



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

LOCATION:
*Reading, Massachusetts,
United States*

YEAR:
2006

STATUS:
Laureate

CATEGORY:
Medicine

NOMINATING COMPANY:
Sybase

ORGANIZATION:

HealthWyse

PROJECT NAME:

Mobile Home Healthcare

Summary

The HealthWyse product is not a typical software product. It is a pre-packaged re-engineering of an entire Home Health care agency and its internal processes. We have been able to improve patient care, job satisfaction, reduce agency overhead by up to 25%, improve cash flow, helps ensure HIPAA compliance using a product that has an ROI of less than 13 months.

Introductory Overview

We are going to assume the reader is familiar with the importance of HealthCare to the US economy, but may not appreciate what goes on in the Home Care industry. So here is that background.

A typical day in the hospital will cost over \$2000, but a patient being cared for in the home may only cost about \$100/day. So over the past decade, Hospitals have been pushing out patients sooner, relying on the Home Care industry to provide a consistently high level of care.

A typical Home Care agency has 25 nurses, and probably a dozen back office staff. Typically they would have one of the office people doing "computer stuff". This person likely had no professional training.

While we assume that much of medicine is uniform, various segments such as Inpatient, Outpatient, Long Term Care Home Care, or Hospice operate very differently. Outside of the Inpatient/Outpatient setting care tends to be primarily provided by Nurses as part of a team, whereas the care provided within the Inpatient/Outpatient setting tends to be directed and coordinated by a single physician. This puts greater demands on information co-ordination, and yet the level of IT infrastructure outside of the Inpatient community is generally very poor. Medicine as a whole is woefully under funded by IT standards. In Home Health care it is even worse. Generally there will not even be e-mail for all the employees of a Home Health Agency. While Home Health Care agencies have computers, generally they will only be used to drive a back office billing system, not for co-ordination of patient care. We have also found that the vast majority of these systems are, surprisingly, still DOS based.



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The other interesting aspect of Home Health care is that the percentage of nursing time spent on Documentation is the highest of all of the healthcare specialties. Over 50% of the nursing time is spent doing documentation, much of which must be data entered into the back office computers in order to bill for services.

The majority of money spent on Home Health care tends to be provided by the US Government through the Medicare Program. Beginning in 2000, the Government changed its method of reimbursing from a cost plus basis to a payment scheme based on patient acuity called PPS. In many instances not all of the nursing documentation was available until after the reimbursable episode had been completed, leaving the agency no ability to adjust the plan of care or shift nursing resources to more cost effectively care for a patient. As a result, all quality analysis had to be done retrospectively.

HealthWyse was founded in 1998 to address these challenges and to revolutionize the processes that were used within a Home Health agency. The founders and developers all came with a background in developing clinical systems for the critical care inpatient environment. Our goal was nothing less than to provide an IT infrastructure to these small agencies that rivaled the best systems deployed by well-funded Healthcare organizations with the goal of improving patient care and reducing the overhead to provide that care. None of the existing systems or processes could manage care and costs in real-time. We knew that we had to change the focus of the agency from cost accounting to using clinically based systems that could be use to predict and manage costs while removing duplication and unnecessary data entry.

There had been attempts in the past to address these issues by trying to computerize nurses at the point of care (POC) using laptops. The majority of these projects failed for a variety of reasons including:

- Initial Cost – laptops are very expensive, as is the cost of the information systems that ran on them. A Home care agency does not generally have access to the same level of capital and fund raising as other areas of Healthcare.
- Ongoing cost – It takes a number of IT people to manage the deployment of a large number of laptops. Due to IT market pressures, these people can draw salaries that may be higher than that paid to the agency director! Also, the laptops take a beating and need to be replaced every 2 – 3 years. Most agencies never had to deal with these ongoing substantial investments every few years – that's why most were running DOS system on the original hardware when the billing systems were purchased.
- Usability – The laptop was not very usable within the patient home. The nurse did not readily have a surface where they could put down and use the computer during the visit, so most of the documentation was scribbled on paper and then entered into the laptop in the evening at the nurse's own home. Resulting in a net increase in nursing effort and a decrease in job satisfaction. Also, since the data was not charted real-time, the system was unable to influence the care being given. A typical laptop has a battery life of about 3 hours, yet the nurses will be working for 8 hours. Carrying and charging extra batteries is not a viable option, so carrying a power charger is a necessity and further limits where the laptop can be used within the patient home.
- Technical Support – Home Health care is a 24 x 7 business. Synchronizing data between a fleet of laptops and a central database requires modem banks and an ability to quickly diagnose and repair operational issues. Issues in the back Office only needed to be addressed during a



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normal business day.

- Training – Many of the staff was older and had never used computers before. The software was difficult to use and it was not uncommon for an agency to still be implementing the system after 18 to 24 months. During this time, productivity may have been negatively affected due to the existence of parallel systems and processes with the agency

- Responsiveness – When an agency had a question of the system, they generally needed to open a ticket with a vendor who would either need to come onsite or remotely access the system to answer the question. It was not unusual for responses to be three weeks after the ticket was opened.

With these challenges, the HealthWyse business model was created. Instead of selling software and having the agency deploy it, we came up with a business model that takes all of the critical factors that affected the success of the project and made sure that those critical factors were owned by HealthWyse and not the agency. Basically we were going to take ownership of the things that could cause the agency to fail. Specifically we would address the weaknesses outlined above:

- Initial Cost – instead of this being a capital purchase, HealthWyse would provide the system for a monthly subscription fee. Thus agencies could pay for the system out of monthly cash flow as opposed to a capital purchase. Also, because of the hardware selected by HealthWyse, these fees would still be lower than what a competitive system would have cost. While ASP services are becoming common today, back in 1998, this was novel.

- Ongoing cost – Instead of hiring IT staff to manage the hardware, HealthWyse does it centrally with well-trained and specialized staff. The cost of upgrading the hardware was built into the subscription fee and would be replaced every 2 – 3 years while keeping the monthly fee fixed. Most ASP systems focus just on the software that they run locally via the web. HealthWyse combines this with an outsourcing model for running IT. While large corporations outsource aspects of their operations, HealthWyse does it equally well for small Home Health care agencies.

- Usability – HealthWyse chose to deploy its system using handheld computer platforms, which were just becoming viable. Because these devices were so light weight, they could easily be used within the patient home while providing care, Specifically it is the Pocket PC platform which fits in the palm of one's hand.

- Technical Support – instead of deploying modem banks and supporting staff at each agency, HealthWyse centralized this component of the system and provided 24 x 7 support directly. Because HealthWyse could amortize the cost of this resource over ALL our clients, we could do it more cost effectively than replicating the infrastructure at every agency. Also, it was easier to staff an operation that could provide 24 x 7 support. Also by doing this, we were able to invest in a higher class of equipment (carrier-class) and so the reliability of the infrastructure was greatly improved.

- Training – The software was specifically designed to be fail-proof. It was designed without computers terms and was designed as a nursing appliance. Specifically there were no buttons that said 'save' or 'file'. Things happen automatically and only the actions appropriate at a given point are available, this guiding the user on what to do. Also, since it was an appliance the operating system was hidden and the odds of the user doing something wrong are greatly reduced.



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•Responsiveness – Along with centralizing the modems, HealthWyse also centralized a database. A side effect of this architecture is that the HealthWyse support people had on-line access to the same application and the same data as the agency. Thus HealthWyse was able to provide real-time support and guidance when software problems arose.

Benefits

As an example of how our project has helped our customers, I will profile one of our customers – Caritas Home Care of Massachusetts. Caritas currently manages 170,000 annual visits conducted by a staff of 350. Since they acquired HealthWyse 2 years ago, Caritas has grown from two branches to four and increased patient census by 40%. To accommodate the growth, Caritas has increased office intake staff by a grand total of two persons. Data entry staff has dwindled by attrition; medical records for all four offices are managed at one location; and physician order tracking is overseen by one person.

•Nurses have found they can complete an assessment in about half the time it used to take them on paper. There is more time actually spent caring for the patient.

•Medicare case mix has increased since they started using HealthWyse due to the way the application leads clinicians through an OASIS admission, eliminating errors and omissions, and resulting in a more accurate HHRG (the basis for determining reimbursement rates).

•Administrators report advantages from the new ability to perform 100% start-of-care document review before sending 485s for signatures, even though the agency carries approximately 1,200 patients at any one time. Prior to HealthWyse, agency would only be able to spot check charts

•According to their agency director, Maureen Thompson, none of them would consider going back to the previous system. “We have to make sure we have spare PDAs on hand,” she said. “If anyone has to turn one in for service, she will not go back to paper, even for a day.

•Even physicians – even physicians – report HealthWyse advantages. Thompson says she has been told that they appreciate the clearer, crisper 485 layout, finding it to the point and easy to understand. “They have gone out of their way to comment on what a great improvement it is,” she says.

Where our product has been heading over the past few years is to increase specialized information to help in disease management. Specifically, we embed care protocols, such as those developed by VNA First and FAZZI associates, in order to provide nurses guidance in caring for patients in a uniform way and determining when patients fall off expected norms. Again, while this is common in an Inpatient setting, it is not so common in the Home Health care setting. The result is that patients have better outcomes, and they cost less to care for.

We have had nurses call us when they move asking us for the name of an agency near where they are moving that runs HealthWyse. We had one husband send us a letter thanking us for freeing his wife up so she could be part of their family again.



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The Importance of Technology

There were several key technologies that were incorporated into the system.

- Replication – By using advanced replication technology HealthWyse was able to seamlessly share data between not only POC users and the Office users, but also between multiple POC users managing the same patient. Replication was also a key reason that HealthWyse could use lower cost hardware within the agency. Once databases can be replicated, it doesn't matter if there is one server or multiple servers, or even the extreme of putting a database on every desktop. Therefore, the servers would not need to support a load of the entire agency and cheaper servers could be utilized.
- Device Management – HealthWyse developed key technology to manage the remote POC devices. At the time, no commercial solution was available. This infrastructure would allow us to remotely update the software and manage ROM versions. Since the beginning we also developed a mechanism that sent problems on the device or in the software back to a central reporting mechanism at HealthWyse so that issues could often be identified and resolved even before a user called in and reported it. This is a feature that Microsoft added into its software only within the past year or so.
- E-Mail – We built an e-mail within the application. While it may seem like a small thing, it turned out to be a very enabling technology as it changed the way people could share changes in patient condition.

Originality

HealthWyse has many firsts:

- First Home Health product utilizing a subscription payment model
- First Home Health product utilizing a hosted service
- First Home Health product with a complete Home Health patient record running on a Pocket PC computer platform
- First (and still only) Home Health Product with an integrated clinical financial system. While many competitors have both clinical and financial they are contained in separate databases. By having them integrated, the clinical system can generate financial projections in real-time as clinical decisions are made.
- First Home Health product with remote device management including remote software update
- First Home Health product with automated error reporting. We actually deployed this years before Microsoft supported it
- First Home Health Product that could run on multiple platforms (Pocket PC, tablet, laptop) at a user's discretion
- First (and still only) Home Health product built on a fully redundant replicated architecture that protects an agency against almost all forms of disaster. Since data is stored with the HealthWyse data center, AND at each of the agency's branches, and of these can become a disaster recovery site.



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HealthWyse has been consistently called the easiest to use POC application in the marketplace bar none. Users can generally pick up use of the system well enough to do a visit with only a few minutes of practice. We had one potential customer select a competitor's product over ours (for non-product reasons), but when another Agency called them for a reference, they told them to buy HealthWyse.

Success

The HealthWyse system has been successful from a sales perspective, but more importantly our customers have been successful. We have had agencies running the clinical product for over four years and the complete integrated clinical/billing product for over three years.

Among the successes experienced by our customers:

- An increase in cash flow of over \$600K, even though they already had the leading computerized billing system in place.
- Multiple JCAHO accreditation reviews with perfect scores. None of these agencies had ever had perfect reviews before. One agency was originally on the verge of losing accreditation and after implementing HealthWyse got above average scores. Other agencies have received their highest scores since deploying HealthWyse.
- A reduction in back office staff of about 25%. This comes in the form of elimination of data entry, a 50% reduction in the number of staff required to do billing, a reduction in the number of people required to do scheduling, a reduction in the number of people in the IT department, even though the number of computing devices owned by the agency has greatly increased.
- A local accounting firm that audits home health agencies rated HealthWyse agencies as the top performers in financial performance among all his 50 New England agencies. These agencies were not the top performers prior to their using HealthWyse.
- A common practice in the industry is to have an outside accounting firm come in and audit records for revenue that was "left on the table". They take a percentage of what they identify (typically 30% or so). One of our clients just went through this process where 20 auditors spent three months combing through their books. They had been promised that they would recover at least \$150K (based on their total revenue). After all the effort, the auditors found only \$2000. This success is due to the way the software structures the data entry and error checks end-to-end. It doesn't let people make mistakes. And that \$2000 - it was because the biller overrode a warning from our system.

Difficulty

The greatest challenge we faced in this process was one of credibility. People who viewed the system and loved it, but could not believe that a group of people so small had developed the application they saw. They felt there had to be something missing and weren't willing to take the leap. The best way to overcome the doubt was to have them talk to an existing customers. We would tend to win a deal when this step occurred.

The cost savings through the implementation of HealthWyse seemed like fantasy to many users, as their experience implementing systems in the past always generated far fewer benefits than



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had been promised. In some cases we have lowered the projected cost savings to make them seem more credible. When the system was actually implemented the cost savings would generally exceed what we projected.

What the ComputerWorld Honors brings to us is a level of credibility that a respected outside organization sees merit in the solution we have developed and thus may have an easier time selling it to skeptics within the organization. It is the first honor our organization has received and is something we are all very proud of.