

# CORE HEALTH INFORMATICS EDUCATION MODULES AND LEARNING OBJECTIVES

A detailed look at  
the content of  
Digital Health Canada  
**Education Modules**

# Take a deep dive into the Digital Health Canada Core Health Informatics Education Modules

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# MODULE 1

## The Canadian Health System

### The Canadian Healthcare System

- Understand health and health systems in Canada and appropriately apply information to products and services, including key characteristics of the Canadian health system, determinants of health, and key factors affecting healthcare
- Understand challenges related to the adoption and realization of clinical value of information systems in the health sector
- Balance privacy of personal health information with improved care delivery and health system management
- Ensure safe and appropriate use of health information technologies to ensure patient safety
- Understand how HI benefits are realized and measured in the Canadian healthcare system



## MODULE 2

# Healthcare Environment; Clinical and Health Services

### The Healthcare Environment

- Different types of Canadian healthcare delivery models across the continuum of care and their interrelationships
- Characteristics and services of different types of healthcare organizations
- Roles of governmental, regulatory, professional, and accreditation agencies and their impact on clinical outcomes and financial performance
- How people, resources and information flow through the health system
- Characteristics of interrelationships within and across healthcare organizations
- Roles and relationships of health professionals along with the organizational and regulatory structure in which they work
- Roles & responsibilities of health professionals and workflow in the environments where they work.

### Clinical and Health Services

- Apply knowledge of basic clinical and biomedical concepts, clinical care processes, technologies and workflow for purposes of analysis, design, development and implementation of health information systems and applications
- Understands basic clinical terminology and commonly used abbreviations and acronyms
- Recognize commonly used formats, structures and methods for recording and communicating clinical data and how these are incorporated into system and application use
- Foster the adoption and use of health information systems in clinical settings
- Facilitate appropriate consumer use of health information and communication technologies
- Assess and mitigate clinical safety risks associated with health information and systems throughout the system life cycle
- Facilitate clinicians' use of electronic decision support tools in accessing evidence to support practice

# MODULE 3

## Information Management; Analysis and Evaluation

### Information Management

- Advance the management of information as a key strategic resource
- Demonstrate an understanding of the key attributes of data and information (e.g. quality, integrity, accuracy, timeliness, appropriateness) and their limitations within the context of their intended uses
- Determine appropriate data sources and gaps in data sources in relation to identified business needs across the healthcare system
- Demonstrate an understanding of the data interrelationships and dependencies among the various health information systems
- Demonstrate an understanding of the implications of ethical, legislative, and regulatory requirements related to the management of health information
- Apply accepted policies, principles and guidelines for the management of health information
- Employ data management practices
- Demonstrates an understanding of relevant health information standards and their appropriate use
- Apply appropriate health informatics standards and enterprise models to enable system interoperability (e.g., terminology, data structure, system to system communication, privacy, security, safety)
- Integrates data quality principles and methodologies into the identification, use and management of information sources

### Analysis & Evaluation

- Identify and frames information queries in collaboration with stakeholders in order to meet their needs for analysis and interpretation of data
- Identify relevant sources of data and information in order to assess the quality of information, and draw appropriate conclusions
- Demonstrate an understanding of appropriate analytical and evaluation techniques and concepts (e.g., qualitative and quantitative methods, basic statistical and epidemiological techniques, indicators and evaluation measures)
- Demonstrate knowledge of indicators and metrics for healthcare delivery and systems management
- Contribute to quality analysis by organizing and transforming data into reliable and meaningful information for diverse audiences.
- Present data and information in a way that is effective for users
- Present information and concepts using audience-appropriate communication and language
- Present interpretations and recommendations of data analyses to decision makers



## MODULE 4

# Organizational & Behavioural Management; Operations Management

### Operations Management

- Differentiate the roles and responsibilities of healthcare information and management systems professionals within the organization structures in which they work
- Define roles, responsibilities, and job descriptions for IT-related functions
- Manage projects and portfolios of projects (e.g., initiate, plan, execute, control, close)
- Manage relationships with vendors (e.g., contract cost, schedule, support, maintenance, performance)
- Facilitate steering committee meetings and/or topics
- Assure adherence to industry best practices (e.g., change control, project management)
- Maintain system, operational, and department documentation
- Provide customer service (e.g., service level management, request tracking, problem resolution)
- Manage budget and financial risks
- Manage customer relationships with business unit leaders





## MODULE 5

# Information Technology; Systems Requirements and Analysis

### Information Technology

- Demonstrate an understanding of key information technology concepts and components (e.g., networks, storage devices, operating systems, information retrieval, data warehousing, applications, firewalls, etc.)
- Articulate characteristics of technology infrastructure that support the healthcare environment (e.g. network, communications, data integration, privacy and security)
- Articulate characteristics of applications commonly used in healthcare (e.g. clinical, administrative)
- Contributes to the selection and utilization of appropriate information technologies to meet business requirements
- Demonstrate an understanding of architectural relationships between key health information technology components (e.g., the Infoway EHRS blueprint) and best practices in enterprise architecture frameworks/perspectives.
- Analyze future trends in healthcare and technology to anticipate how technology and IT services evolve to meet changing needs
- Evaluate existing and emerging technologies to support organization's future growth and strategy
- Apply information technology best practices (e.g., quality management systems, testing, service level agreements, business continuity and incident management) throughout the system life cycle.

*continued*



# MODULE 5 (continued)

## Information Technology; Systems Requirements and Analysis

### System Analysis & Evaluation

- Engage relevant stakeholders at the appropriate stages of the system life cycle
- Address information, business, and technical requirements to meet the full range of stakeholders' information needs.
- Define the problem or opportunities
- Conduct a needs analysis
- Define and prioritize requirements
- Apply knowledge of health data, information and workflow models to IT solutions
- Analyze current business and clinical processes (e.g., process mapping, flow diagramming, gap analysis)
- Formulate alternate processes and potential solutions
- Evaluate if a proposed solution aligns with the organization's strategic and operational plans
- Perform cost-benefit analysis to evaluate impact on issues related to healthcare systems
- Develop proposals that include recommended approaches and solutions, and plans for realizing benefits
- Perform gap analysis to evaluate where current systems can be enhanced
- Organization & Behaviour Management
- Apply the basic theories, concepts and practices of management
- Contribute to organizational plans and strategies; Promotes an information culture
- Facilitate self, individual, team and organizational learning and development
- Assure staff competency in information and management systems skills
- Apply best practices in quality improvement and process engineering
- Contribute to ongoing evaluation of the functionality of systems
- Apply best practices of change management
- Employ organizational change management techniques in support of solution implementation
- Promote and apply problem solving and quality improvement methodologies, analytical tools to optimize systems function, organizational change management techniques
- Integrate Digital Health Canada's ethical principles into daily practice

# MODULE 6

## System Design, Selection & Procurement; Project Management; Implementation Support and Maintenance

### System Design, Selection & Procurement

- Identify system designs to accommodate business processes
- Develop requests for information and/or requests for proposals
- Facilitate solution selection criteria
- Select and review team members
- Ensure compatibility of software, hardware, network components, and medical devices
- Ensure compliance with applicable industry, regulatory, and organizational standards
- Ensure a process exists to incorporate industry, technology, infrastructure, legal and regulatory environment trends
- Design an information infrastructure that supports current and anticipated business needs (e.g. business continuity and disaster recovery)
- Conduct solution selection activities (e.g. demonstrations, site visits, reference checks)

### Project Management

- Apply project management principles and best practices (e.g. project charter, scope, life cycle, budgets, resourcing, timelines, milestones, monitoring, status reports)
- Work collaboratively and contributes to project planning, implementation, monitoring & evaluation
- Manage projects and/or resources, including: assessing resource requirements (e.g., space, personnel, environmental, communication, productivity), utilizing project management skills and tools, conducting a risk assessment, facilitating project status and business value assessments, facilitating change management, controlling scope, schedule, and budget of project, maintaining project materials and documentation & developing implementation strategies
- Anticipate issues and opportunities and mitigates risks associated with projects

### Implementation Support & Maintenance

- Provide knowledge transfer through user and operational manuals and training
- Execute the implementation of solutions
- Integrate systems to support business requirements
- Manage healthcare information systems (e.g., operate, upgrade)
- Analyze data for problems and trends (e.g., error reports, help desk logs, surveys, performance metrics, network monitoring)
- Prioritize issues to ensure critical functions are repaired, maintained, or enhanced
- Develop system and personnel downtime procedures





# MODULE 7

## System Testing and Evaluation; Privacy and Security

### System Testing & Evaluation

- Design a formal testing methodology to demonstrate that solutions meet functional requirements (e.g. unit, integrated, stress & acceptance tests)
- Implement internal controls to protect resources and ensure availability, confidentiality and integrity (e.g. security audits, versioning & change control)
- Validate implementations against contractual terms and design specifications
- Corroborate that expected benefits are achieved (e.g., return on investment, benchmarks, user satisfaction)
- Validate security features in the evaluation of existing and new systems
- Developing a privacy program
- Test plan development, strategy, tools & evaluation

### Privacy and Security

- Apply best practices and solutions required to manage the security of data, systems, devices and networks (e.g. Digital Health Canada Guidelines for the Protection of Health Information) Participate in defining organizational privacy and security requirements, policies and procedures
- Assess privacy and security risks
- Ensure data confidentiality, integrity, availability
- Mitigate privacy and security vulnerabilities
- Ensure user access control according to established policies and procedures
- Develop data management controls (e.g., data ownership, criticality, security levels & protections, retention & destruction requirements, access controls)
- Validate disaster recovery and business continuity plans
- Incorporate solution into organizational disaster recovery and business continuity plans
- Coordinate privacy and security audits
- Define organizational roles (e.g., information security, physical security, compliance)
- Privacy & security Risk Management tools
- Business Continuity and Disaster Recovery Plans



## MODULE 8

# Leadership/Management

### Leadership

- Participate in organizational strategic planning (e.g. measure performance against organizational goals)
- Assess the organizational environment (e.g., corporate culture, values, and drivers)
- Forecast organizational technical and information needs by linking resources to business needs
- Develop an IT strategic plan and departmental objectives that align and support organizational goals and strategies
- Evaluate performance (e.g., goal/performance indicators, systems effectiveness)
- Evaluate effectiveness and user satisfaction of systems and services
- Promote stakeholder understanding of information technology opportunities and constraints (e.g. business & IT resources, budget, project prioritization)

### Management

- Develop policies and procedures for information and systems management
- Legal and regulatory standards compliance
- Ethical business principles
- Comparative analysis strategies (e.g., indicators, benchmarks)
- Prepare and deliver business communications (e.g., presentations, reports, project plans)
- Facilitate group discussions and meetings (e.g., consensus building, conflict resolution)
- Provide consultative services to the organization on IT matters
- Develop educational strategies regarding the information and management systems function
- Maintain organizational competencies on current IT technologies and trends
- Ensure risk management is embedded and consistently applied in internal and external management processes (e.g. risk assessment & mitigation)
- Quality standards and practices followed by monitoring internal and external performance

Digital Health Canada connects, inspires, and educates the digital health professionals creating the future of health in Canada. Our members are a diverse community of accomplished, influential professionals working to make a difference in advancing healthcare through information and technology. Digital Health Canada fosters network growth and connection; brings together ideas from multiple segments for incubation and advocacy; supports members through professional development at the individual and organizational level; and advocates for the Canadian digital health industry.