

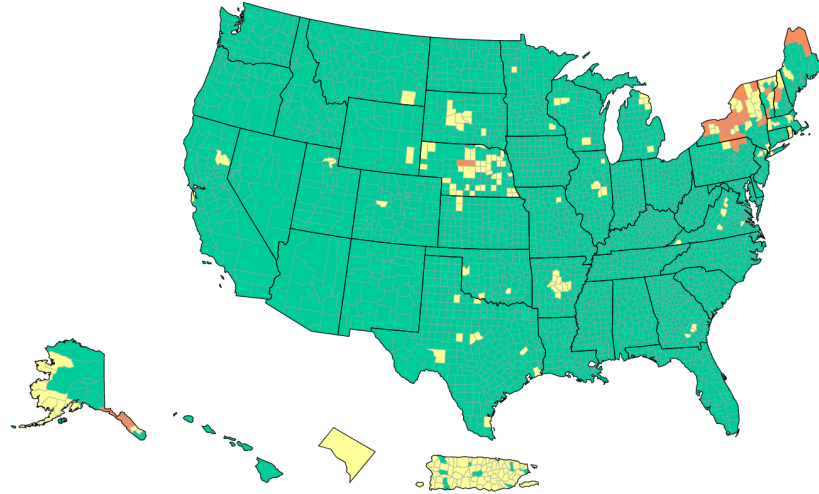
COVID-19 Update

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Monday April 25th, 2022

COVID-19 Community Levels of All Counties in US



GU AS MP VI

COVID-19 Community Levels in US by County

	Total	Percent	% Change
High	40	1.24%	0.81%
Medium	228	7.07%	1.64%
Low	2956	91.69%	- 2.45%

[How are COVID-19 Community Levels calculated?](#)

● Low ● Medium ● High ▨ No Data

METRIC

Daily new cases per 100k



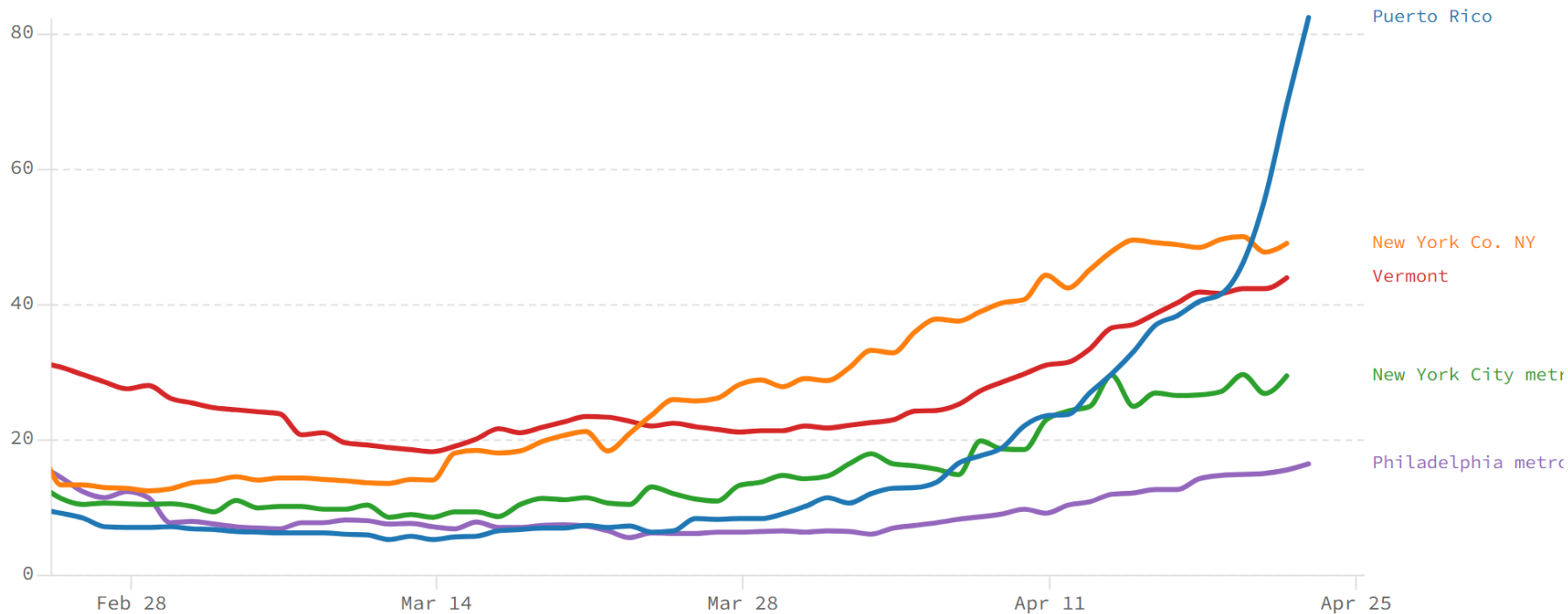
PAST # OF DAYS

60

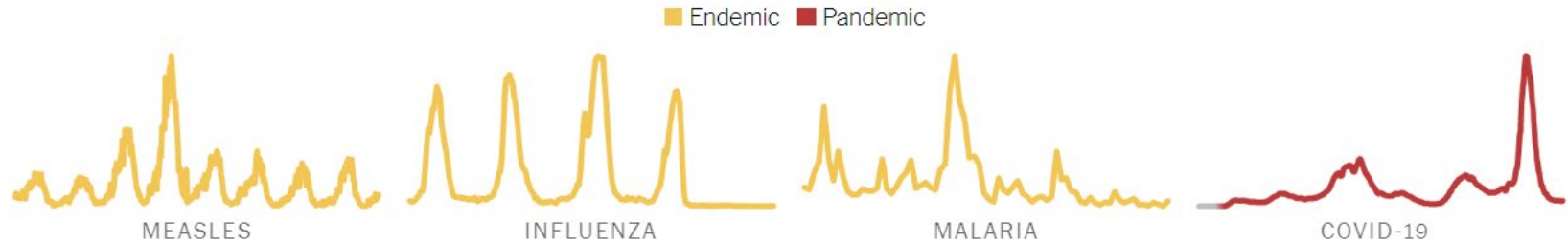


LOCATIONS

Puerto Rico; New York County, NY; ...



Is COVID Endemic?

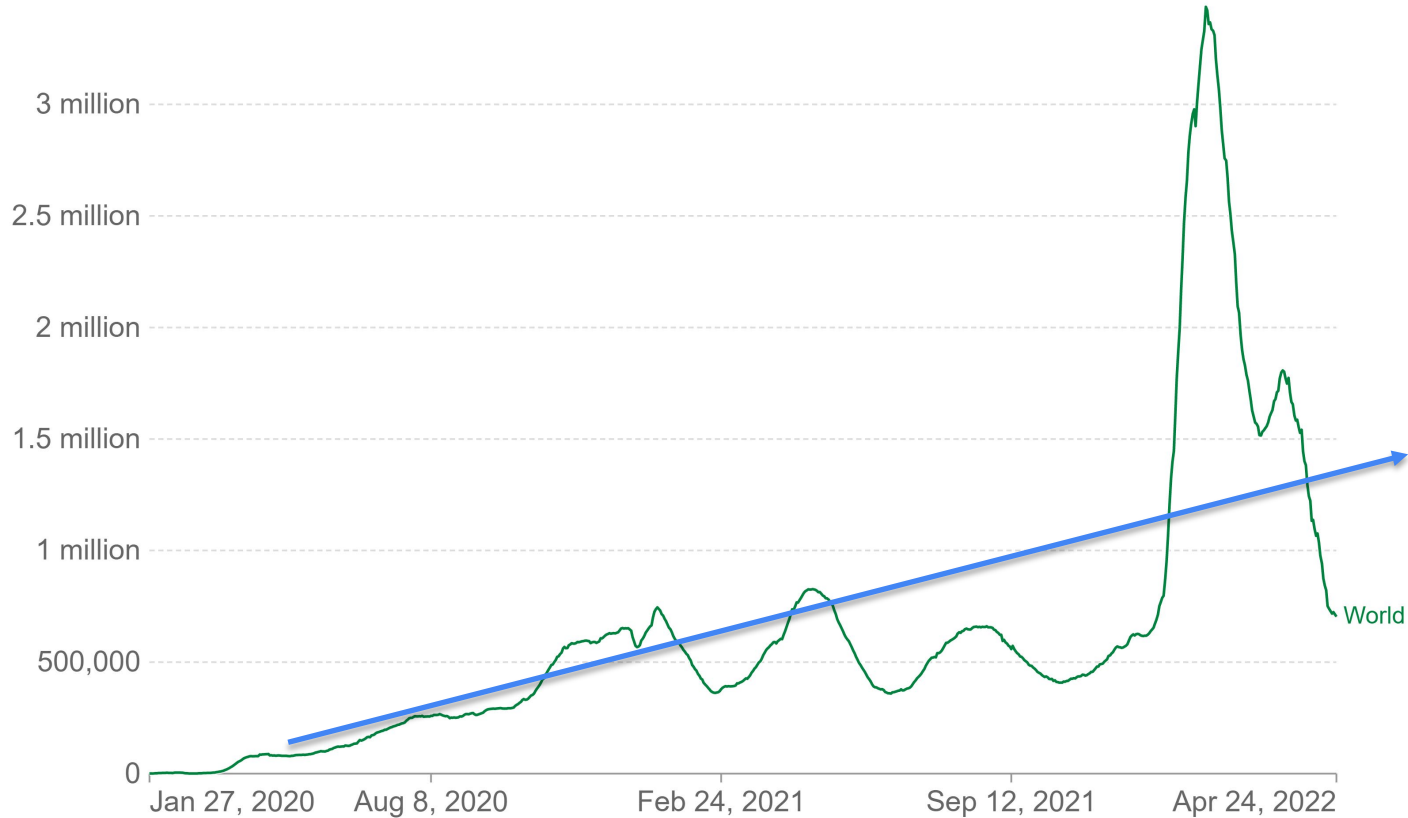


Endemic = a disease that persists

Daily new confirmed COVID-19 cases

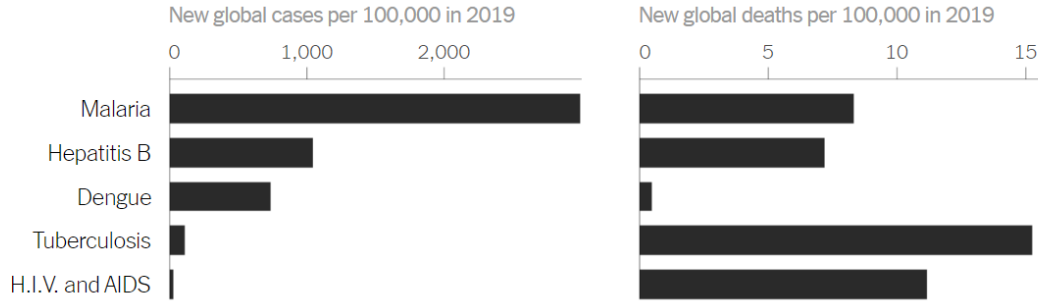
7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.

Our World
in Data



Source: Johns Hopkins University CSSE COVID-19 Data

Endemic diseases can be mild or deadly



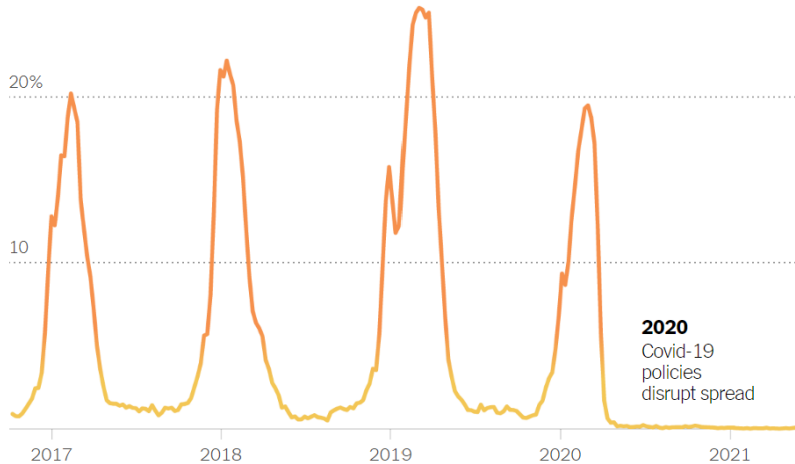
Source: [University of Washington Institute for Health Metrics and Evaluation](#) • Note: Data are estimates and include cases and deaths in countries where the disease is not endemic. Death data includes deaths from complications associated with the disease.

- Some experts predict SARS-CoV-2 will be no worse than seasonal flu, or may be mild like one of the cold-causing coronaviruses due to immunity from infections and vaccinations
- Concern that immunity wanes over time or the virus mutates so it can dodge existing immunity
- Future versions of SARS-CoV-2 could be milder or could be much worse

Endemic +/- Epidemics +/- Control

Influenza has seasonal epidemics

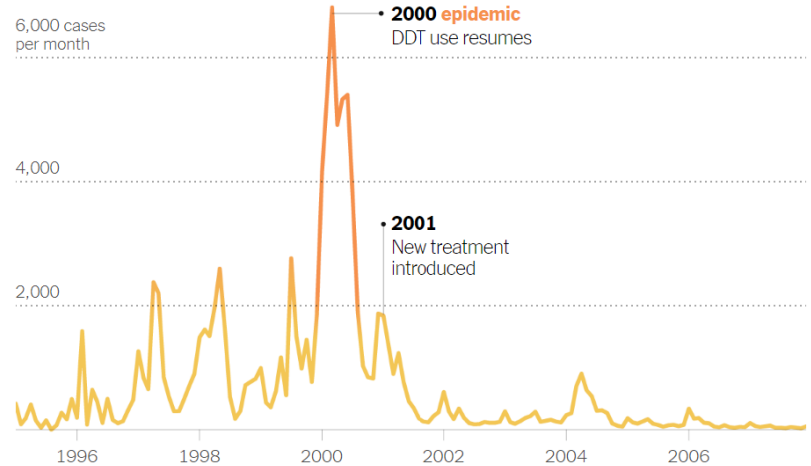
Percentage of tested specimens in the U.S. positive for influenza Type A



Source: [Centers for Disease Control and Prevention](#)

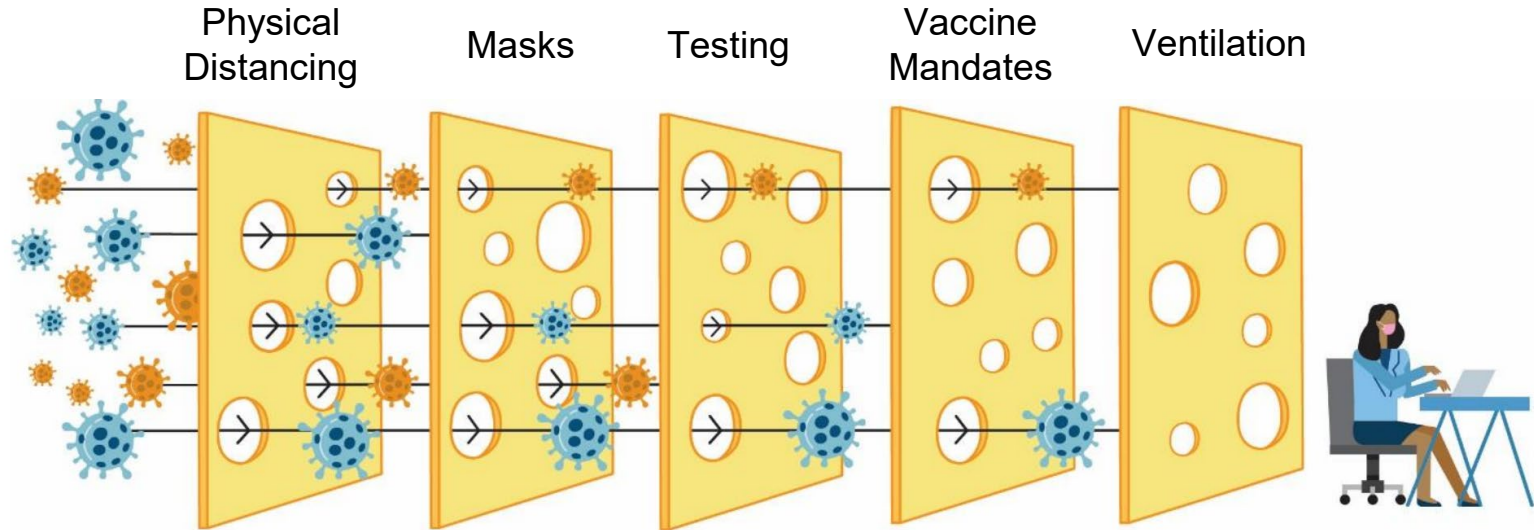
Malaria control programs can reduce disease transmission

New malaria case notifications in KwaZulu-Natal, South Africa

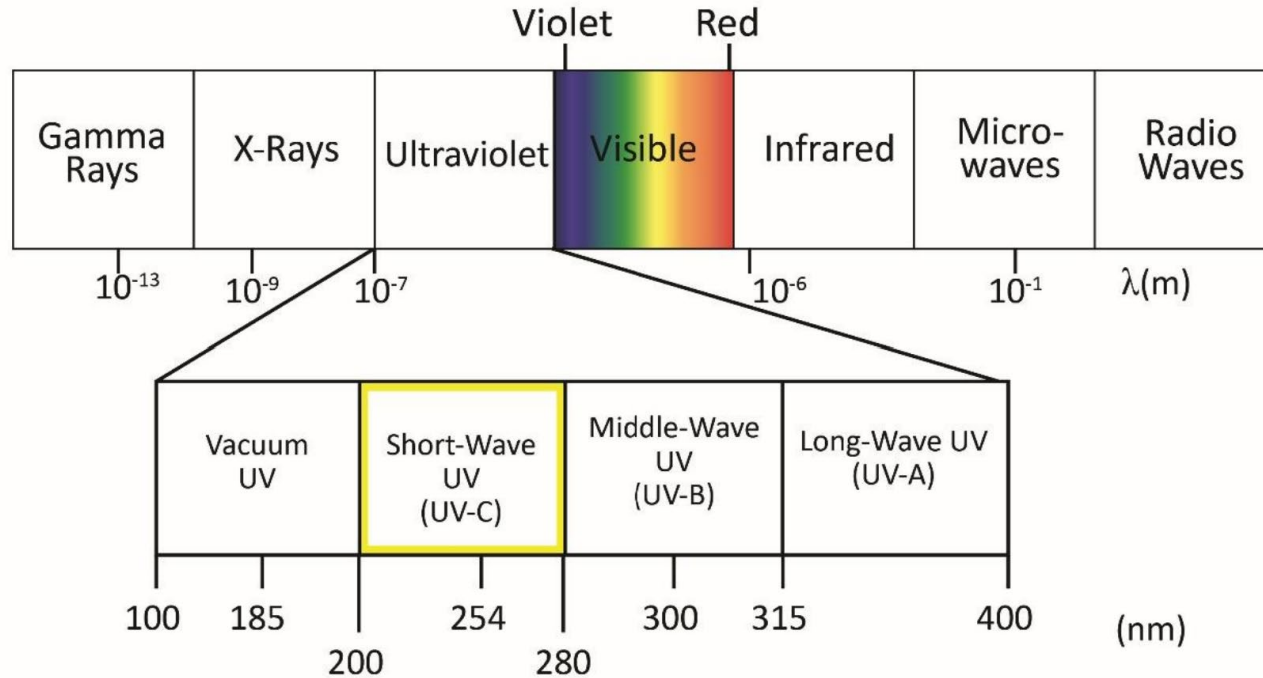


Sources: South Africa National Department of Health, [Barnes et al.](#)

Crumbling Layers of Protection



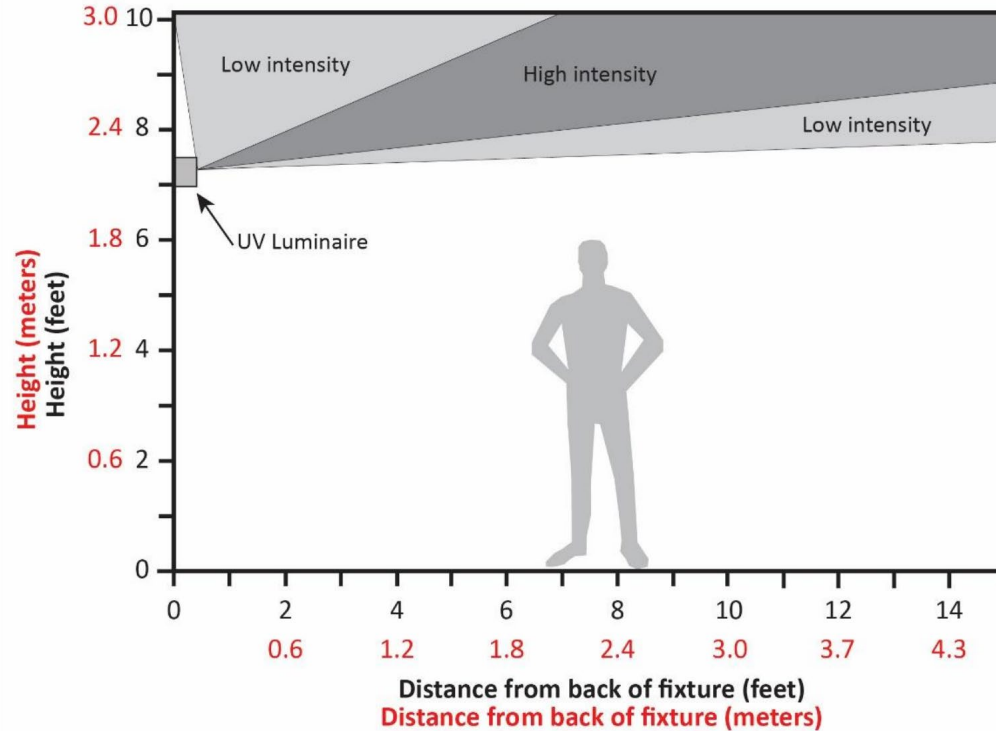
UV Light



UV Light

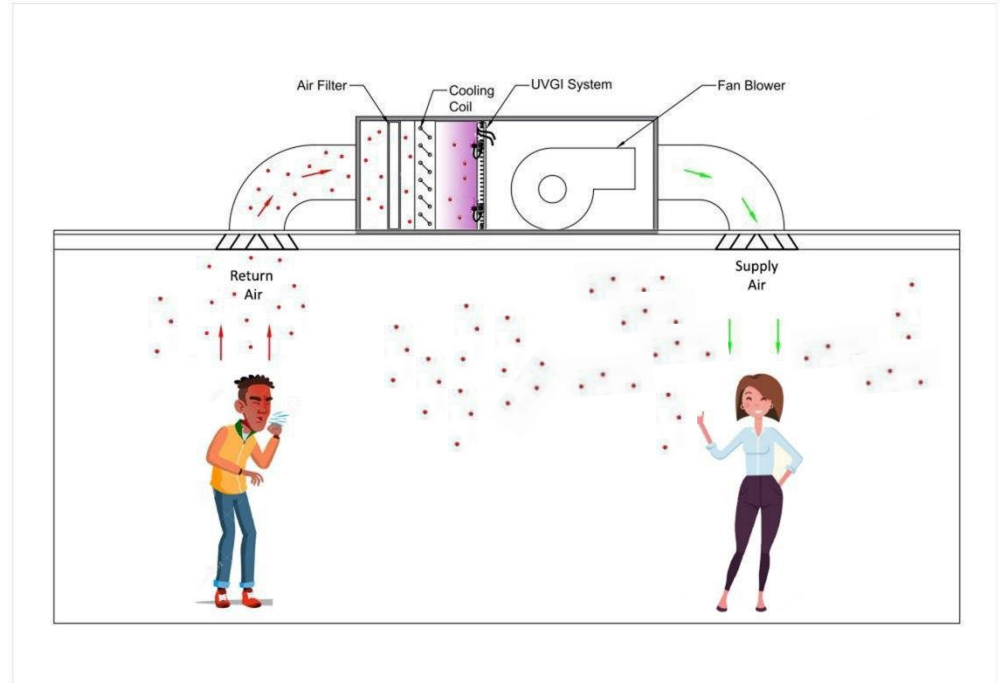
- UV-A and longer (visible) wavelengths:
 - Do not have germicidally effective emission wavelengths to inactivate viruses
- UV-B (280 to 315 nm):
 - Particularly the shorter wavelengths near 300 nm and below, can be relatively effective as a germicidal source
 - But exposures can cause severe sunburn and even delayed effects for both skin and eyes, because UV-B penetrates the skin more deeply
- UV-C
 - Kills bacteria, and inactivates viruses
 - Individual, energetic UV-C photons photochemically interact with the RNA and DNA molecules in a virus or bacterium to render these microbes non-infectious

Upper-Room GUV



In-Duct versus Upper Room GUV

- Filtration +/- in-duct GUV can be effective at preventing recirculation of the virus. But:
 - Is less effective at preventing person-to-person spread in room
 - Moving enough air through a room (minimum 6 air changes per hour – best 10+) is challenging
 - Low speed fans and upper room GUV may be equivalent of 24 ACH
 - Conditioning make-up fresh air is expensive



Carbon Dioxide Monitoring

- Background CO₂ is around 450-500ppm
- Typical office environment is 600-800, maybe up to 1200+
- So where does the additional 150-750ppm come from?



CO₂ Monitoring - Challenges

- There is no universally accepted level of CO₂ that correlates with risk of SARS-CoV-2 but there are working limits recommended by governments and indoor air experts
 - 400-500ppm background – target 800ppm (or <350ppm above background¹); Action level 1200ppm
- CO₂ monitor results can overestimate the risk of airborne virus if there is air filtration in the system - (so this must be noted when measuring, and taken into account in assessing risk and remediation)
- Measurement of CO₂ concentrations can be subject to operator error/inconsistencies and spot checks may not reflect changes over time or different occupancy levels
- Understanding how efficient HVAC systems are across complex spaces with varying levels of occupancy is difficult to assess
- Large scale testing program has resource implications

CO₂ Monitoring - Advantages

- CO₂ handheld and static (wall or in-duct mounted) are available and relatively inexpensive
- There may be existing monitors linked to the outside air control dampers
- They can monitor continuously and display the result or transmit to a computer or phone
- Static monitors can track CO₂ levels during different occupancy and/or activity levels
- Can help assess risks in high-occupancy, high-risk spaces e.g., canteens, meeting rooms and on-site fitness centers
- Having a continuous read out of CO₂ concentration will reassure employees and a visible indicator of a company's commitment to safety (Note some EU countries require CO₂ monitors with display in certain commercial spaces)
- Being proactive will minimize the risk of employees bringing their own monitors and sharing their results
- The White House has a focus on improving indoor air quality and measuring CO₂ may keep a company ahead of any future recommendations or regulations (latter unlikely in the short-term)



Wall mounted



Duct mounted



Handheld

Questions

Upcoming NEBGH virtual events:

- **April 27** – Mental Health Parity Refresh
- **May 2**– Monday COVID-19 Update
- **May 10** – Racial Health Equity: Make Sure ALL Employees Have Access to Best Practice Obesity and Diabetes Treatment
- **May 18** - CAA Transparency in Coverage Rules: What We Know
- **June 16** - Benefits Leadership for a Changing World: Accept the Challenge!