The Benefits and ROI of Information Technology in Long-Term Care

Based on Studies Contracted by DHHS and NTT DATA

Long-Term Care providers now have objective confirmation of the benefits offered by IT as well as its return on investment, thanks to two recent studies. Providers who participated in the surveys agreed that they would “never go back to paper-based systems” and gave their reasons, including time and dollar savings.

One study, entitled “Understanding the Costs and Benefits of Health Information Technology in Nursing Homes and Home Health Agencies” dated June 2009, was prepared under a contract between the US Department of Health and Human Services (DHHS) and the University of Colorado. See page 4 for information on how the study was conducted.

Are Your IT Expectations True?

When LTC providers purchase software they expect an improvement in their services as well their bottom line. Up to now there was little objective evidence to substantiate those expectations. In this federally-funded study, multiple staff at four sites were asked about the results of implementing IT. Objective interviewers reported whether specific benefits were realized, and gathered participants’ comments.

The other survey was conducted in 2009 by staff of Keane Care, now NTT DATA, with several clients. It focused on the time savings they experienced by using NTT DATA’s administrative and Electronic Medical Record systems. This study quantified staff time saved and attached a dollar amount.

Long-Term Care and Incentive Payments

The purpose of the DHHS study was to establish a business case for HIT in LTC in order to stimulate adoption of IT. The American Recovery and Reinvestment Act (ARRA) requires DHHS to study the extent to which payment incentives should be made available to health care providers, such as nursing homes that are receiving minimal or no payment incentives to implement certified Electronic Health Records (EHR) technology. “This study has direct bearing on this provision in that it demonstrates some of the potential benefits of HIT in LTC settings.”

The single most often reported benefit by LTC facilities in the DHHS study was the “anytime and anywhere access to health information” afforded by an Electronic Medical Record (EMR) using Web-based applications.

NTT DATA’s survey reports first-year savings associated with an EMR conservatively at $44,928.

The Most Valuable Benefits

Study participants most frequently cited these advantages of paperless systems:

- Anytime and anywhere access to health information afforded by an Electronic Medical Record
- Greater efficiency in meeting administrative, financial, and federal requirements
- Improved quality management through reports, alerts, and decision-support tools
- Health information exchange between providers

Anytime/Anywhere Access to the EMR

The single most often reported benefit by LTC facilities in the DHHS study was the “anytime and anywhere access to health information” afforded by an Electronic Medical Record (EMR) using Web-based applications.

When asked about the benefits of Electronic Medical Records (EMR), LTC staff sharply contrasted the EMR to locating and retrieving the single copy of a resident’s paper chart that may be in use by someone else. Numerous examples were given of the advantages of immediate access to a chart.

Dollars Saved thru Anytime Access of the EMR

In NTT DATA’s survey, facilities were surveyed on items related to “anytime access” and reported these savings:

- Eliminating paper medical charts was estimated to save 10 minutes per day, multiplied by 12 users. First year savings were $7488*

continued
• Improved communication, measured by reduced time on the phone and in meetings, resulted in a savings of 5 minutes per day by 12 users for first-year savings of $3744

• Automation of formerly paper-based worksheets and assessments (not MDS) via User-Defined Assessments software. Estimated savings of 5 minutes per day by 12 users for first-year savings of $3744

• Reduced time spent faxing and copying: 5 minutes per day by 12 users for first-year savings of $3744

• Improved quality of documentation due to reduction in illegibility, audits, and errors resulted in savings of 5 minutes a day by 12 staff for a dollar value of $3744

Dollar savings from the above items resulted in conservative first-year savings of $22,464.

*based on 312 days per year at $15 /hour for clinical and office staff

Paperless Medication Administration Records Increase Efficiency
In the DHHS study eMARs were described as including current medication lists and the capability to document medications administered. Additional applications may include electronic prescribing and decision-support tools for drug interactions such as duplicate therapy, and allergies.

All facilities in the two studies reported use of eMARs and some used additional medication management applications. In the DHHS study sites noted the following benefits:

• Substantial reduction in medication error rates reported by three sites

• Decline in the time needed for medication administration from 9 hours per 12-hour shift to 6 hours

• Significant reduction in staff time for the monthly pharmacy medication reconciliation process, with one site experiencing staff time going from several days and nights at the close of a month to less than an hour

• Reduced risk due to the eMAR’s ability to display changed medication orders in real time

• Reductions in missed treatments, such as test for BSLs and BP

Return on Investment (ROI) through eMAR
NTT DATA clients reported the following savings after implementing NetSolutions eCharting with eMAR with Physicians Orders:

• Reduction in time spent updating medication orders by using software was 10 minutes a day for 12 staff, resulting in first-year savings of $7488.

• Eliminating paper-based processes in medication delivery resulted in daily savings of 30 minutes by 8 users for first-year savings of $14,976.

When added to the anytime-anywhere savings, first-year total savings due to a paperless medical record are $44,928.

Quality of Care Improvements
In the DHHS study, an EMR included software applications that addressed demographic information, clinical assessments (beyond MDS), care plans, clinical notes, summary reports, and physician orders.

At all sites, authorized users were able to access EMR data from remote locations, including home and off-site offices. Off-site access was noted to be particularly useful to physicians and other medical staff, reducing telephone time and in some cases, reducing the need to travel to the facility to assess the patient.

Providers interviewed in the DHHS study reported that better access to the clinical record through the EMR resulted in improvements in these areas:

• Care Team coordination and communication

• Decision-making support

• Promptness and completeness of documentation

• Response time to events such as out-of-range lab data

• Reduced duplicative diagnostic labs and X-rays

• Potentially reduced ER visits and re-hospitalizations

• Oversight to training coordinators and charge nurses so they can better identify training needs

• Better informed CNAs when a resident is new to their care

• On-call response time for nurses and physicians

• Transfers out and delivery of services upon arrival improved due to more complete and timely summaries

• CNA workflow self-management, leading to enhanced job satisfaction

• Regulatory compliance. One facility dropped to 2 citations from 13 after installing an EMR
Employee and Customer Satisfaction: No one likes to say or hear, “Let me get back to you on that”

Being able to quickly answer questions from a resident’s family, physician, insurer, or a supervisor was highly valued by staff on the receiving end of those questions. Having to search through paper for answers is time-consuming, unproductive, and annoying for staff as well as the people waiting for the answer. In addition, the most current answer is probably not available in paper.

Anytime access to vital information is a staff and client satisfier that adds to a facility’s professional image.

Meeting administrative, financial, and federal requirements

The four nursing facilities in the DHHS study used administrative applications for census and billing/financial management. All four facilities cited more accurate capture of MDS data used for RUGs case mix classification, resulting in both increased revenues and enhanced regulatory compliance. One site noted that their case mix-based Medicaid reimbursement had increased by 30 percent.

Individual sites noted these improvement in financial management:

- More accurate ADL measurement to calculate RUGs, increase revenues, and reduce MDS errors
- Fewer problems with claim denials due to more accurate charge capture and billing
- Improved cash flow due to increased efficiency in billing
- Reduction in the time needed to close monthly billing
- Centralized billing for several facilities
- Enhanced ability to bill multiple payers through electronic management of payer-specific forms and requirements
- Efficiency in utilization review
- Decreased staffing needs for billing and/or insurance verification
- Integration of EMR and administration systems increased billing staff efficiency and improved accuracy of invoicing.

Staffing improvements

- Efficiencies allowed existing staff to handle increases in admissions, preventing the need for additional personnel
- Increased efficiency for MDS Coordinator due to better availability of source information needed to complete the MDS
- Improved staffing to address patient needs, such as appropriate assignment of nurses qualified to deliver intravenous therapy and better management of therapist workload

Census management

- Electronic census management increased efficiency in determining patient placement, particularly important in a multi-facility organization, where patients can be directed to facilities with open beds
- Transitions from hospital to nursing home occurring in a more timely manner

ROI for Administrative Applications

In the survey by NTT DATA, clients told us they realized return on investment (ROI) through these savings:

- More complete collection of ADLs through CareTracker, a user-friendly point-of-service system, resulted in increased RUG scores and a first-year payment increase of $29,952
- Reduced duplication of data entry due to integration of NetSolutions MDS software with third-party systems including CareTracker and Therapute was reported to save 20 minutes per day for 12 users, resulting in first-year savings of $14,976
- Optimizing therapy RUGs through tools in Therapute resulted in a first-year payment increase of $7488
- Reduced expenses for paper, ink, toner, and chart room requirements was estimated to save $749 in the first year
- Calculation and transfer of RUGs and ancillaries for claim processing, estimated to save 3 staff 10 minutes a day for first-year savings of $1872

NTT DATA clients reported total first-year savings due to use of administrative applications at one site was $55,037.

Quality Management and Reporting

LTC providers in the study universally agreed that electronically-generated reports saved staff time spent sifting through paper. Because the reports provided more usable information more often, providers expected to see faster response times.

When LTC providers implement comprehensive IT systems, the amount of data available can be overwhelming, creating the need to assign responsibility for reviewing reports in a timely manner rather than at a monthly or quarterly review of the plan of care. To streamline this task providers are using “dashboard” software that highlights pressing care and financial issues.

Dashboards and reports can deliver data for Quality Management at the resident level and at the organizational level. Data reported can include numbers/percentages of residents experiencing adverse events, negative clinical outcomes such as falls and pressure ulcers, numbers/percentages of residents receiving immunizations, using PRN medications, and experiencing missed medications.
Alert and incident reports consist of resident-level information that requires follow up. These alerts may be in the form of drill-down functionalities within quality reports or may be delivered as e-mails or on a dashboard.

Facility staff noted that this information saved significant time over reviews of books of weight, food consumption, and/or chart reviews. One facility noted a decline in adverse events such as falls, fractures, and unresolved pain, and attributed the decline to better identification of at-risk patients.

**Dollar Savings due to Quality Management Reports**

In the NTT DATA survey clients pointed to these areas of improvement from QM reports:

- Increased efficiency and accessibility of Incident reports and medication/allergy interaction alerts. First-year savings were 5 minutes per day by 12 users for $3744.
- Improved communication of patient changes were reported to save 5 minutes a day by 12 staff, for first-year savings of $3744.

Additional benefits of Quality Management reports noted by LTC providers in the DHHS study:

- Enhanced communication across shifts due to improved accuracy of the reports compared to prior paper systems
- Additional information to assist with decisions such as appropriate staff assignments
- Helped to facilitate centralized quality review and monitoring in multi-facility sites
- When used for incident reporting, it supported constant monitoring and immediate followup (all facilities noted this benefit)
- Greater opportunity to implement corrective actions and update care planning due to timely problem identification
- Therapist efficiency reports were used to ensure appropriate staffing levels
- Regulatory compliance enhanced by virtue of more efficient and more accurate monitoring of problem areas
- Reports requested by surveyors are generated more efficiently

**DHHS Study Methods**

Thirteen SNFs and home health agencies (HHAs) were selected for the DHHS-funded study based on their reputation for using advanced Health Information Technology (HIT).

Those sites completed a survey of their current HIT applications and were narrowed to five SNFs and 4 HHAs. The contractors were especially interested in facilities using quality reporting functions, decision-support tools, secure electronic messaging, eMAR, and e-prescribing.

The next stage of the study included site visits during which they interviewed individuals who could provide data on costs and benefits of their HIT applications, including the administrator, financial officer, IT administrator, nursing manager, quality improvement manager, and clinical staff using the applications.

The study found that “rarely could respondents provide rigorous data” on benefits and costs of HIT. However they did report evidence of both benefits and costs that are shown in the study report in narrative and tabular results.

**Resources**

The DHHS study was accessed August 2010 at: http://aspe.hhs.gov/daltcp/reports/2009/HITcsf.htm

The NTT DATA survey results are available on request by email to susan.dryden@nttdata.com

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