



## ECDC TECHNICAL DOCUMENT

# Guidance for healthcare workers on the use of personal protective equipment in the management of bubonic and pneumonic plague patients

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## Bubonic plague

Bubonic plague is typically caused by the bite of an infected flea, by contact with infected human/animal body fluids, or by touching or skinning infected animals [1]. Transmission by these routes can result in primary bubonic plague or in septicaemic plague [1].

Healthcare workers (HCW) can become infected during the management of an infected patient or during sample collection (e.g. collection of pus samples from swollen lymph nodes or buboes) [2].

## Pneumonic plague

Pneumonic plague can be transmitted via infected respiratory droplets from infected humans or animals [3] [4], or through contact with infected human/animal body fluids [5]. It can also be transmitted by contact with bed linen/clothing contaminated with body fluids of an infected patient [5]. Human-to-human transmission by infected respiratory droplets can occur over a close distance, usually defined as less than two metres.

Healthcare workers can become infected during the management of an infected patient or during sample collection (e.g. collection of sputum samples) [6].

## Personal protective equipment for the management of possible, probable and confirmed cases of plague

Healthcare workers should be informed and trained on procedures and approaches to prevent and control infection. They should dispose of, disinfect or decontaminate all personal protective equipment (PPE) (disposable or not) used for the management of a plague patient according to the procedures for waste management [7]. They should also wash their hands frequently, particularly before putting on and after removing the PPE.

## Bubonic plague

In line with the national and international infection prevention and control recommendations, HCW should wear the following PPE when managing or caring for a patient with possible, probable or confirmed bubonic plague:

- gloves
- long-sleeved gown with tight cuffs (single use/disposable preferable)
- eye protection (face shield or goggles)
- respiratory protection (surgical mask).

The interim guidance on 'How to safely collect pus samples from buboes of patients suspected to be infected with bubonic plague' [2] should be followed for the specimens' collection in case of suspected cases of bubonic plague.

## Pneumonic plague

Healthcare workers should apply standard hygiene procedures for the management of the patient. They should isolate the patient [8] [9] and follow Body Substance Isolation (BSI) precautions [10] [11]. If isolation is not possible, they should ensure a separation of at least two metres between patients, and a dedicated bathroom for the infected patient.

Health authorities should consider chemoprophylaxis for HCW in direct contact with pneumonic plague patients [9]. Due to the transmission route by droplets, these procedures should be continued for 48 hours after initiation of effective treatment [12].

In line with the national and international infection prevention and control recommendations, HCW should wear the following PPE when managing or caring for a patient with possible, probable or confirmed pneumonic plague:

- gloves
- long-sleeved gown with tight cuffs (single use/disposable preferable)
- eye protection (face shield or goggles)
- respiratory protection (FFP3 filter mask or N-95 particulate).

The patient should wear a surgical mask if it is necessary to move him/her around the hospital; HCW should inform the patient about cough etiquette and respiratory hygiene. They should also follow the interim guidance on 'How to safely collect sputum samples from patients suspected to be infected with pneumonic plague' [6] for the specimens' collection in case of suspected cases of pneumonic plague.

## Biosafety for the management of specimens

All the samples collected for routine testing and cultures should be handled in Biosafety Level 2 (BSL-2) laboratories. Large-scale cultures and activities with high potential for droplet or aerosol production (centrifuging, grinding, etc.) require Biosafety Level 3 (BSL-3) conditions [13] [8].

## Disclaimer

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## References

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