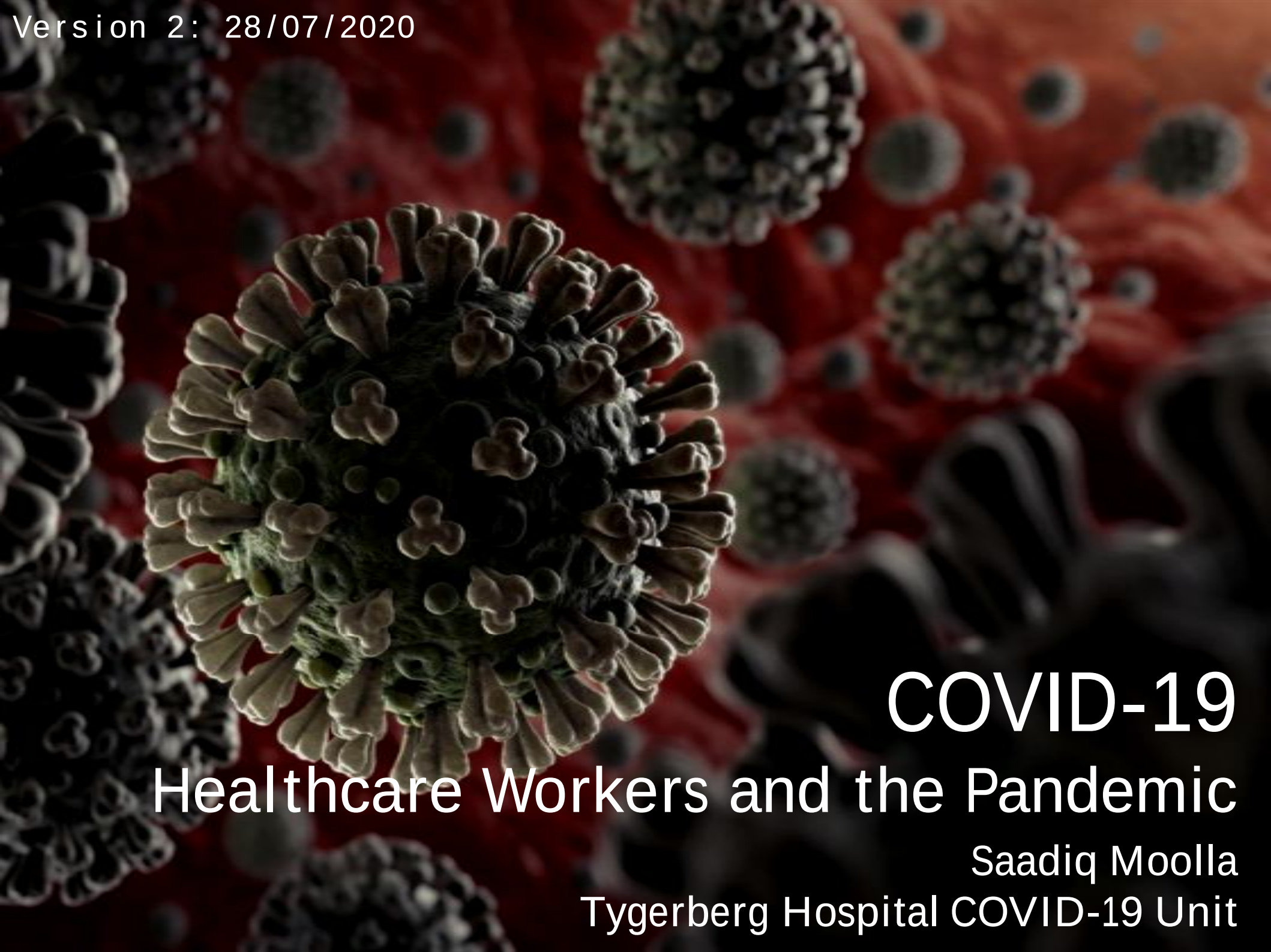
Version 2: 28/07/2020



COVID-19

Healthcare Workers and the Pandemic

Saadiq Moolla
Tygerberg Hospital COVID-19 Unit

Case Vignette

A 24 yo nurse referred from Occ Health with

a) 4/7 hx of cough, chills, myalgia and altered smell
b) 4/7 hx of diarrhoea
c) no symptoms

She reports

a) Working in a COVID-19 ward
b) Exposure to a PUI (now positive) without PPE

How would you manage this case?

Where do HCW's get infected?

- Undiagnosed and asymptomatic infections
  - crowded emergency rooms
  - outpatients and general wards
- Aerosol generating procedures
- Elsewhere
- Outside the hospital

Why do HCW's get infected?

- Inadequate hand washing practices
- Suboptimal PPE
  - lack of preparation and attention to detail
  - training
  - incorrect use
  - burnout

Surfaces, fomites, and… fluids

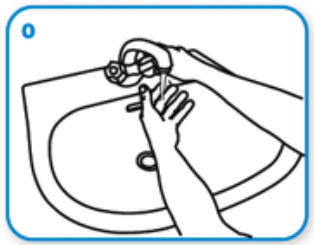
Specimen	PCR Positivity (%)
BAL	93
Sputum	72
Nasal swab	63
Faeces	29
Blood	1
Urine	0

How Can I Avoid Infection?

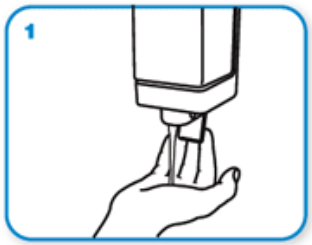
- Hand hygiene
- Training
- Triage of patients
- Appropriate use of PPE
  - observer/buddy system
  - how to remove gloves correctly!
- Regular environmental decontamination
- Physical distancing
  - during rounds
  - during procedures
  - during breaks

  NOW!

Washing Hands

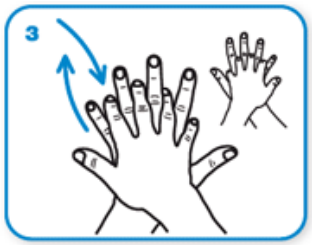


Wet hands with water



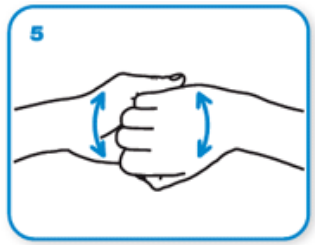
apply enough soap to cover all hand surfaces.

Rub hands palm to palm



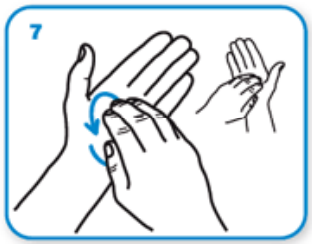
right palm over left dorsum with interlaced fingers and vice versa

palm to palm with fingers interlaced

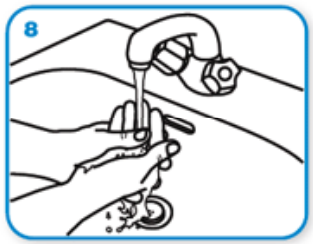


backs of fingers to opposing palms with fingers interlocked

rotational rubbing of left thumb clasped in right palm and vice versa

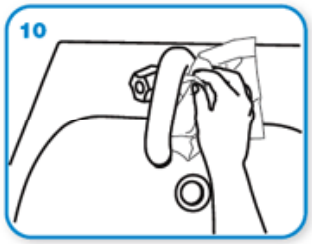


rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.



Rinse hands with water

dry thoroughly with a single use towel



use towel to turn off faucet

...and your hands are safe.

PPE

Direct care of patients with COVID-19 (Non-aerosol generating)
✓ non-sterile gloves
✓ apron
✓ eye shield or goggles
✓ surgical mask

Aerosol-generating procedure on patients with COVID-19
✓ non-sterile gloves
✓ gown / apron
✓ eye shield or goggles
✓ N95 respirator

DONNING ORDER FOR PUTTING ON PPE

hand hygiene (soap or alcohol handrub)

put on apron or gown

put on surgical mask or N95 respirator

put on eye cover

put on non-sterile gloves

DOFFING ORDER FOR TAKING OFF PPE

hand hygiene (soap or alcohol handrub)

remove gloves

remove gown / apron

remove eye cover

remove N95 respirator

hand hygiene (soap or alcohol handrub)

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

Removing Gloves

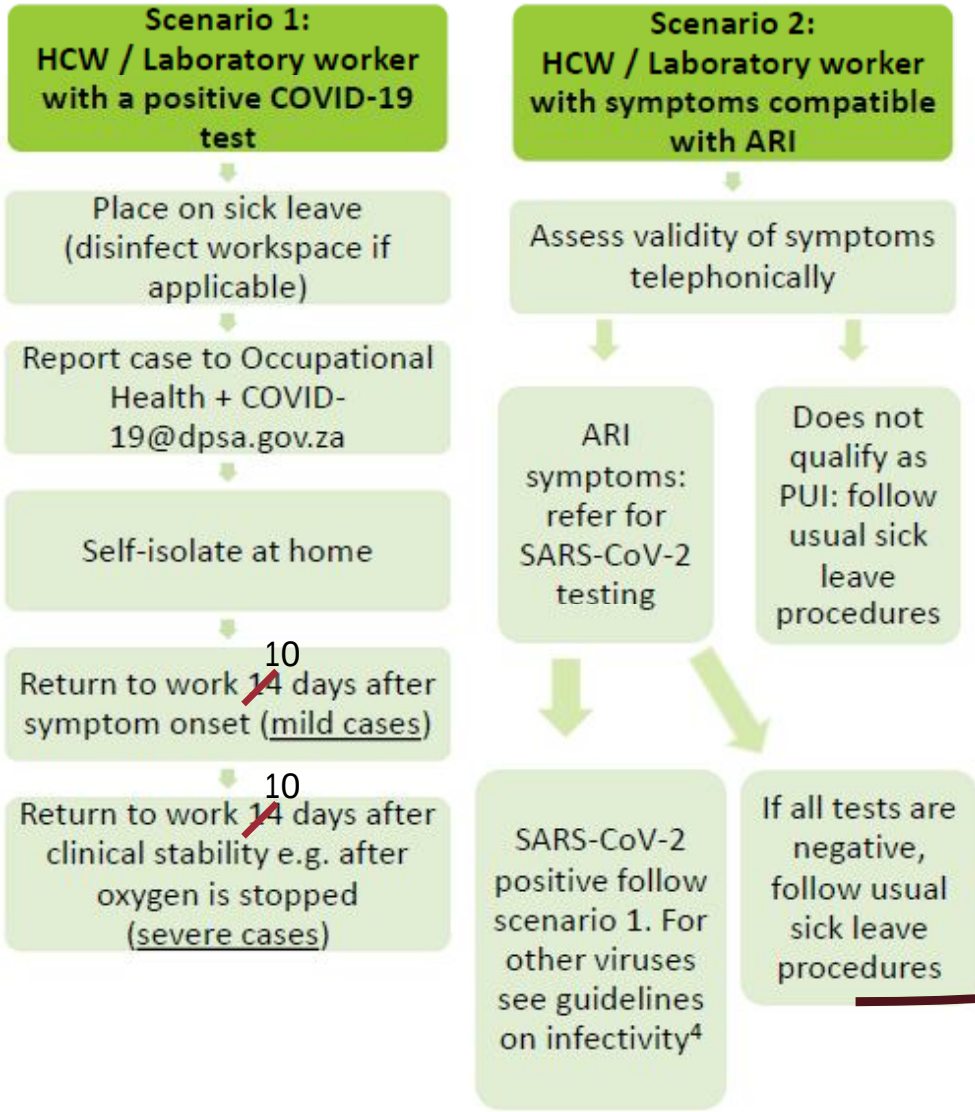
Symptom Monitoring

- Monitor yourself daily for symptoms:
  - fever and chills
  - sore throat
  - cough
  - loss of smell or loss of taste
  - myalgia/fatigue/weakness
  - short of breath
  - nausea, vomiting and diarrhoea
- Healthcare workers often work while symptomatic and infectivity can occur prior to symptoms
  - face masks
  - sick leave policies

I feel a little sick… Now what?

- Stay home
- Inform your senior/consultant
- Risk assessment
- SARS-CoV-2 testing (and viral panel)

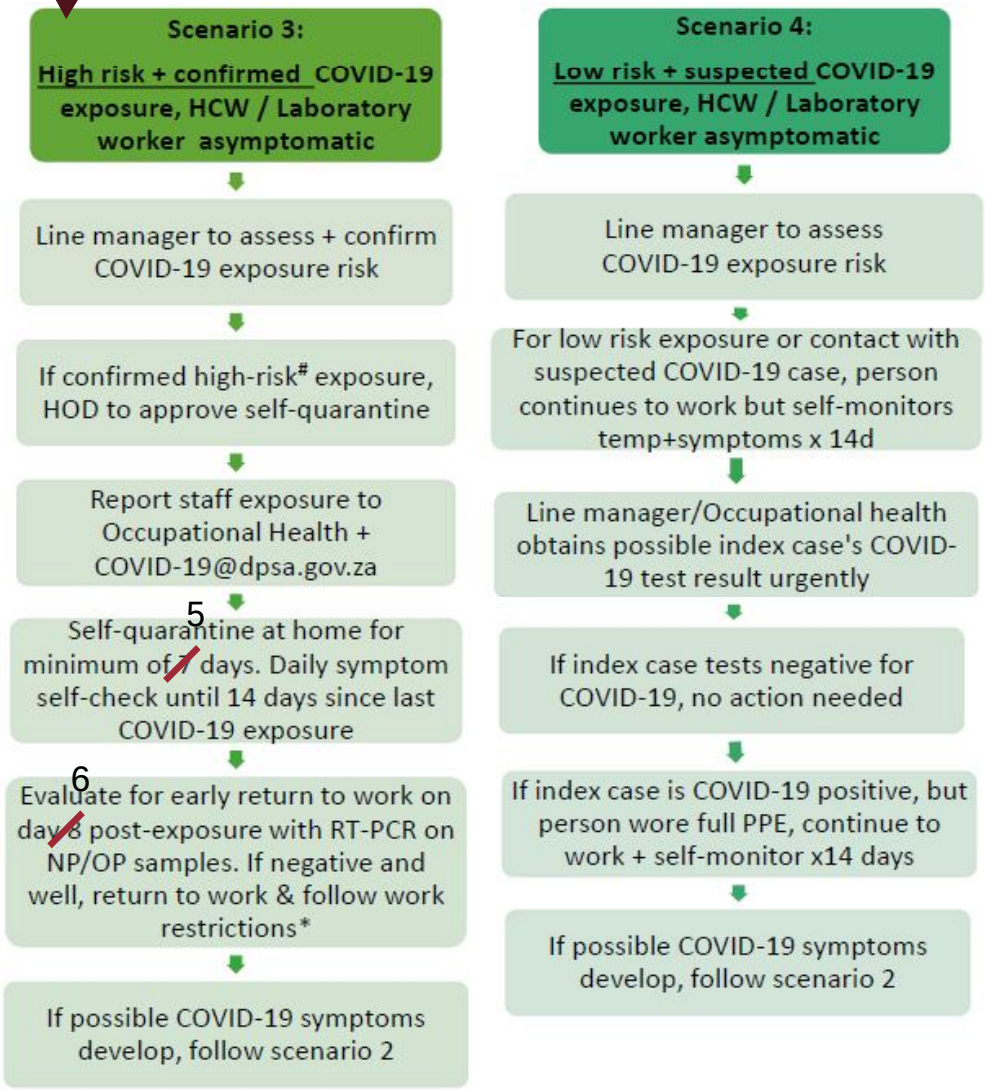
Symptomatic



1. Wear mask till sx's resolved and 10/7
2. No contact with severe immuno-compromised till 10/7
3. Hygiene!
4. Other infections?

Exposure

1. Close contact < 1 m of confirmed case for > 15 min without PPE or failure of PPE
2. Direct contact with respiratory secretions of confirmed case



Other Respiratory Viruses

Virus	Incubation period	Infective period
Influenza	1 – 5 days	1 week
RSV	2 – 8 days	1 week
Rhinovirus	8 hours – 2 days	2 – 3 weeks
Metapneumovirus	5 – 6 days	unknown
Adenovirus	1 – 12 days	2 weeks
Parainfluenza	2 – 6 days	1st few days

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Cold Spring Harbor Laboratory BMJ Yale

Infectious Diseases (except HIV/AIDS)

Staff testing for COVID-19 via an online pre-registration form

Posted July 14, 2020.

Muhammad Saadiq Moolla, Arifa Parker, Mohammed Aslam Parker, Sthembiso Sithole, Leila Amien, Rubeena Chiecktey, Tasneem Bawa, Abdurasiet Mowlana

doi: https://doi.org/10.1101/2020.07.13.20152876

Abstract

Background: Healthcare workers are at increased risk of contracting SARS-CoV-2 and potentially causing institutional outbreaks. Staff testing is critical in identifying and isolating

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CSH Cold Spring Harbor Laboratory BMJ Yale
Staff testing for COVID-19 via an online pre-registration form

Methods

- Retrospective descriptive study involving all clients pre-registering online for coronavirus testing at TBH during May 2020
- Data extracted from
  - emails generated by online form (www.tbhcovid.co.za/register)
  - NHLS TrakCare Web Results Viewer

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Staff testing for COVID-19 via an online pre-registration form

Results

- 799 cases
- Median of 2 symptoms (IQR: 1 – 4)
- Median duration of 4 days (IQR: 2 – 7)
  - doctors 1.5 days (IQR: 1 – 4)
- 105 positive results
- Greater number of symptoms assoc with positive result (p=0.0002)
  - particularly 3 or more symptoms

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Staff testing for COVID-19 via an online pre-registration form

Recruitment and Outcomes

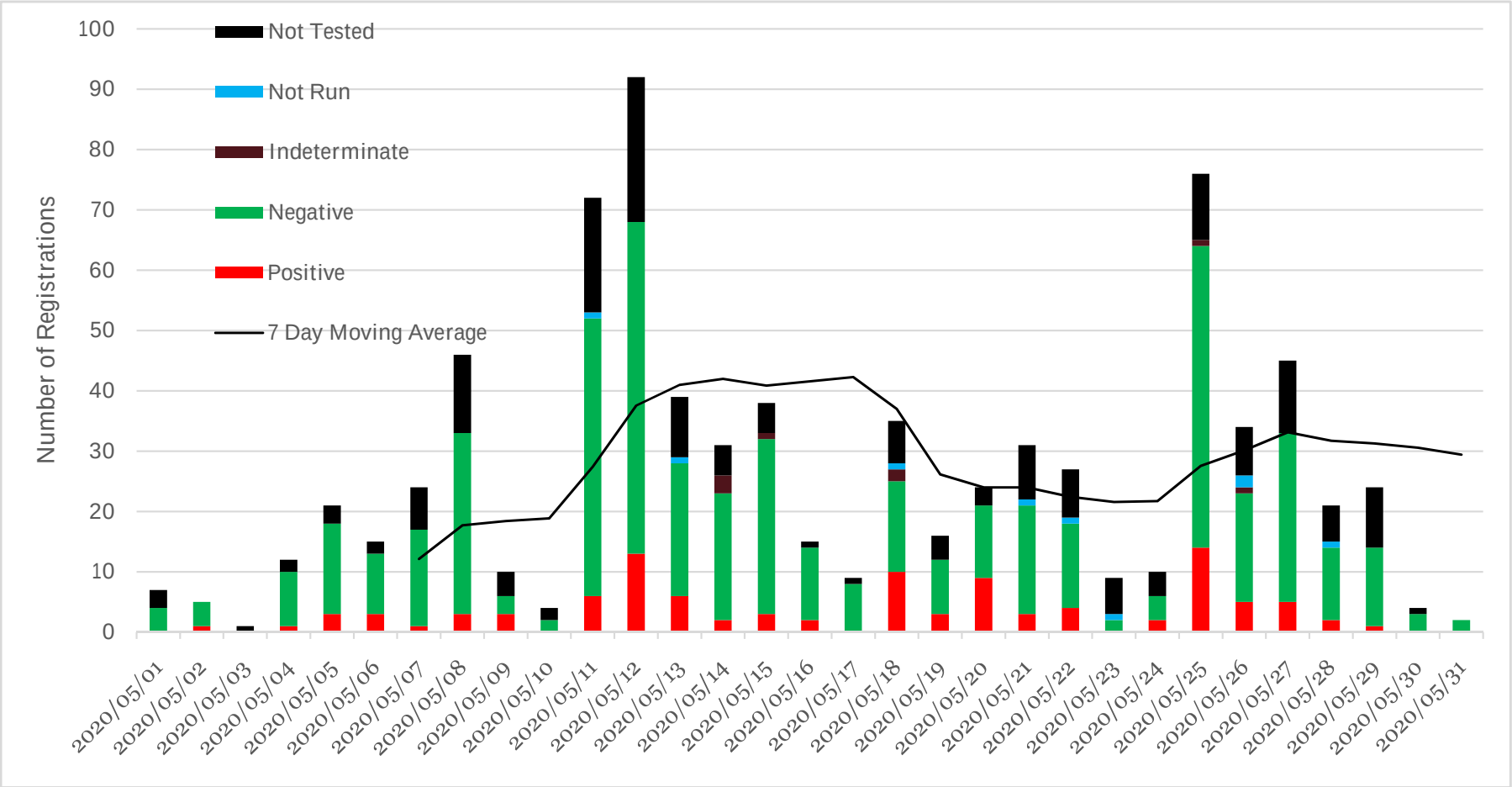

Figure: Daily online pre-registrations and outcomes for the month of May 2020.

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Staff testing for COVID-19 via an online pre-registration form

Symptomatology

Symptom (N = 799)	Symptom frequency	Valid result	Positive result	Proportion (95% CI)
Fever	72	61	24	39.34 (28.06 ; 51.88)
Altered smell	70	50	19	38.00 (25.86 ; 51.85)
Altered taste sensation	92	65	23	35.38 (24.87 ; 47.52)
Chills	75	60	18	30.00 (19.90 ; 42.51)
History of fever	68	50	14	28.00 (16.67 ; 42.81)
General body weakness	107	84	21	25.00 (16.47 ; 35.85)
Cough	326	245	56	22.86 (18.04 ; 28.51)
Myalgia	196	150	32	21.33 (15.53 ; 28.56)
Headache	435	345	67	19.42 (15.59 ; 23.92)
Nausea and vomiting	52	39	7	17.95 (8.10 ; 34.11)
Shortness of breath	115	89	14	15.73 (9.61 ; 24.69)
Sore throat	361	285	44	15.44 (11.71 ; 20.09)
Diarrhoea	54	43	5	11.63 (5.07 ; 24.48)
Irritability	23	12	1	8.33 (1.49 ; 35.38)
Asymptomatic	145	99	12	12.12 (7.07 ; 20.00)

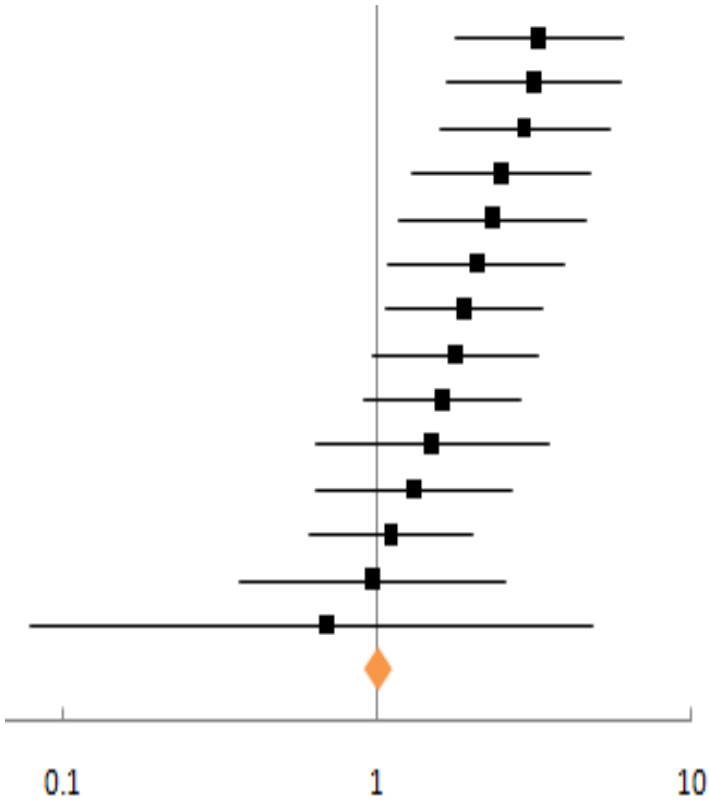

Table: Symptom frequency, proportion with positive result and forest plot with relative risk for positive result compared to asymptomatic individuals.

Staff testing for COVID-19 via an online pre-registration form

Discussion

- Testing of HCW's allows for early return to work while also isolating potentially infected individuals
- Some presentations are high-risk, others low-risk
- Asymptomatic and pre-symptomatic is a significant challenge
- Other strategies:
  - wearing of masks and face shields
  - regular hand washing
  - buddy screening
  - physical distancing
  - availability of PPE

Mental Health Needs

- Frontline workers = higher levels of mental health sx's
- Incl depression, anxiety, psychological distress from:
  - emotional strain and physical exhaustion
  - caring for co-workers
  - shortage of PPE, ventilators and other equipment
  - concerns about family members
  - anxiety in new and unfamiliar roles
  - limited access to Mental Health services
- Monitor yourself and colleagues and speak up
- Services at Tygerberg

Case Vignette

A 24 yo nurse referred from Occ Health with

a) 4/7 hx of cough, chills, myalgia and altered smell
b) 4/7 hx of diarrhoea
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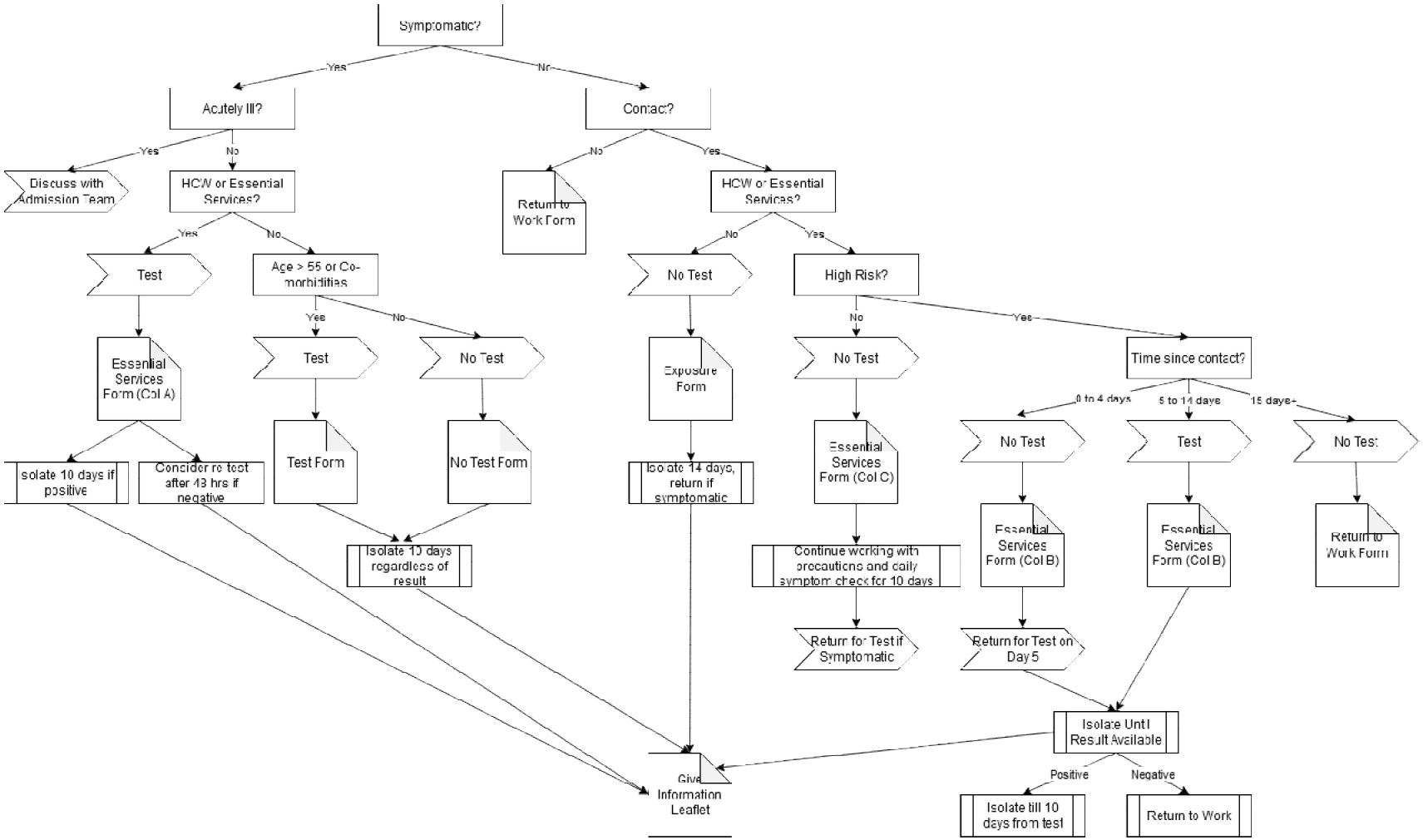
She reports

a) Working in a COVID-19 ward
b) Exposure to a PUI (now positive) without PPE

How would you manage this case?

Summary: Management Algorithm



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NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

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Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China

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Risk Factors of Healthcare Workers with Corona Virus Disease 2019: A Retrospective Cohort Study in a Designated Hospital of Wuhan in China

Li Ran*[1], Xuyu Chen*[1], Ying Wang*[2], Wenwen Wu[1], Ling Zhang[1], and Xiaodong Tan[1#]

Opinion

VIEWPOINT

Supporting the Health Care Workforce During the COVID-19 Global Epidemic

James G. Adams, MD Ron M. Walls, MD

Netherlands Journal of Critical Care

Submitted July 2017; Accepted October 2017

REVIEW

Seasonal respiratory viruses in adult ICU patients

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World Health Organization