap, turning off water between draws, and misunderstanding the time for the third bottle / Resident thinks they need to mail the kit themselves. / Resident has sealed the paper form up in the box already when filling out the online form. / Resident doesn't know how to schedule the pickup</p>	<ul style="list-style-type: none"> <li>● “Tip and Tricks” section makes it <b>easier</b> to overcome frequent errors</li> <li>● Use <b>graphics</b> to depict instructions visually</li> <li>● Link prominently to the instructional video</li> </ul>

# New Kit Instructions - Side 1

## Inside Panel

## Back Panel

## Front Panel

Including tips & tricks helps residents **avoid common errors** so that kits are completed correctly.

An infographic helps residents understand one of the commonly misunderstood steps.

Promoting planning on the back panel helps residents **follow through on their intentions**.

### TIPS & TRICKS FOR COMPLETING YOUR KIT

Do not use (stagnate) your water for a minimum of 6 hours, preferably no more than 18 hours. Do not use any water. This includes:

- \* SINKS \* TOILETS \* SHOWERS \* DISHWASHER \*
- \* WASHER FOR CLOTHES \* AUTOMATIC ICE MACHINE \*
- \* YARD SPRINKLERS \* ANYTHING ELSE THAT USES WATER \*

Many residents stagnate their water overnight, which means they do not use any water after midnight and fill the bottles as soon as they wake up the next morning.

Collect samples over a total of 5 minutes:

- 1<sup>st</sup> draw when you start the timer,
- 2<sup>nd</sup> draw after 2 minutes, and
- 3<sup>rd</sup> draw after 5 minutes.

Example:



Confirm or schedule your pickup using our online form **BEFORE** packing up and sealing the kit.

If you have any questions or would like a technician to complete the kit, please contact the Division of Water Quality



(312) 742-2406

[ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)

### MAKE A PLAN TO TEST YOUR WATER

Most residents who successfully test their water complete the kit **within 2 weeks**.



I will stagnate (will not use) my water on

DATE at TIME AM PM

I will collect samples at least 6 hours later on

DATE at TIME AM PM



→ Share this plan with everyone in your household.

→ Plan to **immediately** complete the online form after collecting samples.



(312) 742-2406

[ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)

# LEAD TESTING PROGRAM



## PLEASE RETURN YOUR KIT WITHIN 2 WEEKS

1

Do not use water for at least 6 hours

2

Fill the bottles with tap water

3

Immediately schedule or confirm your free pick up



### QUESTIONS?

Call (312) 742-2406 or follow the QR code.



Para obtener instrucciones en español, visite

W celu uzyskania instrukcji w j. polskim odwiedź stronę

有关 中文说明，请访问

[ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)

The front of pamphlet focuses on the main call to action and uses a **deadline** to instill urgency.

**Simplifying** the process to 3 easy steps helps residents understand what they should do.

Highlighting contact information and the QR code throughout makes support options **salient**.

# New Kit Instructions - Side 2

## Inside of brochure

# HOW TO COMPLETE YOUR LEAD TESTING KIT

## BEFORE YOU BEGIN

\* Before collecting samples, all members of the household must **stop using the water for a minimum of 6 hours**.

This includes all water sources like sinks, toilets, showers and washers, as well as automatic systems like ice machines and sprinklers.

If you accidentally use the water, please reschedule sampling for a different time. Stagnating is not necessary for other units in a multi-unit building.

\* Use the stickers provided to remind members of your household not to use the water for 6 hours.

\* Select a tap where:

\* Water is often used for drinking and cooking, usually the kitchen or bathroom tap.

\* You can turn the tap to **cold**.

\* No filter or aerator is attached. **Bypass any filters, but do not remove them.** More information about filters is on our website.

\* Have a timer and a pen handy.

\* Label each bottle with the time the water was last used.

## IS ANY OF THIS CONFUSING?

Watch our instructional video or call the Division of Water Quality (DWQ): (312) 742-2406



Visit [ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)



### 1

#### START WITH THE YELLOW BOTTLE

- 1 Write the time on the yellow bottle.
- 2 Place the bottle below the tap.
- 3 Turn on the cold water and immediately start the timer.
- 4 Fill the bottle up to the neck. Do not turn off the timer.
- 5 **Do not turn off the tap.**

### 2

#### AFTER 2 MINUTES HAVE PASSED, FILL THE GREEN BOTTLE

- 1 When the timer reads 2 minutes, fill the green bottle with water.
- 2 Fill the bottle up to the neck. Do not turn off the timer.
- 3 **Do not turn off the tap.**

### 3

#### AFTER 3 MORE MINUTES HAVE PASSED, FILL THE BLUE BOTTLE

- 1 When your timer reads 5 minutes, fill the blue bottle with water.
- 2 Fill the bottle up to the neck.
- 3 Turn off the tap.
- 4 Write the time the sample was collected on the green and blue bottles.

### 4

#### FILL IN THE PAPER RETURN FORM

- 1 Check that the information on the bottle labels is accurate.
- 2 Fill out the paper Return Form.
- 3 Once completed, place the form in the plastic bag provided.

**NOTE:** do not seal the box before scheduling a pickup.

### 5

#### SCHEDULE OR CONFIRM A PICKUP IMMEDIATELY

- 1 Visit [ChicagoWaterQuality.org](http://ChicagoWaterQuality.org) and click "Schedule or confirm a pickup" or call (312) 742-2406. You must schedule or confirm a pickup date that is within 4 days of completing the kit.
- 2 Follow the instructions on the site.

### 6

#### PACK THE KIT FOR PICKUP

- 1 After completing the online pickup form, check that all the bottles are tightly capped and place them in the kit box along with the Return Form.
- 2 Close the box and seal with tape. Put the pickup sticker on the box.
- 3 Place the box in a convenient pickup location outside your home.

EXPECT RESULTS AROUND 4 WEEKS FROM PICKUP.  
MORE INFORMATION AVAILABLE ON OUR WEBSITE.


The before you begin section prompts residents to **pause and prepare** before they start collecting water samples

The instructions **chunk information and use visuals** to make it easier to understand.


The colors of the corresponding bottles are used in the instructions to help ensure that the resident is using the correct bottle at each step.

Scheduling & pickup are emphasized as an important part of the process so it's easier for residents to complete immediately.

# Original Water Testing Form



**City of Chicago Department of Water Management**  
**Residential Water Testing Form**  
**To Be Completed & Returned with Bottles**



«FULLNAME» «Address» «Unit» «City», «State» «Zip»	«Phone» «Email»	SR# / Site ID: «SRNo»
---	--------------------	--------------------------

ITEMS 1 THROUGH 6 ARE REQUIRED TO BE FILLED OUT BY SAMPLE COLLECTOR FOR TEST TO BE COMPLETED

<input type="checkbox"/> Check location where sample was collected from: <input type="checkbox"/> <b>Kitchen Cold water tap</b> <input type="checkbox"/> <b>Bathroom Cold water tap</b>	<input checked="" type="checkbox"/> Date sample collected (MM.dd.yy) _____ / ____ / ____
<input checked="" type="checkbox"/> Date Water Last Used: _____ / ____ / ____ <small>(MM.dd.yy)</small> Time Water Last Used: _____ : ____ AM / PM <small>(hh:mm)</small>	<input checked="" type="checkbox"/> Water Samples <b>Bottle (Yellow) #1</b> - LC# «LCCode1» _____ : ____ AM / PM <small>(hh:mm)</small> <b>Bottle (Green) #2</b> - LC# «LCCode2» _____ : ____ AM / PM <small>(hh:mm)</small> <b>Bottle (Blue) #3</b> - LC# «LCCode3» _____ : ____ AM / PM <small>(hh:mm)</small>
<input checked="" type="checkbox"/> <b>Type of residence being tested (check one):</b> <input type="checkbox"/> Single detached home <input type="checkbox"/> Townhouse <input type="checkbox"/> 2-3 flat <input type="checkbox"/> Multi-unit    Age of home: _____ years	
<p><b>Two Important Tips If You Have Filters:</b>          If you have a faucet filter, leave in place, and set to BYPASS mode. If you have or a whole house filter, set to BYPASS mode. Most filters provide a way to allow unfiltered water to flow through the device. Please refer to the manufacturer instructions</p> <ul style="list-style-type: none"> <li>TO PROPERLY SAMPLE, UNFILTERED TAP WATER SHOULD BE COLLECTED. If samples were accidentally collected with filtered water, please empty the sample bottles, and resample per the instructions.</li> <li>PLEASE DO NOT REMOVE ANY FAUCET FILTERS PRIOR TO SAMPLING AS RESULTS MAY NOT BE VALID. If samples were accidentally collected after a faucet filter was removed, please empty the sample bottles, and resample per the instructions.</li> </ul>	
<input checked="" type="checkbox"/> Do you have a whole-house filter or faucet filter? <input type="checkbox"/> Yes <input type="checkbox"/> No    If yes, brand & model? _____	

Please complete the remainder of this form to the best of your knowledge. If unsure, leave blank. Place the form in the plastic bag provided. Return the bottles & the plastic bag to the box. To schedule your kit for pickup, click "Schedule" on our website [chicagowaterquality.org](http://chicagowaterquality.org) & follow the instructions. Please call 312-742-2466 for more information.

Year present <b>water service line</b> installed: _____ The building's <b>water service line</b> (the pipe that goes from the water main to the building) is made from (check all that apply): <input type="checkbox"/> Steel/Galvanized iron <input type="checkbox"/> Lead <input type="checkbox"/> Copper <input type="checkbox"/> PVC/Plastic <input type="checkbox"/> Don't Know <input type="checkbox"/> Other _____	Year current <b>interior plumbing</b> installed: _____ The building's <b>interior plumbing</b> is made from (check all that apply): <input type="checkbox"/> Steel <input type="checkbox"/> Lead <input type="checkbox"/> Copper <input type="checkbox"/> PVC/Plastic <input type="checkbox"/> Don't Know <input type="checkbox"/> Other _____
Graphic (see instructions) used for identification of service line material type? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Already knew type	Length from inside shut off valve to kitchen sink (see graphic on instructions): _____
Service Line Info: Size (in) _____ Length (ft) _____ (Length = inside shut off valve to farthest edge of sidewalk)	Faucet Type: <input type="checkbox"/> Individual Hot/Cold Valves <input type="checkbox"/> Single Mix Lever [Pull Out] <input type="checkbox"/> Yes <input type="checkbox"/> No

Has there been any recent plumbing work done in your home?     Yes     No    If yes, date of work \_\_\_\_\_ / \_\_\_\_ / \_\_\_\_

If yes, description of work \_\_\_\_\_

Manufacturer of faucet where sample collected \_\_\_\_\_ Year installed \_\_\_\_\_

Sampler's Signature: \_\_\_\_\_ Date: \_\_\_\_\_ / \_\_\_\_ / \_\_\_\_

Print Name \_\_\_\_\_

Receiving Information - To Be Completed by WQSS & Contract Laboratory			
WQSS Received by: _____	Date Received: _____ / ____ / ____	Time: _____ : ____ AM/PM	<input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Rejected    Date Acidified _____ / ____ / ____
«LCCode1»    EEA ID: _____	Chlorine: _____ mg/L	Temp: _____ °C	Turbidity: _____ NTU
«LCCode2»    EEA ID: _____	Chlorine: _____ mg/L	Temp: _____ °C	Turbidity: _____ NTU
«LCCode3»    EEA ID: _____	Chlorine: _____ mg/L	Temp: _____ °C	Turbidity: _____ NTU
Contract Laboratory Received by: _____		Date Received: _____ / ____ / ____	Time: _____ : ____ AM/PM

# Return Form: Barriers & Strategies

Barrier	Solution(s)
Form is <b>confusing or off-putting</b> , leading to errors or missed information	<ul style="list-style-type: none"><li>• Reduce <b>cognitive load</b> by:<ul style="list-style-type: none"><li>○ <b>Simplifying</b> language</li><li>○ Using larger text to make it <b>easy</b> to read and fill in</li><li>○ <b>Chunking</b> the directions into two parts and using a <b>list</b> to guide residents through the steps</li></ul></li></ul>
Form asks for information residents may not know, and residents <b>think they can't move forward</b> if they don't have an answer	<ul style="list-style-type: none"><li>• Add multiple choice options to open-ended questions to reduce <b>cognitive load</b> and decrease time spent on the form</li><li>• Remove optional questions to reduce <b>friction</b>. Because our capacity to perform mental work is a limited resource, straining this capacity compromises our ability to perform other tasks.</li></ul>
<b>Form is misplaced</b>	<ul style="list-style-type: none"><li>• Emphasize a “don't lose me” directive using a callout to <b>increase salience</b></li><li>• Recommend printing on cardstock to make the form <b>stand out</b> relative to other paperwork at home, and to make it sturdier near sources of water (i.e., if they carry it with them to their faucets)</li></ul>
<b>Instructions are not followed, leading to missing information or errors</b> (e.g., assuming kit needs to be mailed back, not knowing how to schedule a pickup, not being able to locate the SR number)	<ul style="list-style-type: none"><li>• Emphasize the pick up directions in a separate call out box and emphasize the SR number with bolding to <b>increase salience</b></li></ul>

# New Water Testing Form

Front

Back

A callout at the top of the page draws attention to the importance of the form.

The main questions are simplified to include only the most important questions.

“You’ve done the hard part!” makes progress salient and encourages the resident to complete the kit.

The bottom of the form includes the immediate next steps in a visually appealing way to keep the resident moving through the process.

Please complete & return this form with the bottles.

<b>Location where the water sample was collected:</b> <input type="checkbox"/> Kitchen (cold tap water) <input type="checkbox"/> Bathroom (cold tap water)	<b>Date &amp; time water was last used before taking the sample:</b> MM / DD / YY AM / PM	<b>Type of residence:</b> <input type="checkbox"/> Single detached home <input type="checkbox"/> 2-3 unit home or flat <input type="checkbox"/> Multi-unit building
<b>Date the water sample was collected:</b> MM / DD / YY <b>Time each sample was collected (mmhh):</b> These times should match the times written on each bottle. «LCCode1» Bottle 1 (yellow)   «LCCode2» Bottle 2 (green)   «LCCode3» Bottle 3 (blue) AM / PM   AM / PM   AM / PM	<b>When was the residence constructed?</b> <input type="checkbox"/> Before 1988 <input type="checkbox"/> 1988 or after <input type="checkbox"/> Don't know / Unsure	<b>Please fill in the year, if known:</b> _____

Do you use a filter (whole house or faucet)?  Yes  No  don't know / unsure \* More filter information on the back of this form

If yes, did you bypass your filter?  Yes  No  No filter

Signature: \_\_\_\_\_ Print Name: \_\_\_\_\_ Date: MM / DD / YY

You've done the hard part! Now schedule or confirm your kit pick up.

- Place this form in the plastic bag provided.
  - Return the bottles and plastic bag to the box, but don't seal it up yet!
  - Use this form to confirm your pick-up online
- Visit our website & click schedule or call 312 742 2406 for more information
- 

More challenging questions were removed or marked as optional so they do not prevent the resident from finishing the process.

They are simplified and include visuals to make them easier to complete.

The font is larger and the form includes more white space, making it easier to read.

The following questions are optional. Please complete them to the best of your knowledge.

The water service line is the water pipe that runs from the water main to the building.  
 What year was the building's water service line installed? \_\_\_\_\_

What material is the water service line?  
 Steel / Galvanized iron  Lead  Copper  PVC/Plastic Other \_\_\_\_\_

► Not sure? Graphic and instructions are available at [ChicagoWaterQuality.org](http://ChicagoWaterQuality.org)

Which of the following best resembles the type of faucet used?

2 Valves    Single Lever    Single Lever with Pull-out    Don't know / Unsure

Tell us about your plumbing.  
 Have you done recent work? Has the home been vacant recently? Have you just moved in?  
 \_\_\_\_\_  
 \_\_\_\_\_

**Additional information on Filters**  
 ► Sample water must be unfiltered. Filter must have been set to bypass mode, NOT removed.  
 ► If the filter was not bypassed, please empty the sample bottles and resample.

**RESIDENT DO NOT COMPLETE. To Be Completed by City and Laboratory Staff**

RECEIVING INFORMATION			
WQSS Received by:	Date Received: MM / DD / YY AM / PM	Time: _____ AM / PM	<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected
«LCCode1» «LCCode2» «LCCode3»	Chlorine: _____ mg/L	Temp.: _____ C°	Turbidity: _____ NTU
Contract Laboratory Received by:	Date Received: MM / DD / YY	Time: _____ AM / PM	



# Sticker Solutions

Barrier	Solution(s)
After bringing the kit into their home, resident loses it or ignores it, <b>leaving it unopened</b>	<ul style="list-style-type: none"><li>• Use a <b>deadline</b> to improve motivation</li><li>• Emphasize the <b>benefits</b> offered to residents who complete their kits</li><li>• Invoke <b>reciprocity &amp; operational transparency</b> by highlighting the City's role in the process</li></ul>
Materials are <b>intimidating, confusing, and overwhelming</b> / Materials are understood, but the <b>tasks described seem challenging</b>	<ul style="list-style-type: none"><li>• Use a 3-step <b>list</b> to <b>reduce cognitive</b> load and reinforce that kit completion is <b>easy</b></li><li>• Link prominently to the instructional video</li></ul>
Resident thinks they need to mail the kit themselves / Resident doesn't know how to schedule the pickup	<ul style="list-style-type: none"><li>• Emphasize the pick up directions to <b>increase salience</b></li></ul>
Neighbors take the kit inside after it is placed outside for pick up	<ul style="list-style-type: none"><li>• <b>Signal to neighbors</b> not to bring the completed kit inside</li></ul>

# New “On The Box” Stickers

## On the Outside of the Box

**PLEASE COMPLETE** 

**THIS KIT WITHIN 2 WEEKS**

**TO ACCESS:**

**FREE KIT PICK-UP**      **FREE LAB TESTING**      **FREE LEAD TEST RESULTS**

The headline emphasises the **recommended deadline** to prompt urgency and planning.

**Highlighting “Free” services** make it more appealing to open the box and complete the kit.

## Inside the Box Lid

**PLEASE RETURN** 

**THIS KIT WITHIN 2 WEEKS:**

- 1**  
**Do not use water for at least 6 hours**
- 2**  
**Fill the bottles with cold tap water**
- 3**  
**Schedule or confirm your free pick up**

The headline reiterates the **recommended deadline**.

**The process is outlined in 3 simple steps** so the resident knows the most important parts of completing the kit and is encouraged to complete the steps.

# New Stickers for Residents to Use

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## 4 “Don’t Use” Stickers

These stickers are for residents to use when stagnating water. They can be placed on sinks, toilets, and other appliances as a reminder not to use water



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## 1 “Do Not Move” Sticker

This sticker is to be placed on the outside of the box when it is set out for pick up. It is designed so that other members of the household or building don’t tamper with the box before DWM staff can collect it

# Appendix III

## SMS Drafts for Testing

# SMS Reminders for Testing

Theme	Message Draft
<b>Reminder of motivation</b>	You ordered a lead test kit from the City of Chicago. Don't miss out on learning about your water!
<b>Social norms</b>	Join the thousands of Chicago residents who have tested their water. Make a plan today to complete the kit and schedule your pickup.
<b>Guilt</b>	We noticed you have not yet returned your lead test kit. Make a plan today to complete the kit and schedule your pickup.
<b>Get help</b>	Do you need help with your lead testing kit? Call us to get help, request a new kit, or close out your request.
<b>Deadline</b>	Your lead testing kit is due. Make a plan today to complete the kit and schedule your pickup.

*Themes may be combined.*

# SMS Reminders for Testing

Theme	Message Draft
Reciprocity / Identity	Chicago wants to be a leader in testing water quality, help us meet our goal.
Reciprocity / Commitment	Your lead test kit is important to Chicago. Do you plan to complete your kit?
Reservation	Good news! We reserved a slot to test your lead kit. Please schedule your pickup online today.
Scarcity	Spots are filling up fast, don't miss out! Complete your lead testing kit and schedule your pickup online.
Loss aversion	Each lead testing kit costs the City \$12.50. Don't waste your tax dollars. Complete your kit and schedule your pickup online.

*Themes may be combined.*