

**Report**

# Health and safety performance indicators

Health and Safety  
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# Introduction

**This document contains the recommended definitions and reporting boundaries for lagging health and safety performance indicators to be used by International Council on Mining and Metals member companies for the purposes of benchmarking activities.**

The document includes the following sections:

**Section 1**

Definitions for health and safety performance indicators

**Section 2**

Recording boundaries

**Section 3**

Supporting guidance for recording injuries and diseases

**Appendix**

Additional definitions for terminology used in the indicator definitions.

The indicators, definitions and reporting criteria were developed with input from ICMM member companies following these general principles:

- Injury and disease recording should reflect the impact of an employer's operations on the workforce supporting the operations.
- Injuries and diseases that occur in locations under the control of the employer are included.
- Injuries and diseases that occur while undertaking activities under the control of the employer are included.
- Injuries and diseases that occur 'on the job' are included regardless of location.
- All employees and contractors are included.
- Injuries or diseases are recordable for all workers for whom exposure hours are recorded (or can be estimated).
- 'Off the job' injuries or diseases are not included.

Where these principles may conflict in application, Section 2 describes specific situations that may be included or excluded from recording requirements.

The document only addresses whether or not injuries and diseases should be recorded and how to classify them according to the ICMM categories. It does not address lost time accounting or severity rates as described in previous ICMM guidance or conventions in common use by member companies.

This document supersedes previous ICMM guidance on health and safety performance indicators. It should be noted that the scope of reporting and the definitions in this document are not directly in line with the scope and definitions used within any other reporting schemes.

# Definitions for health and safety performance indicators

## Fatality

A fatality is defined as the death of a worker from an occupational injury or disease. A fatality is recorded when death is a direct result of an occupational injury or disease.

## Injury

An injury is temporary or permanent damage to tissue, muscle or bone typically caused by an identifiable event.

## Disease

A disease is an abnormal condition or disorder of body functions or systems caused by acute or chronic exposure to agents, toxins, pathogens or other factors.

## Occupational injury or disease

An occupational injury or disease is defined as an injury or disease that results from work activities occurring in locations that are under the control of the employer or direction of the employer, regardless of location. Specific scenarios included or excluded in this definition are described in Section 2.

## Recordable case

Recordable occupational injury and disease cases are defined as follows:

- A recordable injury case is a new case of sufficient severity that it requires medical treatment beyond first aid or results in the worker's inability to perform his or her routine work function on the next calendar day. Medical treatment beyond first aid is further described in Section 3. See guidelines in Section 3 for determining a 'new case'.
- A recordable disease case is a new disease case in the categories of occupational respiratory disorders (ORD), occupational hearing loss (HL), musculoskeletal disorders (MSD), occupational cancers (OC) and other occupational medical disorders (OOMD). See guidelines in Section 3 for determining and recording new disease cases. Specific definitions for disease categories are included in the appendix.

## Worked hours

Worked hours used in injury performance calculations means the total number of hours worked by employees or contractors carrying out work-related activities during the recording period (typically a calendar year).

## Total recordable fatalities

Total recordable fatalities (TRF) are the sum of all occupational fatalities that meet the recording criteria during the recording period.

## Total recordable cases

Total recordable cases (TRC) are the sum of all new occupational injuries and disease cases that meet recording criteria during the recording period.

## Total recordable injury cases

Total recordable injury (TRI) cases are the sum of all new occupational injury cases that meet recording criteria during the recording period.

## Total recordable disease cases

Total recordable disease (TRD) cases are the sum of all new occupational disease cases that meet recording criteria during the recording period in the categories of ORD, HL, MSD, OC and OOMD, as described in the definitions for recordable disease cases.

## Total recordable case frequency rate

The total recordable case frequency rate (TRCFR) is calculated for the recording period as:

$$\text{TRCFR} = \text{TRC} * 1,000,000 / \text{worked hours}$$

## Total recordable injury frequency rate

The total recordable injury frequency rate (TRIFR) is calculated for the recording period as:

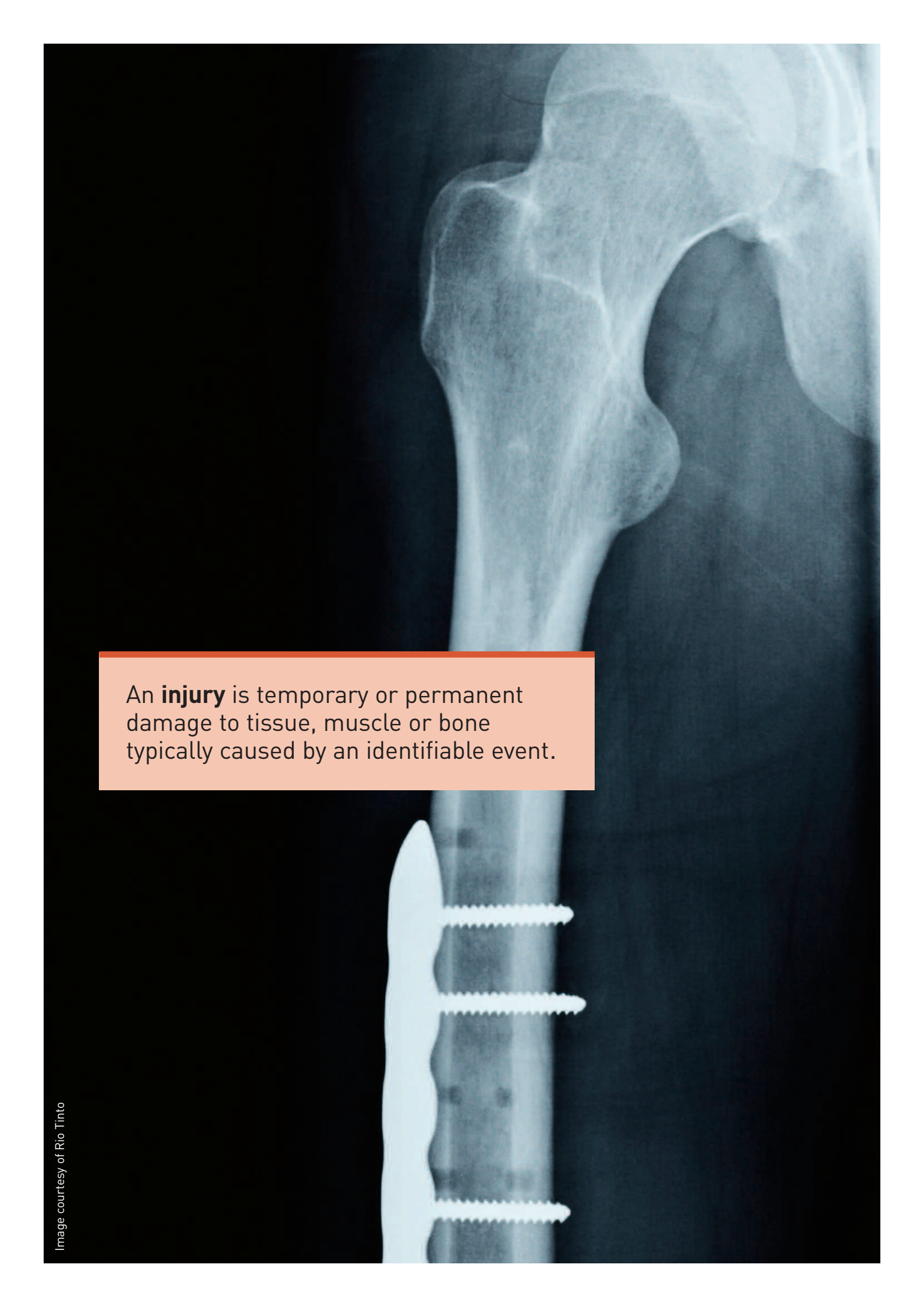
$$\text{TRIFR} = \text{TRI} * 1,000,000 / \text{worked hours}$$

## Total recordable disease frequency rate

The total recordable disease frequency rate (TRDFR) is calculated for the recording period as:

$$\text{TRDFR} = \text{TRD} * 1,000,000 / \text{worked hours}$$



The background of the slide is a grayscale X-ray of a human leg. The femur (thigh bone) is clearly visible, showing a clear break or fracture in the middle section. This fracture is stabilized with a long, silver-colored intramedullary nail. Three locking screws are visible, securing the nail to the bone above and below the fracture site. The rest of the leg, including the tibia and fibula, is also visible in the background.

An **injury** is temporary or permanent damage to tissue, muscle or bone typically caused by an identifiable event.

# 2

## Recording boundaries

This section provides specific guidance for determining whether an injury or disease is recordable within the following recording boundaries:

### 2.1 Case and new case recording boundary

### 2.2 Occupational or work-relatedness boundary

### 2.3 Severity boundary for injuries

### 2.4 Recording periods for injuries, diseases and fatalities

### 2.1 Case and new case recording boundary

- Only new cases are recordable.
- Each worker experiencing an injury or disease in a multi-worker work-related incident or exposure is considered a separate case.
- When a worker has never before experienced an injury or disease affecting the same body part, it is a new case.
- Reoccurrence of injuries or diseases affecting the same part of the body are new cases if the previous case had been declared by an appropriate medical professional to have been fully resolved and the worker returned to his/her routine job function.
- Cases involving pre-existing conditions aggravated by a work-related incident or exposure are new cases.

### 2.2 Occupational or work-relatedness boundary

#### 2.2.1 Situations included as occupational cases

The following situations are considered occupational due to the employment status of the people involved, nature of the work or work location.

#### Employees and contractors performing work-related activities

See the appendix for definitions of work-related activities. Injuries or diseases are occupational in the following circumstances:

- The injury or disease exposure is associated with work-related activities within the employer's controlled location (eg 'inside the fence').
- The injury or exposure occurs during work hours within a controlled location, even if the employee or contractor is not immediately engaged in a work task. For example:
  - The worker is taking a short break between tasks.
  - The worker is on a meal break and eating employer-prepared food in the employer's dining hall.
- The affected worker is outside the employer's controlled location and performing a controlled activity. For example:
  - If a worker driving a vehicle on a public road between a mine and an exploration site during a work shift has a vehicle accident and is killed, it is considered an occupational fatality.
  - If a worker transporting ore under contract from a mine to a seaport has an accident and is injured, it is considered to be occupational because the employer has the right to expect or enforce vehicle and driving safety considerations by contract.

- If a contractor operating an aircraft or a bus transporting commuting workers to a mine site has an accident and the operator is injured, it is considered an occupational injury.
- If a mine's emergency responders act on any incident (company or public) in an uncontrolled location such as a public road, it is considered to be occupational (because it is a controlled activity for the responder).

### **Employees and contractors travelling on work-related travel**

Injuries or diseases that occur while the employee or contractor is travelling are work-related if at the time of the injury or illness the employee or contractor is engaged in work-related activities in the interests of the employer. Examples of such activities include:

- driving or being driven in a vehicle for work-related purposes, irrespective of the cause of any incident involving the vehicle
- flying to visit another site or customer/supplier contact
- being transported to and from customer contacts after lodging has been established and as part of work-related activity
- entertaining, or being entertained, to transact, discuss or promote business providing the entertainment is at the direction of the employer.

However, when travelling employees or contractors check into a hotel, motel or other lodging, they establish a 'home away from home'. Thereafter, their activities are evaluated in the same manner as for non-travelling employees or contractors.

### **Commuting**

Incidents occurring to workers travelling from their permanent residence to a controlled location are considered occupational once workers are inside the controlled location (eg once the transporting vehicle has passed inside the gate or is on a controlled access road).

### **Third parties in controlled locations**

Injuries or diseases occurring to a third party (see the appendix for definition) engaged in a work-related activity within a controlled location are considered occupational and potentially recordable. For example, delivering materials or occasional services to a mine is a controlled activity because the worker is required to follow the employer's safety practices while within the controlled location.

### **2.2.2**

#### **Situations specifically excluded as occupational cases**

The following situations are specifically excluded from consideration as occupational injuries or diseases.

### **Joint venture locations**

Joint ventures where the employer is not the operator are excluded.

### **Commuting**

Incidents occurring to a worker commuting from the worker's residence to the worksite are not occupational regardless of the mode of transport (until the worker enters the controlled location).

### **Travel**

Incidents occurring to a worker travelling between sites during work hours or on work-related travel are not occupational if the worker engages in personal activities. For example:

- A worker travelling between sites takes a detour to do a personal errand.
- A worker on work-related business travel attends a non-business entertainment event.

### **Workers on personal time**

Incidents occurring to workers on personal time using camp facilities such as sleeping quarters, dining halls or exercise and recreation facilities are not occupational. For example, if a fire in a camp sleeping facility caused the death of a sleeping worker, the fatality would not be considered work-related, regardless of the cause of the fire.

### **Workers present in a controlled location as a member of the general public**

Incidents occurring to employees or contractors present in a controlled location as a member of the general public (see the appendix for definition) are not occupational (eg a worker attending a safety fair during non-work hours).

### **Eating or drinking**

Injury or disease resulting solely from a worker eating, drinking or preparing food or drink for personal consumption (whether purchased on the employer's premises or brought in) is not occupational. For example, if the employee or contractor is injured by choking on a sandwich brought from home while in the employer's establishment, the case would not be considered work-related.

### **A contractor working in their own location not located within the employer's controlled location**

Incidents occurring to contractors outside the employer's controlled location and in areas where the contractor company has control are not occupational.

### **Working at home**

Injuries or illnesses occurring to workers working in their own home are not considered occupational because the employer has no control over the location or the way the work is performed.

**Personal activities outside of normal work hours**

Injury or disease caused by workers performing personal tasks outside of normal work hours is not occupational, even if the workers are in their normal work environment.

**Non-work-related activities outside the work environment**

Injuries or diseases resulting solely from non-work-related activities, events or exposures outside the work environment are not occupational even if the symptoms initially surface at work (eg a musculoskeletal injury resulting from weekend or off-shift recreational activity that leads to symptoms while working).

**Other situations**

The following situations are also not considered to be occupational:

- injury or disease caused by self-medication, intentionally self-inflicted or due to personal grooming
- routine diseases such as colds and flu.

**2.3****Severity boundary for injuries**

This section describes how injury severity is used to determine whether an injury is recordable. Injuries that meet the descriptions of new cases (see *Case and new case recording boundary* above) are recordable under the following severity descriptions and guidelines.

**Medical treatment**

An occupational injury that requires medical treatment beyond first aid as described in Section 3 regardless of who provides the treatment is a recordable case.

**Loss of consciousness**

Any loss of consciousness as a result of a workplace incident is a recordable case.

**'Lost time'**

An occupational injury or disease that results in the worker's inability to perform routine work functions on the next calendar day after the injury is a recordable case. Inability to perform routine work functions includes cases resulting in either assignment of alternate or restricted duty or missed workdays.

**Fatalities**

An occupational injury resulting in fatality is a recordable case.

**2.4****Recording periods for injuries, diseases and fatalities**

Injuries and diseases, generally, should be recorded in the period in which the injury occurs or the disease is diagnosed. In the applicable situations, the following conventions should also be followed:

**Escalation after initial recording**

Injuries and diseases may progress in severity from the time of initial recording. When this occurs during the recording period or before performance is reported to ICMM, the original record should be updated with the new information. For example:

- The company records its statistics on a calendar-year basis during which an injury that was originally determined to require only first aid treatment, subsequently needed medical treatment and time away from work. If the injury was originally deemed not recordable, it should be changed to recordable.

**Escalation after the recording period**

When escalation occurs after the employer has completed reporting information to ICMM, there is no expectation that the previous report be updated with the new information. For example:

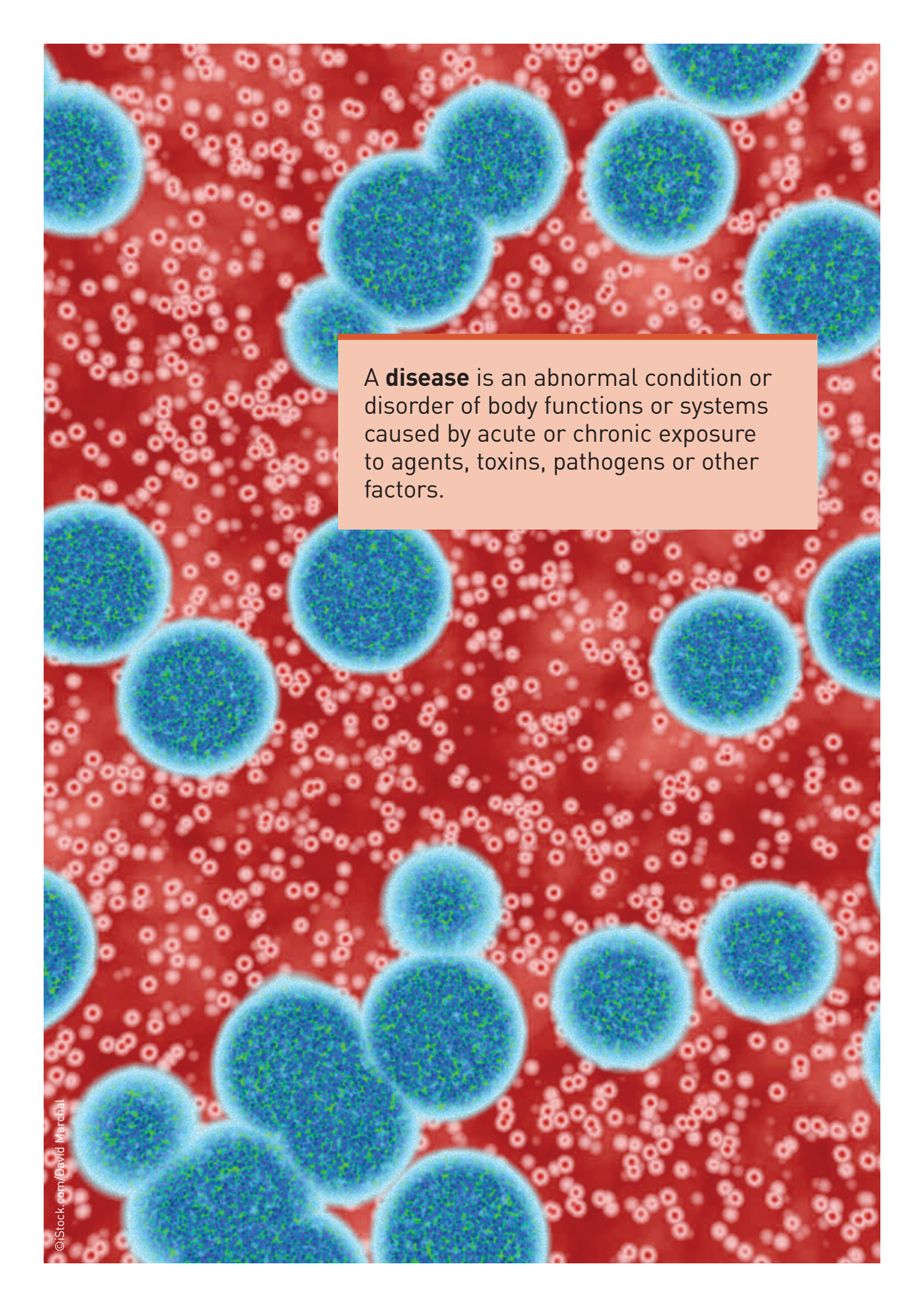
- The company records its statistics on a calendar-year basis and completes its calculations for reporting by 31 January each year. The information does not have to be restated if an injury progresses in severity from non-recordable to recordable after 31 January.

**Special case for fatalities**

The fatality should be recorded in the recording period in which the employee or contractor died. For example:

- An employee or contractor is diagnosed with an occupational respiratory disease in October of a calendar year and dies the following June from progression of the disease. The fatality should be recorded in the year of actual death and not the year of the diagnosis.



The background of the slide is a microscopic image. It features several large, blue, spherical particles with a granular texture, scattered across a red field. Interspersed among these larger particles are numerous smaller, red, ring-shaped or circular structures. The overall effect is a dense, textured pattern of biological or chemical components.

A **disease** is an abnormal condition or disorder of body functions or systems caused by acute or chronic exposure to agents, toxins, pathogens or other factors.



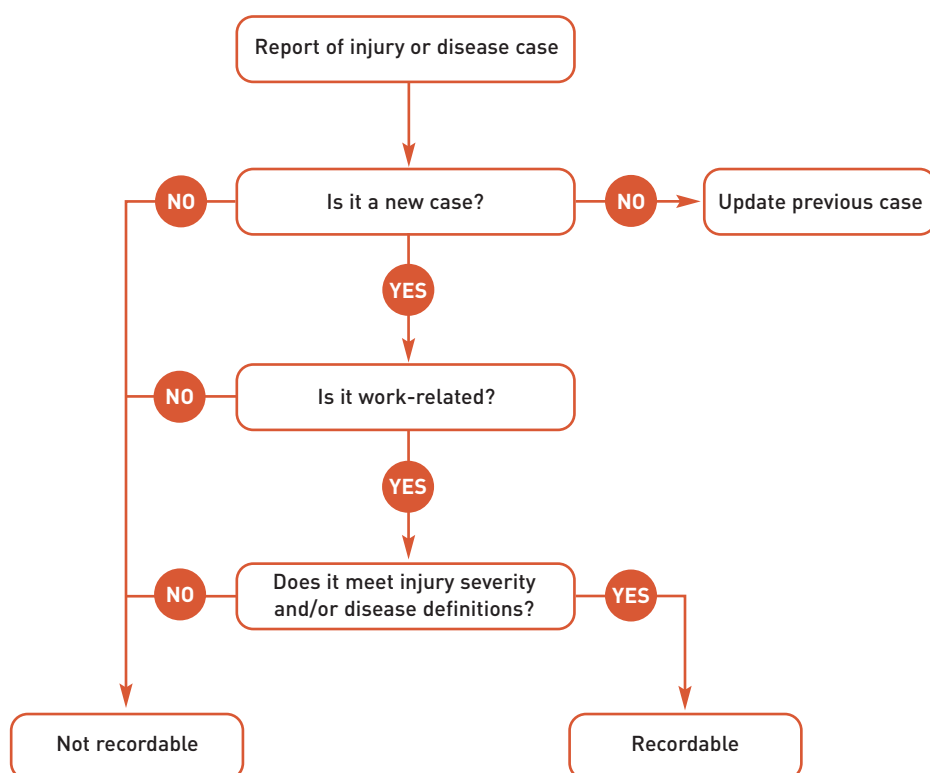
# 3

## Supporting guidance for recording injuries and diseases

This section provides additional guidance for determining whether an injury or disease is recordable, if a new case is an injury or disease, criteria for recording occupational disease and the difference between medical treatment and first aid.

### 3.1 Recording decision tree

The following decision tree provides general guidance on the process for determining whether to record an injury or disease:



### 3.2 Determining injuries vs diseases

Injuries and diseases are distinguished from each other by the following considerations:

- Injuries generally result from specific incidents or events and have symptoms that appear shortly after the event (immediate to a few days). Injuries include cases such as cuts, fractures, sprains or amputations. Injuries also include event-related acute physiological reactions or illnesses to exposures such as heat, cold, sun, hazardous materials or toxic gases.
- Occupational diseases are generally caused by exposure over time to infectious or hazardous agents via inhalation, skin contact, absorption, ingestion or other transmission. Diseases may also have longer-term or chronic impacts and are characterized by a lag time between exposure and onset of symptoms. Occupational diseases usually (but not always) require the accumulation of a sufficient 'dose' before they manifest.
- Some injuries may eventually result in disease. For example, acute exposure to an irritant gas may cause immediate respiratory problems due to lung damage (injury), but may also result in future chronic respiratory disease such as asthma.

## 3.3

### Medical treatment vs first aid

Injuries requiring medical treatment beyond first aid meet the severity boundary for recording.

#### First aid

First aid describes a particular level of treatment for a work-related injury. First aid means the following treatments, regardless of the professional status of the person providing the treatment:

- visit(s) to a health-care provider for the sole purpose of observation
- diagnostic procedures including the use of prescription medications solely for diagnostic purposes
- use of non-prescription medications including antiseptics at non-prescription strengths
- simple administration of oxygen
- administration of tetanus/diphtheria shot(s) or booster(s)
- cleaning, flushing or soaking wounds on skin surface
- use of wound coverings such as bandages, gauze pads, etc
- use of hot and cold therapy (eg compresses, soaking, whirlpools, non-prescription creams/lotions for local relief except for musculoskeletal disorders)
- use of any totally non-rigid, non-immobilizing means of support (eg elastic bandages)
- using temporary immobilization devices while transporting an accident victim (eg splints, slings, neck collars, backboards etc)
- drilling of a nail to relieve pressure or draining fluid from a blister

- use of eye patches
- removal of foreign bodies embedded in the eye only if irrigation or removal with cotton swab is required
- removal of splinters or foreign material from areas other than the eyes by irrigation, tweezers, cotton swabs or other simple means
- using finger guards
- using massages
- drinking fluids for relief of heat stress.

#### Medical treatment

Medical treatment is defined as occurring when an injury or disease requires a higher degree of patient management to ensure a full recovery. At a minimum, the following are considered medical treatment beyond first aid (regardless of the professional status of the person providing the treatment):

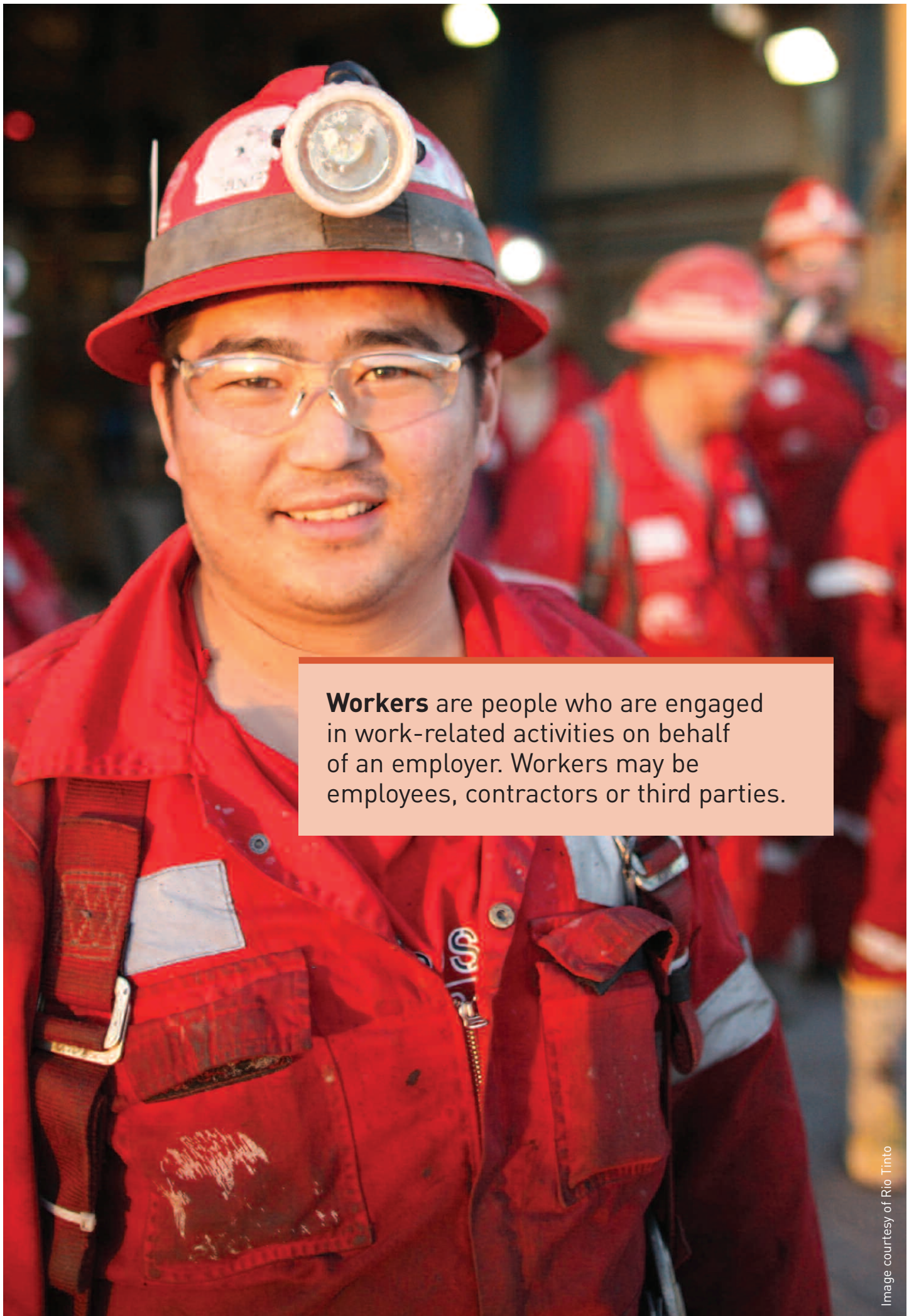
- suturing of wounds
- treatment of fractures
- treatment of bruises by drainage of blood
- treatment of second and third degree burns
- providing prescription drugs or non-prescription drugs at prescription dosage to manage symptoms.

## 3.4

### Recording occupational diseases

A report of an occupational disease is considered a new case and therefore recorded when all the following criteria are met:

- There is evidence of the disease as diagnosed by a medical practitioner.
- There is a known association between the exposure(s) present in the workplace and the occupational illness or disease.
- There is evidence of current or previous exposure to the agent of concern during employment with the current member company.
- A dose is sufficient (with respect to concentration and duration of exposure) to cause the disease to be documented through an appropriate professional assessment (eg industrial hygiene reports) or a professional opinion that the exposure is consistent with the condition.
- The necessary (minimum) latency period exists to establish the probability of association.
- There has been no previous recorded disease of the same type involving the same body part or the individual has had a previous recorded disease of the same type affecting the same body part but had recovered completely (all signs and symptoms had disappeared) from the previous disease and an event or exposure in the work environment caused the signs or symptoms to reappear. (Note: for diseases where the signs or symptoms may recur or continue in the absence of an exposure in the workplace, the case must only be recorded once. Examples include occupational cancer and pneumoconiosis).
- Significant aggravation of a pre-existing health condition shall also be counted as a new case when all the above criteria are met.



**Workers** are people who are engaged in work-related activities on behalf of an employer. Workers may be employees, contractors or third parties.



## Appendix

# Additional definitions for terminology used in the indicator definitions

The following additional definitions support the performance indicators defined in the document.

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### Employer

An employer is a company entity principally responsible for activities including exploration, mining, ore processing, smelting, closure, administration and other work necessary for the operation of a mining or metals company. Where a company has an ownership stake but is not the responsible operator, it should not be considered an employer at that location for the purpose of performance indicators.

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### Worker

Workers are people who are engaged in work-related activities on behalf of an employer. Workers may be employees, contractors or third parties.

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### Employee

An employee is a worker who is paid by the employer.

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### Contractor

A contractor is an employee of a company contracted by the employer to do work on its behalf and under its control with respect to location, work practices and application of health and safety standards.

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### Third party

A third party is someone who is present within an employer's controlled location but who is neither a direct employee nor a contractor. Third party individuals may be workers, members of the general public or other visitors. Common examples of third parties are operators of vehicles delivering supplies and materials.

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### Member of the general public

A member of the general public is someone who is present in an employer's controlled location, or affected by an employer's operations but who is not engaged in work-related activities (eg visitors to a mine for a tour or residents living near a mining operation).

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### Controlled location

Controlled locations are physical or geographical locations where the employer is responsible for the work activities and for establishing and applying work practices and health and safety standards. Controlled locations may include mines, exploration sites, processing plants, access roads within the member's control, office buildings etc.

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### Controlled activities

Controlled activities are work activities or tasks performed by workers where the employer is responsible for establishing work and for applying work practices and health and safety standards. Controlled activities may occur within a controlled location or anywhere else where the activity or task is being performed directly on behalf of the employer.

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### Work environment

The work environment is the establishment and other locations where one or more workers are engaged in controlled activities as a condition of employment. The work environment includes not only geographic or physical locations but also the equipment or materials used by the worker during the course of his or her work.

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### Work-related activities

Work-related activities are those tasks or activities performed by workers where the employer can set health and safety standards and can supervise and enforce their application.



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## Routine work functions

Routine work functions are work activities or assigned duties that the worker regularly performs (eg at least once per week) or are included in a worker's job description. Inability to perform routine work functions include missing workdays completely or working at alternate or restricted work to accommodate an injury or disease.

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## Pre-existing health condition

Pre-existing health conditions are those that employees or contractors bring with them to the current employer, either caused by exposure at another workplace or by non-occupational factors.

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## Significant aggravation

Significant aggravation is defined as occurring when an incident occurring at work results in tangible consequences that go beyond those the worker would have experienced as a result of the pre-existing condition alone, without the aggravating effects of an event or workplace exposure.

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## Commuting

Commuting is defined as an employee's or contractor's travel from a residence to a work location, regardless of means (walking, driving or using employer-provided or public transportation).

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## Occupational respiratory disorders

Occupational respiratory disorders (ORD) include the following:

- Work-related asthma
  - Asthma is work-related when there is an association over time between symptoms and work.
- Work-related chronic obstructive pulmonary disease
  - Chronic obstructive pulmonary disease (COPD) is a preventable and treatable disease state characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and is associated with an abnormal inflammatory response of the lungs to noxious particles or gases, primarily caused by cigarette smoking. Although COPD affects the lungs, it also produces significant systemic consequences. Cases of COPD should be reported if they meet the following criteria: recognition by a workers' compensation authority or equivalent or by the physician responsible for the site.
- Pneumoconiosis
  - Pneumoconiosis is associated with exposures to:
    - asbestos
    - cobalt
    - refractory ceramic fibres
    - silica
    - cristobalite
    - coal dust
    - other substances known to cause pneumoconiosis.
- Other work-related disorders of the respiratory tract

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## Occupational hearing loss

Occupational hearing loss (HL) is defined according to US Occupational Safety and Health Administration (OSHA) definitions: an age-corrected average hearing shift in either ear of greater than or equal to 10 dB at 2,000, 3,000 and 4,000 Hz when compared to baseline, coupled with a greater than or equal to 25 dB average hearing level in the same ear at 2,000, 3,000 and 4,000 Hz. Baseline should be an audiogram performed at the beginning of the worker's employment with the reporting employer. Baseline is reset to the new audiogram once a hearing loss case is reported to allow for repeated reporting if further deterioration occurs.

See the OSHA recording flow chart at: [www.osha.gov/recordkeeping/hearinglossflowchart.pdf](http://www.osha.gov/recordkeeping/hearinglossflowchart.pdf)

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## Musculoskeletal disorders

Musculoskeletal disorders (MSD) include all occupational musculoskeletal disorders that meet criteria for disease rather than injury, including repetitive strain disorders and conditions caused by exposure to vibration.

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## Occupational cancers

Occupational cancers (OC) are all diagnosed cancers that are determined to be occupational according to this guideline.

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## Other occupational medical disorders

Other occupational medical disorders (OORD) include all other occupational diseases such as dermatitis, stress-related conditions, mental health disorders, metal toxicity, malaria and other infectious diseases.

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### ICMM members

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Frank Fox (Anglo American)  
Paul Maidstone (Codelco)  
Paul Farrow (Goldcorp)  
Phil Stephenson (Newmont)

### Lead consultant

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### ICMM team

René Aguilar and Mark Holmes led the process to develop this document on behalf of the ICMM secretariat.

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