

## *Patient-level Data Analysis in Hospice*



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### INTRODUCTION

Many factors are coming together to highlight both the value and challenge of patient-level hospice data. With performance measures and benchmarks based on patient-level data, hospices improve targeting of performance improvement projects and gain focus to improve patient access. The most strategically-driven and technology-savvy hospices now utilize sophisticated patient-level data analysis. However, powerful analysis is possible with even basic patient-level volume and demographic information all hospices must capture. By embracing emerging patient-level data requirements and standards, hospices can access benchmarks for patient subsets and improve patient care delivery, as well as ensure organizational success.

### LEARNING FROM HOME CARE

Hospices face a strategic opportunity to invest in patient data capture and analysis. The experience of implementing patient data collection and reporting systems in home care has informed both policy-makers and providers of hospice services about effective data systems and implementation pitfalls.

When OASIS data reporting became a requirement in 1999, home care providers began a new chapter in the evolution of patient care management. Capturing, reporting and analyzing specified patient assessment data began to drive outcome-based quality improvement and differentiated reimbursement based upon case mix. Today, with the help of information systems and benchmarking vendors, leading home care providers analyze not only OASIS data, but also patient-specific data on visit utilization, additional clinical quality and safety measures, technology utilization, and customer satisfaction. Multiple categories of patient data can be integrated to analyze the impact of staffing patterns or selected operating practices on specific patient outcomes or agency costs.

The largest and most advanced databases enable the development of predictive models to risk-stratify patients based on the initial assessment and tailor plans of care to manage the identified risks. Further, patient-level analysis is driving the design of the pay-for-performance reimbursement model for home care. Building on OASIS implementation – required under the Prospective Payment System (PPS) for Medicare reimbursement – a wide range of patient-level data has become accessible; and increasingly-powerful analysis drives decision-making for payers and regulators, as well as successful home care providers.

The home care experience with OASIS data shows that patient-level quality data has helped agencies improve performance, illustrate competitive superiority, and make better strategic decisions. However, it was a rough start, since most agencies were reacting to the mandate with initially very poor data systems. Hospices have the opportunity to be proactive and build patient-level data capture and reporting capabilities *before* there is a compliance mandate.

### THE ACCELERATING ADVANCE OF HOSPICE QUALITY MEASUREMENT

National and state hospice associations, several vendors and selected hospice corporations have strengthened the education of both CMS and providers and developed tools to move hospices toward an increasingly data-rich approach to managing patient care and operations. In 1988, long before the current broad focus on data, the Oregon Hospice Association created a patient data base to analyze hospice utilization and end-of-life care quality in the state. Collaborative efforts to define hospice quality measures have resulted in protocols for the capture and reporting of End Result Outcome Measures, the Missoula-VITAS Quality of Life Index, and, most recently, symptom management measures from the NAHC QAPI Collaborative.

The proposed Medicare Hospice Conditions of Participation (CoP) require Quality Assessment and Performance Improvement (QAPI), demanding a data-driven approach to hospice patient care and organizational management; and the first CMS Quality Improvement Organization (QIO) contract for hospice has been awarded, with the goal of developing and testing quality measures. The National Quality Forum (NQF) National Framework and Preferred Practices for Palliative and Hospice Care and the NHPCO Quality Partners initiative provide a broad vision for hospice quality and important direction for further quality and outcome measure development.

Vendor-driven data programs, such as the OCS Hospice PeerForum, Deyta LLC's Factual Foresight, and Hospice Pharmacia's Patient Reported Outcome Measures (PROM) project, have helped hospices to capture and report data about patient care for ongoing performance improvement. Many information system vendors have been improving hospice-specific programming, by embracing the evolving direction of industry quality efforts and applying a wide range of technological advances, supporting varying approaches to the management of patient care. See **TABLE 3**, on page 6, for a list of vendors with a particular commitment to hospice.

With pending new Medicare Hospice Conditions of Participation, emerging frameworks to define and measure hospice quality, increasingly sophisticated information systems, and the growing attention of consumers and healthcare partners, hospices are beginning to utilize patient-level data analysis.

### ■ VALUABLE PATIENT-LEVEL DATA ANALYSIS NOW

Patient-level data is an important resource both for provider management and quality improvement and for industry regulation, policy-making, and strategic direction. Exploring the details of hospice program performance requires a data collection and management plan, along with a strong “arsenal” of analytical capabilities. **TABLE 1**, *Types of Agency Analysis Utilizing Patient-level Data*, lists basic and more complex ways to use patient data. Ensuring consistency for comparison and incorporating benchmarks into performance targets make all three types of analysis even more powerful.

**TABLE 1.** Types of Agency Analysis Utilizing Patient-level Data

Patient –level Data Analysis for Agency Management	Example Output
<p><b>Calculation of accurate statistics</b> When captured electronically, data elements can be processed more easily to summarize individual patient experience and generate statistics describing patient volume and performance.</p>	<ul style="list-style-type: none"> <li>- Length of service</li> <li>- Number of visits by discipline per week (2008 billing requirement)</li> <li>- Average length of service</li> <li>- Average daily census</li> <li>- Patient demographic mix</li> <li>- Case mix</li> </ul>
<p><b>Quality Assessment and Performance Improvement (QAPI)</b> With patient-level data, agencies can meet the proposed QAPI CoP requirements for data-driven patient care and agency-wide assessment.</p>	<ul style="list-style-type: none"> <li>- Quantified patient preferences and goals</li> <li>- Percent of patients made comfortable within 48 hours</li> <li>- Frequency of adverse drug reactions</li> <li>- Conversion rate by referral source</li> <li>- Rating of evening and weekend responsiveness by care team</li> </ul>
<p><b>Analysis of patient subsets</b> By reviewing patient groups with shared characteristics, agencies can target efforts to improve clinical quality and outcomes, resource utilization, referral generation, and patient satisfaction.</p>	<ul style="list-style-type: none"> <li>- Improvement in comfort by medication type</li> <li>- Falls by location of care</li> <li>- Number of home health aide visits per week by diagnosis</li> <li>- Length of stay by referring physician</li> <li>- Willingness to recommend by care team</li> </ul>

The best-managed hospices don’t just do the analysis, they truly drive strategic management and performance improvement with it. **TABLE 2**, *Strategic Decisions and Performance Improvement Projects Directed by Patient-level Analysis*, describes a wide range of management challenges and specific patient-level data analyses to address each one, and provides graphic illustration for selected analyses.

## Patient-level Data Analysis in Hospice

TABLE 2. Strategic Decisions and Performance Improvement Projects Directed by Patient-level Analysis

Strategic Decisions and Performance Improvement Projects	Patient-level Analysis
<b><i>Improve evening and weekend responsiveness</i></b>	Family ratings of evening and weekend responsiveness for on-call visits by discipline, time of day, and visit type
<b><i>Reduce ADRs in response to patients with long lengths of service</i></b>	Clinical review of all patients with length of service over 180 days
<b><i>Determine opportunities to grow and improve hospice care in nursing homes by targeting needs of specific patient subsets</i></b>	Nursing home patient mix by diagnosis, referral source, and payer
<b><i>Identify better predictor of imminent death for patient care planning and preparation of loved ones</i></b>	Review of Palliative Performance Scale (PPS) scores 24 and 48 hours before death
<b><i>Evaluate effectiveness of Telehealth utilized for selected patients</i></b>	Comparative outcomes and quality indicators (See <b>FIGURE 1</b> , under GRAPHS, <i>for example output</i> )
<b><i>Optimize staffing assignments by better understanding staff availability and patient-specific utilization</i></b>	Detailed review of staff direct contact data (contact hours, visits, patients seen, days with visits, total visits per patient, average length of visit, hours per patient) alongside available hours, paid time off, and travel time
<b><i>Develop an integrated team approach to pain management, utilizing multiple care management forms: admission assessment, physical assessment, follow-up nursing assessment, pain assessment.</i></b>	Capture same pain data (presence and level of pain, patient's acceptable pain level, best and worst pain, pain quality, effects of pain) across forms and for all disciplines, and compare pain by team, by time of day, by specific intervention, etc.
<b><i>Demonstration of patient care across settings within healthcare system</i></b>	Comparative symptom improvement data (See <b>FIGURE 2</b> , under GRAPHS, <i>for example output</i> )
<b><i>Link comprehensive assessment, plan of care, and organization-wide assessment as required by the proposed QAPI CoP</i></b>	Comfort within 48-hours of admission, at individual patient-level and aggregated for all patients (See <b>FIGURE 3</b> , under GRAPHS, <i>for process flow</i> )

Ensuring the optimal utilization of hospice across the continuum of care – a priority for payers, state and national organizations, multi-setting healthcare providers, and free-standing hospice programs, alike – requires a comparative data set and consistent measures across healthcare settings. The Oregon Hospice Association's extensive historical patient-level database has been critical to advancing the state's end-of-life care legislation, components of which are a model for the national hospice movement. Without national standards, the breadth of policy-making analysis is limited; however, hospice providers, healthcare analysts, researchers, and "interested" vendors are taking advantage of increasingly large patient-level hospice databases. **FIGURE 4**, *Reasons for Emergent Care – Home Health vs. Hospice*, is just one example of analysis that demonstrates superior hospice outcomes. The analysis

compares emergent care rates across home health patient subsets and hospice patients for selected symptoms common toward the end of life.

Many hospices have made the commitment to invest in information systems and benchmarking programs, both to drive agency performance improvement and to facilitate participation in national and state hospice data initiatives. Where electronic systems are not a cost-effective solution or don't yet provide the needed data, manual data capture and reporting processes are actively utilized during the transition period.

### DATA ELEMENTS TO CAPTURE AND MANAGE FOR EACH PATIENT

Patient data to enable all of the analysis described above is routinely captured in the course of providing hospice care. Following are types of data routinely captured by hospices for each patient.

- ▶ Descriptive Data
  - Demographics
  - Diagnosis
  - Location
  - Level of care
  - Payer
  - Start and end dates
- ▶ Resource utilization
  - Visit utilization
  - Length of Stay
  - Pharmacy
  - Supplies
- ▶ Clinical detail
  - Assessment data
  - Visits by discipline
  - Plan of Care detail
  - Outcomes
  - "Incidents"
- ▶ Customer perception
  - Family-reported quality
  - Family satisfaction
  - Patient-reported quality
  - Patient satisfaction

The challenge is that, for most organizations, the data elements exist across multiple systems, requiring a mix of electronic and manual processes to record, compile, analyze and report the data. To enable useful analysis, the data must be captured in the same way for each patient, and each element must be recorded in a way that facilitates its extraction. A prudent first step for hospices looking to better utilize patient-level data would be to work to adopt standard definitions and data collection protocols and incorporate these elements into electronic data management systems. Hospices must continue to increase the consistency of data capture and recording as they implement and integrate electronic data management systems, and as standards emerge for hospice data.

### EMERGING HOSPICE DATA STANDARDS

Although there is no CMS or other significant mandate, hospices and industry leaders are eager to identify and begin adhering to standard data definitions and data capture protocols. In October of 2006, to accelerate this process, OCS, Inc. initiated the Hospice Leaders Project (HLP), a collaboration of hospice information technology vendors committed to promoting consistent hospice data capture, valuable quality analysis and meaningful benchmarks. See **TABLE 3** for a list of HLP participants, as of September 15, 2007.

**TABLE 3.** Hospice Leaders Project Participants

Hospice Leaders Project Participants
<ul style="list-style-type: none"><li>▶ OCS, Inc., <i>project manager</i></li><li>▶ CareCentric, Inc.</li><li>▶ Cerner BeyondNow</li><li>▶ Delta Health Technologies, LLC</li><li>▶ Deyta, LLC</li><li>▶ HealthWyse</li><li>▶ Homecare Homebase</li><li>▶ McKesson Provider Technologies</li><li>▶ Mills and Murphy Software Systems</li><li>▶ Misys Healthcare Systems</li><li>▶ mumms Software</li><li>▶ Patient Care Technologies</li><li>▶ Procura</li><li>▶ Prodata</li><li>▶ Suncoast Solutions</li></ul>

Participating vendors agree to enable the capture of a “master list” of hospice patient data elements, the development and evolution of which is being managed by OCS to incorporate emerging standards and eventual required data elements. Further, Hospice Leaders are simplifying the extraction, internal reporting, and external submission of the data for their clients. The full list of data elements is being utilized by OCS clients for benchmarking and targeted patient care improvement, and the list is shared to support and ensure consistency with other national initiatives.

HLP “master list” data definitions are consistent with the NHPCO National Data Set and End Result Outcome Measures, the NAHC QAPI Collaborative, as well as most state data collection efforts. An NHPCO Research Committee subcommittee is specifying a list of hospice data elements, along with detailed definitions, to support the development of a database for accessible patient-level analysis and to promote proven high-quality hospice care.

### HOSPICE “UNDER THE RADAR” ...SO FAR

Hospice has been spared the “burden” of patient-level quality reporting to CMS. However, hospices using this as an excuse to delay the implementation of patient-level data

management capabilities will fall behind – both in the delivery of quality care and in organizational strength. Without patient-level data, hospices lack an important tool for managing and improving patient and family care. Further, the absence of patient-level data means an inability to illustrate effectively the positive impact of hospice on the healthcare system or to demonstrate comparative quality performance in a way that is broadly understood.

Still, what little data there is tells the story of a comparatively high-quality sector of the healthcare system, with extraordinary customer satisfaction and support – a fact that has allowed legislators and policy-makers to move more slowly toward requiring patient-level analysis of hospice quality and costs.

While CMS has so far stayed away from requiring public quality reporting, they have offered two strong “nudges” in that direction. First, as noted above, the QAPI CoP, with an implementation deadline of May 2008, requires a data-driven approach to managing patient care and operations. The QAPI CoP doesn’t require patient-level data reporting. However, effective QAPI implementation demands patient-level data capture and analysis. Second, in July of this year, CMS issued Change Request 5567 to the CMS Manual System publication on Medicare Claims Processing. The communication states that hospices must begin to submit visit utilization data by week with each patient claim. The combination of required data-driven quality management and patient-level utilization reporting is powerful evidence that patient-level quality reporting is on its way.

While “under the RADAR” of required public reporting, the hospice quality movement has advanced and CMS is taking notice. Industry leaders have promoted quality measurement, developed standards, and provided tools and resources for data capture and analysis. Smart hospice management teams – of all types and sizes – are taking concrete steps to become patient-level data savvy, taking advantage of emerging data resources and direction.

### PATIENT-LEVEL DATA ANALYSIS - THE RIGHT STEPS NOW

All hospice programs are encouraged to build or strengthen their patient-level data management capabilities.

- ▶ Assess current data capture and recording processes to ensure that all categories of patient data are included.
- ▶ Commit to evolution of patient assessment tools and data capture practices to include patient-level data elements consistent with emerging standards.

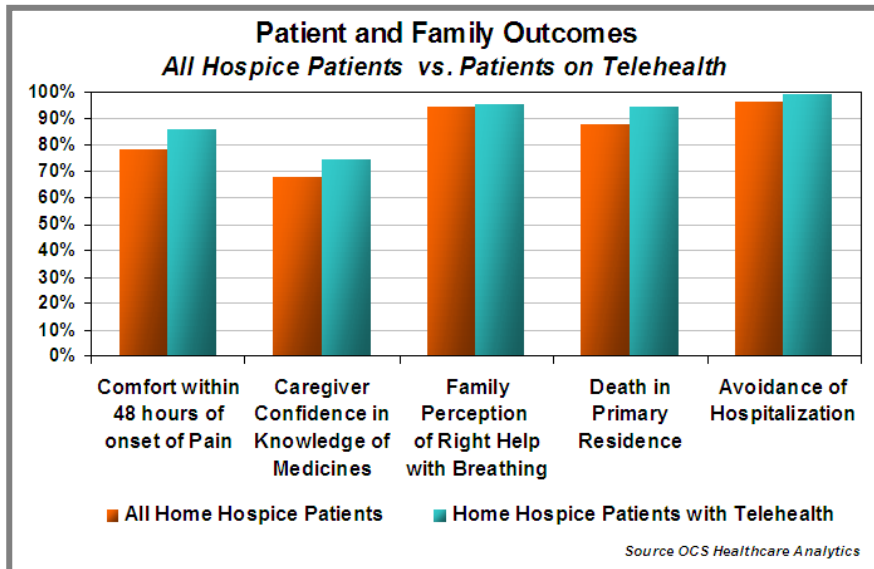
- ▶ Prepare for submission of weekly visit data by discipline with hospice claims (as required by January 1st).
- ▶ Explore opportunities to compare patient outcomes across the continuum to build referral relationships.
- ▶ Determine top priorities to build and/or refine electronic data management capabilities.
- ▶ Participate in benchmarking to identify opportunities for improvement and to set performance targets.
- ▶ Analyze selected patient subsets to design improved patient care delivery and referral generation practices.
- ▶ Demonstrate comparative strengths and successful improvements to board, staff, referral sources, continuum of care partners, and other external stakeholders.

### REFERENCES

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on the web at <http://www.cms.hhs.gov/quarterlyproviderupdates/Downloads/CMS3844P.pdf>
2. **End Result Outcome Measures**  
Measures of safe and comfortable dying, self-determined life closure and effective grieving, defined by the National Hospice Work Group/National Hospice and Palliative Care Organization Outcomes Forum. For protocols, contact [EROM@NHPCO.org](mailto:EROM@NHPCO.org).
3. **Missoula-VITAS Quality of Life Index**  
Patient assessment and outcome measure information available at  
[www.dyingwell.org/MVQOLI.htm](http://www.dyingwell.org/MVQOLI.htm)
4. **NQF Framework and Preferred Practices for Palliative and Hospice Care**  
on the web at <http://www.qualityforum.org/publications/reports/palliative.asp>
5. **NHPCO Quality Partners initiative**  
on the web at [www.nhpco.org/quality](http://www.nhpco.org/quality)
6. **CMS Change Request to expand claim data reporting requirements for Medicare Hospice Care**  
CMS transmittal 1304, CR 5567 to the Medicare Claims Processing publication, July 20, 2007,  
on the web at <http://www.cms.hhs.gov/transmittals/downloads/R1304CP.pdf>
7. **Hospice Leaders Project**  
Vendor collaborative to improve consistency in hospice patient-level data capture and reporting. For project summary and information, contact [info@ocsys.com](mailto:info@ocsys.com), or call 888.325.3396

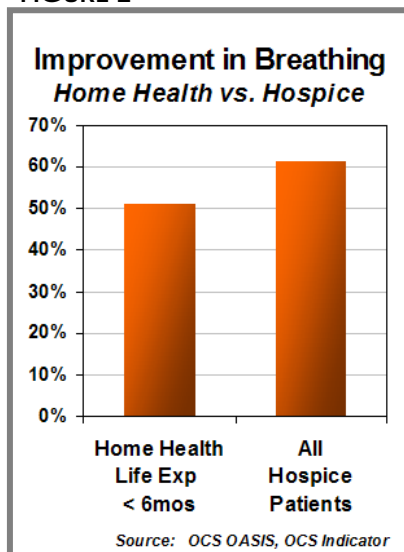
GRAPHHS

FIGURE 1



An agency's differential outcomes for all hospice patients vs. patients with telehealth support show better outcomes for patients on telehealth.

FIGURE 2



Home health patients with a life expectancy of less than six months had less improvement in breathing than patients in hospice care, illustrating the potential for targeted hospice referrals to improve both patient care and home health agency outcomes.

FIGURE 3

**The QAPI Process – Pain Management Example**

**Select organizational-level quality measure:** Comfort within 48 hours of Admission – Percent of patients uncomfortable because of pain on admission who were made comfortable within 48 hours of admission\*

**Capture initial assessment data:** “Yes” or “No” from patient: “Are you uncomfortable because of pain?”

**Determine plan of care:** If “Yes”, care management interventions are initiated, consistent with patient’s goals.

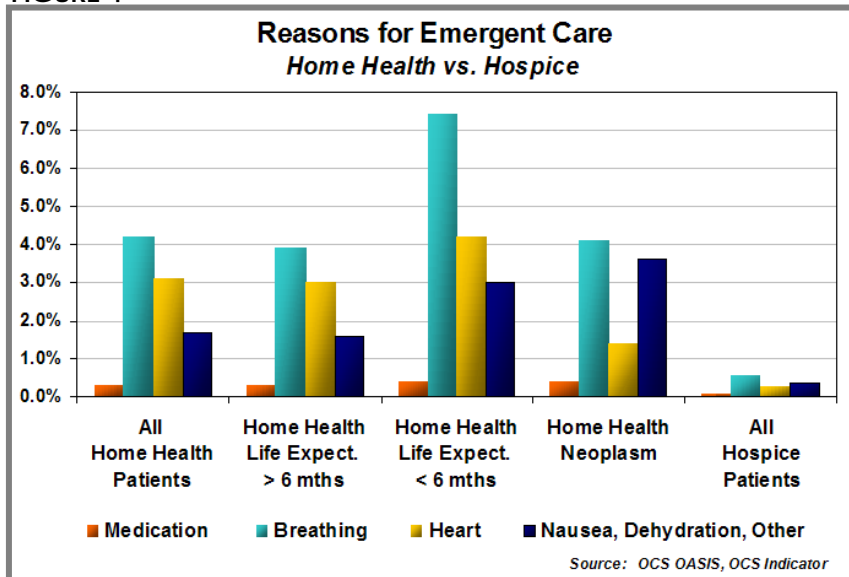
**Capture reassessment data:** “Yes” or “No” from patient 48-72 hours after admission: “Was your pain brought to a comfortable level within 48 hours?”

**Determine plan of care impact:** If “No”, refine pain management intervention, as appropriate to meet patient’s goals.

*\*For data collection protocol, email [erom@nhpco.org](mailto:erom@nhpco.org), go to [www.nhpco.org](http://www.nhpco.org), or call OCS at 603-795-4802*

For one indicator of pain management, the example illustrates how patient and family assessment data provides the basis for the development of the plan of care, as well as the evaluation of patients’ progress toward goals and the effectiveness of care planning and interventions. In addition, patient-level data from the assessments is aggregated to measure program-wide indicators of quality.

FIGURE 4



For patients in the OCS database, the graph illustrates the differential reasons for emergent care among home health patient subsets and patients in hospice care, evidence of hospice’s reduced use of emergent care for treatment of multiple symptoms.

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