

# MIT Medical and the COVID-19 Pandemic: Looking Back, Looking Forward

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# MIT COVID-19 Response Timeline

- January

- 21: Began monitoring coronavirus
- 24: Message to entire MIT Community
- 27: MIT Medical and EM begin holding daily meetings
- 31: Travel restrictions from Mainland China


- February:

- 2: Travel reporting form, tracking travelers and self-quarantine for those returning from China
- 8: First MIT person under investigation
- 27: Travel reporting form for all travel with self-quarantine

- March

- 5: Limited travel, events, and visitors (letter to the community from President Reif)
- 10: Decision to move undergrads out and cancel classes for one week
- 12: Employees work from; additional day of canceled classes to speed up undergraduate move-out
- 14: Research ramp-down decision
- 20: Graduate students move-out encouraged
- 24: *First positive COVID-19 case in the MIT community*; MIT delivers first load of PPE to local hospitals in need
- 25: Limited Access Plan begins
- 30: Remote learning begins

**BE LIKE THE MANDALORIAN.**

- 
- \* Keeps distance from others \*
  - \* Avoids large groups \*
  - \* Never touches his face \*

**THIS IS THE WAY.**

# Sanitize your hands!





# Ramping down MIT Medical



- All MIT Medical staff who could work from home started doing so 3/16
- Within a week, Urgent Care converted to appointments only
- Daily clinical huddles
- ~25 people total in building
- 18 month telehealth implementation in 2 weeks
- Developed the “swab team” to assess and test patients with COVID symptoms

# Around Campus...



# Testing, testing, testing



- MIT Medical fortunate to have adequate PPE and testing supplies
- COUHES-approved research study looking at surveillance testing of students and associated staff in MIT Housing
- We ramped up our testing efforts in mid-March as partnership with Broad came on-line
- Increased testing volume required a different strategy



# Testing 2.0





# COVID Care

## Quarantine/Isolation Facility Support (Burton-Connor)

- Up to 300 private spaces in a dormitory to facilitate continued remote studies and work
- Self-monitoring of vitals and symptoms
- MIT Medical clinical staff (RN-level or higher) on site when operational

## Alternative Care Site (Sean Collier Care Center)

- State-licensed “ward-style” facility for up to 75 patients with on-site physician staffing 24/7 located in Johnson Athletic Center
- Patients who would benefit from “eyes on” clinical care, but who are at very low risk of rapid escalation
- Regular vitals and symptom review by clinicians, ability to provide intravenous fluids, limited nasal canular oxygen, minor wound care and chronic condition management
- Currently being decommissioned with ability to be redeployed in ~72 hours

# Sean Collier Care Center

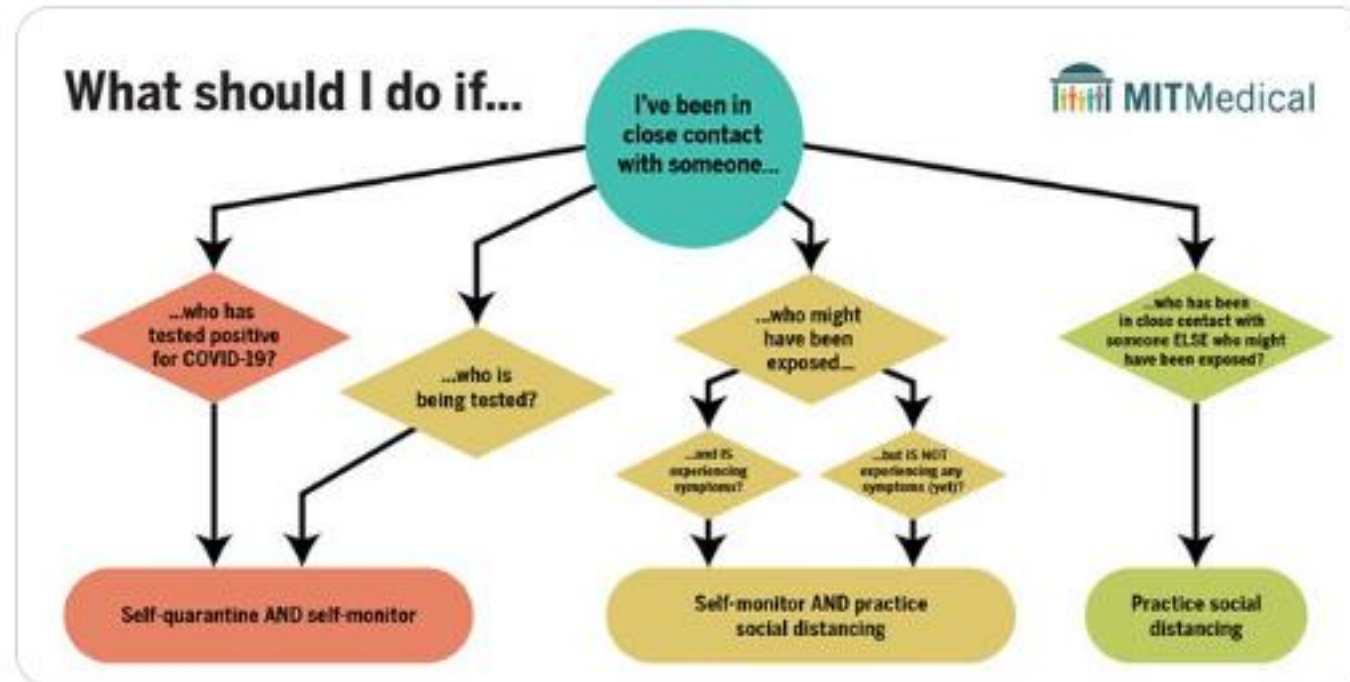


# Reaching our patients



**MIT Medical** @MITmedical · Mar 16

You've been practicing social distancing, but do you need to do more? What if someone in your lab is being tested for COVID-19 or gets a positive diagnosis? What if it's a friend of a friend? We have a flow chart with answers. [medical.mit.edu/Howto](https://medical.mit.edu/Howto)



1



133



166

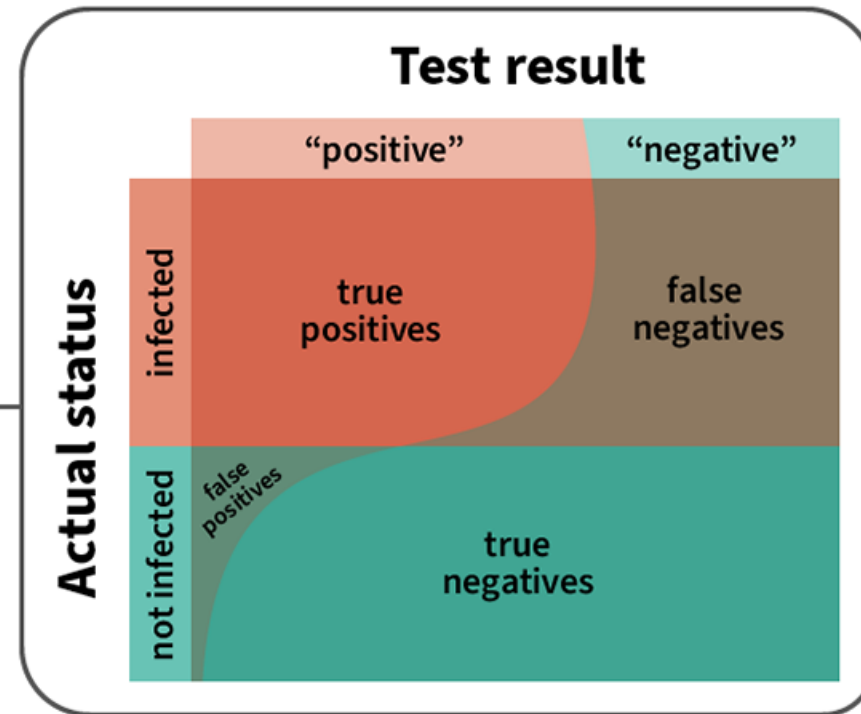




# Reaching our patients

The COVID-19 swab test is highly **specific** but not as **sensitive**.

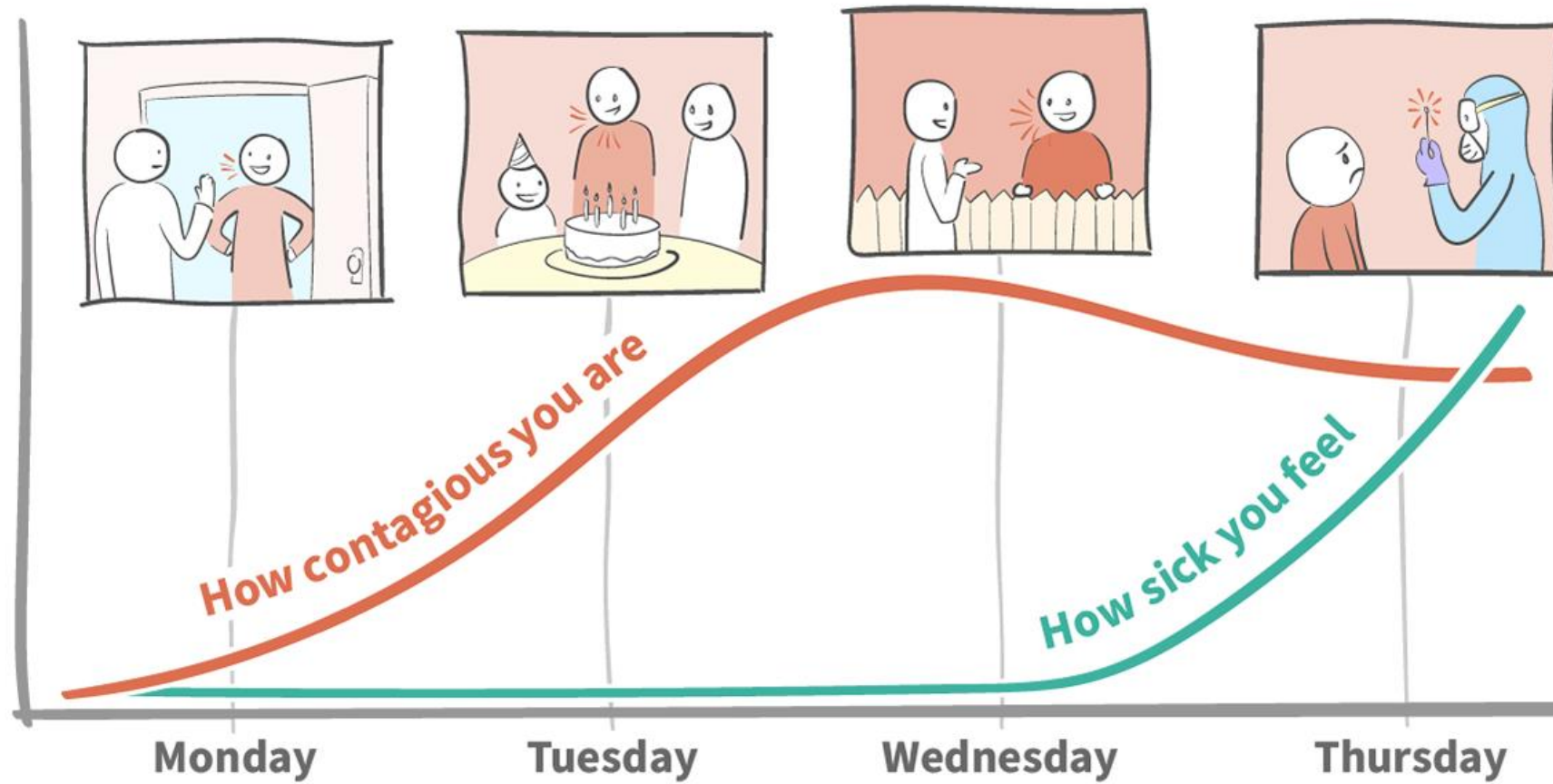
That means a positive result is almost always true, but a negative result is sometimes false.




$$\text{Sensitivity} = \frac{\text{number of true positives}}{\text{number of those tested who really are infected}} = \text{"how many of the infections did we find?"}$$

$$\text{Specificity} = \frac{\text{number of true negatives}}{\text{number of those tested who really are not infected}} = \text{"how many of the healthy people did we clear?"}$$

# Reaching our patients



# Reaching our patients




**Managing Stress around COVID-19**

Teletherapy group for MIT students

Thursdays, 4–5 p.m.  
via video conference

To learn more and sign up, contact  
**Xiaolu Hsi, PhD** • [hsix@med.mit.edu](mailto:hsix@med.mit.edu)

Organized by Student Mental Health and Counseling Services 

worsened under COVID-19



**The most common ways COVID-19 has affected student's lives:**

Launch of a new series of podcasts: Stress Management During Covid-19, Strategies to Reduce Procrastination, Hacking your Potential, Black Mental Health Matters, Speculative Fiction and

- Stress/anxiety - 91%
- Disappointment or sadness - 81%
- Mindfulness and Self Care
- Loneliness or isolation - 80%
- Financial setback- 48%

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## Teletherapy groups for MIT students — Spring 2020 Student Mental Health & Counseling Services

To learn more about any group, please contact the group leader(s). To get a referral for a pre-group screening, please call 617-253-2916. All groups currently meet via video conference.



### DISCUSSION GROUPS

#### Managing Stress around COVID-19

This discussion group focuses on ways to better manage emotional responses to COVID-19, such as anxiety; feelings of isolation; sleep difficulties; difficulty with procrastination and focusing; challenges in maintaining a healthy and productive daily routine; difficulty connecting with peers, friends, and loved ones; and anxiety related to the sociopolitical implications of the pandemic. Led by Xiaolu Hsi, PhD ([hsix@med.mit.edu](mailto:hsix@med.mit.edu))

Open to: Undergraduate & Grad students  
Meets: Thursdays, 4–5 p.m.

### SKILLS GROUPS

#### ADHD Information and Skill Group, Undergraduate

This group will answer questions about the nature and impact of ADHD, how it's diagnosed, and treatment options. Each session will include a skill-training segment covering coping mechanisms such as time management and organizational skills, management of difficult emotions and problematic thinking patterns, and self-advocacy. Led by Xiaolu Hsi, PhD ([hsix@med.mit.edu](mailto:hsix@med.mit.edu))

Open to: Undergraduates who have been diagnosed with and treated for ADHD  
Meets: Mondays, 3–4 p.m.

#### ADHD Information and Skill Group, Graduate

This group will answer questions about the nature and impact of ADHD, how it's diagnosed, and treatment options. Each session will include a skill-training segment covering coping mechanisms such as time management and organizational skills, management of difficult emotions and problematic thinking patterns, and self-advocacy. Led by Xiaolu Hsi, PhD ([hsix@med.mit.edu](mailto:hsix@med.mit.edu))

Open to: Graduate students who have been diagnosed with and treated for ADHD  
Meets: Mondays, 11 a.m.–12 p.m.

#### Cognitive Behavioral Therapy (CBT) & Self-Compassion Toolkit — Part I

This four-week group will be an introduction to CBT that will employ self-compassion strategies to facilitate changes in unhealthy or unhelpful core beliefs, thinking patterns, and behaviors. This group is part didactic and part process/reflective dialogue. After learning CBT and self-compassion strategies, the group will be a place for support that will include sharing personal experiences and providing constructive feedback. Led by Maureen Rezendes, PhD ([mrezendes@med.mit.edu](mailto:mrezendes@med.mit.edu)) and Stephanie Dinius, EdM ([sdinius@med.mit.edu](mailto:sdinius@med.mit.edu))

Open to: Undergraduate & Grad students  
Meets: Wednesdays, 12:15–1:30 p.m.  
Thursdays, 2:30–4 p.m.

#### Cognitive Behavioral Therapy (CBT) & Self-Compassion Toolkit — Part II

This is a continuation of the IAP course "CBT & Self-Compassion" and is intended for students who have completed Part I. This group is a process and reflective dialogue group that provides space for continued support around changing core beliefs, thinking patterns, and behaviors through sharing personal experiences and providing constructive feedback. Led by Maureen Rezendes, PhD ([mrezendes@med.mit.edu](mailto:mrezendes@med.mit.edu))

Open to: Undergraduate & Grad students  
Meets: Wednesdays, 2:30–4 p.m.

#### Thesis Coaching Group

The group focuses on skills for better time management, organization, thesis writing, interpersonal negotiation (especially with advisors and committee members), self-care, and stress management. Led by Xiaolu Hsi, PhD ([hsix@med.mit.edu](mailto:hsix@med.mit.edu))

Open to: PhD students — thesis work  
Meets: Thursdays, 2–3 p.m.

### WORKSHOPS

#### Perfectionism Workshop II

If you are an MIT student who suffers from perfectionism, don't suffer in silence. Attend this workshop series to learn about perfectionism and strategies you can use to keep it from hijacking your academic experience. Led by Maryam Khodadoust, PsyD ([khod@med.mit.edu](mailto:khod@med.mit.edu))

Open to: Undergraduate & Grad students  
Meets: Tuesdays 3:30–5 p.m.

Updated 2020-04-28

[medical.mit.edu/groups](https://medical.mit.edu/groups)



# Looking forward – bringing the community back to campus

- Decisions, decisions, decisions – hundreds of dedicated staff, students and faculty
- How do we re-populate campus in a way that decreases risk of transmission?
  - Physical Distancing and Face Coverings
  - Testing
  - Tracing
- Less density in residences – 1/room, 3/WC
- Less density in classrooms and labs
- Daily Health Attestation and Surveillance Testing Program

# Testing Considerations

## Return-to-Campus Testing

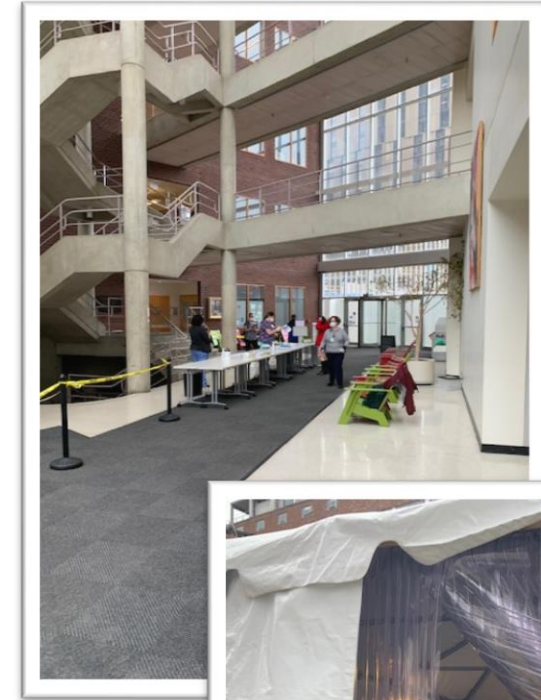
- Prior to returning to campus, within 2-3 days of anticipated first day
- What: Viral RT-PCR collected by swabbing of both nostrils for 20-30 seconds each
- Where: Collected at MIT Medical testing tent/trailer
- Test processing by Broad Institute with <24 hour turn-around
- We also intend to test personnel who have been working on campus throughout

## Surveillance and Antibody Testing

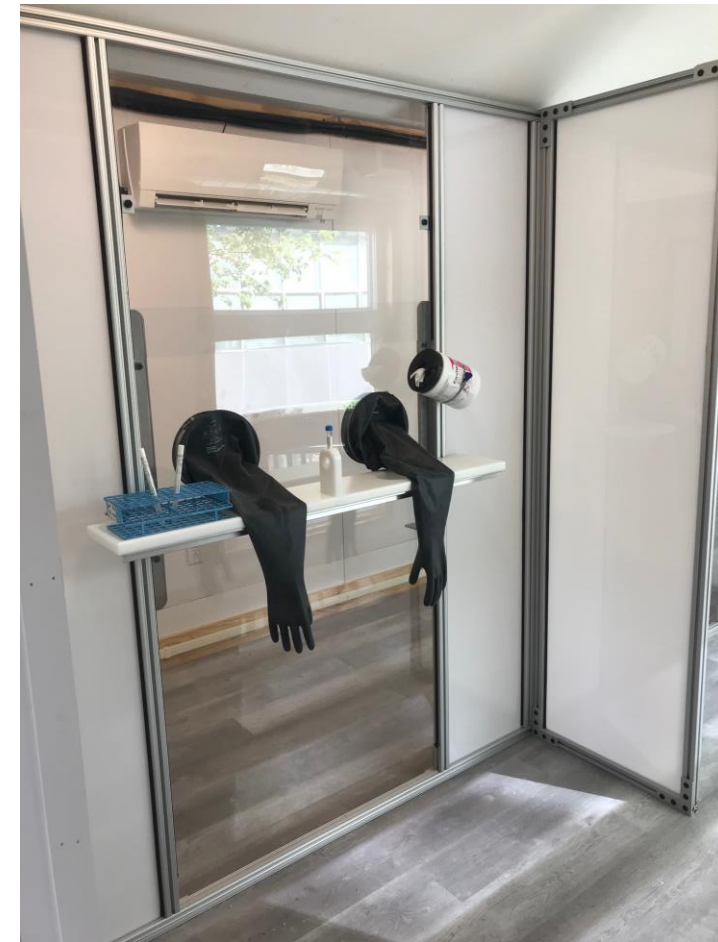
- We are working with campus and external experts to develop our surveillance testing strategy
- At minimum, this will likely twice weekly testing of on-campus community members
- Pros and cons to every strategy – need to weigh accuracy, acceptability, convenience and cost
- No role for antibody testing at this time as there is a high false positive rate; this may be a tool we use in the future

## Symptomatic Testing

- Those who develop symptoms of COVID-19 will be tested via an occupational medicine/student health pathway that keeps them separate from asymptomatic individuals
- Additional clinical information may be collected (e.g. vital signs, additional symptom history)
- Testing process is otherwise the same
- Symptomatic individuals must quarantine while awaiting results



# Testing 3.0





# After a positive test

## What happens if my test is positive?

- You will be required to isolate at home for up to 14 days, perhaps longer if still symptomatic
- You will be asked to provide the Occupational Medicine/Student Health team with a list of the people you have been in close contact with during the 48-72 hours prior to a positive test so that contact tracing can be completed; you may also be contacted by your local public health department
- We will check in with you periodically during the isolation period to make sure you are ok, and advise you when it is ok to return to your work/lab

## Contact tracing

- People who have been in close contact with a person known to be positive will be contacted by phone and a history of the exposure will be obtained; they may also be contacted by a local public health department contact tracer
- Testing will be provided to close contacts; they will need to quarantine while awaiting results and possibly for longer
- If there are indications of a “cluster” in a particular area, we will advise on what public health measures need to be taken next (e.g. deep cleaning, everyone stays home for a period of time, etc.)
- Every situation is handled individually – it is not one size fits all
- We are exploring technology solutions to help with contact tracing efforts

# Return to campus health attestation

☒ Acknowledgement Form

☐ Training

☐ Medical Test

☒ Attestation Form

Daily COVID-19 Attestation

Your last submission

Do you experience any of the following symptoms?

Fever or feeling feverish

Sore throat

New cough (not related to chronic conditions)

New nasal congestion or new runny nose

Muscle aches

New loss of smell

Shortness of breath

No

Yes

Continue

[reset](#)

☒ Acknowledgement Form

☐ Training

☒ Medical Test

☒ Attestation Form

You have completed your medical test. Please continue to the Daily COVID-19 Attestation form.

View Recent Test Results

Continue to Attestation Form

☒ Acknowledgement Form

☐ Training

☐ Medical Test

☒ Attestation Form

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No

Yes

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No

Yes

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No

Yes

ocial distancing

No

Yes

Submit





# Physical distancing and face coverings are key

**Be safe...wear a face covering!**

**Wear a face covering in:**

- lobbies, hallways
- stairwells, elevators
- sidewalks, streets
- bus stops
- parking lots, garages
- **and anytime around other people!**

**Face coverings are required**  
in common areas and public spaces,  
per order of the City of Cambridge.

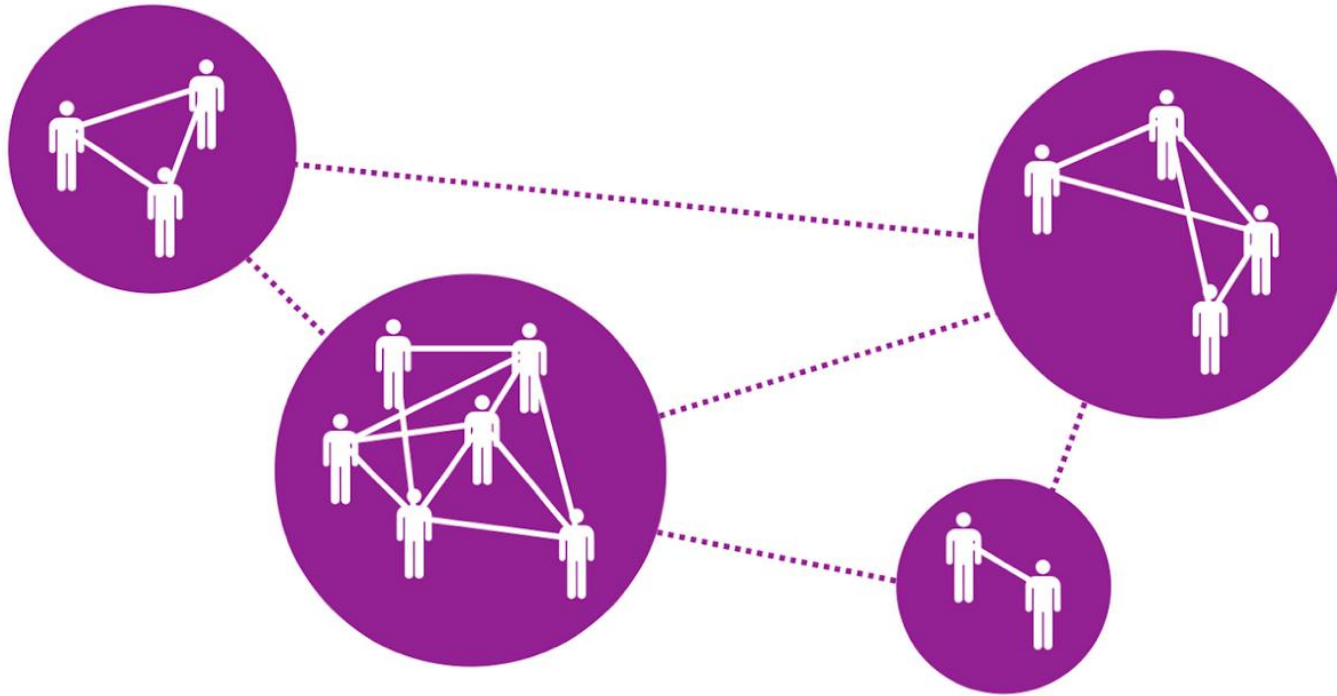


Massachusetts  
Institute of  
Technology





# Thinking about “Pods”



- Within a pod, social distancing is relaxed (similar to family members in a home)
- Spread of COVID-19 could be contained to the pod, as long as the pod boundaries serve as a firewall
- Pros and cons of various sizes
- Pods may increase transmission, but there are benefits associated with increased happiness
- If pods are carefully constructed and paired with appropriate well-designed testing protocols, the increase in spread appears to be manageable and may be worth the trade-off.

Source: Peko Hosoi <https://idss.mit.edu/vignette/rules-of-thumb-for-reopening-4/>

# Other considerations

- Surveillance testing is most valuable when there is high participation
  - Opt-out rates >33% renders surveillance ineffective in controlling spread
  - Will require strong and coordinated messaging
- Quarantine/isolation capability for on-campus residents will be required
  - With large on-campus population, potential need >100 beds
  - Central vs. Distributed isolation capability
  - Approach enhanced by presence of small (<10 bed) on-site observation area
- Will need to maximize the number of people in the community who receive a flu vaccine this fall; discussions underway around how best to do this

# A few words about FSILGs

- FSILGs are integral to the MIT residential education experience – and MIT leaders appreciate the role our organizations play in our community
- Virtually every discussion and decision considers what the impact might be to the MIT FSILG system, both individually and collectively
- Our input is necessary and valued – FSILG Ops Team providing input

## **Bottom Line**

Leading our organizations through this pandemic will require flexibility, creativity and teamwork by all involved





Building a healthier MIT,  
so MIT can build a better world.

# V-A-R Model

*I believe you.*

## 1. VALIDATE THEIR FEELINGS

Let them know what they're feeling is okay and that you believe them. Validation sounds like...

- “That makes sense.”
- “That sounds difficult.”
- “I’m sorry you are struggling right now.”

## 2. APPRECIATE THEIR COURAGE

Speaking up can be a challenging step — let them know it’s a good one. Also show you’re there to support them. Affirmation sounds like...

- “Thank you for sharing.”
- “You are not alone.”
- “I’m here for you.”

*Thank you so much for talking to me. That took a lot of courage.*

*I think it might be helpful to talk to someone.  
I can stay with you while we call/text a hotline.*

## 3. REFER THEM TO SKILLS AND SUPPORT

Let them know help is available and refer them to appropriate resources. Refer sounds like...

- “Sometimes taking time for self-care and listening to a comedy podcast helps me, can we do that together?”
- “I’ve been using this meditation app. It’s really helped me slow down my thoughts.”
- “I think it might be helpful to talk to someone. I can stay with you while we call/text a hotline.”

## Ⓑ Testing Strategy: Test Types & Innovations

	PCR	Antigen	PCR Pooling	Antibody (Serology)
	<ul style="list-style-type: none"> <li>• <b>Viral DNA/RNA test</b> from nasal/throat or saliva</li> <li>• Samples typically <b>processed in scale clinical labs or large hospitals</b> with complex testing equipment</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Nasal swab test to detect viral surface proteins (antigens)</b></li> <li>• Samples typically <b>processed in at-home, at doctor's offices or clinics</b> with \$500 readers</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Pooling of PCR samples</b> to run same process reducing cost for low-risk testing</li> <li>• <b>Useful for large populations like colleges</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Detection of the antibody response to the virus</b></li> <li>• <b>Backwards looking surveillance tool</b></li> <li>• Samples typically processed in large hospital or clinical <b>labs</b></li> </ul>
<b>Timing</b>	<b>Early</b> (can detect ~2-3 days before symptoms present)	<b>Later than PCR</b> (often detection commences in line with onset of symptoms)	<b>Early</b> (in line with PCR testing)	<b>During or after-the-infection</b>
<b>Accuracy</b>	<b>High</b> (95% sensitivity) reported but lower (80%) in practice	<b>Medium</b> (80% PCR sensitivity) lower in practice (limited data)	<b>High</b> same as PCR, but requires additional follow up testing	<b>Medium</b> with false positives (~5%) a concern
<b>Commercial Cost</b>	<b>Medium</b> (~\$100+ fully-loaded cost, ~\$30-50 'at cost')	<b>Low</b> (~\$20-30 fully-loaded cost)	<b>Low</b> (~\$15-20 pooled / test)	<b>Medium</b> (~\$50-120 cost)

Sources: FDA, CDC, Bain & Company Analysis, Ginkgo Bioworks: "How to deploy millions of COVID-19 tests per day", expert interviews