



The Unlocking Phase of Operations Using PPE in Mountain Rescue A Rationale for the Advice

Principles.

Covid-19 is an infectious viral disease that is spread between humans mainly from droplets that originate from the lungs. These enter the body through the nose, mouth and mucus membranes of the eyes. It can also be contained in sections such as saliva. If the virus lands on an external surface it can be cause infection when a person moves this to their face. It does not enter through intact skin. We use PPE to:

- 1) Create a barrier to prevent entry – face mask, eye protection.
- 2) Containment – we have a clothing barrier that we can allow to become “dirty” but remove this in controlled conditions, isolate the virus and then destroy it by decontamination.

There are four possible sources of infection during a rescue:

- 1) Ourselves – the potential to give virus to others.
- 2) Others – the potential to receive it from team members, non-injured members of casualty party, bystanders, other members of emergency services.
- 3) The casualty – who may or may not have the virus but has a broken ankle etc. They could give it to us or we might give it to them.
- 4) Solid objects e.g. stretcher, equipment etc

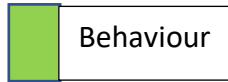
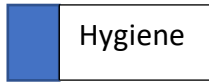
The methods we have to manage the virus are:

- 1) Hygiene – e.g. hand washing, alcohol gel, surface decontamination.
- 2) Behavioural – e.g. social distancing, minimising group size.
- 3) PPE – e.g. creating barrier to prevent entry or contain spread.

These methods work in collaboration. Therefore when one method is compromised because it cannot be achieved, we must rely on the other two. The more methods we compromise the less “safe” we become.

Examples (schematic only)

The contribution made by each method to individual safety:



Walking to an incident site.

Able to social distance from team members, low risk of surface spread.



Giving Casualty Care

Unable to social distance from single casualty and limited helpers, unknown status of casualty.



Carrying a Stretcher

Unable to social distance from single casualty around head end BUT also unable to social distance from multiple team members during carry and changing sides personnel etc. Increased risk of surface spread – lots of people need to interact with stretcher.



Background.

The unlocking of activity and increased movement creates a new situation in which we will manage rescues.

The current Gov UK advice (PHE) is Level 2 PPE (Surgical IIR mask, gloves, apron and eye protection) is appropriate in the following circumstances (1).

- Direct patient care within 2 m.
- First Responders -who have access to PPE.
- Non-invasive handling of dead bodies.

This advice applies to community and hospital settings it is not specifically designed for the outdoors. The challenge for MR and other SAR organisations is to transfer this into our particular environment. For example, MR members are recommended to use waterproofs rather than an apron because this is a functional alternative.

The current UKSAR document “Guidance to UKSAR Responders” (2) recognises the challenges of working in the outdoor environment. It contains recommendations for risk assessment and the use of PPE (Annex 1 and 3). In common with most documents it starts from the position of making a clinical risk assessment but recognises that this is imperfect and maybe impossible (section 2-page 2/3).

In MREW we have previously recommended that a casualty wears a face mask (3) and provided two versions of Guideline 1 – Initial Approach. Guidelines 2 and 3 address additional aspects of casualty care. It is now time to review these documents.

As we move out of lockdown there will be an increase in infection in the population. This will apply to both our casualties and our team members. This has been the experience of other European countries and is to be expected from the principles of epidemiology.

During lockdown most of our casualties and team members will have little social contact. As the weeks have progressed the probability of a team member attending a call out and being potentially infectious fell significantly. The same was also true of asymptomatic casualties although the history of social isolation was always less certain. However, with the release of lockdown creating greater mobility and more social interaction this changes significantly. This creates a new challenge for how we manage team safety at exactly the time when we can expect to become busier with search and rescue.

The triage questions we use at the initial risk assessment are designed to identify ill Covid 19 positive patients. Whilst such a system can “rule in” most high-risk cases who have the clinical features of Covid-19 it cannot “rule out” lower risk cases who can still be infective. The triage process enables us alert other agencies who become involved in their care. In MR we will very rarely be trying to make a diagnosis of Covid-19 but treating other conditions in a casualty who may or may not have the infection.

This outcome of this triage process is not the only reason for using PPE.

The Challenge Ahead.

The Hazard.

The problem we need to address is the asymptomatic carrier – a person who feels well but are carrying the virus and maybe able to infect other people. There is no method for identifying the asymptomatic carrier.

The majority of our patients will be injured and are unlikely to have Covid symptoms or signs. However, they could still be carrying the virus.

The same is also true for our team members. As they return to work and travel they are more likely to become asymptomatic carriers of the virus. They may genuinely feel well enough to attend a call out, or have very minimal symptoms, but still be able to infect others.

The Likelihood of Harm.

Covid -19 is a new disease and we are just beginning to understand how it works, so there are many unknowns that create uncertainty. The presence of the virus has been shown in people without symptoms (4). When these are followed up most develop symptoms but not all. The asymptomatic carrier is therefore a real entity.

The ability of a person to infect others depends on the viral load but we have not yet determined the numerical value of this for Covid-19. Similar viral loads have been reported in both symptomatic and asymptomatic people suggesting that the latter could be infecting others without feeling unwell (5-8). The potential for pre symptomatic transmission has been inferred through modelling and estimated as occurring in 48-62% of cases (9).

The incubation period for Covid 19 is between 1-14 days and viral shedding associated with infectivity starts approximately 2 days before the symptoms (10-15). When we attend a call out we cannot tell how far along the illness journey a casualty or team member maybe.

This means that for any casualty or team members it is possible for them to feel well and still present risk to others.

The Consequence.

- Illness – mild, moderated severe.
- Transmission to others – casualty, team, other agencies, family, social contact etc.
- Testing and isolation – time lost from work, family members of social contacts may need to isolate as well.
- Compromise of team function.

The Use of PPE.

The use of PPE when treating a casualty is not contentious. We must approach and have intimated contact with a person with unknown status. Although the use of double gloves is not part of PHE Level 2 PPE it might be an operational advantage in our situation.

Single gloves can become more easily damaged in the adverse environment of a rescue. Make a local risk assessment.

Carrying a stretcher in the outdoors is however a complex set of interactions. This is an activity undertaken by many other organisations and the PHE guidance was not written for this scenario.

It brings team members within 2 meters of a casualty. To some extent this is mitigated by the mask on the casualty and the outdoor environment. Although we cannot say how well this works, this is likely to be significant and only the team members around the head end might be more at risk.

However, once in the stretcher zone, all team members have compromised their ability to remain distant from both the casualty and their own team members. This is an interaction with multiple people. The need to change sides and personnel during a carry make the possibility of true distancing or even some protection by facing the other way, body position, extremely difficult to manage on mountain rescue terrain.

The action we can take to maximise team members security is the use of PPE in this situation.

Tracing and Testing.

Swab test can be used to identify if a person is carrying infection but these do have a false negative rate. They are not currently available to symptom free members of the public.

Swab testing is available to members of mountain rescue.

As we move forward to a world in which there is improved contact tracing and testing there will be a need for team members to isolate and be tested if they are identified as coming into contact with a positive case (casualty, team member, others) identified at the rescue location (16). This maybe driven by a location App and enforced by follow up tracing. The details around these systems are not published. This could mean that any who had been identified by contact tracing, would need to isolate and be tested along with their household and social contacts.

However, if the team member was wearing PPE within 2 m and had enforced proper social distancing during the rescue, they would be extremely unlikely to be infected from that event and could, with a negative test, continue with their lives normally. This has consequences for the individual, their households and social contacts.

A team not wearing PPE could find the whole team significantly compromised.

The Government is proposing local testing and local mapping of infection. This is useful at a population level but does not provide information to manage individual cases during a rescue. There is a recent announcement of a reliable anti-body test. Eventually such data may demonstrate that infections rates across the UK are small and that immunity is high and we can change our approach. But at present this is not the case.

The Recommendation.

The recommended default position is that all team members wear PPE with a fluid resistant face mask during a stretcher carry.

Given the “unlock” scenario the risk of asymptomatic carries will rise rather than fall in the next few weeks or months. This recommendation takes this into account and is designed to provide a safe working environment for our volunteers.

In exceptional circumstances or where this might create an issue of safety or significantly compromise a rescue operation a dynamic risk assessment involving assessment of other options, joint decision making and a recorded rationale could be used to modify such precautions.

Review.

This guidance will be revised when information is available that changes this situation or at the end of each 4-week period from the issue date.

If you have constructive criticism and new evidence that help inform the decision making process please contact me at: medicalofficer@mountain.rescue.org.uk

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14. Guidance for discharge and ending isolation in the context of widespread community transmission of COVID-19 – first update. European Centre for Disease Prevention and Control, 8 April 2020
15. Chinese Centre for Disease Control and Prevention. Epidemic update and risk assessment of 2019 Novel Coronavirus 2020 [updated 29 January 2020; 1 April 2020].
16. Our Plan to Rebuild. HM Gov May 2020 CP239

Appendix.

Mountain Rescue Activity (Examples)	Hygiene	Distancing	Mask	Gloves	Eye Protection	Waterproofs
Walking to incident	✓	✓				
Casualty Care	✓	✓ Compromised	✓	✓ Medical. Double have advantages	✓	✓
Stretcher Carry	✓	Not possible Between team members	✓	✓ Could be washable non- medical	✓	✓
Assisting rescue. e.g. Carrying equipment. No contact with casualty and able to keep social distance with other team members	✓	✓		Consider. Risk assess		
The casualty	✓		✓			
Travel in team vehicles	✓	Minimise numbers	Consider Risk assess		Consider Risk assess	

Summary of PPE Recommendations

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