Clinical Documentation Improvement (CDI) is a team approach to improving documentation practices through ongoing education, concurrent chart review and clarification, analytics, and transparent organization and physician feedback.

The goal of Clinical Documentation Improvement is to facilitate a clear, concise, clinically accurate medical record that reflects:

- Quality of care/services provided
- Complexity of care of the patient
- Patient severity of illness and risk of mortality

**The Essentials**

- Improvements in CDI lead to more accurate calculation of PHS’ Case Mix Index (CMI), Severity Index (SI), and Risk Adjusted Mortality Index (RAMI) as a result of more accurate capture of our patients’ severity of illness.

- Since implementation of ClinIntell training and analytics, PMG’s Adult Inpatient Medicine Services (AIMS) has seen statistically significant improvement in documentation performance scores for 8 of the 10 target conditions.

**Program Success**

In November 2015, AIMS Hospitalists achieved a ClinIntell documentation score of 93% (against clinically expected) for 10 target conditions, improving scores 20% over the prior year.

**What We Know About Hospital CDI**

Coding is not the primary objective of CDI; the primary purpose of Clinical Documentation Improvement (CDI) is increased accuracy, clarity, and specificity of Provider documentation.

High quality documentation facilitates:

- Improved communication between attending and consulting physicians
- Improved calculation of severity of illness (SOI) measures and calculation of risk of mortality (ROM) measures
- Improved assignment of Diagnosis Related Groups (DRGs) and proper charge capture
- Improved identification of patients who might benefit from case
management services
- Clear justification of medical necessity for government audits and insurer requests
- Proper severity-adjusted Case Mix Index (CMI) designation, a consideration for future reimbursement rates
- Proper reflection in the risk-adjusted mortality index (RAMI), affecting hospital and physician profiles and the hospital’s quality statistics (e.g., Health Grades, Med Par)
- Reduced post-discharge coding queries

Insufficient documentation can affect calculation and comparison of complication rates, mortality, length of stay, and other quality indicators; without accurate documentation, outcome measures for PHS’ seriously ill patients may be compared against less seriously ill patients at other facilities, causing hospital performance measures to be unaccountably poor.

How PHS’ Hospital CDI Works

PHS leverages a two-layered approach to Hospital CDI:

- Provider training and concurrent review of medical records by the CDI team at PH and RMC hospitals
- Provider training and post-discharge analytics by ClinIntell for Adult Inpatient Medicine Services (AIMS)

The CDI team reviews charts for Medicare patients admitted to PH and RMC hospitals and ClinIntell analysis is performed on medical records for all patients (regardless of payor) treated by the AIMS group (approximately 80% of patients at Presbyterian Hospital Downtown). The overlap allows for broader use of resources while effectively targeting our Medicare population assigned to the AIMS group.
**CDI team**

The CDI team consists of five Clinical Documentation Improvement Specialists (CDIS), four assigned to Presbyterian Downtown and one assigned to Rust Medical Center, reporting to the Vice President of CDS Operations. The CDI team performs concurrent documentation review of medical records for inpatient Medicare patients.

Each qualifying patient is assigned to a specific CDI Specialist for the duration of their hospital stay. The CDI Specialist begins reviewing a patient’s chart 24-48 hours after admission, using a standard worksheet to guide them through a consistent review. Each CDI Specialist is usually assigned to 15-25 patients at any given time.

The CDI team focuses on the medical record through to discharge; their review includes notes from any Provider who has treated or consulted on the patient. The goal of CDI is to facilitate clear, concise, clinically accurate information in the medical record through the identification of incomplete, vague, and/or missing diagnoses. The CDI team reviews the medical record with focus on documentation improvement opportunities that affect:

- the accuracy of the principle diagnosis code
- a secondary diagnosis code with DRG tier implications
- calculation of severity of illness and/or risk of mortality (ROM)

When a documentation improvement opportunity is found, the CDI specialist queries the associated Provider through Epic InBasket following AHIMA guidelines for compliant query practices, asking the Provider to clarify his/her clinical documentation while the patient is still in hospital. The Provider is expected to update the patient record to address the documentation opportunity and close the InBasket query in 24-48 hours. The CDI Specialist then validates that the medical record has been updated and notes the outcome in Epic for query response tracking purpose.
Once a patient is discharged, the chart is removed from the CDI work queue and is assigned to coding. Coders can view the queries submitted by CDI, and the Providers responses, to support their coding efforts, and HIM Coders handle all post-discharge coding queries.

The CDI Manager provides training to Providers as part of their existing meetings, selecting topics based on trends in the number and/or type of opportunities the CDI team has found. CDI query responses are tracked in and reported through Epic; response outcomes are reported to the VP of CDS Operations, Medical Directors, and the Hospital Chief Medical Officer.

Dr. Fernando Jumalon (AIMS) works closely and meets weekly with the CDI team, advising the CDI team and serving as a liaison between the CDI team and other AIMS physicians.

Outside of the Central Delivery System, Espanola Hospital offers providers some basic CDI support through their concurrent coding process; Plains Regional Medical Center leadership has expressed interest in establishing CDI services, but has not yet initiated a program.

ClinIntell

To augment the CDI team’s concurrent documentation review process, PHS has also implemented the ClinIntell documentation training and analytics service at Presbyterian Downtown. The Adult Inpatient Medicine Services (AIMS) department retained ClinIntell’s services to help their Providers be more proactive and consistent with documentation improvement.

ClinIntell provides targeted Provider training and performance reporting analytics targeting 10 high impact conditions:

- Acute renal failure
- End stage renal disease
- Chronic heart failure
- Aspiration pneumonia and aspiration pneumonitis
- Acute blood loss anemia
- Encephalopathy, due to [cause]
- Acute heart failure
- Chronic respiratory failure
- Sepsis, severe sepsis, septic shock

Using data analytics, ClinIntell helped AIMS identify a list of high-impact clinical conditions tailored to their patient mix and historical documentation practices. ClinIntell staff then worked with the AIMS Providers to refine our organizations’ working definitions of the targeted diagnoses/conditions, facilitating the process with input based on current evidence and experience with other ClinIntell clients. These shared definitions, validated by AIMS physicians, create consistency between Providers (improving quality) and between Providers and coders (improving billing).

Each Provider and CDI Specialist then attended a 5-minute online training for optimally documenting each condition and received a pocket / smart phone card reference for use while dictating or charting. The CDI training segments are designed for Provider ease of use, narrowly targeting specific documentation
requirements and definition considerations without a lot of additional exposition. Providers also take a short quiz at the end of each course to confirm comprehension, reinforcing their learning with real time feedback.

ClinIntell then analyzes the clinical documentation for each patient cared for by an AIMS provider. ClinIntell uses a proprietary algorithm and advanced data analytics to quantify each medical record’s level of under-documentation. ClinIntell provides aggregate performance score summaries to CDI and AIMS leadership monthly; Physician-level data is published quarterly and is shared transparently with all AIMS physicians to encourage continued adoption and sharing of best practices.

To support this analysis, PHS sends coded data on each discharge to ClinIntell in an encrypted email. Additional notes data from Epic is used to refine patient-to-physician attribution on a quarterly basis, before the attending physician-specific reports are completed. Physician-specific reports are provided for each attending provider.

**Measures of Success**

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<tr>
<th>Objective</th>
<th>Measure</th>
<th>Aligns with Aim</th>
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<tbody>
<tr>
<td>CDI Process</td>
<td>• Number of CDI reviews, total and by physician group</td>
<td>Better Health, Cost Leadership</td>
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<tr>
<td></td>
<td>• Percent of reviews with queries</td>
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<tr>
<td></td>
<td>• Percent of queries answered (complete and incomplete)</td>
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<tr>
<td>Documentation</td>
<td>• Documentation score performance, by condition</td>
<td>Better Health, Cost Leadership</td>
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<tr>
<td>Accuracy</td>
<td>• Documentation score performance change since last report, by condition</td>
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<tr>
<td></td>
<td>• Documentation score performance by Provider and condition</td>
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CDI process metrics are sent to team Medical Directors monthly; ClinIntell Summary data is provided to AIMS leadership monthly. ClinIntell Physician-level metrics are sent to AIMS leadership on a quarterly basis.
Hospital CDI Process

Future Work

Hospital and Physician leadership are currently working to reduce documentation variation and establish foundational CDI best practices through proactive training, monitoring of clinical documentation standards, and improving ease of use for providers, all of which more solidly position the program for more advanced functionality and maturation going forward.

CDI Physician Advisor

The CDI team and VP of CDS Operations are working to define a CDI Physician Advisor/ Champion role, building on Dr. Jumalon’s work with CDI and AIMS and working to extend the role further, across all hospital Provider groups. This role— and the consistent participation of Providers more broadly— is critical to further maturation and full benefit of CDI at PHS.

Epic Query Ease of Practice Improvements

The CDI Manager, Chief Medical Information Officer (CMIO), and Associate Medical Information Officer (AMIO) are working to define and prioritize changes to Epic that make CDI queries easier for physicians to complete. These changes were suggested by Providers who came to PHS from other Epic facilities.
• Make the Present on Admission (POA) check box required for each diagnosis/condition added to H&Ps, progress notes, and consults and display that information to CDI and coding staff. Not only will this reduce the number of POA-related CDI queries sent to Providers, but it will also improve capture of POA infections otherwise categorized as Hospital Acquired Conditions (HACs).

• Display a flag on the alert banner at the top of a patient record when a CDI query has been submitted for the patient. The flag would provide one-click access, from the chart in question, for responding.

• Standardize the use and format of the Active Problem List.

ClinIntell Sustainment and Additions
AIMS’ 2016 goal is to sustain a documentation performance score of 90% for target conditions, as measured by ClinIntell, for the entire year. For 2016, AIMS has also added two new conditions to their ClinIntell training and data analytics set: Complex pneumonia and malnutrition/morbid obesity. Patient status medical necessity will also be included.

ClinIntell Expansion
The Heart Group is currently implementing ClinIntell CDI services to support their work toward achieving a Truven Top 50 designation. The Heart Group will focus their CDI training and analytics efforts on improving documentation for the following conditions:

• acute blood loss anemia
• acute diastolic heart failure and chronic diastolic heart failure
• acute renal failure
• acute respiratory failure
• acute systolic heart failure and chronic systolic heart failure
• cardiomyopathy
• encephalopathy, due to [cause]
• morbid obesity, exact BMI
• protein- and severe protein-calorie malnutrition, exact BMI
• sepsis, severe sepsis and septic shock
• unstable angina

Extension of Lessons Learned to Outpatient CDI
In 2016, PHS will begin work to improve outpatient clinical documentation processes, expanding on the successes at PH. ClinIntell does not offer training or analytics for ambulatory care, but some lessons learned from the AIMS project can still be applied:

• Ensure the project has a strong physician champion
• Design the training for physicians, focused on information physicians want and in a format that makes it easy for them to complete.
• Provide easy to use reference materials to support learning after training.
• Narrow your initial focus on 10-12 high-impact conditions, not all conditions at once, to build behavioral changes.
• Make sure your performance data is trustworthy and use a transparent feedback process
CDI support in Voice-to-Text Dictation

Health Information Management (HIM) leaders are currently working to secure funding for a Nuance Dragon® Voice-to-Text dictation system for all Providers who wish to dictate directly into Epic. This system includes a CDI module that prompts Providers, on screen, for required documentation elements while they are dictating.

Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Clinical Documentation</td>
<td>The Provider’s (e.g., physician, advanced practice registered nurse, or physician assistant) “recording” of any and all events related to a patient’s particular episode of care regardless of the setting (e.g., inpatient or outpatient)</td>
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<td>CMI (Case Mix Index)</td>
<td>A hospital’s CMI represents the average diagnosis-related group (DRG) relative weight for that hospital. It is calculated by summing the DRG weights for all Medicare discharges and dividing by the number of discharges.</td>
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<tr>
<td>Coding</td>
<td>The translation of the “clinical language” of diagnoses and procedures into alphanumeric codes (e.g., ICD-10-CM/PCS), creating a common “language” for healthcare services that is used for multiple purposes. (e.g., clinical, analytics, and billing)</td>
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<td>Query</td>
<td>A question posed to a Provider to obtain additional, clarifying documentation to improve the specificity and completeness of the data used to assign diagnosis and procedure codes in the patient’s health record.</td>
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<td>Risk Adjusted Mortality Index</td>
<td>The Commission on Professional and Hospital Activities (CPHA) developed the Risk-Adjusted Mortality Index (RAMI) with funding from CMS, a method for comparing hospital death rates using existing abstract or billing data. The method is comprehensive insofar as it includes all payers and all types of cases except neonates. RAMI was designed to differentiate among admissions on the basis of the patient characteristics that increase or reduce the risk of dying in the hospital. Using a large national data base, risk factors were determined empirically within each of 310 clusters based on diagnosis-related groups (DRGs). <a href="http://www.jstor.org/stable/3765546?seq=1">http://www.jstor.org/stable/3765546?seq=1 - page_scan_tab_contents</a></td>
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<td>Risk of Mortality (ROM) Measure</td>
<td>A physiological based system that calculates a patient’s short term risk of mortality and morbidity based on a formal algorithm that incorporates clinical variables collected in-hospital over a period of time or at a specific point in a patient’s care. Examples include the Modified Early Warning System (MEWS), PRISM, and the <a href="http://www.pts.org">Society of Thoracic Surgeons Risk calculator</a>.</td>
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<td>Secondary Diagnosis</td>
<td>All conditions that coexist at the time of admission, that develop subsequently, or that affect the treatment received and/or the length of stay.</td>
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</table>

Additional References

- **CDIS Epic Tip Sheet:** [Clinical Documentation Improvement](http://www.pts.org)
- **Provider Epic Tip Sheet:** [CDI Queries for Clinician](http://www.pts.org)