CHICAGO

COVID-19
Chicago Long Term Care Roundtable

06-27-2024

Agenda

- Wastewater Surveillance
- COVID-19 Epidemiology and Updates
- Pets in Healthcare
- Resident Safety & Infection Prevention & Control
- Questions & Answers

DISCOVERY PARTNERS INSTITUTE

PART OF THE UNIVERSITY OF ILLINOIS SYSTEM

UNIVERSITY OF ILLINOIS SYSTEM

Wastewater Surveillance Program (WS)

- DPI collects and tests wastewater samples from 11 sewershed sites throughout Chicago.
- **Chicago's WSS – aims to act as a complementary surveillance tool to augment traditional syndromic surveillance and act as a possible early warning system for disease outbreaks for pathogens of public health concern.**
- Through the analysis of population pooled wastewater, infectious disease, and resistance spread, the emergence of disease outbreaks at the community level can be monitored comprehensively and in real-time.

About | Discovery Partners Institute (uillinois.edu)

Wastewater Surveillance Partner Institutions

UIC UNIVERSITY OF ILLINOIS CHICAGO

DPI DISCOVERY PARTNERS INSTITUTE
PART OF THE UNIVERSITY OF ILLINOIS SYSTEM

Argonne NATIONAL LABORATORY

Cook County DEPT. of Public Health
Promoting health. Preventing disease. Protecting you.

IDPH ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Metropolitan Water Reclamation District of Greater Chicago

CDC CENTERS FOR DISEASE CONTROL AND PREVENTION

Cook County Department of Corrections

O'HARE INTERNATIONAL AIRPORT

MISERICORDIA HEART OF MERCY

Team Organization

DPI

UIC

ANL

NU

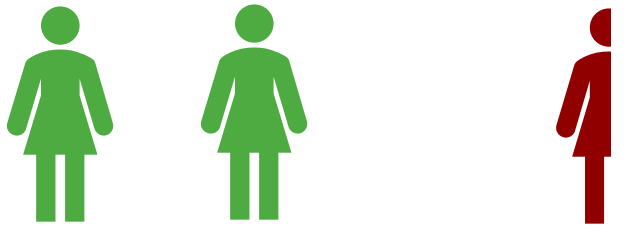
Current

Vendor/Partner

<50%

dpi.uillinois.edu

Project Management



Laura Clements (Sr. PM)

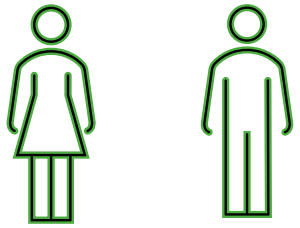
Krystal White (PM, Outreach)

Rachel Poretsky (Project Director)

Sampling Design

Anuj Tiwari (Vuln)

Sample Collection

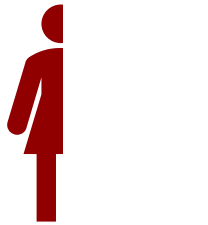


Facilities Sampling partners

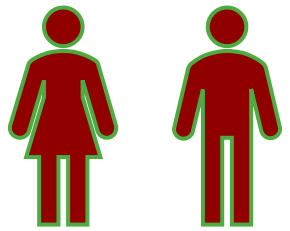
Facility Sample Pickup/Courier (MedSpeed)

Neighborhood Sample Collectors @Current

Viral Quantification

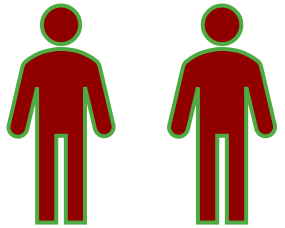


Rachel Poretsky (microbio)



Dolores Sanchez (Lab mgr - QA/QC)

Adam Horton (Lab mgr - logistics)



Chi-yu Lin (Lab tech)

Modou Jarju (Lab tech)

Sequencing

Sarah Owens (genomics)

Stephanie Greenwald (genomics)

Sequence Analysis

Modeling, Analysis, Reporting

Aaron Packman (modeling)

Karan Dipu Jogi (Analysis & Reporting)

Katelyn Leisman (Analysis & Reporting)

Niall Mangan (Analysis & Reporting)

+3 additional partial effort NU

Wastewater Surveillance Overview

Chicago's Wastewater Surveillance Program (WS) monitors SARS-CoV-2, Influenzas A and B, RSV, Candida auris, mpox, polio, C. auris, and other pathogens in wastewater.

Potentially captures changes in disease trends or emergence not detected by routine clinical testing.

Collaboration and involvement of multiple agencies and partners

Goal: To provide data for action to Chicago Department of Public Health

Wastewater-Based Surveillance Workflow

Sample Collected

- Sampling design
- Volunteer recruitment/engagement
- Logistical coordination and enhancement

Viral RNA quantification

- Concentration
- Extraction
- PCR quantification
- QA/QC

Active research:

- Improved sampling & lab methods
- Replication
- Normalization
- New targets (e.g., influenza, polio)
- Computational methods to improve early detection
- Science gateway for enhancing data/methods sharing

Variant Sequencing

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Northwestern University

Modeling, Analytics, & Reporting

- Reporting to: CDC, IDPH, CDPH, Plant operators, other partners
- Data Analysis Research
- Data Visualization
- Dashboard

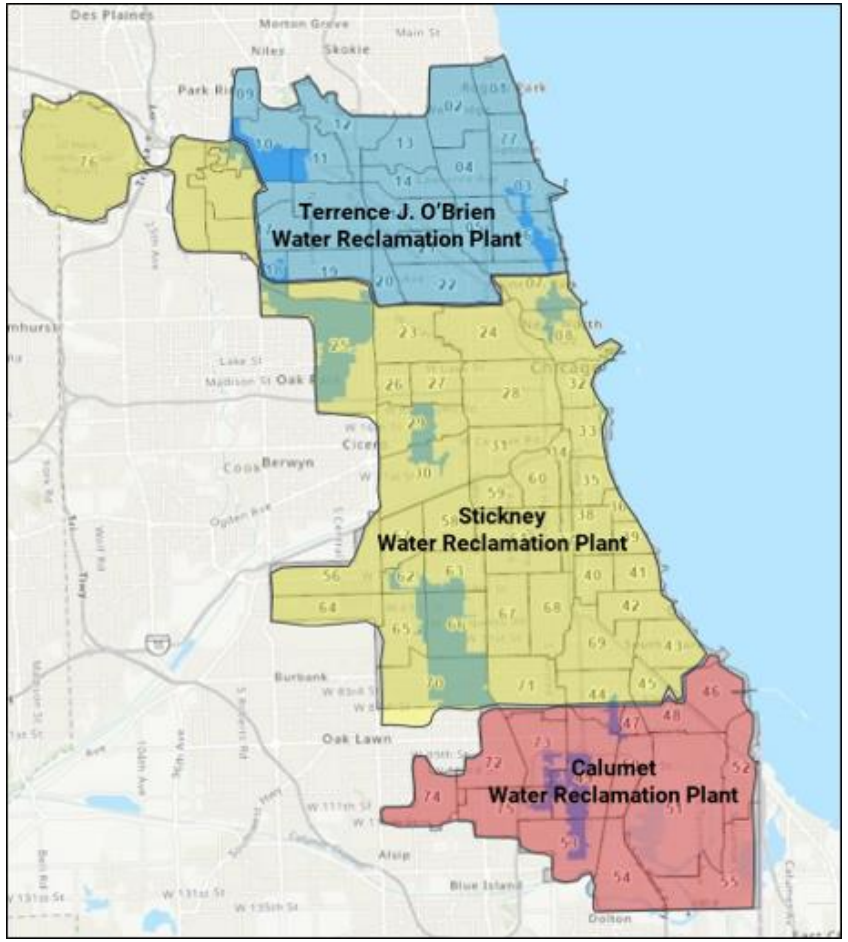
CDPH's WSS focuses on detecting pathogens of public health concern in raw wastewater.

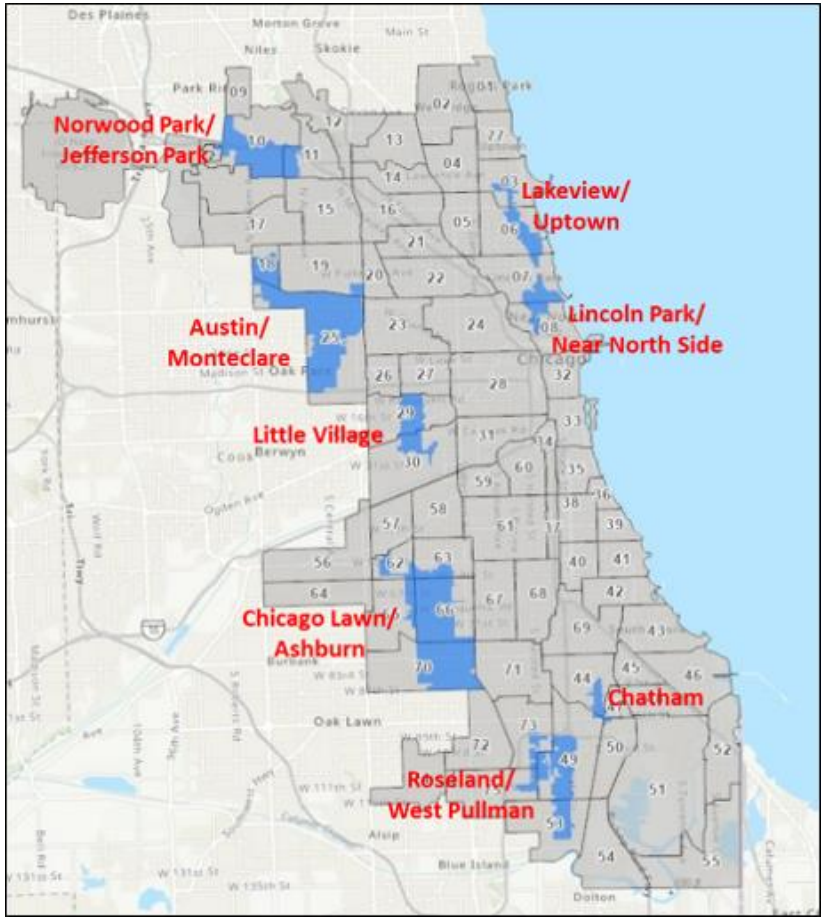
Sampling locations

- 8 City of Chicago sewer sheds (in blue)
- 6 Chicago Health Equity Zones + 2 pumping stations
- 2 facilities CCJ and Misericordia

Timeline

- Sampling 1-2x/week per site.

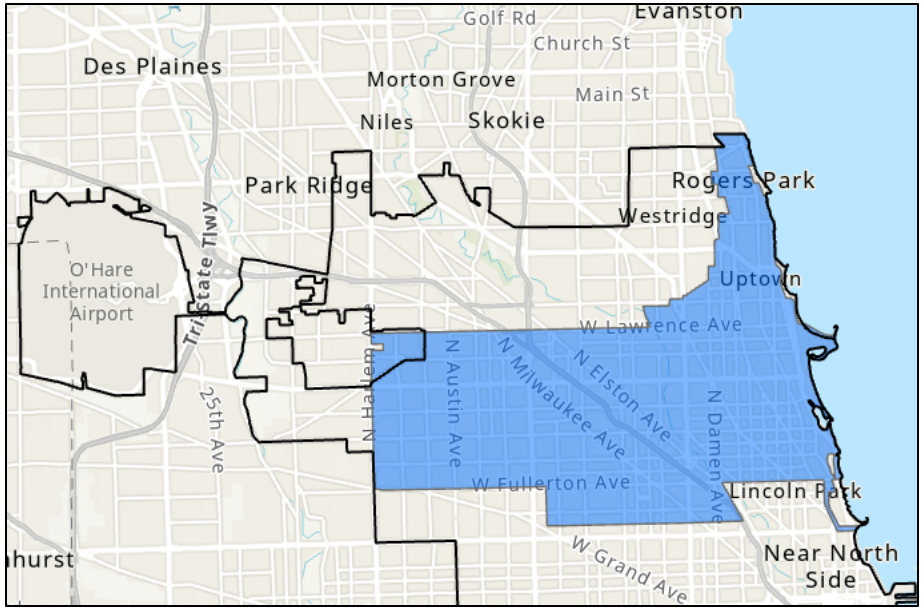




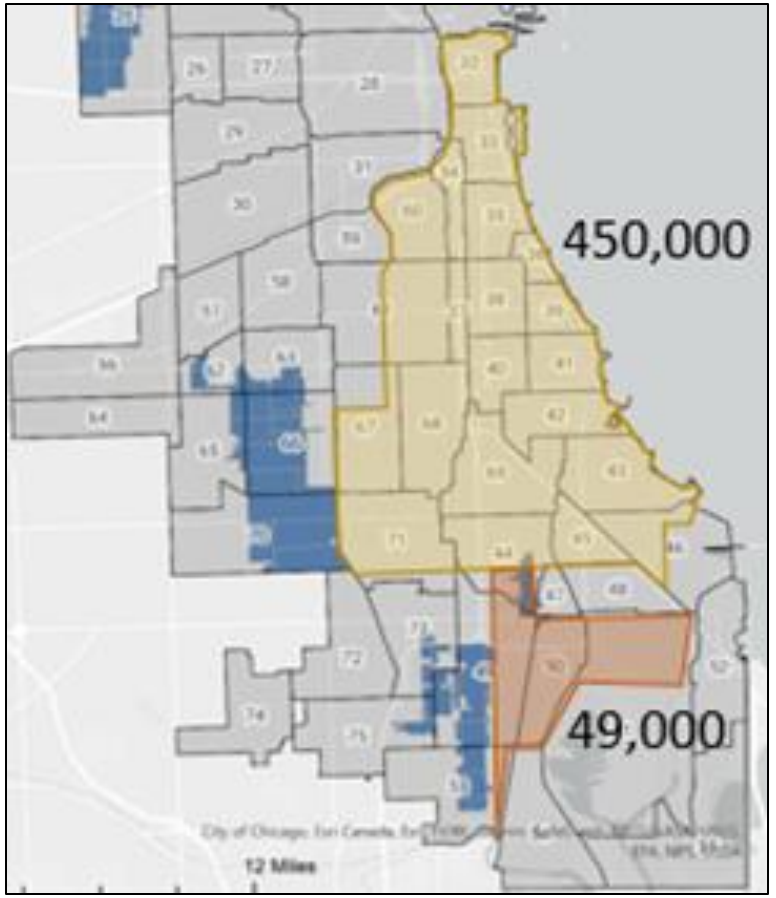
Three pumping stations sites were added to the program in 2023 to increase the number of community areas represented in the program

- New pumping station sites cover larger catchment areas than previous sampling locations
- Chatham site planned to be replaced by pumping station sampling

- North Branch Site



- Racine Ave (Yellow) and 125 St (Orange) estimated* sites



*Racine Ave and 125 St exact catchments and population are not final yet due to location of sample collection.

WS can achieve specific CDPH's WS objectives

WS CAN:

- Allows CDPH to **supplement other surveillance methods during large outbreaks** in communities.
- Allows CDPH to demonstrate **how independent surveillance methods (case/WWS) interact**.
- Allows CDPH to **post WWS data to national dashboards**.
- **Supports other WWS improvement areas** such as measuring flow rate.
- If a WWS schema considered the limiting factors, the surveillance system could be used to **establish community spread thresholds when gene copies reach a specific concentration**.

WS CAN'T:

- Limits of detection (LOD) and catchment areas, **during periods of low community transmission, may produce non-detects because the concentration has not reached a detectable level** in the sewer shed being monitored.
- WWS **cannot be used as an early indicator.** By the time a pathogen of public health concern is detected in wastewater, community spread will have already been identified through case-based surveillance.
- Due to research limitations, **WWS is not able to accurately quantify community spread** from wastewater samples.

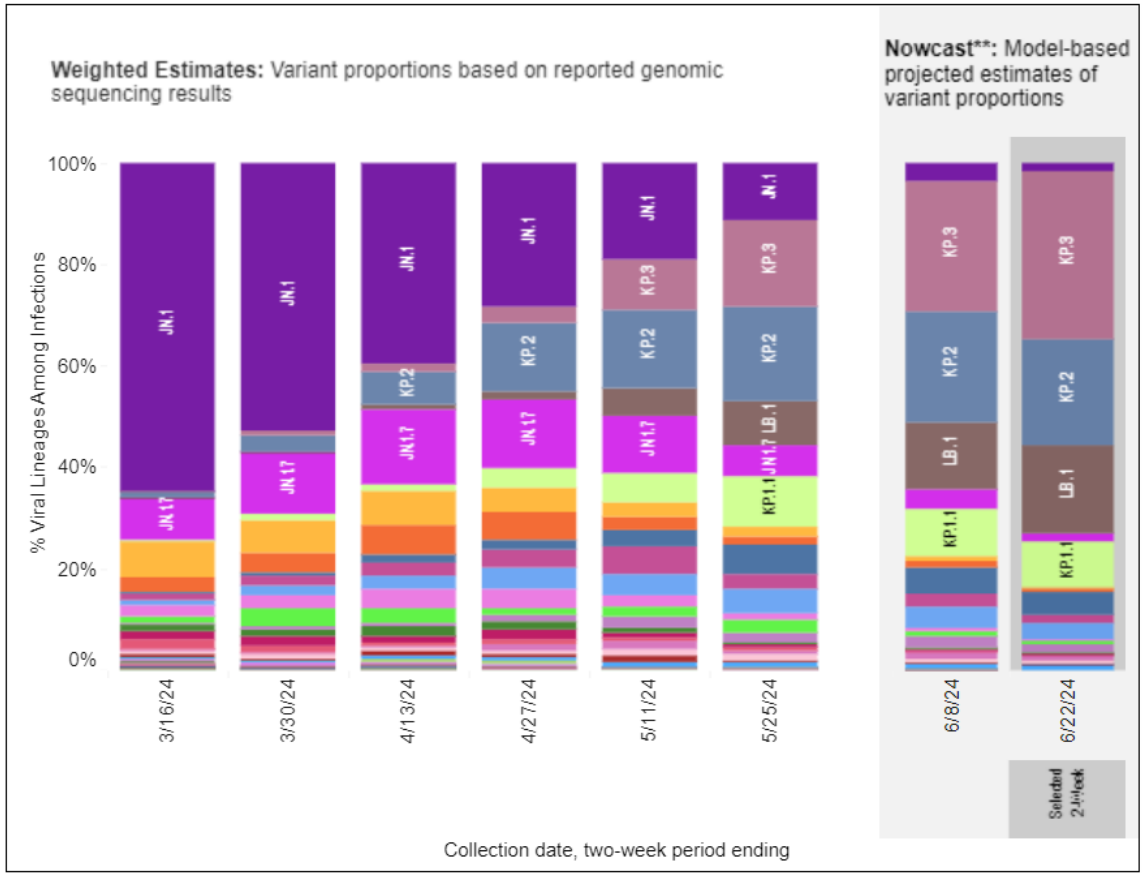
gene copies ≠ confirmed clinical cases

COVID-19 Variant Proportions

Weighted and Nowcast Estimates in United States for 2-Week Periods in 3/3/2024 – 6/22/2024

Nowcast Estimates in United States for 6/9/2024 – 6/22/2024

Hover over (or tap in mobile) any lineage of interest to see the amount of uncertainty in that lineage's estimate.



USA

WHO label	Lineage #	%Total	95%PI
Omicron	KP.3	33.1%	22.0-46.3%
	KP.2	20.8%	16.4-26.0%
	LB.1	17.5%	8.2-32.5%
	KP.1.1	9.0%	6.0-13.3%
	JN.1.16.1	4.4%	2.9-6.6%
	JN.1.11.1	3.2%	2.0-4.9%
	KS.1	1.8%	0.9-3.3%
	JN.1.7	1.7%	1.2-2.3%
	JN.1.16	1.6%	1.0-2.6%
	JN.1	1.6%	1.2-2.2%
	XDV.1	1.4%	0.7-2.6%
	KW.1.1	1.0%	0.5-1.9%
	JN.1.13.1	0.6%	0.4-0.9%
	KQ.1	0.4%	0.2-0.8%
	JN.1.18	0.4%	0.2-0.6%
	JN.1.8.1	0.4%	0.2-0.5%
	JN.1.32	0.2%	0.1-0.2%
	XDP	0.1%	0.1-0.2%
	JN.1.4.3	0.1%	0.0-0.4%
	KV.2	0.1%	0.0-0.1%
	BA.2	0.0%	0.0-0.1%
	BA.2.86	0.0%	0.0-0.0%

Source: https://covid.cdc.gov/covid-data-tracker/#variant-proportions

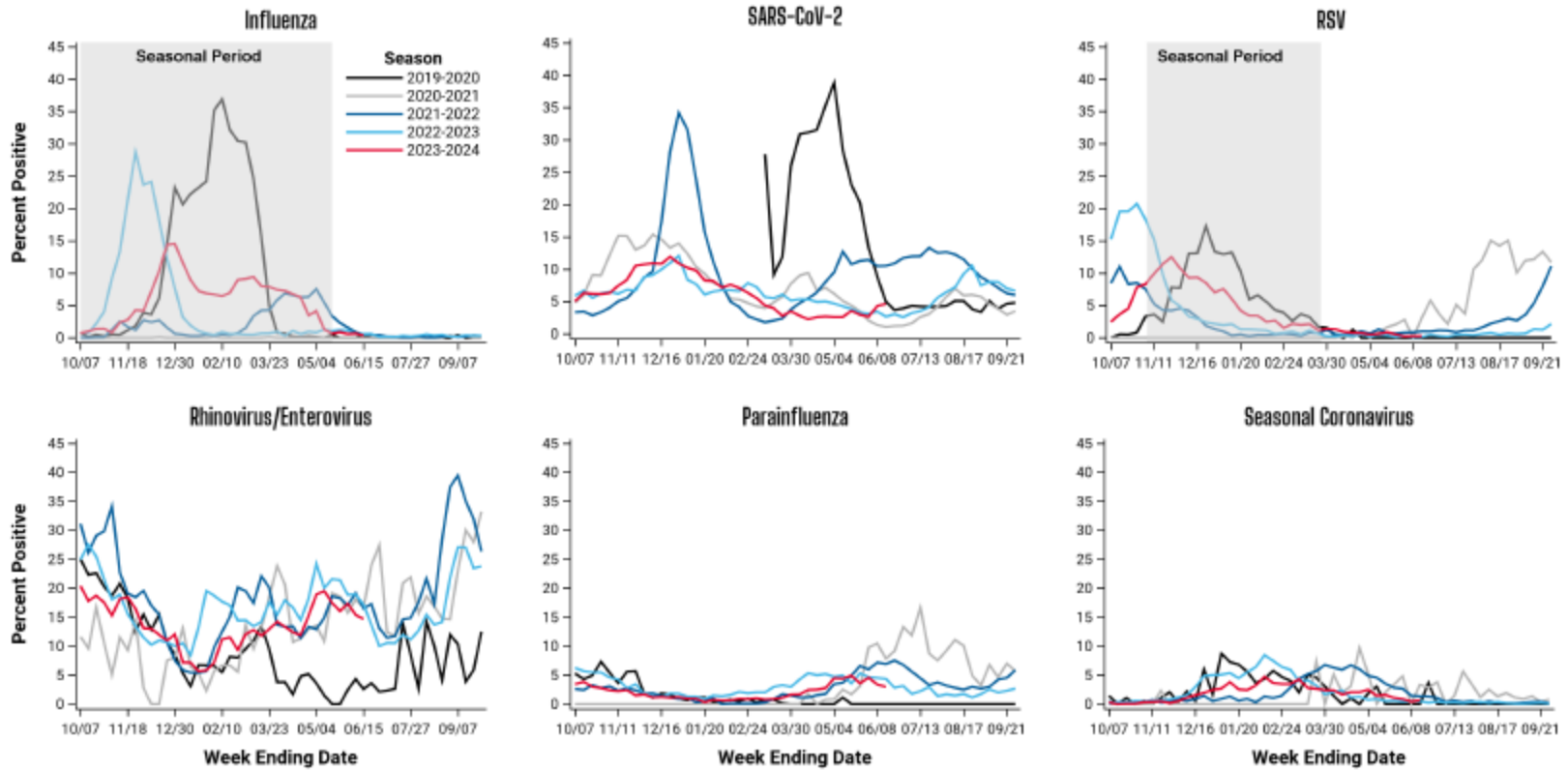
Chicago Respiratory Virus Surveillance Report – Current Week & Cumulative

	Week Ending June 15, 2024		Since October 1, 2023	
Respiratory Pathogen	# Tested	% Positive	# Tested	% Positive
Influenza*	2,283	0.4	181,295	6.2
RSV*	1,553	0.3	122,029	4.6
SARS-CoV-2*	1,548	4.7	133,802	6.7
Parainfluenza	1,381	3.0	67,830	2.0
Rhinovirus/Enterovirus	626	14.7	38,416	13.4
Adenovirus	626	1.9	38,404	3.3
Human Metapneumovirus	628	2.2	38,662	2.9
Seasonal Coronaviruses†	1,379	0.7	67,595	1.9

*Represents both dualplex and multiplex PCR data. All other data represents only multiplex panels that include the specified pathogens;† Four seasonal coronavirus strains include 229E, NL63, OC43, and HKU1.

Source: Chicago Respiratory Virus Weekly Surveillance Report

Chicago Respiratory Virus Surveillance Report – Seasonal Trends



Source: Chicago Respiratory Virus Weekly Surveillance Report

Updated COVID Reporting Reminder

- With the recent changes in reporting requirements, only COVID outbreaks (*CDPH definition*: 2+ cases within 14 days) are reportable

- You no longer need to report single COVID-19 cases to us unless there are additional cases within a 14-day period

- Example 1: First case 6/1/24 and next case 6/23/24
  - NO REPORTING REQUIRED; >14 days between cases

- Example 2: First case 6/1/24 and next case 6/10/24
  - Report to CDPH using new reporting form

Infection Control Assessment and Response (ICAR) Visits

- Capacity-building visits aimed at improving infection prevention and control practices at your facility
  - We schedule the visit with you in advance at a mutually agreeable time. Please be respectful of our staff's time by being available at the start of the visit. If the team is left waiting for >15 minutes, they will start walking the floors to conduct their observations
- Non-regulatory (no fines/citations)
- All visits assess policies, audit practices, hand hygiene expectations, transmission-based precautions, and environmental cleaning and disinfection. If the ICAR is in response to an outbreak, we may assess additional practices (e.g., wound care)
- After the visit, you will receive a full copy of the completed ICAR tool, a list of key recommendations, and a summary report with findings from our EVS, hand hygiene, and PPE audits
- Feel free to reach out if you would like us to come to your facility to conduct an ICAR

Pets in Healthcare: Service Animals

Which of the following are allowed to be service animals *(may choose more than one answer)*?

a) Dogs

b) Cats

c) Ferrets

d) Miniature horses

e) Fish

f) Peacocks

g) Gerbils/Hamsters

Pets in Healthcare: Service Animals

- A service animal is any **DOG** that is individually trained to do work or perform tasks for the benefit of an individual with a disability
  - In certain circumstances, ***miniature horses*** are also allowed to be service animals

- Examples of work/tasks that a service animal can perform include, but are not limited to:
  - Guiding people who are blind
  - Alerting people who are deaf
  - Pulling a wheelchair
  - Alerting and protecting a person who is having a seizure
  - Reminding a person with a mental illness to take medications
  - Calming a person with PTSD during anxiety attacks

Source: https://www.ada.gov/resources/service-animals-2010-requirements/

Pets in Healthcare: Miniature Horses

- Miniature horses range in height from 24-34" and generally weigh between 70-100 pounds
- Can be helpful for mobility issues (e.g., steadying when having a dizziness spell or issues with loss of balance)
- When can a miniature house enter a facility:
  - Must be housebroken
  - Must be under the owner's control
  - Facility must be able to accommodate the miniature horse's size, weight, and type
  - The presence of the horse will not compromise safety requirements for the operation for the facility and other members of the public

Source: https://www.ada.gov/resources/service-animals-2010-requirements/; https://usserviceanimals.org/blog/miniature-horses-as-service-animals; https://en.wikipedia.org/wiki/Guide_horse

Pets in Healthcare: Service Animals

As per the Americans with Disabilities Act (ADA), if it is not obvious what service an animal provides, you are **only** allowed to ask two questions:

1) Is the service animal required because of a disability?

2) What work or task has the service animal been trained to perform?

You **cannot** ask for details around the person's disability, require medical documentation, require a special identification card or training documentation for the animal, or ask that the animal demonstrate its ability to perform the work or task

Source: https://www.ada.gov/resources/service-animals-2010-requirements

Pets in Healthcare: Service Animals

- Service animals be must always be under the control of the owner. The animal must be harnessed, leashed, or tethered, unless the individual's disability prevents using these devices or the devices interfere with the service animal's safe, effective performance of tasks
  - In that case, the owner must maintain control of the animal through voice, signal, or other effective controls
- People can only be asked to remove service dogs from the premises if:
  - The dog is out of control and the handler does not take effective action to control it ***OR***
  - The dog is not housebroken
- Allergies or a fear of dogs are not valid reasons to exclude a service animal from the premises

Source: https://www.ada.gov/resources/service-animals-2010-requirements/

Pets in Healthcare: Where are Service Animals Allowed in Nursing Homes

- You must allow residents' or visitors' service animals to accompany their owners in all areas of the facility where the public/residents are allowed to go
  - This includes resident rooms, dining/activities room, lobby, etc.
  - Does not include places where visitors/residents would not be allowed (e.g., the kitchen)

Source: https://www.ada.gov/resources/service-animals-2010-requirements/; https://news.va.gov/49915/service-dog-amy-comforts-vietnam-veteran/

Pets in Healthcare: Animal Assisted Therapy (AAT)

- Goal directed intervention that incorporates an animal into the treatment process
- Meant to improve physical, social, emotional, or cognitive functioning
- Provided by a credentialed therapist
- Documented and evaluated with an individualized treatment plan

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7185850/; https://www.psychologytoday.com/us/therapy-types/animal-assisted-therapy; https://www.cdc.gov/infection-control/hcp/environmental-control/animals-in-healthcare-facilities.html; https://www.1fur1.org/difference-animal-assisted-therapy-aat-activities-aaa-part-1-2/; https://animaltherapy.net/what-is-aataaa/

Pets in Healthcare: Animal Assisted Activities (AAA)

- No specific therapeutic individualized goals for the visits
- Residents can visit animals in either a common, central location or in individual resident rooms
- Not restricted to certain types of animals

Source: https://www.1fur1.org/difference-animal-assisted-therapy-aat-activities-aaa-part-1-2/; https://www.10000birds.com/visiting-bird-service-avian-pet-therapy-cheers-seniors.htm

Pets in Healthcare: AAT/AAA

- Animals who visit the facility as part of AAT or AAA should be:
  - In good health
  - Up-to-date with recommended immunizations (facility should obtain and maintain vaccination records)
  - Up-to-date with recommended prophylactic medications (e.g., heartworm medications)
  - Routinely screened for enteric parasites
  - Free of ectoparasites (e.g., fleas/ticks)
  - Clean and well groomed (ideally bathed within 24 hours prior to the visit)
  - Free of wounds or broken skin
- Animal handlers should also be in good health

Source: https://www.cdc.gov/infection-control/hcp/environmental-control/animals-in-healthcare-facilities.html

Pets in Healthcare: Benefits

Potential benefits
Increased physical activity
Improved survival in cardiovascular disease
Improved circulatory hemodynamic responses
Less behavioral disturbance in demented patients
Improved socialization in demented patients
Weight maintenance in demented patients
Less anxiety, fear in depressed patients
Improved social behavior in schizophrenics
Less loneliness

Table 1

Studies on use of animals in dementia.

Study	Type of study	*N*	Summary of results
Kongable et al. [7]	Case series/observational	12	Demented subjects had more social behaviors in presence of animal
Richeson [8]	Case series/observational	15	Animal therapy reduced amount of behavioral disturbance
Moretti et al. [9]	Controlled, unblinded, prospective	21	No difference between control and intervention, both had improved MMSE and lower GDS scores
Sellers [10]	Case series/observational	4	Subjects had less agitation and more social behavior with pet present
Edwards and Beck [11]	Case-control/prospective	62	Subjects exposed to a fish tank had greater weight gain ($P < .000$)
Bernstein et al. [12]	Self-controlled, prospective, observational	33	Longer conversations in subjects with animals present
Fick [13]	Self-controlled, prospective, observational	36	More social behavior when animals present
Tamura et al. [14]	Controlled, unblinded, prospective, observational	13	Social response similar to real or toy dog

Open in a separate window

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4248608/

Pets in Healthcare: Risks

Infectious disease	Cats	Dogs	Fish	Birds	Rabbits	Reptiles§	Primates	Rodents§
Campylobacteriosis	+	+				+	+	+
Capnocytophaga canimorsus infection	+	+						
Cat scratch disease (*Bartonella henselae*)	+							
Leptospirosis	+						+	+
Mycobacteriosis			+	+				
Pasteurellosis	+	+			+			
Plague	+			+			+	+
Psittacosis				+				
Q fever (*Coxiella burnetti*)	+							
Rat bite fever (*Spirrillum minus, Streptobacillus monliformis*)								+
Salmonellosis	+	+		+	+	+	+	+
Tularemia	+				+			+
Yersiniosis					+	+	+	+

Infectious disease	Cats	Dogs	Fish	Birds	Rabbits	Reptiles§	Primates	Rodents§
Ancylostomiasis	+	+					+	
Cryptosporidiosis	+							
Giardiasis	+	+					+	
Toxocariasis	+	+					+	
Toxoplasmosis	+	+					+	

Infectious disease	Cats	Dogs	Fish	Birds	Rabbits	Reptiles§	Primates	Rodents§
Lymphocytic choriomeningitis							+	
Rabies	+	+						

Infectious disease	Cats	Dogs	Fish	Birds	Rabbits	Reptiles§	Primates	Rodents§
Blastomycosis		+						
Dermatophytosis		+			+		+	+

Therapy dogs have also been found to have C. diff and MRSA on their paws/fur after visiting an acute care hospital.

Source: https://www.cdc.gov/infection-control/hcp/environmental-control/animals-in-healthcare-facilities.html; https://www.sciencedaily.com/releases/2009/05/090507101820.htm

Pets in Healthcare: Infection Prevention & Control

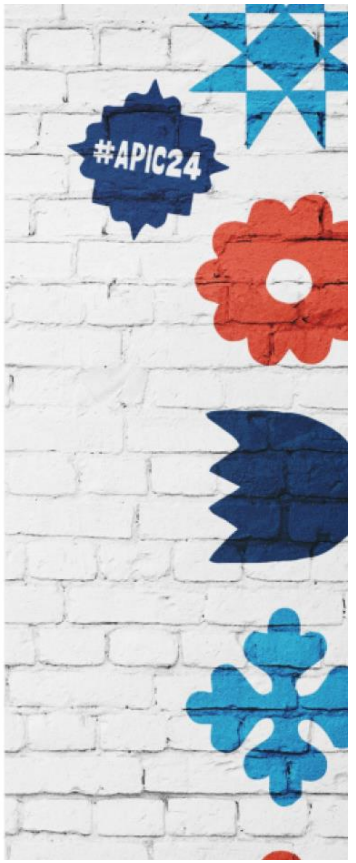
- Imperative that residents and staff **always** perform hand hygiene after handling animals
- Residents should avoid contact with animal urine or feces
  - If an accident occurs, wear gloves (and a gown if splashes or sprays are expected) when cleaning it up and discard soiled materials into a leakproof bag
  - Ensure proper cleaning and disinfection of the area where the accident occurred
- Do not allow animals to come into contact with a resident's open wounds or devices
- Place a barrier in between an animal and the patient's linens (e.g., a towel over a resident's sheets if the animal is on the bed)
- If an animal bite/scratch occurs, clean the wound and provide other first aid immediately, assess the need for additional medical evaluation, and complete an incident report. Assess whether the animal should be excluded from future therapy/activity visits. Continue to monitor the individual who was bitten/scratched for signs of infection.

Source: https://www.cdc.gov/infection-control/hcp/environmental-control/animals-in-healthcare-facilities.html; APIC 2024 Annual Conference Presentation by K. Lunt & M. Miller

Pets in Healthcare: Facility Policies

Basic Suggestions for Your Pet Policy

- Define categories and types of animals permitted.
- Specify ADA compliance requirements for service animals.
- Designate oversight of animal program and activities in the facility.
- Define minimal criteria for safe management of animals in the healthcare facility.
- Specify training and health requirements for animals and handlers.
- Require documentation of animal visits and contact tracing if needed.
- Preparation expected for animals prior to visits and criteria for discontinuing visits.
- Transportation of animals.
- Identify locations where animals are not permitted in the facility and reasons for exclusion.
- Define conditions when animals are not permitted.
- Environmental control measures (animal hygiene, clean up, waste disposal).
- IPC department notification when visitation is expected.



Source: APIC 2024 Annual Conference Presentation by K. Lunt & M. Miller

The Importance of Resident Safety in Infection Prevention and Control

Source: https://www.istockphoto.com/search/2/image-film?phrase=infection+control

Recommended Infection Prevention and Control Strategies

- Ensure your staff perform hand hygiene. If wall-mounted hand sanitizer is sparse in your facility, we encourage you to use the pocket-sized hand sanitizers we distributed to your facility
- Continue to educate your staff on the importance of infection prevention control practices
- Conduct regular audits on practices such as hand hygiene and environmental cleaning

Source: https://www.shutterstock.com/image-illustration/containing-disease-team-containment-infectious-germs-2057442260; https://www.cdc.gov/healthcare-associated-infections/hcp/infection-control/index.htm

What Does a Safe and Effective Infection Prevention and Control Program Look Like?

- Prevention practices and infection control protocols
- Providing adequate isolation for pathogens
- Appropriate use of antimicrobials, including antibiotics
- Prompt identification of residents who are at risk of developing an infection
- Competent staff (education and training)
- Microbiology and laboratory support
- Occupational health (including vaccination of staff members)
- A clean and safe environment includes monitoring adherence to infection prevention and control practices

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8528059/ https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcSoCVTlKKdyBjU2tdDVw-AIFnCpk2WzPnz-Pw&s

Why good infection prevention and control practices are everyone's responsibility?

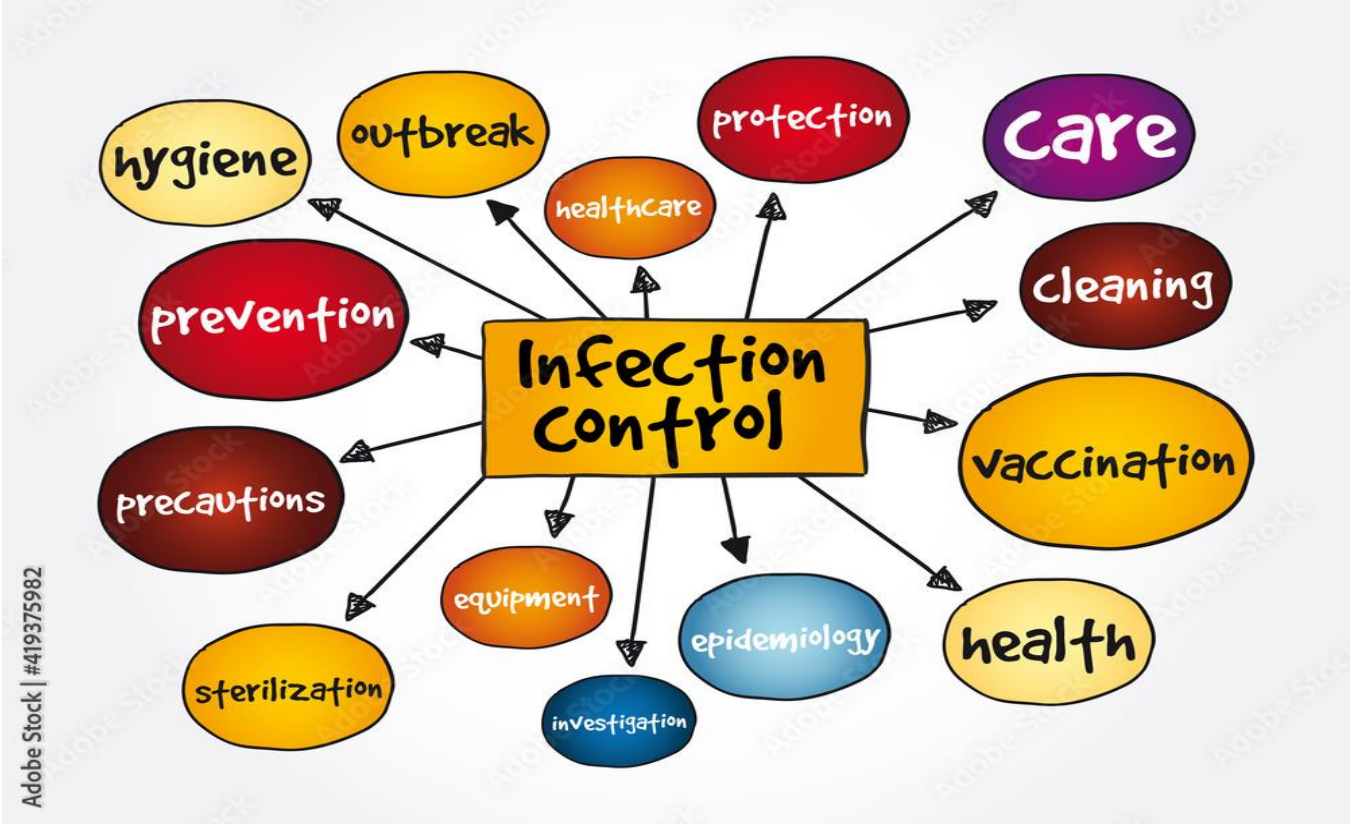
- This can provide a safe environment for patients in additional to practical bedside measures

- This tactic helps healthcare facilities determine ways to improve systems in place, prevent future problems from occurring, prevent and manage the spread of infections, and maintain strict standards for patient safety.

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10801286/; www.gettyimages.com/detail/illustration/cronavirus-family-royalty-free-illustration/1216798006

Best Practices and Strategies for Maintaining Infection Prevention and Control in Healthcare Facilities

- Hand Hygiene
- Personal Protective Equipment
- Environmental Cleaning
- Screening and Isolation
- Education and Training
- Sterilization and Disinfection
- Surveillance and Reporting
- Vaccination



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10801286/

How Does Infection Prevention and Control Fit Into a Safety Program?

- Infection Prevention and Control is a key component of ensuring resident safety and quality control in healthcare facilities

- Preventing healthcare associated infections is an important goal

- The basis of good infection control in the workplace is to practice standard precautions. Proper infection prevention and control protocols and procedures should be always followed to maintain safety

Source: https://www.shutterstock.com/image-illustration/virus-vaccine-flu-coronavirus-medical-fight-1667085835; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10801286/; https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/workplace-safety-infection-control

Questions & Answers

For additional resources and upcoming events, please visit the CDPH LTCF HAN page at:
https://www.chicagohan.org/covid-19/LTCF