



Standard Guide for Recording Occupational Injuries and Illnesses¹

This standard is issued under the fixed designation E2920; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide is intended to establish definitions and criteria for recording occupational injuries and illnesses to be used for measuring safety performance, evaluating safety program performance, and improving consistency when comparing international performance. A measurement system is desired that is precise and accurate, difficult to manipulate, significant and meaningful for safety program evaluation, and appropriate for accountability purposes in a global environment.

1.2 Objectives of the occupational injury and illness measurement guide are as follows:

1.2.1 Provide a uniform and objective framework for recording work related injuries and illnesses,

1.2.2 Facilitate use of injury and illness rates as a means of evaluating programs designed to control such injuries and illnesses, and

1.2.3 Establish a basis for meaningful comparison of injury and illness rates across industries and countries.

1.3 In this guide, definitions and procedures necessary to maintain work-related injury and illness records and incidence rates are covered.

1.4 Key elements of this guide include work relationship, definition of injuries and illnesses, levels of severity of occupational incidents, accountability for contractor relationships, and specifications for injury and illness rate calculations.

1.5 *Units*—The values stated in English (or Imperial) units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applica-*

bility of regulatory limitations prior to use. This standard is not a substitute for any legally required injury and illness record-keeping obligations.

2. Referenced Documents

2.1 *ASTM Standards*:²

E1542 *Terminology Relating to Occupational Health and Safety*

3. Terminology

3.1 *Definitions*: For definitions of some terms used in this guide, refer to Terminology E1542.

3.1.1 *contractor, n*—person or business that provides goods or services for an enterprise but works for, is directly supervised by, and is paid by a separate person or business.

3.1.1.1 *contractor—nested, n*—person who performs routine services for an enterprise but works for, is directly supervised by, and is paid by a separate person or business. Examples include on-site guard, logistics, or maintenance services.

3.1.1.2 *contractor—independent, n*—person who works for, is directly supervised by, and is paid by one person or business but performs services at various other businesses. Examples include persons engaged in temporary projects such as machine rigging, ventilation installation, or construction. Other examples are copy machine repair and package delivery.

3.1.1.3 *contractor—employer supervised, n*—person who is directly supervised by an employer on a day-to-day basis but is paid indirectly through an agency or third party. Examples include daily workers and temporary workers.

3.1.2 *employee, n*—person who works for another in return for payment. As used in this guide, the term includes employer-supervised contractors, but does not include independent or nested contractors.

3.1.2.1 *Discussion*—As used in this guide, the term “employee” includes contractors that are directly supervised by the employer. Temporary workers and workers with individual

¹ This guide is under the jurisdiction of ASTM Committee E34 on Occupational Health and Safety and is the direct responsibility of Subcommittee E34.80 on Industrial Health.

Current edition approved Jan. 1, 2014. Published January 2014. DOI:10.1520/E2920-14.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

contract relationships may be included in this category. Independent and nested contractors are not included in the term “employee.”

3.1.3 *illness, n*—occurrence of physical or mental harm or disease that develops over time in the course of work not as the result of a single or instantaneous event.

3.1.4 *injury, n*—occurrence of physical or mental harm in the course of work as a result of a single or instantaneous event.

3.1.5 *Level One cases*—Level One cases are those cases that satisfy the work relationship and severity criteria of this guide.

3.1.6 *Level Two cases*—Level Two cases are those cases currently required to be reported by countries, states, and other jurisdictions.

3.1.7 *work related, adj*—those cases that arise from activities within the scope of employment or are related to a condition of employment, or both.

4. Significance and Use

4.1 This guide is intended to define work-related injuries and illnesses in a way that can be easily understood and measured across countries. These injuries and illnesses can be used to evaluate, compare, and continually improve management systems and programs related to worker safety and health. Although several levels of severity may be defined, the primary objective is to identify cases with meaningful connection to work and cases with such potential consequence that they have value for prevention purposes. The resultant data and incidence rates should improve global benchmarking consistency.

4.2 This guide defines recording criteria for Level One cases—cases that have a clear connection to the workplace and consequences that are significant for driving injury and illness prevention and efforts.

4.3 While not mandated by this guide, recording of Level Two cases is encouraged and will still be mandatory in many jurisdictions. Level Two cases are those cases currently required to be reported by countries, states, and other jurisdictions.

5. Work Relationship

5.1 An injury or illness to an employee is considered to be work related if it meets the following three tests:

5.1.1 *Test 1*—Was the case related to a condition of employment and therefore within the general scope of employment? Specifically, was the employee:

- (1) Being paid at the time of the injury and illness exposure, or
- (2) Required by his or her employer to do the job or task, or both, or
- (3) Performing the activity because the performance of the job mandated that the activity be undertaken?

5.1.1.1 If the answer is “no” to all three conditions, then the case is not work related.

5.1.1.2 If the answer to any of these three questions is “yes,” then the case is “in scope” and may be considered work related if the following additional two tests are satisfied.

5.1.2 *Test 2*—Was there a direct connection between the exposure and the resulting employee condition? Did the exposure either trigger the onset of symptoms or contribute to the severity of the case?

5.1.2.1 If the answer is “no,” then the case is not work related.

5.1.2.2 If the answer is “yes,” then the case is connected to work and may be considered work related if the other two tests are satisfied.

5.1.2.3 Alternatively, for Test 2, ask: “would the case have occurred at the same time and with the same degree of severity without the work exposure identified in 5.1.1 above?”

(1) If the answer is “yes,” then the case is not work related.

(2) If the answer is “no,” then the case is connected to work and may be considered work related if the other two tests are satisfied.

5.1.3 *Test 3*—At the time of the incident/exposure, was the activity the employee engaged in, or the environmental factor(s) that contributed to the case, subject to the general authority/control of the employer?

5.1.3.1 If the answer is “no,” then the case is not work related.

5.1.3.2 If the answer is “yes,” then the case may be considered work related if the other two tests are met.

5.1.3.3 When applying Test 3, even if the tests in 5.1.1 and 5.1.2 are met, do not consider the case work related if the exposure was so personal in nature as to negate its relevance for prevention purposes. Examples:

- (1) Employee throws back out from common cold related sneeze (normal body movement).
- (2) Employee injures herself while preparing her own food or drink.
- (3) Employee injures himself while conducting personal grooming.

NOTE 1—Employees can be doing something other than a specific work task and still be subject to the employer’s authority/control. This includes support functions connected to work processes and operations, administrative functions connected to work, and normal living activities that routinely take place at work if the employer has the authority to regulate how those living activities are conducted.

5.1.4 Injuries and illnesses of complex or multiple origins including musculoskeletal conditions and certain occupational diseases such as hearing loss are considered work related if the above work-related criteria contributed sufficiently to the condition to increase the severity level of the condition or trigger the onset of the condition.

5.1.5 Examples of injury and illness exposures that are provided in [Appendix X1](#).

5.2 The following factors, although sometimes useful when investigating or evaluating a case, are not used to determine work relationship or level of severity:

- 5.2.1 Whether or not a worker receives compensation for wages lost as a result of the effects of an injury or illness;
- 5.2.2 Whether an employee receives disability payments;
- 5.2.3 Whether time off work is prescribed;
- 5.2.4 The type of treatment provided;
- 5.2.5 Who was at fault.

6. Severity

6.1 The following severity criteria are incorporated into this guide:

6.1.1 *Level One*—This guide is intended to capture “core” injuries and illnesses that result in death, are life threatening, life altering, or so serious that they require immediate medical intervention for recovery.

6.1.1.1 Level One injuries would consist of any of the following:

- (1) Fatality;
- (2) Amputation (involving bone);
- (3) Spinal cord injury;
- (4) Herniated disc of the cervical, lumbar, or thoracic spinal region, or combinations thereof;
- (5) Concussion or cerebral hemorrhage, or both;
- (6) Loss of consciousness;
- (7) Injury to internal organs;
- (8) Fractured bone or tooth;
- (9) Cartilage, tendon, ligament, or muscle tear;
- (10) Dislocation of any joint;
- (11) Laceration or puncture requiring wound closure, such as sutures or surgical glue;
- (12) Musculoskeletal disorder requiring surgery or resulting in permanent impairment;
- (13) Third-degree burn or second-degree burn greater than 3 in. (7.6 cm) in diameter, or both;
- (14) Punctured eardrum; and
- (15) Injury to the eye requiring services of a physician (other than preventive treatment).

6.1.1.2 Level One illnesses would consist of any of the following:

- (1) Fatality that results from prolonged exposure;
- (2) Occupational dermatitis with blistering or cracking, or both, covering an area of skin greater than 3 in. (7.6 cm) in diameter;
- (3) Occupationally acquired human immunodeficiency virus (HIV), hepatitis B or C;
- (4) Occupationally acquired cancer;
- (5) Occupationally acquired lung disease;
- (6) Occupationally acquired infectious disease;
- (7) Occupationally acquired disease of the liver, spleen, kidney, heart, brain, nervous system, pancreas, thyroid, or other vital organ; and
- (8) Confirmed work-related threshold shift greater than 10 dB (averaged at 2000, 3000, and 4000 Hz) resulting in a total shift in that same ear of more than 25 dB from audiometric zero.

NOTE 2—This guide has separate criteria for recording occupational illnesses. There is general agreement that gaining consistency in recording occupational illnesses will be more difficult than for occupational injuries. The intent of this separation is to keep the cases reported in the injury category as accurate and consistent as possible to facilitate comparison of injury rates. That said, this guide reflects the belief that improved

recording and reporting of occupational illnesses is critical to safety and health improvement.

6.1.2 *Level Two*—Injury or illness that is recorded pursuant to regulatory, operational, or program requirements.

6.1.2.1 Level Two injuries and illnesses are not governed by this guide but are listed here for clarification of the difference from Level One injuries or illnesses. Level Two injuries and illnesses may or may not include Level One incidents depending on each country’s regulatory reporting requirements. When differences exist between Level One criteria (this guide) and Level Two criteria (regulations or company requirements), two sets of records will need to be maintained. In most countries, Level One incidents will be a subset of Level Two incidents.

6.1.2.2 Examples of Level Two injuries and illnesses that may be required to be recorded in some countries but not according to Level One criteria include the following:

- (1) Commuting injuries,
- (2) Minor injuries that result in temporary job reassignment, and
- (3) Temporary muscle soreness.

7. Recording Work-Related Injuries and Illnesses

7.1 For purposes of consistent reporting of injury and illness experience, employers shall record all work-related Level One injuries and illnesses that occur to employees, including employer-supervised contractors.

8. Incident Rates

8.1 Comparison of safety performance using injury or illness experience, or both, requires normalization using a standard denominator.

8.2 Fatality, injury, and illness rates are expressed in incidents per 1 000 000 work hours.

8.2.1 The rate calculation uses the following formula:

$$\frac{\text{Number of Level One injuries and/or illnesses} \times 1\,000\,000}{\text{Number of hours worked}} \quad (1)$$

8.2.2 The number of injuries or illnesses, or both, in the numerator of [Eq 1](#) and the number of hours worked in [Eq 1](#) must cover the same time period and the same population of employees.

8.2.3 If the number of hours worked is not available, it may be calculated from number of employees using customary equivalents. For example, for a 40 hour per week, 50 week per year nominal work schedule, work hours may be determined by multiplying the number of full-time equivalent (FTE) workers times 2000 hours per year. For other time periods, proportionality shall be applied.

8.2.4 See [Appendix X2](#) for an example of a reporting form.

9. Keywords

9.1 illnesses; injuries; occupational

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES OF APPLYING THE CONCEPTS TO REAL WORLD SITUATIONS

INTRODUCTION

This Annex contains cases, examples, and explanatory material that illustrate the recording concepts of the guide. The examples are grouped according to the order of the guide's sections. This is a non-mandatory appendix that is expected to evolve and expand over time as new questions and situations arise.

Work Relationship—The core set of global outcome metrics are limited to those cases that have a clear connection to work. Work relationship can be determined with the following ASTM recording Criteria that includes a Three-Step Analysis.

X1.1 ASTM Criteria—A Three-Step Decision Making Process

X1.2 Application of the Criteria to Real World Examples

X1.2.1 The following cases are considered work related:

X1.2.1.1 They occur while the employee is performing a work task (for example, production employee engaged in manufacturing operations).

X1.2.1.2 They occur while the employee is engaged in normal activities that occur at work in between specific work tasks (talking to supervisor, selecting tools, etc.).

X1.2.1.3 The injured/ill worker is engaged in work required travel. Do not include the employee's commute to and from home. "Commuting" is distinguished from work-related travel by the location and distance of the trip. Work-related travel normally takes place when the employee must travel outside of their normal geographic area of operation. In situations where it is unclear, an easy way to distinguish is to consider work trips that require an overnight stay to be work-related travel.

X1.2.1.4 The injured/ill worker is going between customers or other work stops (this excludes the initial commute from home to the first stop and the return commute from the last stop to home).

X1.2.1.5 Employee trips and falls while walking down a hallway unencumbered at work.

X1.2.1.6 Employee slips on wet floor in company cafeteria.

X1.2.1.7 Employee slips on ice in company parking lot.

X1.2.1.8 The employee experiences work aggravation of a pre-existing personal condition. For example:

(1) Employee unloading trucks places stress on a knee already weakened by a degenerative knee condition.

(2) Workplace chemical exposure synergistically aggravates lung condition of employee who smokes cigarettes.

X1.2.1.9 Onset of the employee's ergonomic symptoms are triggered by an event or exposure related to a condition of employment (work activity or related exposure) and the case would not have occurred at the same time, same degree of severity without that exposure.

X1.2.1.10 Injuries that occur to employee while telecommuting if the injury is related to the work and not to the general home environment.

X1.2.1.11 Injuries experienced by employees as a result of violating cardinal rules/ignoring administrative controls/making mistakes.

X1.2.2 The following cases are not considered work related:

X1.2.2.1 Cases that occur on company property or while the worker is engaged in a work activity, but would have occurred at the same time and at the same level of severity even if the employee was elsewhere and not engaged in a work activity (epileptic seizure; diabetic seizure, some heart attacks, etc.).

X1.2.2.2 Injuries or illnesses that are related to commuting to or from a place of employment outside of work hours.

X1.2.2.3 Cases that result solely from normal body movements unrelated to work (sneezing, coughing, bending over to tie a shoe, etc.).

X1.2.2.4 Cases that result solely from personal tasks performed outside of assigned work hours.

X1.2.2.5 Cases that result solely from preparing or consuming food, unless provided by the employer.

X1.2.2.6 Cases that occur in a travel hotel unrelated to work.

X1.2.2.7 Cases where the employee is present at the site as a member of the general public, unrelated to their status as an employee.

X1.2.2.8 Domestic violence that sometimes takes place at work.

X1.2.2.9 Intentionally self-inflicted injuries.

X1.2.2.10 Injuries that occur to employees telecommuting if the injury is caused by the general home environment and not related to work.

X1.2.2.11 Aggravation of a minor (non-recordable) work-related injury at home.

X1.2.2.12 Injuries that occur when the employee is housed on the employer's premises and injured while off duty, such as when an employee on an offshore oil rig is hurt in the sleeping quarters between shifts.

X2. REPORTING FORM

X2.1 **Table X2.1** is an example of a reporting form.

TABLE X2.1 Reporting Form

Enterprise Name:		
Time Period		
Work Hours:		
	Number	Rate ^A
Level One Injuries		
Level One Illnesses		
Total Level One Cases		

^A $\frac{\text{Number of Level One injuries and/or illnesses} \times 1\,000\,000}{\text{Number of hours worked}}$

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