The Approved List of biological agents

Advisory Committee on Dangerous Pathogens

First published 2000
Second edition 2004
Third edition 2013
Fourth edition 2021
Fifth edition 2023
Sixth edition 2026

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) refer to an 'approved classification of a biological agent', which means the classification of that agent is approved by the Health and Safety Executive (HSE). This list is approved by HSE for that purpose.

This edition of the Approved List has effect from 24 March 2026. On that date the previous edition of the list approved by the Health and Safety Executive on the 24 March 2026 will cease to have effect. The Approved List will continue to be reviewed periodically.

The Advisory Committee on Dangerous Pathogens (ACDP) prepares the Approved List included in this publication. ACDP advises HSE, Ministers for the Department of Health and Social Care and the Department for the Environment, Food & Rural Affairs and their counterparts under devolution in Scotland, Wales & Northern Ireland, as required, on all aspects of hazards and risks to workers and others from exposure to pathogens.

The guidance in this document accompanies the Approved List.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance, you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

Contents

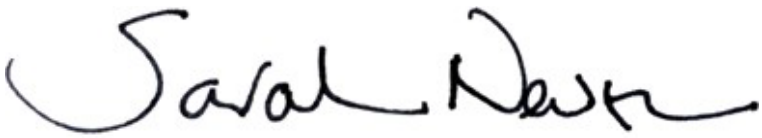
Notice of Approval

The Health and Safety Executive has on 24 March 2026 approved the publication of this document, *The Approved List of biological agents*, for the purposes of the Control of Substances Hazardous to Health Regulations 2002 (SI 2002/2677).

This edition of the Approved List shall have effect from 24 March 2026.

On that date, the previous edition of the list approved by the Health and Safety Executive on 24 March 2026 shall cease to have effect.

Signed



Sarah Newton
Chair of the Health and Safety Executive

Preface

This is the sixth edition of the Approved List since it was first published in the *Categorisation of biological agents according to hazard and categories of containment in* 1995.

This edition includes the following changes:

- The hazard group classification for the existing agents has been reviewed and reclassified;
  - Polio virus 1 has been classified as Hazard Group 3;
  - Polio virus 3 has been classified as Hazard Group 3;
  - SARS-CoV-2 has been classified as Hazard Group 2;

Additional information regarding the decision to alter the hazard group of SARS-CoV-2 and the circumstances where ADCP will review this hazard group level is detailed in the guidance note on Biosafety Considerations for Deliberate Work Involving SARS-CoV-2; Change in HG classification.

The virus section has undergone a factual correctness review and a consistent approach to the naming of viruses has been implemented for this section, which includes the 'common' names of viruses and the name of the species to which they belong.

A full revision of the Approved List was published in 2023. Changes to high-risk biological agents made in the fifth edition of the Approved List were as follows;

- previously unlisted pathogens classified as Hazard Group 3 were added to the list;

- Bacteria:
  - *Bacillus cereus* biovar *anthracis* was classified as Hazard Group 3;
  - *Brucella inopinata* has been classified as Hazard Group 3;
  - *Brucella ceti* was classified as Hazard Group 3;
  - *Brucella pinnipedialis* was classified as Hazard Group 3;
  - *Mycobacterium caprae* has been classified as Hazard Group 3;
  - *Mycobacterium pinnipedii* was classified as Hazard Group 3;
  - *Orientia tsutsugamushi* has been classified as Hazard Group 3;
  - *Rickettsia africae* has been classified as Hazard Group 3;
  - *Rickettsia australis* was classified as Hazard Group 3;
  - *Rickettsia heilongjiangensis* has been classified as Hazard Group 3*;
  - *Rickettsia japonica* has been classified as Hazard Group 3;
  - *Rickettsia sibirica* has been classified as Hazard Group 3.

- Fungi:
  - *Blastomyces gilchristi* has been classified as Hazard Group 3.
  - *Emergomyces africanusis* was classified as Hazard Group 3;
  - *Cladophialophora modesta* was classified as Hazard Group 3;
  - *Paracoccidioides lutzii* was classified as Hazard Group 3.
- Helmith:
  - *Echinococcus oligarthus* has been classified as Hazard Group 3*.
- Protozoa:
  - *Balamuthia mandrillaris* was classified as Hazard Group 3;
  - *Leishmania guyanensis (also known as Viannia guyanensis)* has been classified as Hazard Group 3*;
  - *Leishmania infantum (also known as Leishmania Chagasi)* has been classified as Hazard Group 3*;
  - *Leishmania panamensis (also known as Viannia panamensis)* has been classified as Hazard Group 3*;
  - *Plasmodium knowlesi* has been classified as Hazard Group 3*.
- a previously unlisted laboratory strain of transmissible spongiform encephalopathy (TSE) was classified and added to the list:
  - Proteopathic seeds have been classified as Hazard Group 2.
- Viruses:
  - Aporé virus was classified as Hazard Group 3;
  - Novel coronaviridae was classified as Hazard Group 3;
  - Bayou virus was classified as Hazard Group 3;
  - Black Creek Canal virus was classified as Hazard Group 3;
  - Cabassou virus was classified as Hazard Group 3;
  - Cano Delgadito virus was classified as Hazard Group 3;
  - Choclo virus was classified as Hazard Group 3;
  - El Moro Canyon virus was classified as Hazard Group 3;
  - Laguna Negra virus was classified as Hazard Group 3;
  - Seoul virus was classified as Hazard Group 3.
- the hazard group classification for existing agents was reviewed and reclassified following updated advice on available vaccines:
  - Far-Eastern tick-borne encephalitis virus has been reclassified as Hazard Group 3;
  - Kyasanur Forest disease virus has been reclassified as Hazard Group 3;
  - Omsk haemorrhagic fever virus has been reclassified as Hazard Group 3.

Note: Hazard Group 3 agents with an asterisk(*) are biological agents which may be used at less than minimum containment conditions (for further information see page 41 and Annex 1).
Note: Further changes to the fifth edition of the Approved List included the addition of Hazard Group 2 biological agents. Please refer to the tables starting on page 13 for further details.

Enquiries relating to the Approved List should be sent to bioagents@hse.gov.uk.

What is the Approved List?

1 The Control of Substances Hazardous to Health Regulations 2002 (COSHH), make reference to the 'approved classification' of a biological agent, which is defined as the classification of that agent approved by HSE. The Approved List is the list of classifications of biological agents approved by HSE for this purpose. Biological agents are bacteria, viruses, parasites and fungi which can cause harm to human health, usually due to infection (some are toxic or can cause an allergy).

2 COSHH requires employers to control substances that are hazardous to health, including the protection of workers from risks related to exposure to biological agents at work. This requires the UK to classify biological agents that are or may be a hazard to human health.

3 The Approved List is relevant to risk assessment for work with biological agents and the application of appropriate control measures. Your risk assessment under COSHH of work likely to expose any employees to biological agents should include consideration of the approved classification of any biological agent (regulation 6(2)(k)). The risk assessment must identify the steps you will take to adequately control exposure to biological agents (where it is not reasonably practicable to prevent exposure), taking into account the hazard(s) that they present (regulations 6 and 7).

4 The Approved List is intended to be used by people who work with biological agents, especially those in research, development, teaching or diagnostic laboratories and industrial processes, and people working with animals or humans who are, or who are suspected of being, infected with such an agent.

5 The classifications in the Approved List assign each biological agent listed to a hazard group according to its level of risk of infection to humans, where Hazard Group 1 agents are not considered to pose a risk to human health and Hazard Group 4 agents present the greatest risk. The full definition of each hazard group is in the Information Box (see page 9). Only agents in Groups 2, 3 and 4 are listed.

6 ACDP has made the relevant classification of a biological agent having considered evidence as to:

- the likelihood that it will cause disease by infection or toxicity in humans;
- how likely it is that the infection would spread to the community;
- the availability of any prophylaxis[1] or treatment.

[1] Treatment which will prevent infection and/or may reduce the effect of an exposure or an infection. This will include vaccines.

7 The Approved List indicates in the taxonomy/notes column which biological agents are toxigenic or an allergen, or for which a vaccine was readily available at the time of publication.

8 ACDP only considers the risks to human health when deciding appropriate classification. Some listed agents can also cause disease in animals (zoonoses) and have also been assigned a hazard classification under the Specified Animal Pathogens Order (SAPO) (there are separate Orders for England, Scotland and Wales). For ease of reference, the list now indicates if an agent is also classified under SAPO at the time of this list being published. You should refer to the relevant SAPO guidance for the current SAPO classification and appropriate control measures.

9 If more than one species in any particular genus is known to be pathogenic to humans, these are generally named. There may also be a wider reference ('spp.') indicating other species of the same genus may be hazardous. However, if a whole genus is indicated in this way, it is implicit that species and strains which are non-pathogenic to humans are excluded.

How biological agents are added to the list

10 Over time, new biological agents emerge which are found to cause disease in humans and new treatments are developed. ACDP, in consultation with other experts, periodically reviews the list. Its review considers any evidence for the addition of new agents and for any changes[2] to the classification of agents already listed. Also, taxonomic changes may be made to agents. Where new species names now exist, recently-used previous names are also included in the Taxonomy/notes column with the relevant cross-reference.

11 In the event of a significant new biological agent requiring an urgent classification, ACDP can make provision for a review and an initial classification to be made. However, this would only be appropriate where the indications are that the initial classification will be in Hazard Group 4 or Hazard Group 3, and for which significant, urgent research is required by multiple users. Where this is done HSE will publish this classification. Also see paragraphs 23-25 for guidance on classifying a new biological agent.

12 Genetically modified biological agents do not appear in the Approved List, although the wild-type species from which many of them are derived will be listed. Guidance on aspects of work with genetically modified micro-organisms is given in *The SACGM Compendium of Guidance* available on HSE's biosafety web pages.

[2] The name and identity of the specific biological agent, according to recognised biological classification systems.

Information box: Hazard group definitions When classifying a biological agent it should be assigned to one of the following groups according to its level of risk of infection to humans.	
Group 1	Unlikely to cause human disease.
Group 2	Can cause human disease and may be a hazard to employees; it is unlikely to spread to the community and there is usually effective prophylaxis or treatment available.
Group 3	Can cause severe human disease and may be a serious hazard to employees; it may spread to the community, but there is usually effective prophylaxis or treatment available.
Group 4	Causes severe human disease and is a serious hazard to employees; it is likely to spread to the community and there is usually no effective prophylaxis or treatment available.

Using the Approved List to carry out risk assessments and apply control measures

13 The *Approved List of biological agents* should be read in conjunction with COSHH and ACDP guidance, available on HSE's biosafety web pages.

14 COSHH requires employees and any other person working with biological agents in Hazard Groups 2, 3 and 4 to assess the risk of exposure to those biological agents. One of the matters to take into account in such a risk assessment is the approved classification of the relevant biological agents. COSHH specifies four containment levels for activities which involve working with biological agents. These correspond to the classification of biological agents into Hazard Groups 1 to 4, ie Hazard Group 2 biological agents should be handled at Containment Level 2 (CL2) (see paragraph 3(4) in Part I of Schedule 3 of COSHH). The containment measures required at each containment level are set out in tables in COSHH, Schedule 3, Part II and Part III.

15 In addition to applying the containment measures appropriate to the containment level, the risk assessment and the control measures selected should consider the other matters set out in regulation 6(2) of COSHH.

16 In allocating human pathogens to a hazard group, no account is taken of particular effects on those whose susceptibility to infection may be affected, for example because of pre-existing disease, medication, compromised immunity, differential impacts (eg related to ethnicity), pregnancy or breastfeeding. Any additional risks, and whether it is possible to rely on the standard containment measures to provide adequate protection for such employees, should be considered as part of the general risk assessment required by COSHH. In the case of new or expectant mothers, the Management of Health and Safety at Work Regulations 1999 specifically sets out requirements for assessing the risks to the mother, or to her baby, from biological agents.

Biological agents which may be used at less than minimum containment conditions

17 Certain Hazard Group 3 biological agents have been identified within the list of Community Classifications of biological agents as presenting a limited risk of infection for workers because they are

not normally infectious by the airborne route. Those intending to work with any of these agents may not necessarily need to use all the containment measures normally required at Containment Level 3 (CL3) because of the nature of the specific activity and the quantity of the agent involved. HSE and ACDP have produced accepted procedures for reducing the containment measures for these agents. In the Approved List, the agents for which this is relevant are indicated in the hazard group column with an asterisk(*) and are listed in Annex 1.

18 Dispensing with control measures from CL3 does not imply that the work can be carried out at CL2, it simply allows certain physical containment requirements (particularly those aimed at controlling airborne infection) normally expected at CL3 to be dispensed with. All other aspects of the work, in particular supervision and training, should reflect the high standards expected at CL3.

19 There may be other circumstances or types of work involving biological agents not specified in the list or Annex 1 where full containment measures may not be appropriate. A specific example is work where, although there is a strong indication or likelihood that certain Hazard Group 3 agents might be present, the work will not lead to an increase in the risk of exposure to the agent. For example, blood-borne viruses (BBVs) are unlikely to infect by an airborne route during diagnostic procedures not involving propagation or concentration of the virus (eg haematology), testing of blood donations or transfusion, serology and drug assays. Providing appropriate precautions are taken, not all the stated CL3 measures may be required.

20 Where your risk assessment indicates that it is appropriate to dispense with the standard containment requirements, you should follow the guidance on selecting the most appropriate containment measures set out in the publications/web pages listed under further information.

Reclassifying an agent

21 Where a biological agent has an approved classification, but you have reason to believe the specific strain to be used presents a different risk of infection from the agent listed because it is attenuated or has lost known virulence genes, then that agent should be reclassified as if it were a new biological agent (see paragraph 23). Suitable control and containment can then be selected accordingly.

22 You should also take into account the type of work to be carried out, the quantity of material to be handled and the degree of exposure when determining the most appropriate control and containment measures for such agents. **You will need to consult and agree with HSE that a suitable and sufficient**

risk assessment has been performed prior to locally reclassifying an agent, unless HSE guidance indicating what to do in specific circumstances has been published.

Work with biological agents which have not been assigned a classification in the Approved List

23 If a new biological agent does not have a hazard group classification, you should not assume it is Group 1 (unlikely to cause human disease). COSHH requires that a provisional hazard grouping must be determined by the person intending to work with the biological agent, by considering any available evidence and applying the most appropriate hazard group definition (see Information Box on page 9), taking into account the relevant factors used in carrying out the risk assessment. If you are in doubt as to which of two alternative groups is most appropriate, you should use the higher of the two. If the agent subsequently appears in a later edition of the Approved List, the classification given to it in that edition takes priority.

24 All viruses which have been isolated from humans, but which do not have an approved classification, should be classified in Hazard Group 2 as a minimum, unless and until there is evidence that they are unlikely to cause disease in humans.

25 When you have classified a new biological agent you will need to consider what you need to do to comply with your duties under COSHH in relation to work involving that agent, eg consider whether the notification requirements in Schedule 3 will apply.

The Approved List of biological agents

Biological agent	Human pathogen hazard group	Taxonomy / notes
Bacteria		
Acinetobacter baumannii	2	
Actinomadura madurae	2	
Actinomadura pelletieri	2	
Actinomyces gerencseriae	2	
Actinomyces israelii	2	
Actinomyces spp. known to be pathogenic in humans	2	
Aggregatibacter actinomycetemcomitans (formerly *Actinobacillus actinomycetemcomitans*)	2	
Alcaligenes spp. known to be pathogenic in humans	2	
Anaplasma spp. known to be pathogenic in humans	2	
Arcanobacterium haemolyticum (formerly Corynebacterium haemolyticum)	2	
Arcobacter butzleri (formerly *Campylobacter butzleri*)	2	
Bacillus anthracis	3	Toxigenic Classified under SAPO Vaccine available
Bacillus cereus	2	
Bacillus cereus biovar *anthracis*	3	Toxigenic
Bacteroides fragilis	2	
Bacteroides spp. known to be pathogenic in humans	2	
Bartonella bacilliformis	2	
Bartonella quintana (formerly *Rochalimaea quintana*)	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Bartonella spp. *(*formerly *Rochalimaea* spp.*)* known to be pathogenic in humans	2	
Bordetella bronchiseptica	2	
Bordetella parapertussis	2	
Bordetella pertussis	2	Vaccine available Toxigenic
Bordetella spp. known to be pathogenic in humans	2	
Borrelia burgdorferi	2	
Borrelia duttonii	2	
Borrelia recurrentis	2	
Borrelia spp. known to be pathogenic in humans	2	
Brachyspira spp. (formerly *Serpulina* spp.*)* known to be pathogenic in humans	2	
Brucella abortus	3	Classified under SAPO
Brucella canis	3	
Brucella ceti	3	
Brucella inopinata	3	
Brucella melitensis	3	Classified under SAPO
Brucella pinnipedialis	3	
Brucella suis	3	Classified under SAPO
Burkholderia cepacia	2	
*Burkholderia mallei (*formerly *Pseudomonas mallei)*	3	Classified under SAPO
*Burkholderia pseudomallei (*formerly *Pseudomonas pseudomallei)*	3	
Campylobacter fetus	2	
Campylobacter jejuni	2	
Campylobacter spp. known to be pathogenic in humans	2	
Cardiobacterium hominis	2	
Cardiobacterium valvarum	2	
Chlamydia abortus	2	
Chlamydia caviae	2	
Chlamydia felis	2	
Chlamydophila pneumoniae	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
*Chlamydophila psittaci (*avian strains)	3	
*Chlamydophila psittaci (*non-avian strains)	2	
Chlamydophila trachomatis	2	
Clostridium botulinum	2	Toxigenic
Clostridium perfringens	2	Toxigenic
Clostridium spp. known to be pathogenic in humans	2	
Clostridium tetani	2	Toxigenic Vaccine available
*Clostridioides difficile (*formerly *Clostridium difficile)*	2	Toxigenic
Corynebacterium diphtheriae	2	Toxigenic Vaccine available
Corynebacterium minutissimum	2	
Corynebacterium pseudotuberculosis	2	Toxigenic
Corynebacterium spp. known to be pathogenic in humans	2	
Corynebacterium ulcerans	2	Toxigenic Vaccine available
Coxiella burnetti	3	
Edwardsiella tarda	2	
Ehrlichia spp. known to be pathogenic in humans	2	
Eikenella corrodens	2	
*Elizabethkingia meningoseptica (*formerly *Flavobacterium meningosepticum)*	2	
Enterobacter aerogenes	2	
Enterobacter cloacae	2	
Enterobacter spp. known to be pathogenic in humans	2	
Enterococcus spp. known to be pathogenic in humans	2	
Erysipelothrix rhusiopathiae	2	
Escherichia coli (except for non-pathogenic strains)	2	
Escherichia coli, verocytotoxigenic strains (eg O157:H7 or O103)	3*	Toxigenic
*Fluoribacter bozemanae (*formerly *Legionella bozemanae)*	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Francisella hispaniensis	2	
Francisella tularensis subsp. *holarctica*	2	
Francisella tularensis subsp. *mediasiatica*	2	
Francisella tularensis subsp. *novicida*	2	
Francisella tularensis subsp. *tularensis*	3	
Fusobacterium necrophorum subsp. *funduliforme*	2	
Fusobacterium necrophorum subsp. *necrophorum*	2	
Fusobacterium spp. known to be pathogenic in humans	2	
Gardnerella vaginalis	2	
Haemophilus ducreyi	2	
Haemophilus influenzae	2	Vaccine available
Haemophilus spp. known to be pathogenic in humans	2	
Helicobacter pylori	2	
Helicobacter spp. known to be pathogenic in humans	2	
Klebsiella oxytoca	2	
Klebsiella pneumoniae subsp. *ozaenae*	2	
Klebsiella pneumoniae subsp. *pneumoniae*	2	
Klebsiella pneumoniae subsp. *rhinoscleromatis*	2	
Klebsiella spp. known to be pathogenic in humans	2	
Legionella pneumophila subsp. *fraseri*	2	
Legionella pneumophila subsp. *pascullei*	2	
Legionella pneumophila subsp. *pneumophila*	2	
Legionella spp. known to be pathogenic in humans	2	
Leptospira spp. known to be pathogenic in humans	2	
Listeria ivanovii subsp. ivanovii	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Listeria invanovii subsp. *londoniensis*	2	
Listeria monocytogenes	2	
Moraxella catarrhalis	2	
Morganella morganii subsp. *morganii* (formerly *Proteus morganii)*	2	
Morganella morganii subsp. *sibonii*	2	
Mycobacterium abscessus subsp. *abscessus*	2	
Mycobacterium africanum	3	Vaccine available
Mycobacterium avium subsp. *avium (Mycobacterium avium)*	2	
Mycobacterium avium subsp. *paratuberculosis (Mycobacterium paratuberculosis)*	2	
Mycobacterium avium subsp. *silvaticum*	2	
Mycobacterium bovis	3	Vaccine available
Mycobacterium bovis (BCG strain)	2	
Mycobacterium caprae	3	
Mycobacterium chelonae	2	
Mycobacterium chimaera	2	
Mycobacterium fortuitum	2	
Mycobacterium intracellulare	2	
Mycobacterium kansasii	2	
Mycobacterium leprae	3	
Mycobacterium malmoense	2	
Mycobacterium marinum	2	
Mycobacterium microti	3*	
Mycobacterium pinnipedii	3	
Mycobacterium scrofulaceum	2	
Mycobacterium simiae	2	
Mycobacterium szulgai	2	
Mycobacterium tuberculosis	3	Vaccine available
Mycobacterium ulcerans	3*	
Mycobacterium xenopi	2	
Mycoplasma hominis	2	
Mycoplasma pneumoniae	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Mycoplasma spp. known to be pathogenic in humans	2	
Neisseria gonorrhoeae	2	
Neisseria meningitidis	2	Vaccine available
*Neorickettsia sennetsu (*formerly *Ehrlichia sennetsu, Rickettsia sennetsu)*	3	
Nocardia asteroids	2	
Nocardia brasiliensis	2	
Nocardia farcinica	2	
Nocardia nova	2	
Nocardia otitidiscaviarum	2	
Nocardia spp. known to be pathogenic in humans	2	
*Orientia tsutsugamushi (*formerly *Rickettsia tsutsugamushi)*	3	
Pasteurella multocida subsp. *gallicida (Pasteurella gallicida)*	2	
Pasteurella multocida subsp. *multocida*	2	
Pasteurella multocida subsp. *septica*	2	
Pasteurella spp. known to be pathogenic in humans	2	
Peptostreptococcus anaerobius	2	
Peptostreptococcus spp. known to be pathogenic in humans	2	
Plesiomonas shigelloides	2	
Porphyromonas spp. known to be pathogenic in humans	2	
Prevotella spp. known to be pathogenic in humans	2	
Proteus mirabilis	2	
Proteus penneri	2	
Proteus vulgaris	2	
Providencia alcalifaciens	2	
Providencia rettgeri	2	
Providencia spp. known to be pathogenic in humans	2	
Pseudomonas aeruginosa	2	Toxigenic

Biological agent	Human pathogen hazard group	Taxonomy / notes
*Rhodococcus hoagii (*formerly *Rhodococcus equi)*	2	
Rickettsia africae	3	
Rickettsia akari	3*	
Rickettsia australis	3	
*Rickettsia canadensis (*formerly *Rickettsia canada)*	3*	
Rickettsia conorii	3	
Rickettsia heilongjiangensis	3*	
Rickettsia japonica	3	
*Rickettsia montanensis (*formerly *Rickettsia montana)*	2	
Rickettsia prowazekii	3	
Rickettsia rickettsii	3	
Rickettsia sibirica	3	
Rickettsia spp. known to be pathogenic in humans	2	
*Rickettsia typhi (*formerly *Rickettsia mooseri)*	3	
Rochalimaea spp. known to be pathogenic in humans	2	
Salmonella enterica subsp. *arizonae*	2	
Salmonella enterica subsp. *enterica* serovar *enteritidis*	2	
Salmonella enterica subsp. *enterica paratyphi A, B and C*	3*	Vaccine available
Salmonella enterica subsp. *enterica* serovar *typhi*	3*	Vaccine available
Salmonella enterica subsp. *enterica* serovar *typhimurium*	2	
Salmonella spp. known to be pathogenic in humans	2	
Shigella boydii	2	
Shigella dysenteriae (other than Type 1)	2	
Shigella dysenteriae (Type 1)	3*	Toxigenic
Shigella flexneri	2	
Shigella sonnei	2	
Staphylococcus aureus	2	Toxigenic
Streptobacillus moniliformis	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Streptococcus agalactiae	2	
Streptococcus dysgalactiae subsp. *equisimilis*	2	
Streptococcus pneumoniae	2	Toxigenic Vaccine available
Streptococcus pyogenes	2	Toxigenic
Streptococcus spp. known to be pathogenic in humans	2	
Streptococcus suis	2	
Streptomyces somaliensis	2	
Streptomyces sudanensis	2	
Treponema carateum	2	
Treponema pallidum	2	
Treponema pertenue	2	
Treponema spp. known to be pathogenic in humans	2	
*Trueperella pyogenes (*formerly *Actinomyces pyogenes)*	2	
Ureaplasma parvum	2	
Ureaplasma urealyticum	2	
*Vibrio cholerae (*including *El Tor)*	2	Toxigenic Vaccine available
Vibrio parahaemolyticus	2	
Vibrio spp. known to be pathogenic in humans	2	
Yersinia enterocolitica subsp. *enterolitica*	2	
Yersinia enterocolitica subsp. *palearctica*	2	
Yersinia pestis	3	
Yersinia pseudotuberculosis	2	
Yersinia spp. known to be pathogenic in humans	2	
Fungi		
Aspergillus flavus	2	Allergen
Aspergillus fumigatus	2	Allergen
Aspergillus spp. known to be pathogenic in humans	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Blastomyces dermatitidis (Ajellomyces dermatitidis)	3	
Blastomyces gilchristii	3	
Candida albicans	2	Allergen
Candida dubliniensis	2	
Candida glabrata	2	
Candida parapsilosis	2	
Candida spp. known to be pathogenic in humans	2	
Candida tropicalis	2	
*Cladophialophora bantiana (*formerly *Xylohypha bantiana, Cladosporium bantianum)*	3	
Cladophialophora modesta	3	
Cladophialophora spp. known to be pathogenic in humans	2	
Coccidioides immitis	3	Allergen
Coccidioides posadasii	3	Allergen
Cryptococcus neoformans / gattii complex. *Cryptococcus* intervariety and interspecies hybrids*)*	2	Allergen Includes *Cryptococcus neoformans* (formerly *Cryptococcus neoformans* var. *grubii*), *Cryptococcus deneoformans* (formerly *Cryptococcus neoformans* var. *neoformans*), *Cryptococcus gattii* spp. (*Cryptococcus gattii*, *Cryptococcus bacillisporus*, *Cryptococcus deuterogattii*, *Cryptococcus tetragattii*, *Cryptococcus decagattii*)
Emergomyces africanusis	3	
Emmonsia parva var. *crescens*	2	
Emmonsia parva var. *parva*	2	
Epidermophyton floccosum	2	Allergen
Epidermophyton spp. known to be pathogenic in humans	2	
Exophiala spp. known to be pathogenic in humans	2	
*Fonsecaea pedrosoi (*formerly *Fonsecaea compacta)*	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Fusarium spp. known to be pathogenic in humans	2	
Histoplasma capsulatum var. *capsulatum (Ajellomyces capsulatus)*	3	
*Histoplasma duboisii (*formerly *Histoplasma capsulatum* var. *duboisii)*	3	
Histoplasma capsulatum var. *farcinimosum*	3	Classified under SAPO
*Lichtheimia corymbifera (*formerly *Absidia corymbifera)*	2	
Madurella grisea	2	
Madurella mycetomatis	2	
Microsporum spp. known to be pathogenic in humans	2	Allergen
Nannizzia spp. known to be pathogenic in humans	2	
Neotestudina rosatii	2	
Paracoccidioides brasiliensis	3	Allergen
Paracoccidioides lutzii	3	
Paraphyton spp. known to be pathogenic in humans	2	
Pneumocystis spp. known to be pathogenic in humans	2	
Rhinocladiella mackenziei (formerly Ramichloridium)	3	
Rhizomucor pusillus	2	
Rhizopus microsporus	2	
Saksenaea vasiformis	2	
*Scedosporium apiospermum (*formerly *Pseudallescheria boydii)*	2	
Scedosporium proliferans (inflatum)	2	
Scopulariopsis brevicaulis	2	
Sporothrix schenckii	2	
*Talaromyces marneffei (*formerly *Penicillium marneffei)*	3	Allergen
Trichophyton rubrum	2	Allergen
Trichophyton tonsurans	2	Allergen
Trichophyton spp. known to be pathogenic in humans	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Helminths		
Ancylostoma duodenale	2	
Angiostrongylus cantonensis	2	
Angiostrongylus costaricensis	2	
Anisakis simplex	2	Allergen
Ascaris lumbricoides	2	Allergen
Ascaris suum	2	Allergen
Brugia malayi	2	
Brugia pahangi	2	
Brugia timori	2	
Capillaria philippinensis	2	
Capillaria spp. known to be pathogenic in humans	2	
Clonorchis sinensis (Opisthorchis sinensis)	2	
Clonorchis viverrini (Opisthirchis viverrini)	2	
Contracaecum osculatum	2	
Dicrocoelium dendriticum	2	
Diphyllobothrium latum	2	
Dracunculus medinensis	2	
Echinococcus granulosus	3*	Classified under SAPO
Echinococcus multilocularis	3*	Classified under SAPO
Echinococcus oligarthus	3*	
Echinococcus vogeli	3*	
Enterobius vermicularis	2	
Fasciola gigantica	2	
Fasciola hepatica	2	
Fasciolopsis buski	2	
Heterophyes spp. known to be pathogenic in humans	2	
Hymenolepis diminuta	2	
Hymenolepis nana	2	
Loa loa	2	
Mansonella ozzardi	2	
Mansonella perstans	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Mansonella streptocerca (formerly *Dipetalonema streptocerca)*	2	
Metagonimus spp. known to be pathogenic in humans	2	
Necator americanus	2	
Onchocerca volvulus	2	
Opisthorchis felineus	2	
Opisthorchis spp. known to be pathogenic in humans	2	
Paragonimus spp. known to be pathogenic in humans	2	
Paragonimus westermani	2	
Pseudoterranova decipiens	2	
Schistosoma haematobium	2	
Schistosoma intercalatum	2	
Schistosoma japonicum	2	
Schistosoma mansoni	2	
Schistosoma mekongi	2	
Schistosoma spp. known to be pathogenic in humans	2	
Strongyloides spp. known to be pathogenic in humans	2	
Strongyloides stercoralis	2	
Taenia saginata	2	
Taenia solium	3*	
Toxocara canis	2	
Toxocara cati	2	
Trichinella nativa	2	
Trichinella nelsoni	2	
Trichinella pseudospiralis	2	
Trichinella spiralis	2	Classified under SAPO
Trichostrongylus orientalis	2	
Trichostrongylus spp. known to be pathogenic in humans	2	
Trichuris trichiura	2	
Wuchereria bancrofti	2	
Protozoa		
Acanthamoeba castellanii	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Acanthamoeba spp. known to be pathogenic in humans	2	
Babesia divergens	2	
Babesia microti	2	
Babesia spp. known to be pathogenic in humans	2	
Balamuthia mandrillaris	3	
Balantidium coli	2	
Blastocystis hominis	2	
Cryptosporidium hominis	2	
Cryptosporidium parvum	2	
Cryptosporidium spp. known to be pathogenic in humans	2	
Cyclospora cayetanensis	2	
Cyclospora spp. known to be pathogenic in humans	2	
Cystoisospora belli (formerly *Isopora belli*)	2	
Dientamoeba fragilis	2	
Encephalitozoon cuniculi	2	
Encephalitozoon hellem	2	
Encephalitozoon intestinalis	2	
Entamoeba histolytica	2	
Enterocytozoon bieneusi	2	
Giardia lamblia (Giardia intestinalis)	2	
Leishmania aethiopica	2	
Leishmania brasiliensis	3*	
Leishmania donovani	3*	
Leishmania guyanensis (Viannia guyanensis)	3*	
Leishmania infantum (L. Chagasi)	3*	
Leishmania major	2	
Leishmania mexicana	2	
Leishmania panamensis (Viannia panamensis)	3*	
Leishmania peruviana	2	
Leishmania spp. known to be pathogenic in humans	2	

Biological agent	Human pathogen hazard group	Taxonomy / notes
Leishmania tropica	2	
Naegleria fowleri	3	
Plasmodium falciparum	3*	
Plasmodium knowlesi	3*	
Plasmodium spp. (human & simian)	2	
Sarcocystis suihominis	2	
Toxoplasma gondii	2	
Trichomonas vaginalis	2	
Trypanosoma brucei brucei	2	Classified under SAPO
Trypanosoma brucei gambiense	2	Classified under SAPO
Trypanosoma brucei rhodesiense	3*	Classified under SAPO
Trypanosoma cruzi	3*	
PRIONS – unconventional agents associated with transmissible spongiform encephalopathies (TSEs)		
Human TSEs		
Sporadic forms of human TSE:		
Sporadic Creutzfeldt-Jakob disease agent	3*	
Sporadic fatal insomnia agent	3*	
Variably protease-resistant prionopathy agent	3*	
Genetic forms of human TSE:		
Familial Creutzfeldt-Jakob disease agent	3*	
Fatal familial insomnia agent	3*	
Gerstmann-Sträussler-Scheinker syndrome agent	3*	
Acquired forms of human TSE:		
Variant Creutzfeldt-Jakob disease agent	3*	
Iatrogenic Creutzfeldt-Jakob disease agent	3*	
Kuru agent	3*	
Animal TSEs		
Bovine spongiform encephalopathy (BSE) agent and other related animal TSEs	3*	
H-type BSE agent	3*	

Biological agent	Human pathogen hazard group	Taxonomy / notes
L-type BSE agent	3*	
Scrapie and scrapie-related agents	2	
Atypical scrapie agent	2	
Chronic Wasting Disease agent	2	
Laboratory strains of TSEs		
Any strain propagated in primates, mice expressing PrP gene or mice encoding human familial mutations in PrP	3*	
Human strains propagated in any species	3*	
Proteopathic seeds	2	
Viruses		
Family **Adenoviridae**		
Adenoviridae spp. known to be pathogenic in humans	2	
Family **Anelloviridae** *Genus* **Alphatorquevirus**		
Torque teno virus (TTV) (formerly known as Transfusion Transmitted virus)	2	In the *Alphatorquevirus homin* species
Family **Arenaviridae** *Genus* **Mammarenavirus**		
Allpahuayo virus	2	In the *Mammarenavirus allpahuayoense* species
Aporé virus	3	In the *Mammarenavirus aporeense* species
Argentinian mammarenavirus (also known as Junin virus)	4	In the *Mammarenavirus juninese* species
Bear Canyon virus	2	In the *Mammarenavirus bearense* species
Brazilian mammarenavirus (also known as Sabiá virus)	4	In the *Mammarenavirus brazilense* species
Cali mammarenavirus (also known as Pichindé virus)	2	In the *Mammarenavirus caliense* species
Chapare virus	4	In the *Mammarenavirus chapareense* species
Cupixi, virus	2	In the *Mammarenavirus cupixiense* species
Flexal virus	3	In the *Mammarenavirus flexalense* species
Guanarito virus	4	In the *Mammarenavirus guanaritoense* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Ippy virus	2	In the *Mammarenavirus ippyense* species
Lassa virus	4	In the *Mammarenavirus lassaense* species
Latino virus	2	In the *Mammarenavirus latinum* species
Lujo virus	4	In the *Mammarenavirus lujoense* species
Lymphocytic choriomeningitis virus LCMV (all strains other than Armstrong)	3	In the *Mammarenavirus choriomeningitidis* species
Lymphocytic choriomeningitis virus LCMV (Armstrong strain)	2	In the *Mammarenavirus choriomeningitidis* species
Machupo virus	4	In the *Mammarenavirus machupoense* species
Merino Walk virus	2	In the *Mammarenavirus merinoense* species
Mobala virus	3	In the *Mammarenavirus praomyidis* species
Mopeia virus	2	In the *Mammarenavirus mopeiaense* species
Oliveros virus	2	In the *Mammarenavirus oliverosense* species
Paraguayan mammarenavirus (formerly known as Parana virus)	2	In the *Mammarenavirus paranaense* species
Pirital virus	2	In the *Mammarenavirus piritalense* species
Serra do Navio mammarenavirus (formerly known as Amapari virus)	2	In the *Mammarenavirus amapariense* species
Tamiami virus	2	In the *Mammarenavirus tamiamiense* species
Whitewater Arroyo virus	2	In the *Mammarenavirus whitewaterense* species
Xapuri virus	2	In the *Mammarenavirus xapuriense* species
Family **Astroviridae**		
Astroviridae spp. known to be pathogenic in humans	2	
Family **Bornaviridae** *Genus* **Orthobornavirus**		
Borna disease virus 1 (also known as Mammalian 1 Orthobornavirus 1)	3	In the *Orthobornavirus bornaense* species
Borna disease virus 2 (also known as Mammalian 1 Orthobornavirus 2)	3	In the *Orthobornavirus bornaense* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Variegated squirrel bornavirus 1 (also known as Mammalian 2 Orthobornavirus Borna disease virus, BoDV-2)	3	In the *Orthobornavirus sciuri* species
Family **Caliciviridae** *Genus* **Norovirus**		
Norwalk virus (also known as human Calicivirus NLV)	2	In the *Norovirus norwalkense* species
Sapporo virus (also known as Human calicivirus SLV)	2	In the Norovirus norwalkense species
Other Caliciviridae spp. known to be pathogenic in humans	2	
Family ***Coronaviridae*** *Genus* ***Alphacoronavirus***		
Human coronavirus 229E	2	In the *Alphacoronavirus chicagoense* species.
Human coronavirus NL63	2	In the *Alphacoronavirus amsterdamense* species.
Genus **Betacoronavirus**		
Human coronavirus OC43	2	In the *Betacoronavirus gravedinis* species
Human coronavirus HKU1	2	In the *Betacoronavirus hongkongense* species
Middle East respiratory syndrome-related coronavirus (MERS)	3	In the *Betacoronavirus cameli* species
Severe acute respiratory syndrome-related coronavirus 1 (SARS-CoV-1)	3	In the *Betacoronavirus pandemicum* species
Severe-acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2)	2	In the *Betacoronavirus pandemicum* species
Novel coronaviridae spp. (eg bat coronaviruses WIV1 or SHC01)	3	Excludes close genetic related versions of known coronaviruses. New genetically related versions of known coronaviruses should be handled at the ACDP level assigned to the related prototype virus.
Family **Filoviridae** *Genus* **Orthoebolavirus**		
Bundibugyo ebolavirus	4	In the *Orthoebolavirus bundibugyoense* species
Reston ebolavirus	4	In the *Orthoebolavirus restonense* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Sudan ebolavirus	4	In the *Orthoebolavirus sudanense* species
Tai Forest ebolavirus (formerly Ebola Cote d'Ivoire virus	4	In the *Orthoebolavirus taiense* species
Zaire ebolavirus	4	In the *Orthoebolavirus zairense* species
Genus **Orthomarburgvirus**		
Marburg virus	4	In the *Orthomarburgvirus marburgense* species
Ravn virus	4	In the *Orthomarburgvirus marburgense* species
Family **Flaviviridae** *Genus* **Orthoflavivirus**		
Absettarov virus	3	Tick borne encephalitis virus (TBEV) – Far Eastern Subtype In the *Orthoflavivirus encephalitidis* species
Alkhumra haemorrhagic fever virus	3	In the *Orthoflavivirus kyasanurense* species
Central European tick-borne encephalitis virus	3	Tick borne encephalitis virus (TBEV) – European Subtype In the *Orthoflavivirus encephalitidis* species
Dengue virus	3	In the *Orthoflavivirus denguei* species
Far Eastern tick-borne encephalitis virus (formerly Russian spring–summer encephalitis virus)	3	Vaccine available Tick borne encephalitis virus (TBEV) – Far Eastern Subtype In the *Orthoflavivirus encephalitidis* species
Hanzalova virus	3	Vaccine available Tick borne encephalitis virus (TBEV) – European Subtype In the *Orthoflavivirus encephalitidis* species
Hypr virus	3	Vaccine available Tick borne encephalitis virus (TBEV) – European Subtype In the *Orthoflavivirus encephalitidis* species
Israel turkey meningitis meningoencephalomyelitis virus	3	In the *Orthoflavivirus israelense* species
Japanese encephalitis virus	3	Classified under SAPO Vaccine available

Biological agent	Human pathogen hazard group	Taxonomy / notes
		In the *Orthoflavivirus japonicum* species
Kumlinge virus	3	Tick borne encephalitis virus (TBEV) – European Subtype In the *Orthoflavivirus encephalitidis* species
Kyasanur Forest disease virus	3	Vaccine available In the *Orthoflavivirus kyasanurense* species
Louping ill virus	3*	In the *Orthoflavivirus loupingi* species
Murray Valley encephalitis virus	3	In the *Orthoflavivirus murrayense* species
Negishi virus	3	Tick borne encephalitis virus (TBEV) – Far Eastern Subtype In the *Orthoflavivirus encephalitidis* species
Omsk haemorrhagic fever virus	3	Vaccine available In the *Orthoflavivirus omskense* species
Powassan virus	3	In the *Orthoflavivirus powassanense* species
Rocio virus	3	In the *Orthoflavivirus ilheusense* species
Sal Vieja virus	3	In the *Orthoflavivirus viejaense* species
San Perlita virus	3	In the *Orthoflavivirus perlitaense* species
Siberian tick-borne encephalitis virus	3	Vaccine available Tick borne encephalitis virus (TBEV) – Siberian Subtype In the *Orthoflavivirus encephalitidis* species
Spondweni virus	3	
St Louis encephalitis virus	3	Classified under SAPO In the *Orthoflavivirus louisense* species
Usutu virus	2	In the *Orthoflavivirus usutuense* species
Wesselsbron virus	3*	In the *Orthoflavivirus wesselsbronense* species
West Nile fever virus	3	Classified under SAPO In the *Orthoflavivirus nilense* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Yellow fever virus	3	Vaccine available In the *Orthoflavivirus flavi* species
Zika virus	2	In the *Orthoflavivirus zikaense* species
Other tick-borne encephalitis viruses known to be pathogenic in humans	3	Tick borne encephalitis virus (TBEV) – European, Far-Eastern and Siberian subtypes In the *Orthoflavivirus encephalitidis* species
Other Orthoflavivirus spp. known to be pathogenic in humans	2	
Genus **Hepacivirus**		
Hepatitis C virus, HCV, (also known as Hepacivirus C virus)	3*	In the *Hepacivirus hominis* species
Genus **Pegivirus**		
Pegivirus C (also known as human pegivirus, hepatitis G virus, GB virus)	3*	In the *Pegivirus hominis* species
Family **Hantaviridae** *Genus* **Orthohantavirus**		
Andes virus	3	In the *Orthohantavirus andesense* species
Bayou virus	3	In the *Orthohantavirus bayoui* species
Black Creek Canal virus	3	In the *Orthohantavirus nigrorivense* species
Caño Delgadito virus	3	In the *Orthohantavirus delgaditoense* species
Choclo virus	3	In the *Orthohantavirus chocloense* species
Dobrava-Belgrade virus (formerly known as Belgrade (Dobrava) virus)	3	In the *Orthohantavirus dobravaense* species
El Moro Canyon virus	3	In the *Orthohantavirus carrizalense* species
Hantaan virus	3	In the *Orthohantavirus hantanense* species
Laguna Negra virus	3	In the *Orthohantavirus mamorense* species
Prospect Hill virus	2	In the *Orthohantavirus prospectense* species
Puumala virus	2	In the *Orthohantavirus puumalaense* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Seoul virus	3	In the *Orthohantavirus seoulense* species
Sin Nombre virus	3	In the *Orthohantavirus sinnombreense* species
Other hantaviruses known to be pathogenic in humans	2	
Family **Hepadnaviridae** *Genus* **Orthohepadnavirus**		
Hepatitis B virus	3*	Vaccine available In the *Orthohepadnavirus hominoidei* species
Family **Hepeviridae** *Genus* **Paslahepevirus**		
Hepatitis E virus)	3*	In the *Paslahepevirus balayani* species
Family **Orthoherpesviridae** *Genus* **Simplex virus**		
Herpes B virus also known as Macacine alphaherpesvirus 1 (formerly Herpesvirus simiae)	4	In the *Simplexvirus macacinealpha1* species
Human alphaherpesvirus 1 (HHV-1)	2	In the *Simplexvirus humanalpha1* species
Human alphaherpesvirus 2 (HHV-2)	2	In the *Simplexvirus humanalpha2* species
Genus **Varicellovirus**		
Varicella-zoster virus also known as Human alphaherpesvirus 3	2	In the *Varicellovirus humanalpha3* species
Genus **Cytomegalovirus**		
Cytomegalovirus (also called CMV or Human betaherpesvirus 5 or HHV-5)	2	In the *Cytomegalovirus humanbeta5* species
Genus **Roseolavirus**		
Human herpesvirus type 6a (HHV6A) also known as Betaherpesvirus 6A)	2	In the *Roseolovirus humanbeta6a* species
Human herpesvirus type 6b (HHV6B) also known as Betaherpesvirus 6B	2	In the *Roseolovirus humanbeta6b* species
Human herpesvirus type 7 (HHV7)	2	In the *Roseolovirus humanbeta7* species
Genus **Lymphocryptovirus**		
Epstein-Barr virus (also known as Human gammaherpesvirus 4)	2	In the *Lymphocryptovirus humangamma4* species
Genus **Rhadinovirus**		

Biological agent	Human pathogen hazard group	Taxonomy / notes
Kaposi's sarcoma-associated herpesvirus also known as Human gammaherpesvirus 8	2	In the *Rhadinovirus humangamma8* species
Family **Kolmioviridae** *Genus* **Deltavirus**		
Hepatitis D virus also known as Delta virus	3*	All species of the genus
Family **Matonaviridae** *Genus* **Rubivirus**		
Rubella virus	2	Vaccine available In the *Rubivirus rubellae* species
Family **Nairoviridae** *Genus* **Ortonairovirus**		
Crimean-Congo haemorrhagic fever virus	4	In the *Orthonairovirus haemorrhagiae* species
Hazara virus	2	In the *Orthonairovirus hazaraense* species
Dugbe virus	2	In the *Orthonairovirus dugbeense* species
Nairobi sheep disease virus (also known as Ganjam virus)	2	In the *Orthonairovirus nairobiense* species
Other nairoviruses known to be pathogenic in humans	2	
Family **Orthomyxoviridae** *Genus* **Alphainfluenzavirus**		
Human seasonal influenza A Viruses strains (e.g H1N1 H1N1_A/ England 195/09 or A/New Caledonia/20/99 & H3N2 A/ Wisconsin/67/2005).	2	Human H1N1 virus to which the population has cross reactive immunological responses. Vaccines available In the *Alphainfluenzavirus influenzae* species
Historical human influenza A viruses of pandemic potential (eg H1N1 A/New York/1/18, H2N2 A/ Singapore/1/57).	3	Historical human influenza viruses to which the current population has little cross-reactive immunological response (excluding well characterised lab adapted strains eg A/PR/8/34 and A/WSN/1933). Antivirals available In the *Alphainfluenzavirus influenzae* species
Highly pathogenic avian influenza viruses (eg.H5Nx, H7N7) and low pathogenic avian influenza viruses	3	Classified under SAPOAntivirals available

Biological agent	Human pathogen hazard group	Taxonomy / notes
that have caused severe human disease (eg.H7N9).		In the *Alphainfluenzavirus influenzae* species
Low pathogenic avian influenza viruses that have not caused disease in humans.	2	Antivirals available In the *Alphainfluenzavirus influenzae* species
Swine influenza A viruses (eg H1N1, H1N2, H3N2)	2	Viruses to which current population has some cross-reactive immunological response. Antivirals available In the *Alphainfluenzavirus influenzae* species
Equine and Canine lineages of influenza A viruses (eg. H3N8)	2	Antivirals available In the *Alphainfluenzavirus influenzae* species
Genus **Betainfluenzavirus**		
Influenza B virus	2	Vaccines and antivirals available In the *Betainfluenzavirus influenzae* species
Genus **Deltainfluenzavirus**		
Influenza D virus	2	In the *Deltainfluenzavirus influenzae* species
Genus **Gammainfluenzavirus**		
Influenza C virus	2	In the *Gammainfluenzavirus influenzae* species
Genus **Thogotovirus**		
Dhori virus	2	In the *Thogotovirus dhoriense* species
Thogoto virus	2	In the *Thogotovirus thogotoense* species
Family **Paramyxoviridae** *Genus* **Orthoavulavirus**		
Newcastle disease virus also known as avian paramyxovirus 1 (APMV-1)	2	Classified under SAPO In the *Orthoavulavirus javaense* species
Genus **Henipavirus**		
Hendra virus	4	Classified under SAPO In the *Henipavirus hendraense* species
Nipah virus	4	Classified under SAPO In the *Henipavirus nipahense* species
Genus **Morbillivirus**		

Biological agent	Human pathogen hazard group	Taxonomy / notes
Measles virus	2	Vaccine available In the *Morbillivirus hominis* species
Genus **Respirovirus**		
Human parainfluenza virus Type 1	2	In the *Respirovirus laryngotracheitidis* species
Human parainfluenza virus Type 3	2	In the *Respirovirus pneumoniae* species
Genus ***Orthorubulavirus***		
Mumps virus	2	Vaccine available In the *Orthorubulavirus parotitidis* species
Human parainfluenza virus Type 2	2	In the *Respirovirus laryngotracheitidis* species
Human parainfluenza virus Type 4	2	In the *Orthorubulavirus hominis* species
Family **Papillomaviridae**		
Human papillomaviruses	2	
Family **Parvoviridae** *Genus* **Bocaparvovirus**		
Human bocavirus 1 and 3(also known as Primate bocavirus 1 and 3)	2	In the *Bocaparvovirus primate1* species
Human bocavirus 2 and 4 also known as Primate bocavirus 2 and 4)	2	In the *Bocaparvovirus primate2* species
Genus **Erythroparvovirus**		
Human parvovirus B19, (also known as B19 virus)	2	In the *Erythroparvovirus primate1* species
Genus **Tetraparvovirus**		
Human parvovirus 4	2	In the *Tetraparvovirus primate1* species
Family **Peribunyaviridae** *Genus* **Orthobunyavirus**		
Akabane virus	2	In the *Orthobunyavirus akabaneense* species
Bunyamwera virus	2	In the *Orthobunyavirus bunyamweraense* species
Germiston virus (also known as Bunyavirus Germiston)	3	In the *Orthobunyavirus bunyamweraense* species
California encephalitis virus	2	In the *Orthobunyavirus encephalitidis* species
La Crosse virus	3	In the *Orthobunyavirus lacrosseense* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Ngari virus	3	In the *Orthobunyavirus bunyamweraense* species
Oropouche virus	3	In the *Orthobunyavirus oropoucheense* species
Snowshoe hare virus	3	In the *Orthobunyavirus khatangaense* species
Other orthobunyaviruses known to be pathogenic in humans	2	
Family **Phenuiviridae** *Genus* **Phlebovirus**		
Punta Toro virus	2	In the *Phlebovirus toroense* species
Rift Valley fever virus	3	Classified under SAPO In the *Phlebovirus riftense* species
Sandfly fever Naples virus	2	In the *Phlebovirus napoliense* species
Toscana virus	2	In the *Phlebovirus toscanaense* species
Other phleboviruses known to be pathogenic in humans	2	
Genus **Bandavirus**		
Bhanja bandavirus	3	In the *Bandavirus bhanjanagarense* species
Dabie bandavirus (also known as Severe fever with thrombocytopenia syndrome virus)	3	In the *Bandavirus dabieense* species
Family **Picornaviridae** *Genus* **Cardiovirus**		
Saffold virus	2	In the *Cardiovirus saffoldi* species
Genus **Cosavirus**		
Cosavirus A	2	In the *Cosavirus asiani* species
Genus **Enterovirus**		
Enterovirus A spp. known to be pathogenic in humans (eg Enterovirus A71).	2	In the *Enterovirus alphacoxsackie* species
Enterovirus B spp. known to be pathogenic in humans, which include Echoviruses and Coxsackieviruses B	2	In the *Enterovirus betacoxsackie* species
Poliovirus 1 (also known Human enterovirus C type 1)	3	Includes wild type and vaccine-derived viruses.

Biological agent	Human pathogen hazard group	Taxonomy / notes
		Sabin vaccine strains remain at HG2 Vaccine available In the *Enterovirus coxsackiepol* species
Poliovirus 2 (also known Human enterovirus C type 2)	3	Includes wild type, vaccine-derived viruses and Sabin vaccine strains Vaccine available In the *Enterovirus coxsackiepol* species
Poliovirus 3 (also known Human enterovirus C type 3)	3	Includes wild type and vaccine-derived viruses. Sabin vaccine strains remain at HG2. Vaccine available In the *Enterovirus coxsackiepol* species
Enterovirus D spp. known to be pathogenic in humans (eg Human enterovirus 70).	2	In the *Enterovirus deconjuncti* species
Enterovirus D68	2	In the *Enterovirus deconjuncti* species
Coxsackieviruses A spp. known to be pathogenic in humans (eg Coxsackievirus A24)	2	In the *Enterovirus coxsackiepol* species
Human rhinovirus A spp. known to be pathogenic in humans	2	In the *Enterovirus alpharhino* species
Human rhinovirus B spp. known to be pathogenic in humans	2	In the *Enterovirus betarhino* species
Human rhinovirus C spp. known to be pathogenic in humans	2	In the *Enterovirus cerhino* species
Genus **Hepatovirus**		
Hepatitis A virus (also known as human enterovirus type 72)	2	Vaccine available In the *Hepatovirus ahepa* species
Genus **Parechovirus**		
Parechoviruses A spp. known to be pathogenic in humans	2	In the *Parechovirus ahumpari* species
Parechoviruses B spp. known to be pathogenic in humans (including Ljungan virus)	2	In the *Parechovirus beljungani* species
Family **Pneumoviridae** *Genus* **Metapneumovirus**		
Human Metapneumovirus	2	In the *Metapneumovirus hominis* species

Biological agent	Human pathogen hazard group	Taxonomy / notes
Genus ***Orthopneumovirus***		
Human Respiratory syncytial virus	2	In the *Orthopneumovirus hominis* species
Family **Polyomaviridae** *Genus* **Betapolyomavirus**		
BK polyomavirus (also known as Human polyomavirus 1)	2	In the *Betapolyomavirus hominis* species
JC polyomavirus (also known as Human polyomavirus 2)	2	In the *Betapolyomavirus secuhominis* species
KI polyomavirus (also known as Human Polyomavirus 3)	2	In the *Betapolyomavirus tertihominis* species
WU polyomavirus (also known as Human polyomavirus 4)	2	In the *Betapolyomavirus quartihominis* species
Simian virus 40 (SV40)	2	In the *Betapolyomavirus macacae* species
Family **Poxviridae** *Genus* **Molluscipoxvirus**		
Molluscum contagiosum virus	2	In the *Molluscipoxvirus molluscum* species
Genus **Orthopoxvirus**		
Vaccinia virus including variants (Buffalopox, and Rabbitpox)	2	In the *Orthopoxvirus vaccinia* species
Cowpox virus including variant Elephantpox	2	In the *Orthopoxvirus cowpox* species
Mpox virus (formerly known as Monkeypox virus)	3	Vaccine available In the *Orthopoxvirus monkeypox* species
Variola virus (major and minor)	4	In the *Orthopoxvirus variola* species
Genus **Parapoxvirus**		
Orf virus	2	In the *Parapoxvirus orf* species
Pseudocowpox virus (Milker's nodes virus)	2	In the *Parapoxvirus pseudocowpox* species
Genus **Yatapoxvirus**		
Tanapox virus	2	In the *Yatapoxvirus tanapox* species
Yaba monkey tumor virus	2	In the *Yatapoxvirus yabapox* species
Family **Reoviridae** *Genus* **Orbivirus**		

Biological agent	Human pathogen hazard group	Taxonomy / notes
Orbivirus spp. known to be pathogenic in humans	2	
Genus **Rotavirus**		
Human rotaviruses A, B and C	2	Vaccine available for group A
Genus **Seadornavirus**		
Banna virus	3	In the *Seadornavirus bannaense* species
Genus **Coltivirus**		
Colorado tick fever virus	2	In the *Coltivirus ixodis* species
Genus **Orthoreovirus**		
Mammalian orthoreoviruses 1 to 3	2	In the *Orthoreovirus mammalis* species
Family **Retroviridae** *Genus* **Deltaretrovirus**		
Primate T-cell lymphotropic viruses type 1	3*	In the *Deltaretrovirus priTlym1* species
Primate T-cell lymphotropic viruses type 2	3*	In the *Deltaretrovirus priTlym1* species
Genus **Gammaretrovirus**		
Xenotropic murine leukaemia virus-related virus	2	In the *Gammaretrovirus murleu* species
Genus **Lentivirus**		
Human immunodeficiency virus type 1 (HIV1)	3*	In the *Lentivirus humimdef1* species
Human immunodeficiency virus type 2 (HIV2)	3*	In the *Lentivirus humimdef2* species
Simian immunodeficiency virus (SIV)	3*	In the *Lentivirus simimdef* species
Family **Rhabdoviridae** *Genus* **Lyssavirus**		
Australian bat lyssavirus	3	Classified under SAPO Rabies vaccine provides protection In the *Lyssavirus australis* species
Duvenhage virus	3	Classified under SAPO Rabies vaccine provides protection In the *Lyssavirus duvenhage* species
European bat lyssaviruses 1	3	Classified under SAPO

Biological agent	Human pathogen hazard group	Taxonomy / notes
		Rabies vaccine provides protection In the *Lyssavirus hamburg* species
European bat lyssaviruses 2	3	Classified under SAPO Rabies vaccine provides protection In the *Lyssavirus helsinki* species
Lagos bat virus	3	Classified under SAPO In the *Lyssavirus lagos* species
Mokola virus	3	Classified under SAPO In the *Lyssavirus mokola* species
Rabies virus	3*	Classified under SAPO Vaccine available In the *Lyssavirus rabies* species
Other Lyssavirus species not listed	3	Classified under SAPO
Genus **Vesiculovirus**		
Piry virus	3	In the *Vesiculovirus piry* species
Vesicular stomatitis virus (VSV) spp. known to be pathogenic in humans (including VSV Alagoas, VSV Indiana and VSV New Jersey)	2	Classified under SAPO
Family **Tobaniviridae** *Genus* **Torovirus**		
Bovine torovirus - Breda virus	2	In the *Torovirus bovis* species
Equine torovirus - Berne virus	2	In the *Torovirus equi* species
Human torovirus	2	
Porcine torovirus	2	In the *Torovirus suis* species
Family **Togaviridae** *Genus* **Alphavirus**		
Bebaru virus	2	In the *Alphavirus bebaru* species
Cabassouvirus	3	In the *Alphavirus cabassou* species
Chikungunya virus	3*	In the *Alphavirus chikungunya* species
Eastern equine encephalitis virus	3	Classified under SAPO

Biological agent	Human pathogen hazard group	Taxonomy / notes
		In the *Alphavirus eastern* species
Everglades virus	3*	In the *Alphavirus everglades* species
Getah virus	3	In the *Alphavirus getah* species
Mayaro virus	3	In the *Alphavirus mayaro* species
Middelburg virus	3	In the *Alphavirus middleburg* species
Mucambo virus	3*	In the *Alphavirus mucambo* species
Ndumu virus	3	In the *Alphavirus ndumu* species
Onyong-nyong virus	2	In the *Alphavirus onyong* species
Ross River virus	2	In the *Alphavirus rossriver* species
Sagiyama virus	3	In the *Alphavirus getah* species
Semliki Forest virus	2	In the *Alphavirus semliki* species
Sindbis virus	2	In the *Alphavirus sindbis* species
Tonate virus	3*	In the *Alphavirus tonate* species
Venezuelan equine encephalitis virus	3	Classified under SAPO In the *Alphavirus venezuelan* species
Western equine encephalitis virus	3	Classified under SAPO In the *Alphavirus western* species
Other alphaviruses known to be pathogenic in humans	2	

Annex 1: Biological agents which may be used at less than the minimum containment conditions

This annex provides a list of biological agents that are human pathogens which may be used at less than the minimum containment conditions required by COSHH.

Whether any of the applicable containment measures can be dispensed with in relation to work with the biological agents listed will depend on the activity undertaken. Please refer to guidance paragraphs 17–20 for further information.

Bacteria

- *Escherichia coli*, vero-cytotoxigenic strains (eg O157:H7 or O103)
- *Mycobacterium microti*
- *Mycobacterium ulcerans*
- *Rickettsia akari*
- *Rickettsia heilongjiangensis*
- *Rickettsia canadensis*
- *Rickettsia heilongjiangensis*
- *Rickettsia montanensis*
- *Salmonella enterica* subsp. *enterica* serovar *typhi*
- *Salmonella enterica* subsp. *enterica* serovar *paratyphi* A, B, C
- *Shigella dysenteriae* (Type 1)

Unconventional agents associated with TSEs

- The agent of bovine spongiform encephalopathy (BSE) and other related animal TSEs
- The agents of Creutzfeldt-Jakob disease
- The agents of variant Creutzfeldt-Jakob disease
- The agents of fatal insomnia
- The agent of Gerstmann-Sträussler-Scheinker syndrome
- Kuru agent
- Variably protease-resistant prionopathy agent

Viruses

- Chikungunya virus
- Everglades virus
- Hepatitis B virus
- Hepatitis C virus
- Hepatitis D virus
- Hepatitis G virus
- Orthohepevirus A (formerly known as Hepatitis E virus)
- Human immunodeficiency viruses
- Primate T-cell lymphotropic viruses
- Louping ill virus
- Mucambo virus
- Rabies virus
- Simian immunodeficiency virus
- Tonate virus
- Wesselsbron virus

Parasites

- *Echinococcus granulosus*
- *Echinococcus multilocularis*
- *Echinococcus oligarthus*
- *Echinococcus vogeli*
- *Leishmania braziliensis*
- *Leishmania donovani*
- *Leishmania guyanensis (Viannia guyanensis)*
- *Leishmania infantum (L. Chagasi)*
- *Leishmania panamensis (Viannia panamensis)*
- *Plasmodium falciparum*
- *Plasmodium knowlesi*
- *Taenia solium*
- *Trypanosoma brucei rhodesiense*
- *Trypanosoma cruzi*

Further information

HSE and ACDP publications give advice on various aspects of work with biological agents. General and sector-specific guidance for work with biological agents published by HSE, ACDP and with links to guidance from other government departments is available on HSE website:
www.hse.gov.uk/biosafety/about.htm

Guidance that should be consulted, as appropriate, when deciding on containment measures:

Minimise transmission risk of CJD and vCJD in healthcare settings
www.gov.uk/government/publications/guidance-from-the-acdp-tse-risk-management-subgroup-formerly-tse-working-group

Blood-borne viruses (BBV) web pages
www.hse.gov.uk/biosafety/blood-borne-viruses/index.htm

Management and operation of microbiological containment laboratories
www.hse.gov.uk/biosafety/assets/docs/management-containment-labs.pdf

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This Approved List is available online at
www.hse.gov.uk/pubns/misc208.htm