

# A tale of two vending machines: utilization, reach, and acceptability of harm reduction vending machines in Central Pennsylvania

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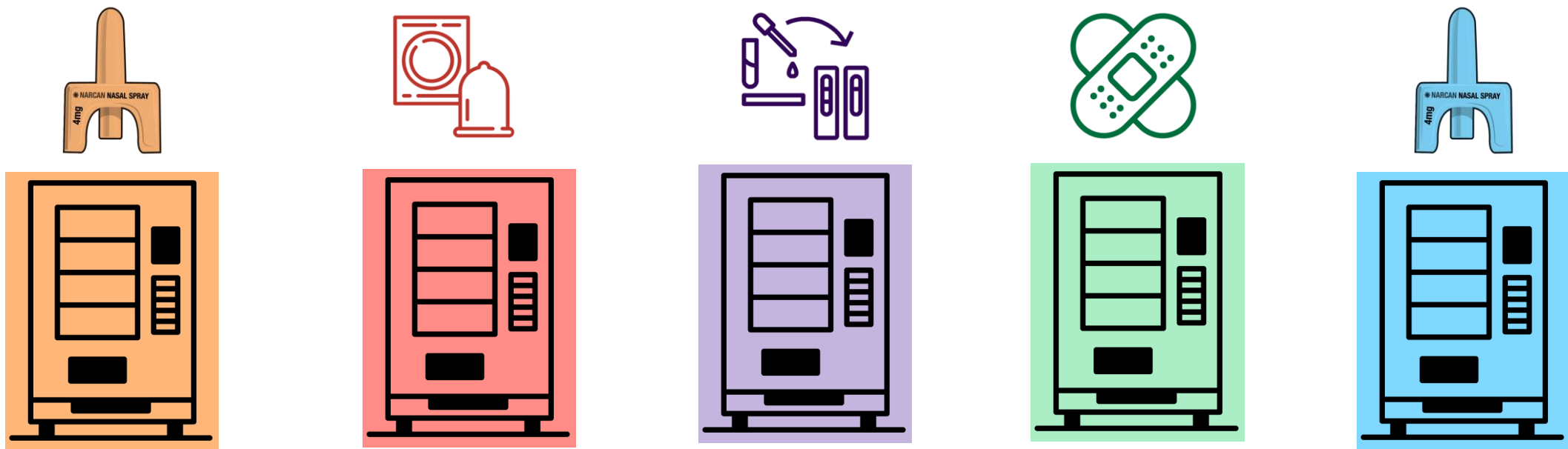
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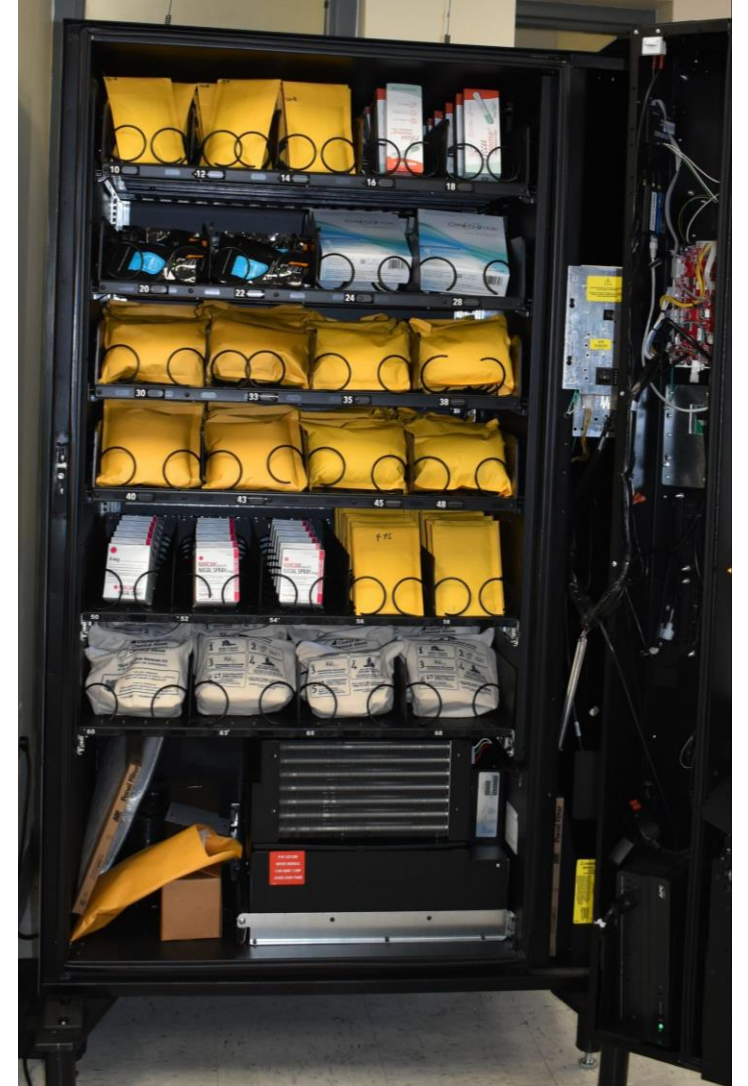
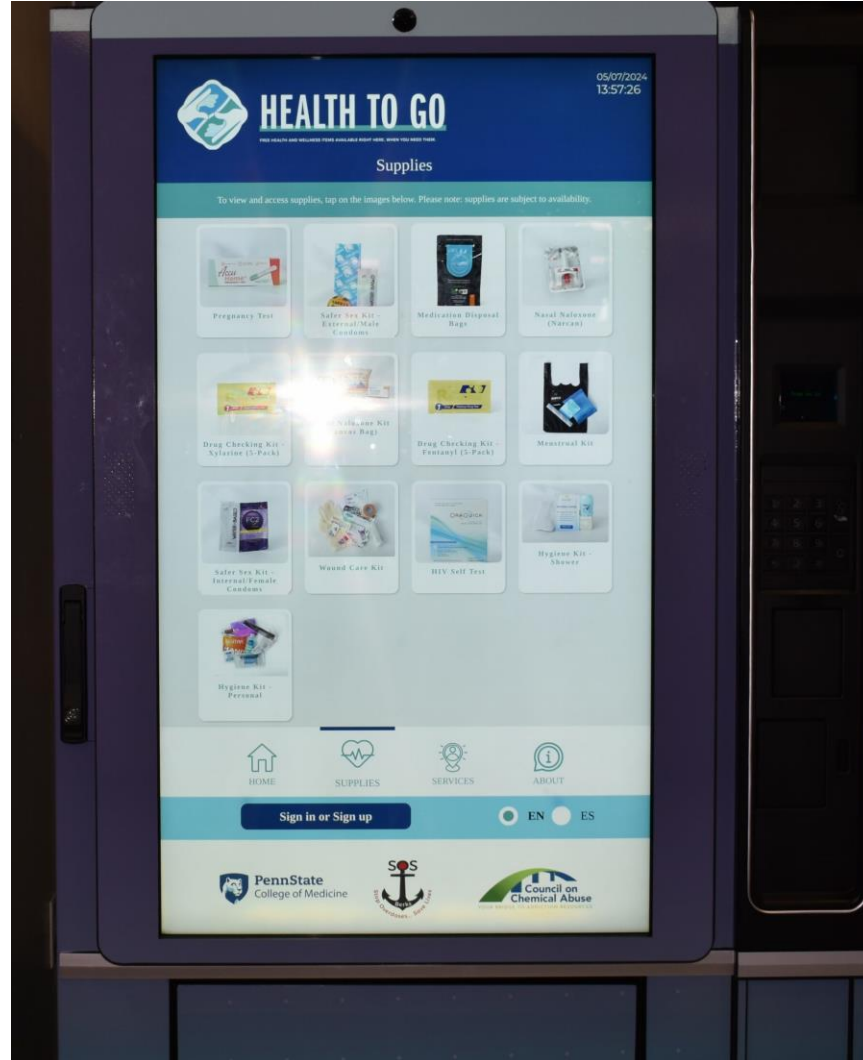
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# Harm reduction vending machines

A pragmatic, non-stigmatizing, low-barrier, 24/7 platform for delivering harm reduction and other needed health items



# Our 'Health To Go' vending machines



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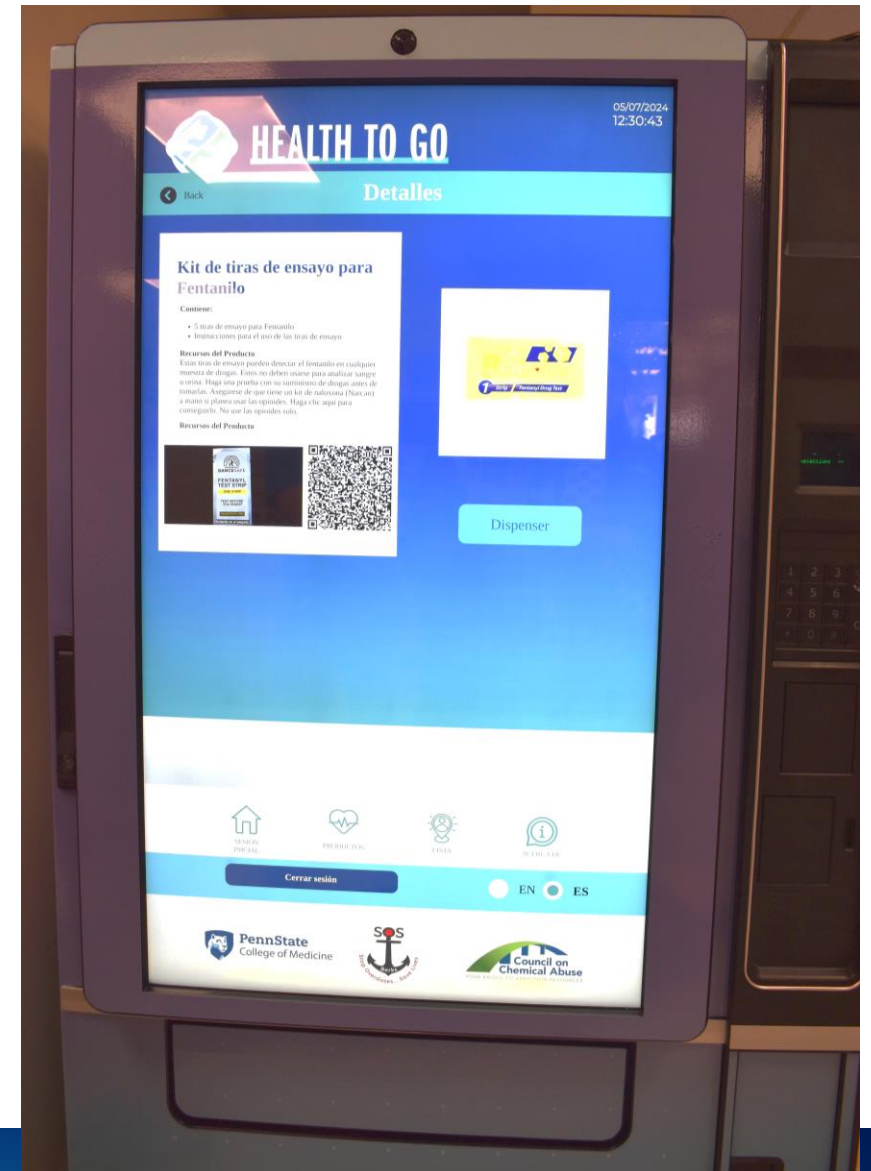
# Our current items:

- **Nasal Naloxone (by itself) & Naloxone Kit:** nasal naloxone, face shield, one way breather, gloves
- **Fentanyl/xylazine test strip kits:** fentanyl/xylazine test strips, microscope, instructions
- **Wound care kits:** band-aids, antibiotic ointment, gauze pads, gloves, xeroform, information on treating wounds
- **Hygiene kits:** toothbrushes, toothpaste, tissues, socks, chapstick, soap, mouthwash
- **Menstrual kits:** period pads, tampons, wipes
- **Pregnancy tests**
- **Safer sex kits:** condoms (external, internal), dental dams, lube
- **Medication disposal bags**
- **HIV self-tests**



# A new generation of “smart” vending machines

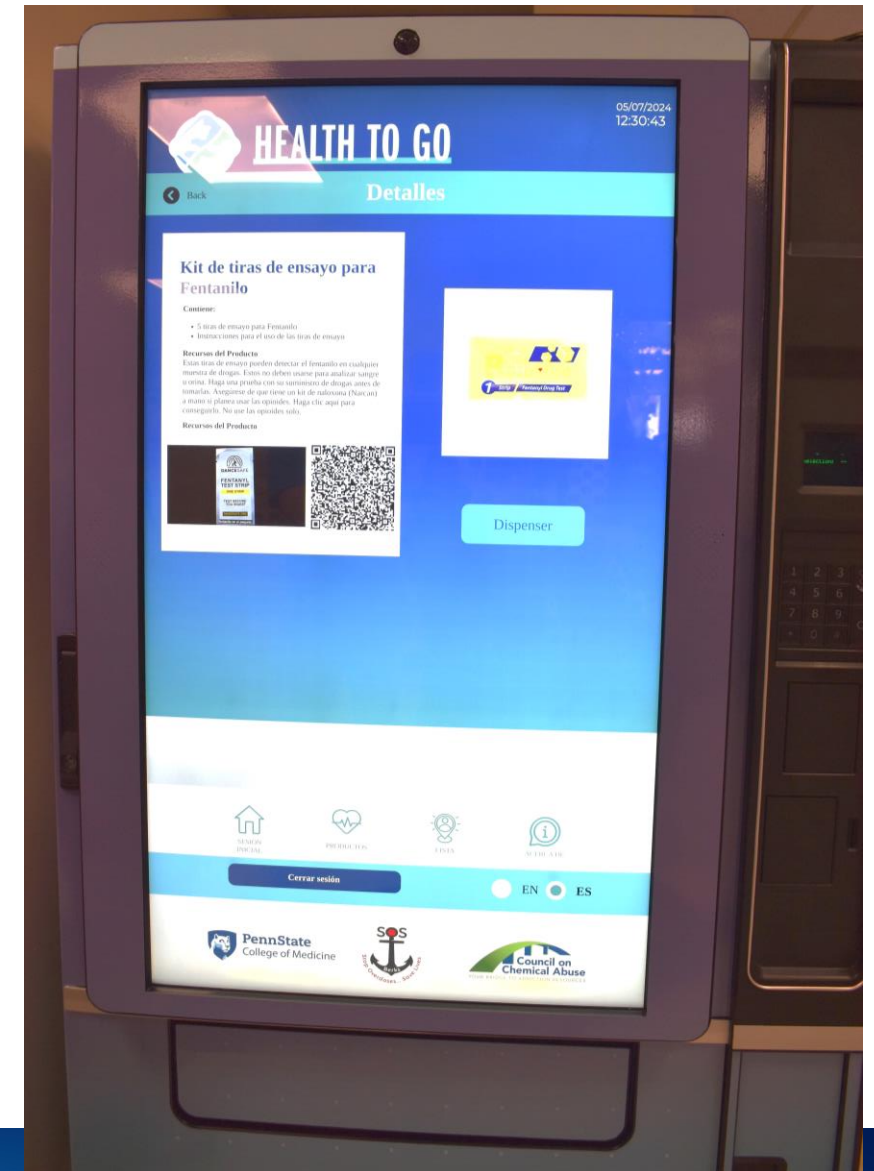
- 42” interactive touch screen + cellular/WiFi connection allows for:
  - playing customized bi-lingual videos
  - needs assessment & data collection from users’ interactions
  - real-time alerts
  - connections to treatment, social services, peer recovery coaches
- Automatic cloud-based data collection provides real-time data on dispensed items, services, item re-stocking needs





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# Accessing the Vending Machine: A Balance



# Accessing the Vending Machine: Workflow

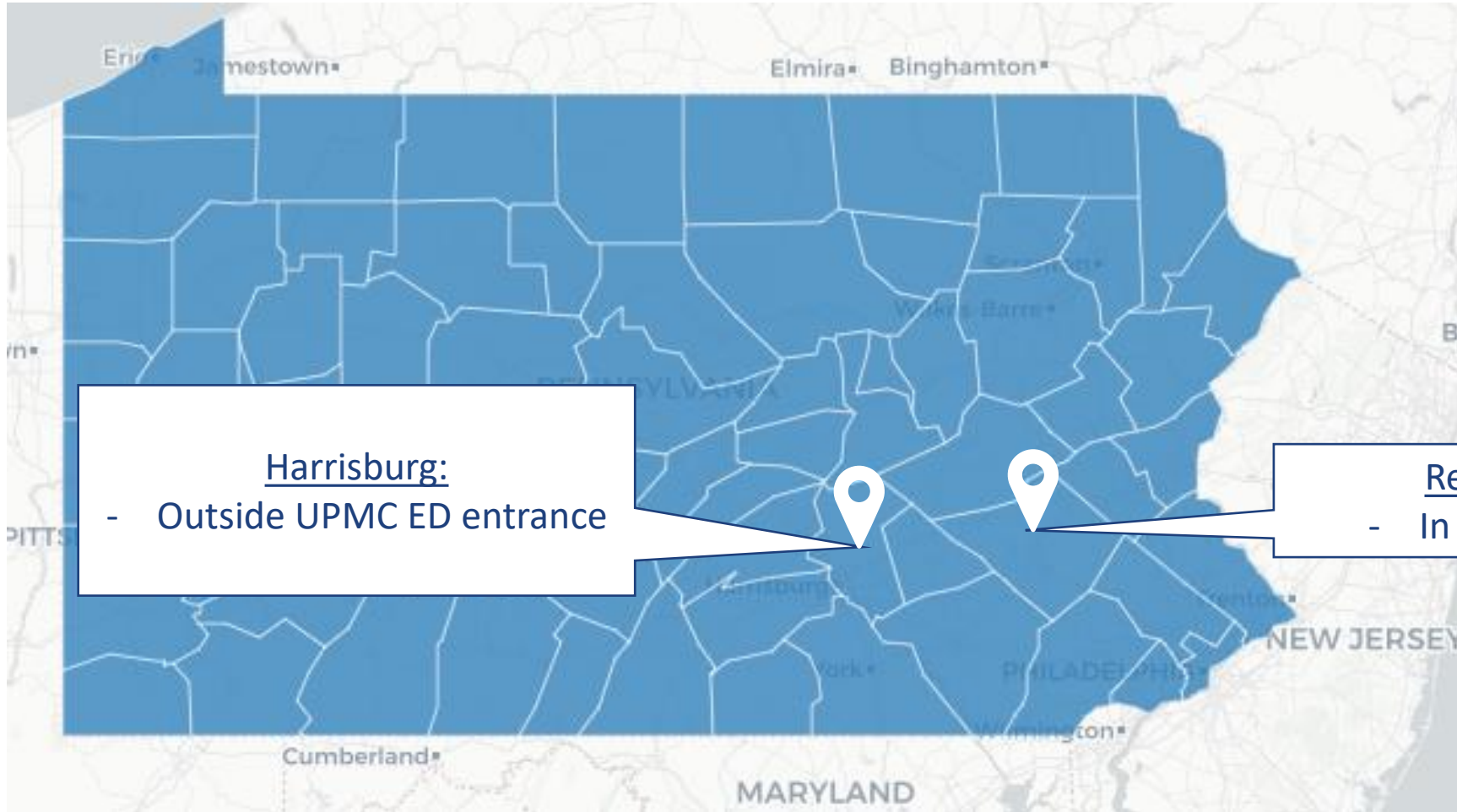


1. Create a username
  - Color + Icon (animal, nature) + Birth year
2. Option to answer demographics questions
3. Once registered, able to access items & view services
  - Limit of 2 items per day per user
4. While waiting for item to be dispensed, option to answer 1-2 additional survey questions
5. At end of session, 1-2 follow-up questions

**“Emergency” Naloxone: two rows of nasal naloxone available immediately, no registration required**



# Current locations for vending machines



# Reading vending machine

- High proportion Hispanic/Latino (67%)
- Located inside a YMCA
  - Residential facility
  - Across the street from county courthouses
  - Available to the community for events, day care, gym, pool, and programs
- Available 24/7 however need to buzz in from 11:00pm to 7:00am.
- Stocked by YMCA employee, packaged by local community center



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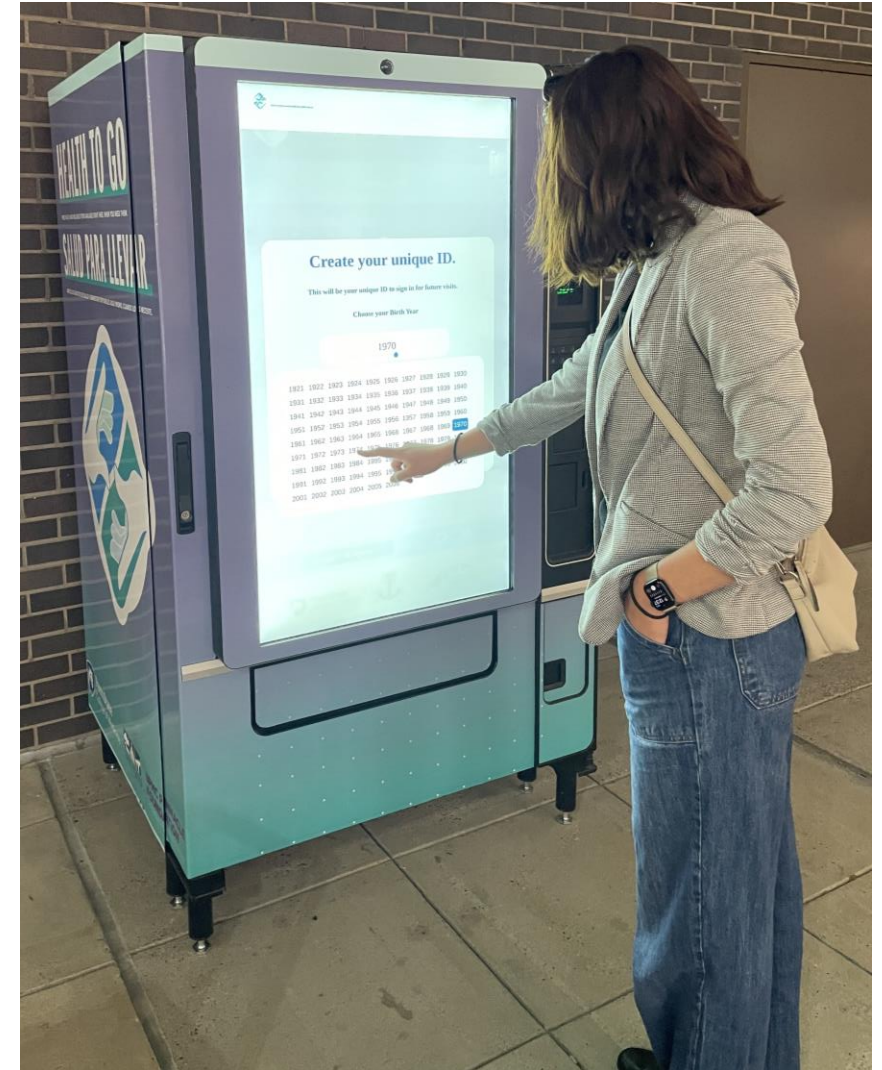
## Pennsylvania's first Health to Go free vending machine launched in Reading

Free wellness and personal care items are available to those who need them.



# Harrisburg vending machine

- High proportion African-American (52%)
- Located outside UPMC Harrisburg ED entrance in covered courtyard
  - High-pedestrian area
  - Located near homeless encampments
- Available 24/7
- Items packaged and stocked by Penn State team



# How are the vending machines being used?

6-month operations

May - November



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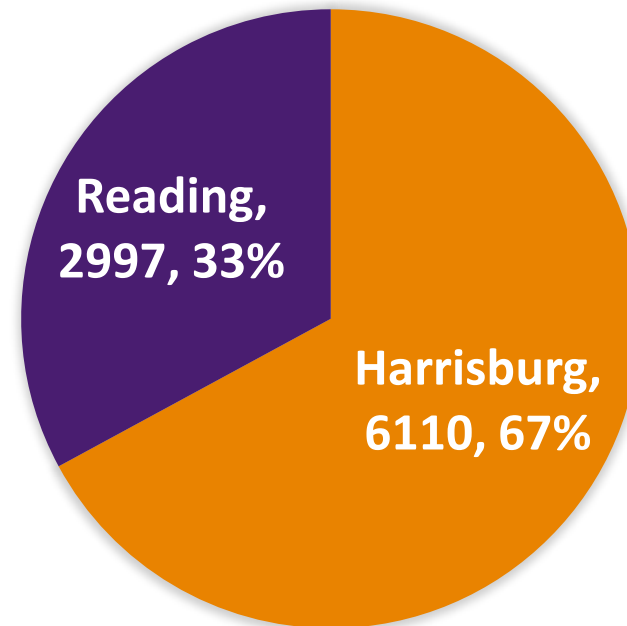
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# *How often* are the vending machines being used?

Between our two vending machines, we are seeing an average of **52** sessions/day.

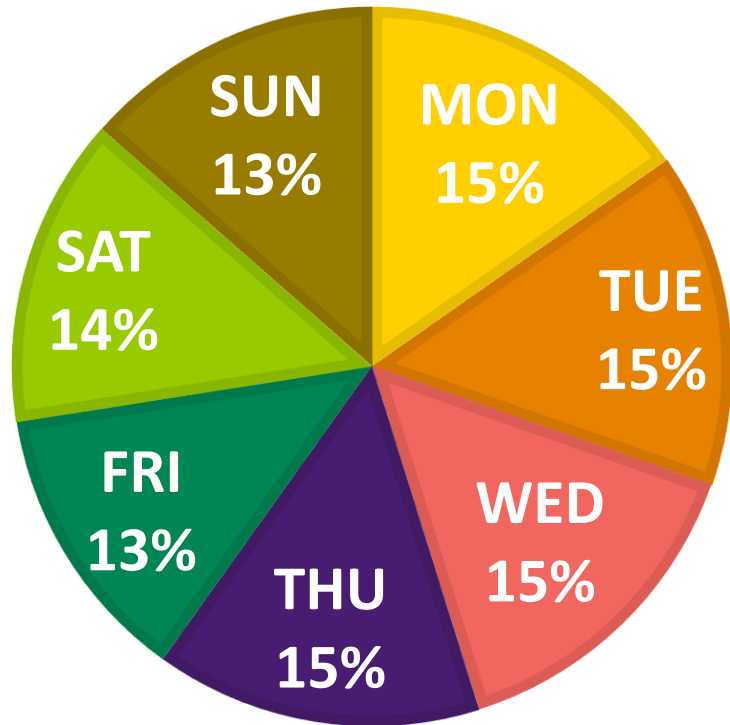
## NUMBER OF SESSIONS OVER 6 MONTHS

Our Harrisburg vending machine has more traffic compared to the Reading vending machine.



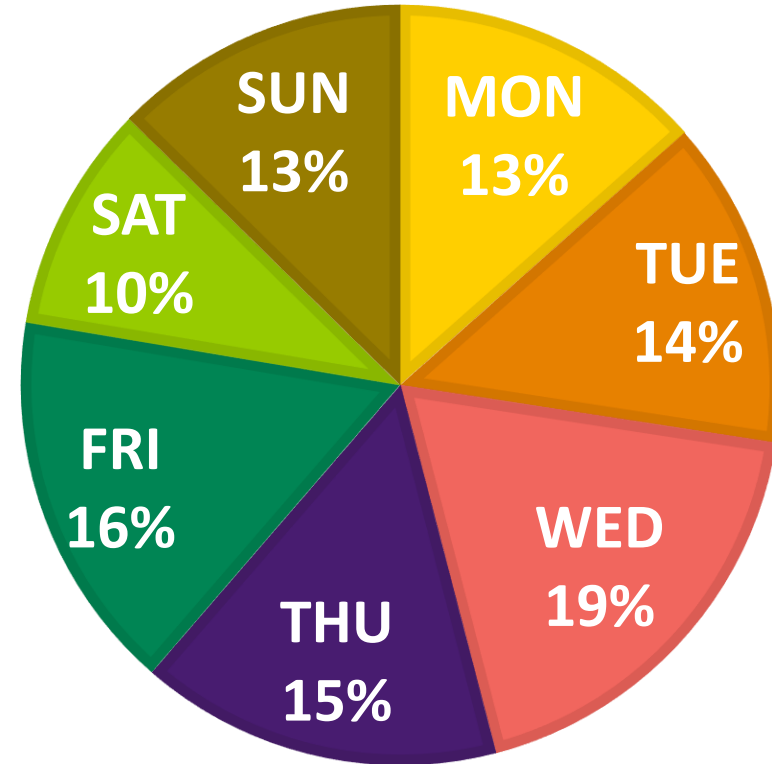
# When are the vending machines being used?

Harrisburg



Fairly consistent usage on all days of the week

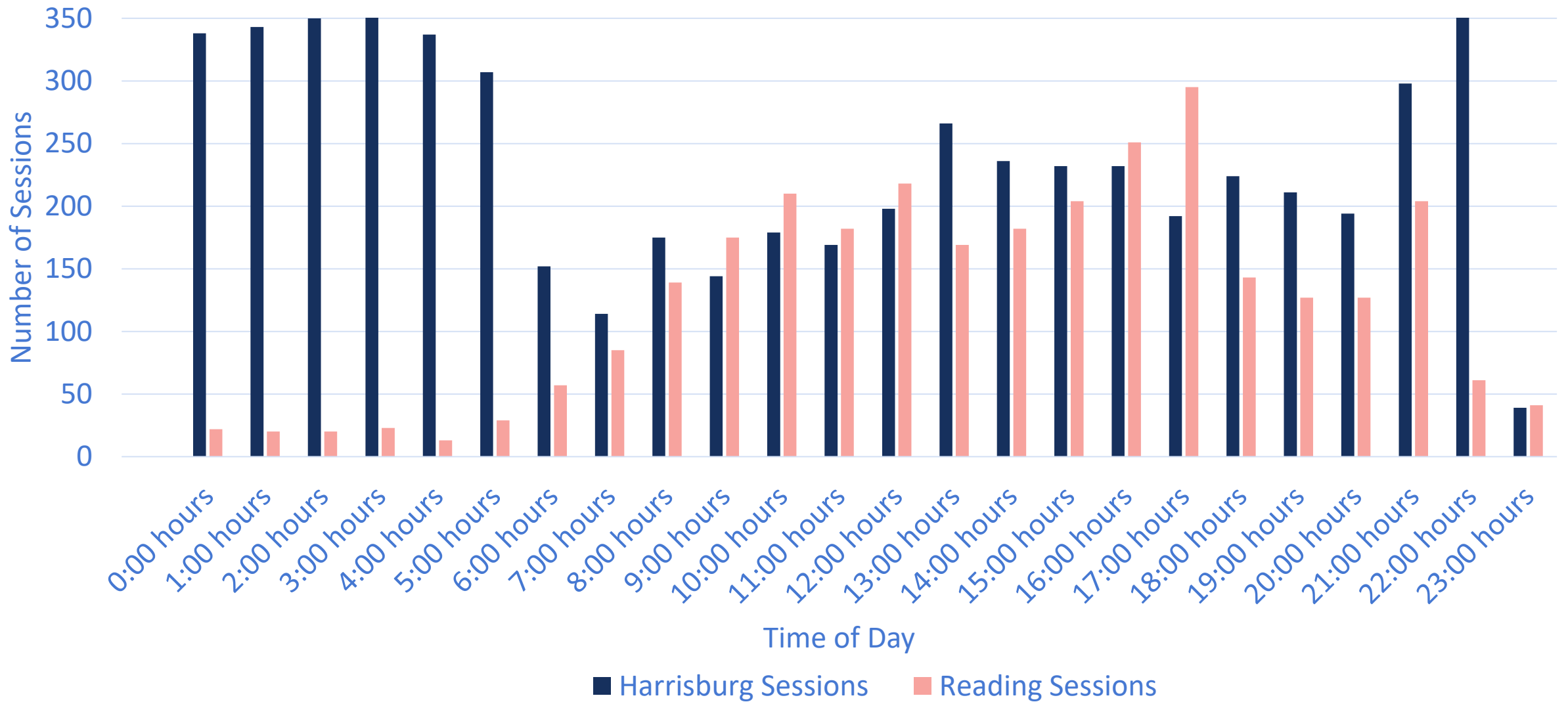
Reading



Higher usage during weekdays



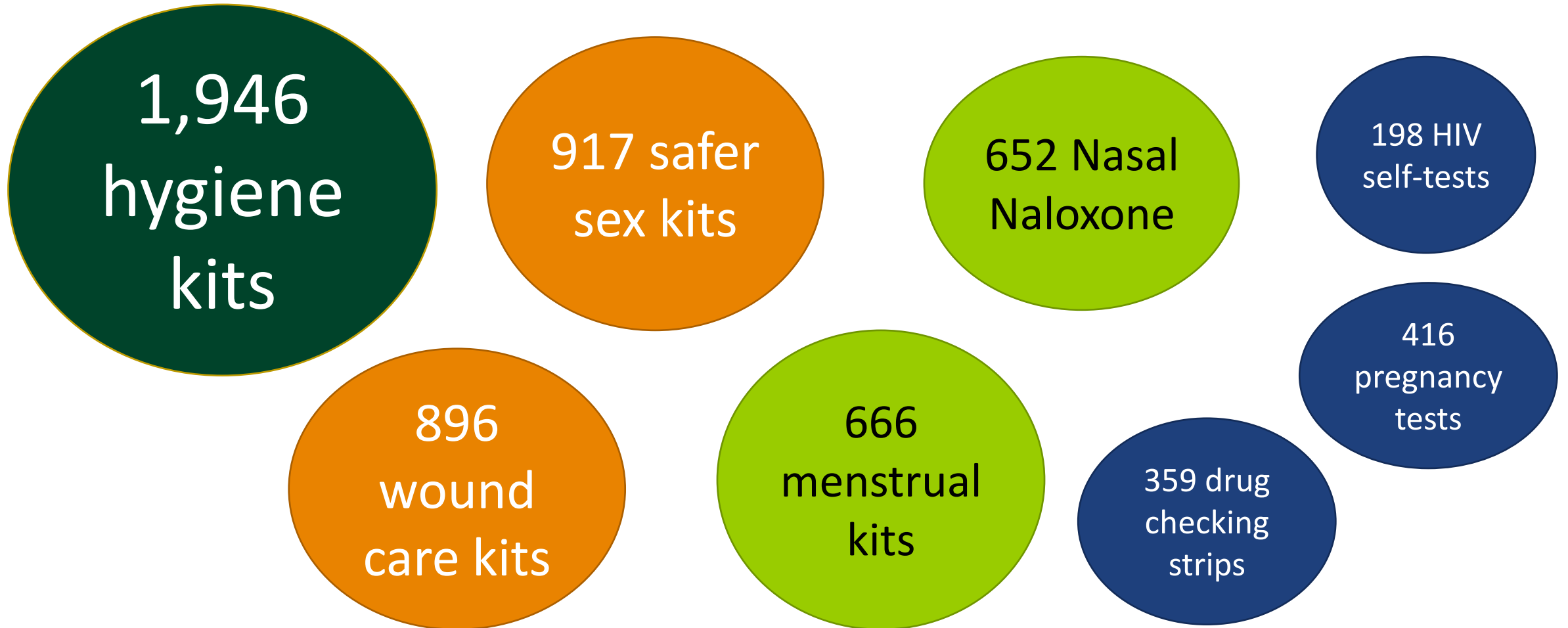
# When are the vending machines being used?



Harrisburg has more after-hour/evening activity compared to Reading

## *How many items are being dispensed?*

Between our two vending machines, **6,171** items have been dispensed over the past 6 months.



# *How many* harm reduction items are being dispensed?

Between our two vending machines, **2,028** harm reduction items have been dispensed over the past 6 months.



896  
wound  
care kits

652 Nasal  
Naloxone

359 drug  
checking  
strips

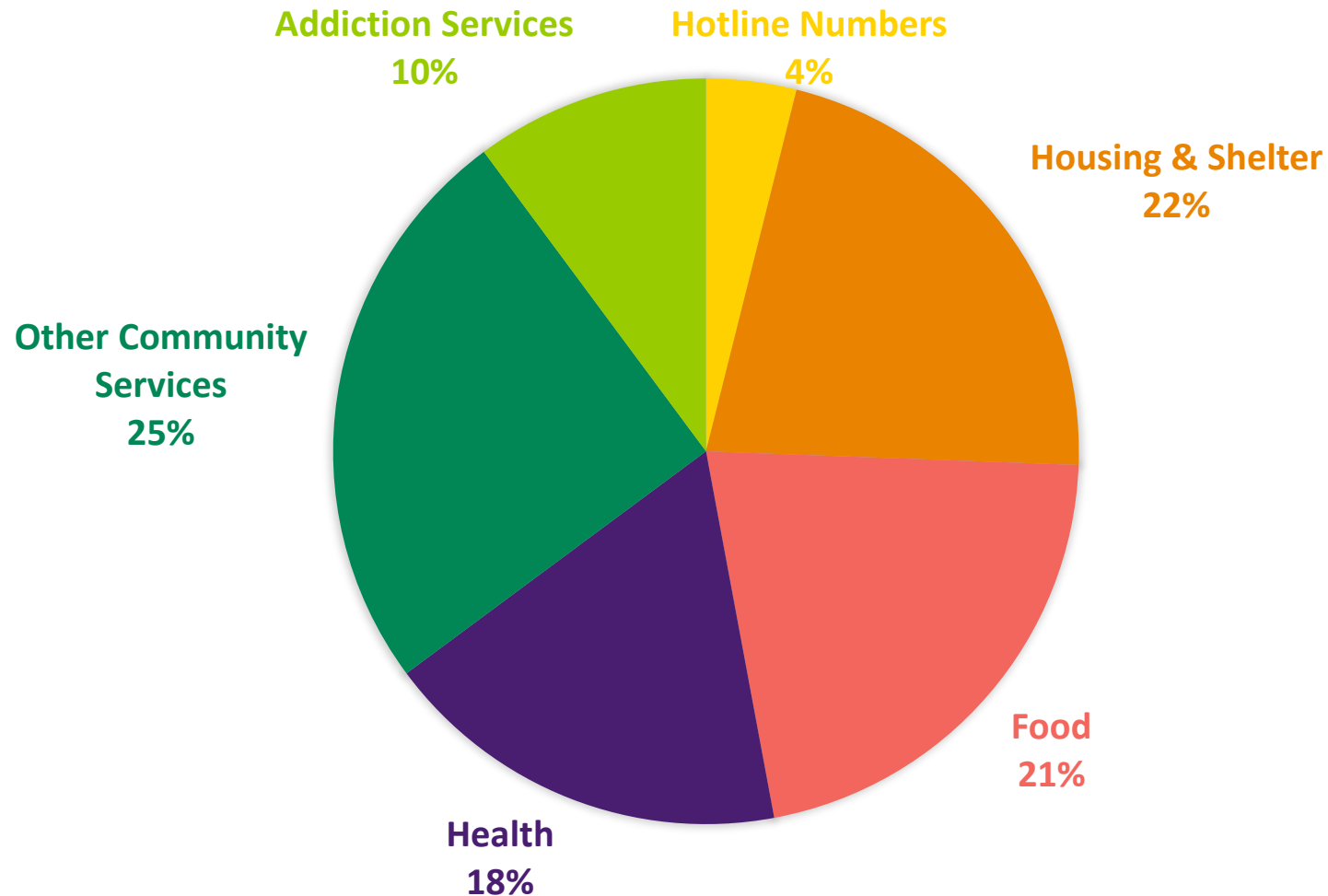
121  
medication  
disposal  
bags

## Harrisburg vs. Reading: differences in types of items being dispensed

- Harrisburg is dispensing slightly more items than Reading (3,445 vs. 2,726)
- Reading: **hygiene kits** (1,169; 42%), **wound care kits** (488; 18%), and **menstrual kits** (364; 13%) represent a greater proportion of items/kits dispensed
- Harrisburg: while **hygiene kits** (777; 22%) are the most popular item, more **safer sex kits** (661; 19%), **Narcan** (471; 14%) and **drug checking strips** (271; 8%) are being dispensed compared to Reading

# *What services are people interested in?*

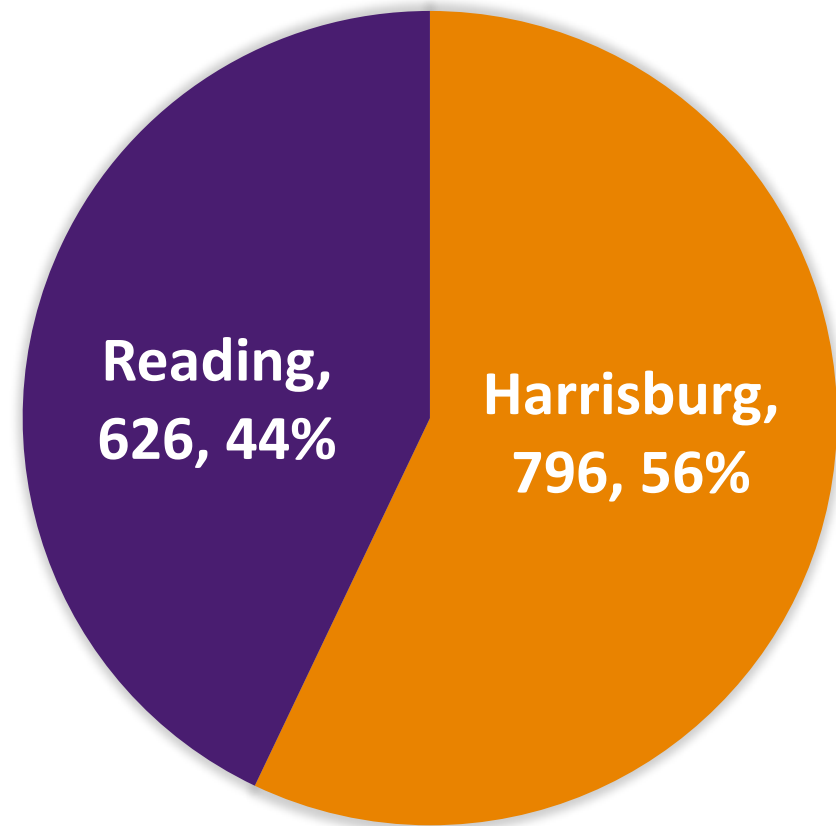
Between our two vending machines, **451** individuals have been interested in connecting with **91** services.



## *How many people are using the machine?*

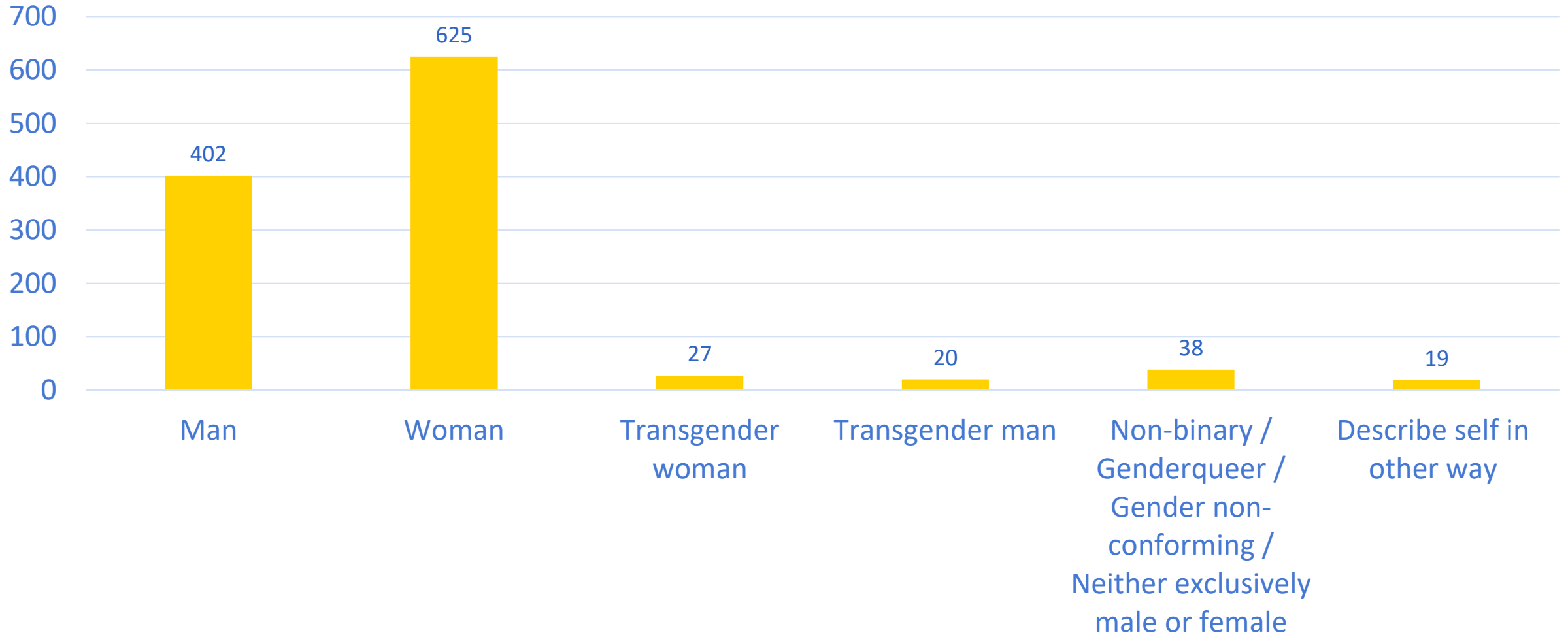
Between our two vending machines, we have a total of **1,422** unique users.

Our Harrisburg vending machine has slightly more users than Reading vending machine.



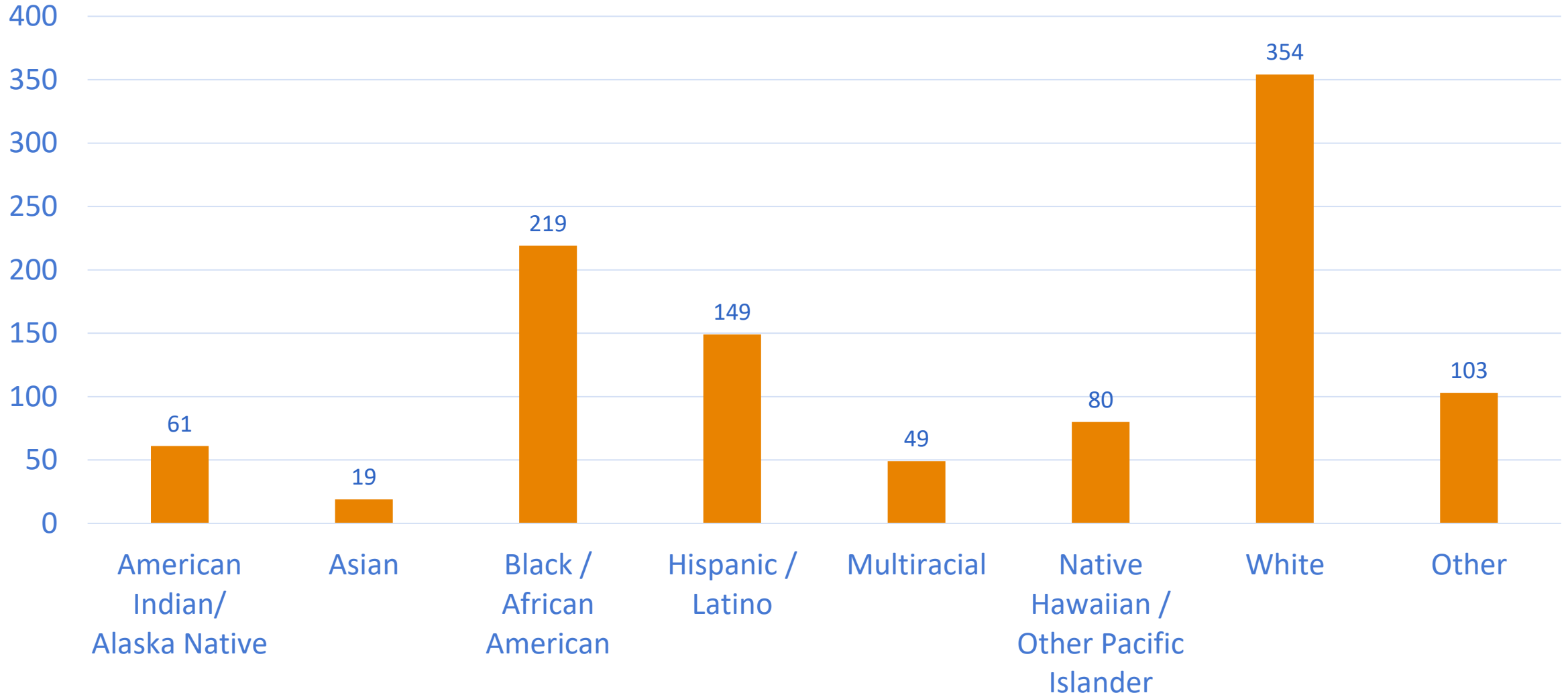
# Who is using the machine?

Sex/Gender



# Who is using the machine?

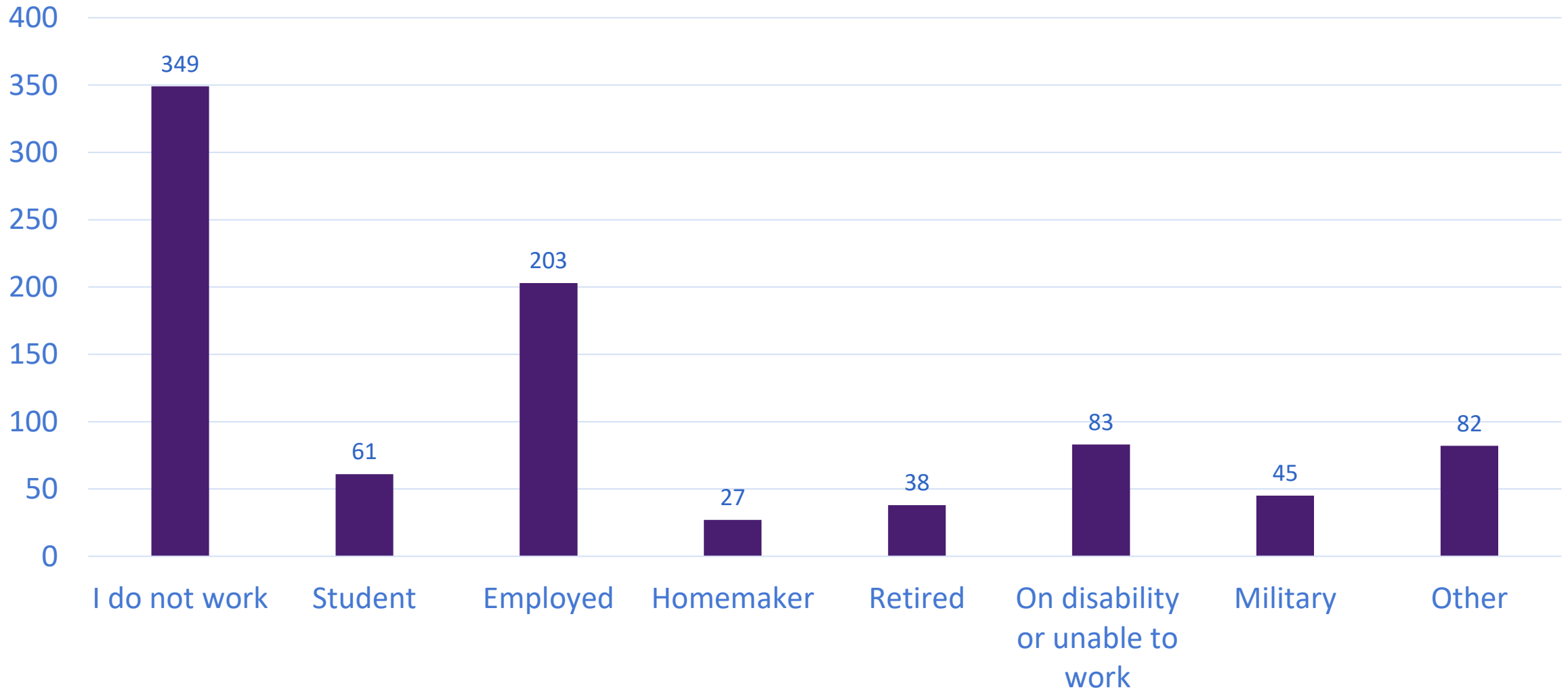
## Race/Ethnicity





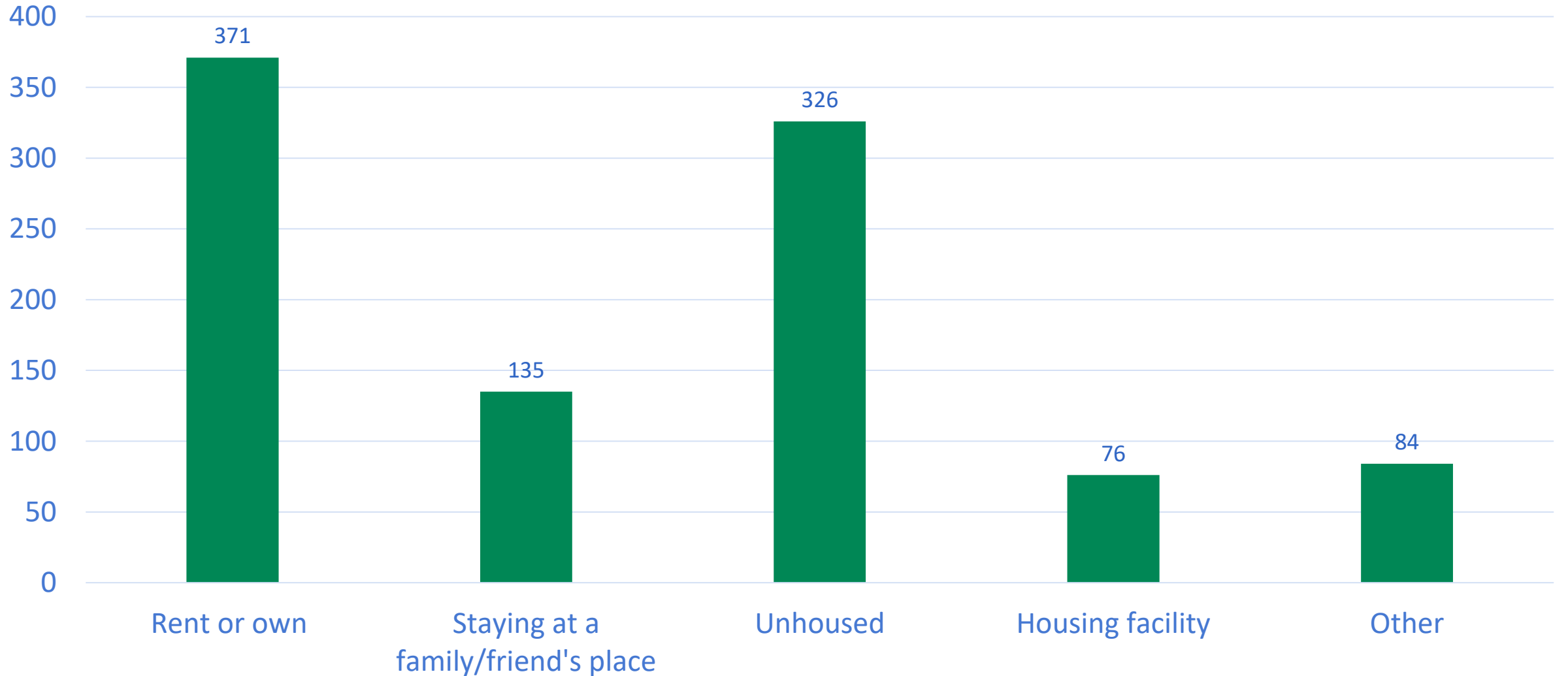
# Who is using the machine?

## Employment Status



# Who is using the machine?

## Housing Status



# Ongoing data collection

- Survey questions associated with products/health, for example:
  - “Have you ever used xylazine checking strips?”
  - “I need naloxone (Narcan) because I want to:”
  - “Do you think this vending machine improves your personal health?”
  - “Do you think this vending machine reduces stigma or negative opinions about naloxone (Narcan)?”
- Focus groups with community organizations & vending machine users
- Outreach to service providers listed on vending machine screen



# Costs of the vending machine



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# Estimate of costs for “smart” vending machine

- \$15,000 one-time cost
  - Configuration of machine, training, shipping & installation
- \$2,700/monthly
  - Ongoing maintenance for software support, updates, hardware rental, data connection (including 10GB/month), maintenance
- Supplies: ~\$2,000/monthly based on current demand
  - Items mostly sourced from Amazon, although able to get free items from DOH (HIV self-tests; condoms; wound care) and DDAP/PCCD (nasal naloxone; drug checking strips)
  - Able to impose limits per user (i.e., 1 hygiene kit/user/weekly) to help maintain supply



# Basic vending machine vs. smart machine

	Basic vending machine	Smart vending machine
Upfront cost (one-time)	\$12,500	\$15,000
Monthly costs for 1 year	--	\$32,400
Liability insurance	\$30,000	--
Data collection and reporting	\$150,000	--
Registration process (i.e., website + maintenance)	\$65,000	--
Secure server for data storage	\$1,500	--
<b>Total:</b>	<b>\$259,000</b>	<b>\$47,400</b>

Data courtesy of Rachel Crowner with The Knox Consultants

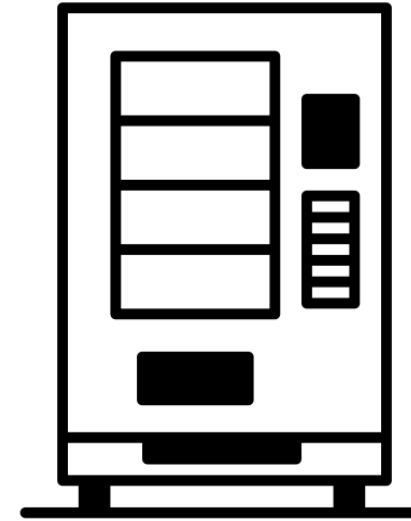
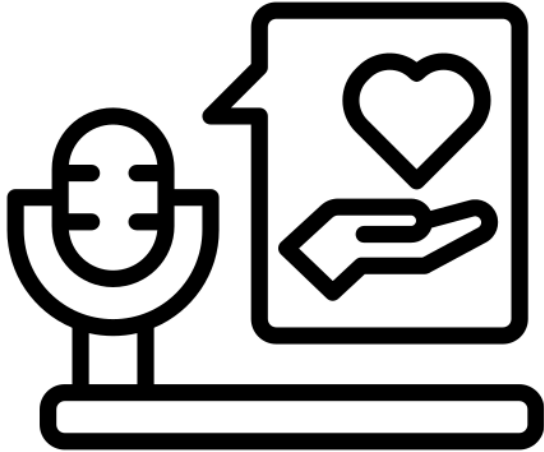


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# 24/7 “health” fair vs. smart vending machine



Personnel x 3  
(full-time FTE, including weekends)

\$219,000

**Total**

**\$219,000**

Maintenance (yearly)

\$32,400

Research assistant  
(20% FTE or 8 hrs/week for 1 year)

\$15,600

**Total**

**\$48,000**



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# Lessons Learned

## Pre-Implementation

- Key to have strong coalition of diverse community partners to provide input on implementation & design
- Novelty of the vending machine and “smart” technology may create unexpected layers of planning
- May need to balance competing priorities (privacy vs security, low barrier access vs data collection); this will look different for each community and organization

## Post-Implementation

- The machine will jam up!  
→ key to have on-the-ground volunteers stocking and monitoring the machine in the early days
- Need for continued outreach to spread the word about the machine







## ***Smart vending machines:***

an innovative way to help reach underserved populations, reduce health disparities, and improve community health

PA can become a leader and model for implementation of this low-barrier approach



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# Thank you to our community partners

## Addiction and Harm Reduction Community Organizations

### Dauphin County



Dauphin County  
PENNSYLVANIA

**UPMC PINNACLE  
FOUNDATION**



### Canada



### Penn State



### Berks County



Douglas W. Pollock Center for  
Addiction Outreach and Research



reachnexus

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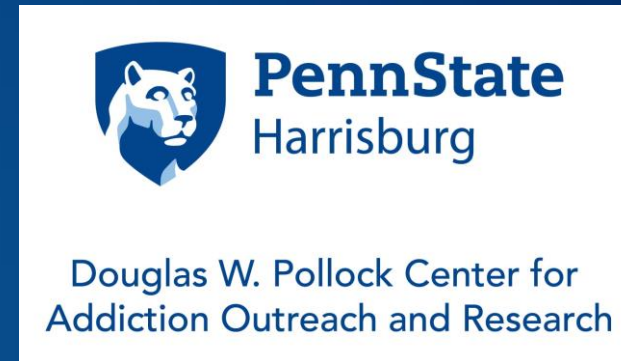
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