Preview: HIM4620 : Data Management in Health Information Systems

Syllabus

Course Overview

This course covers the operational and financial principles of managing health data from multiple source systems. You will study various data integration tools and techniques used to support a clinical viewing system, including data warehousing, batch processing, interface engines, and clinical presentation viewers. Also, you will examine network and database design and architecture, and their effects on source system development.

Course Competencies

(Read Only)

To successfully complete this course, you will be expected to:

1. Manage data from multiple sources.
2. Recommend data integration strategy for multiple sources and data governance.
3. Analyze the impacts of data warehousing.
4. Analyze effects of database design and architecture in integrating and using various data sources.
5. Communicate professionally in a health care environment.

Course Prerequisites

Prerequisite: HIM4610.

Syllabus >> Course Materials

Required

The materials listed below are required to complete the learning activities in this course.

Integrated Materials

Many of your required books are available via the VitalSource Bookshelf link in the courseroom, located in your Course Tools. Registered learners in a Resource Kit program can access these materials using the courseroom link on the Friday before the course start date. Some materials are available only in hard-copy format or by using an access code. For these materials, you will receive an email with further instructions for access. Visit the Course Materials page on Campus for more information.

eBook

Johns, M. (2015). *Enterprise health information management and data governance.* Chicago, IL: AHIMA Press. ISBN: 9781584261551.

Book

Oachs, P. K., & Watters, A. L. (2016). *Health information management: Concepts, principles, and practice* (5th ed.). Chicago, IL: AHIMA Press. ISBN: 9781584265146.

Library

The following required readings are provided in the Capella University Library or linked directly in this course. To find specific readings by journal or book title, use Journal and Book Locator. Refer to the Journal and Book Locator library guide to learn how to use this tool.

- Alakrawi, Z. M. (2016). Clinical terminology and clinical classification systems: A critique using AHIMA's data quality management model. *Perspectives in Health Information Management*, 1–19.
- Baxter, C., Dell, R., Publ, S., & Race, R. (2013). Assessing and improving EHR data quality (updated). *Journal of AHIMA, 84*(3), 48–53.
- Berg, C., & Caira, T. (2012). Exploring the SME quandary: Data governance in practise in the small to medium-sized enterprise sector. *Electronic Journal of Information Systems Evaluation, 15*(1), 1–12.
- Brown, R. (2010, December 17). Storage and redundancy. *Broadcast Engineering*.
- Butler, M. (2015). Information Governance's NEXT PHASE. *Journal of AHIMA, 86*(8), 16–19.
- Choucair, B., Bhatt, J., & Mansour, R. (2014, September 15). How cities are using analytics to improve public health. *Harvard Business Review Digital Articles*, 2–4.
- Colbert, J. (2016). 5 pillars of data analytics. *Health Management Technology, 37*(4), 20.
- Colpas, P. (2010). HIEs: The future is now. *Health Management Technology, 31*(7), 8–11.
- Davoudi, S., Dooling, J. A., Glondys, B., Jones, T. L., Kadlec, L., Overgaard, S. M., Ruben, K., & Wendicke, A. (2015). Data quality management model (updated). *Journal of AHIMA, 86*(10), 62–65.
- Dearborn, J. (2013). Five steps to a complete enterprise data management strategy. *Health Management Technology, 34*(11), 14–15.
- Derose, S. F., Contreras, R., Coleman, K. J., Koebnick, C., & Jacobsen, S. J. (2013). Race and ethnicity data quality and imputation using U.S. census data in an integrated health system: the Kaiser Permanente Southern California experience. *Medical Care Research and Review, 70*(3), 330–345
- Dooling, J. A., & Downing, K. (2014) Ensuring data integrity through a clean master patient index. *Journal of AHIMA, 85*(3), 46–47.
- Dooling, J. A., Houser, S. H., Mikaelian, R., & Smith, C. P. (2016). Transitioning to a data-driven, informatics-oriented department. *Journal of AHIMA, 87*(10), 58–62.
- Dow, K. E., Hackbarth, G., & Wong, J. (2013). Data architectures for an organizational memory information system. *Journal of the American Society for Information Science & Technology*, *64*(7), 1345–1356.
- Etheredge, L. M. (2010). Creating a high-performance system for comparative effectiveness research. *Health Affairs, 29*(10), 1761–1767.
- Gheorghe, M., & Petre, R. (2014). Integrating data mining techniques into telemedicine systems. *Informatica Economica, 18*(1), 120–130.
- Goar, E. S. (2016). Data-driven remote coding management. *For the Record, 28*(11), 14–17.
- Halamka, J. D. (2010). Making the most of federal health information technology regulations. *Health Affairs, 29*(4), 596–600.
- Hasnain-Wynia, R., Van Dyke, K., Youdelman, M., Krautkramer, C., Ivey, S. L., Gilchick, R., Kaleba, E., & Wynia, M. K. (2010). Barriers to collecting patient race, ethnicity, and primary language data in physician practices: An exploratory study. *Journal of the National Medical Association, 102*(9), 769–775.
- Honavar, V. G. (2014). The promise and potential of big data: A case for discovery informatics. *Review of Policy Research, 31*(4), 326–330.
- Ingari, F. (2013). Beyond the EHR. *Health Management Technology, 34*(1), 20.
- Jaffe, C., Hammond, W. E., Quinn, J., & Dolin, R. H. (2009). Healthcare IT standards and the standards development process: Lessons learned from health level 7. *Intel Technology Journal, 13*(3), 58–79.

- Jusko, J. (2013). Operations: Quality data for today and tomorrow. *Industry Week, 262*(11), 39.
- Just, B. H., Marc, D., Munns, M., & Sandefer, R. (2016). Why patient matching is a challenge: Research on master patient index (MPI) data discrepancies in key identifying fields. *Perspectives in Health Information Management*, 1–20.
- Kavanagh, E., & Ericson, J. (2010). Getting back to basics: Data integration strategies and tactics. *Information Management, 20*(2), 8.
- Landsbach, G. D. (2016). Study analyzes causes and consequences of patient overlay errors. *Journal of AHIMA, 87*(9), 40–43.
- McCann, L. F., Henciak, W. A., & Durand, E. (2016). Reinventing HIM as enterprise content management. *Journal of AHIMA, 87*(7), 34–38.
- McKinney, M. (2010). Getting the data right. *Modern Healthcare, 40*(37), 32.
- Nash, K. S. (2010). Enterprise influencers: Enterprise architects need strong business and technical skills, and years of experience. *CIO, 23*(16).
- Neaga, E. I., & Harding, J. A. (2005). An enterprise modeling and integration framework based on knowledge discovery and data mining. *International Journal of Production Research, 43*(6), 1089–1108.
- Nelson, M. L. (2015). The 'keys' to help solve patient data matching. *Journal of AHIMA, 86*(8), 28–30.
- Nunn, S. (2014). Data governance 101. *For the Record*, *26*(2), 18–21.
- Orlova, A. (2016). Addressing data, information, and record quality challenges through standards. *Journal of AHIMA, 87*(10), 64–69.
- Rajabi, Z., Minaei, B., & Seyyedi, M. A. (2013). Enterprise architecture development based on enterprise ontology. *Journal of Theoretical and Applied Electronic Commerce Research, 8*(2), 85–95
- Reeves, M. G., & Bowen, R. (2013). Developing a data governance model in health care. *Healthcare Financial Management, 67*(2), 82–86.
- Saharia, D. (2016). Information governance for offsite data security. *Journal of AHIMA, 87*(4), 20–23.
- Sherer, J. A., Le, J., & Taal, A. (2015). Big data discovery, privacy, and the application of differential privacy mechanisms. *Computer & Internet Lawyer, 32*(7), 10–16.
- Templin, P. (2013). What happens when you don't trust the data? *Industrial Engineer, 45*(5), 26.
- Vallejo, B. C., Krepper, R., Nora, H., & Fine, D. J. (2012). Converting data into information. *Hospital Topics, 90*(1), 11–15.
- Walker, A. (2012). Overview: HTM professionals and electronic health records. *Biomedical Instrumentation & Technology, 46*(2), 112–115.
- Washington, L. (2017) Strategic alignment: The driving force for information governance. *Journal of AHIMA, 88*(1), 40–43.
- Withrow, S. C. (2010). How to avoid a HIPAA horror story. *Healthcare Financial Management, 64*(8), 82–88.
- Zhao, K., & Xia, M. (2014). Forming interoperability through interorganizational systems standards. *Journal of Management Information Systems, 30*(4), 269–298.

External Resource

Please note that URLs change frequently. While the URLs were current when this course was designed, some may no longer be valid. If you cannot access a specific link, contact your instructor for an alternative URL. Permissions for the following links have been either granted or deemed appropriate for educational use at the time of course publication.

- Bowie, J., & Carter, J. (2012). *Clinical data mapping process* [Video]. Retrieved from https://youtu.be/qmx2cPmcjao
- Datagovernance.com. (n.d.). Defining Organizational Structures. Retrieved from http://www.datagovernance.com/defining-organizational-structures/
- Debtechint.com. (n.d.). Medco Health Solutions data governance program [PDF]. Retrieved from http://www.debtechint.com/dgiq2012/pdfs/Submission_2012_Medco.pdf

- Purkis, B., Morris, G., Afzal, S. Bhasker, M., & Finney, D. (September 30, 2012) Master data management within HIE infrastructures: A focus on master patient indexing approaches [PDF]. Retrieved from https://www.healthit.gov/sites/default/files/master_data_management_final.pdf
- Sanders, D. (2009). Data warehouse data modeling [Blog post]. Retrieved from http://callitanything.blogspot.com/2009/01/data-warehouse-data-modeling.html
- Stanford Graduate School of Business. (2013). *Rethinking healthcare delivery: Choosing new technologies* [Video]. Retrieved from https://www.youtube.com/watch?v=f8mCxf0KGrE
- Stanford University. (n.d.). Data governance at Stanford [PDF]. Retrieved from http://web.stanford.edu/dept/pres-provost/cgi-bin/dg/wordpress/wp-content/uploads/2011/11/DG-News001.pdf
- U.S. Department Federal Aid Enterprise Information Management. (n.d.). Task 18 - Enterprise Data Management: 18.002 Enterprise Data Management Concept of Operations Final [PDF]. Retrieved from https://studentaid.ed.gov/sites/default/files/fsawg/static/gw/docs/ciolibrary/ECONOPS_Docs/EDM_CONOP_Final.pdf

Suggested

The following materials are recommended to provide you with a better understanding of the topics in this course. These materials are not required to complete the course, but they are aligned to course activities and assessments and are highly recommended for your use.

Optional

The following optional materials are offered to provide you with a better understanding of the topics in this course. These materials are not required to complete the course.

External Resource

Please note that URLs change frequently. While the URLs were current when this course was designed, some may no longer be valid. If you cannot access a specific link, contact your instructor for an alternative URL. Permissions for the following links have been either granted or deemed appropriate for educational use at the time of course publication.

- HealthMap. (n.d.). Retrieved from http://www.healthmap.org

Projects

Project >> Data Management and Governance Plan

Project Overview

Data management is a vital component to data governance. In fact, data governance provides the structure and process to assure reliability and accuracy of data within an organization or enterprise. Data governance can also define how data is measured, analyzed, and managed. The data collected across an organization or enterprise should be appropriately and consistently integrated to deliver timely and reliable health information.

Because data governance is critical to data management, you will create a data management and governance plan (DMGP) for your course project. A data governance plan provides a guide to managing enterprise-wide data. It also outlines the organizational structure to correspond with strategic data needs and technology resources for decision-making purposes.

Your DMGP will be developed in four parts, each of which is a unit assignment in the course with its own scoring guide. Your DMGP will be based on a Vila Health scenario concerning Independence Medical Center. The media pieces will provide you with background information about the organization and data related to the specific course topics addressed in the assignment. Successful completion of the project will require you to follow the assignment instructions as well as rely on the information provided through the media pieces. Refer to the scoring guide for each assignment to ensure successful completion.

Unit 1 >> Introduction to Data Management

Introduction

Data management is defined simply as the management of data and its resources. More broadly, data management consists of developing and executing the policies, practices, and procedures that guide the proper management of data throughout an organization. One of the first challenges in managing data is identifying the organization's core business processes and their correlation to data users, sources, and systems. As technology and health information systems become more sophisticated, challenges for effective data management will increase as well. This unit introduces the concept of data management as it relates to health information management. You will have an opportunity to explore how the world of health information has transformed and the ensuing influence on data management processes.

Throughout the course, you will work on a project related to data management and data governance for Independence Medical Center, a hospital that is part of the Vila Health organization. In this unit, your consideration of Vila Health's data management begins, as you discuss whether health information is an *enterprise asset*.

Learning Activities

u01s1 - Studies

Readings

Use your *Enterprise Health Information Management and Data Governance* text to read the following:

- Chapter 1, "The Transforming World of Health Information," pages 3–19.
- Chapter 2, "History of Health Information Systems," pages 21–44.
- Chapter 3, "Electronic Health Information Systems," pages 45–59.

Use your *Health Information Management: Concepts, Principles, and Practices* text to read the following:

- Chapter 6, "Data Management," pages 169–200.

Use the Capella University Library to read the following:

- Nash, K. S. (2010). Enterprise influencers: Enterprise architects need strong business and technical skills, and years of experience. *CIO, 23*(16).
    - This article discusses the need for chief information officers (CIOs) to use enterprise architects to better understand business and customer needs.
- Rajabi, Z., Minaei, B., & Seyyedi, M. A. (2013). Enterprise architecture development based on enterprise ontology. *Journal of Theoretical and Applied Electronic Commerce Research, 8*(2), 85–95.
    - Dynamic business challenges to coordinate various enterprise elements are discussed. A case study is used to demonstrate the results of a proposed solution based on a conceptual model as well as a common structure for data collection. The primary focus is collecting accurate architecture data versus developing architecture artifacts.
- Walker, A. (2012). Overview: HTM professionals and electronic health records. *Biomedical Instrumentation & Technology 46*(2), 112–115.
    - This article discusses the changes in health care service delivery and the impact on areas such as regulations, economics, demographics, and technology. To meet resulting challenges, it is imperative to view health care technology management (HTM) professionals such as clinical engineers as integral to the larger information technology (IT) support system.

Multimedia

- Click **Health Care Information Systems: Dr. Danielle Babb** for a discussion of various health care information systems; comprehending these systems enables understanding of the data types used and how data is managed.
- Click **The People of the Database System Environment** to explore groups with different levels of access to and different purposes for the database system.

Optional Readings

Throughout this course and your academic journey, you will be expected to communicate effectively in your assignments and discussions, including following current edition APA style and formatting guidelines, writing in a professional manner, and submitting work that is free of grammatical and spelling errors. In addition, unit assignments may outline other expectations.

Browse the following Campus resources:

- Academic Success Center.
- The Writing Center.
- Writing Handbook.
- APA Style and Format.
- Writing a Course Paper.
- Smarthinking.

Course Resources

Health Care Information Systems: Dr. Danielle Babb

The People of the Database System Environment

u01s1 - Learning Components

- Define data governance and data management.
- Define enterprise information management.
- Access Capella's writing assistance resources as necessary.
- Reference APA style and formatting guidelines for in-text citations and reference lists.

u01d1 - Transforming HIM

Vila Health, the focus organization for your course project, is concerned with transforming health information within its facilities. You were invited to a meeting to discuss this transformation. During the meeting, a participant suggested that health information should be treated as an enterprise asset.

Write a post in which you describe how you would support or refute this idea. What information would you contribute to the discussion?

Response Guidelines

Read the posts of other learners and respond to at least one of them. Choose a post that presents a viewpoint that you did not consider in your post. Explain why you agree or disagree with the argument.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u01d1 - Learning Components

- Define enterprise information management.

u01d2 - Managing Data

The concept of data management is expansive and can involve numerous users, processes, and systems. Health care organizations can have several information systems and various internal and external users with multiple needs.

Write a post in which you explain your priorities in addressing data management issues, given your knowledge of managing data from various systems.

Response Guidelines

Read the posts of other learners and respond to at least one other learner with views that differ from yours, explaining how you would support or refute the priorities explained in the post.

Course Resources
Undergraduate Discussion Participation Scoring Guide

u01d2 - Learning Components

- Define data governance and data management.

Unit 2 >> Enterprise Data Management

Introduction

Data has become so critical to organizational business models that it is often considered an enterprise asset. Enterprise data management (EDM) is the ability to effectively process, integrate, and store data for the entire organization and its systems—or *enterprise*. EDM consists of the accurate and timely transmission of different data sets to carry out business processes and clinical care.

This unit will discuss the purpose of EDM: to connect processes, technology, and content—the essential components of organizational data management. An enterprise approach to data management is essential so different information systems and applications relate to each other and users understand how they affect each other. You will have an opportunity to learn more about data management roles and enterprise architecture.

Learning Activities

u02s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 4, "The Enterprise Solution: A Modern Model of HIM Practice," pages 61–76.

Use the Capella library to read the following:

- Baxter, C., Dell, R., Publ, S., & Race, R. (2013). Assessing and improving EHR data quality (updated). *Journal of AHIMA, 84*(3), 48–53.
    - This practice brief discusses the challenges of maintaining quality data in the EHR, offering best practices for ensuring the integrity of health care data to support and guide organizations, health information management (HIM) professionals, and providers to better assess, improve, and support the management of electronic health information.

- Dearborn, J. (2013). Five steps to a complete enterprise data management strategy. *Health Management Technology, 34*(11), 14–15.
- Derose, S. F., Contreras, R., Coleman, K. J., Koebnick, C., & Jacobsen, S. J. (2013). Race and ethnicity data quality and imputation using U.S. census data in an integrated health system: the Kaiser Permanente Southern California experience. *Medical Care Research and Review, 70*(3), 330–345.
    - Research on racial and ethnic disparities using health system databases can shed light on the usual health care and many individual outcomes to better understand and address health inequities. This article provide results to support renewed efforts to conduct studies of racial and ethnic disparities in large health systems.
- Hasnain-Wynia, R., Van Dyke, K., Youdelman, M., Krautkramer, C., Ivey, S. L., Gilchick, R., Kaleba, E., & Wynia, M. K. (2010). Barriers to collecting patient race, ethnicity, and primary language data in physician practices: An exploratory study. *Journal of the National Medical Association, 102*(9), 769–775.
    - Few small practices use data to track or address disparities in health care, but most perceived barriers to data collection are surmountable. This study examines demographic data collection in physician practices to reduce disparities and provide qualitative descriptions of facilitators and barriers to data collection. The authors suggest that the spread of information technology and comprehensive national health reform offer hope for improved data collection and use.
- McCann, L. F., Henciak, W. A., & Durand, E. (2016). Reinventing HIM as enterprise content management. *Journal of AHIMA, 87*(7), 34–38.
    - This article describes organizational challenges in implementing a new electronic health record (EHR), particularly in the health information management (HIM) department. It includes discussion of how a multidisciplinary team tasked itself with reinventing HIM to thrive in a post-EHR world.
- McKinney, M. (2010). Getting the data right. *Modern Healthcare, 40*(37), 32.
    - While physician practices and hospitals are busy readying themselves for phase one of meaningful-use requirements for electronic health record systems, quality experts are trying to identify suitable outcome-based performance measures to assess patient-centered care. This article discusses the National Quality Forum's (NQF) Health Information Technology Advisory Committee (HITAC) panel review on its health IT projects while analyzing how quality data can be successfully extracted from EHR systems.

Internet Resources

Use the Internet to complete the following:

- Defining Organizational Structures. Retrieved from http://www.datagovernance.com/defining-organizational-structures/
    - This page discusses best practices for organizing key activities and stakeholders for data governance in various organizations.
- U.S. Department Federal Aid Enterprise Information Management. (n.d.). Task 18 - Enterprise Data Management: 18.002 Enterprise Data Management Concept of Operations Final [PDF]. Retrieved from https://studentaid.ed.gov/sites/default/files/fsawg/static/gw/docs/ciolibrary/ECONOPS_Docs/EDM_CONOP_Final.pdf
    - The document presents the process of establishing a formal Enterprise Data Management (EDM) program for the Federal Aid department to standardize and make data available across the enterprise.
- Stanford Graduate School of Business. (2013). *Rethinking healthcare delivery: Choosing new technologies* [Video]. Retrieved from https://www.youtube.com/watch?v=f8mCxf0KGrE
    - In this video, two major providers screen, choose, adopt, and integrate new technologies into their standards of care, taking into account the larger context of their organizations. Exploring the various technologies can contribute to overall knowledge of the importance of enterprise data management.
    - Run time 55:15.

Multimedia

Enterprise systems are all-embracing organizational systems based on packaged software products or technologies. The primary advantage of any enterprise system is that it provides access to data across an organization more effectively and less expensively.

- Click **Overview of Enterprise Systems** for an introduction to the concept of an enterprise system and the types of enterprise systems.
- Click **Expert Viewpoints on Enterprise Architecture** to hear Brian Roberts discuss architecture planning at Express Scripts.
- Click **The Value of Enterprise Architecture** for Jeanne Ross's presentation of an example of disciplined processes and the importance of enterprise architecture.

Course Resources
Expert Viewpoints on Enterprise Architecture
Overview of Enterprise Systems
The Value of Enterprise Architecture

u02s1 - Learning Components

- Define enterprise information management.

u02d1 - Data Management Roles

The CIO of Independence Medical Center, a Vila Health hospital, wants to create positions to support its data management and governance plan. You have been asked to spearhead the project and identify three key positions.

Write a post in which you describe each position and explain its relevance to data management. Provide at least one reference and citation in APA format to support your post.

Response Guidelines

Read the posts of other learners and respond to at least one other learner, explaining what you found most enlightening about his or her post.

Course Resources
Undergraduate Discussion Participation Scoring Guide
APA Style and Format

u02d1 - Learning Components

- Define data governance and data management.

u02d2 - Enterprise Architecture

Enterprise architecture is often dependent on the vision, mission, goals, and strategies of an organization. Independence Medical Center's current mission and vision statements follow:

- Mission Statement: Independence Medical Center is the premiere choice for customer service excellence, providing health care to the region by combining cutting-edge technology and equipment with evidence-based, patient-focused care.
- Vision Statement: A regional medical center that provides compassionate, patient-centered care to all area residents.

Use the Internet to find descriptions of two organizations' enterprise structures or data governance programs. Compare the two, noting the pros and cons of each.

Post rough drafts of updates to the vision and mission statements for Independence Medical Center, incorporating the concept of enterprise information management based on your research.

Cite at least one reference using APA format in your initial post.

Response Guidelines

Read the posts of other learners and respond to at least one with an opposing viewpoint.

Course Resources
Undergraduate Discussion Participation Scoring Guide
APA Style and Format

u02d2 - Learning Components

- Define enterprise information management.

Unit 3 >> Data Governance

Introduction

In Unit 1, you discussed the concept of data as an enterprise asset. Data governance also recognizes data as an asset. *Data governance* is the overall management of data integrity, security, and availability throughout an enterprise or organization. Data governance also provides oversight for enterprise data management and ensures the proper control processes, data quality, authority, and decision-making practices. In other words, enterprise data management resides within the realm of data governance.

In this unit, you will be asked to create a data management and governance framework for one of Vila Health's hospitals, Independence Medical Center. The readings will provide additional resources on data governance in health care and the impact of data management procedures.

Learning Activities

u03s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 5, "Data Governance," pages 79–104.

Use the Capella library to read the following:

- Berg, C., & Caira, T. (2012). Exploring the SME quandary: Data governance in practise in the small to medium-sized enterprise sector. *Electronic Journal of Information Systems Evaluation 15*(1): 1–12.
    - Enterprises of all sizes have had to learn how to operate in an increasingly complex digital business environment, which includes effective data use both internally and when dealing with external partners such as suppliers and customers. This paper investigates whether current data governance frameworks are applicable to small to medium-sized enterprises.
- Brown, R. (2010). Storage and redundancy. *Broadcast Engineering*. (2010, December 17).
- Butler, M. (2015). Information Governance's NEXT PHASE. *Journal of AHIMA, 86*(8), 16–19.
    - As health information management (HIM) professionals focus on implementing information governance (IG) programs in hospitals and other healthcare facilities, the American Health Information Management Association (AHIMA) is focused on helping the HIM professionals in promoting IG.
- Ingari, F. (2013). Beyond the EHR. *Health Management Technology, 34*(1), 20.
    - The three goals comprising the "Triple Aim" of health care mandates are discussed in this article, as well as technology mandates designed to enhance individual patient care, improve the health of general populations, and reduce skyrocketing costs.
- Nunn, S. (2014). Data governance 101. *For the Record*, *26*(2), 18–21.
    - This article addresses new AHIMA curricula maps that emphasize creating the infrastructure needed for optimum data governance.
- Reeves, M. G., & Bowen, R. (2013). Developing a data governance model in health care. *Healthcare Financial Management, 67*(2), 82–86.
    - Details of how finance leaders should build a data governance model are presented in this article.

Use the Internet to read the following:

- Debtechint.com. (n.d.). Medco Health Solutions data governance program [PDF]. Retrieved from http://www.debtechint.com/dgiq2012/pdfs/Submission_2012_Medco.pdf
- Stanford University. (n.d.). Data governance at Stanford [PDF]. Retrieved from http://web.stanford.edu/dept/pres-provost/cgi-bin/dg/wordpress/wp-content/uploads/2011/11/DG-News001.pdf

Multimedia

For your course project you will apply your new knowledge to a real-world scenario, creating a Data Management and Governance Plan for a hospital organization. Click **Vila Health: Framework for Data Management and Governance** to become familiar with the organization and the background information necessary to complete the unit assignment.

Course Resources

Vila Health: Framework for Data Management and Governance Plan

u03s1 - Learning Components

- Define data governance and data management.
- Explain the purposes of data governance.
- Identify the components of a data management governance plan (DGMP).
- Describe a DMGP framework.
- Identify types of data sources.

u03a1 - Framework for Data Management and Governance Plan (DMGP)

Creating a framework or structure for data governance is a critical first step to understanding how data is managed within an organization. The framework is also key in effective governance and oversight of the data. A data governance framework is designed to provide the structures and resources needed to mitigate data management issues. In this assignment, you will review Independence Medical Center's data, construct a framework for a data management and governance plan, and create a supporting diagram.

Instructions

After you have viewed Vila Health: Data Management and Governance Plan, create a DGMP for Independence Medical Center. Make sure you describe the framework that you chose, explain the role of a DGMP, and outline a plan for enterprise information management. This work will be graded according to the following criteria:

- Describe the concept of enterprise information management.
- Describe the importance of a data governance plan.
- Explain the relationship between data management and data governance.
- Outline the structure of a data management and governance plan.

Your DMGP will be supported by a diagram that includes the data users (types of users, stakeholders), data organization (types of data, sources & systems), and data processes (processes, practices, rules and reporting). The diagram will be graded according to the following criterion:

- Create a diagram to establish a DMGP framework with associated data sources.

Submission Requirements

- Length: Two pages plus the diagram.
- References: Follow APA style and formatting guidelines for resources and citations.
- Writing: Create a document that is clearly written and generally free of grammatical errors.

- Diagram: Create and label a diagram in Microsoft Word, PowerPoint, or other software.

Course Resources

Vila Health: Framework for Data Management and Governance Plan | Transcript

APA Style and Format

u03d1 - Financial Impact of Redundant Data

Independence Medical Center, a Vila Health hospital, is trying to improve data management, which would require new departmental procedures to better align data collected in redundancy. You have been asked to address the staff regarding the cost of redundant data and the efficiencies that can be gained by managing redundant data more effectively. Discuss factors you would present in the speech, including the fiscal impact of storing and maintaining redundant data.

Response Guidelines

Read the posts of other learners and respond to at least one. In your response, assume the role of an employee who disagrees with one of the points about the cost of data redundancy made in the speech. In this role, question the writer of the original post about a factor that you do not believe contributes to the cost of maintaining data in redundancy. Explain the reasons for your differences. As the discussion continues, maintain your roles as Independence Medical Center data manager and employee.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u03d1 - Learning Components

- Identify factors of data governance.
- Explain the purposes of data governance.

Unit 4 >> Data Quality

Introduction

Health care organizations are challenged constantly to assess data quality procedures. Data entered into information systems often contains redundant data elements with disparate data and inconsistent definitions. This can impact data retrieval and ultimately patient care and clinical outcomes. Health care technology, such as an EHR system, enables an organization to improve data quality but cannot eliminate data-quality challenges completely.

In this unit, you will begin to discuss strategies for cleaning and integrating data accurately and efficiently. You will have the opportunity to discuss risks to organizations facing data quality issues.

Learning Activities

u04s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 12, "Data Quality Management," pages 247–265.

Use the Capella library to read the following:

- Alakrawi, Z. M. (2016). Clinical terminology and clinical classification systems: A critique using AHIMA's Data Quality Management Model. *Perspectives In Health Information Management*, 1–19.
    - The importance of the clinical classification systems and terminologies to provide data infrastructure for clinical as well as administrative data uses in the health care delivery system are presented in this article.
- Davoudi, S., Dooling, J. A., Glondys, B., Jones, T. L., Kadlec, L., Overgaard, S. M., Ruben, K., & Wendicke, A. (2015). Data quality management model (updated). *Journal of AHIMA, 86*(10), 62–65.
    - This article discusses the eight key AHIMA Information Governance Principles for Healthcare (IGPHC), which provide the foundation of data and information governance.
- Etheredge, L. M. (2010). Creating a high-performance system for comparative effectiveness research. *Health Affairs, 29*(10), 1761–1767.
    - Recommendations for building a high-performing comparative effectiveness research system in the United States are discussed in this article.
- Jusko, J. (2013). Operations: Quality data for today and tomorrow. *Industry Week, 262*(11), 39.
    - The article offers the insights of using data quality software, regarding the purpose of quality-related data, which falls in the categories of compliance, learning, or process control.
- Orlova, A. (2016). Addressing data, information, and record quality challenges through standards. *Journal of AHIMA, 87*(10), 64–69.
    - This article discusses data quality management as a focus for AHIMA. The AHIMA Data Quality Management Model identifies data quality functions for data collection, application (including aggregation), warehousing, and analysis, as well as data quality characteristics (accuracy, comprehensiveness, currency, granularity, relevancy, accessibility, consistency, definition, precision, and timeliness).
- Templin, P. (2013). What happens when you don't trust the data? *Industrial Engineer, 45*(5), 26.
    - The progression from a data-poor to a data-rich environment, inconsistencies across data sets, and ways that data discrepancies can be handled are discussed.

Multimedia

- A data mining project needs the best quality data possible to produce reliable information. Click **Data Quality in Data Mining** for an introduction to the connection between data quality and data mining.
- Click **Data Quality and Integration** for a presentation on the relationship between data quality and *business intelligence*, or the use of data for making decisions.

Course Resources
Data Quality and Integration
Data Quality in Data Mining

u04s1 - Learning Components

- Learn the characteristics of clean and high-quality data.

u04d1 - Data Quality

Assuring data quality is a critical element in managing data. You are responsible for assuring that newly cleaned data for Vila Health remains accurate and consistent. The organization uses several tools to support the collection of quality data. One is the *pick list*, which helps reduce errors by limiting user choices to appropriate data elements.

Write a post in which you discuss the procedures and application controls you can implement to ensure high-quality data for Vila Health. Also, discuss the role that health data standards play in maintaining data quality.

Response Guidelines

Read the posts of other learners and respond to at least one other learner. Choose a post that offers contrasting data quality procedures and explain what you learned from it.

Course Resources
Undergraduate Discussion Participation Scoring Guide

u04d1 - Learning Components

- Understand common data quality issues.

u04d2 - Data Formatting

Most organizations implementing new applications find flaws in the data that complicate conversion to the new system. For example, one particular area of challenge specific to data quality is the collection and storage of mailing addresses.

Write a post in which you discuss strategies to collect and store information that will maximize the uniformity in the format of the collected data. Provide examples.

Response Guidelines

Read the posts of other learners and respond to at least one learner. Comment on the proposed strategies and examples.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u04d2 - Learning Components

- Discuss data formats.
- Identify ways to store data.

Unit 5 >> Organizing Data

Introduction

Data can be organized to classify trends, transforming raw data into useful information. *Data discovery* is a process of detection: searching for those trends, patterns, or specific items in a particular data set. It can include the identification of potential data quality issues and may leverage data mining techniques. The goal of data discovery is to analyze data from different perspectives, summarize it, and utilize it for organizational needs.

In this unit you will be introduced to the data discovery process and its application to establish data management practices. The readings will provide more information on data discovery and data mining. You will complete the next part of your project for Vila Health and apply what you've learned about data quality to the discovery process.

Learning Activities

u05s1 - Studies

Readings

Use the Capella library to read the following:

- Gheorghe, M., & Petre, R. (2014). Integrating data mining techniques into telemedicine systems. *Informatica Economica, 18*(1), 120–130.
  - This article describes the importance of data mining techniques and systems for health care organizations, with a focus on developing and implementing telemedicine solutions to improve patient care. Information on architecture for integrating data mining techniques into telemedicine systems and an overview on understanding and improving the implemented solution are included.
- Honavar, V. G. (2014). The promise and potential of big data: A case for discovery informatics. *Review of Policy Research, 31*(4), 326–330.
  - This article argues that realizing the full potential of data to accelerate discovery requires a concerted effort in advancing discovery informatics, including understanding, formalizing, and information processing of data.
- Neaga, E. I., & Harding, J. A. (2005). An enterprise modeling and integration framework based on knowledge discovery and data mining. *International Journal of Production Research, 43*(6), 1089–1108.

- Enterprise modeling and integration framework design and development using knowledge discovery and data mining are discussed in this article. Large-scale integration of enterprise systems with their associated models, data, information, and web descriptions present major challenges to organizations, prompting the use of standardized reference architectures and common enterprise models to ensure thorough integration of managerial and technical elements.

- Sherer, J. A., Taal, A., & Le, J. (2015). Big data discovery, privacy, and the application of differential privacy mechanisms. *Computer & Internet Lawyer, 32*(7), 10–16.
  - Legal and information governance practitioners are introduced to new algorithmic techniques in this article, which also evaluates the sufficiency of these techniques to mitigate the risk of personal data disclosure.

- Vallejo, B. C., Krepper, R., Nora, H., & Fine, D. J. (2012). Converting data into information. *Hospital Topics, 90*(1), 11–15.
  - Converting data from multiple hospital and clinical databases into usable information for clinical decision support is a complex process involving time-consuming, resource intensive cultural and technological elements. The authors A hospital's long journey toward becoming a data-driven organization is described in this article.

u05s1 - Learning Components

- Discuss data formats.
- Identify ways to store data.
- Identify types of data elements.
- Describe the concept of data management.
- Study best practices for data integration.

u05a1 - Data Discovery

Data quality can be affected during any part of the data management process used to generate, store, and transmit health information. *Data discovery* is a process that can help an organization avoid or solve data quality issues. Your assignment will consist of a data discovery report and a core data spreadsheet.

Instructions

Prepare to write your data discovery report by researching and describing the characteristics of clean, high-quality data. Analyze the Independence Medical Center data sets linked in Resources in terms of quality and potential issues with integration of the data. Note content quality issues and issues related to the format of the data elements. Use your findings to write a Data Discovery Report in which you do the following:

- Describe data formatting issues when using and storing data for multiple sources.
- Describe data quality issues when using multiple sources.
- Identify ways to maintain clean, high-quality data when using multiple sources.

From the discovery process, you will define the core data for Independence Medical Center. Review the Core Data Spreadsheet. It will describe the data elements and formats that will comprise the core data set for Independence Medical Center. Complete the spreadsheet based on Independence Medical Center data sources and systems, following the meaningful use guidelines. Describe your rationale for your selection of sources, systems, and items for the core data set. The following grading criterion will be applied to your spreadsheet:

- Create a spreadsheet with information that describes data elements and formats for the purposes of enterprise information management.

Submission Requirements

- Length: Two–three pages plus spreadsheet.
- References: Follow APA style and formatting guidelines for resources and citations.
- Writing: Create a document that is clearly written and generally free of grammatical errors
- Format: Report in a Word file and Core Data Spreadsheet in an Excel file.

Course Resources
Phys Roster Phys Database
Patient Tracking Hospital
Core Data Sheet
Patient Billing Phys Database
Patient Intake Phys Database
Lab Patient Tracking Hospital
Patient Billing Clinic Database
Customer Clinic Database
APA Style and Format
Clinician Roster Hospital
Clinician Roster Clinic Database
Radiology Patient Tracking Hospital
Research Subject Research Database

u05d1 - Data Mining Application

You attended a meeting with the Vila Health executive staff. During the meeting, the Human Resource Director presented a proposal to purchase and implement a sophisticated data-mining application to identify employees with high-level technical

skills.

Write a post in which you discuss the pros and cons of using this type of tool. How could it be applied to the use of clinical data?

Response Guidelines

Read the posts of other learners and respond to at least one other learner, commenting on the uses suggested in the post.

Course Resources
Undergraduate Discussion Participation Scoring Guide

u05d1 - Learning Components

- Discuss data formats.
- Identify ways to store data.

Unit 6 >> Data Architecture

Introduction

Data architecture is a term used to define the policies, guidelines, standards, and models that support organizational data management. It is a foundational component for any information system because it defines which information is collected as well as how it is used, stored, standardized, and integrated throughout the enterprise. Data architecture activities also include the development of data models that support information systems.

Data architects are professionals who help design, manage, and improve database activities. They are responsible for understanding the fundamentals of data, its purpose, and how it is utilized by various users. Most importantly, data architects visualize the end result and devise steps to accomplish the end task.

This unit provides an overview of data architecture and its role in data management and governance. The additional readings provide information on data standards and health information technology. You will also discuss the role of data architects and governance standards.

Learning Activities

u06s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 6, "Data Architecture Management," pages 105–141.

Use the Capella library to read the following:

- Colbert, J. (2016). 5 pillars of data analytics. *Health Management Technology, 37*(4), 20.
    - The author discusses data architecture as a component to measurable outcomes for health management strategies, building a data architecture, and aggregate claims data.
- Dow, K. E., Hackbarth, G., & Wong, J. (2013). Data architectures for an organizational memory information system. *Journal of the American Society for Information Science & Technology*, *64*(7), 1345–1356.
    - This article presents a framework to support guidance for managing the processing capabilities of an organization by matching knowledge location, flexibility, and processing requirements with data architecture.
- Halamka, J. D. (2010). Making the most of federal health information technology regulations. *Health Affairs, 29*(4), 596–600.
    - Meaningful use of interoperable electronic health records throughout the U.S. health care delivery system is a critical national goal. Proposed federal regulations on data exchange standards and the definition of *meaningful use* are well conceived and provide a foundation for the nation to begin the journey. This paper applies the goals outlined in the American Recovery and Reinvestment Act (ARRA) to identify gaps in and additions to the regulations that would support more rapid progress.
- Jaffe, C., Hammond, W. E., Quinn, J., & Dolin, R. H. (2009). Healthcare IT standards and the standards development process: Lessons learned from health level 7. *Intel Technology Journal, 13*(3), 58–79.
    - Standardization of information in health care is critical to the ability of a diverse community of caregivers to exchange complex data reliably. This article discusses standards as a way to improve quality and constrain the escalating costs of care delivery and preventative medicine, and the strategies for developing these standards with advances in information technology.

Multimedia

- Watch Design and Operation of a Data Warehouse for an introduction to architecture for modern enterprise-wide data warehouses.
- Watch Relational Databases.
- Watch Planning a Database: Introduction to Database Systems to explore the basics of database planning, including various considerations developers make when analyzing and planning a database.

Course Resources
Planning a Database: Introduction to Database Systems
Relational Databases

u06s1 - Learning Components

- Describe techniques and tools used to establish data architecture.

u06d1 - Database Design

A *database* is an electronic filing system: a collection of data organized for use and retrieval. *Database design* is the process of creating a model of the database. The model can include several attributes and entities, such as users, logic, physical storage locations, relationships, and other parameters.

Write a post in which you explain at least three ways that database design and data architecture can work together to improve patient satisfaction, lower care costs, or improve patient outcomes. Then identify at least two areas of uncertainty or unanswered questions that you have about database design and data architecture.

Response Guidelines

Read the posts of other learners and respond to at least one other learner. In your responses, try to clarify their statements or address their questions.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u06d1 - Learning Components

- Describe techniques and tools used to establish data architecture.

u06d2 - Architecture and Governance

Vila Health was in the process of converting patient demographic information from an old system to a new system. After checking the system, the managers believed that all requirements were met to retrieve accurate information.

In the days following the launch, a registration clerk attempted to retrieve a patient's information but could not retrieve correct patient medical record numbers. The new system was immediately shut down and technical personnel had to revert to the old system until the problem was identified. A major concern was that the new system might corrupt other downstream systems that relied on patient demographic information.

It was discovered that the new system allocated seven characters for the medical record number when the actual medical record number was 10 characters long. The architecture model and functional requirements, such as defined field type and length, were not met.

Describe your recommendations for governance standards that might be applied in this case. How would you assure that this kind of problem would not recur?

Response Guidelines

Read the posts of other learners and respond to at least one learner. Offer further development of the governance standards suggested in the post or describe the strengths and weaknesses of the recommendations.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u06d2 - Learning Components

- Describe techniques and tools used to establish data architecture.

Unit 7 >> Data Integration

Introduction

Data integration involves combining data from different sources to provide users with an interactive view of the data. Data integration allows communication between information systems and is foundational to data management. Despite the widespread adoption of advanced technologies such as the electronic health record, data integration remains a challenge for many health care organizations, compounded by data from multiple sources. Understanding data structures and requirements, data sources, and data privacy rules and regulations is critical to the success of a data integration.

The readings in this unit will provide additional information on data integration, the importance of interoperability, and data management strategies. For your assignment, you will create a strategy map and recommend a data integration strategy.

Learning Activities

u07s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 8, "Master Data Management," pages 171–187.
- Chapter 10, "Data Security Management," pages 207–227.

Use the Capella library to read the following:

- Kavanagh, E., & Ericson, J. (2010). Getting back to basics: Data integration strategies and tactics. *Information Management*, *20*(2), 8.

Use the Internet to read the following:

- Purkis, B., Morris, G., Afzal, S. Bhasker, M., & Finney, D. (September 30, 2012). Master data management within HIE infrastructures: A focus on master patient indexing approaches [PDF]. Retrieved from https://www.healthit.gov/sites/default/files/master_data_management_final.pdf
    - Having the right patient data at the right place and time is the goal of health information exchange (HIE). This starts with accurately capturing and coordinating a patient's identity across disparate organizations. This report is a primer on the key issues related to master data management.

Multimedia

- Click **Data Integration Strategy and Workflows** for an overview of common data integration issues. Without a strategic plan for the use of managed and collected data, an organization still runs the risk of missing key information.
- Click **Vila Health: Data Integration** to learn about the interoperability issues and data architecture needs of the organization in preparation for the Unit 7 assignment.

Course Resources

Vila Health: Data Integration

Data Integration Strategy and Workflows

u07s1 - Learning Components

- Identify policies and procedures required to manage data.
- Discuss integration and interoperability.
- Describe the procedures for, characteristics, and uses of a Master Patient Index (MPI).
- Identify data integration requirements.
- Describe an enterprise data warehouse.
- Identify common elements of a strategy map.

u07a1 - Data Integration

Data integration depends on architecture and data standards. Integration, sometimes referred to as *interoperability*, is also the ability for databases to *interchange* or combine information. A seamless integration process is a direct result of design, architecture, and high data quality.

Instructions

After you have viewed Vila Health: Data Integration, use your Data Discovery Report from Unit 5 to create a strategy map showing how data quality issues at Independence Medical Center can be resolved. Include at least three data quality issues you discovered, the processes or activities that may affect those issues, and recommendations to resolve each issue. Your strategy map should meet the following criteria:

- Create a strategy map to demonstrate an data integration strategy including data quality, best practices, policies, and procedures.

To accompany your strategy map, write a summary that meets the following criteria:

- Explain the use of a master patient index (MPI) in patient information integration.
- Explain how the existing differences in data formatting will impact the ability to easily integrate data with the information systems.
- Assess data quality and data integration issues that influence the foundation for Independence Medical Center's database design and architecture.
- Recommend an integration strategy for Independence Medical Center.
    - Describe methods, best practices, policies and procedures for data integration in general.

Submission Requirements

- Length: Two–three pages plus strategy map.
- References: Follow APA style and formatting guidelines for resources and citations.
- Writing: Create a document that is clearly written and generally free of grammatical errors.
- Format: Use a Word file for the summary report and a diagram or a spreadsheet for the strategy map.

Course Resources

Vila Health: Data Integration | Transcript

APA Style and Format

u07d1 - Complexity of Integration

Data integration appears simple in theory but in fact it can be a very complex process, particularly in organizations where sensitive or personal information is used, such as health care. Based on this information, why is data integration important in a data management process? How critical is it to have a comprehensive integration plan, particularly in today's world of health care? Provide examples to support your thoughts.

Response Guidelines

Respond to at least one other learner and look for contrasts and commonalities with your post.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u07d1 - Learning Components

- Discuss integration and interoperability.
- Identify data integration requirements.

Unit 8 >> Reference Data

Introduction

In previous units you were introduced to data management principles related to organizing and integrating data. This week you will explore the use of reference and master data. *Reference data* are used to classify or categorize other data. They are also part of the overall structure of *enterprise content*, or enterprise data architecture. Examples of reference data include diagnostic codes, lab results or pharmaceutical reference data, and data located in a master patient index or other indices and registries (such as a cancer registry). This type of data is usually identified with other organizational data sources and uses. To assure data quality, reference and master data undergo the same processes of profiling and cleansing as other data. Public health agencies, such as the Centers for Disease Control (CDC), are viewed as sources of reference data. These organizations also access significant amounts of personally identifiable information (PII) and participate in numerous data sharing activities.

Health information data exchange (HIE) is at the heart of health reform efforts and is one of the single largest changes in the health care paradigm that has occurred in the past five years. HIE is the electronic exchange of health information, enabling health care providers to securely access and share patient information, with the goal of improving quality, cost, and safety of patient care.

In this unit, you will explore some of the factors that come into play when utilizing reference data and engaging in data sharing processes. You will also consider the role of enterprise content management.

Learning Activities

u08s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 8, "Master Data Management," pages 171–187.
- Chapter 9, "Enterprise Content and Record Management," pages 189–206.

Use the Capella library to read the following:

- Colpas, P. (2010). HIEs: The future is now. *Health Management Technology, 31*(7), 8–11.
- Dooling, J. A., & Downing, K. (2014). Ensuring data integrity through a clean master patient index. *Journal of AHIMA, 85*(3), 46–47.
    - This article discusses organizational challenges in maintaining data accuracy and completeness at registration, and maintenance of the master patient index (MPI) or the enterprise master patient index (EMPI).
- Just, B. H., Marc, D., Munns, M., & Sandefer, R. (2016). Why patient matching is a challenge: Research on master patient index (MPI) data discrepancies in key identifying fields. *Perspectives in Health Information Management*, 1–20.
    - Patient identification matching problems are a major contributor to data integrity issues within electronic health records, impeding the improvement of health care quality through health information exchange and care coordination, and contributing to deaths resulting from medical errors. This study examines the underlying causes of duplicate records using a multi-site data set of patient records with confirmed duplicates and analysis of data discrepancies between those record matches.
- Landsbach, G. D. (2016). Study analyzes causes and consequences of patient overlay errors. *Journal of AHIMA, 87*(9), 40–43.
    - The health information management (HIM) industry has long been aware of the dangerous patient misidentification problem known as an *overlay*, in which a patient is incorrectly registered, admitted, or documented on another patient's medical record, often completely unbeknownst to clinicians. Use of electronic health records increases the risk, as patient-level information transcends multiple visits. This study helps illuminate these often overlooked but incredibly dangerous errors lurking in today's EHRs.
- Nelson, M. L. (2015). The 'keys' to help solve patient data matching. *Journal of AHIMA, 86*(8), 28–30.
    - The article focuses on the deployment of master patient indexes (MPIs) with sophisticated matching algorithms to remove overlays, mismatches, and false positive matches.
- Withrow, S. C. (2010). How to avoid a HIPAA horror story. *Healthcare Financial Management, 64*(8), 82–88.
    - This article concerns the financial risk of violations of the Health Insurance Portability and Accountability Act (HIPAA). HIPAA mandates certain privacy and security protections to encourage the realization of administrative

efficiencies through health care information technologies. The Health Information Technology for Economic and Clinical Health Act of 2009 extended the HIPAA security provisions and penalties beyond covered entities to include all business associates.

- Zhao, K., & Xia, M. (2014). Forming interoperability through interorganizational systems standards. *Journal of Management Information Systems, 30*(4), 269–298.
    - Interoperability is a crucial organizational capability to manage information systems. This article discusses the importance of interoperability and whether it can improve organizational performance.

Multimedia

- Click **The Role of Master Data Management and Data Governance** to learn how master data management and data governance affect the data warehouse. Master data management consists of actions, tools, theories and processes necessary to manage critical data, and data governance is concerned with policies and procedures that govern the use, integrity, and security of an organization's data.
- Click **Tools and Methods of Mapping Master Data** to discover three strategies for mapping master data. Data mapping defines specifically what and how the system will store data so initial business requirements and goals can be met.

Course Resources

Tools and Methods of Mapping Master Data

The Role of Master Data Management and Data Governance

u08s1 - Learning Components

- Describe the essentials of a data map.
- Identify the characteristics of a data warehouse.
- Discuss activities related to accessing data.
- Identify operational aspects of storing data.

u08d1 - Big Data

Front-end processes refer to patient registration and data collection procedures that take place at the beginning of a patient care visit, generating master patient data. Correcting identity errors later in the data collection process has high technology, labor, and financial costs. What front-end policies should an organization implement to ensure the accuracy of master patient data? How should it implement and monitor the policies? What role should data governance play in front-end processes?

Response Guidelines

Respond to at least one other learner and share any critical components you believe should be added to his or her recommendations.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u08d1 - Learning Components

- Describe data analytics.
- Identify types of data required for various reporting tasks.

u08d2 - Data Sharing

All of Vila Health's lung cancer study data were uploaded, unsecured, onto the Vila Health Web site and were publicly accessible. A reporter found the data, including the phone numbers and addresses of the subjects, and called at least one study participant to get her thoughts on the exposure of her confidential data.

Discuss the impact of this data breach on the organization and the subjects. Also, discuss any legal liability the organization experienced as a result of this breach and data sharing procedures. Finally, discuss what the organization should do to address the incident.

Response Guidelines

Read the posts of other learners and respond to at least one.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u08d2 - Learning Components

- Describe data analytics.
- Identify types of data required for various reporting tasks.

Unit 9 >> Reporting

Introduction

Data mapping processes are essential to determining organizational data needs, how data interacts within multiple sources, and how to maintain data integrity. Data maps provide a roadmap to data collection, retrieval, and storage. The data map is also important in data reporting and improving processes and patient outcomes.

Business intelligence is the practice of using technology-driven tools to analyze data for reporting and to present it in a meaningful manner. Business intelligence begins with the identification of data sources and data warehousing. Ultimately, good business intelligence relies on good data. Data governance is an essential factor in business intelligence and depends upon the implementation of a reporting structure that is favorable for data management practices.

The final component of your course project is due in this unit. You will review the role of data maps and data warehouses in data reporting activities. You will create a data map and discuss key characteristics to data warehousing. The readings will provide additional information on business intelligence, the concept of big data, and connection to data management and governance.

Learning Activities

u09s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 7, "Metadata Management," pages 143–170.
- Chapter 11, "Business intelligence and big data," pages 229–246.

Use the Internet to complete the following:

- Bowie, J., & Carter, J. (2012). *Clinical data mapping process* [Video]. Retrieved from https://youtu.be/qmx2cPmcjao
  - This video demonstrates data mapping using spreadsheets.
  - Run time 32:35.
- Sanders, D. (2009). Data warehouse data modeling [Blog post]. Retrieved from callitanything.blogspot.com/2009/01/data-warehouse-data-modeling.html
  - In this post, Dale Sanders, CIO of Cayman Islands National Health System, discusses what should be addressed in a data warehouse model.

Use the Capella library to read the following:

- Choucair, B., Bhatt, J., & Mansour, R. (2014, September 15). How cities are using analytics to improve public health. *Harvard Business Review Digital Articles*, 2–4.

Multimedia

- Click **Three Levels of Data Modeling** to explore data modeling diagrams and associated descriptions.
- Click **Identifying Data for Business Intelligence Activities** for a discussion of how data warehouse projects can deliver meaningful information. While data quality is critical to the success of a data warehouse project, it is important to remember that the dashboards, reports, data marts, and pivot tables must address the business requirements that define the project.

Optional

- HealthMap. Retrieved from http://www.healthmap.org
  - Visit the website and learn how data visualization and data mining are being used to track and predict infectious disease outbreaks today.

Course Resources

Identifying Data for Business Intelligence Activities

u09s1 - Learning Components

- Describe data analytics.
- Identify the characteristics of a data warehouse.
- Identify types of data required for various reporting tasks.

u09a1 - Data Reporting & Management

Working with multiple data sources creates challenges for many health care organizations. In this final component of your Data Management and Governance Plan, you will construct a data map to meet organizational needs for data use and integrity and to facilitate necessary reporting. In addition, you will compile a report to support the use of data mapping for effective retrieval and storage processes.

Instructions

Use the information from the Data Discovery Report, Core Data Set, and Strategy Map to create a model data map for Independence Medical Center. Your data map will serve as a prototype for ongoing definition of organizational data needs and data integrity requirements. Your data map should meet the following criterion:

- Create a data map to demonstrate enterprise architecture, data integration, and use of multiple data sets.

Compile a written report to accompany your data map. While supporting your data map, your report should also identify uncollected core data elements that Independence Medical Center should be capturing. You will explain the implications of these changes (meaningful-use requirements) and the potential impact on Vila Health. Your report will be graded on the following criteria:

- Describe the concept of data warehousing and its importance in enterprise architecture.
- Describe the benefits or advantages of implementing a data warehouse.
- Describe the challenges or disadvantages of implementing a data warehouse.
- Explain how data architecture influences internal and external data-sharing and reporting tasks.

Submission Requirements

- Length: Two–three pages, plus data map.
- Writing: Create a document that is clearly written and generally free of grammatical errors.
- References: Follow APA style and formatting guidelines for resources and citations.
- Format: Data map in Excel spreadsheet; report in Word doc.

u09d1 - Data Mapping

Conduct an Internet search to identify two automated data mapping tools. List the functionalities and benefits of these tools, comparing the functionalities and benefits to the spreadsheet method for data map documentation. Refer to Clinical Data Mapping Process, linked in Resources.

Do you believe Vila Health would benefit from purchasing an automated tool? Provide a rationale and discuss the potential problems a tool can resolve. Also, speculate about the future of data mapping in health care.

Response Guidelines

Respond to at least one other learner and share why you agree or disagree with points made in his or her post.

Course Resources
Undergraduate Discussion Participation Scoring Guide
Clinical Data Mapping Process

u09d1 - Learning Components

- Describe the essentials of a data map.

Unit 10 >> Planning and Conducting

Introduction

Grasping the nature of data management in a health care environment requires an understanding of organizational and technological uses and capabilities as well as the legacy of data conditions. Health information management professionals often deal with data in reference to how it is used to make recommendations, improve clinical documentation, and for decision-making. This unit may be considered the most important because you will unite all components of your DMGP in an executive summary containing concise information on the organization, problem, alternatives and solutions, and major conclusions. The readings will provide additional information for data management, including security of data and health information.

Learning Activities

u10s1 - Studies

Readings

Use your *Enterprise Health Information Management* text to read the following:

- Chapter 10, "Data Security Management," pages 207–227.
- Chapter 14, "EIM in Action," pages 295–302.

Use the Capella library to read the following:

- Dooling, J. A., Houser, S. H., Mikaelian, R., & Smith, C. P. (2016). Transitioning to a data-driven, informatics-oriented department. *Journal of AHIMA, 87*(10), 58–62.
    - This article discuss data governance efforts that will lead to solid information governance (IG) practices. Being data-driven is the first step in contextualizing any situation.
- Goar, E. S. (2016). Data-driven remote coding management. *For the Record, 28*(11), 14–17.
    - This article discusses how data collected automatically by coding systems can help managers pinpoint the cause of productivity dips and potential need for additional education or training.
- Saharia, D. (2016). Information governance for offsite data security. *Journal of AHIMA, 87*(4), 20–23.
    - The article discusses challenges in information management security and the importance of precaution and awareness.
- Washington, L. (2017). Strategic alignment: The driving force for information governance. *Journal of AHIMA, 88*(1), 40–43.
    - Because information is critical in every business decision and activity, it is essential that information governance is part of the strategy to achieve business goals and objectives. This document outlines a case study discussing Unity Health Care's Information Governance (IG) initiative. The alignment of resources, the need to better leverage information, and organizational culture were all driving forces in Unity Health Care's decision to pursue an IG strategy.

Multimedia

- Click **Presentation of Data** for various graphical representations used to make data clear, such as tables, charts, and graphs.

Course Resources
Presentation of Data

u10d1 - DMGP Executive Summary

Executive summaries are used to interest readers in the contents of a full document; in many cases, the executive summary is the deciding factor in the approval of an entire document.

Write an executive summary for your data management and data governance plan (DMGP), briefly summarizing your plan to familiarize the reader with its contents. It should contain concise information on the organization, problem, alternatives and solutions as well as major conclusions. The executive summary should be a well-written, 1–2 page encapsulation of the most important information in the full DMGP.

Response Guidelines

Read the posts of other learners and respond to at least one learner. Note the most interesting differences and commonalities with your DMGP Executive Summary.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u10d2 - Course Reflections

Share with the other learners what you have found most informative about the course and how you can apply what you have learned in future endeavors.

Response Guidelines

Respond to at least one other learner and share the benefits you gained from his or her presence in the courseroom.

Course Resources

Undergraduate Discussion Participation Scoring Guide