



Module 3 - Establishing and Managing a HIM Department/Service

Many healthcare facilities have transferred most of their paper records to Electronic Health Records (EHR) systems and/or are running hybrid systems (World Health Organisation, 2006). The scope of the Health Information Management (HIM) profession is much broader now, and this evolution is often demonstrated by changing the name of the department from Health Records to a Health Information Management Department or Health Information Service. As new methods of collecting, storing, processing, and analysing data emerge, there will be a need for more specific planning and managing of the HIM department. The tools and roles of the Health Information Management (HIM) professional will change, but the secure and efficient handling of quality data will always be a priority. The HIM professional will need to be ready to adapt to new workflows, take advantage of the new capabilities that technology can bring, and be ready to handle new risks involved in establishing and managing a Health Information Department/Services.

OBJECTIVES:

At the conclusion of this unit the participant should be able to:

- Decide which information services will be provided at the facility
- Identify the most suitable place for a health information management department within a healthcare setting
- Designate space and design a layout that will promote a healthy, efficient and productive workplace
- Design an infrastructure and work culture that protects the privacy and security of health information.
- State four basic management processes and discuss how each is essential for a Director of HIM.
- Draw an organization chart for the health information management department
- Create organizational manuals which include policy and procedure manual for a HIM department
- Forecast the staff required for an HIM department
- Create job analysis for positions within the department

- Solve a problem from within the health information department using the six steps of problem solving

A: ESTABLISHING AN HIM DEPARTMENT AND SERVICE

THE PLANNING TEAM

Whether a new hospital is being built or the current facility is being renovated, the HIM director needs to work closely with the planning team to determine the information services that will be offered, the location, layout and size of the HIM department, staffing requirements, equipment needs, data security requirements, risks to data privacy considerations, and how information will be transferred. The administrator will ensure that each department has the appropriate facilities and equipment to deliver efficient service. The facility planner considers the requirements of all the functional units of the facility and coordinates with the architect. The architect will communicate with all parties to determine the needs and incorporate them into the design. (Gupta, Kant, Chandrashekhar, & Satpathy, 2007). Some countries have laws concerning how and where health data can be stored; a legal expert should also be part of the planning team (Gelman, 2015).

Certain statistics will be needed for effective planning. The local climate and geology are important when determining the risk of natural disasters and what type of heating, cooling and humidity control to use. Other statistics such as the social and economic demographic, population size and composition, and vital statistics can help determine the size of the facility and what services should be centralised or decentralised (Gupta, Kant, Chandrashekhar, & Satpathy, 2007).

The planning team will define the various processes that need to occur, determine how the operational tasks of the facility will be distributed between the departments, and ensure that departmental functions mesh together to achieve the goals of the facility within the available budget. Together, the planning team will decide whether to store health records on paper, use a hybrid system to transition gradually to an electronic record system, or to have a completely paperless system where documents are created, read, updated and stored electronically. They will also decide whether to store electronic data in the facility by establishing and maintaining a data centre, or by contracting the services of a cloud provider.

LOCATION OF THE HEALTH INFORMATION DEPARTMENT

In paper record systems, records are physically stored in the HIM department and are manually transferred between the HIM department and the emergency, outpatient, and inpatient wards. Each patient's medical record must be available when it is needed. Physicians come to the department when they want to update a record or do research. For this reason, the HIM department is usually located near the patient registration area, and is usually staffed 24 hours a day, 7 days a week and 365 days a year. (Aravind Eye Care Systems, 2007).

In a hybrid system, paper documents arrive in the HIM department after the patient has been discharged, and are then scanned into the electronic record. Proximity to the wards is helpful, but not necessary. Health care providers are able to access the patient's medical record from workstations in their unit, so there is no need for the HIM department to be open 24 hours. The public will still visit the department for fulfillment of Release of Information requests, so proximity to the admission and registration department is still the optimal location.

With a completely electronic record system, many employees can work in an offsite office, or from home with proper security precautions. Only a few services need to be located within the facility such as Release of Information.

SPACE REQUIRED FOR THE HIM DEPARTMENT

Space Requirements for HIM Staff

When planning the staff space, consider the rapid pace of change in the health information disciplines. Internal walls that can easily be torn down or room dividers will provide the necessary flexibility. Inclusion is also a consideration in a modern workplace. An open plan office would require at least 2 x 2.5 m per employee to allow space for wheelchair access. (Department of Health, 2014). The dimensions of the HIM department depend on several factors:

- the size of the facility (bed count)
- the projected number of inpatient, outpatient and emergency encounters
- The number of staff that are needed to perform the assigned functions
- The tools and equipment needed to complete the functions

The Optimal Layout for Employee Workspace

The Release of Information (ROI) Department processes requests for access to health records, and will need to have an office with a door that closes to allow clients to have private conversations with ROI personnel. Sound insulation should be used in all areas where confidential information is processed. The department should have at least one private viewing room where each client can read the requested information. A printer will need to be available for copying any requested documents. An outer waiting room will also be required. Some other considerations include:

- A lighting system designed to prevent eyestrain
- Proper ventilation to ensure worker health and safety
- Adjustable workstations that will accommodate persons with disabilities
- Cubicle style designs save space and permit staff to work privately, yet still allow enough contact to promote teamwork and skill transfer. Cubicle workstations are not to be used in work that involves confidential conversation (Department of Health, 2013).

Space Requirements for Paper Records

Medical record storage space requirements can be calculated by multiplying the number of each type of encounter by the average space required for each encounter, the retention period, and the estimated population increase. Next, add extra space for each section of the filing system.

For example: If we anticipate 6000 inpatient encounters in a year, each encounter is 2 cm thick, our retention period is 10 years, we expect the population to grow by 4 percent over the next 10 years, (in 10 years the population will be this year's population x 1.04), we want 30 cm between sections and we are using the terminal digit filing system which has 100 sections, we can calculate:

$$\text{Shelf space} = (6000 \times 2 \text{ cm} \times 10 \times 1.04) + (30 \times 100) = 127\,800 \text{ cm}$$

We can convert this into metres by multiplying by the conversion factor:

$$\text{shelf space} = 127\,800 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}} = 1278 \text{ m}$$

It is usually best to round up when calculating storage space to give a margin for error. We can do the same calculation for other kinds of encounters, and add them together for the total storage space.

The Optimal Layout for Paper Record Storage

The most common equipment for storing paper records is the open shelf cabinet. They are less expensive than cabinets with drawers, and allow rapid filing and retrieval (Aravind Eye Care Systems, 2007). Sliding file cabinets save space because they roll on a track and only require a single aisle for access. Injuries can occur if an employee is in the aisle when the cabinet is moved. A common safety precaution is to ensure staff always check the aisle before moving the cabinet, to be certain the cabinets are stationary before entering the aisle, and to place a file trolley in the aisle to act as a brace.

Step stools with anti-slip coverings are essential for accessing the top shelves if the units are taller than 1.7 m (Aravind Eye Care Systems, 2007). Aisles should be at least 1.1 m wide to allow a person to bend down and reach the bottom shelf.

Have the architect mark the location of water pipes so that equipment and materials that are sensitive to water damage can be placed away from these areas. To minimize the damage caused by a flooding event, avoid using the bottom shelf of cabinets where possible. (Office of the Access to Information and Privacy Commissioner, 2014).

Records can deteriorate if they are not stored carefully. The best temperature for paper storage is between 22-25°celcius and 50% humidity. Dust levels should also be controlled, either through air filtration systems or manual vacuuming (Aravind Eye Care Systems, 2007).

Electronic Record Storage: Deciding between Cloud Storage and Building a Data Centre

Enlisting the services of a cloud storage provider is initially less expensive than creating a data centre (Annecharico, 2015), and a predictable monthly operating expense is more attractive to budget planners than a lump sum capital expenditure. Cloud service providers are able to employ top experts in each field, and compete with each other to provide the best solutions resulting in a more professional service than can easily be built in house. (Gelman, 2015). Security services are usually included in the contract, and extra storage space can be leased as needed (Annecharico, 2015).

A drawback to using cloud data storage is that data availability is dependent on a continuous internet connection and sufficient bandwidth to transfer data at the needed speed. (Annecharico, 2015). Enlisting the services of a cloud provider does not decrease the risk of a cyberattack; it creates more access points that need to be protected. Purchasing cybersecurity insurance is a must (Gelman, 2015). Contracting the services of a cloud provider also involves some duplication of service. Even though the cloud provider is responsible for the privacy and security of the data in its possession, the facility will still need to monitor security and privacy of its network, respond to any threats, and provide training for employees.

Cloud vendor contracts should be negotiated carefully. A key challenge is the “force majeure” clause which releases the vendor from responsibility in situations beyond its control. The wording is often so general that it could include any sort of difficulty such as a labour dispute. Extra sections can be added to limit the extent of the force majeure clause such as requiring the vendor to create and test a disaster plan, requiring measures to maintain data integrity during a power outage, and specifying the maximum length of time that the service would be unavailable during a force majeure event (Doe, 2015). The health care facility should also be allowed to transfer the data to another cloud provider or to its own data centre when the contract is terminated (Gelman, 2015).

Building and operating a data centre involves significant expense, but it has several advantages. It allows a facility to have better control over who is allowed to access medical records, what data usage is permitted, when equipment and software upgrades are scheduled, and what security procedures are used (Dinardo, 2014). It also enables continuous access to

medical records during an internet or power outage. In response to a cyberattack, a facility can even deliberately sever the internet connection without compromising the operations of the facility (Nigrin, 2017).

Storage Space for Hybrid and Electronic Records

Space requirements for electronic record storage can be calculated in a similar way to paper record storage, but with a few extra steps and more variability. We can measure the average space each encounter occupies on the hard drive; a computer will usually express this in kilobytes. We then multiply by the number of encounters and the retention period. Our retention period may be longer; some jurisdictions are promoting longitudinal records which extend from the birth to the death of the patient. Our population estimate will be for this same time period. When we put the data in a database, it will expand because a database allocates space for a field even if the field is blank. Our storage media (server) will also have redundancy (spare hard drives in case some fail), and a file structure (pools, bricks and clusters) that allows us to add extra servers if we need more space.

It is not advisable to run queries on the database that clinicians are constantly reading from and writing to. This could slow the system down to the point where it would negatively affect patient care. Some facilities choose to do all data mining at night when the system usage is lower. Another option is to make a copy of the database to use for reporting purposes.

A server will not work efficiently when it is more than 75% full. Applications will be noticeably slower after this point, and data could become corrupted. The EHR applications will also need space. Installing the applications on one server and the databases on other servers provides some protection against hacking. There should also be extra server storage for regular backups of all data to ensure patient safety and regulatory requirements are met.

It is difficult to anticipate how much storage needs will grow in the future. When computers first became popular in the 1980's, 640 kilobytes was considered to be more space than anyone would need for at least 10 years (Wikiquote, 2018). At the moment, a single digital chest x-ray is about 10,000 kilobytes. The best way to prepare for upcoming needs is to use a server configuration that will allow extra storage to be added later.

Once the amount of space required is calculated and adjusted for the large margin of error, it is also important to realise that on a computer, space is calculated in binary where 1 kilobyte = 1024 bytes, but manufacturers sell storage in digital (1 kilobyte = 1000 bytes). As a practical example, a hard drive might be labeled as containing one terabyte, but when it is installed on the computer, the drive capacity is listed as 931 gigabytes.

To ensure that enough storage space is purchased, it is necessary to convert from binary measurements to digital measurements. Five conversions are needed to transition from bytes to petabytes (bytes to kilobytes, then to megabytes, gigabytes, terabytes, and petabytes). Thus, to determine how much space much be purchased, multiply by the conversion factor to the fifth power:

$$1 \text{ binary petabyte} \times \frac{1024^5}{1000^5} = 1.1259 \text{ digital petabytes}$$

Therefore, purchasing approximately 1.3 digital petabytes will give 1 binary petabyte.

The Data Centre

In a data centre, all electronic data are stored in servers. A server contains from 15 to 60 hard drives which are all plugged into a motherboard. There is a RAM chip that speeds up data transfer, and fans to bring cool air into the front and vent hot air out the rear. The largest servers are quite heavy and require two people to lift them. Servers and network equipment are

positioned in racks. There should be sufficient space around the server racks to allow staff to maneuver safely. Purchasing the best equipment currently available will help avoid taking the system offline for upgrades and repairs in the future.

The aisle in front of the servers (the cool aisle) should be kept at a constant temperature of 20-25°C for optimal reliability. The temperature needs to be monitored constantly: in a cooling system failure, the temperature will rise to dangerous levels in as little as five minutes (ASHRAE Technical Committee, 2016). A server room is usually cooled by air conditioning. There are water cooled servers, but this increases the risk of water damage. Fresh air cooling offers considerable cost savings, but does not offer humidity control and can bring dust and other pollutants into the data centre (Fitch, 2012).



Figure 1: Server room. Image courtesy of [imgix on Unsplash](#)

Humidity control is even more important than temperature control. If humidity is too low, there is a greater risk of electrostatic discharge (ESD). If humidity is too high, condensation can form on the electrical equipment and corrode wiring. Ideally, relative humidity should be around 50%. Workers should wear ESD resistant shoes or overshoes, and ESD bracelets when working in the server room. All tools and equipment should be made of conductive or static dissipative materials.

In the event of a power failure, an Uninterrupted Power Supply (UPS) unit ensures there is a smooth transition from electric power to generator power. It is recommended to use one UPS per server. Battery Backup Units (BBU) within the server case should be avoided: they do not recharge quickly when they are hot and will fail if there is a second power outage soon after the first. (ASHRAE Technical Committee, 2016)

CHANNELS FOR INFORMATION TRANSFER

Three factors are important to consider when choosing the type of network to install in the facility: speed, reliability, and security.

In an electronic system, information is transferred through a hospital network. The speed of this network depends on several factors: the type of storage media that is used (the spin speed of hard drives and RAM chips on servers), network equipment such as firewalls, hubs and routers, and the network itself. A hospital network needs to be faster than a home or office network because some files are quite large: an MRI study can be as much as 5 GB. Local Area Networks (LANs) are getting faster, the 400GBASE-X ethernet cables can transfer up to 50 GB per second. LANs are reliable and secure. Wireless LANs are difficult to secure and subject to interference from cement walls and some types of equipment.

When cloud based storage is used, the facility must also consider the internet connection speed. No matter what equipment is installed in the hospital or the cloud provider, the data will never be transferred faster than the internet connection can deliver it. Reliability is also a factor: an internet outage can completely cut off access to data. Transmitting data over the internet also creates an extra entry point for an unauthorized user to gain access to the data.

CYBERSECURITY

Cybersecurity involves controlling access to information, protecting the data from loss or corruption, and keeping it available for those who need it. A cyberattack can be any breach of

cybersecurity, whether the perpetrator was an authorised user who did not take the appropriate security precautions, or someone with malicious intent. A single breach can compromise an entire health care network (Canadian Health Information Management Association, 2018).

In a recent survey of Healthcare Information Security professionals, most (75.7%) indicated they had experienced a significant security incident in the past 12 months. The majority of the threats (78.5%) were caused by one of three types of people: an online scam artist, a well-meaning insider who caused an incident through negligence, and a cybercriminal hacker. People who hack for social, political, or espionage purposes committed only 6% of the incidents. The most common method of attack was through email phishing (61.9%) (HIMSS, 2018)

A cybersecurity plan starts with an assessment of the risk:

1. Learn from the experiences of others
2. Create an inventory of all assets that need to be protected.
3. Anticipate problems
4. Find ways to reduce the chance the problem will occur
5. Find a way to minimize the damage if the problem does occur
6. Have tools that can detect early stages of the event
7. Defend the asset from the event
8. Repair any damage that was done
9. Learn from the experience and share with others

With so many security incidents being caused by authorized employees who fail to recognise phishing emails, the most important safeguards will involve security training for staff and testing their ability to put these safeguards into practice.

- Ensure staff are trained to recognise a phishing email
- Use strong passwords (minimum of 12 characters and a mix of letters, numbers and symbols)
- Use a unique password for each application, and never write them down. Use a password manager instead
- If a device that sometimes connects to the hospital network is being used on public WiFi, use a Virtual Private Network (VPN)
- Never plug an unknown flash drive into a networked computer
- Have an outside agency attempt to penetrate the network to test the people, the processes and the technology

There are several physical and technical safeguards that can be implemented with the help of the HICT specialist.

- Every connected device, whether it is a computer, mobile phone, security camera or Internet of Things (IoT) medical device should have up to date security software, the most recent software updates, security patches, and a password other than the default administrator password.
- Do regular data backups
- Use a network firewall

- Restrict WiFi access
- Use multi-factor authentication such as:
 - swipe key locks on doors
 - passwords to log on to computers
 - the ability to distinguish trusted devices from other devices
 - the ability to distinguish connections that come from outside the network from connections that arise from within
- Use cryptographic hashing to store passwords in the system
- Encrypt all data
- Assess the vulnerabilities of every new product or service (HIMSS, 2018), (Canadian Health Information Management Association, 2018)
- Use intrusion detection and prevention software (Wang, 2017)

HEALTH INFORMATION MANAGEMENT SERVICE FUNCTIONS

The Health Information Management Department will perform several functions to meet the information needs of the service area. Some of these functions can be provided from a central location, some tasks can be automated, and some will be provided within each individual health care facility.

The information services will be offered by a combination of HIM Professionals, Health Informatics (HI) experts and Health Information and Communications Technologies (HICT) specialists. There is considerable overlap between the three professions. HIM professionals are subject matter experts in collecting, analysing and protecting health information with the goal of ensuring health care practices are of high quality, efficient and safe, and respect the patient's right to privacy. HI experts provide generalised services in these areas with a focus on researching, developing, and analysing information systems and technology. HICT specialists also provide general information services, but focus on using technology and tools to store and manage health data securely. (Global Health Workforce Council, 2015). The Health Information Management Service Department will ensure that:

- the Master Patient Index contains up to date and correct information
- health data are complete, accurate, legible, and free from corruption
- each document within the health record contains all the information that is required by medical treatment, jurisdictions, professional colleges, and the facility
- health records are stored securely so they cannot be altered after they are signed
- only authorized individuals have access to health records
- all personal health information is kept confidential and secured from misuse
- aggregated and anonymized health information is made available to health care providers, planners and researchers to learn from the past and provide better health care services in the future (Abdelhak, Grostick, & Hanhen, 2012).

Workflow Overview: Paper Record System

In paper based systems, HIM staff will:

- update the Master Patient Index (MPI) to ensure patient information is up to date and accurate
- ensure loose reports are filed in the correct chart and records are stored safely
- ensure that patient records are available when and where they are needed
- In case that the health record is not in the archive, the HIM professions know where the health record is located
- HIM personnel takes care of correct archiving
- provide previous medical records to the health care professionals involved in treating the patient
- track the location of charts and ensure the records are returned when care is complete
- examine physician documentation to ensure it is complete and meets quality standards
- track deficiencies,
- use the coding and abstracting process to report diagnoses to national and international databases
- use aggregated clinical and financial health data to create reports for government, executives, clinicians, and researchers
- safeguard records until they are no longer needed
- ensure records are securely destroyed at the end of the retention period (Abdelhak, Grosttick, & Hanhen, 2012).

Work Overview: Hybrid Record System

A hybrid records system adds additional processes to the HIM workflow and changes other tasks. Patient Registration staff will be able to update the MPI, but HIMs will still need search for and correct duplicate entries (Abdelhak, Grosttick, & Hanhen, 2012). Instead of filing loose reports manually, HIMs will scan them into the EHR using an Electronic Document Management System (EDMS). HIMs will still need to ensure that scanned documents are legible, contain the necessary information, and are entered into the correct patient record (AHIMA Work Group, 2003). When the original paper documents are no longer needed, HIMs will securely destroy them.

HIMs will use the EDMS to flag deficient documents, assign them to the appropriate work queues, and manage the transcription, coding and abstracting work queues.

Health care providers are able to access any electronic records from their workstations, but HIMs will still need to make any historical paper health records available. This involves maintaining the paper records storage in addition to adding storage for electronic documents. It also involves controlling access to the electronic storage by using physical, process and technical safeguards. HIMs will still process release of information requests from the public and from researchers.

The freedom to access medical records comes with the responsibility to follow privacy laws and use proper data security techniques. HIM's will work closely with HICTs to monitor access logs and conduct security investigations. Additionally, HIMs provide training for staff on proper data handling techniques and how to recognise and avoid the most common threats to security and privacy.

Work Overview: Electronic Health Record System

The only documents HIMs will need to scan will be documents that arrive from other facilities. All other documents are generated, signed and saved using software in the EHR. HIMs will continue to correct duplicates in the MPI, manage work queues, control who is authorized to access which patient records, and what privileges they will have (create, read, update, delete). HIMs will still be responsible for destroying documents after the retention period has expired (Abdelhak, Grostick, & Hanhen, 2012).

More data analysis and reporting is possible with the availability of structured data in the EHR. Data mining can be done relatively quickly on large data sets, and can be used to discover trends that may require further investigation. Unstructured documents can be analysed manually with checklists and other tools.

Information privacy and security need to be built into the design of the entire hospital, not just the Health Information Department. The location of physician workstations needs to be chosen carefully. Hand held computers and IoT medical devices that directly access the patient's medical record need to be set up with robust security (Carr, 2017). HIMs work closely with HICTs to track these devices and remotely deactivate them if they are lost or stolen. Additionally, they will update and maintain each of these devices, secure and monitor internet communications, and to respond to privacy breaches and cyberattacks.

Managing a health information department still involves applying the basic functions of planning, organizing, human resource development, leadership and controlling. The health information manager must meet these challenges in his/her quest to develop an efficient and effective health information management department and service. The scope of management has broadened with the changes in structure, technology and the overall changes in health care.

The Managing Process

Managing a health information department still involves applying the basic functions of planning, organizing, human resource development, leadership and controlling.

The health information manager (previously the health records officer) must meet these changes as well as the leadership challenge in his/her quest to develop an efficient and effective health information management department/services. The scope of management has broadened with the changes in structure, technology and the overall changes in health care. HIM managers are in charge of staff with different skills. They are managing staff that do not possess an HIM background but possess perhaps an IT or nursing background. (Job Hero, 2018)

B: ORGANISING

Organising is the process of defining what work is needed to be done to accomplish the departmental and organizational goals. This will involve assigning those tasks to the different individuals in the department, and creating an organizational structure (Servais, 2009).

If the department is organized properly, then all staff members of the department will be mindful of their responsibilities. Poor organization can lead to confusion, frustration, increased error rates, lack of effectiveness and efficiency within the department (Dimick, 2007). To manage a well organised department, the HIM manager should:

- Review the plans and objectives for the department as well as for the healthcare setting the HIM department belongs to

- Determine the work activities needed to accomplish these objectives
- Classify and group the necessary work activities into manageable units
- Assign activities and delegate authority.
- Design a hierarchy of relationships (organization chart) (Servais, 2009)

HIM MANAGERS/DIRECTORS

A health information manager deals with healthcare services, business operations, and technology. Health information managers collaborate with physicians, nurses, case managers, chief financial officers, and others. They serve as a link between providers, stakeholders, and patients. Experienced health information managers or directors may directly manage the following employees:

- Medical coders and coding managers
- Release of information specialist and managers
- Clinical documentation improvement specialists
- Administrative staff and clerks
- Compliance analysts
- And more

Advances in communication technology have brought about changes in the Health Information Management department. The services no longer need to be provided within a hospital, but can be delivered in a satellite location. Some employees, such as coders and transcriptionists, can even work from home. HIM directors will need to adapt to the changes in the workplace, and adopt new strategies to guide remote workers.

Formalising the Organisational Structure

Organisation charts are the most common method used to formalise the structure of an organisation.

An organisation chart is merely a graphic representation or blue print of all positions in a facility and departments of that facility and how they are connected. The position with the greatest authority is located at the top. Solid lines are used to show supervisory relationships. Dotted lines are used to show staff relationships. No organisation chart can totally reflect the facility's structure. The INFORMAL relationships between employees are generally omitted.

The organization chart should be updated every time there is a change in reporting relationships. It is therefore important to date the organisation chart.

The manager should create a flow chart of the work known as workflow chart. This flow chart can assist in identify any problem areas. Workflows can lead to efficiency, quality, adaptability, adoptability and be used for performance measurement (Nooteboom, 2014). Examples of organisation and department charts are shown in figures 2 and 3. Note the organisational structure depends on the size of the healthcare facility and its services.

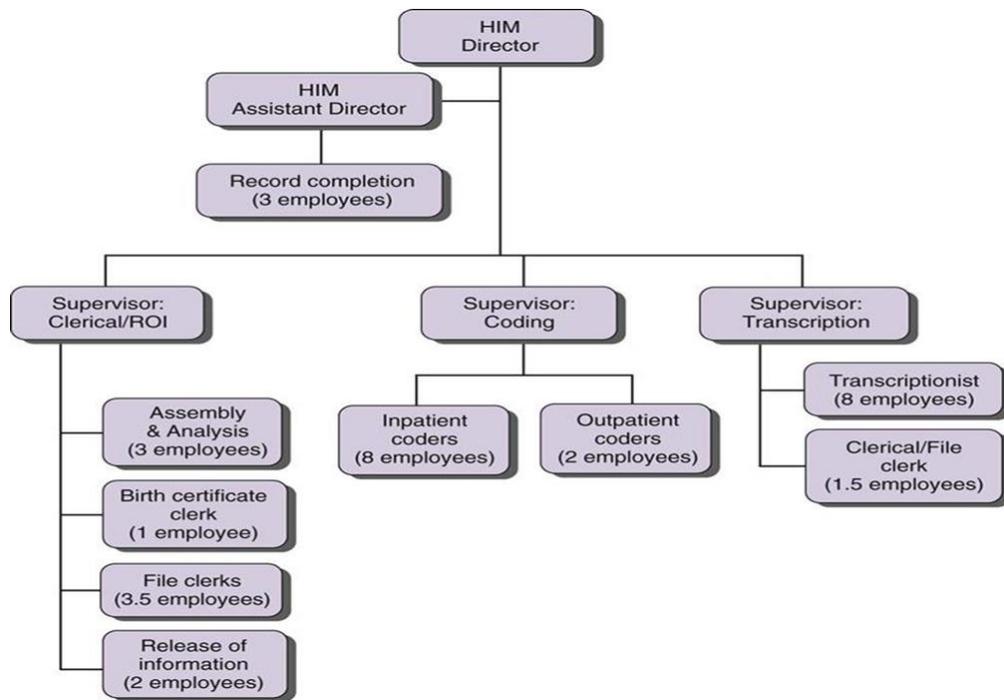


Figure 2: Health information management department organization chart. (Nurse's Key, 2017)



Figure 3: Health Information technologies engage.ahima.org (Dashkiewicz, 2016).

Organisational Manuals

The departmental manager must set goals and objectives and provide scope and direction for his/her staff. He or she must be a good leader, a good listener and a good planner. The department must have a clear set of policies and written procedures.

Policies provide guidelines for decision making; they define the area in which decisions are made but do not provide the manager with the decision. Thus, the policies aid the manager in the decision making process.

Procedures

A procedure is a series of related steps designed to accomplish a specific task. The health information manager is responsible for planning the department's procedures and providing for a standardisation of work tasks within the health information department. Each procedure must be carefully planned to help with productivity and reduce time and effort.

When establishing procedures the following points should be considered:

- Determine all the steps required for a procedure and use only the minimum needed to carry out the procedure
- Determine the best sequence for the performance of each step in the procedure
- Review procedures which might be affected by changes in other procedures
- Test a procedure before putting it into everyday use
- Evaluate the procedure after it has been used for several weeks.

All procedures should be written and updated regularly to eliminate redundancy.

Organisational Change and Development

Change is an integral part of the work of any organisation and health information specialist must be prepared for change within the facility and within the functioning of their own department. They must learn to deal positively with resistance to change. This would require the following:

- Continued in-service education programmes for staff
- Open lines of communication between staff and the health record officer
- Participation and involvement of staff in planned change
- Facilitations and support of staff during and after a planned change
- Negotiation and agreement with staff relating to changed work conditions and other issues
- Co-operative work performance both from management and staff
- Constructive feedback between management and staff

Developing Human Resources

Staffing and human resource management is the process of assuring that competent workers are selected, trained and rewarded for their assistance in helping the facility and department achieve their objectives. Being effective in this area also includes providing a work climate in which employees can experience satisfaction and development. Developing human resources, therefore, includes:

- Employment planning
- Advertising for new staff

- Recruiting quality applicants
- Selecting the best person for the job
- Orientating the new staff member to the facility and the department
- Training and developing new employees
- Appraising work performance on a regular basis (at least once a year)
- Compensating the competent worker with the right remuneration.
- Enabling further education and training
- Offering career options

Employment Planning

Once the functions of the department have been determined, consideration should be given to the number of staff required. Hospital policy regarding the number of hours in the work week and the hours of service for the health record department (24 hours a day, seven days a week versus some other schedule) will be a major factor in this determination along with the functions to be performed, the number of annual discharges/deaths, outpatient department (OPD), accident and emergency (A&E) attendances (if A&E reports are incorporated in the unit record) and research undertaken by medical staff.

Forecasting

The next step is to forecast the number and type of staff required to perform each job. That is, the HIM needs to be able to predict the number of direct employee hours required to cover the jobs outlined in each job description.

Once the Health Information manager has determined the predicted number of discharges/deaths, and OPD/A&E registrations and attendances, and predicted specialised work, e.g. research, quality assurance, etc, he or she can then:

- Determine the functions of the department and services to other departments
- Determine the hours of service e.g. 24 hours x 7 days per week or less
- Define each function and determined the tasks to be performed
- Define how each task is to be divided into manageable work units or jobs
- Analyse each job to determine the content, skills, knowledge and responsibilities, and
- Prepare a job description and job specification for each job

There are a number of forecasting techniques used to cope with the problems involved with human resource forecasting. For our purposes, traditional statistical projection, could be used by using the correlation of staff to patient discharges/deaths and attendances. The time to process one health record of a discharged patient can be estimated as suggested in the following hypothetical example:

Collection of records from designated collection area	3 minutes
Pulling of work cards from the hospital box	1"
Assembling record into correct order	3"
Checking record for deficiencies and retrieval of loose sheets	3"

In case of re-admission, retrieval of old notes or if new patient, preparation of new folder	3"
Assigning record to appropriate doctors for completion	2"
Filing record in incomplete file area	2"
Filing work card in work box	1"
Filing out-guide on file	2"
<hr/> Total	<hr/> 20 minutes

By the above calculations, it is estimated that the discharge procedure for each record takes 20 minutes. If there are 70 discharges/deaths per day for seven days, the total time to process these records would be:

$$70 \times 20 \times 7 = 9800 \text{ minutes or } 163.3 \text{ hours}$$

Assuming each clerk works 7.5 hours per day for five days, the number of staff required for this process would be:

$$\frac{163.3}{37.5} = 4.35 \text{ FTE}$$

That is, 4.5 full-time equivalent staff members would be required to complete the discharge procedure in a hospital with approximately 25,480 annual discharges/deaths.

A similar procedure could be undertaken for each job within the department using the prepared job descriptions.

Alternatively, another method would be to use a work distribution chart as illustrated below. By this method, previous information relating to departmental functions and jobs can be used to estimate the time each job takes. That is, by listing the work activities performed and the estimated time it takes to perform them, we can estimate the number of staff required as shown below.

Activity	Hours per week
Record assembly	106
Record analysis	50
Admissions	57
Filing recent discharge	18
Telephone/enquiries	16
Statistics	19
Coding	13
Indexing	25
Retrieval of records for Clinics	76
Typing discharge summaries	114

Medico-Legal correspondences	40
Filing	38
Research	36
Total	608

Based on a 37.5 hour work week, we can calculate:

$$\frac{608 \text{ hours of work}}{37.5 \text{ hours per person}} = 16.2 \text{ staff needed}$$

The Health Information manager could then indicate the actual staff required for each job, e.g.

Clinics and Filing	3
Typing Discharge Summaries	3
Medico-legal & Research	2
Separations & Enquiries	5
Coding & Indexing	1
Admission & Statistics	2
<hr/> Total	<hr/> 16

Relief staff based on estimated absences such as recreation leave, sick leave, etc. should also be determined, as should supervisory and professional staff requirements.

Job Design, Job Analysis, and Work Satisfaction

Individual work tasks must be organised into distinct jobs. This is part of what is normally referred to as job design.

JOB DESIGN involves specifying job content, work methods used for the job and the relationship between and among individual jobs within the department. Job descriptions can be used for performance appraisals/reviews.

Each job should be assembled into work units within the department. In turn, the combination of work units within the department must be logically combined to form an overall organisational framework. Finally, the design of individual jobs and work units within the department, as well as the overall framework of the facility must be related to the environmental influences within the community.

Identification of the work to be performed in each job provides an extremely important basis for planning personnel requirements. Because of its importance with regard to recruiting and selection, a job analysis should describe not only content, but also specifications.

A **JOB ANALYSIS** will help the HIM manager to determine the skills, knowledge and abilities required to do the job and at the same time clarify lines of responsibility and authority. When working through this process, it is important to remember that job content will alter with various changes in technology and the HIM manager must predict, wherever possible for future changes.

As mentioned previously, new roles have been created due to the transition from paper based health records to health information department/services. With the changes in technology, we

have noticed changes in the positions; either in the expansion of the previous job descriptions or creation of a new type of position. The following are examples of job descriptions of new roles in the health information department: (CHIMA, 2014)

Health Information Services Specialist

- Performs regulatory and accreditation review for the health information service department
- Summarizes findings and report results
- Provides technical and administrative assistance for other health information service
- Audits data systems to ensure data rules are being followed
- Develops policies to facilitate information integrity and to ensure availability needs are met
- Develops online forms “fit for use”
- Helps establish work flows that work in the virtual environment
- Helps to identify and address appropriate data uses
- Prioritises data needs and access of users

Inpatient/Outpatient Coder

- Reviews and interprets medical record information to accurately assign codes. For example using ICD-10, CPT-4 or ICHI codes.
- Appropriately utilizes encoder software and/or coding reference books.
- Responsible for understanding and accurately applying coding clinic guidelines.
- Abstracts codes and clinical information utilizing the coding software based on interpretation and collection of documentation in the electronic patient medical record on inpatient and/or outpatient medical records.

Clinical Documentation Specialist

- Collaborates with Care Management staff and clinicians to design accurate and efficient documentation processes
- Prompts clinicians regarding missing, unclear or conflicting record documentation as well as assists in obtaining additional documentation as needed.

Data Quality Analyst

- Collects, prepares and presents information related to client, provider and organization identification to support quality improvement and the reporting and funding needs of the organization
- Uses health informatics tools to gather, analyze and report identification, operational and administrative data
- Tracks and reports on key performance and quality improvement measures
- Collaborates with operations and administrative staff to monitor and evaluate quality improvement initiatives
- Performs data validation and reconciliation to ensure that data/records have been correctly matched across systems to the correct individual.

Release of Information Specialist

- Manages requests for medical records
- Ensures that patient requests are completed within strict deadlines.
- Reproduces protected health information using a variety of technologies, including, photocopiers, scanners and facsimiles.
- Ensures released information is in compliance with the countries' privacy regulations, laws and company guidelines.

Privacy Officer

- Monitors organizational information privacy compliance issues
- Works in collaboration with managers of technical information security to assess risks to health information security and privacy.
- Drafts information privacy policies and procedures and submit for approval and adoption by operational departments
- Develops training and monitoring programs to ensure employee awareness while complying with health information privacy policies and procedures
- Conducts staff training and evaluations of privacy compliance.

Compliance Officers

- Audit research investigator activities on site
- Review data collection screens to ensure required data is identified, defined and standardized
- Verify entries by validating accurate source documentation
- Review data security and protection of Protected Health Information and Personally Identifiable information
- Review informed consent forms for completeness and observe consenting procedures

Virtual HIM Staff

Advances technology such as faster internet connection, software applications and teleconferencing have led to the creation of virtual HIM departments. These departments can be at a remote site or a home office allowing for some HIM functions to be performed offsite. For example:

- Medical record coding and abstracting
- Medical record report dictation and transcription
- Medical record data collection and analysis
- Forms management (format and content) (Abrams & Gibson, 2013).

In the virtual department, the HIM manager would have to communicate by teleconferencing, e-mails or even instant messaging. Managers would monitor the work being done by using work queues or sampling of the work being done. The work can even be outsourced to a vendor. HIM managers would have to make different arrangements for the orientation of new staff and ongoing education of existing staff in these virtual departments. The right choice for staffing is also important. The staff must be self-disciplined and self-motivated. They must be able to work alone (Abrams & Gibson, 2013), (Leading by Example, 2018).

If the HIM manager is involved in planning a health information department/services for a new hospital he or she will rely heavily on their skills and knowledge of health information management which will enable them to design the anticipated jobs and conduct a job analysis. If the department is being redesigned in an existing hospital, the HIM manager will need to analyse existing jobs within the old department and predict future changes. The tools used in the second case could be a combination of observation and an interview with each staff member.

Once the manager has done a job analysis on the different positions in the department, he/she has to manage and measure the workload and productivity of the HIM department. Each department and sub-department must understand its workload and the method for completing the workload. Each manager should understand the factors that affect their department's workload. For example:

- Type of patient (outpatient, inpatient emergency patient),
- Los (length of stay),
- How many patients being discharged;
- Time it takes for the doctor to complete the chart.
- How many requests for information and the facility deadlines

Each HIM department job description will require standards that must be met according to the facility, national or international standards. For example:

- Coding and abstracting may have to be completed in 48 to 72 hours.
- Chart completion may have to be done within 24 to 48 hours of discharge
- Transcription of operative reports have to be completed by 6 hours of dictation.

If there are no standards set for the timely completion of the workload, it is up to the manager to set standards for the department. For example, if a patient requests some health information from their health record how long would they have to wait for the information?

Improving Job Satisfaction

There are many factors that affect an employee's work satisfaction. Factors such as:

- Variables relating to the work of an employee.
- Individual differences among employees
- Differences in abilities
- Differences in attitudes and personnel adjustment
- Differences in perceptions of equity
- Differences in occupational prestige

To improve an employee's jobs satisfaction, jobs should be designed to be more motivational and satisfying. This is known as job enrichment. Employees are given more autonomy, responsibility and are more involved in the decision making process. It provides employees with the opportunity to make greater use of their knowledge and skill by becoming more involved in planning, directing and controlling the work of their jobs. Job enrichment may include delegating to a work group greater authority for self-management. It also may include improving communications to the extent that employees are made more aware of the fact that good performance will be recognised and will contribute toward the attainment of both personal and

organisational goals. The basic contribution of job enrichment, therefore, is to make their work more meaningful and to provide employees with a greater sense of responsibility and the better knowledge of the results of their endeavours. People are willing to work harder at tasks they find enjoyable and rewarding (Cliff's Notes, 2016).

Today with the transition from Health Records to Health Information department and with the aid of technology, the health information professional may not find the work as boring and unsatisfying. It is said that the employees experience a renewed job satisfaction and increased skill levels (Huffman, 1994)

C: LEADERSHIP

There is managing and then there is leading. A manager is looking at the department's efficiency and its ability to achieve outcomes. Leaders are more involved in visions, inspiring and influencing their staff/co-workers to work towards a particular goal or outcome. In an HIM department, you need a manager who is also a leader. According to Leading by Example (2018) research has determined that effective leaders are those who are able to address the needs of the organization as well as the human needs. HIM managers should strive to be "transformational". They should be visionary, motivational and charismatic. The transformational leader communicates to their followers (staff) the overall organizational or departmental vision that needs to be accomplished. They should convince their staff to have a personal stake in the achievements of the department (Nurse's Key, 2017).

D: CONTROLLING

This is the process of ensuring the efficient use of resources and achieving the objectives of the facility. It involves:

1. **Establishing standards** of performance for staff and self. For example establishing performance indicators (PI). Performance indicator is "a particular value or characteristic designated to quantify input, output, outcome, efficiency or effectiveness" (Abdelhak, Grostick, & Hanhen, 2012, p. 444). Indicators can be expressed in quantitative measures such as a percentage, ratio or a rate. In a health information department a performance indicator could be a standard set for the amount of abstracting that must be completed per day or ROI request that should be completed by a certain deadline.
2. **Comparing current performance** against established standards to determine the department progress toward the set objectives. Measurement of performance can be done by observation, surveys, reports and audits.
3. **Taking action.** Actively working to reinforce a high quality of services by the department and correcting any shortcomings or problems as they occur.

An HIM manager needs a good Quality Management (QM) program in order to control his/her department. This means the QM program should focus on the work to be done; opportunities to improve processes; teamwork; managerial commitment and the use of quality improvement tools.

E: PROBLEM SOLVING

Problem solving is one of the most important functions of a manager, particularly within a very busy health information department. When problems arise they must be dealt with efficiently and effectively and should NOT be handled lightly or ignored. A HIM manager can use the six steps of problem solving

1. Define the problem
2. Determine the root cause(s) of the problem (analyzing the evidence)
3. Develop alternative solutions
4. Select a solution
5. Implement the solution
6. Evaluate the outcome (Newton & Bristol)

SUMMARY

In this unit we have discussed planning the location, space, layout, security, and services in a health record department. We have discussed how managers implement workload and productivity standards to accomplish goals. The health information manager should set objectives for the services of his or her department and continually work towards:

- Improving work performance of staff
- Improving work satisfaction
- Planning and implementing change
- Improving the layout of the department
- Organising effective and efficient work flow
- Setting standards of work performance for staff
- Directing the services of the department to see that all services offered by the department are readily available for patient care at all times.

REFERENCE MATERIAL: In 2006 Phyliss Watson wrote a Manual for the World Health Organisation entitled “Electronic Health Records: Manual for Developing Countries”. This manual is still a very good reference in 2018 and in particular, the manual has been designed as a basic reference for use when exploring the development and implementation of Electronic Health Record (EHR) systems. It provides a general overview, some basic definitions and examples of EHR practices. It also covers points for consideration when moving towards the introduction of an EHR, some issues and challenges which may need to be addressed and some possible strategies, along with steps and activities to implementation. There is a particular focus on setting goals, revising policies, developing an action plan and outlining implementation procedures.

Electronic health records are a complex issue and the information in the manual is presented in a simple, concise and straight-to-the-point fashion, intended as an introductory reference for the topic. For those who want more detailed information there is a wealth of literature available if they wish to read more deeply on the subject.

REVIEW QUESTIONS

1. How will HIM roles change as hospitals and health care facilities transition to EHR systems?

2. If the facility chooses to implement an EHR, what factors will influence the decision to build a data centre or contract the services of a cloud storage provider?
3. What are some defensive actions that can be taken to stop unauthorized access to personal health information before it occurs?
4. Using the 9 steps on page 7, how would you create a cybersecurity plan that addresses a phishing event?
5. Why is planning and organising so important for a health information manager?
6. Draw an organisation chart of a health facility and of a health information management department.
7. Draw a flow chart to indicate the flow of activities in a health information management department.
8. Calculate the number of staff required in a particular position within the department
9. Create a job analysis for one of the positions within the department.
10. Identify a problem within the department and solve it using the six step of problem solving.

ABBREVIATIONS

A&E	Accident & Emergency
AHIMA	American Health Information Management Association
BBU	Battery Backup Units
CHIMA	Canadian Health Information Association
CPT 4	Current Procedural Terminology 4th edition
EDMS	Electronic Document Management System
EHR	Electronic Health Records
ESD	Electrostatic discharge
HI	Health Informatics
HICT	Health Information and Communications Technologies
HIM	Health Information Management
ICD -10	International Classification of Diseases 10 th revision
ICHI	International Classification of Health Interventions
IoT	Internet of Things
IT	Information Technology
LAN	Local Area Network
Los	Length of stay
MPI	Master Patient Index
MRI	Magnetic Resonance Imaging
OPD	Outpatient Department

PI	Performance Indicators
QM	Quality Management
RAM	Random access memory
ROI	Release of Information
UPS	Uninterrupted Power Supply

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REFERENCES:

- Abdelhak, M., Grostick, S., & Hanhen, M. A. (2012). *Health Information: Management of a Strategic Resource*. (F. Edition, Ed.) St. Louis, Missouri, USA: Elsevier.
- Abrams, K., & Gibson, C. (2013). *Fundamentals of Health Information Management* (Second Edition ed.). Ottawa, ON: Canadian Healthcare Association.
- AHIMA Work Group. (2003). *Electronic Document Management as a Component of the Electronic Health Record*. American Health Information Management Association.
- Annecharico, M. A. (2015). IT infrastructure and implications: Cloud computing and data. *Journal of Healthcare Information Management*, 29(1), 4-5. Retrieved from http://www.jhimdigital.org/jhim/winter_2015?pg=1#pg1
- Aravind Eye Care Systems. (2007). *Medical records management in eye care services -A practical guide*. Tamilnadu: Aravind Eye Hospitals & Postgraduate Institute of Ophthalmology. Retrieved from http://www.aurosiksha.org/ebook/medical_records_chapter3.html
- ASHRAE Technical Committee. (2016). *Data centre power equipment thermal guidelines and best practices*. American Society of Heating, Refrigeration, and Air-Conditioning.
- Canadian Health Information Management Association. (2018). *Cybersecurity*. CHIMA.
- Carr, R. F. (2017). *Whole Building Design Guide: Hospital*. Washington DC: National Institute of Building Sciences. Retrieved from <https://www.wbdg.org/building-types/health-care-facilities/hospital>
- CHIMA. (2014, January). *Electronic Health Record Career Opportunities for Health Information Management Professionals*. Canadian Health Information Management Association.
- Cliff's Notes. (2016). *Study Guides: Principles of Management: The Organizational Process*. (H. M. Harcourt, Producer) Retrieved November 05, 2018, from Cliff's Notes: <https://www.cliffsnotes.com/study-guides/principles-of-management/creating-organizational-structure/the-organizational-process>
- Dashkiewicz, J. (2016, June 16). HIM Organizational Chart. Retrieved November 05, 2018, from <https://engage.ahima.org/communities/community-home/digestviewer/viewthread?MessageKey=b171d9a7-4cb4-4a1e-9702->

375defd4ca0c&CommunityKey=26789648-6b45-4d31-b53e-a17dc7a055ad&tab=digestviewer#bmb171d9a7-4cb4-4a1e-9702-375defd4ca0c

- Department of Health. (2013). *Core elements 00-03: Clinical and Clinical support spaces*. National Health Service. UK Government. Retrieved 10 18, 2018, from <https://www.gov.uk/government/collections/health-building-notes-core-elements>
- Department of Health. (2013). *Health Technical Memorandum 08-01: Acoustics*. National Health Service. UK Government. Retrieved 10 16, 2018, from <https://www.gov.uk/search?q=Specialist+Services+Health+Technical+Memorandum+08-01%3A+Acoustics>
- Department of Health. (2014, March). *Health Building Note 00-01: General design guidance for healthcare buildings*. UK Government, National Health Service. UK Government. Retrieved October 8, 2018, from Gov.UK web site: <https://www.gov.uk/government/collections/health-building-notes-core-elements>
- Dimick, C. (2007). HIM manager, non-HIM staff: Managing staff with expertise beyond HIM. *Journal of AHIMA*, 78(9), 42-44, 46, 48, 50. Retrieved November 05, 2018, from <http://library.ahima.org/doc?oid=74248>
- Dinardo, A. (2014, August 24). Healthcare data centers: Carrying the load. *Healthcare Design*. Retrieved October 12, 2018, from <https://www.healthcaredesignmagazine.com/trends/architecture/data-centers-carrying-load/?hilite=%252>
- Doe, R. J. (2015). Cloudy days: Your cloud vendors' disaster recovery obligations. *Journal of Healthcare Information Management*, 29(1), 12-13. Retrieved from http://www.jhimdigital.org/jhim/winter_2015?pg=1#pg1
- Fitch, J. (2012). *Dell's next generation servers: Pushing the limits of data center cooling cost savings*. Enterprise Reliability Engineering. Dell.
- Gelman, J. S. (2015). A holistic roadmap to the cloud: How to plan, navigate and arrive safely and securely. *Journal of Healthcare Information Management*, 29(1), 28-33. Retrieved from http://www.jhimdigital.org/jhim/winter_2015?pg=1#pg1
- Global Health Workforce Council. (2015, June 30). Retrieved 10 12, 2018, from IFHIMA: https://ifhima.org/wp-content/uploads/2018/01/AHIMA-GlobalCurricula_Final_6-30-15.pdf
- Gupta, S. K., Kant, S., Chandrashekhar, R., & Satpathy, S. (2007). *Modern Trends in Planning & Designing of Hospitals (Principles & Practice)* (First Edition ed.). new Delhi: Jaypee Brothers Pvt. Ltd.
- HIMSS. (2018). *Cybersecurity Survey*. Healthcare Information and Management Systems Society. Retrieved from <https://www.himss.org/2018-himss-cybersecurity-survey>
- Huffman, E. (1994). *Health Information Management* (10th Edition ed.). Berwyn, Illinois: Physician's Record Company.
- Job Hero. (2018). *Resumes: Administrative and Clerical*. Retrieved November 05, 2018, from Job Hero: <https://www.jobhero.com/resume-samples/release-of-information-specialist>
- Leading by Example. (2018). *21 Surprising Facts About Leadership*. Retrieved from Leading by Example: <https://www.mastersinleadership.org/21-surprising-facts-about-leadership-research.html>

- Newton, P., & Bristoll, H. (n.d.). *Top 5 Problem Solving Tools*. Psychometric Success Ltd. Retrieved November 5, 2018, from <http://www.free-management-ebooks.com/news/six-step-problem-solving-model>
- Nigrin, D. (2017, June 06). Episode 10: How to Survive a Hacker Attack. Code Red: HIMSS' Cybersecurity Podcast. Retrieved October 13, 2018, from <https://www.himss.org/library/podcasts/episode-10-how-survive-hacker-attack>
- Nooteboom, E. (2014, November 18). *VitalBlog: VitalHealth Software*. Retrieved November 6, 2018, from VitalHealth Software: <https://www.vitalhealthsoftware.com/vitalblog/vitalblog-us/2014/11/18/workflow-in-healthcare>
- Nurse's Key. (2017, March 15). *Chapter 13: HIM Department Management*. Retrieved November 05, 2018, from Nurse's Key: <https://nursekey.com/him-department-management/#s0040>
- Office of the Access to Information and Privacy Commissioner. (2014). *Guide to preserve vital and critical records during an emergency or disaster*. Government of New Brunswick. Retrieved October 18, 2018, from <http://www.oic-bci.ca/best-practices-phi.asp>
- Servais, C. (2009, March). Virtual HIM: Considering the transition to remote departments. *Journal of AHIMA*, 80(3), 38-42. Retrieved November 05, 2018, from <http://bok.ahima.org/doc?oid=89199>
- Wang, L. (2017). Big Data in Intrusion Detection Systems and Intrusion Prevention Systems. *Journal of Computer Networks*, 4(1), 48-55. doi:10.12691/jcn-4-1-5
- Wikiquote. (2018, October 29). *Bill Gates: Wikiquote*. Retrieved from Wikiquote: https://en.wikiquote.org/wiki/Bill_Gates
- World Health Organisation. (2006). *Electronic Health Records: Manual for Developing Countries*. Library Cataloguing in Publication Data. WHO.

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