Public Health England

Guidance

COVID-19 personal protective equipment (PPE)

Updated 4 April 2020

Contents

1. Scope and purpose

This revised guidance concerns use of personal protective equipment (PPE) by health and social care workers, in the context of the current COVID-19 pandemic. It supersedes previous PPE guidance. This guidance relates solely to considerations of PPE, represents one section of infection prevention and control guidance for COVID-19 and should be used in conjunction with local policies.

Refer to further guidance and resources.

This guidance is issued jointly by the Department of Health and Social Care (DHSC), Public Health Wales (PHW), Public Health Agency (PHA) Northern Ireland, Health Protection Scotland (HPS), Public Health England and NHS England as official guidance. The Health and Safety Executive have also reviewed the PPE guidance and have agreed the appropriate sessional use of PPE. Expert reviews and advice from the DHSCNew and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) inform this guidance.

2. Rationale for updated guidance

This guidance has been updated to reflect pandemic evolution and the changing level of risk of healthcare exposure to SARS-CoV-2 in the UK. It is recognised that in contexts where SARS CoV-2 is circulating in the community at high rates, health and social care workers may be subject to repeated risk of contact and droplet transmission during their daily work. It is also understood that in routine work there may be challenges in establishing whether patients and individuals meet the case definition for COVID-19 prior to a face-to-face assessment or care episode.

Certain work environments and procedures convey higher risk of transmission and aerosol generating procedures (AGPs) present risk of aerosolised transmission. This guidance therefore seeks to set out clear and actionable recommendations on the use of PPE, as part of safe systems of working, for health and social care workers relative to their day-to-day work. Incidence of COVID-19 varies across the UK and risk is not uniform and so elements of the updated guidance are intended for interpretation and application dependant on local assessment of risk.

This guidance is also updated to reflect the need for enhanced protection of patients in vulnerable groups undergoing shielding.

3. Main changes to previous guidance

The main changes are:

- enhanced PPE recommendations for a wide range of health and social care contexts
- inclusion of individual and organisational risk assessment at local level to inform PPE use
- recommendation of single sessional (extended) use of some PPE items
- re-usable PPE can be used. Advice on suitable decontamination arrangements should be obtained from the manufacturer, supplier or local infection control
- guidance for when case status is unknown and SARS-CoV-2 is circulating at high levels
- recommendation on patient use of facemasks

4. Safe ways for working for all health and care workers

- staff should be trained on donning and doffing PPE. Videos are available for training
- staff should know what PPE they should wear for each setting and context
- staff should have access to the PPE that protects them for the appropriate setting and context
- gloves and aprons are subject to single use as per SICPs with disposal after each patient or resident contact
- fluid repellent surgical mask and eye protection can be used for a session of work rather than a single patient or resident contact
- gowns can be worn for a session of work in higher risk areas
- hand hygiene should be practiced and extended to exposed forearms, after removing any element of PPE
- staff should take regular breaks and rest periods

5. Summary of PPE recommendations for health and social care workers

Table 1 summarises PPE recommendations for health and social care workers by context for both NHS and independent

sectors in secondary care inpatient clinical settings.

Table 2 summarises recommended PPE for primary, outpatient and community care settings.

Table 3 summarises recommended PPE for ambulance, paramedics, first responders and pharmacists.

Table 4 summarises recommendations where COVID-19 transmission is sustained.

It is recognised that provision of healthcare is dynamic and in a single care episode more than one context may be encountered, PPE should be changed (upgraded) as appropriate.

6. Sessional use of PPE

Aprons and gloves are subject to single use as per Standard Infection Control Precautions (SICPs), with disposal and hand hygiene after each patient contact. Respirators, fluid-resistant (Type IIR) surgical masks (FRSM), eye protection and long sleeved disposable fluid repellent gowns can be subject to single sessional use in circumstances outlined in Table 1 and section 7

A single session refers to a period of time where a health and social care worker is undertaking duties in a specific clinical care setting or exposure environment. For example, a session might comprise a ward round, or taking observations of several patients in a cohort bay or ward. A session ends when the health and social care worker leaves the clinical care setting or exposure environment. Once the PPE has been removed it should be disposed of safely. The duration of a single session will vary depending on the clinical activity being undertaken.

While generally considered good practice, there is no evidence to show that discarding disposable respirators, facemasks or eye protection in between each patient reduces the risk of infection transmission to the health and social care worker or the patient. Indeed, frequent handling of this equipment to discard and replace it could theoretically increase risk of exposure in high demand environments, for example by leading to increasing face touching during removal. The rationale for recommending sessional use in certain circumstances is therefore to reduce risk of inadvertent indirect transmission, as well as to facilitate delivery of efficient clinical care.

PPE should not be subject to continued use if damaged, soiled, compromised, uncomfortable or in other circumstances outlined in section 10, and a session should be ended. While the duration of a session is not specified here, the duration of use of PPE items should not exceed manufacturer's instructions. Appropriateness of single vs sessional use is dependent on the nature of the task or activity being undertaken and the local context.

7. Risk assessment

For common contexts where health and social care workers are providing care to patients and individuals who are known to be possible or confirmed COVID-19 cases, PPE recommendations are specified. Attempts should be made, where appropriate, to ascertain whether a patient or individual meets the case definition for a possible or confirmed case of COVID-19 before the care episode. Refer to the current COVID-19 case definition.

Initial risk assessment where possible should take place by phone, other remote triage, prior to entering the premises or clinical area or at 2 metres social distance on entering. Where the health or social care worker assesses that an individual is symptomatic and meets the case definition, appropriate PPE should be put on prior to providing care.

Where the potential risk to health and social care workers cannot be established prior to face-to-face assessment or delivery of care (within 2 metres), the recommendation is for health and social care workers in any setting to have access to and where required wear aprons, FRSMs, eye protection and gloves.

Health and social care workers should consider need for contact and droplet precautions based on the nature of care or task being undertaken. Risk assessment on use of eye protection for example, should consider the likelihood of encountering a case(s) and the risk of droplet transmission (risk of droplet transmission to eye mucosa such as with a coughing patient) during the care episode. Sessional use of FRSMs and eye protection is indicated if there is perceived to be close or prolonged interaction with patients in a context of sustained community COVID-19 transmission.

Ultimately, where staff consider there is a risk to themselves or the individuals they are caring for they should wear a fluid repellent surgical mask with or without eye protection, as determined by the individual staff member for the episode of care or single session.

Risk assessment at organisational level requires that organisations consider healthcare associated COVID-19 risk at local level and according to the local context. Organisational risk assessment and local guidance should not replace or reduce the ability of the health and social care worker to use appropriate PPE while providing care to patients or residents.

Local acute provider risk assessment may assist in determining higher risk areas and identify specific areas of a hospital where sessional use of PPE is required (for example, certain wards, clinical areas).

8. PPE guidance by healthcare context

8.1 Aerosol Generating Procedures

The highest risk of transmission of respiratory viruses is during AGPs of the respiratory tract, and use of enhanced respiratory protective equipment is indicated for health and social care workers performing or assisting in such procedures. The evidence review will continue to be updated in light of emerging evidence for this new pathogen.

A long sleeved disposable fluid repellent gown (covering the arms and body), a filtering face piece class 3 (FFP3) respirator, a full-face shield or visor and gloves are recommended during AGPs on possible and confirmed cases, regardless of the clinical setting. Subject to local risk assessment, the same precautions apply for all patients regardless of case status in contexts of sustained COVID-19 transmission. Where an AGP is a single procedure, PPE is subject to single use with disposal after each patient contact or procedure as appropriate.

The following procedures are currently considered to be potentially infectious AGPs for COVID-19:

- intubation, extubation and related procedures, for example manual ventilation and open suctioning of the respiratory tract (including the upper respiratory tract)
- tracheotomy or tracheostomy procedures (insertion or open suctioning or removal)
- bronchoscopy and upper ENT airway procedures that involve suctioning
- upper gastro-intestinal endoscopy where there is open suctioning of the upper respiratory tract
- surgery and post mortem procedures involving high-speed devices
- some dental procedures (for example, high-speed drilling)
- non-invasive ventilation (NIV); Bi-level Positive Airway Pressure Ventilation (BiPAP) and Continuous Positive Airway Pressure Ventilation (CPAP)
- High Frequency Oscillatory Ventilation (HFOV)
- induction of sputum (cough)
- high flow nasal oxygen (HFNO)

For patients with possible or confirmed COVID-19, any of these potentially infectious AGPs should only be carried out when essential. Where possible, these procedures should be carried out in a single room with the doors shut. Only those healthcare staff who are needed to undertake the procedure should be present.

Certain other procedures or equipment may generate an aerosol from material other than patient secretions but are not considered to represent a significant infectious risk. Procedures in this category include administration of pressurised humidified oxygen, entonox or medication via nebulisation.

NERVTAG advised that during nebulisation, the aerosol derives from a non-patient source (the fluid in the nebuliser chamber) and does not carry patient-derived viral particles. If a particle in the aerosol coalesces with a contaminated mucous membrane, it will cease to be airborne and therefore will not be part of an aerosol. Staff should use appropriate hand hygiene when helping patients to remove nebulisers and oxygen masks.

Chest compressions and defibrillation (as part of resuscitation) are not considered AGPs; first responders (any setting) can commence chest compressions and defibrillation without the need for AGP PPE while awaiting the arrival of other clinicians to undertake airway manoeuvres.

8.2 Higher risk acute inpatient care areas

Long sleeved disposable fluid repellent gowns, FFP3 respirators, eye protection, and gloves must be worn in higher risk areas containing possible or confirmed cases, or as indicated by local risk assessment. If non-fluid-resistant gowns are used, a disposable plastic apron should be worn underneath. Gloves and aprons are subject to single use as per Standard Infection Control Precautions (SICPs) with disposal after each patient contact. Gowns, respirators and eye protection may be subject to single session use Section 6.

A higher risk acute inpatient care area is defined as a clinical environment where AGPs are regularly performed.

Higher risk acute care areas include:

- intensive care and high dependency care units (ICU or HDU)
- emergency department resuscitation areas
- wards or clinical areas where AGPs are regularly performed (such as wards with NIV or CPAP)
- operating theatres, where AGPs are performed
- endoscopy units, where bronchoscopy, upper gastrointestinal or nasoendoscopy are performed

8.3 Inpatient areas

A fluid resistant (Type IIR) surgical facemask (FRSM) should be worn whenever a health and social care worker enters or is present inpatient area (for example, ward) containing possible or confirmed COVID-19 cases, whether or not involved in direct patient care. For undertaking any direct patient care, disposable gloves, aprons and eye protection should be worn. Evidence reviews were performed by Health Protection Scotland and the Centre for Evidence Based Medicine, University of Oxford.

When working in inpatient areas with no identified possible or confirmed cases, use of PPE should be risk assessed (section 7). Aprons, gloves and FRSMs may be indicated in certain inpatient areas dependent on intensity of COVID-19 transmission in the local context and the nature of clinical care undertaken. An evidence review on the use of aprons or gowns was conducted by Health Protection Scotland and Health Safety Executive.

8.4 Emergency department and acute admission areas

Use of aprons FRSMs, eye protection and gloves is recommended for health and social care workers working in emergency and acute admission areas containing possible or confirmed cases. These areas might include medical, surgical and paediatric admissions wards (not assigned as higher risk acute care areas), for example. Use of PPE in emergency and acute admission areas may be indicated regardless of case status of patients, subject to a risk assessment (section 7).

8.5 Transfer of cases and other duties requiring close contact

Aprons, FRSMs and gloves should be used by health and social care workers transferring possible or confirmed COVID-19 cases and for other duties which require direct contact or that within 1 metre of a case. Eye protection is recommended subject to risk assessment (section 7).

8.6 Operating theatres and operative procedures

Where AGPs are performed, PPE guidance set out for AGPs (section 8.1) should be followed. For operations without AGPs, standard IPC practice should be adopted as normal for the procedure with additional use of FRSM and eye protection for any possibleor confirmed cases. Use of long sleeved disposable fluid repellent gowns is indicated for possible and confirmed cases when there is perceived risk of exposure to bodily fluids. Such PPE in operating theatres may be indicated regardless of case status of patients, subject to local risk assessment (section 7).

8.7 Labour ward

Where AGPs are performed and for operative procedures, PPE guidance set out for AGPs (section 8.1) for operative procedures (section 8.6) respectively should be followed. Otherwise for care of possible or confirmed cases during the second and third stage of labour (vaginal delivery) long sleeved disposable fluid repellent gowns, plastic aprons, FRSMs, eye protection and gloves should be used. Such PPE in labour wards may be indicated regardless of case status of patients, subject to local risk assessment (section 7).

8.8 Ambulance staff, paramedics and first responders

Where AGPs such as intubation are performed, PPE guidance set out for AGPs (section 8.1) should be followed (disposal fluid repellent coveralls may be used in place of long sleeved disposable gowns). For any direct patient care of patient known to meet the case definition for a possible case, plastic apron, FRSMs, eye protection and gloves should be used (section 7). Where it is impractical to ascertain case status of individual patients prior to care, use of PPE including aprons, gloves, FRSM and eye protection should be subject to risk assessment according to local context (section 7).

PPE is not required for ambulance drivers of a vehicle with a bulkhead and those otherwise able to maintain social distancing of 2 metres. If the vehicle does not have a bulkhead then use of a FRSM is indicated for the driver (additional PPE would be as for other staff if providing direct care).

8.9 Primary care, ambulatory care and other non-emergency outpatient clinical settings

For primary care, ambulatory care and other non-emergency outpatient settings (including hospital outpatient clinics) plastic aprons, FRSMs, eye protection and gloves should be used for any direct care of possible and confirmed cases. Such PPE may be indicated for work in such settings regardless of case status, subject to local risk assessment (section 7).

For health and social care workers working in reception and communal areas but not involved in direct patient care, every effort should be made to maintain social distancing of 2 metres. Where this is not practical use of FRSM is recommended.

The principles described in this guidance apply to all health and social settings.PPE guidance is provided for primary and community care in Table 2

Further guidance for primary care in England is provided separately byPublic Health England.

Guidance and standard operating procedures for COVID-19 are also provided byNHS England.

Further information on primary care for Scotland and social care settings in Scotland.

Further information for Northern Ireland.

8.10 Individual's home or usual place of residence

For provision of direct care to any member of a household where one or more is a possible or confirmed case, plastic aprons, FRSMs, eye protection and gloves are recommended.

For delivery of care to any individual meetingcriteria for shielding (vulnerable groups) or where anyone in the household meets criteria for shielding, as a minimum, single use disposable plastic aprons, surgical mask and gloves must be worn for the protection of the patient. If the individual is encountered in any context described or if they meet the case definition then additional PPE should be applied as above.

8.11 Community care home, mental health and other overnight resident facilities

For direct care of possible or confirmed cases in facilities such as community care homes, mental health inpatient units, learning disability residential units, hospices, prisons and other overnight care units, plastic aprons, FRSMs and gloves should be used. Need for eye protection is subject to risk assessment (section 7) meaning dependent on whether the nature of care and whether the individual symptoms present risk of droplet transmission. For further information refer to guidance on residential care provision.

8.12 Pharmacy

If social distancing of 2 metres is maintained there is no indication forPPE in a pharmacy setting. If social distancing is not maintained though direct care is not provided, sessional use of FRSM is recommended. For pharmacists working in other contexts (such as inpatient areas) recommendations described above apply.

8.13 Collection of nasopharyngeal swab(s)

For collection of nasopharyngeal swabs (for example, for COVID-19 diagnostic purposes) plastic aprons,FRSMs, eye protection and gloves should be used.

8.14 Care to vulnerable groups undergoing shielding

For delivery of care to any individual meetingcriteria for shielding (vulnerable groups) in any setting, as a minimum, single use disposable plastic aprons, gloves and surgical mask must be worn for the protection of the patient. If the individual is encountered in any context described or if meets case definition then additional PPE should be applied as per recommendations stated by context and or risk assessment (section 7).

9. Patient use of PPE

In clinical areas, communal waiting areas and during transportation, it is recommended that possible or confirmed COVID-19 cases wear a fluid-resistant (Type IIR) surgical face mask (FRSM) if this can be tolerated. The aim of this is to minimise the dispersal of respiratory secretions, reduce both direct transmission risk and environmental contamination. A FRSM should **not** be worn by patients if there is potential for their clinical care to be compromised (for example, when receiving oxygen therapy via a mask). An FRSM can be worn until damp or uncomfortable.

10. Recommended PPE types and rationale for use

10.1 Filtering face piece class 3 (FFP3) respirators

Respirators are used to prevent inhalation of small airborne particles arising fromAGPs.

All respirators should:

- be well fitted, covering both nose and mouth

- not be allowed to dangle around the neck of the wearer after or between each use
- not be touched once put on
- be removed outside the patient room or cohort area or COVID-19 ward

Respirators can be single use or single session use (disposable) and fluid-resistant. Note that valved respirators are not fully fluid-resistant unless they are also ‘shrouded’. If a valved, non-shrouded FFP3 respirator is used then it should be accompanied by full face protection for use in AGPs or higher risk acute care areas.

FFP3 respirators filter at least 99% of airborne particles. The Health and Safety Executive (HSE) state that all staff who are required to wear an FFP3 respirator must be fit tested for the relevant model to ensure an adequate seal or fit (according to the manufacturers’ guidance). Fit checking (according to the manufacturers’ guidance) is necessary when a respirator is donned to ensure an adequate seal has been achieved.

Further information regarding fitting and fit checking of respirators can be found on theHealth and Safety Executive website.

It is also important to ensure that facial hair does not cross the respirator sealing surface and if the respirator has an exhalation valve, hair within the sealed mask area should not impinge upon or contact the valve. See the Facial hair and FFP3 respirators guide.

Respirators should be compatible with other facial protection used (protective eyewear) so that this does not interfere with the seal of the respiratory protection.

Respirators are for single use or single session use (section 6) and then are to be discarded as healthcare (clinical) waste (hand hygiene must always be performed after disposal) or if re-usable cleaned accorded manufacturer’s instructions. It is important that the respirator maintains its fit, function and remains tolerable for the user.

The respirator should be discarded and replaced and NOT be subject to continued use in any of the following circumstances:

- is damaged
- is soiled (for example, with secretions, body fluids)
- is damp
- facial seal is compromised
- is uncomfortable
- is difficult to breathe through

The manufacturers’ guidance should be followed in regard to the maximum duration of use.

The HSE have stated that FFP2 and N95 respirators (filtering at least 94% and 95% of airborne particles respectively) offer protection against COVID-19 and may be used if FFP3 respirators are not available.

Other respirators can be utilised by individuals if they comply withHSE recommendations. Reusable respirators should be cleaned according to the manufacturer’s instructions.

10.2 Fluid resistant surgical masks

Fluid-resistant (Type IIR) surgical masks (FRSM) provide barrier protection against respiratory droplets reaching the mucosa of the mouth and nose. FRSMs should be well fitted and subject to same level of care in use as respirators (section 10.1).

FRSMs are for single use or single session use (section 6) and then must be discarded. The FRSM should be discarded and replaced and NOT be subject to continued use in any of the circumstances outlined for respirators (section 10.1).

The protective effect of masks against severe acute respiratory syndrome (SARS) and other respiratory viral infections has been well established. There is no evidence that respirators add value over FRSMs for droplet protection when both are used with recommended wider PPE measures in clinical care, except in the context ofAGPs.

10.3 Eye and face protection

Eye and face protection provides protection against contamination to the eyes from respiratory droplets, aerosols arising from AGPs and from splashing of secretions (including respiratory secretions), blood, body fluids or excretions.

Eye and face protection can be achieved by the use of any one of the following:

- surgical mask with integrated visor

- full face shield or visor
- polycarbonate safety spectacles or equivalent

Regular corrective spectacles are not considered adequate eye protection.

While performing AGPs, a full-face shield or visor is recommended.

The same as for respirators and FRSMs, eye protection should: be well fitted; not be allowed to dangle after or between each use; not be touched once put on; be removed outside the patient room, cohort area or 2 metres away from possible or confirmed COVID-19 cases.

Disposable, single-use, eye and face protection is recommended for single or single session use (section 6) and then is to be discarded as healthcare (clinical) waste. However, re-usable eye and face protection is acceptable if decontaminated between single or single sessional use, according to the manufacturer's instructions or local infection control policy.

It is important that the eye protection maintains its fit, function and remains tolerable for the user. Eye and face protection should be discarded and replaced and not be subject to continued use if damaged, soiled (for example, with secretions, body fluids) or uncomfortable.

10.4 Disposable aprons and gowns

Disposable plastic aprons must be worn to protect staff uniform or clothes from contamination when providing direct patient care and during environmental and equipment decontamination.

Long sleeved disposable fluid repellent gowns must be worn when a disposable plastic apron provides inadequate cover of staff uniform or clothes for the procedure or task being performed, and when there is a risk of splashing of body fluids such as during AGPs in higher risk areas or in operative procedures. If non-fluid-resistant gowns are used, a disposable plastic apron should be worn. If extensive splashing is anticipated then use of additional fluid repellent items may be appropriate.

Disposable aprons are subject to single use and must be disposed of immediately after completion of a procedure or task and after each patient contact as per SICPs. Hand hygiene should be practiced as perSICPs and extended to exposed forearms. Long sleeved disposable fluid repellent gowns are for single use or for single session use in certain circumstances (section 6) but should be discarded at the end of a session or earlier if damaged or soiled.

10.5 Disposable gloves

Disposable gloves must be worn when providing direct patient care and when exposure to blood and or other body fluids is anticipated or likely, including during equipment and environmental decontamination. Disposable gloves are subject to single use and must be disposed of immediately after completion of a procedure or task and after each patient contact, as per SICPs, followed by hand hygiene.

11. Best practice in use of PPE and hand hygiene

Refer to the correct order of donning and doffingPPE for AGPs and non-AGPs. PPE should always be used in accordance with SICPs and requirements for hand hygiene. Hand hygiene should extend to include washing of exposed forearms.

Coronavirus (COVID-19): what you need to do

Transition period

Transition period: check how to get ready

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