Applying HIM Skills in a Systemwide Congestive Heart Failure Initiative

by Colleen Hefferan, RHIA, and Patti Ludwig-Beymer, PhD, RN

Chicago-area Advocate Health Care's recent congestive heart failure (CHF) care management initiative demanded an HIM professional's specialized skills and insight into information exchange. As a member of the interdisciplinary team recruited from Advocate's eight-hospital integrated delivery system, the HIM professional served as the clinical information analyst and supported the initiative by identifying and resolving data issues.

Diverse Challenges

The clinical information analyst performed a multidimensional role on the CHF systemwide team, including acting as a consultant concerning issues surrounding the retrieval of data from Advocate's systemwide clinical decision support systems. The analyst also served as a member of the data subgroup formed to identify the essential data elements that would routinely be collected for this initiative.

Once the essential data elements were identified, the clinical information analyst was responsible for devising an efficient method of collecting this information. Designing database forms and tables for easy use as well as organizing data for efficient storage and retrieval was an important aspect of this initiative. The analyst also designed the process to transfer data from the individual sites where it was collected to a central storage database. Finally, the clinical data analyst provided education and training on all the software products selected for use.

The CHF Initiative

According to the Consensus Recommendations for the Management of Chronic Heart Failure,[1] the treatment goals for CHF were to:

- lessen symptoms
- improve quality of life
- decrease the likelihood of disease progression
- decrease the risk of hospitalization
- decrease the risk of death

These goals required an interdisciplinary approach to care. Building on previous work done on the management of CHF at Advocate Health Care,[2,3] the system team focused on improving three aspects of care. Subgroups were formed to:

1. develop and implement emergency department and inpatient standing orders
2. revise and implement consistent education materials across the continuum
3. develop and implement a database for CHF patients

To accomplish these improvements, the existing infrastructure was expanded. Active interdisciplinary teams to plan and direct local implementation were organized at each site. In addition, a CHF coordinator was designated at each site. The CHF coordinator sees patients in the hospital, emergency department, and outpatient settings. The coordinator is primarily focused on decreasing hospital readmissions for CHF patients by enhancing outpatient management. Such enhancements include telephone follow-up, one-on-one education sessions, group education sessions, and quarterly newsletters. Specific inclusion and exclusion criteria are used by the coordinator when making a referral into the outpatient program.

Finding the CHF Patients

Identifying the appropriate patients was essential for the team to evaluate core components of the program and answer two critical questions:

1. How do outcomes vary based on participation in the outpatient program?
2. How do outcomes vary based on use of the emergency department and/or inpatient standing orders?

First, coding disparities needed to be resolved. Previously, DRG 127 had been used to identify the CHF population. However, the retrospective coding did not match the prospective approach used by the CHF coordinators to identify patients. The team then attempted to identify patients through ICD-9-CM codes. The CHF coordinator patient list was matched to the ICD-9-CM list for a given time frame. Unfortunately, the match was poor, with only 32 percent of the patients found on both lists. Thirty-five percent of the cases were on the ICD-9-CM list but not on the coordinator list. An additional 33 percent of the cases were identified by the coordinator but not by the principal CHF ICD-9-CM codes. Ultimately, 43 percent of these cases were resolved by using the ICD-9-CM codes as a secondary diagnosis.

A Major Change: Mind Set

The CHF coordinators were accustomed to keeping a case file on their patients. To meet the site and system needs for documentation, coordinators logged the date, patient name, discharge disposition, if the patient was referred into the outpatient program, and comments. However, the files were paper-based rather than computerized. In addition, demographic and clinical information related to the specific patient, such as address and medications, resided in a separate file kept by the coordinator. The list of patients from each of eight sites was forwarded monthly to the clinical information analyst. This required a major time commitment for data entry. Often, data elements, most commonly the medical record number, were incomplete, making it impossible to link the patient list with an existing financial and clinical database. Clearly, the data management structure was inefficient and decreased the team's ability to evaluate the overall effect of the program.

Because data entry was slow, reporting the results to the CHF coordinators was very retrospective. It became apparent that entering only the essential data elements into a database and transferring it electronically to a central location would significantly reduce the turnaround time for results reporting. For this reason, a centralized CHF database was considered.

Reevaluating the Technology

The CHF team decided that the information needed to evaluate and monitor this project was not wholly available in the existing hospital information systems. Most of Advocate's eight hospitals used the SMS Allegra system to support registration, medical records, and financial activities. Six Advocate hospitals used an additional historical database and integrated financial and clinical system. Although these systems held an abundance of clinical and financial information, they did not have the ability to answer some of the important questions that were critical to evaluating the effectiveness of the CHF initiative.

The team agreed that a simple Microsoft Access database should be developed to provide the additional information that was not currently available in the hospital information systems. At the same time, this database would link the patients enrolled in the CHF project to the larger wealth of information available in the system. The team identified eight essential data elements for completion of this task. A database form was developed and demonstrated to the CHF team, who endorsed the database and decided that it should be expanded to collect more information. As a result, 55 more data elements that provided valuable clinical information for the initiative were added.

Data elements such as those defining CHF etiology, ejection fraction, and ACE Inhibitor use were added by the data subgroup. Demographic information was added for each coordinator's use in maintaining a mailing list of his or her CHF patients. The CHF database grew to a total of 63 data elements when it was given the final stamp of approval by the CHF team.

Once all the data elements were identified, the clinical information analyst developed the final table structures necessary to efficiently store the data. To streamline the data entry process, the analyst designed a database entry form. Queries were created and formal reports were designed to make reporting results from the CHF database extremely user friendly.

The CHF database is distributed to each hospital's CHF coordinator on a monthly basis. Designated personnel enter patient information at each site and return a copy of the completed database to the systemwide project data manager via company e-mail. This allows each individual site to develop and keep a database copy of their CHF project patients while updating the

integrated systemwide CHF database. Centrally, the clinical information analyst merges financial information available in the system with clinical factors unique to this group of patients. The goal is to turn data into valuable information that can be used to improve patient care and outcomes.

Turning Data into Knowledge

In the CHF care management initiative, the HIM professional was called on to use a variety of project management, database, training, and planning skills. Further, the importance of ongoing communication between the clinical information analyst and the hospital staff cannot be overemphasized.

Project management skills have been necessary to keep the initiative on track. With eight sites involved, the clinical information analyst established mutually agreeable timelines and held the coordinators accountable for adhering to them. Key aspects of the project included determining the data elements, constructing the database, determining the process for obtaining monthly data, providing education, determining report content and structure, and implementing the database. Database skills have been crucial to the success of this initiative.

With the director, the data analyst planned a comprehensive training program to prepare the CHF coordinators to use the system effectively. Content was provided formally, through demonstration and written instructions. The data analyst also visited sites when necessary.

Finally, the clinical information analyst continues to take a leadership role in determining the report content and structure. The analyst works closely with the team to reach consensus on the variables to be included in the reports. The analyst also works with clinicians to interpret the results.

Without the contributions of the clinical information analyst, the team would not have access to the current high level of data. As with all healthcare systems, Advocate Health Care continues to face ongoing data challenges. Ensuring common data sets remains a high priority for the initiative. Operational definitions are constantly reviewed to ensure the most accurate collection of data possible, particularly with clinician turnover. In the CHF initiative, the analyst has turned "data" into "information" into "knowledge" for the benefit of patients and healthcare providers.

Notes

1. McCafferty, M. and C. Welsh. "Teaching Tools for Heart Failure." *Journal of Emergency Nursing* 22, no. 5 (1996): 451-453.
2. Welsh, C. and M. McCafferty. "Congestive Heart Failure: A Continuum of Care." *Journal of Nursing Care Quality* 10, no. 4 (1996): 24-32.

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Article Citation:

Hefferan, Colleen and Patti Ludwig-Beymer. "Applying HIM Skills in a Systemwide Congestive Heart Failure Initiative." *Journal of AHIMA* 71, no. 2 (2000): 69-70.