Davies Enterprise Award Application

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Name of Organization: University of Iowa Health Care

Organization Address: 200 Hawkins Drive, Iowa City, IA 52242

Submitter Name: Dr. Douglas Van Daele/Lee Carmen

Submitter Title: CMIO/CIO

Submitter email: douglas-van-daele@uiowa.edu/lee-carmen@uiowa.edu

Menu Item: ROI through Clinical Documentation Improvement

Executive Summary

The University of Iowa Hospitals and Clinics (UIHC) used our EHR to address inpatient documentation inadequacies, which lead to low quality and safety ratings for physicians in the Otolaryngology department. This resulted in an increase in net revenue of approximately $2,700 per case and $1.8 million per year in the MS-DRG Tracheotomy. Expanding our EHR-driven solution to other departments is conservatively estimated to increase our revenue by $9.5 million without substantial increase in expense.

Following this model, we have expanded the effort to other lines of service. Substantial improvement all goal metrics have been seen including higher Case Mix Indexes (CMI), drop in Case Weight Opportunity, higher Severity of Illness (SOI) and Rate of Mortality (ROM) at admission, and lower LOS and Mortality (expected/observed) indexes. Indications from the Case Weight Opportunity reports are that we are improving our documentation to the point of $2 million/month in improved payments from where we were prior to focus on this project 2012. We have also begun working across service lines to address disease states not well documented in the EHR. This dimension has the possibility of improving the accuracy of documentation even more significantly.
Background

The University of Iowa Otolaryngology department is consistently ranked in the top tier of departments in the United States in reputation and patient care. However, many national quality and safety metrics have lagged for some time. University Hospital Consortium (UHC) data from the previous two years assigned the base MS-DRG Tracheostomy for face, mouth, and neck diagnosis a ranking of 91/105 compared to other AAMC cohorts.

A small group was tasked to determine how the Otolaryngology Department could improve this ranking. It was determined that the EHR was not being used to its full functionality. Inadequate or missing documentation as well as documentation that did not result in a code-able diagnosis was a significant part of the problem. These documentation issues led to low performance on metrics such as severity of illness, risk of mortality, and length of stay index. More accurate documentation by capturing and coding additional diagnoses would not only improve the metrics but also were estimated to improve reimbursement by millions of dollars in the tracheostomy MS-DRG.

Further exploration revealed the challenge was present across all departments in the institution.

Local Problem and Intended Improvement

During the Otolaryngology department investigation regarding its low ranking for the base MSDRG Tracheostomy, it was discovered that several of the ranking criteria were out of line with the degree of complexity of the patient mix (including length of stay, mortality rate, and level of service). Physicians in the department theorized that there was a tie between the metrics and the low base MS-DRG Tracheostomy ranking and aimed to discover why the metrics were so discordant with the care provided. Inpatient documentation failures such as documenting in a way that is cannot be coded, inadequate documentation and even failure to document at all were common. It was hypothesized that by fully utilizing the EHR’s documentation capabilities the department would show a dramatic improvement in their length of stay, mortality rate, and level of service metrics. This would have a positive influence on the base MS-DRG Tracheostomy UHC ranking and related revenue.

Inadequate documentation methods were not only leading to missed revenue by the Otolaryngology service but were also costing the entire hospital considerable income. The coders at the University of Iowa Hospitals and Clinics, who evaluate physician’s documentation in the EHR, including their notes, problem list, diagnoses sections, and the discharge summary, do not have the capability to assign a diagnosis. Rather, they can only code the diagnoses that are already present in the documentation. Thus, if documentation methods were not improved, metrics are guaranteed to be inaccurate and sources of revenue will be missed. Take for example the Tracheostomy for Face, Mouth, and Neck procedure. There is a $23,451 difference in Otolaryngology MS-DRG 11 code versus MS-DRG 13. The Otolaryngology department typically performs this operation 50 times per
year. Under representing the patient’s diagnoses could equal over a million dollars in missing revenue per year if the wrong code is associated to the procedure.

**Design and Implementation**

In order to improve documentation accuracy in the EHR, the Otolaryngology department needed to address three key issues. First was to more regularly capture secondary diagnoses demonstrating the severity of the illness. Better utilization of the EHR problem list to capture all diagnoses during the inpatient stay was also necessary. This included propagating items from the problem list to the discharge summary. Also, that information needed to be translated for billing. Common Otolaryngology service ICD9 codes were reviewed and plain language descriptions for each code were added to the EHR to help physicians and coders when choosing a billing code.

Problem lists specifically for the Otolaryngology service were also created. The department utilized University Health Consortium to determine what ICD9 codes other institutions were using that our hospital did not or were more common in other institutions.

In order to sustain the initiative, education has been and will continue to be provided to the clinicians and monthly department reports have been developed. Key to the effort was and remains daily review of the problem list by residents, faculty, and DRG assurance personnel to insure all diagnoses are being accurately and appropriately captured.

After improved outcomes were reported in the Otolaryngology department, an initiative began to rollout the improved documentation process to other departments. The Health Status Executive Team supported the initiative and brought it to department quality teams, which included DEOs, physician quality officers, CDAs, residents, DRG assurance nurses, billers, and quality safety and performance improvement representatives. Disease states that occur over a broad range of service lines where then also an area of focus in addition to departmental service lines.

**How was Health IT Utilized**

Refining our EHR documentation procedures in the Otolaryngology department and hospital wide turned out to be the foundation of our solution to raise our base MSDRG Tracheostomy ranking. We know that diagnoses that are documented drive quality metrics and reimbursement. By better utilizing the problem list in the EHR to capture the diagnosis and then propagating it forward to the discharge summary we can ensure the diagnoses are not missed by the coders. We also added plain language descriptions to our codified set of diagnoses in the EHR to improve their usability. By using an integrated EHR platform, all system updates that we made to enhance the workflow for providers were also available in coding workflows.

Given the success of the Otolaryngology model, UIHC turned to evaluate opportunities in the other departments. In October 2012 through March 2013, we reached out to other
service lines that had documentation opportunities as well as a physician who was willing to champion a documentation improvement project. We had volunteers in Burn, Urology and Colorectal Surgery. The project started with providing the physician champion access to Harris Analytics, overall case weight opportunity reports, DRG nurse query response rates for their area and documentation related metric reports. In the short time frame, they saw significant improvements in their metrics of CMI, Case Weight Opportunity, Admit SOI and ROM, and LOS and Mortality Indexes.

Given the success, in May 2013, all clinical departments were required to improve documentation. Each are was given FY 2014 budget targets related to Harris Analytics Case Weight Opportunity Points. UIHC reassigned one FTE to coordinate the house-wide documentation improvement project with the following goals:

- Improved capture of secondary diagnosis codes
- Review of AHRQ metric triggers by departments
- Develop service specific preference lists for problem list creation
- Education of Licensed Independent Practitioners (LIPs)

The Chief Medical Officer held meetings with each department head and key staff to roll out the project. Each service line identified at least one physician champion who was “in charge” of documentation improvement. Goals for these meetings included confirmation of the department specific needs for education – now and ongoing, communication and progress reporting.

To pinpoint the specific opportunity, the physician champion would review the monthly Harris Analytics Opportunity reports and drill down into base MS DRGs with opportunity, looking for the greatest variance percentage in base ICD9 codes, trends by providers and drill into specific documentation and coding by patient.

 Appropriately capturing the secondary diagnoses impacts acuity and supports medical necessity for inpatient admission. Assumptions driving the estimations for the dollar impact of the documentation opportunities are as follows:

- Current UIHC average LOS 6.3 days – 365/6.3 = 58 bed exchanges/year
- Review of current data suggests 70% of cases identified resulted in documentation change
- Average increase in payment from CC is $3,000
- Average increase in payment from MCC is $5,000
- Initial assumptions did not adjust LOS, increase payment, or likelihood of documentation change based on condition

Optimization efforts are currently focused on fourteen topics of Acidosis, Acute Asthma, Acute Heart Failure, Alkalosis, Altered Mental Status, Chronic Heart Failure, Chronic Kidney Disease, Hypothermia, Lactic Acidosis, Malignant Hypertension, Morbid Obesity, Pancytopenia, Thrush and Underweight.
An impact analysis from a sampling of one day in August 2014 includes:

**Acidosis**
- pH < 7.35 in last 2 days
- No hospital problem of acidosis
- Number of patients identified on 8/28/14 at UIHC: 20 patients
- Adds CC or if related to shock adds MCC
  Implications is increase of $3000/case x 14 patients x 58 LOS/year is $2.4 million/year

**Acute Heart Failure**
- No hospital problem of acute heart failure
- Report has filter to patients with any heart failure on problem list
- Number of patients identified on 8/29/14 at UIHC: 4 patients
- MCC added
  Impact: Increase of $5,000/case x 3 patients x 58 LOS/year is $870,000/year

**Altered Mental Status**
- Delirium observation screening scale score > 3 or (Change of mental status in last 48 hours and Inattention in last 48 hours and (Altered level of consciousness or disorganized thinking in last 48 hours))
- No hospital problem of Encephalopathy
- Number of patients identified on 8/28/14 at UIHC: 20 patients
- Add delirium is CC, Encephalopathy is MCC
  Impact: Increase of $3,200/case x 14 patients x 58 LOS/year = $2.6 million/year

**Lactic Acidosis**
- Lactate > 4 in last 24 hours
- No problem of lactic/metabolic acidosis
- Number of Patients identified on 8/28/14 at UIHC: 38 patients
- CC or MCC if associated with shock
  Impact: Increase of $3,000/case x 17 patients x 58 LOS/year = $3.0 million/year

In the current documentation review workflow, CDI staff run reports in the EHR to check if appropriate conditions are already documented. If not, they send a question to the provider’s EHR ‘Doc Query’ in basket. They follow up with a manual review to check if the diagnosis and supporting documentation has been added as well as confirm that the provider has the appropriate support documentation in place of how we...
evaluated, treated or monitored the condition. In the future, we will be piloting use of an assessment/plan note section on the problem list to document against the diagnosis and the firing of a Best Practice Alert to the provider where they can add the diagnosis and appropriate documentation directly from the alert message. Successes for these early cases are illustrated in Figure 1.

Another recent example of this methodology is on the topic of Malnutrition. UIHC nutritionist documented in the EHR a comprehensive dietitian assessment, but it lacked a clear diagnosis of the type of malnutrition. Providers would document unspecified malnutrition vs. mild, moderate, severe. Many providers did not even know to look for dietitian consult if they had not themselves order it. Malnutrition significantly impacts risk-adjustment of our publicly reported data and hospital reimbursement. Malnourished patients are an increased risk for readmission, two times more likely to develop pressure ulcers, have three times the risk for surgical site infection and are more likely to fall.

In our pilot, we enhance the EHR nutrition screening tool and changed the dietitian assessment and chart note format. The new dietitian assessment lists a recommended malnutrition diagnosis based on American Society for Parenteral and Enteral Nutrition (ASPEN) criteria. We updated the EHR smart tools so the providers can use a quick action dot-phrase to insert the recommend diagnosis and present on admission status from the dietitian assessment into their progress notes.

The pilot ran from June 1 to August 28, 2014, targeted five adult populations: Inpatient chemo, Femur fractures, Cystectomy, Esophagectomy, and Pancreatectomy/ Whipple’s. There were 208 patients assessed using the pilot process, resulting in total LOS credit of 171.8 days, increased reimbursement by $639,983 and increased Severity of Illness and rate of Mortality Index for these patients.

### Value/Derived Outcomes

Our UHC MSDRG Group Tracheostomy ranking went from 91/105 in 2012 to 21/104 in 2013. By maximizing our resources and efficiently utilizing our EHR, we were able to achieve several successful outcomes:

- We improved our documentation process.
- We increased our collection rate from baseline, from 40.63% up to 44.52%.
- Our length of stay index decreased, which in turn decreased our variable cost per case by $1,214.
- All of these changes added up shows an increase in net revenue per

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<th>Metric</th>
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<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
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<tbody>
<tr>
<td>Case Mix Index</td>
<td>1.84</td>
<td>1.99</td>
<td>2.44</td>
<td>2.33</td>
<td>2.66</td>
<td>2.69</td>
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<td>Admit Severity of Illness</td>
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<td>2</td>
<td>2</td>
<td>2.2</td>
<td>2.1</td>
<td>2.208</td>
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<tr>
<td>Admit Risk of Mortality</td>
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<td>1.58</td>
<td>1.61</td>
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<td>1.5</td>
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<td>% of MS DRG w/ CC/MCC</td>
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<td>35%</td>
<td>17%</td>
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<td>0.96</td>
<td>0.87</td>
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<td>Mean LOS (Exp)</td>
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<td>5.3</td>
<td>6.3</td>
<td>5.4</td>
<td>6.1</td>
<td>5.39</td>
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**Figure 2.** Department of Otolaryngology metrics and cost savings
tracheostomy case of $1,527 from baseline. This is an increase in profit per case of $2,741 from baseline.

- Our average of 664 cases per year will result in an estimated increase in profit of approximately $1.8 million per year. *(Figure 2)*

- Our expanded pilot saw significant movement in all goal metrics: higher CMI, drop in Case Weight Opportunity, higher SOI and ROM, and lower LOS and Mortality indexes. *(Figure 3)*

- In expanding the Otolaryngology model for documentation improvement to 14 other topics, the UIHC is seeing significant improvements as reflected in case weight opportunity points dropping, meaning we were leaving less money on the table, and Case Mix Index climbing, an indication that we are more accurately documenting the complexity of the disease state of the patients we are treating. *(Figure 4)*

Since kicking off optimization of care documentation, the UIHC overall case weight opportunity per month has dropped from $3 million a month in Jan 2012 down to $1.1 million month in July of 2014. *(Figure 5)*
Lessons Learned

It is critical to educate providers at all levels on the importance of an accurate and complete problem list and documentation as well as the impact it has on reimbursement at both the patient and hospital level.

Coders and billers need to provide feedback to the providers if they feel there is missing or incomplete documentation. An integrated EHR platform streamlines this communication process. Providers, coders and billers all have to be on the same page as to documentation goals and where to find what in the medical record.

We have an abundance of opportunity. Small changes in documentation led to big improvements in rankings and revenue for one department and this model can now be rolled out to all services. To prioritize the next targets, a daily inpatient report monitor was created from our EHR which analyzes discrete lab results and problem list documentation.

Timely monitoring of coding and other indicators, such as level of complexity, needs to be tightly scrutinized so to provide early intervention to errors in process so to not negatively impact the bottom dollar. The new report monitor will help us target providers who need to shore up their documentation as well as recognize groups who are doing a good job.

To be successful, leadership must throw their support and weight behind it. The project of improved physician documentation is not possible without a designated champion from within the line of service. Targets must be set and monitored and areas held accountable to the targets.
Financial Considerations

This overall process did not require specific funding, as it was inherent to existing design and implementation expenditures. All costs were associated with staff time to configure the necessary reports in our EHR and provide education to the physicians and coders.

As stated earlier, in focus of just MSDRG Group Tracheostomy increased the net revenue of approximately $2700 per case and will result in an estimated increase in profit of $1.8 million per year.

To give appropriate attention to the project, it was important to allocate a process owner to ensure implementation and manage monthly monitoring of continued optimization. One FTE was reallocated to this responsibility with all DRG nurses reassigned to that FTE to ensure consistency with project goals and practice.

In the first ten months of the documentation improvement project, we have had a focused effort for three topics over the full ten months and eleven new topics added in the past seven months. The financial impact:

- 71% of patients identified had diagnosis/documentation revised
- $950,000 increase in DRG billing in last ten months
- Total LOS credit impact is 277 days
- Total Severity of Illness increase is 136 points
- Estimate that there will be a $15.6 million dollars per year improvement when fully implemented for the fourteen focused topics