



Reducing risk & facilitating a safer Return to work and school

August 2020



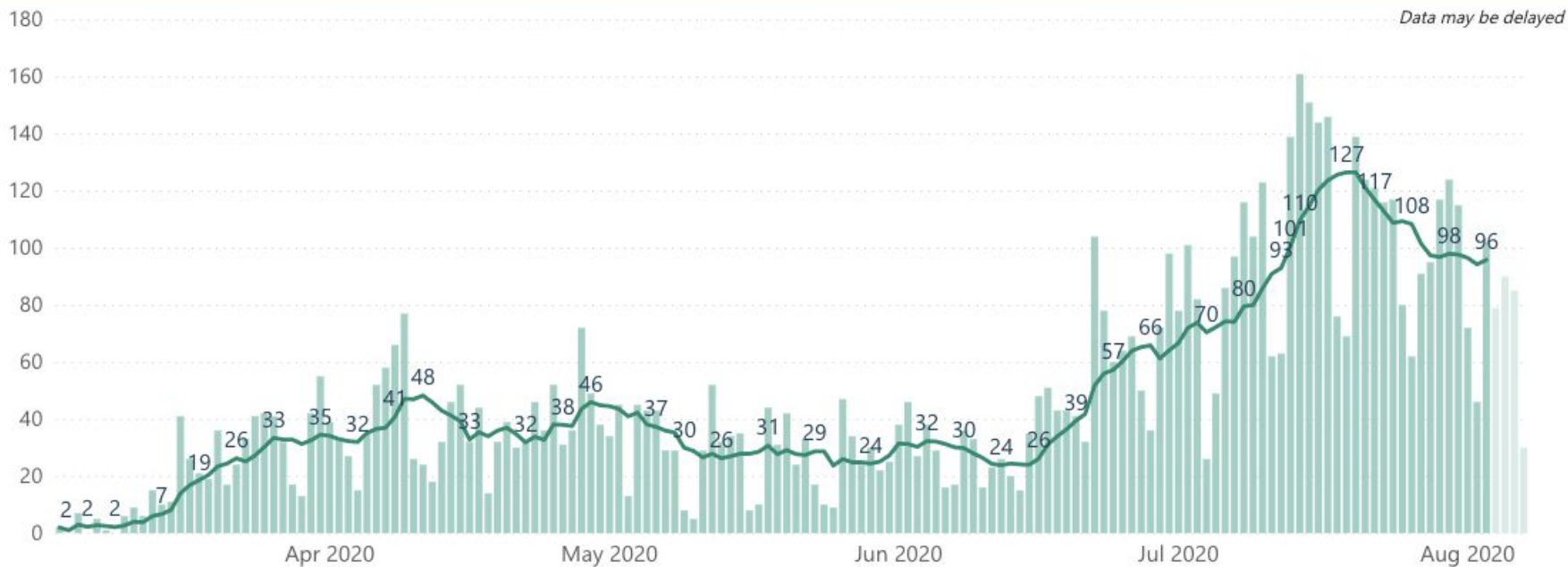
Proprietary and confidential



Agenda

- Current SF transmission stats
- Epi of COVID in schools
- Return to work and school dynamics
- Collective Go™
- Smart testing protocols
- Q&A

New Cases



Data may be delayed

7,623

Cases

67

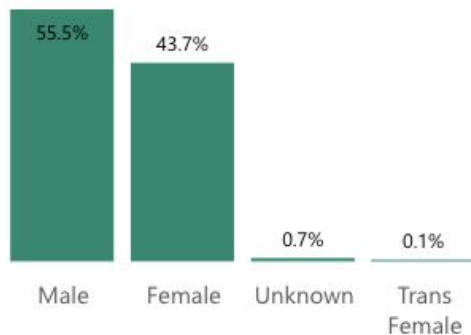
Deaths

Cumulative Cases

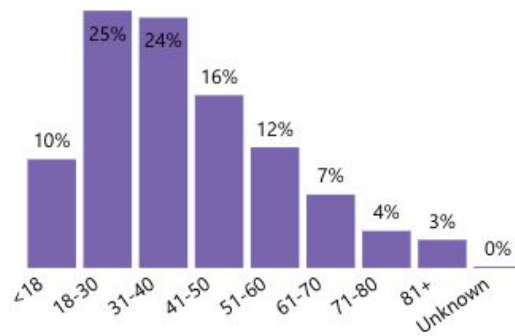
Cumulative Deaths



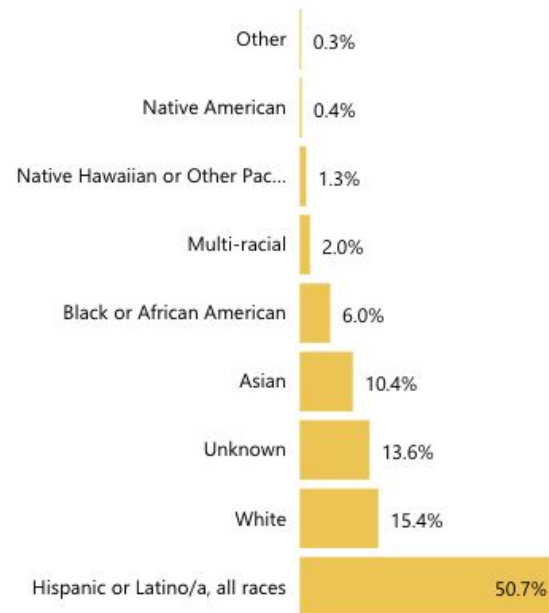
Cases - Gender



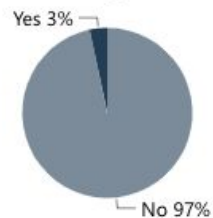
Cases - Age Group



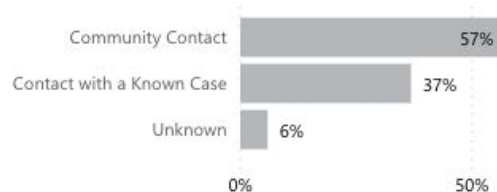
Cases - Race/ Ethnicity



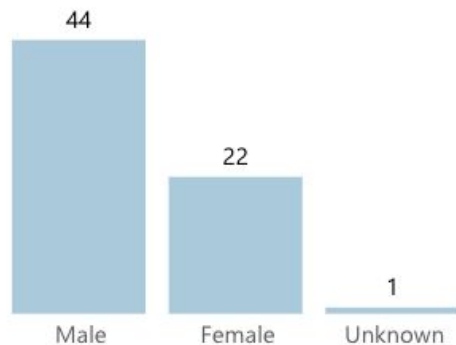
Cases - Experiencing Homelessness



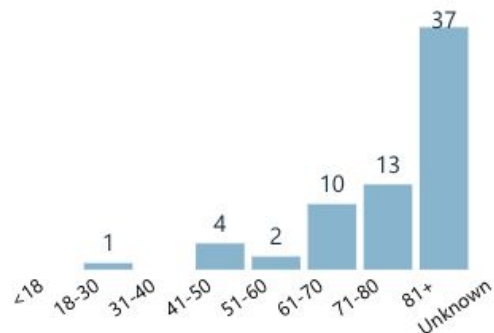
Cases - Transmission Category



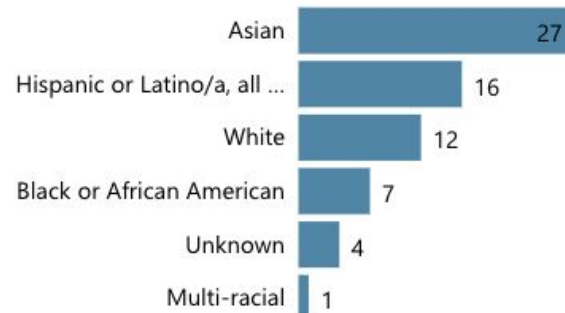
Deaths - Gender



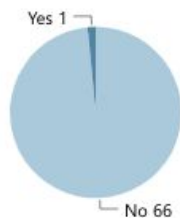
Deaths - Age Group



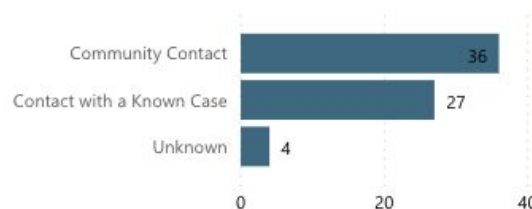
Deaths - Race/ Ethnicity



Deaths - Experiencing Homelessness



Deaths - Transmission Category



Deaths - Underlying Conditions

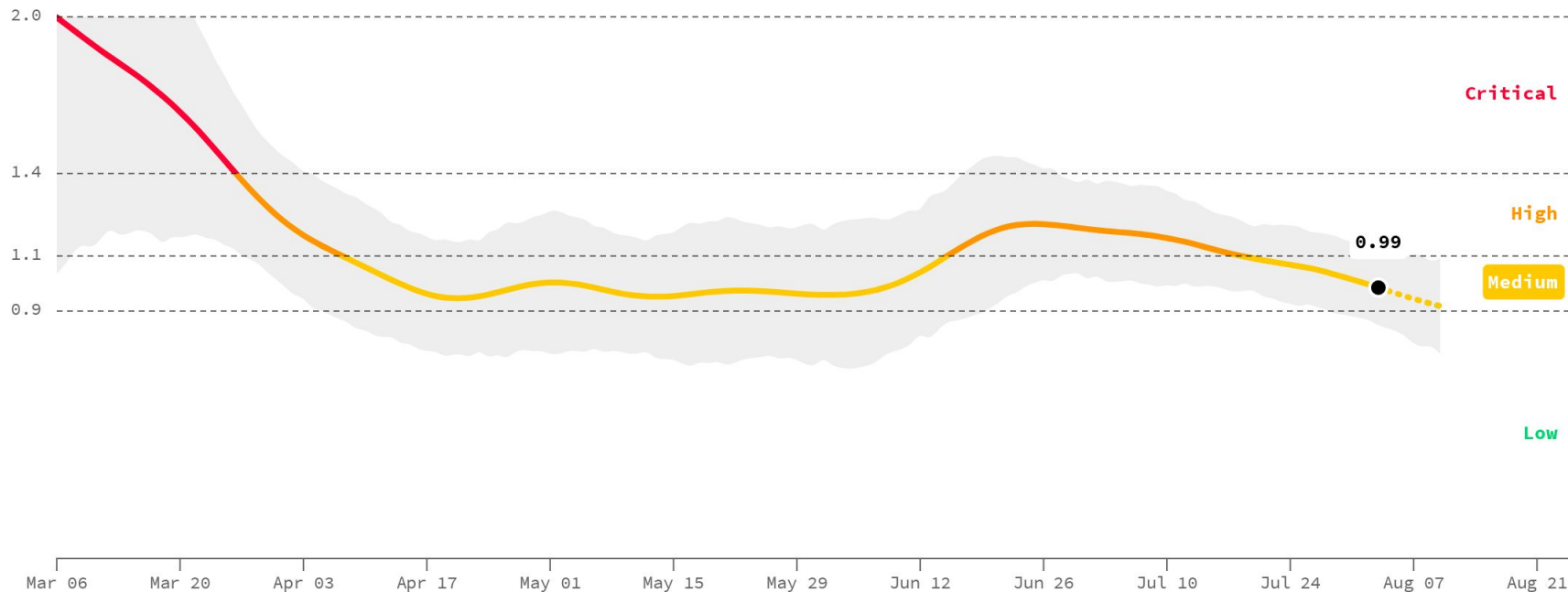


SAN FRANCISCO COUNTY, CALIFORNIA

Infection Rate

Last updated August 11, 2020

Generated by
CovidActNow.org



SAN FRANCISCO COUNTY, CALIFORNIA

Positive Test Rate

Last updated August 11, 2020

Generated by
CovidActNow.org

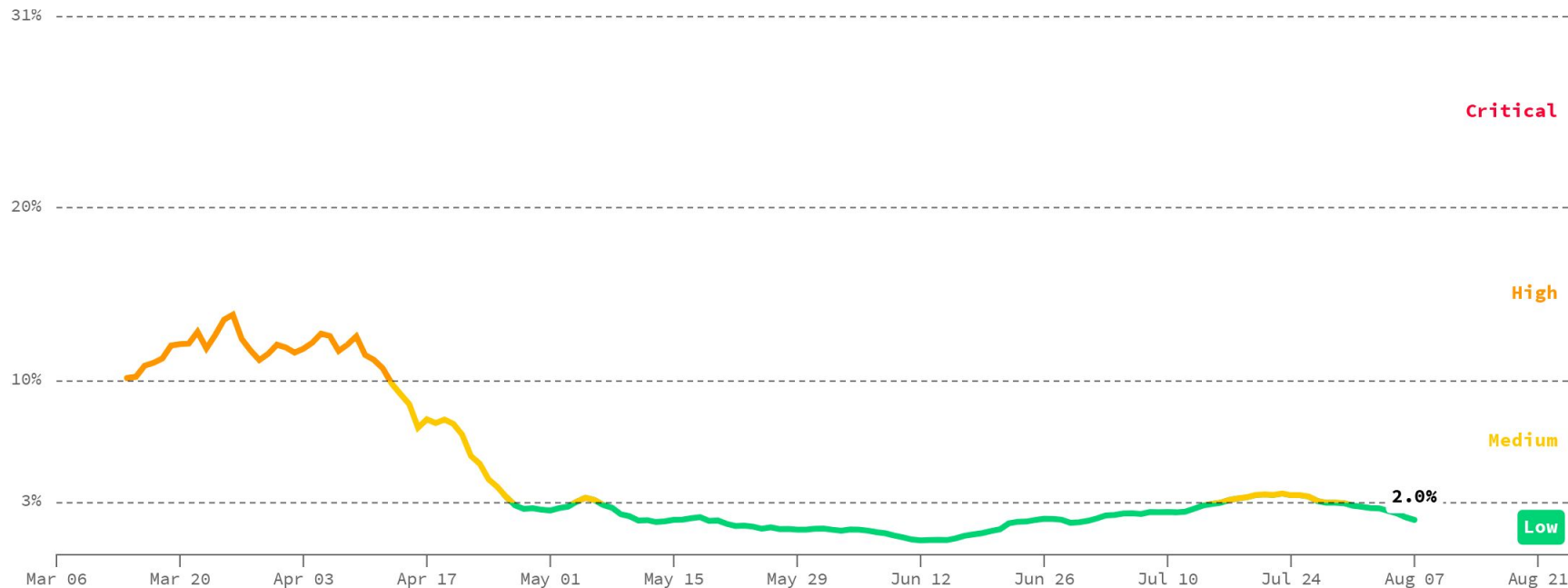


TABLE. SARS-CoV-2 attack rates*,† among attendees of an overnight camp, by selected characteristics — Georgia, June 2020



Characteristic	No.‡	No. positive	Attack rate, %
Total	597	260	44
Sex			
Male	267	123	46
Female	330	137	42
Age group, yrs			
6–10	100	51	51
11–17	409	180	44
18–21	81	27	33
22–59	7	2	29

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6931e1.htm>

Rates of coronavirus disease among household and nonhousehold contacts, South Korea, January 20–March 27, 2020

Index patient age, y	Household		Nonhousehold	
	No. contacts positive/no. contacts traced	% Positive (95% CI)	No. contact positive/no. contacts traced	% Positive (95% CI)
0–9	3/57	5.3 (1.3–13.7)	2/180	1.1 (0.2–3.6)
10–19	43/231	18.6 (14.0–24.0)	2/226	0.9 (0.1–2.9)
20–29	240/3,417	7.0 (6.2–7.9)	138/12,393	1.1 (0.9–1.3)
30–39	143/1,229	11.6 (9.9–13.5)	70/7,407	0.9 (0.7–1.2)
40–49	206/1,749	11.8 (10.3–13.4)	161/7,960	2.0 (1.7–2.3)
50–59	300/2,045	14.7 (13.2–16.3)	166/9,308	1.8 (1.5–2.1)
60–69	177/1,039	17.0 (14.8–19.4)	215/7,451	2.9 (2.5–3.3)
70–79	86/477	18.0 (14.8–21.7)	92/1,912	4.8 (3.9–5.8)
≥80	50/348	14.4 (11.0–18.4)	75/1,644	4.6 (3.6–5.7)
Total	1,248/10,592	11.8 (11.2–12.4)	921/48,481	1.9 (1.8–2.0)

In Spain, prevalence of antibodies in 8,243 kids <15 years was less than general pop

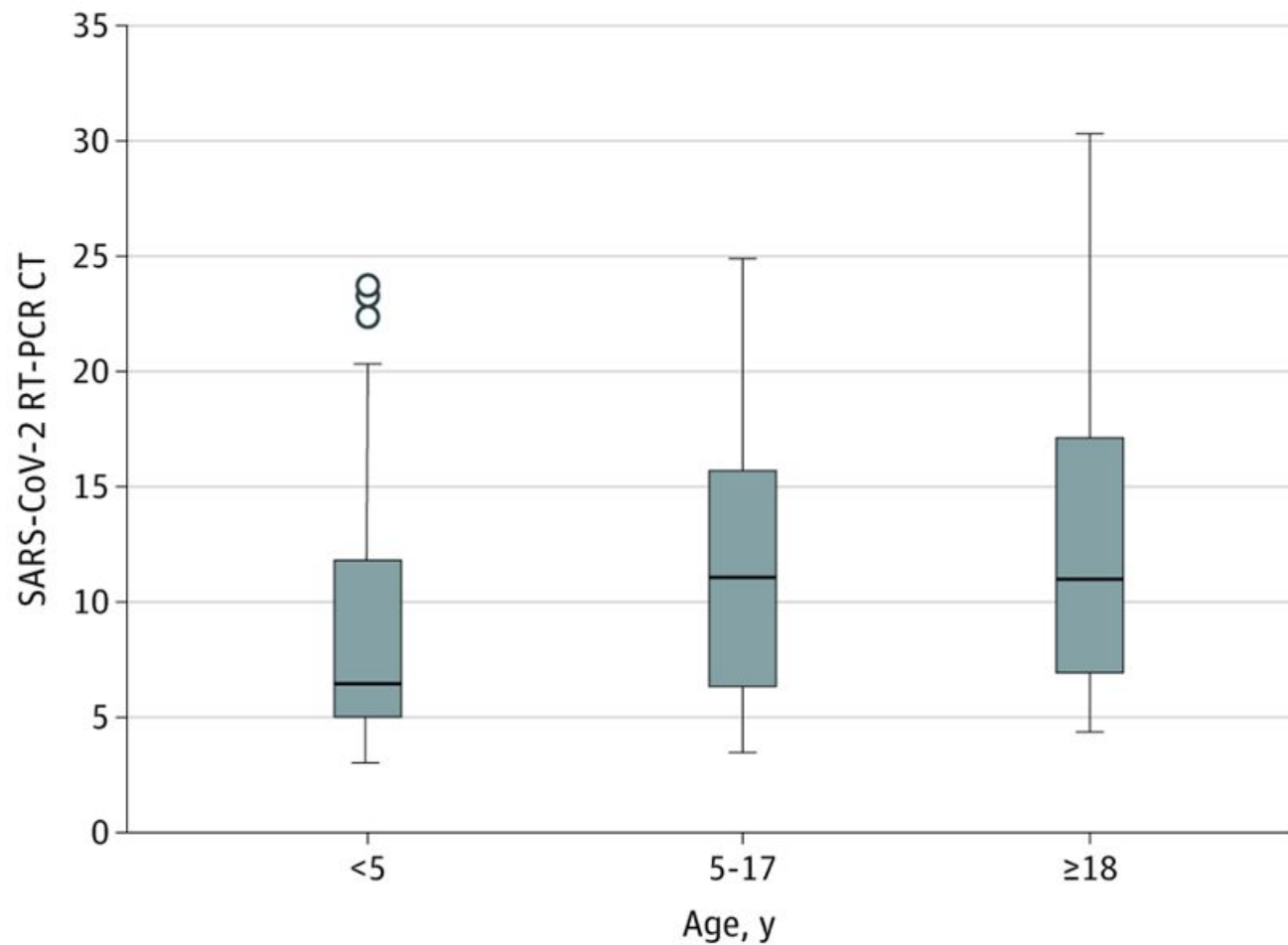
-fewer actual infections
-rather than mostly asymptomatic disease

...similar results from Iceland

		Number of participants	Seroprevalence (95% CI)
Age, years			
	0–19	11 422	3·4% (2·9–3·9)
	20–34	8469	4·4% (3·7–5·1)
	35–49	14 532	5·3% (4·7–5·9)
	50–64	15 094	5·8% (5·3–6·5)
	≥65	11 558	6·0% (5·4–6·8)

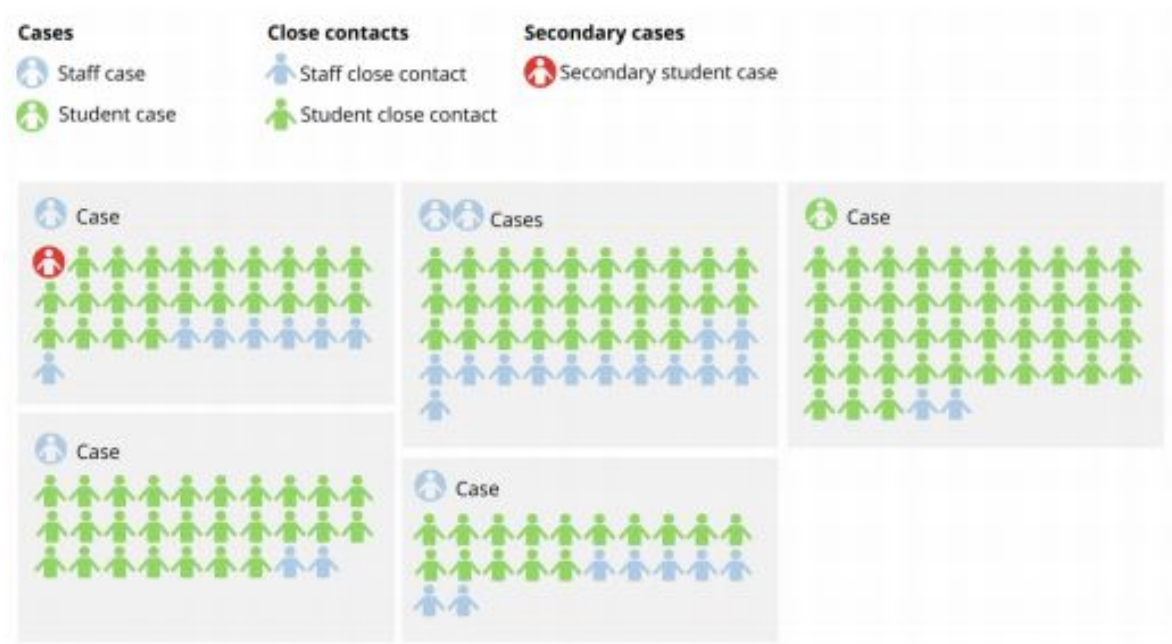
Pollán M, Pérez-Gómez B, Pastor-Barriuso R, et al. Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study [published online ahead of print, 2020 Jul 3]. Lancet. 2020;S0140-6736(20)31483-5. doi:10.1016/S0140-6736(20)31483-5

Gudbjartsson DF, Helgason A, Jonsson H, et al. Spread of SARS-CoV-2 in the Icelandic Population. N Engl J Med. 2020;382(24):2302-2315. doi:10.1056/NEJMoa2006100



In Australia, among 15 schools

- 9 students and 9 teachers were positive
- of their 753 student and 128 staff contacts, 1 child tested positive in primary school



In Ireland, 3 kids (all 10-15 years old) and 3 teachers were positive

- 2 subsequent cases among 1,155 contacts
- Both adult contacts of teachers, outside of school

Cases of coronavirus disease with a history of school attendance and contacts, Ireland, 1 March–13 March 2020 (n = 1,160 individuals)

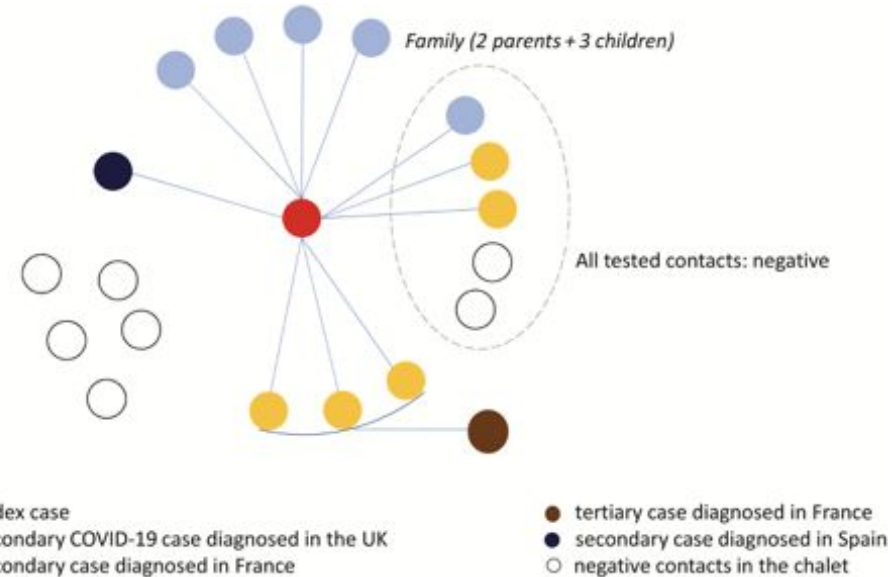
Case	Age group in years	Symptoms	Number of contacts				Number of secondary cases			
			Child		Adult		Child		Adult	
			School	Other ^a	School	Other ^a	School	Other ^a	School	Other ^a
1	10–15	Fever	475	29	30	3	0	0	0	0
2	10–15	None	125	30	25	8	0	0	0	0
3	10–15	Fever	222	14	28	0	0	0	0	0
4	Adult >18	Coryza/cough	52	2	4	38	0	0	0	2
5	Adult >18	Cough	39	2	2	3	0	0	0	0
6	Adult >18	Cough	11	0	12	1	0	0	0	0

^a Other transmission settings include households of friends and family and recreational activities.

...and similar data from Singapore

In an early outbreak in France,

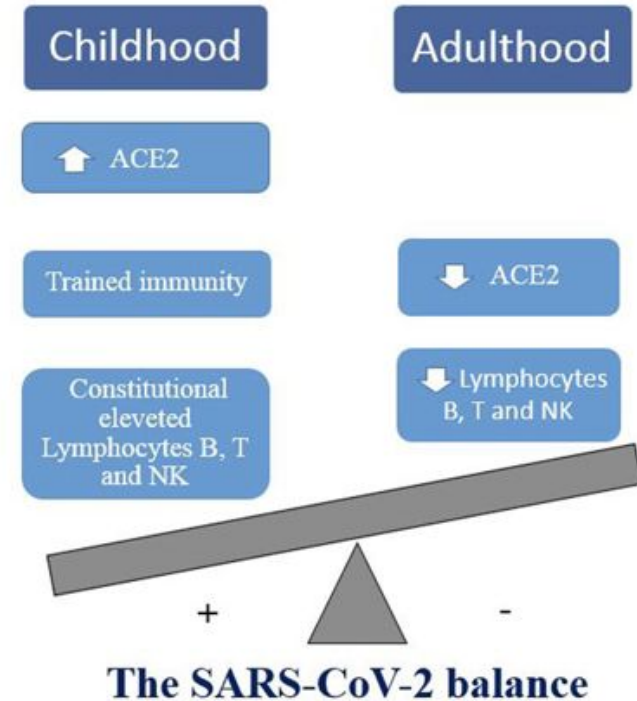
- One positive adult in chalet
- One subsequent positive child case, who attended three schools while symptomatic
- No cases among 172 contacts
- But school closed after initial case identification

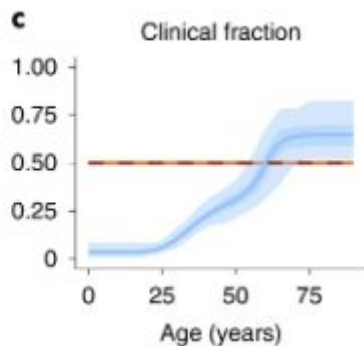
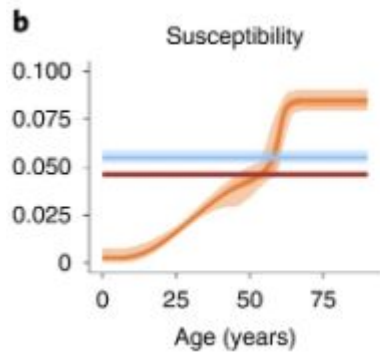


Very different situation for high school and college students

New Zealand: 96 secondary cases from 1 teacher

Israel: >300 across schools, primarily in high school settings





Davies, N.G., Klepac, P., Liu, Y. et al. Age-dependent effects in the transmission and control of COVID-19 epidemics. Nat Med (2020).

<https://doi.org/10.1038/s41591-020-0962-9>

Stokes EK, Zambrano LD, Anderson KN, et al. Coronavirus Disease 2019 Case Surveillance — United States, January 22–May 30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:759–765. DOI: <http://dx.doi.org/10.15585/mmwr.mm6924e2>

	≤9	10–19
Total population	20,458	49,245
Known symptom status	195,660 (29.0)	5,188 (25.4)
Fever, cough, or shortness of breath	134,938 (69.0)	3,278 (63.2)
Fever	80,493 (41.1)	2,404 (46.3)
Cough	98,775 (50.5)	1,912 (36.9)
Shortness of breath	56,553 (28.9)	339 (6.5)
Myalgia	73,104 (37.4)	537 (10.4)
Runny nose	12,810 (6.5)	354 (6.8)
Sore throat	43,596 (22.3)	664 (12.8)
Headache	73,839 (37.7)	785 (15.1)
Nausea/Vomiting	26,264 (13.4)	506 (9.8)
Abdominal pain	16,890 (8.6)	349 (6.7)
Diarrhea	39,946 (20.4)	704 (13.6)
Loss of smell or taste	18,474 (9.4)	67 (1.3)

A summary of epidemiological evidence to date

- While the relative risk of younger children may be lower than that of older children, the absolute risk of cases is the product of relative risk and incidence
- Hence, communities must maintain a low overall incidence (driven by adults) to keep children safe
- The risks among high school students and college students are sufficiently high as to be very worrisome, while the risk/benefit ratio for in-person class among PreK-5 appears lower in well-controlled communities as long as strict infection control and community practices are met

Accessible summary of evidence

<https://www.nationalacademies.org/news/2020/07/schools-should-prioritize-reopening-in-fall-2020-especially-for-grades-k-5-while-weighing-risks-and-benefits>

Reopening K-12 Schools During the COVID-19 Pandemic:

Prioritizing Health, Equity, and Communities

Enriqueta Bond, Kenne Dibner, and Heidi Schweingruber, *Editors*

Committee on Guidance for K-12 Education on Responding to COVID-19
Board on Science Education
Standing Committee on Emerging Infectious Diseases and
21st Century Health Threats
Board on Children, Youth, and Families

Division of Behavioral and Social Sciences and Education

A Consensus Study Report of
The National Academies of
SCIENCES • ENGINEERING • MEDICINE

THE NATIONAL ACADEMIES PRESS
Washington, DC
www.nap.edu

Intervention	Data quality	Cost	Effective risk reduction (95% CI)
Masks	Moderate	Low	14% (11%, 16%)
Physical distancing	High	Low	10% (8%, 12%)
Ventilation changes	Low	Moderate to high	Low but unclear #
Disinfection	Low	Moderate to high	Low but unclear #
“Thermal scanning” (temperature checks)	High	Low to high	14% (0%, 35%)
Symptom screening	Moderate	Low to moderate	55% (4%, 60%)
PCR testing	High	High	75% (60%, 90%)

Chu DK, Akl EA, Duda S, et al. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. *Lancet*. 2020;395(10242):1973-1987. doi:10.1016/S0140-6736(20)31142-9

Klompas M, Baker MA, Rhee C. Airborne Transmission of SARS-CoV-2: Theoretical Considerations and Available Evidence. *JAMA*. Published online July 13, 2020. doi:10.1001/jama.2020.12458

Oran DP, Topol EJ. Prevalence of Asymptomatic SARS-CoV-2 Infection: A Narrative Review [published online ahead of print, 2020 Jun 3]. *Ann Intern Med*. 2020;M20-3012. doi:10.7326/M20-3012

Wang D, Hu B, Hu C, et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China. *JAMA*. 2020;323(11):1061–1069. doi:10.1001/jama.2020.1585

Larremore DB, Wilder B, Lester E, et al. Test sensitivity is secondary to frequency and turnaround time for COVID-19 surveillance. Preprint. medRxiv. 2020;2020.06.22.20136309. Published 2020 Jun 27.

doi:10.1101/2020.06.22.20136309



Asymptomatic transmission

Table. Summary of SARS-CoV-2 Testing Studies

Cohort	Tested, <i>n</i>	SARS-CoV-2 Positive, <i>n</i> (%)	Positive but Asymptomatic, <i>n</i> (%)	Notes*
Iceland residents (6)	13 080	100 (0.8)	43 (43.0)	R
Vo', Italy, residents (7)	5155	102 (2.0)	43 (42.2)	R, L
<i>Diamond Princess</i> cruise ship passengers and crew (8)	3711	712 (19.2)	331 (46.5)	–
Boston homeless shelter occupants (9)	408	147 (36.0)	129 (87.8)	–
New York City obstetric patients (11)	214	33 (15.4)	29 (87.9)	L
U.S.S. <i>Theodore Roosevelt</i> aircraft carrier crew (12)	4954	856 (17.3)	~500 (58.4)	E
Japanese citizens evacuated from Wuhan, China (2)	565	13 (2.3)	4 (30.8)	L
Greek citizens evacuated from the United Kingdom, Spain, and Turkey (14)†	783	40 (5.1)	35 (87.5)	L
<i>Charles de Gaulle</i> aircraft carrier crew (13)	1760	1046 (59.4)	~500 (47.8)	E
Los Angeles homeless shelter occupants (10)	178	43 (24.2)	27 (62.8)	–
King County, Washington, nursing facility residents (15)	76	48 (63.2)	3 (6.3)	L
Arkansas, North Carolina, Ohio, and Virginia inmates (16)	4693	3277 (69.8)	3146 (96.0)	–
New Jersey university and hospital employees (17)	829	41 (4.9)	27 (65.9)	–
Indiana residents (18)	4611	78 (1.7)	35 (44.8)	R
Argentine cruise ship passengers and crew (19)	217	128 (59.0)	104 (81.3)	–
San Francisco residents (29)	4160	74 (1.8)	39 (52.7)	–

E = estimated from incomplete source data; L = longitudinal data collected; R = representative sample.

* A dash indicates that the study did not have a representative sample, collected no longitudinal data, and did not require estimation of missing data.

† Clarified via e-mail communication with coauthor.

Chances of **missing** an infectious COVID+ case, resulting in outbreak

>86%^{1,2}

WITH

Temperature screening/'thermal scanning' with best-in-class scanner

46%³

WITH

Daily symptom checks with best-in-class symptom screener

36%⁴

WITH

Universal antibody testing with best-in-class FDA authorized test

2%⁵

WITH

Universal PCR testing with typical FDA authorized test

Sources:

1. Richardson S, Hirsch JS, Narasimhan M, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. JAMA. 2020. [Source](#)
2. Arons MM, Hatfield KM, Reddy SC, et al. Presymptomatic SARS-CoV-2 infections and transmission in a skilled nursing facility. N Engl J Med. 2020. [Source](#)
3. Menni, C., Valdes, A.M., Freidin, M.B. et al. Real-time tracking of self-reported symptoms to predict potential COVID-19. Nat Med. 2020. [Source](#)
4. UCSF/UC Berkeley BioHub COVID-19 Testing Project, [Source](#)
5. Johns Hopkins Center for Health Security, [Source](#)

Workplace Safety

How do we physically adapt our campus buildings?

Risk Screening

How do we screen our population on an ongoing basis?

Testing

Who do we test, how often, and where do we find tests?

Monitoring

How do we monitor results and clear people to return?

COLLECTIVE GO™ PROTOCOL

includes guidance on

RISK ASSESSMENT

PREVENTION MEASURES

TESTING TYPE & CADENCE

RISK TRACKING

TRIAGE GUIDELINES

CONTACT TRACING

**YOU & YOUR
PEOPLE**

COLLECTIVE GO™ PLATFORM

enables

WORKPLACE SAFETY

Recommendations to
adapt your workplace

COMPLIANCE MONITORING

Dynamic compliance
certificates and
company reporting

DAILY RISK SCREENING

Continuous symptom
and exposure tracking

INTEGRATED TESTING

Connected ecosystem
of testing options

An open source protocol

<https://osf.io/s23tx/>

Adaptive guide for return to school/work strategies

Covers:

- Guidelines on physically adapting workplaces
- Types and frequency of COVID-19 testing recommended and not recommended (based on validation studies)
- Daily Symptom tracking and exposure monitoring
- Risk stratification
- Triage of symptomatic persons
- What to do after positive/negative tests
- Data enablement for contact tracing



Tailored to the person at risk based on:

- Type of work (e.g., desk, factory, etc.)
- Geography
- Daily epidemiological data from all US counties

<https://collectivehealth.com/go/>

Campus Safety

Integrated Testing

Daily Risk Screening

Compliance Monitoring

Evidence-based guidelines on physically adapting workplaces

- Environmental elements: distancing, masks, deep clean and ventilation specs
- Adapted for individual businesses: Nature of work, geography, demographics

Includes guidance on topics like:

Masks	Ventilation	Temperature Checks
Nightly Cleaning	Limited Visitors	Distanced Desks
WFH cadences	Worker Cohorts	Handwashing/ Sanitizer Stations

Workplace Safety

Integrated Testing

Daily Risk Screening

Compliance Monitoring

Collective Go™ enables **two testing approaches**

Community Testing

- Users go to a testing location in their community
- Upload a photo of their test results with attestation
- We also have data ingestion from several lab providers

Collective Go™ Testing Ecosystem

- We've built an ecosystem of testing partners who offer self-administered tests
- Users can choose to have test kits shipped to their homes or to a workplace location

Testing availability

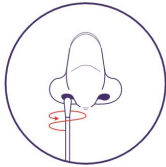
Increased TAT

Retesting cadence

At home, anterior testing



3. Receive your sample collection kit via FedEx

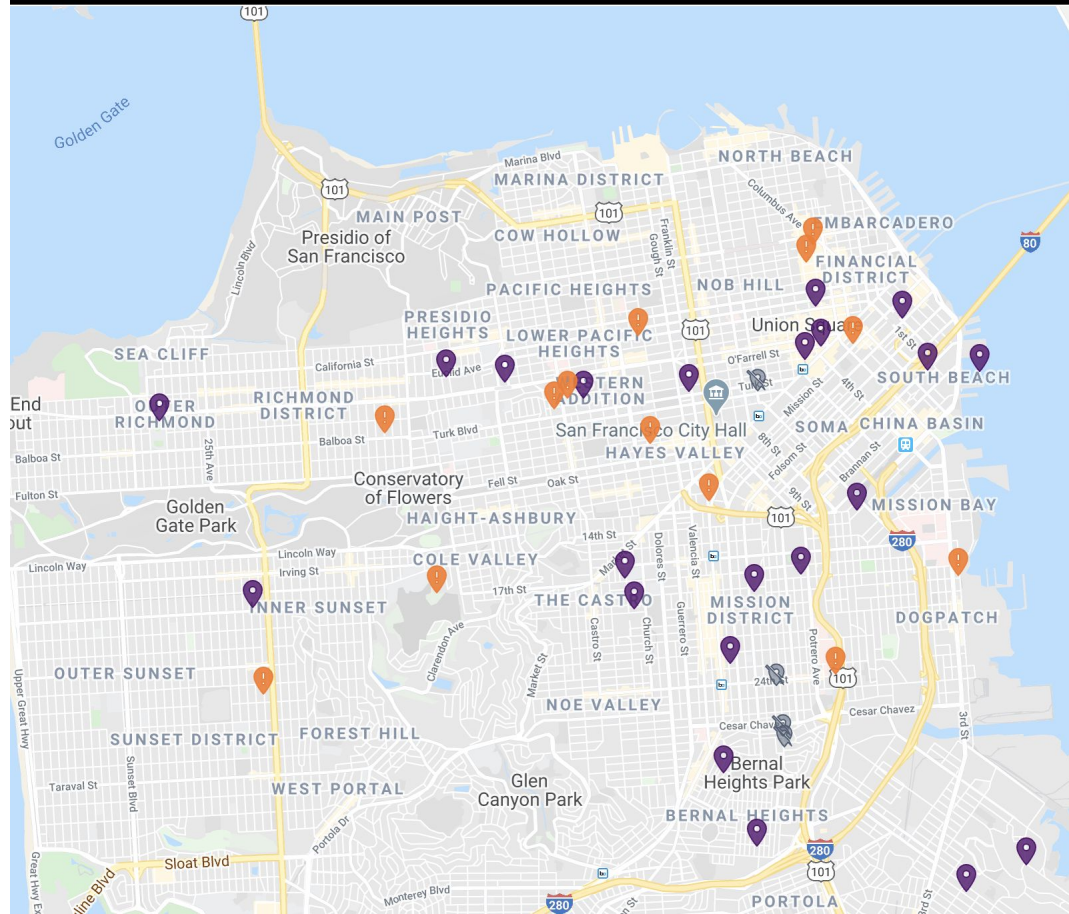


4. Collect your sample and send it back to our world-class lab for testing



5. Access your results online

findcovidtesting.com



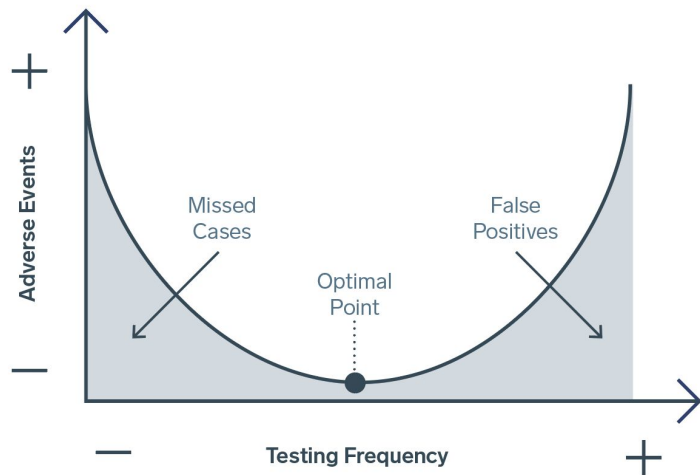
<https://www.pixel.labcorp.com/>
<https://www.everlywell.com/products/covid-19-test/>
<https://picturegenetics.com/covid19>

Collective Go™ delivers smart, personalized testing plans

Testing is a **balancing act**

Too little testing = miss COVID+ cases

Too much testing = too many false positives

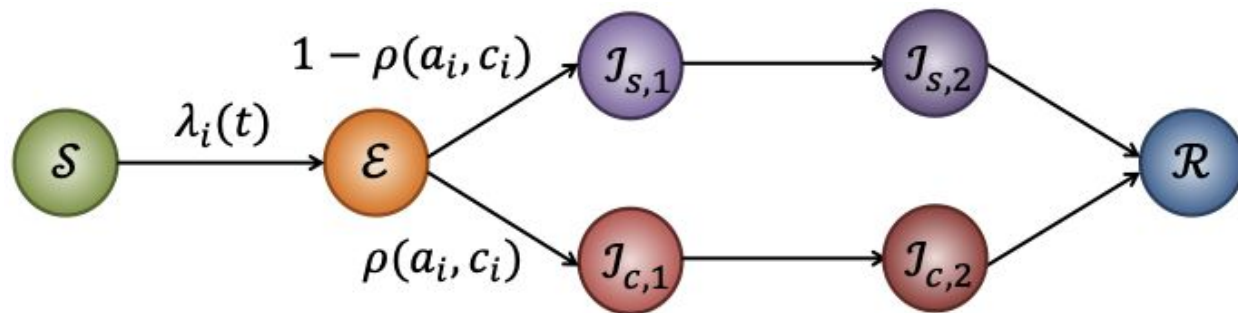


Collective Go™ finds the **optimal point**

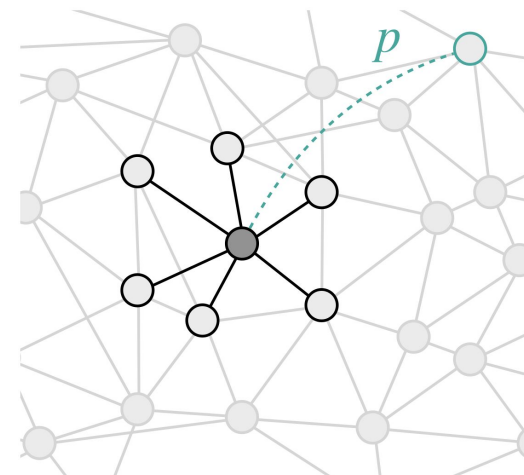
Individuals are assigned one of six testing patterns based on these and other factors:

- **Type of work** (e.g., desk, factory, etc.)
- **Work and home geography**
- **Daily epidemiological data** from all US counties

	Community with broad transmission	Community without broad transmission
Healthcare Workers	Testing Pattern #1	Testing Pattern #2
Essential Roles (non-healthcare)	Testing Pattern #3	Testing Pattern #4
Non-Essential Roles (currently sheltered in place)	Testing Pattern #5	Testing Pattern #6



State	Symbol	Infectious	Symptomatic	Virus detectable?	Immune
Susceptible	S(t)	x	x	x	x
Exposed to infection	E(t)	x	x	x	x
Early subclinical infection	I _{s,1} (t)	✓	x	✓	x
Late subclinical infection	I _{s,2} (t)	✓	x	✓	x
Early clinical infection	I _{c,1} (t)	✓	x	✓	x
Late clinical infection	I _{c,2} (t)	✓	✓	✓	x
Recovered	R(t)	x	x	✓	✓



Worker Scenario Teacher



Risk Assessment:
Required at enrollment

**Symptom & Exposure
Screening:** Daily

Environmental Factors & Testing:

Widespread Community Transmission	YES	NO
Typical PCR Testing Frequency <i>(adapted for workplace, and updated daily)</i>	Retesting every 10 days	One-time test. Re-test upon known exposure

Additional Recommended Measures:

Masks	Ventilation	Temperature Checks
Nightly Cleaning	Limited Visitors	Distanced Desks
Cohorts of students	Limited staff mixing	Handwashing/ Sanitizer Stations

Workplace Safety

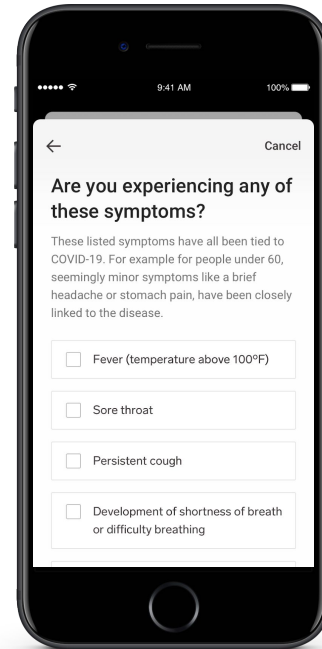
Integrated Testing

Daily Risk Screening

Compliance Monitoring

Evidence-based screening cadence

- Daily symptom screening and exposure checking
- Dynamically informs user's compliance certificate



When 'no symptoms' is selected

OR

☒ No symptoms

By clicking submit, I confirm that my answers are truthful and I understand that a misrepresentation may violate the law and my organization's policies.

Submit

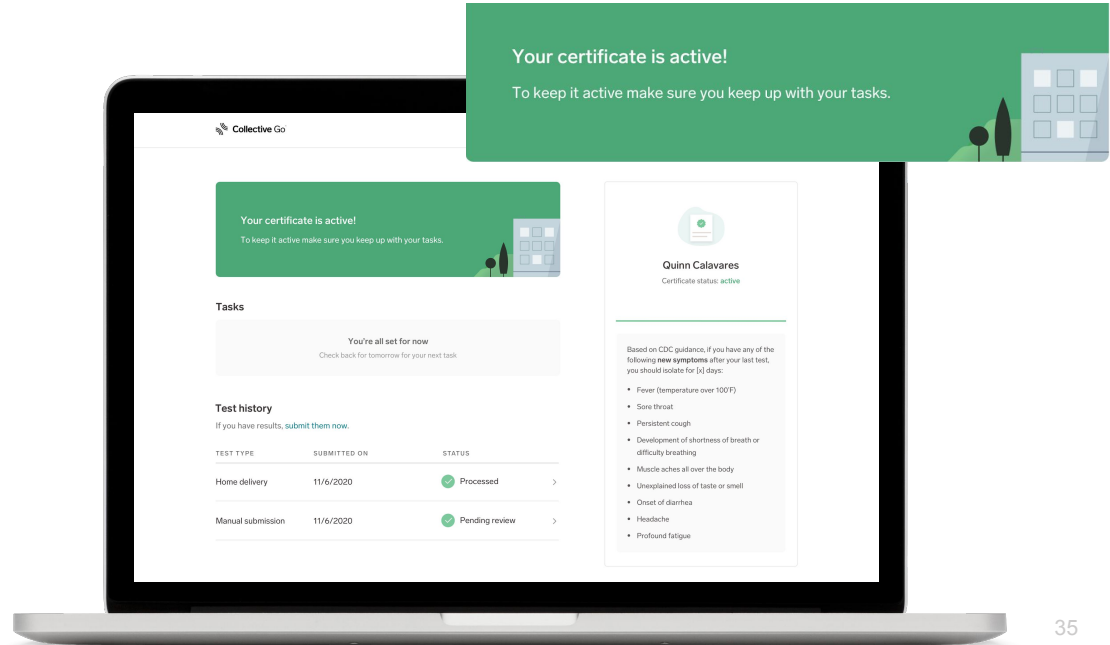
Workplace Safety

Integrated Testing

Daily Risk Screening

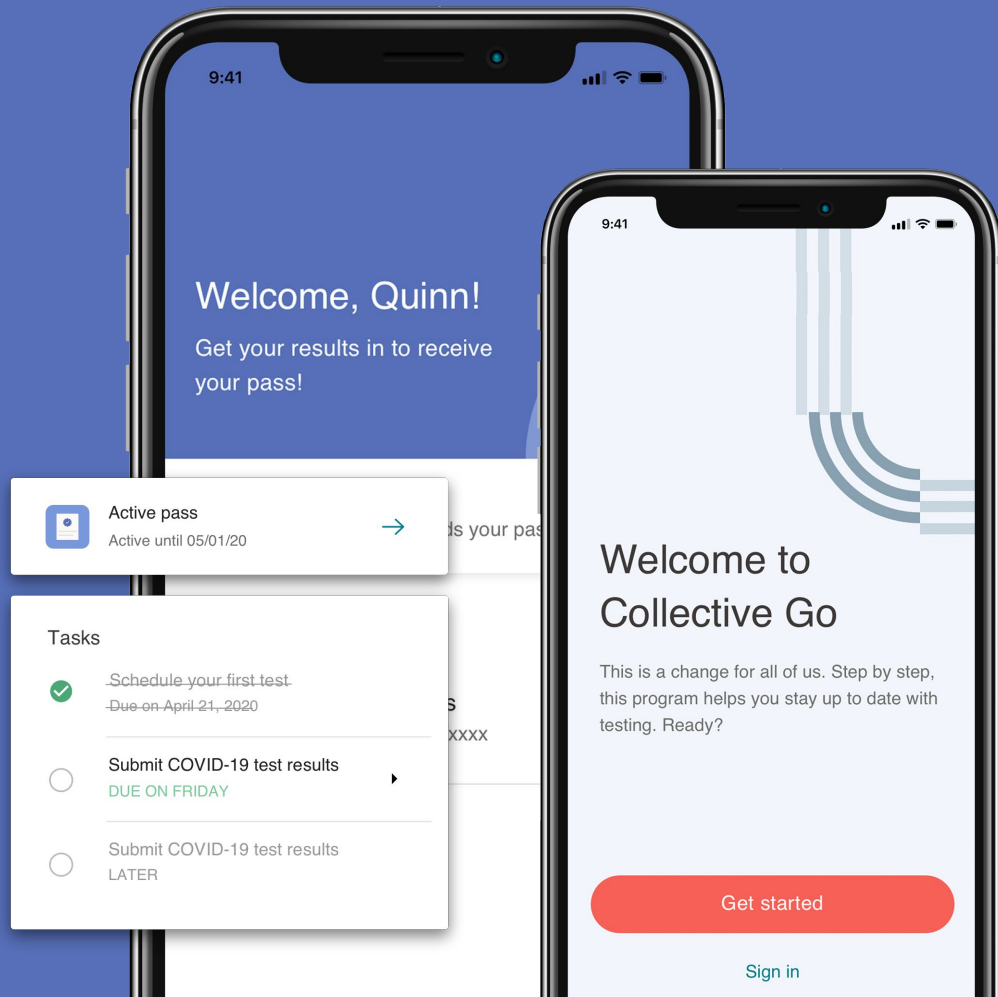
Compliance Monitoring

- App for individuals to provide ongoing test monitoring and issuance of a certificate once compliant with the workplace protocol
- While employers receive accurate, verified data on the status of their populations via reports



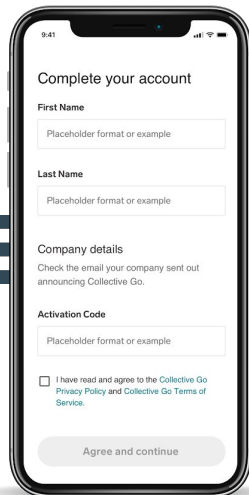
Experiencing Collective Go™

For the San Francisco Day School
faculty, staff, and parent
community



A step by step guided journey for your people

Onboarding



Complete your account

First Name

Placeholder format or example

Last Name

Placeholder format or example

Company details

Check the email your company sent out announcing Collective Go.

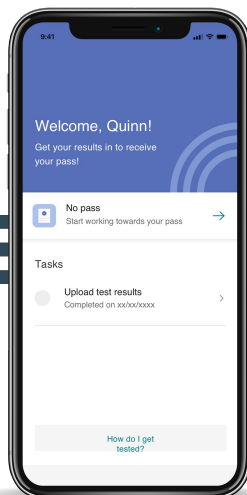
Activation Code

Placeholder format or example

☐ I have read and agree to the Collective Go Privacy Policy and Collective Go Terms of Service.

Agree and continue

Task Lists



Welcome, Quinn!

Get your results in to receive your pass!

No pass

Start working towards your pass

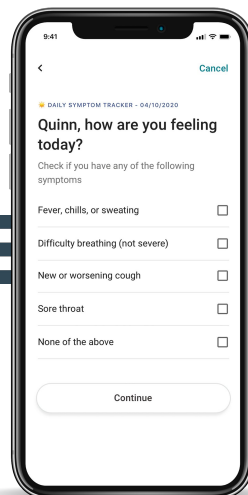
Tasks

Upload test results

Completed on xx/xx/xxxx

How do I get tested?

Symptom & Contact Monitoring



DAILY SYMPTOM TRACKER - 04/10/2020

Quinn, how are you feeling today?

Check if you have any of the following symptoms

Fever, chills, or sweating ☐

Difficulty breathing (not severe) ☐

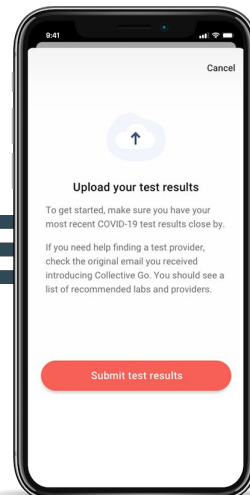
New or worsening cough ☐

Sore throat ☐

None of the above ☐

Continue

Self-attestation of Test Results

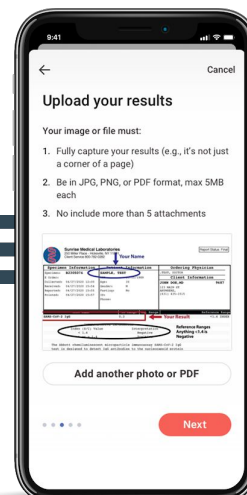


Upload your test results

To get started, make sure you have your most recent COVID-19 test results close by.

If you need help finding a test provider, check the original email you received introducing Collective Go. You should see a list of recommended labs and providers.

Submit test results



Upload your results

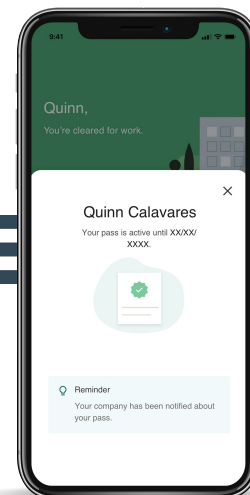
Your image or file must:

1. Fully capture your results (e.g., it's not just a corner of a page)
2. Be in JPG, PNG, or PDF format, max 5MB each
3. No include more than 5 attachments

Add another photo or PDF

Next

Compliance Certificate



Quinn,

You're cleared for work.

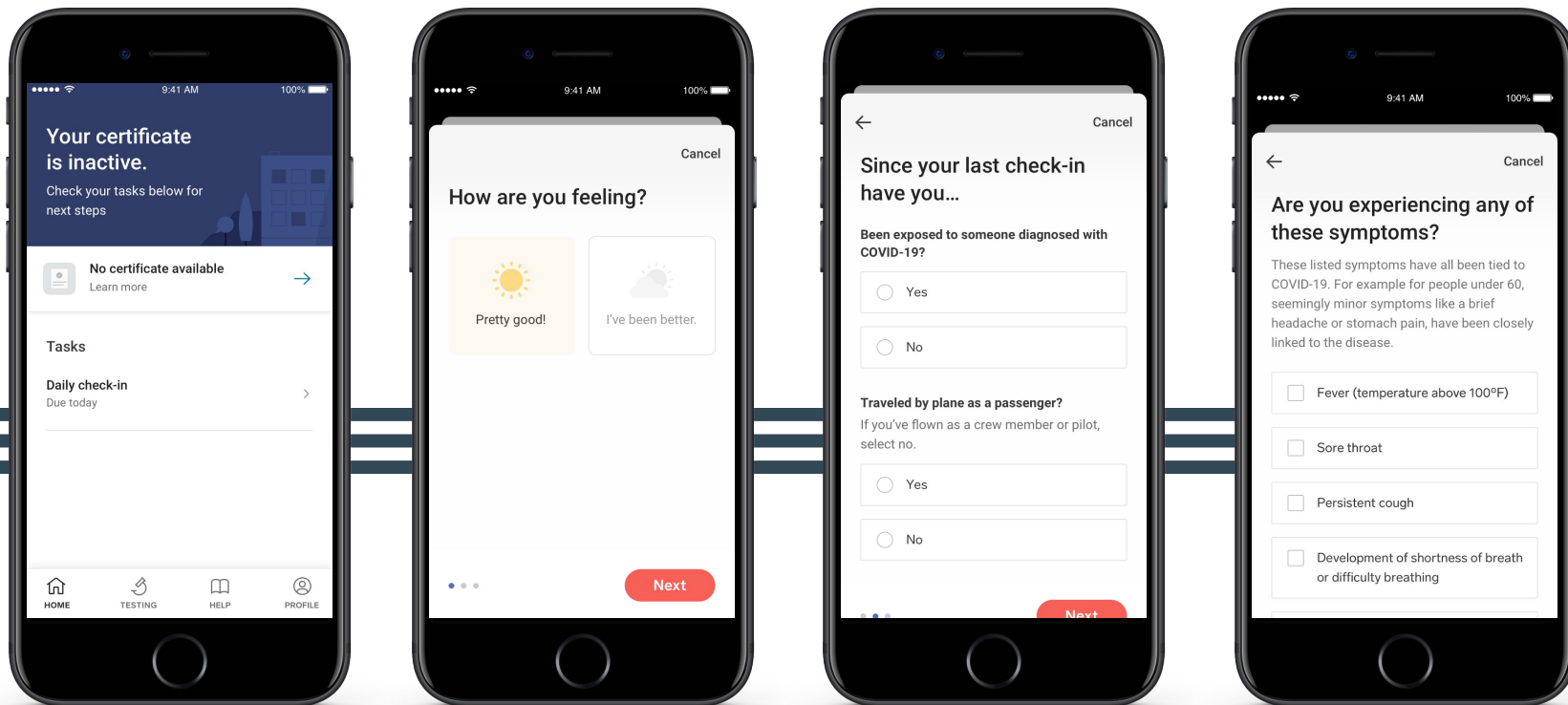
Quinn Calavares

Your pass is active until XXXX/XXXX










Reminder

Your company has been notified about your pass.

Daily symptom screening



Collective Go™ is the most complete Return to Work Solution

Essential Elements of Return to Work Solutions	Collective Go™	Symptom Trackers	Testing Companies	CRM tools
Adaptive Clinical Protocols: Science-based, continuously-updated clinical guidance			 (Static protocols)	
Workplace Safety: Recommended measures to physically adapting workplaces				
Integrated Testing: Ecosystem of labs & testing options			 (Single testing option)	
Daily Risk Screening: Temperature tracking, daily symptom + exposure checking				
Compliance Tracking: Reporting & issuance of compliance certifications				



“ We need better ways to improve safety... using tools such as Collective Go, could make it possible for businesses to meaningfully reduce risk in the workplace. ”

— **DR. SCOTT GOTTLIEB**
FORMER FDA COMMISSIONER



Return to Campus
with **Collective Go**™

