This tool provides an overview of how to use workplace injury and cost data when developing the initial business case for safety initiatives such as Safe Patient Handling and Mobility programs.

To learn more about using this tool refer to the Section 2 in the Safe Patient Handling and Mobility: A Toolkit for Program Development 2025 at: https://www.nvha.net/safe-patient-handling-and-mobility-toolkit/

Coding and Analyzing Injury Data and Costs

Contents

OSHA 300, First Aid Logs and Workers Compensation Reports

To evaluate and predict injury and other data trends, review at least 3 years of data from OSHA 300 logs, first aid logs, incident reports, workers compensation first report of injury and claims reports. For privacy considerations data provided should not include worker identifiers such as name and date of birth or information that is considered confidential under the Health Insurance Portability and Accountability Act (HIPPA).

The OSHA 300, first aid logs, incident reports, and workers compensation reports are used primarily to identify:

- When and where patient handling-related injuries occurred
- The job titles or categories of the injured workers
- The employee's department or unit assignment
- The nature of injuries (strains, sprains, etc.)
- The part(s) of body injured
- What directly caused the injuries

- A possible cause of the incident
- The number of people present
- The response taken by the employee and others when the incident occurred
- If injuries involve days away from and/or transfer from normal work activities or restricted duty, and the number of days lost or restricted

It is important to note that OSHA allows the number of days of restricted work activity or days away from work recorded on the OSHA 300 log to be capped at 180 once the total of either or the combination of both is reached per recordable incident.

Thus, when determining all days lost and/or restricted per injury it is necessary to review additional sources of data such as internal injury tracking reports or worker compensation claims reports.

To learn more about the OSHA 300 log, other forms that OSHA requires employers to complete and submit to OSHA, and what work-related injuries and illnesses are classified as recordable go to the following:

- OSHA Recordkeeping training https://www.osha.gov/recordkeeping/presentations
- The OSHA 300 log can be found at https://www.osha.gov/recordkeeping/forms
- All other OSHA Injury and Illness Recordkeeping and Reporting Requirements

  https://www.osha.gov/recordkeeping/
- Injury Tracking Application (ITA) Information - OSHA requirements and guidance about electronically submitting facility's injury and illness data https://www.osha.gov/injuryreporting/index.html
- States with state OSHA plans have additional reporting requirements and specific injury reporting forms to complete. Go to OSHA State Plans to find links to each individual state plan. https://www.osha.gov/stateplans

Tool 2a, Master tool for tracking and analyzing incident and injury data spreadsheet, allows a health care facility to capture all data required for the OSHA 300 log and other data from first aid logs, incident reports and workers compensation claims reports on one spreadsheet. This facilitates injury data analysis and management of a

workplace safety and health program vs. having to document on multiple forms and then organize data for analysis.

This tool allows you to generate the OSHA 300 log and other injury reports, as well as create graphs showing injury data, costs, and trends.

Standardizing Incident Coding

Information obtained from OSHA records, first aid logs, and workers' compensation claims data typically lacks the detail necessary to identify the specific causes and contributing factors of patient handling incidents and injuries. Data may be lacking information about the specific job task being performed at the time of an incident resulting in misclassification of data and inaccurate determination of the extent of a hazard such as patient handling. For example, if an incident is classified as 'strained back when lifting,' there is insufficient data to indicate what was being lifted and the job task being performed at the time.

To accurately assess the extent of patient handling-related incidents and injuries, establish baseline program metrics and effectively evaluate program outcomes, data collection and documentation methods must be consistent and utilize a standardized incident coding system. This approach requires classifying incidents according to their nature, the job tasks performed at the time, and the factors contributing to each occurrence.

Conducting an injury data review before implementing a Safe Patient Handling and Mobility (SPHM) program offers an opportunity to refine and standardize the coding and classification of patient handling injuries, thereby improving the accuracy of subsequent data tracking activities.

Benefits of implementing a standardized patient handling coding system include:

- Determining injury trends by patient handling task/activity, i.e., repositioning in bed, limb holding, toileting, supine and standing transfers, ambulation etc.
- Providing insight into patient and situation-related context of incidents e.g., incidents occurring when providing care for a patient of size or who is combative, during vehicle transfers etc.
- Tracking frequency of specific patient handling injury types
- Identifying cost drivers to help justify and validate capital expenditures associated with the SPHM program
- Providing predictive analytics to identify patterns and predict future outcomes, aiding in program decisions and equipment needs
- Providing a method to benchmark outcomes between units/departs and facilities
- Informing SPHM training through review of a standardized set of contributing factors of incidents

Overall, a standardized patient handling coding system is essential to developing an effective business case and justification of initial and ongoing operational costs of an SPHM program.

Your worker compensation carrier/third part administrator (TPA) may also be able assist you to standardized descriptions and common causes of patient handling related incidents. Note that incident related coding used in the workers compensation insurance industry is usually too complex for employers to use effectively.

Develop and pilot a simple, standard coding system that anyone recording incident data can easily use and understand.

When developing and documenting the program evaluation methods and metrics in your SPHM program plan, include an outline of your injury coding definitions and other procedures that aim to promote uniformity in reporting data and quality measures. This includes clearly defining what care tasks are considered as patient handling related and will be included in program metrics.

For example, would a back strain suffered by a caregiver while transporting a patient in bed or on a stretcher be counted as a patient handling related task?

It is important to determine how caregiver injuries that occur during patient handling tasks but are not directly caused by manual handling techniques or SPHM technology use, will be recorded.

It is important to determine how patient handling-related injuries that are not attributed to manual handling techniques or SPHM technology use, will be documented. For instance, if a caregiver is injured due to patient aggression during a standing pivot-transfer from bed to chair, consideration should be given to how this incident will be classified.

Such cases may require coding as both patient handling and workplace violence incidents, as analyzing prevention strategies from both perspectives supports caregiver safety and ensures accurate data collection. If these incidents are classified solely under patient handling or workplace violence, the resulting data may not fully reflect the contributing factors.

If data is collected and coded consistently over time, confidence in data trends pre and post program implementation is enhanced.

The Master Data spreadsheet in ***Tool 2a*** provides an example of how patient handling incident data can be coded and standardized to ensure accuracy of data measurement and management. Coding used in ***Tool 2a*** is listed below.

Coding by the nature of the incident:

- Body Fluid Exposure
- Bodily Reaction
- Chemical Exposure
- Contact with Animals or Insects
- Contact with Radiation
- Contact with Temperature Extremes
- Cumulative Trauma Disorder/Repetitive Motion Injury
- Disease exposure or positive TB confirmation
- Dust or Object or Fluid in Eye
- Immunization Reaction
- Materials Handling
- Motor Vehicle Accident
- Needlestick
- Other
- Overexertion -general
- Patient Handling
- Sharps
- Slips, Trips, Falls
- Stress
- Struck by or caught between objects or materials
- Unknown
- Workplace Violence

Coding of patient handling related incidents

Specific Patient Handling Task Coding - Abbreviation	Specific Patient Handling Task Coding – Description	Coding for Patient Handling Related Incidents/Injuries Patient/Situational Factors	Specific Patient Handling Coding - Cause of Incident
A **AF** **FL** **H** **LT** **LTF** **Push Bed** **Push Stretcher/Gurney** **Push Wheelchair** **R** **RC** **RF** **RCF** **VT Seat** **VT Stand** **VTF Seat** **VTF Stand** **ADL Care** **Other**	**A** = ambulation with supervision/caregiver assistance **FL**= Lifting a patient from the floor **H** = holding limb or part of body e.g., holding a limb for wound care; holding a patient in a side lying position; assisting patient during labor if support body part etc. **LT** = moving patient to and from 2 support surfaces e.g., bed to gurney; exam table in a supine position **Push** = pushing/moving/lifting a bed/stretcher/wheelchair with patient. Each device is coded e.g., Push Bed **R** = repositioning in a bed including turning boosting and proning **RC** = repositioning in a chair **VT Seat** = moving patient to and from 2 support surfaces e.g., bed to chair or commode in a seated position **VT Stand** = moving patient to and from 2 support surfaces e.g., bed to chair or commode in a standing position e.g., pivot transfer	**Violence** = Patient becomes physically aggressive or violent during patient handling task e.g., grabbing, hitting, scratching, kicking etc. **POS** = Patient of size - weight 300lbs or greater **Vehicle transfer** **Other** = Any relevant patient related factors that contributed to the incident	• Poor ergonomics work practices e.g., bed not raised to allow caregivers to use neutral working postures when repositioning a patient in bed • SPHM equipment would likely not help e.g., emergent situation e.g., code/patient seizure; pt getting out of bed unattended; combative pt, other • SPHM equipment should have been used - appropriate equipment (including slings) was not available or operable (unit/dept with SPHM program) • SPHM equipment should have been used - appropriate equipment was available and caregiver(s) were adequately trained to use it • SPHM equipment should have been used - appropriate equipment was available but caregiver(s) were not trained to use it or didn't feel competent to use it safely • SPHM equipment was used but there were not enough caregivers to perform the task • SPHM equipment was used incorrectly

Specific Patient Handling Task Coding - Abbreviation	Specific Patient Handling Task Coding – Description	Coding for Patient Handling Related Incidents/Injuries Patient/Situational Factors	Specific Patient Handling Coding - Cause of Incident
	ADL Care - Dressing, bathing, diapering, assisting a patient in activities of daily living. **Other** = no specific incident reported or insufficient information to determine task being performed, etc. **'F' after task code** = incident/injury occurs during a patient fall including a controlled descent or assisted fall when any type of patient handling task is being performed e.g., VTStandF = patient falling during a standing transfer task.		• SPHM equipment would have helped but there is no SPHM program & equipment on unit/dept • SPHM patient mobility assessment/screen/check was not conducted before patient handling task to determine if and what SPHM equipment should be used • Pushing tasks - motorized bed, stretcher - battery failed • Other – explain

Incident Rates to Prioritize, Evaluate, and Benchmark SPHM initiatives

Incident rates describe the frequency and severity of OSHA OSHA-recordable injuries and illnesses per 100 full-time employees within a set time period, usually one year.

This 'normalizes' or standardizes injury data to allow comparison of incident rates between units or departments regardless of number of staff working on a unit; between health care facilities within an organization; and to *benchmark* a facility's injury experience with that of other similar health care facilities in the US.

The Bureau of Labor Statistics (BLS) is a federal agency that performs statistical analysis for the government, including OSHA. The BLS conducts a survey of occupational injuries and illnesses each year and publishes incidence rate data by various classifications (e.g., by industry, by employer size, etc.) that can be used for **benchmarking purposes** by employers and is used by OSHA to trend safety performance and determine where industries may need additional program assistance (http://www.bls.gov/iif/oshsum.htm).

Industries are classified using the North American Industry Classification System (NAICS) for example *Hospitals* (NAICS 622), *Ambulatory Healthcare Services* (NAICS 621), and *nursing and residential care facilities* (NAICS 623). Each of these industry classifications is further divided by health care specialty for example, Outpatient Care Centers: NAICS 6214 and Home Health Care Services: NAICS 6216 are subsectors of *Ambulatory Healthcare Services*. For more information and a list of NAICS codes for healthcare go to https://www.naics.com/six-digit-naics/?code=62 and https://www.census.gov/naics/

More information about incident rates that are collected by BLS can be found on the OSHA 300 log at https://www.osha.gov/recordkeeping/. Similar reports are available describing injury statistics for industries such as health care by state at https://www.bls.gov/iif/state-data.htm

Calculating Incident Rates

The following are the most commonly calculated workplace injury rates.

1. **Total Recordable Incident Rate (TRIR),** that is, all work-related deaths, injuries and illnesses cases that are defined as OSHA Recordable.

   The recordable incident rate is calculated as follows:

   Total number of injuries and illnesses x 200,000 ÷Number of hours worked by all employees

   The 200,000 figure in the formula represents the number of hours that 100 employees working 40 hours per week, 50 weeks per year would work, and provides the standard base for calculating incidence rates.

   Example:

   There are 25 OSHA recordable injuries/illnesses in a population of 500 hospital workers for the calendar year 2015.

   The Recordable Incident Rate = 25 x 200,000/1,000,000 = 5.0

   The number of hours worked by employees in a facility can usually be obtained from the Accounting or Payroll department. Ensure that vacation, holiday and personal leave (nonproductive) hours are not included in the data set provided. When requesting this data ask for a report that lists 'productive' hours for a facility and by unit or department by calendar year or by calendar quarter to expedite matching hours worked to injury data from the OSHA log. Having this data provided in a spreadsheet format such as MS Excel will facilitate calculation of incident rates.

Note the total number of productive hours worker for a facility must be recorded on the *OSHA 300A summary report*.

2. **The "Days Away/Restricted or Transfer Rate" (DART)** measures the recordable cases involving days away from work and days of restricted work activity or job transfer.

   Employers are required to report their TRIR and DART incident rates to OSHA every year.

3. **The "Lost Workday (or days away from work or lost time cases) Case Rate" (LWDCR)** measures the rate of recordable occupational injury or illness *cases* where employees are unable to work a full assigned work shift.

4. **The Lost Workday Rate (LWDR)** measures the number of lost workdays for all recordable lost workday cases. This rate indicates the *severity* of Lost Workday Cases.

Quick Tip

The National Safety Council 'How to Benchmark' tool lets you easily find Federal TRIR and DART rates from 2014 to 2023 for any industry by NAICS code.

https://injuryfacts.nsc.org/work/industry-incidence-rates/how-to-benchmark/

The rates in (2-4) are calculated using the same formula as shown in '1' above. Rates for Restricted Duty cases and days of Restricted Duty can be calculated in the same manner.

Using the OSHA Recordable Incident Rate to Benchmark or Compare to Federal and State Incident Rates

TRIR and DART rates allow comparison with similar healthcare facilities sharing the same NAICS code. The table below illustrates how a health care facility in Nevada can compare their TRIR and DART rates against the Federal and State rates for facilities with the same NAICS code.

Private Industry/ NAICS code	**Total recordable cases 2023 (non-fatal)** **Rate per 100 Full Time Equivalent Employees Injuries (FTE)**			**Cases with days away from work & restricted (DART) 2023 (non-fatal)** **Rate per 100 Full Time Equivalent Employees Injuries (FTE)**		
Industry Sector = Health care and Social Assistance 62	**National Rate**	**Nevada** *(as an example of state data)*	**ABC Hospital (in NV)** *Fictitious data example*	**National Rate**	**Nevada**	**ABC Hospital (in NV)** *Fictitious data example*
Ambulatory Health Care Services 621 *(is further divided into 7 other subsectors)*	**2.2**	**3.8**	**4.0**	**0.9**	**1.0**	**1.4**
Hospitals 622 *(is further divided into 3 other subsectors)*	**5.2**	**5.5**	**4.17**	**2.3**	**2.1**	**3.26**
Nursing Home and Residential Care Facilities 623 *(is further divided into 6 other subsectors)*	**6.4**	**4.2**	**6.1**	**4.5**	**0.6**	**2.3**

Source: Bureau of Labor Statistics (BLS). Note: BLS data is reported 2 years behind correct year so we can only benchmark to 2023 at this time.

Note: Currently there is no Federal or State benchmarking data for Patient Handling related or other specific injury classifications such as workplace violence or needlesticks.

The rates described above are typically calculated to include all OSHA Recordable Incidents for a facility however, the same method can be used to calculate rates per unit/department or cost center within a facility.

Rates can also be calculated in the same way for a facility and/or unit or department by *any specific injury source* such as patient handling, needlestick incidents or WPV. However, there are *no* state or federal incident rate data for WPV that can be used as a benchmark.

Incident rates will be used to track SPHM program outcomes and trends within a facility or organization ***(Refer to Section 8).*** When reporting rates to management and staff make sure to include a brief explanation of what the rate number means as described above.

Incident rates are also a useful tool to observe injury trends and evaluate if injury reduction goals are achieved and are often used as Key Performance Indicators (KPIs). However, they are only an indication of how many incidents have occurred, or how severe they were. However, they only reflect past incidents and severity, making them lagging indicators rather than predictors of future performance. As noted in ***Section 8***, both lagging and leading measures should be used to assess a SPHM program's effectiveness.

Workers Compensation Data and Calculating Injury Costs

In tandem with review of the OSHA 300, first aid logs, incident reports, workers compensation data or loss run reports should be reviewed to determine *injury costs* and more about the nature of the injuries recorded on the OSHA 300 log.

Note: Incidents on the OSHA 300 log may not always appear as claims in a worker's compensation report. Reporting requirements for occupational incidents to insurance carriers differs by state.

Workers' compensation reports, also known as *Loss Run* reports, usually include the following information:

- Whether the claim is medical only or indemnity, that is, involves lost time/days away from work
- A description of the injury claim
- Time loss days
- The amount paid or incurred for the claim and the amount of money in reserve to pay for future costs (for open claims) to date at the time of the report
- Claim status (Closed, open, denied)
- Other incident demographics

Did You Know?

Note that claim costs reported on workers compensation reports will change over time until a claim is closed, thus these changes should be incorporated into injury tracking processes.

Workers' compensation laws vary by state. For example, some states allow closed claims to be reopened and the time it takes to close a claim is also variable by state.

In addition, data and terminology presented in a loss run report may vary by workers compensation carrier so have your carrier or administrator (TPA) can provide more information about how to understand and use the data.

Larger health care organizations are often self-insured and pay for injuries directly; therefore, injury cost data can be obtained from the organization's third-party insurance administrator (TPA) or directly from a facility's accounting department. If the organization is a member of a state workers compensation insurance fund or participates in a group insurance program, the actual cost of the injury is not paid directly, rather, insurance premiums increase as injury claims and their severity (costs) increases. The insurance carrier can provide information about reducing premium costs related to a reduction in the number and severity of patient handling related claims when a SPHM program is implemented.

State specific worker's compensation information can be found through on-line search or contact your worker's compensation insurance carrier of TPA.

Calculating Replacement Costs

An example of an indirect cost that can be calculated is the cost of temporarily replacing the employee who is losing time from work or is on restricted duty and cannot perform regular work duties.

This cost can be calculated as follows:

Example 1

Number of Days Away from Work = 10

Hours work per day/shift = 12

Hourly Wage + Benefit Burden (30%)* = $32.00 + $9.60 = $41.60

Total Paid to Temporarily Replace Injured Worker = 10 x 12 x $41.60 = $5028.00

*The benefit burden represents the benefits and taxes that a company must or chooses to pay on their payroll such as health care insurance costs, payroll taxes etc.

Replacement costs will be dependent on what staffing measures are used to temporarily replace the injured worker e.g., overtime for existing staff or use of travel or agency staff.

If it is not possible to obtain specific hourly wage data of replacement employees then use the average hourly rate for the individual's job classification in the state e.g., average hourly rate for registered nurses or certified nursing aides. This information can easily be found online from employee recruiting companies

Profit Margin Analysis

This example demonstrates to health care leadership the impact of occupational injuries on an organization's operating or profit margin.

The consequence of not giving equal priority to employee safety programs can be costly for health care organizations. For example, worker injuries related to patient handling at one hospital for a 2-year period cost $80,000 for workers compensation and medical treatment. By dividing this amount by the profit or operating margin of a hospital e.g., 4% the amount of *reimbursement revenue* needed to offset the cost of these injuries can be calculated, i.e., $80,000/0.04 = $2,000,000. Thus, prevention of these injuries has a significant impact on an organization's financial bottom line.

Replacement costs and indirect injury costs, if calculated, can also be added to workers compensation costs when analyzing the impact of injuries on profit margin.

Financial data such as a facility's profit margin for state licensed nonprofit health care institutions can be retrieved from state health care licensing entities if not available from a facility's financial department.

Tool 2c Calculating Direct and Indirect Injury Costs provides a tool to enter and calculate all direct, indirect and operational costs associated with patient handling injuries and the profit margin impact.

Profit margin impact can also be calculated using federal OSHA's "Safety Pays" online calculator at https://www.osha.gov/dcsp/smallbusiness/safetypays/estimator.html

Other approaches to demonstrating the value of an SPHM program to an organization are described in ***Section 4.***

Summary

Using the data gathered from the sources described above, the following direct and indirect costs related to patient handling incidents can be determined for an entire facility and then by unit or department as needed:

- The types of injuries occurring (nature and body part(s) affected)
- The location of occurrences (i.e., potential high priority units/departments needing SPHM) and cause e.g., the type of patient handling tasks being performed, contributing patient or situational characteristics and other contributing factors
- The severity (lost time and restricted days) of injuries and associated costs
- Frequency and severity rates of patient handling injuries
- The percentage of and average number of injuries that are related to patient handling per year
- The percentage of and average number of lost time cases (& days lost) and restricted duty cases (& restricted days) related to patient handling per year
- The percentage of and average costs attributed to patient handling related injuries per year
- Direct and indirect cost rates of patient handling related injuries

An estimate of future injury rates and associated costs can also be calculated to determine what it will cost a facility if MSDs and other injuries associated with manual patient handling are not addressed.

This information supports the justification for implementing an SPHM program during the initial stages of planning. However, underreporting and miscoding of injuries in health care can also limit the quality of data that is needed to determine what, and how, to prioritize patient handling related hazards that need to be addressed.

Section 3 describes other data evaluation activities that assist in identifying and developing solutions to address patient handling related hazards, as well as to determine the processes needed for the successful implementation of the SPHM program.

Tool 2a, Master tool for tracking and analyzing incident and injury data spreadsheet, illustrates how to calculate the data described in this tool, and ***Tool 2b. Sample injury data summary report*** shows how this data can be presented in a report to leadership and other employees.

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