



Course Learning Outcomes for Unit VI

Upon completion of this unit, students should be able to:

3. Customize statistics to meet needs of healthcare organizations.
 - 3.1 Identify the total hospital infection rate for a given period of time.
 - 3.2 Explain the ways an infection control team assists in controlling infection rates.
4. Discuss various statistical analysis processes and measurements.
 - 4.1 Identify vital statistics procedures that may have an impact on adequate tracking and monitoring.

Course/Unit Learning Outcomes	Learning Activity
3.1	Unit Lesson Chapter 11: Miscellaneous Rates Unit VI Scholarly Activity
3.2	Unit Lesson Chapter 11: Miscellaneous Rates Unit VI Scholarly Activity
4.1	Unit Lesson Chapter 12: Vital Statistics Data/Rates Unit VI Scholarly Activity

Reading Assignment

Chapter 11: Miscellaneous Rates

Chapter 12: Vital Statistics Data/Rates

Unit Lesson

Miscellaneous Rates

In previous units, we addressed the impact that the specific rates associated with death and dying have on the healthcare organizations (HCOs) as well as the investigative processes. In this lesson, we thoroughly discuss other miscellaneous rates tracked by HCOs and the rationale for the measurement and monitoring of these miscellaneous rates. Based on the specific purpose and geographic location of the HCO, many rates could be of potential importance for tracking. To concur with the textbook, we discuss the rates that have an impact on patient safety and the quality of care provided to include infection rates, complication rates, and comorbidity rates.

Nosocomial Infections

Consider this scenario: A patient visits an HCO because he was experiencing some abdominal pain. The HCO treats the patient and discharges him the following day. The man seems to be feeling better initially, but he returns to the HCO later that same day with new symptoms, and it seems likely that he picked up an infection during treatment. Patients seek medical treatment to feel better, not to become sicker. What can HCOs do to prevent this from happening?

HCOs ensure the best outcomes for patients who walk through the doors of the facility. The last thing that should occur is for a patient to leave the facility with an infection that he or she did not have upon entrance to the healthcare facility. *Nosocomial* or hospital-acquired *infections* are those infections that a patient acquired while in treatment within the HCO (Koch, 2015).

Not only could the hospital lose necessary financial compensation because of litigation and lawsuits, but also the brand name of the HCO could be tarnished, which could cause substantial long-term impacts on the organization. Due to these potential negative impacts, HCOs invest numerous hours in monitoring, education, and training to ensure that patients are not exposed to infections or unnecessary risks while inside of the HCO. While it may sound very simplistic, the first line of defense against the spread of infection is proper handwashing. Regardless of the profession, HCOs assist in limiting the spread of disease and infection by mandating that all healthcare personnel thoroughly wash their hands before and after all contact with a patient or any substance or fluid that may serve as a medium for the spread of disease.



Cleanliness
(Showface, n.d.)

Another measure used by hospitals to prevent the spread of disease is the proper sterilization of multiple-use tools and the use of disposable tools for one-time use. Proper cleaning techniques also are beneficial in decreasing the occurrence of nosocomial infections within the hospital. Even with the best-laid plans and strict adherence to infection-control procedures, nosocomial infections often occur, and the rates must be monitored to determine the specific cause of transmission.

Infection Rates

The tracking of infection rates helps determine if the source of infection is centrally located or widespread. For example, is the infection originating within the community or is it centrally located to the HCO? More specifically, is the infection originating from a specific clinic within the healthcare facility? These are important questions that must be answered with extreme accuracy and the main reasons why tracking infection rates is so important.

The HCO typically focuses on two rates to determine the transmission of infection within the organization and within the community—the *community-acquired infection rates* and the *nosocomial infection rates*. The difference in the two is based on the time in which the infection occurred. In most cases, if the infection occurred within 72 hours upon admission, it was most likely already present and is therefore classified as a community-acquired infection. Conversely, if the infection is generated 72 hours post-admission, the infection most likely occurred within the healthcare facility and is classified as a nosocomial infection (Koch, 2015).

The community-acquired infection rate is determined by dividing the total number of community-acquired infections that are less than 72 hours post admission by the total number of discharges. For example, if eight community-acquired infections were reported from 2,000 discharges, the community-acquired infection rate would be .4%. Dividing eight infections by 2,000 discharges and multiplying the quotient by 100% obtained this rate.

$$8 \text{ Community Acquired Infections} \div 2,000 \text{ Total Discharges} = .004$$

$$.004 \times 100 = .4\%$$

The formula for determining the nosocomial infection rate uses a similar formula—the total number of infection greater than 72 hours post-admission divided by the total number of discharges (including deaths) multiplied by 100 (Koch, 2015). If during the month of August an HCO had 500 discharges and three nosocomial infections, the corresponding nosocomial infection rate would be .6%.

Dividing 3 by 500 discharges and multiplying the quotient by 100 determined this rate.

$$3 \text{ Nosocomial Infections} \div 500 \text{ Total Discharges} = .006$$

$$.006 \times 100 = .6\%$$

In both examples, the rates obtained would be more than acceptable for the HCO. While the goal is to keep these rates below 10%, below 5% is the ideal. Once these rates are determined and calculated, further analysis can be provided to determine the specific cause and location of the spread of infection while applying mitigation measures to prevent the further spread.

Complication Rates

A *complication* is defined as an issue that occurs during a patient's stay, forcing him or her to extend the length of hospital stay by at least one day in 75% of cases (Koch, 2015). While not as detailed as the infection rate, the complication rate is an indicator of the quality of care provided by the HCO and can serve as a direct indicator of where specific changes need to be made.

For example, if a large number of patients were extending stays because of falls while within facility, this area would need immediate attention by the managerial staff to identify quickly the root cause of the situation. The quick fix could simply be educating and training the staff on proper monitoring, or it may be discovered that certain staff are negligent in their duties. As determined earlier with infection rates, properly identifying the cause of such complications is important to the hospital due to the potential losses in financial incentives as well as reputation because of the perception of lower standards of quality care.

To determine this rate, the total number of complications are divided by the total discharges then multiplied by 100 (Koch, 2015). For example, if 10 complications were recorded during the quarter, and there were 1,500 discharges, the complication rate would be .67%. Dividing 10 by 1500 discharges and then multiplying the quotient by 100 obtained this number.

$$10 \text{ Complications} \div 1,500 \text{ Total Discharges} = .0067$$

$$.0067 \times 100 = .67\%$$

While this rate would be seen as favorable by most hospital management, the root causes would still need to be evaluated to determine where action and improvements are needed to increase the quality of care provided to patients.

Comorbidity Rates

Comorbidity occurs when a pre-existing condition extends the patient's HCO stay by at least one day when combined to the principal diagnosis in 75% of the cases (Koch, 2015). The proper diagnosis and treatment of pre-existing conditions that can complicate the current diagnosis is essential for the patient to receive optimal care and the best healthcare outcomes.

Certain conditions, when combined with the principle diagnoses, can significantly increase the length of stay for the patient, if not addressed and specifically treated. Diabetes, hypertension, and obesity are the most common conditions that can negatively affect the patient when combined with another principle diagnosis. To calculate the comorbidity rate, the total number of comorbidities for a period is divided by the total discharges

and then multiplied by 100. For example, if 150 comorbidities were reported over the first quarter of the year, and there were 1,000 discharges, the comorbidity rate would be 15%. Divide 150 comorbidities by 1,000 discharges, and then multiply the quotient by 100 to determine this rate.

$$150 \text{ Comorbidities} \div 1,000 \text{ Total Discharges} = .15$$

$$.15 \times 100 = 15\%$$

This rate is extremely important to HCOs in the identification of pre-existing conditions and the ability to effectively treat and improve the outcomes for each patient.

Vital Statistics

Vital statistics are the data of significant events and dates, including marriages, divorces, births, and deaths (Koch, 2015). The National Center for Health Statistics is the governmental agency responsible for monitoring vital statistical data and publishes a monthly report regarding the data for public knowledge (Koch, 2015). The tracking of morbidity is also important to the proper tracking of vital statistics. The Centers for Disease Control and Prevention serve as the clearinghouse for morbidity-involved cases, including communicable and non-communicable diseases (Koch, 2015). At the local level, hospital registries and health insurance companies are the primary sources for tracking such data. The monitoring of vital statistical data are important in tracking the trends and possible epidemics that are occurring within communities throughout the United States and within the population as a whole.

References

Koch, G. (2015). *Basic allied health statistics and analysis* (4th ed.). Stamford, CT: Cengage Learning.

Showface. (n.d.). *Cleanliness* [Image]. Retrieved from dreamstime.com

Learning Activities (Nongraded)

Nongraded Learning Activities are provided to aid students in their course of study. You do not have to submit them. If you have questions, contact your instructor for further guidance and information.

Chapter 11 Test (p. 198); Question 8

Chapter 12 Test (pp. 218, 220); Questions 3 and 10