



# BIOLOGICAL HAZARDS AND THE WORK ENVIRONMENT

TRADE UNION POSITION AND PRIORITIES AHEAD OF  
THE INTERNATIONAL LABOUR CONFERENCE 2024  
FIRST DISCUSSION ON OCCUPATIONAL SAFETY AND  
HEALTH PROTECTION AGAINST BIOLOGICAL HAZARDS

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## WHAT IS THE PROBLEM?

**Global estimates of biological risks at work**, based on International Labour Organisation (ILO) data and published online ahead of print on 5 October 2023, suggest these exposures accounted for over 550,000 deaths in 2022, considerably higher than the **annual toll from work-related fatalities**. The new estimates indicated there has been an increase in disability adjusted life years (DALYs) attributable to biological exposures at work. ITUC believes these estimates to be conservative.

Related conditions included infectious diseases, restrictive and obstructive lung diseases, cancers, poisonings and injuries. Classic occupational diseases include cotton lung (byssinosis), farmers' lung (fibrosing alveolitis) and bakers' asthma. Several occupational conditions, including cancers and lung diseases caused by biological exposures at work, are named explicitly in ILO's **List of Occupational Diseases** (Recommendation 194). Hundreds of additional exposures to irritants, sensitisers, carcinogens and other hazards fall within the list's qualifying terms for recognition as occupational diseases, causing conditions from asthma and cancer to anaphylaxis.

Unlike chemical hazards, however, ILO had no explicit and comprehensive rules governing exposure to biological hazards at work and there is a near total absence of associated occupational exposure limits.

Global unions have since 1993 called for an ILO Convention on biological hazards at work, **but despite an agreement at ILO to develop a standard, progress stalled**. 'Biological hazards' was then identified at the ILO's **Standards Review Mechanism's Tripartite Review Working Group** meetings in 2017 and 2018 as "requiring standards setting action."

In March 2021, ILO's governing body (GB) agreed standing setting on occupational health and safety protection against biological hazards should be on the agenda of the 112th and 113th sessions (2024/2025) of the International Labour Conference [**GB.341/INS/3/1(Rev.2)**]. Subsequently **ILO Technical Guidelines on biological hazards in the working environment**, adopted in November 2022, established a broad scope for standard-setting on biological hazards.

ITUC has called for this process to result in a Convention and Recommendation on biological hazards in the working environment.

## WHICH BIOLOGICAL HAZARDS SHOULD BE COVERED?

The **ILO technical guidelines** adopted in 2022 noted their purpose and scope encompass “what should be done to prevent and control work-related injuries, ill health, diseases, and dangerous occurrences and deaths related to exposure to biological hazards in the working environment.”

The guidelines established a broad definition of biological hazards at work. As well as the full spectrum of biological agents “and their associated allergens and toxins”, the guideline specify the scope to include “infectious and non-infectious diseases and injuries” and biological hazards from “vectors or transmitters of disease.”

There is not a consensus of the use of the terms ‘biological agents’ versus ‘biological hazards.’ For the purpose of this document, biological agents is generally interpreted as pathogens that can cause disease, and biological hazards as all workplace hazards of biological origin – including but not limited to pathogens, dusts, poisons, venoms and physical threats – that can cause harm at work.

ITUC believes the scope of a new standard on biological hazards must be comprehensive, including all related infectious and non-infectious diseases, poisonings, cancers and injuries (punctures wounds, cuts, abrasions, irritation and other harms related to the physical properties of biological agents and substances). Also within its

scope should be explosions, asphyxiations or other physical risks related to the presence of biological hazards in the work environment, and other conditions (sequela) arising out of exposures, including cardiovascular and psychosocial conditions.

The standard should in ITUC’s view also recognise risks are present in all sectors, from infections and allergies in health, social care and service sectors workers, to infections, poisonings and other harms resulting from exposure to plants and vectors in construction, agriculture and waste, to emerging health issues in the biotech industry.

In discussions on the ILO technical guidelines, employers argued for a more limited scope and may again try to argue this in discussions leading to a new standard. For unions, this will be the only rule making process on biological hazards for some time, so a new standard or standards must cover all associated risks. The standards should also be ‘future-proofed’, recognising that novel, emerging or evolving biological hazards should be within the scope of the rules.

These points are reflected in a **systematised review** of studies on biological hazards at work and their effects, published online head of print on 21 October 2023. It noted: “Biological hazards, both infectious and non-infectious, constitute significant threats to health in numerous industrial sectors and workplaces around the world, often leading to occupational and work-related diseases,” with relevant hazards including “infectious and non-infectious agents, endotoxins, bioaerosols, organic dust, and emerging agents.”

The review added the risks are “very significant in many occupational activities, involving different modes of exposure and different health outcomes,” with further studies necessary “to combat all hazards to human health, including emerging ones.”

The growing public health threat from **antimicrobial resistance** (AMR) raises concerns

that **known risks can lead to new and more serious outcomes at work**. This, and lessons learned from a succession of ‘novel’ coronavirus outbreaks impacting on workplaces – in sequence **SARS**, **MERS** and **Covid-19** – demonstrate the need for vigilance, effective surveillance and a preventive, precautionary approach to risks, all factors that should be reflected in a new ILO standard.

## SOME KEY BIOLOGICAL HAZARDS

### Conditions related to micro-organisms:

**Covid-19** highlighted the pandemic level risks that can arise from exposures at work, with many workers in health and social care, transport, food, education, prison and other sectors in the exposure frontline. The **global estimate** based on ILO data put this toll from Covid-19 in 2022 alone, way beyond the peak for infections, to be over 223,000 deaths.

At both the 2017 and 2018 ILO standards review meetings unions, arguing for a new standard on biological hazards at work, name-checked recent occurrences of infectious and non-infectious work-related conditions including:

- **Viral conditions** like **SARS** and **Middle East Respiratory Syndrome** (both, like Covid-19, caused by coronaviruses), **Avian influenza virus** (Bird flu), **Swine flu**, **Zika virus**, **Ebola** and **West Nile virus**;
- **Tick-borne diseases** like **Monkey fever** and **Lyme disease**;
- **Bacterial conditions** like **MRSA**, **Anthrax**, **Brucellosis**, **Leptospirosis** (Weil’s disease), **Psittacosis**, **Legionnaire’s disease**, **Tuberculosis** (TB), and **Q-fever**;
- **Blood borne diseases** like **HIV** and **Hepatitis B and C**.
- **Mould or fungal spore related conditions** like **Histoplasmosis** and **Extrinsic Allergic Alveolitis** (eg. Farmer’s lung).
- **Prion-related conditions** (Spongiform encephalopathies) – eg. **Bovine Spongiform Encephalopathy** (BSE).

## HARMS CAUSED BY OTHER BIOLOGICAL EXPOSURES

Many of the classic occupational diseases associated with 'biological hazards' or 'biological agents' are not infections - for example byssinosis, a lung disease caused by cotton dust exposure which has been recognised for hundreds of years. It is critical any new instrument addresses all the risks posed by biological hazards at work.

### IRRITANT AND ALLERGIC REACTIONS

Hundreds of biological substances are associated with work-related allergies, including cereals, tea, coffee and bean dust and shellfish. Many plants encountered at work, including hogweed, poison oak and poison ivy, cause severe reactions. Occupational asthma, rhinitis and dermatitis are among associated conditions. Asthma caused by 'recognised sensitizing agents or irritants inherent to the work process' is included in the ILO list of Occupational Diseases (**Recommendation 194**), as are recognised skin conditions caused 'by biological agents at work'. Diseases related to latex (natural rubber) exposure are also included on the ILO list, with associated health effects including allergies and potentially fatal anaphylaxis.

### ORGANIC DUST RELATED DISEASES

The ILO List of Occupational Diseases include lung diseases caused by cotton (byssinosis), flax, hemp, sisal and sugar

cane (bagassosis). Extrinsic allergic alveolitis caused by the workplace inhalation of organic dusts (for example farmers' lung) or microbially contaminated aerosols (in metalworking fluids or emanating from air-conditioning systems, for example) is also on the list. **Organic dust toxic syndrome** is an established work-related condition.

### OCCUPATIONAL CANCERS

A number of cancers are associated with exposure to biological hazards at work. **Wood dust exposure** is related to nasal cancers and has been linked in studies to lung cancer; wood dust and cancer is recognised explicitly on the ILO's list. Like wood dust, **leather dust exposure** is recognised by the UN's International Agency for Research on Cancer (IARC) as a cause of nasal cancer. Working with natural rubber and leather is associated with bladder cancer. **Exposure to aflatoxins**, found in livestock feed, nuts and other food products, is recognised by IARC as a cause of liver and bile duct cancers in humans. Cancers associated with occupational infection with Hepatitis B virus (HVB) or Hepatitis C (HVC) are included in the ILO occupational diseases list. The **new global estimates** based on ILO data identify several other jobs involving exposure to biological substances that have been linked to cancers.

### POISONINGS

Many biological substances can be a toxic hazard at work, for example tobacco workers suffer from Green Tobacco Sickness and many **commonly encountered plants** can be a serious hazard to outdoor or horticulture workers.



## PHYSICAL HAZARDS

The physical properties of some biological substances encountered at work can lead to workers' being harmed. Interdigital pilonidal sinus of the hand is an occupational disease of barbers or hairdressers, where fragments of hair become embedded in the skin – barbers refer to them as 'hair splinters' - sometimes leading to cyst formation. Similar problems can occur from wood splinters. Cotton pickers can suffer puncture wounds and cuts from handling the cotton boll and leaves. Cotton lint is highly flammable. Fine organic dusts are a notorious explosion risk, and explosions and associated fires in flour, sugar, spice, other food processing and woodworking facilities are frequently deadly. The new global estimates suggest over 20,000 workers each year may die as a result of injuries sustained while handling animals at work.

## BIOTECH INDUSTRY

The rapid growth of the biotechnology industry has seen workers exposed to risks in new settings. Workers in biogas facilities face an asphyxiation and explosion risk from gases generated in the process. The manufacture of biological detergents can use agents like *B subtilis*, and has been linked to occupational

asthma. And **fungi**, which can cause conditions like aspergillosis, are increasingly being used in novel applications, for example as plastic or meat substitutes.

## SECONDARY HEALTH EFFECTS

As Hepatitis-related cancers demonstrate, there can be dangerous sequelae to the original health condition caused by exposure to a biological hazard at work. Almost one in ten workers with a Q fever infection as a result of handling fleeces or hides, for example, may develop Q fever endocarditis, a potentially fatal heart condition. Post-infection fatigue and other health impacts – for example Long Covid – are well reported. **Psychosocial disorders**, including post-traumatic stress, anxiety or depression, are established consequences of work-related ill-health.

These lists are not comprehensive, but indicative of the broad range of jobs and working environments where biological substances can present an occupational risk. The new ILO instrument, which ITUC believes should be a Convention supported by a Recommendation, should be clear its scope encompasses all risks associated with biological hazards at work in all jobs.

## WHAT PROTECTIONS DO WORKERS NEED?

Occupational safety and health is now an ILO fundamental principle and right at work. One of the two named fundamental conventions, **Convention 155 on Occupational Safety and Health at Work**, identifies explicitly “biological

substances and agents” among its “main spheres of action.” It adds employers shall ensure, so far as is reasonably practicable, measures are taken to ensure they are “without risk to health.”

The requirements of fundamental convention apply to all ILO member states, and are binding and cannot be undercut by subsequent instruments. The convention places duties on national authorities and employers, and provides a framework of rights for workers and their representatives.

In terms of the any new instrument this means it must at a minimum meet these fundamental requirements, including on the rights to information, training, representation and the additional rights bestowed on workers' representatives. There is also a right to refuse dangerous work without penalty.

All these measures must be backed up by national systems, with sufficiently resourced inspectorates and robust inspection and enforcement regimes.

Language on these rights and responsibilities is included in the **technical guidelines on biological hazards at work** adopted in 2022.

The guidelines follow a hierarchy of control approach (Appendix II), prioritising elimination of risks and requiring employers to “integrate preventive activities”, including health surveillance, provision of information to workers and their health and safety representatives, and to “investigate occupational accidents, diseases and dangerous occurrences, in cooperation with safety and health committees and/or workers' representatives”.

The guidelines also note “the competent authority should develop progressively occupational health services for all workers” and employers “should ensure the provision of occupational health services to his or her workers,” in line with the **Occupational Health Services convention**, Convention 161.

Recognising that new or poorly understood biological hazards may be encountered at work, the technical guidelines offer support for a precautionary approach, noting: “Where sufficient information is not available, the competent authority should elaborate guidelines, procedures and precautionary measures, when indicated and applicable.”

Adequate information on the incidence and patterns of biological hazard-related harms in the workplace is critical to preventive efforts. The technical guidelines reflect this, noting the “recording, notification and investigation of occupational diseases, accidents and, as appropriate, dangerous occurrences caused by workplace biological hazards”.

**The protocol to ILO Convention 155** goes further, and refers to the need for employers to record ‘suspected cases of occupational diseases’, an important additional measure for emerging biological hazards where the evidence of causation may not yet be conclusive.

It is worth noting there is an observable union effect on reporting. For example, US studies established union action reduced community Covid-19 infection rates through securing **better reporting** and better protective/preventive measures. **Studies in nursing homes** showed lower rates of both Covid-19 patient deaths and worker infections in unionised workplaces.

Where there is a need for medical or health surveillance, ethical practices, in line with **ILO guidelines**, must be followed, protecting medical information and privacy.

A preventive and precautionary approach should underpin the new standard.



## RIGHTS OF WORKERS' REPRESENTATIVES

All the rights of workers' representatives in the fundamental **occupational safety and health Convention 155** and elaborated in **ILO Recommendation 164** apply and should be reflected in the new standard.

This would be consistent with the **ILO technical guidelines on biological hazards**, which note: "Cooperation between management, workers and their representatives within the undertaking is an essential element of all measures related to the prevention of biological hazards. Workplace cooperation should cover all forms provided by Paragraph 12 of Recommendation No. 164, as appropriate, and should cover all aspects identified under Articles 19 and 20 of Convention No. 155."

At the workplace level the technical guidelines on biological hazards

state that in "consultation with workers and their representatives, employers should make appropriate arrangements for the **establishment of OSH management systems...** and should comply with the measures to be taken regarding risks to safety and health in general and to biological hazards in particular, including nationally and internationally recognized instruments, codes and guidelines, and collective agreements, where appropriate, as prescribed, approved or recognized by the competent authority."

The technical guidelines note consultations with workers' representatives "should include exchanges of information on: The nature of the biological hazards to which workers are exposed and the risks which such exposure entails; the results of risk assessments; the results of any health surveillance, relevant injury or disease reports, or other relevant health data; and on preventive and protective actions or measures to be taken."

## WHAT PROTECTIONS DO WORKERS NEED?

The ILO's fundamental occupational safety and health conventions establish clearly that the great majority of responsibilities and 'obligations' fall on employers (**ILO Convention 155**, articles 16-19) and national governments and their competent authorities (**ILO Convention 155**, articles 8-15). Workers

and workers' organisations, by contrast, are largely endowed rights. However, unions should expect employers to argue health and safety is a joint responsibility shared equally between all parties.

Unions should acknowledge that workers have some responsibilities to take 'reasonable care'

of their own health and safety and that of others (ILO Recommendation 164 paragraph 16) and to ‘cooperate’ with the employers’ instructions (ILO Convention 155 article 19). However, it should be noted any responsibilities have to be viewed in the context of the more extensive obligations on employers and national authorities to create a safe and healthy working environment and to respect the rights of workers and their representatives.

Without the necessary training, information, supervision, right to refuse, consultation and representation required by C155 and R164, workers have in reality a limited capability to remain safe at work, and any unsafe acts or omissions on their part may in fact be in large part or in their entirety the fault of the employer.

These relative responsibilities are reflected in the ILO technical guidelines on biological hazards, chapter one.

## WIDER EMPLOYMENT RIGHTS AND PROTECTIONS

The Covid-19 pandemic demonstrated that to secure an effective public health response, with many health, food, transport, education and other workers deemed ‘essential’ so not able to stop work or work from home, occupational health and safety rights had to be supplemented by wider employee protections and support.

**Income support** and better, more comprehensive access to sick pay, available to all workers, was determined to be critical to limiting workplace infections and related transmission to the wider population. Low paid workers, particularly, need financial security to make sick leave an affordable option.

Measures to prevent the cross over of animal diseases to humans – for example, recent interventions to prevent Avian Flu in **poultry** or **mink farms**, or **BSE** and **TB** in cattle – can involve culls and the temporary or permanent closure of businesses on public health grounds.

An ILO biological hazards standard should recognise income support and employment protection measures are necessary to achieve effective implementation of related public health interventions.

The technical guidelines note workers have the right to “be provided with adequate medical treatment and compensation for occupational accidents and occupational and work-related diseases resulting from the exposure to biological hazards at the workplace, including compensation to dependent family members in case of death of the worker due to a work-related injury or disease, in accordance with national laws and regulations.”

**ILO Convention 121 on employment injury benefits** notes that payments should be made to worker affected by conditions included on **ILO List of Occupational Diseases** (R194).

This list includes a wide range of conditions related biological hazards, including hazardous substances (latex/natural rubber), exposures to biological agents causing infection or

parasitic diseases, bronchopulmonary disease, irritant or allergic asthma and extrinsic allergic alveolitis, other upper airways disorders (for example rhinitis, bronchitis) and dermatitis and other skin diseases caused by exposure to biological sensitisers or irritants, cancers related to exposure to wood dust or Hepatitis B or Hepatitis C infections, with a catch-all for 'other specific conditions' established scientifically or by national practices.

The **ILO technical guidelines** note workers who can no longer continue in their usual work should be assisted through efforts to provide alternative work, retraining and rehabilitation.

A new standard should recognise and address these factors.

## THE CLIMATE CRISIS AND BIOLOGICAL HAZARDS

The climate crisis, urbanisation and changing land use are impacting on occupational health and safety and have led to biological hazards posing new risk or risks in new places.

A 2023 ILO guide on **occupational health and safety and just transition** warns that “risks from vector-borne diseases, such as malaria or dengue fever, will increase with warming temperatures, including potential shifts in geographic range of these vectors as a result of climate change. This development affects all workers, especially outdoor workers who are at higher risk of contracting vector-borne diseases, from vectors such as mosquitoes, fleas and ticks. Moreover, infectious diseases may also affect workers via waterborne and foodborne pathogens, such as *Salmonella* spp. when they have direct contact with contaminated water or food.”

The 2022 **ILO technical guidelines on biological hazards** note in recent

decades there has been a “wide range of emergencies related to biological hazards, in particular outbreaks of infectious diseases, such as severe acute respiratory syndrome (SARS), H1N1 influenza, Ebola virus disease, Zika virus disease and Covid-19. Moreover, pandemics can lead to secondary incidents and emergencies in workplaces, as evidenced by the microbial contamination of workplace water networks and Legionnaire’s disease outbreaks during reopenings after Covid-19 lockdowns.”

Measures to address these increased risks can bring their own hazards, with a 2023 ILO report on **chemicals and climate change** noting: “Increased exposure to biological hazards can lead to an intensified use of chemicals. For instance, vector control using insecticides plays a key role in the prevention and control of infectious diseases such as malaria, dengue and filariasis.”

Risks assessments should ensure a hierarchy of controls is followed, to avoid substituting one hazard for another, with primary prevention the first resort.

## EMERGENCY PREPAREDNESS AND RESPONSE

Biological hazards arising from extreme weather events and natural disasters are recognised as an increasing concern by ILO, and are associated clearly with a risk of occupational exposure to biological risks, for example water- or vector-borne diseases, or injury risks leading to tetanus or other infections.

The **ILO's 2023 just transition guide** notes: "Climate change may also lead to an increase in extreme weather events and natural disasters, including torrential rain and flash floods, landslides, avalanches and wildfires."

It adds: "In consultation with employers', workers' and other organizations, Members should take measures to prevent, mitigate and prepare for crises, which include extreme weather events, taking into account ILO instruments, such as **ILO Recommendation 205** [Employment and Decent Work for Peace and Resilience Recommendation], which explicitly highlights the application of fundamental principles and rights at work to the health of workers engaged in crisis response."

The 2001 **ILO Guidelines on occupational safety and health systems** outline arrangements for emergency prevention, preparedness and response. These guidelines note arrangements should be established in cooperation with external emergency services and other bodies where applicable and: ensure that the necessary information,

internal communication and coordination are provided to protect all people in the event of an emergency at the worksite; provide information to, and communication with, the relevant competent authorities and the neighbourhood and emergency response services; address first-aid and medical assistance, firefighting and evacuation of all people at the worksite; and provide relevant information and training to all members of the organization, at all levels, including regular exercises in emergency prevention, preparedness and response procedures.

The **ILO technical guidelines on biological hazards** establish the measures that should be in place to deal specifically with these hazards: "Emergency preparedness and response arrangements should be established, periodically updated and maintained in workplaces. These arrangements should identify incidents, emergencies and outbreaks due to biological hazards that could affect workplaces. Arrangements should be made according to the location and environment of the workplace, as well as the size and nature of its activities."

They add: "In coordination with public health and other competent authorities, employers should develop an emergency action or response plan that considers the nature of incidents, emergencies and outbreaks, the key responders and their responsibilities."

Emergency preparedness, with participation of workers' organisations at all levels from national policy to workplace practice, should be an integral part of a new standard.

## EXISTING INSTRUMENTS

Prior to the adoption of the ILO technical guidelines on biological hazards in the work environment, only two ILO existing instruments dealt directly with related issues: The **Anthrax Prevention Recommendation** (R003); and **HIV and AIDS recommendation** (R200).

The Standards Review Mechanism Tripartite Working Group in 2017 noted the anthrax recommendation was “requiring further action to ensure

continued and future relevance.” It does contain useful information, for example on controls at ports of entry for potentially anthrax-contaminated materials – but is limited in its scope, for example because it deals only with risks when handling wool. The review recommended the new standard should be the mechanism to address the necessary revisions.

The 2010 HIV and AIDS recommendation (R200) is relatively new and was not considered by the tripartite review.

## NEXT STEPS

The **2024 session of the International Labour Conference** (ILC) will include a first discussion on standard setting on protection from biological hazards. A workers’ group to represent unions in these discussions will be assembled and briefed ahead of this session. The discussion will conclude at the ILC 2025 session.

Resources explaining key issues and potential sticking points, with proposals for their resolution, will be prepared and made available to union organisations. Training sessions for participants in the workers’ group will be organised.

The negotiations leading to adoption in 2022 of the **ILO Technical Guidelines on biological hazards in the working environment** suggest certain areas of concern to be addressed ahead of the ILC discussions, including:

- **Scope:** The employers’ group expressed a preference for a more limited scope for the guidelines, with a primary focus on the ‘biological agents’ causing occupational infections. The workers’ group argued successfully for a broader scope, including all the health impacts related to biological hazards at work. This is essential as this will be the only biological hazards instrument on the ILO timetable for the foreseeable future and so should be both comprehensive and future proofed, including a capability to address issues including antimicrobial resistance, epidemic risks, the climate crisis and natural and other disasters.
- **Unresolved issues:** The workers’ group argued the technical guidelines should cover sequela to biological hazards related conditions, including post-infection conditions and cancer

related to exposures to, for example, wood dust, aflatoxins or secondary to work-related Hepatitis infections. This was resisted by employers, resulting in an absence of explicit satisfactory language in the guidelines. The employers also argued 'wood dust' was not a biological hazard, but a chemical hazard and said only conditions related to contamination by fungi etc should be within the scope. This employer line is **not consistent with the evidence or established practice**.

- Rights vs responsibilities:** Several articles in the fundamental ILO occupational health and safety convention, Convention 155, place responsibilities and obligations on employers to take measures to protect workers and to allow for effective consultation and representation. Only one, article 19, places a responsibility on workers to take reasonable care to protect themselves and to cooperate with the employer. It is expected the employers' group will argue that responsibility for health and safety at work lies jointly and equally on all parties. This does not represent accurately the balance of duties in Convention 155. The language of the new standard should reflect this balance of fundamental duties and rights, which establish clearly the primary responsibilities lie with employers and governments and their competent authorities.
  - Sectors:** The workers' group argued that the technical guidelines should recognise the risks in all sectors, including education, transport and service sector, all of which have associated exposures to biological hazards. This discussion ran out of time.
  - Risk assessment:** The workers' group supported a hierarchy of control approach, with a priority given to prevention of risks. This was agreed. The original approach was biased towards a pathogen control, medical model, not appropriate to wide range of biological exposures and related conditions.
  - Qualifying language:** The employers' group wanted to qualify many requirements in the technical guidelines on biological hazards on the grounds that they should instead reflect national conditions and practices. However, the workers' group insisted that many of the contentious issues – particularly on workers' rights and protections – were now fundamental rights so non-negotiable and only subject to qualifications already in Conventions 155 and 187.
  - Broader work protections:** Recognition that some conditions and interventions addressing biological hazards at work have implications for employment – for example, furloughs, workplace closures or work suspensions, health impacts like sensitisation or risks during pregnancy that affect ability to work – and need additional employment protections, including job and income protection, rehabilitation or compensation. There is some supportive language in the technical guidelines, but it could be improved.
  - Training:** The technical guidelines note that all necessary training and instruction should where possible occur in normal work time. The new instrument should be clear that all training should be in paid work time and wherever possible during normal work hours.
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- **Occupational health:** Workers should have access to occupational health services, in line with the **Occupational Health Services convention**, Convention 161. Recognising that these services are not available to all workers, universal health coverage in line with **Sustainable Development Goal 3** should be supported.
  - **Reporting and recording: In line with the protocol to ILO Convention 155** the new instrument should require the creating of national and employer reporting systems for occupational injuries and diseases and ‘suspected cases of occupational diseases’, including those arising from exposure to biological hazards at work.
  - **Future proofing:** Novel, emerging or evolving biological hazards should be within the scope of a new standard or standards and reinforced the argument for effective surveillance and a preventive, precautionary approach to risks.
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