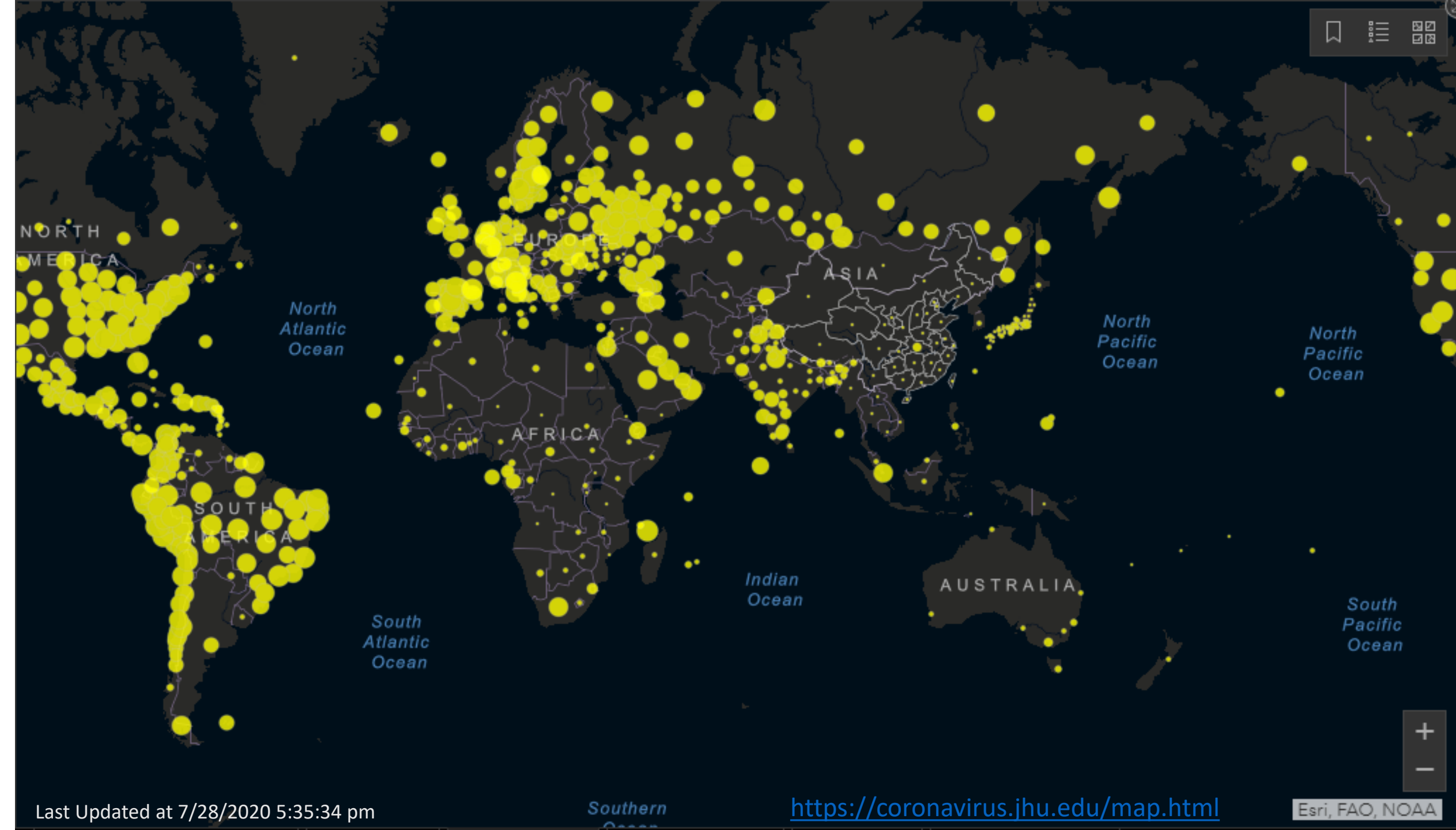




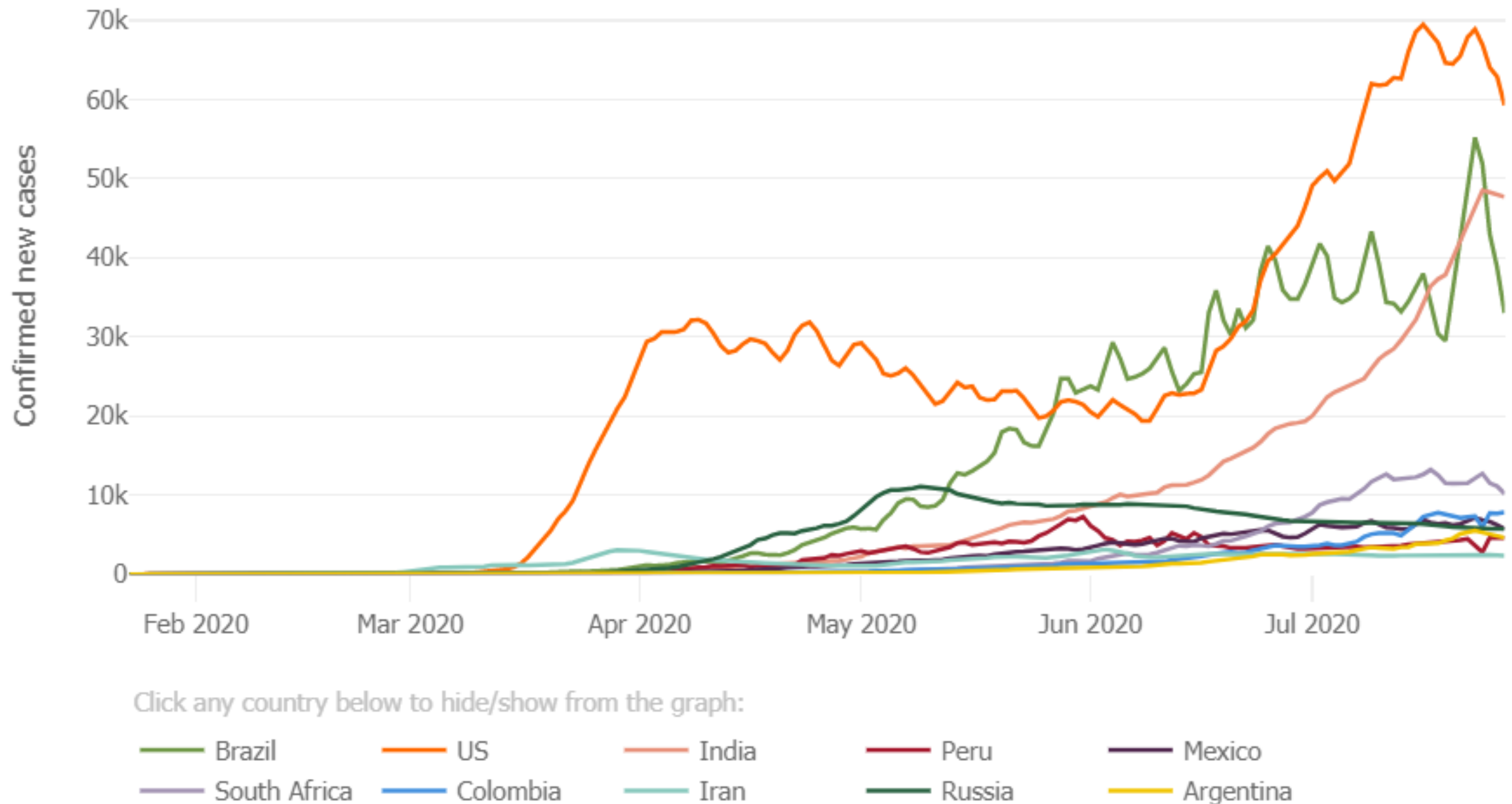
COVID-19 Risk Assessment and Barrier Management

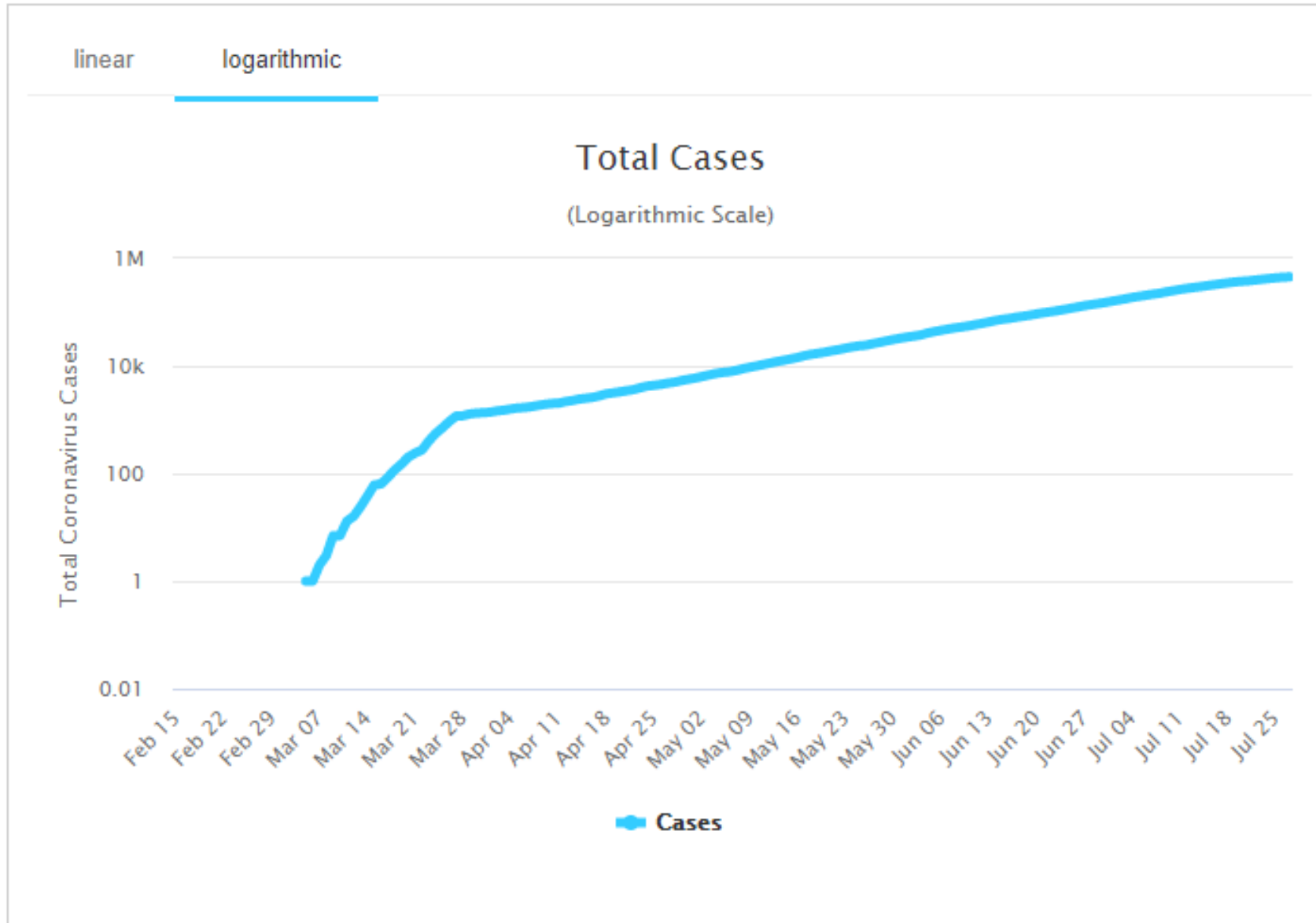




Last Updated at 7/28/2020 5:35:34 pm

<https://coronavirus.jhu.edu/map.html>



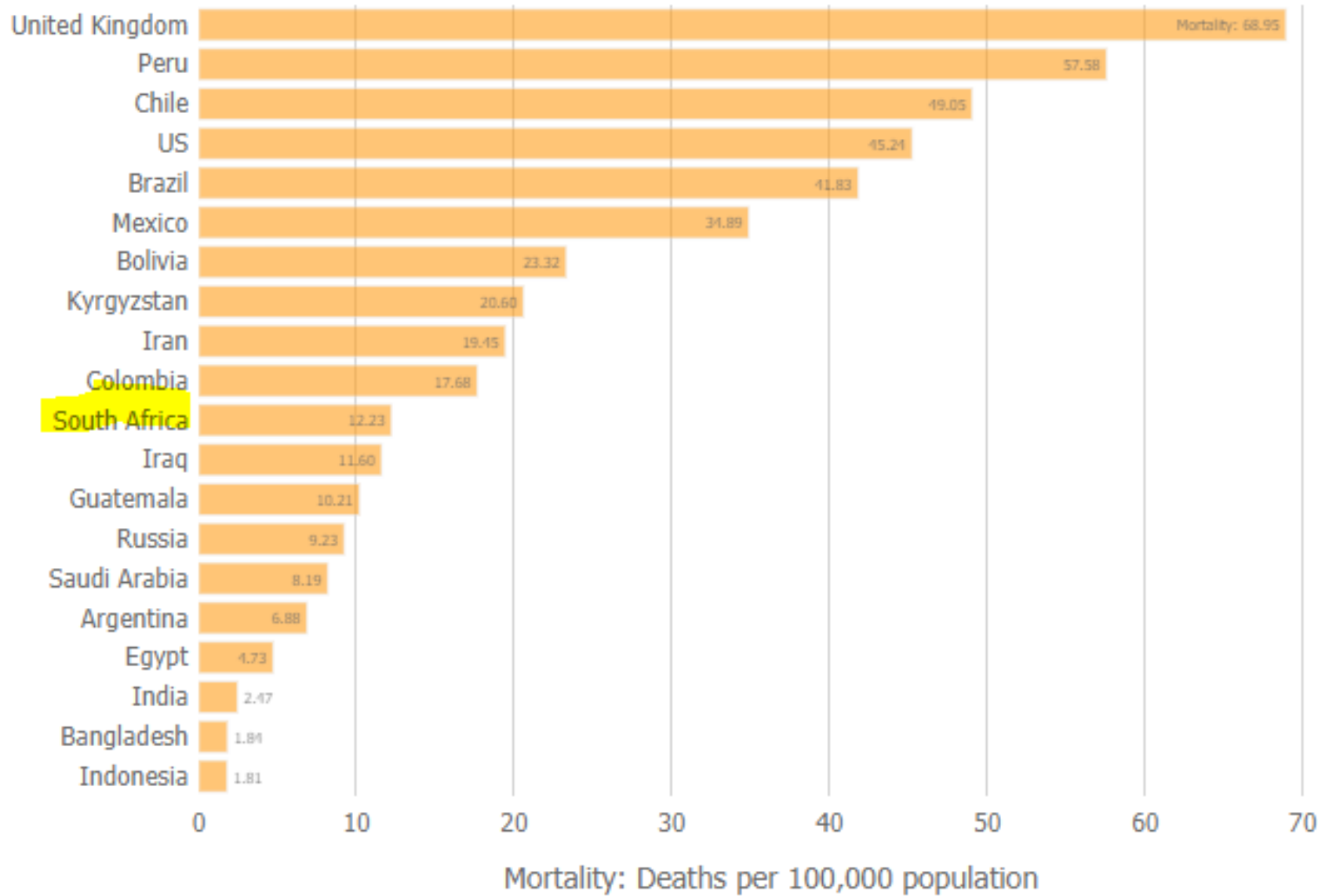


South Africa

Coronavirus Cases:
452,529

Deaths:
7,067

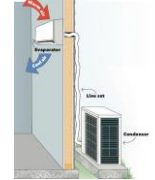
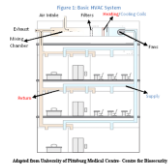
Recovered:
274,925



Mortality
Rate

n

m



Infected Person

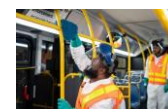
Droplets

Droplets

Direct Contact

Indirect Contact

Faecal-Oral





With so many moving parts, what stops your site from falling into ruin and being abandoned?



Barriers!

An example of barrier failure:

Seoul, South Korea, 43.5 percent of workers on one floor of a call center tested **positive for COVID-19**.

But constitutes a barrier?

Do barriers keep office hours?



Risk Mitigation through barrier management

Pinch Points

Access Management

Social distancing

Physical barriers

Disinfection

Hand Washing

EQ

Air quality / ventilation

Toilet usage and flushing

Arrive with good practise

Transportation

Medical Screening

Policies and SOPs

De-densification

PUI Temporary Isolation

Waste Disposal

Workplace Discipline

Information and Training

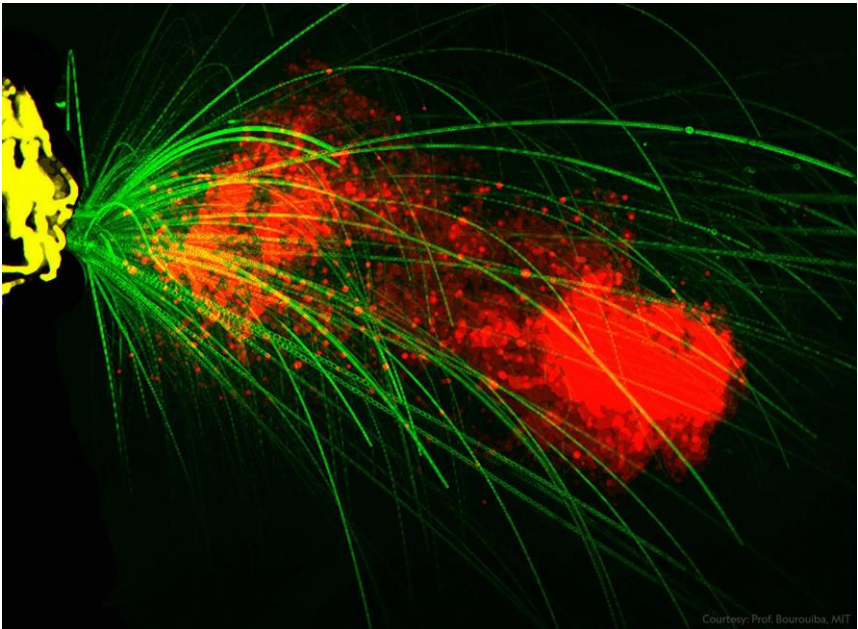
Vulnerable Workers

PPE

Correct Type?

Proper Use

Maintenance



Courtesy: Prof. Bourouiba, MIT



APEX
ENVIRONMENTAL

..... Adding insight through experience



Risk Amplification Points

- Entry / Exit
- Shift Change
- Canteen
- Clinic
- Meeting Areas
- Waste Disposal
- Vulnerable Workers
- Mask Use compliance
- Poor Ventilation Areas
- Change Rooms & Toilets

Site specific barrier challenges and failures

Position Paper – Air Conditioning units in non-healthcare settings

Managing the COVID-19 risks

Dr Greg Kew
Occupational Medicine Specialist

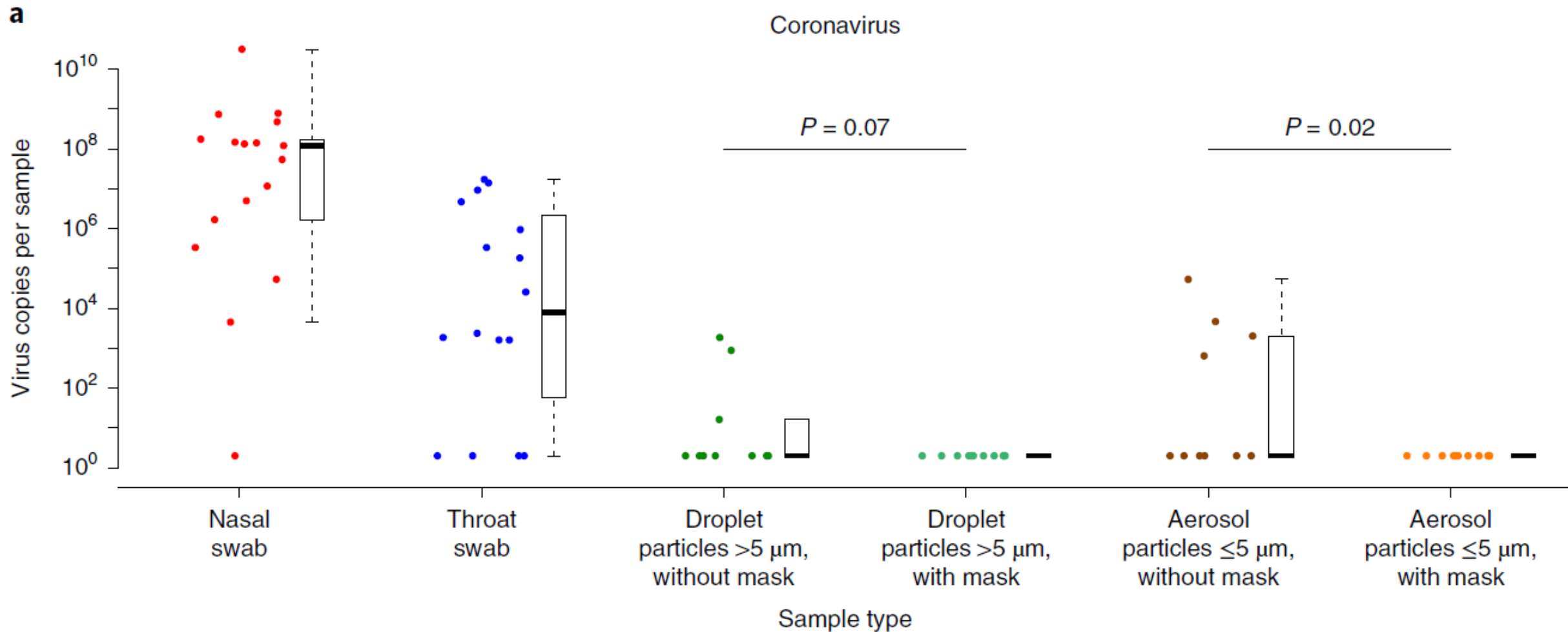
Garth Hunter
Industrial Hygiene Specialist

14 July 2020 (*version 11*)

This guideline for office ventilation during COVID-19 further asserts that indoor CO₂ concentrations in a *fully occupied* workspace should not exceed **400 ppm above outdoor CO₂ concentrations**. When this level is exceeded, it is a measure of poor ventilation, indicating that corrective action is necessary.

Email sean@apexenviro.co.za if you would like a copy of this position paper

Masks – Do they work?



	Population	Age Median	Life Expectancy	Population Density	Urban Pop (%)
Cz	10 708 982	43.2	79.8	138 (p/km ²)	73.5
Pt	10 196 707	46.2	82.7	112 (p/km ²)	65.9
Sw	10 092 270	41.1	83.3	25 (p/km ²)	87.9

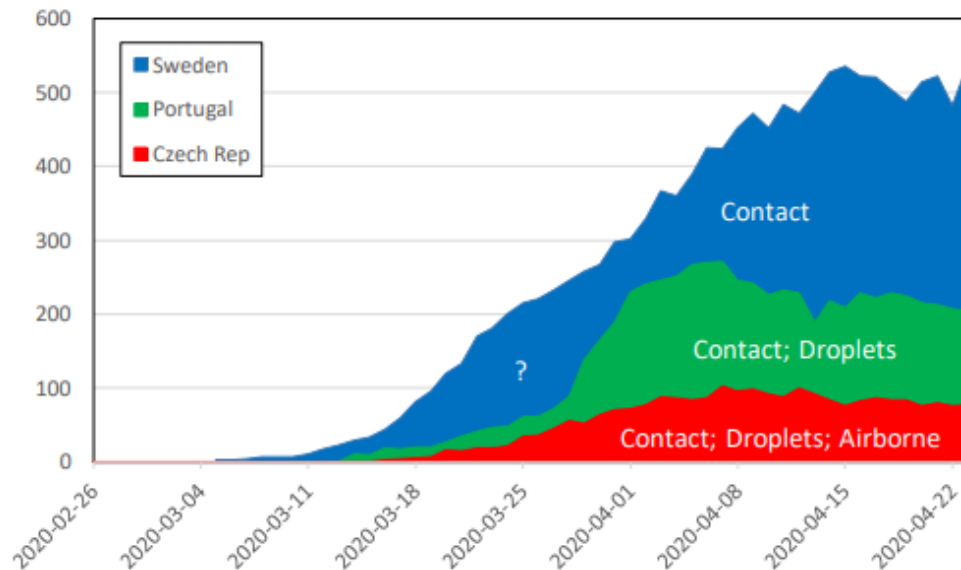
Country	Transmission Modes Protection	Protective Measures
Czech Rep	Airborne, Droplets, Contact	Masks, Ventilation, Confinement, Distancing , Hygiene, Disinfection, Behavior

The effects of protective measures

The effects of protective measures

Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop	Total Tests	Tests/ 1M pop
Czechia	6,914	+14	196	+2	1,597	5,121	75	646	18	178,617	16,679
Portugal	20,863		735		610	19,518	215	2,046	72	235,878	23,133
Sweden	14,777		1,580		550	12,647	521	1,463	156	74,600	7,387

Interned in ICUs vs Protection for Transmission Modes



Breakdown of the Probabilities of Transmission Modes

- Airborne: 64%
- Droplets: 21%
- Contact: 15%

OHS DIRECTION, 4 JUNE 2020

Risk Assessment:

Conduct or update the risk assessment - taking into account the specific circumstances of the workplace.

Social Distancing:

- a) > 500 employees, submit a record of the risk assessment + Policy to Department of Employment and Labour
- b) Arrange the workplace to ensure at least 1.5 meters between workers when they are working
- c) Reducing the number of workers present in the workplace at any given time
- d) If 1,5m is not practicable, arrange physical barriers to be placed between workstations; or supply employees free of charge with appropriate personal protection equipment.
- e) Ensure that social distancing measures are implemented through supervision in the workplace and in common areas (e.g. at canteens or toilets) through queue control, staggering breaks, etc.

Symptom Screening and C-19 Positive Test Results:

- a) Screen workers, when they arrive at work,
- b) Cough, sore throat, shortness of breath, loss of smell, loss of taste, etc.)
- c) Determine whether the workers suffer from additional symptoms such as fever, redness of eyes, body aches, nausea, vomiting, diarrhoea, fatigue, weakness or tiredness.
- d) Comply with guidelines issues by the National Department of Health in consultation with the Department of Employment and Labour
- e) If a worker presents with typical C-19 symptoms do not permit the worker to enter the workplace or report for work
- f) If the worker is already at work and presents with typical C-19 symptoms – isolate and arrange transportation
- g) Assess transmission risk in workplace and disinfect area/s
- h) Commence contact tracing
- i) If worker contracted C-19 as a result of occupational exposure, lodge a claim under COIDA.
- j) C-19+ Return to work if the worker has completed the mandatory 10 days of self-isolation;
- k) C19+ Return to work if the worker has undergone a medical examination confirming fitness for work;
- l) **Low risk exposure:** the worker may be permitted to continue to work, wearing a cloth mask, and the employer must monitor the worker's symptoms for 14 days from the first contact.

Sanitizers:

- a) Hand sanitizers must contain at least 70% alcohol.
- b) Ensure that there are sufficient quantities of hand sanitizer available at the entrance to and in workplace, free of charge.
- c) Provide employee who work away from the workplace, other than at home, with an adequate supply of hand sanitizer.
- d) If a worker interacts with the public, provide the worker with sufficient supplies of hand sanitizer at the workstation for both the worker and the person with whom the worker has interaction.
- e) Take measures to ensure that all surfaces and equipment are disinfected before work begins, regularly during the working period and when work ends.
- f) Take measures to ensure that biometric systems are disabled or are made C-19 safe.
- g) Take measures to ensure that all areas such as toilets, common areas, door handles and shared electronic equipment are regularly cleaned and disinfected.
- h) Ensure that there are adequate facilities for the washing of hands with soap and clean water.
- i) Ensure that paper towels are provided to dry hands after washing. **Fabric toweling is prohibited**
- j) Instruct employees who interact with the public to sanitize their hands between each interaction.
- k) Ensure that surfaces that employees and members of the public come into contact with are routinely cleaned and disinfected.

Cloth Masks and PPE:

- a) Employers must provide each employee with at least two cloth masks
- b) to wear while at work and while commuting to and from work;
- c) Require any other worker (who are not its own employees) to wear a mask in the workplace.
- d) The number and replaceability of cloth masks that must be provided to employees or required or other workers must be determined in accordance with any sectoral guideline and in light of the worker's conditions of work.
- e) Information and Training on the proper use
- f) Risk Assessment my recommended other types of PPE

Members of the public:

- a) Depending on what is reasonably practicable, arrange the workplace to ensure that there is a distance of at least 1.5 metres between workers and members of the public
- b) If reasonably practicable, put in place physical barriers or provide workers with masks or face shields, or visors.
- c) Screen non-workers / visitors
- d) Display notices and post signage
- e) Provide sanitizer

Ventilation:

Keep the workplace well ventilated by natural or mechanical means



Email sean@apexenviro.co.za if you would like a summary of the Direction

COVID-19 Workplace Medical Passport

This form MUST be completed by ALL people entering the work environment, including employees, clients, visitors, contractors and service providers. It will not be used to discriminate against you in any way. All information is confidential.

This is an initiative of:



Next →

Powered by
ENKETO **Mobenzi**



medical passport mobenzi

 All

 Images

 Shopping

Screening (Situational)

<https://covid-19.mobenzi.com/designer/#/collect/?formAccessKey=workplace-medical-passport>



CONDUCTING A RISK ASSESSMENT



High Risk Exposure

- Close contact within 1m of a C-19 confirmed case for >15 minutes without PPE (no face cover/eye cover)
- OR with failure of PPE and/or direct contact with respiratory secretions of confirmed C-19 case (clinical or laboratory)



Low Risk Exposure

- > 1m away from a C-19 confirmed case for >15 minutes
- OR within 1m but wearing PPE(face cover / eye cover.
- Also consider LOW RISK if Covid case is wearing a surgical mask (source control)



APEX
ENVIRONMENTAL

..... Adding insight through experience

RISK ASSESSMENT TOOLS

		TRANSMISSION RISK				
		Low transmission risk	Medium transmission risk	High transmission risk	Very high transmission risk	
Workplace factors		Community Factors (Provincial incidence)	Northern Cape - 37 North West - 72 Mpumalanga - 78 Limpopo - 94	Free State - 168	KwaZulu Natal - 1616 Eastern Cape - 2135 Gauteng - 2361	Western Cape - 10639
		Ventilation	Natural ventilation and mechanical ventilation (easy to ventilate area, perceivable draft)	Mechanical ventilation providing fresh air (AQI / ventilation evaluation may be required)	Mechanical ventilation / Air conditioning not providing fresh air	No ventilation and no fresh air supply
		Occupancy and Barrier control	Not a shared area OR shared area but interaction is < 15 min, with masks, social distancing protocols	Shared area: physical distancing (> 1,5 m) possible, physical barriers raised	Shared area: social distancing not possible, physical barriers in place	Shared area: social distancing not possible, no physical barriers in place
			Very little contact with other people, including co-workers OR contact < 15 min with masks, social distancing protocols	Contact with general public with unknown COVID-19 status AND contact > 15 min with masks, social distancing protocols	Contact with known or suspected COVID - 19 patients or specimens	Contact with known or suspected COVID-19 patients/bodies or specimens
			No interaction between different risk occupations	Interaction between different risk occupations, with masks, social distancing protocols	Interaction between high transmission employees with occupations with lower risk with masks, social distancing protocols	Interaction between high transmission employees with occupations with lower risk with NO masks, social distancing protocols
None to Very little contact with shared surfaces / items	Contact with shared surfaces – item exchange between people		Contact with items from person with known or suspected COVID -19, including specimen handling	Aerosol-generating procedures of known or suspected COVID-19 artefact		
COVID-19 DEATH RISK BASED ON AGE	Low risk (< 6,1 %)	No underlying health problems < 40 Years	Low Risk for developing COVID-19 Complications	Low Risk for developing COVID-19 Complications	Low Risk for developing COVID-19 Complications	Medium Risk for developing COVID-19 Complications
	Medium risk (< 6,1 %)	Controlled, non-immune suppressive medical conditions < 40 Years	Low Risk for developing COVID-19 Complications	Medium Risk for developing COVID-19 Complications	High Risk for developing COVID-19 Complications	High Risk for developing COVID-19 Complications
	High risk (35,2 %)	Controlled, non-immune suppressive medical conditions > 40 Years < 60	Medium Risk for developing COVID-19 Complications	High Risk for developing COVID-19 Complications	Very High Risk for developing COVID-19 complications	Very High Risk for developing COVID-19 complications
	Very high risk (58,7 %)	Immune suppressive underlying health problems > 60 Years	High Risk for developing COVID-19 Complications	Very High Risk for developing COVID-19 complications	Very High Risk for developing COVID-19 complications	Very High Risk for developing COVID-19 complications

Expert Level – OHP
Collaboration Essential

RISK RANKING TOOLS

COVID-19 Risk Assessment Report								
Site:				Date:				
Department:				Risk Assessor:	Name & Surname	Signature		
Work Area/s:				Area Supervisor:	Name & Surname	Signature		
Occupations in Area:				Health & Safety Representative:	Name & Surname	Signature		
Risk Assessment								
Source of Hazard	Route of exposure	Activities & tasks	Existing Control Measures	Control effectiveness	Risk classification	Additional Controls Required	Responsible person(s)	Due Date/s
Department of Employment and Labour Exposure Risk Classification								
Low Exposure Risk Lower exposure risk (caution) jobs are those that do not require contact with people known to be or suspected of being infected with SARS-CoV-2, nor frequent close contact with (i.e. within 2 meter of) the general public.		Medium Exposure Risk Medium exposure risk jobs include those that require frequent and/or close contact with (i.e. within 2 meters of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients.		High Exposure Risk High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19.		Very High Exposure Risk Very high exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, <u>post mortem</u> , or laboratory procedures.		

Employer Level – OHS Professional Audit Recommended

Does not specifically account for severity

RISK RANKING TOOLS - PROBABILITY

HEALTH EFFECT / HAZARD (SEVERITY RATING)		1 MINIMAL EXPOSURE Infrequent contact at low levels	2 MODERATE EXPOSURE Infrequent contact at high levels, or Frequent contact at low levels	3 HIGH EXPOSURE Frequent contact at high levels	4 SEVERE EXPOSURE Frequent contact at very high levels
HBA Group	Description				
4	Causes severe human disease; Serious hazard to exposed persons May present high risk of spreading to community; NO effective prophylaxis & treatment usually available.	LOW TO MEDIUM RISK (Achievable)	MEDIUM RISK (Existing)	MEDIUM TO HIGH RISK (Uncontrolled)	HIGH RISK

Severity is fixed

Assumes healthy
worker – so relies on
OHP input to graduate
from baseline Risk
Ranking

Considers Control
Failures

Understandable to a wide audience

RISK RANKING TOOL - SEVERITY SCALES



Determine Exposure Severity – OHP Intervention

Very high vulnerability (harmfulness **score 5**)

This group includes employees who are likely to develop severe, rapidly progressive, and fulminant disease. Examples include:

- Solid organ transplant recipients on immunosuppressive treatment
- People with specific cancers or receiving immunosuppressive treatment for their cancer
 - undergoing active chemotherapy or radical radiotherapy for lung cancer
 - cancers of the blood or bone marrow such as leukaemia, lymphoma or myeloma who are at any stage of treatment
 - receiving immunotherapy or other continuing antibody treatments for cancer
 - receiving targeted cancer treatments which can affect the immune system, such as protein kinase inhibitors or Poly ADP-ribose Polymerase (PARP) inhibitors
- People who have had bone marrow or stem cell transplants in the last 6 months, or who are still taking immunosuppressive drug.
- People with severe respiratory conditions including cystic fibrosis, severe and unstable asthma and severe Chronic Obstructive Pulmonary Disease (COPD), or current active tuberculosis of the lung.
- People with rare diseases and inborn errors of metabolism that significantly increase the risk of infections (such as Severe Combined Immunodeficiency (SCID), homozygous sickle cell).
- People on immunosuppressive therapies not otherwise mentioned above, sufficient to *significantly* increase risk of infection. (e.g. high doses of steroids)
- Pregnant women who have significant heart disease, congenital or acquired.
- People who are older than 65 years, although healthy elderly can be handled on a case by case basis

RISK RANKING TOOL - SEVERITY SCALES



Determine Exposure Severity

High vulnerability group (harmfulness **score 4**)

Employees who fall in this group include employees who are more likely to develop severe disease. Examples include:

- Those of age 60 – 65 years
- Those with moderate chronic lung disease or severe asthma
- Those with previous pulmonary TB with confirmed significant structural damage on imaging or impairment on spirometry
- Those with serious heart conditions
- Those who are *moderately* or intermittently immunocompromised
- Those with severe obesity (body mass index [BMI] ≥ 40)
- Those with poorly controlled chronic medical conditions, such as diabetes, renal failure, hypertension or liver disease
- Pregnant women over 28 weeks gestation

RISK RANKING TOOL - SEVERITY SCALES

Determine Exposure Severity

Medium vulnerability group (harmfulness score 3)
Employees who fall in this group include those conditions that place them at risk, but which are controlled. Examples include: <ul style="list-style-type: none">• Pregnant women fewer than 28 weeks gestation but otherwise healthy• Those of age 40 – 60 years, with controlled medical conditions such as hypertension, diabetes, cardiovascular disease, etc.• Those with a previous history of TB, who have recovered with no or minimal residual impairment or structural lung damage• Those with moderate obesity (BMI >35)
Medium Low vulnerability group (harmfulness score 2)
Employees who fall in this group include those who do not have a condition places them at an unknown (but presumed increased) risk, or they suffer a condition for which there is no evidence, but first principles (physiology, pathophysiology) suggests that they may likely be at a theoretically increased risk. Examples include: <ul style="list-style-type: none">• Those under the age of 40 with controlled medical conditions such as hypertension, diabetes, cardiovascular disease, etc• Those who are obese (BMI >32)
Low vulnerability group (harmfulness score 1)
Employees who fall in this group include those without specified risk factors.



Key Observations (General)

- Risk assessment and detail-oriented management are the baseline
- All interventions pass the *reasonably practicable* challenge test, compliance is therefore non-negotiable
- This is a *behavioural safety* failure pandemic above all else
- Understanding the *Transmission Mechanisms* are key to controlling the physical, financial and psychological impacts of C19
- C19 prevention is everyone's responsibility
- Monitoring and enforcement remains fundamental



Key Observations (Situational)

- IR Thermometers introduce problems
- Flushing toilets are now considered an exposure source
- Ventilation is fundamental
- Cloth masks and surgical masks are isolation devices
- Vulnerable workers can work

Checklist to success

Conduct a risk assessment & identify (classify) high risk jobs / tasks e.g. pinch points

Develop a checklist of controls required, according to the risks

- Start with the universal controls; ensure adequate inventory of disinfectants, sanitiser, PPE, flu vaccines, Isolation devices (masks), ventilation, educational/awareness posters
- Engage with medical personnel (GP, OHP)
- Develop a C19-specific PPE matrix
- Develop all required procedures, including routine disinfection, high risk procedures (e.g. PFT / breathalyser testing), site entry screening, employee screening, incident action plans, post incident decontamination
- Establish key workplace rules and disciplinary expectations (may need to amend existing disciplinary codes)
- Develop and implement the communication strategy, including induction tools

Contractor engagement

- Go through the steps above, and establish clear roles & responsibilities, and rules of engagement

The New Normal

“What counts in life is not the mere fact that we have lived. It is what difference we have made to the lives of others that will determine the significance of the life we lead.”

Nelson Mandela



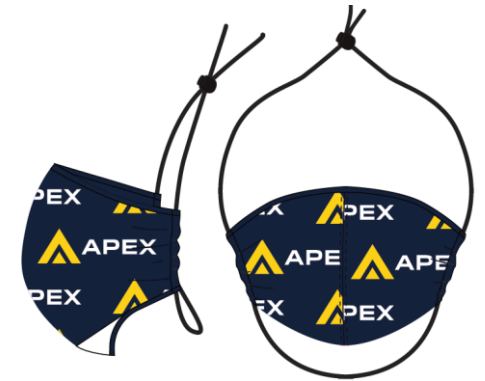


Honeywell



Rockwood
DISPOSABLE FACE MASKS

uvex



Barrier Management Tools

Email sean@apexenviro.co.za if you like pricing or specs of these items



Approved Inspection Authority

COVID-19

Risk Management Pack



Risk
Assessments



Surface
Swabbing



Staff
Training



Job Task
Protocols



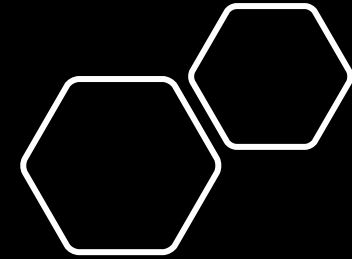
PPE



Routine
Inspections



Instrumentation



Thank You