A PHYSICIAN'S GUIDE TO CLINICAL DOCUMENTATION IMPROVEMENT: ALIGNING CDI TO HEALTH INFORMATION PRACTICE

Written by A. Asif Jiwani, N. Baldawi, J. Cheung, G. Damianakis & Z. Wang

In partnership with the Canadian Health Information Management Association

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Executive Summary

The field of clinical documentation improvement (CDI) is emerging alongside the need for more accurate health information that is reflective of the health status of Canadians. Health information management professionals play a critical role in the collection, transformation, protection, and distribution of clinical documentation. The quality of health data is dependent on the physician's specificity in the documentation of patient health records, as this information is converted into data by coding specialists. Coded medical information provides important insight surrounding the severity of disease and expected length of stay for patients in the hospital, a hospital's mortality rate, and other metrics which directly impact funding, nationally reported indicators, policy-making, and ultimately patient care. Therefore, it is a physician's responsibility to present accurate, comprehensive health documentation using proper terminology. Improved health data can be achieved through the implementation of a successful CDI program, which comes with benefits for physicians, medical coders, hospitals, healthcare organizations, and most importantly – the patients. This guide highlights the benefits of CDI programs and the importance of physician documentation in the production of accurate and reflective health data. The engagement of physicians is integral in the success of a CDI program and can be efficiently achieved through the involvement of key physician stakeholders, termed 'physician champions. In the long-term, clinical documentation improvement can ensure complete patient health information, benefitting the lives of Canadians today and into the future.

The Health Information Profession

Overview of health information management professionals

Health information management (HIM) professionals and specialists are experts in the field of health information management who are responsible for the transformation of clinical health data into valuable and accurate information that impacts patient quality of care, policy decision making, and funding distribution across Canada (*Health information overview,* 2021). They are also responsible for the collection, protection, and accessibility of health information. Health information management professionals earn a Certified in Health Information Management (CHIM) designation through the Canadian College of Health Information Management (CCHIM) after successful completion of the CHIM national certification examination (NCE) (CCHIM, 2023). Certified HIM specialists in coding, terminology standards, and clinical documentation

improvement (CDI) have knowledge and skills encompassing various scientific fields, including the biomedical, information, and technology sciences (Canadian Society for Medical Laboratory Science, 2021). Some specific roles include the following: clinical data and business analysts; data mapping and health information technology specialists; and coding and CDI specialists (Canadian Society for Medical Laboratory Science, 2021).

What is the role of a health record coder?

Health record coders are responsible for classifying and assigning an alphanumeric code to the diagnoses and interventions documented in patient charts (Canadian Society for Medical Laboratory Science, 2021). Most medical coders have earned their CHIM designation or have completed, at minimum, a diploma program, associate degree, or bachelor's degree – typically in health care administration or health information management. Certified classification and coding specialists (CCCS) are expert health record coders who have received professional designation through the Canadian College of Health Information Management. CHIM professionals can achieve their CCCS designation after at least 5 years of experience with classification and coding in acute inpatient care (CCHIM, 2021).

Health record coding specialists convert medical records into useful codes using established classification systems based on guidelines provided by the Canadian Institute for Health Information (CIHI). The system used for diagnoses is the International Classification of Diseases, 10th Revision (ICD 10-CA), while the system used for procedures is the Canadian Classification of Health Interventions (CCI).

Coded clinical, demographic, and financial data are then collected and recorded in databases by the medical coders. This recorded data directly impacts patient health outcomes, resource utilization, health planning, insurance reimbursement, research measures, and other metrics (Canadian Society for Medical Laboratory Science, 2021). Therefore, the specificity of recorded clinical documentation is essential for the proper translation of health information into accurate coded data.

Role of clinical documentation improvement specialists

Certified clinical documentation improvement specialists (CCDIS) review health records from both clinical and coding perspectives with the goal of increasing the accuracy and completeness of medical documentation to improve patient quality of care, refine case mix groups, and improve the allocation and utilization of primary care facility resources (CCHIM, 2021). These HIM specialists have extensive knowledge surrounding principles of clinical documentation, quality metrics, coding standards, and the provincial funding system (Grant et al., 2018). **Some additional key roles of CDI specialists include:**

- Providing chart reviews on clinical documentation with suggestions for improvement

- Implementing solutions to ensure data quality is not compromised and to avoid legal implications, privacy breaches, or inadequacies in patient care (*Health information overview,* 2021)
- Communicating with providers and healthcare teams to promote improved documentation in terms of patient diagnoses and procedures, comorbidities, severity of illness, and treatment plans
- Educating physicians, residents, clinical clerks, healthcare teams, and coders

Education and credentials of CDI specialists

Clinical documentation improvement specialists are certified through the Canadian College of Health Information Management and receive a CCDIS professional designation. Candidates typically require a minimum of 3 years of experience in a healthcare setting, clinical documentation improvement, or in health information management to be eligible to apply for a CDI specialist program (CCHIM, 2021). These programs involve the completion of a series of modules within a maximum of 12 months, covering topics in the following: clinical documentation improvement; coding guidelines; anatomical systems and medical conditions; the query process; and how to review and analyze charts (3M Canada, 2023).

CDI specialists can be experienced coders, who have expert knowledge of coding guidelines, or can be former healthcare professionals. Former registered nurses and physicians can use their clinical experience and critical thinking skills to discern documentation for greater specificity and completeness. Together, the HIM coder and registered nurse review the documentation to tell the patient's story most accurately through the coding process.

To maintain this certification, CDI specialists must uphold the following requirements (CCHIM, 2021):

1. Renewal of membership with the Canadian Health Information Management Association (CHIMA) annually
2. Sustain accordance with the Canadian College of Health Information Management's professional code of ethics
3. Participation in mandatory continuing profession education (CPE) and completion of required CPE credits according to the CPE cycle and policies

Introduction to Language and Methodologies Produced by CIHI

The Canadian Institute for Health Information (CIHI) is a not-for-profit organization that provides crucial information related to the Canadian health system. CIHI's vision and mandate reflect CHIMA's values of respect, integrity, and excellence in providing health information that improves the health of Canadians. Both CIHI and CHIMA share the same goal of improving data and decision-making to achieve better health care and population health. The Canadian Classification

of Health Interventions (CCI) is an intervention classification system developed and maintained by CIHI to be used in accompany with the ICD-10-CA disease classification system (CIHI, 2018). Having standard coding guidelines and universal key terms in Canada is crucial to having information being standardized. The following are a few of the key terms:

- **Most Responsible diagnosis (MRDx):** This is the primary diagnosis that is most responsible for the patient's stay in the hospital. The MRDx can be determined by identifying the condition responsible for the longest duration of stay or the most resource intensive condition. This may differ from the admitting diagnosis or discharge diagnosis. If there is no definitive diagnosis for the patient, then physicians are recommended to evaluate the patient's symptoms holistically to determine the condition requiring the longest length of stay or use of resources. A non-definitive diagnosis should be clearly indicated by physicians using the proper prefix (i.e., "Query" or "Likely").

- **Comorbidity:** The condition that coexists with the MRDx and meets one of the three following criteria of significance (CIHI, 2018):

    1. Requires treatment beyond maintenance of the pre-existing condition.
    2. Increases the **length of stay (LOS)** by at least 24 hours; and/or
    3. Significantly affects the treatment received.

- **Secondary Diagnosis:** Diagnosis for a condition where a patient may or may not have received treatment and does not meet the 3 criteria of significance. Secondary diagnosis can also include for ICD-10-CA codes assigned to provide supplemental details on a diagnosis (e.g., bacterial/viral infectious agents, family history of disease, etc.) (CIHI, 2018).

CIHI terminology and commonly used metrics

HIM specialists use a variety of metrics to quantify the resources occupied by a patient. The following can be used as performance metrics for hospitals and to help ministries of health make better health care decisions regarding funding allocation (e.g., towards research, planning and utilization purposes, etc.):

Resource Intensity Weight (RIW): Relative value measuring total patient resource use compared with average typical acute inpatients (CIHI, 2020).

Case Mix Groups (CMGs): Uses clinical and administrative data to place patients into statistically and clinically homogeneous groups to consolidate data and allow for better data analysis and modelling (CIHI, 2020).

Acute inpatient grouping (CMG+) methodology: Aggregates acute care in patients with similar clinical and resource utilization characteristics; in use since 2007 (CIHI, 2020).

Factors used in grouping methodology:

- Age Group
- Comorbidity Level
- Flagged Intervention
- Intervention Events
- Out-of-Hospital Intervention

Expected Length of Stay (ELOS): Expected acute length of stay in hospital for patients in a particular CMG+ (CIHI, 2020).

Average Acute Length of Stay (ALOS): Actual acute length of stay in the hospital of the patient (CIHI, 2020).

ALOS/ELOS: This ratio measures compares the "actual length of stay" versus the "expected length of stay" after adjusting for factors that affect in-hospital mortality (e.g., age, sex, or other conditions) and helps a hospital understand how efficiently their beds are being utilized (Alberta Health Services, 2017).

The Patient's Health Record: Importance and Impact

Overview of health records: what is clinical documentation?

Clinical documentation consists of all the information provided by a clinician in a patient's chart, regarding the patient's medical condition and treatment. High-quality clinical documentation is essential for accurate health data that is representative of Canadians (*Clinical documentation: the foundation of health system data,* 2018*)*. To ensure accuracy, coders and CDI specialists review the entire health record, along with any allied health documentation.

Some examples of key clinical source documents include physician discharge summaries, consultation and admission notes, operative reports, and any other documentation surrounding patient pathology, medical history, and treatment progress.

What makes for good clinical documentation?

Complete and accurate clinical documentation includes details regarding admission diagnoses, physical examination and laboratory results, completed procedures, and comorbidities throughout the hospital stay. It is *essential* that the MRDx is documented in the discharge summary (CIHI, 2020). Any additional diagnoses treated during the hospital stay, interventions performed, and prescribed medications should be documented in the patient's chart. It is also important that any prescribed or administered treatments are correlated with the corresponding medical condition

(e.g., congestive heart failure was treated with Lasix 40mg IV b.i.d. for 2 days; Kayexalate was administered for hyperkalemia, with good effect). This level of specificity is crucial in ensuring the documentation is translated into accurate code.

High-quality discharge summaries should include the following (Ross, 2018):

- Reason for hospitalization, including descriptions of primary presenting condition and initial diagnostic evaluation
- Significant findings regarding the MRDx
- All comorbidities addressed during the current hospital stay
- Description of all procedures and treatments provided during hospital stay, along with the corresponding condition
- Patient health status upon discharge
- Any ordered homecare or follow up procedures

Benefits of high-quality clinical documentation

Proper documentation of clinical health records is critical to patients, physicians, and healthcare organizations. A lack of specificity and accuracy in clinical documentation directly impacts the data corresponding to patient ELOS, hospital mortality rates, publicly reported indicators, and other outcome metrics (Myrick, 2020). Therefore, ensuring medical documentation is complete guarantees more refined CMGs, appropriately allocated funding, and improved patient health outcomes.

High-quality documentation also ensures that there is no ambiguity with patient symptoms, diagnoses, or treatment (Myrick, 2020). The conversion of medical documentation into coded data becomes extremely difficult for health record coders when information is missing or incomplete, as coders are not legally qualified to make assumptions regarding medical information and must adhere to specific CIHI coding guidelines. Thus, physicians must accurately document the diagnosis before coders can capture it.

Inadequate clinical documentation, resulting from missing information or lack of specificity with regards to patient acuity, leads to higher readmission rates, an inaccurate ELOS, and insufficiencies in funding (Myrick, 2020). Medical documentation must accurately reflect the scope of patient diagnoses and course of treatment to ensure healthcare facilities are funded appropriately to provide high standards of care. In addition, health records must meet legal standards – incomplete or inaccurate clinical documentation surrounding patient care can result in legal actions taken towards clinicians and healthcare organizations and can result in license removal.

Introduction to Role of Physicians and Process of Coding Patient Records

Role of physicians in CDI

Physicians play a critical role in the accuracy and specificity of clinical documentation surrounding their patients. It is important that physicians recognize the impact that clinical documentation improvement (CDI) has on hospital data, funding, healthcare establishment reputation, and on patient care long-term. Despite common misconceptions, medical coding is not exclusively the responsibility of coding specialists. Accurate and reflective health information can only be achieved through close collaboration between physicians and CDI specialists; a process which begins with the physician's documentation of patient records.

Importance of physician participation in CDI

Achieving comprehensive and accurate patient records are the first step in the coding process of patient health information. The more accurately the documentation is completed by the physician, the fewer queries between the CDI specialist and physician are required. Clinical documentation improvement therefore increases productivity, saves time, and significantly contributes to increased coding accuracy. Recent studies show that only 60% of clinical documentation achieves a good documentation standard (Farhan et al., 2005). Often, clinical documentation does not provide a comprehensive picture of the patient's diagnosis, treatment, and length of stay. Furthermore, the severity of a disease and risk of mortality score are decided based on the diagnoses that are coded (Towers, 2013). Other factors impacted by CDI include the data regarding a patient's ELOS for a particular hospital's RIW and mortality rate (Grant et al., 2018).

Responsibility to document the most responsible diagnosis

When diagnoses are not complete, this can result in major inefficiencies in hospital resource allocation, often resulting in a loss of funding to various departments (Tang et al., 2017). Clinical documentation improvement is especially important when considering the role of medical coders in the conversion of patient information into coded data. Coders are restricted in their ability to interpret physician documentation by a set of strict guidelines established by CIHI. In other words, medical coders cannot make any assumptions based on lab values or clinical indicators for a patient's diagnosis in their code. For example, if a microbiology report states that a patient with a urinary tract infection has received a positive urine test result for *E. coli*, the coder cannot assume that the organism is associated with the urinary tract infection (Tang et al., 2017). In this case, the physician must document the organism with the resulting condition, i.e., "Urinary tract infection due to *E. coli*".

Additionally, the physician has a significant responsibility to include the MRDx for a patient, as this is an essential piece of information for the medical coders. Physicians will often document key symptoms, but not the actual diagnosis for a patient, which is required to ensure the diagnosis

is reflected in the coded health care data (Towers, 2013). It should also be noted that physicians often use different or inconsistent terminology and abbreviations from what medical coders are familiar with, which can lead to misunderstandings and inaccuracies in clinical coding (Tang et al., 2017). For example, the terms “bacteremia” and “sepsis” are often used interchangeably in discharge summaries, however they are coded differently and therefore reflect different RIWs (Huerta & Rice, 2018).

Process of coding patient records

For physicians, it may seem that the process of coding patient records ends with the completion of clinical documentation. However, transforming clinical information from the patient charts into coded data requires a series of processes, outlined below in **Figure 1**.

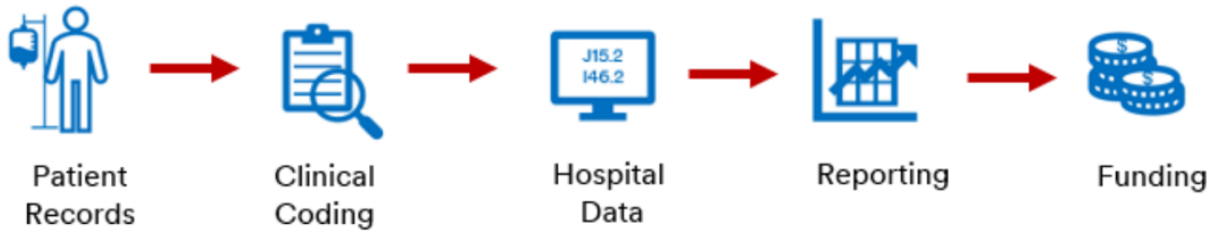

Figure 1. Overview of the process of coding patient records (Grant et al., 2018).

Steps in the medical coding process:

1. **Patient Records (Physician)**

The physician completes the chart and records, which must include the MRDx and all comorbidities affecting a patient’s hospital course from admission to discharge, and including treatment (Safian, 2019).

2. **Abstract the documentation (Coder)**

The medical coder will review all the documentation made by the physician.

3. **Code the diagnosis or diagnoses (Coder)**

In accordance with CIHI guidelines, the medical coder must determine the most accurate and specific code to reflect the diagnoses documented. It is important that the physician clearly identifies the MRDx to avoid ambiguity during coding.

4. **Code the procedure (Coder)**

Medical necessity justifies the provision of the procedure, service, or treatment in accordance with the standards of care – all of which influence funding and reimbursement decisions.

5. **Confirm medical necessity (Coder)**

Medical necessity is confirmed through the affiliation of diagnosis codes with the appropriate procedural codes. Evidence of medical necessity is an important part of clinical coding.

6. **Chart reviews and queries (CDI Specialist)**

Most CDI programs are retrospective, and therefore reviews and queries performed by the CDI specialist will occur after the coding is complete. If information in the clinical documentation is missing, inconsistent, or unclear, the CDI specialist will ask for clarification or additional information from the physician. It is very common for physicians to include incomplete documentation, resulting in the need for multiple queries (Safian, 2019).

How Physician Documentation and CDI Drives Coded Data Quality and Outcome Metrics

Scenario 1: How improved documentation results in more accurate hospital metrics (Discher et al., 2007)

In 2003, congestive heart failure (CHF) was a growing health concern. Approximately four million people carried the diagnosis in the USA alone, with 550,000 new cases reported every year. Disease prevalence was projected to reach 10 million by 2007 at the time. Despite the numerous advancements in technology and therapy, the high prevalence and chronicity of congestive heart failure contributed to an increase in hospitalizations. Patients with congestive heart failure have a length of stay (LOS) of 5.6-8.0 days, on average. The lack of an accurate diagnosis and effective therapy often contributes to these lengthy stay periods, in addition to high treatment costs. Congestive heart failure guidelines have been developed to streamline the diagnosis of this condition but have not been implemented in an inpatient setting. In a study performed by Discher et al., an inpatient disease management program was developed for congestive heart failure at a small community hospital. This study was interested in:

1. If the Agency for Health Care Policy and Research (AHCPR) criteria for congestive heart failure can be implemented into a hospital setting by a disease management program.
2. If this disease management program could improve the quality of patient care by lowering LOS treatment costs for congestive heart failure.

The disease management program included the development of a heart failure algorithm, physician and nursing education on congestive heart failure care, and patient educational material which improves patient understanding and involvement with treatment.

The results of this disease management program demonstrated a decline in the average LOS from 6.5 days to less than four days post-implementation – emphasizing the importance of improved specificity in diagnostic criteria, as well as in the documentation of this diagnosis. Additionally, the average cost per patient also significantly decreased from $6,827 to $4,403 USD. The reduction in LOS and treatment costs observed demonstrate that increased specificity in physician documentation of patient diagnosis leads to more accurate hospital metrics and directly impacts hospital funding.

Overall, CDI improves hospital metrics by reviewing charts for several indicators, including hospital standardized mortality ratios; hospital harm indicators; accreditation; and patient complexity levels based on comorbidities, HIG weights, and assignments. In this example, CDI specialists would analyze patient charts to determine the accuracy of CHF as the MRDx and to ensure all comorbidities are captured. In addition, the CDI specialists would review details regarding any provided treatments, special care units utilized, readmissions, as well as alternate diagnoses (e.g., poor nutrition, coccyx ulcers, pleural effusions, infections) that may have contributed to the patient's LOS. Collectively, this data can provide valuable insight into best care practices, ensure continuity of care through discharge dispositions, and prevent readmissions.

Scenario 2: How specificity in patient diagnosis impacts outcome metrics

A 13-year-old female was admitted with behaviours that could be classified as psychotic symptoms associated with schizophrenia. However, the diagnosis documented was for psychosis from early childhood. When the coding specialist receives this diagnosis, there exists a mismatch in the coding language and the diagnosis. The most appropriate coding option for the given diagnosis in this case would have been for childhood autism, based off the information provided. On the other hand, autism psychopathy would have been coded as Asperger's Syndrome. The outcomes for the Health Based Allocation Model Inpatient Grouping (HIG) weight (i.e., comparable to "RIW" outside of Ontario, Canada), ELOS, and the financial cost using childhood autism versus schizophrenia as the final code are outlined below in **Figure 2**.

	Childhood Autism	**Schizophrenia, Unspecified**
HIG Weight	**1.27**	**4.78**

ELOS	**6.5 days**	**21.7 days**
Financial Impact	**CAD$3,764.84**	**CAD$14,201.94**

Figure 2. Differences in outcome metrics between coded diagnosis of psychotic symptoms as "childhood autism" versus "schizophrenia" (Courtesy: Prakash Shah, CCDIS).

In this scenario, the unspecific diagnosis of "psychosis from early childhood" has led to someone with schizophrenia being coded as "childhood autism". This can have massive implications on hospital metrics such as the patient's expected length of stay, HIG weight (i.e., RIW), and calculated financial cost for the hospital. It is also important to note that when the physician documents the MRDx in the patient chart, it must be identified as a condition – not only as symptoms. However, the MRDx can be documented resulting from such symptoms, if specified accordingly. For example, documenting "psychotic symptoms due to schizophrenia" would have been an appropriate way to accurately capture the diagnosis in this scenario.

Scenario 3: How accuracy in documentation of patient diagnosis impacts hospital revenue (Castaldi & McNelis, 2019)

Inadequate clinical documentation can be a significant source of revenue loss. A study by Castaldi and McNelis implemented a clinical documentation management program which included six trained clinical documentation improvement specialists, five physician assistants, directors of health information management, and two surgical champions. Clinical documentation specialists analyzed medical records from the hospital's surgical department for accuracy in the documentation of patient diagnoses and any opportunities for improved documentation were reviewed by a trained physician's assistant. The physician's assistant adjusted the documentation to a provide a more accurate diagnosis and compared this with the previous diagnosis. Of the twelve thousand surgical medical records examined within the study interval:

1. USD$2.2 million in revenue were valid (no mistakes in documentation).
2. An additional USD$1.8 million in revenue could have been made if the inaccurate diagnoses were corrected.

This study not only demonstrates the impact clinical documentation has on hospital revenue, but also the benefit of having close collaboration between CDI specialists, healthcare professionals, and coders on ensuring documentation is accurate and complete. Implementing a CDI program

in hospitals allows physicians to work closely with the coders and CDI specialists to help verify queries efficiently, educate other healthcare professionals on the importance of proper documentation, and ensure the validity of the documentation. Although this example addresses the impact of medical documentation on hospital revenue in the United States, the funding that Canadian hospitals receive is also directly impacted by the quality of clinical documentation.

Scenario 4: Misclassification of myocardial infarction in the United States and the impact on patient outcomes and quality metrics (Hilliard et al., 2020)

Cardiovascular disease has been a persistent health issue in the United States. It is the leading cause of death in men and women regardless of race or ethnic group. A myocardial infarction (MI), also known as a heart attack, occurs every 40 seconds in United States. The reclassification of MI in the International Statistical Classification of Disease and Related Health Problems 10th Revision (ICD-10) in 2017 has helped clarify the different types of MI, but more work needs to be done in educating medical professionals on specific clinical diagnoses and ways to prevent coding errors. An accurate and definitive diagnosis can ensure patients receive appropriate treatment and ensure accuracy in patient prognosis, policy-making, resource allocation, hospital can ensure appropriate treatment, patient prognosis, lifestyle changes, as well as policy and resource allocation, hospital reimbursement.

The standard definition of MI signifies the presence of an acute myocardial injury detected by abnormal cardiac biomarkers, for example cardiac troponin (cTn) in the case of acute myocardial ischemia. Additionally, MI can be further differentiated based on the secondary characteristics of multiple cardiac events. Type 1 MI is an MI where there is clinical evidence of ischemia caused by atherosclerotic plaque disruption leading to coronary thrombosis and the detection of a rise and/or fall of cTn values where one value is above the 99th percentile upper-reference limit. Patients must also exhibit one of the symptoms of myocardial ischemia. Type 2 MI exhibits the same symptoms mentioned previously but is caused mainly due to a supply-demand mismatch of myocardial oxygen in the absence of coronary thrombosis. Prior to 2017, differentiating between patients with type 1 or type 2 MI by medical coding was not possible because an ICD code for each MI subtype did not exist. Given the lack of strict ICD-10 coding criteria, effective tests for determining the specific type of MI, and considering that patients with type 2 MI can have numerous comorbidities, the diagnosis can be complicated and subject to uncertainty or misdiagnosis. An estimated 90% of type 2 MI cases were not being coded.

Another misclassification can happen between myocardial injury and MI. Myocardial injury is defined by elevated cTn values. Specifically, for acute myocardial infarction, the most agreed upon standard is a > 20% change in the cTn value for patients with normal baseline cTn or a > 50% change for patients with baseline elevated cTn. Patients with elevated cTn, but no clinical evidence of ischemia (i.e., ECG changes), cannot be diagnosed with type 2 MI. However, a study showed that nearly 42% of type 2 MI patients were misdiagnosed and had myocardial injury without ischemia (McCarthy et al., 2019). There is also no ICD-10 code for myocardial injury, further complicating the coding of this diagnosis. Acute myocardial infarction has also been a recent focus of a quality improvement and value-based program (i.e., the Hospital Readmission

Reduction Program) in the United States. An estimated USD$528 million are withheld from hospitals due to readmissions for MI in 2017.

As previously discussed, accurate coding of MI is vital for patient prognosis and outcomes, as well as producing accurate hospital quality metrics. It is the collaborative effort of physicians, nurses, and medical coders that is required to ensure MI is coded correctly using ICD-10 guidelines. For example, a working diagnosis may exist upon admission, but may no longer be active on discharge. Patients with elevated cTn may present with MI, but the specific type and treatment given is not elaborated upon in the medical chart, resulting in uncertainty in coding.

The inability to distinguish between the evidence-based treatments for type 1 MI versus the non-evidence-based treatments and those dependent on a secondary diagnosis, as is the case of type 2 MI, could be harmful and potentially lethal. Additionally, the miscoding of myocardial injury as type 2 MI can have negative financial outcomes in the form of readmission penalties or value-based programs. A pilot study found that if a CDI specialist was incorporated to the team for rounds, the number of misclassifications would be less (Swaminath et al., 2018). Overall, accurate diagnosis, documentation, and coding of MI is crucial for patient outcomes and hospital metrics. Collaboration between healthcare professionals and the CDI team is necessary to improve patient diagnosis and outcomes.

Objectives and Importance of a CDI Program

Objectives of a CDI program

The main objective of a CDI program is to achieve improved accuracy, completeness and specificity in clinical documentation completed by physicians and other healthcare providers. Other key objectives include:

- Educating physicians and other healthcare providers on clinical documentation improvement and preaches best practices for its implementation into their organizations (Jamal & Grant, 2014).
- Increasing efficiency of coding and decrease time taken to code by reducing the need for and frequency of queries sent from coders to physicians.
- Providing quality clinical documentation to government agencies and ministries for funding, resource allocation, policy development, and decision-making purposes.
- Enhancing the quality of care and clinical services provided to patients to result in improved health outcomes.

Importance of a CDI program

The health record of a patient is “the definitive and legal record of care provided”, and thus, must accurately depict the outcome of each patient encounter (Jamal & Grant, 2014). With incomplete

diagnoses or lack of specificity in medical records, the care provided to a patient could be deemed as irrelevant or unneeded (Jamal & Grant, 2014). Such instances may call for increased pressure on the healthcare organization for accountability and justification to provincial agencies and ministries. Often, this can lead to:

- Negative financial implications
- Inaccurate allocation of resources
- Miscommunication with patient-handover
- Increase in readmission rates and medication errors
- Increased costs for both the patient and provider (Jamal & Grant, 2014).

As such, the *quality* of documented information is becoming increasingly important, as opposed to merely completing the formality of documenting patient interactions (Jamal & Grant, 2014). The importance of achieving consistency, specificity, accuracy, completeness, and timeliness in clinical documentation is an important quality measure for any healthcare organization (Healthcare Experience Foundation, 2017). However, medical students and physicians are traditionally not taught these practices in undergraduate programs, medical schools, training, residency or in other professional settings. Therefore, their documentation skills are underdeveloped when they start practicing as a physician. As a result, hospitals and healthcare institutions are required to compensate by providing education on the importance of proper clinical documentation, and training and tools for its implementation. This is often done with the inclusion of a CDI program, through which CDI specialists and organizations such as CHIMA can provide education, resources, and guidance to physicians on the best practices regarding clinical documentation.

In the long term, the implementation of such programs can produce future returns for both healthcare institutions as well as the patients themselves. For healthcare institutions, such as hospitals, a comprehensive overview of the intricacies of the patient's condition and the appropriate care should be provided. Such information can be useful for:

1. Hospital audits or checks, where patient records should align with factors such as hospital beds utilized, billing, and claims.
2. Legal issues with patients, where the hospital can provide accurate and up-to-date health records.
3. The calculation of national statistics and disease rates. Inconsistencies between laboratory-confirmed episodes to clinically coded episodes can impact burden of a disease that is observed and reported in national prevalence rates (Hay et al., 2019).
4. Key stakeholders (e.g., funding agencies, public health), allowing them to have an accurate representation of the basic operating characteristics of the hospital when deciding whether to invest money, time, or other resources into the facility.

In terms of benefits for the patient, having an accurate health record ensures that they are provided with the appropriate tests, medication, and guidance for their condition. Having details such as the name, dosage, and date that a drug was prescribed can be helpful information for future physicians and ensure better patient outcomes in the long run. In other cases, a detailed health record can also translate into a more effective care plan. For example, if a patient lives in

a long-term care facility and is cared for by many different clinical staff members, having a detailed health record is important in ensuring care is efficient and comprehensive.

Queries

Most importantly, having an accurate overview of patient information is crucial for continuity of care, ensuring better patient care and outcomes. When CDI specialists, or coders in hospitals that lack CDI programs, have questions or concerns regarding details outlined in the patient's heath record, they will often query the physician for clarification. The following are different forms of queries that are made to physicians by CDI specialists (Fallah & Accorto, 2021):

- Open-ended queries
- Verbal queries
- Multiple choice questions
- Yes/no queries

Although queries provide a way for clarification, often have a long turnaround time. With increased specificity, CDI specialists may not need to make as many queries or lengthy consults, allowing for a more efficient coding process. If the hospital does not have a CDI program, then coders will often take over the responsibility of sending the queries, increasing their workload. Therefore, ensuring health documentation is accurate and specific when recorded will decrease the number of necessary queries, ultimately reducing the workload for both the coder and physician. A smoother coding process fosters improved relationships between the healthcare institutions, coding organizations, provincial ministries.

In recent years, an approach to code more concurrently, as opposed to retrospectively, has also emerged (Hay et al., 2019). Currently, health information is coded using the latter approach, where healthcare coders review and organize the information after the patient has been discharged (Hay et al., 2019). Along with the miscommunications that can arise from unspecific health records, coding retrospectively also means increased time passed since the diagnosis occurred. With this, it is possible for physicians or nurses to forget information, such as the medication they prescribed for a particular patient (Hay et al., 2019). Coding *concurrently,* while the patient is admitted or soon after they are diagnosed, allows for completeness in the patient's health record (Hay et al., 2019). However, moving to a concurrent approach comes with many complexities and requires extensive training, education, and time on the part of nurses and physicians. Such changes, that increase productivity and efficiency of clinical documentation, could potentially be implemented with a CDI program framework to reduce queries and improve accuracy. A potential solution to implementing the concurrent approach is including a CDI specialist on the team for in-patient rounds. Specificity issues can be immediately resolved, and education is instantly provided to the residents and nurses to continually provide better documentation. These documentation skills can then be transferred by the resident to others.

Importance of physician champions

Physicians are integral in the implementation of a successful CDI program, and thus consistent physician engagement and support is required (Gui et al., 2020). Key physician stakeholders, or physician leaders that are actively involved in CDI, are often given the title of "physician champions". Primarily, physician champions serve in a leadership capacity, where they lead other physicians in their department or healthcare organization through the CDI program (Gui et al., 2020). Some responsibilities that physician champions may hold include the following (Blake, 2017; Healthcare Experience Foundation, 2017):

- Conducting research to understand the importance of a CDI program. Having this knowledge can aid in providing justification to physicians or team members who question the need for change in clinical documentation.
- Facilitating the implementation of the CDI program through enforcing participation of all team members, applying changes in daily clinical documentation, navigating any implementation challenges, and acting as a liaison between physicians and the CDI specialists (Healthcare Experience Foundation, 2017).
- Increasing awareness and providing education on key competencies of the CDI program through hosting workshops and seminars.
- Utilizing various engagement techniques to ensure effective physician engagement and uptake of CDI program.
- Building good relationships and establishing trust with other physicians as well as with CDI administrators and senior leadership.
- Communicating key challenges observed with the CDI program to senior leadership and work closely with them to develop solutions to enhance program development.
- Acting as a point of contact for any questions, guidance, or support for both physicians and CDI program administrators.

With many responsibilities, physician champions are important for the successful implementation and uptake of CDI programs. Having physician champions across various departments (e.g., pediatric, surgical, medical, and critical care etc.) can ensure that the CDI program is implemented effectively throughout the healthcare institution. Physician champions can help promote the value and importance of a CDI initiative and communicate strategies for improvement within their teams. Guidance and support provided by physician champions can increase physician compliance and improve the likelihood for program success. Lastly, having a single point of contact between physicians and senior leadership can ensure smooth and efficient communication on both sides.

Conclusions

High-quality, accurate clinical documentation is essential for the effective functioning of the Canadian health care system and serves as the foundation for appropriate decision-making and allocation of resources. The quality of health data is dependent on the specificity of physician

documentation of patient health records. To achieve improved health information, CDI programs can be implemented to provide education, resources, and guidance to physicians on the best practices regarding clinical documentation. Successful implementation of CDI programs benefits physicians, medical coders, CDI specialists, healthcare institutions, and ultimately improves patient care and outcomes. Only through close collaboration between physicians and HIM professionals can CDI programs be successfully implemented.

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Author Contributions

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