The Use of Technology in the Home Care Industry:

Current Practice and Future Prospects

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Executive Summary

Despite its prevalence in other service industries, and indeed in other—although by no means all—segments of the healthcare sector, technology has not penetrated the home health care or home care industries in any substantial way at the present time. Unlike the example of the Electronic Health Record (EHR) for doctors which, through a combination of incentives and penalties, is being heavily promoted by the Federal Centers for Medicare and Medicaid Services (CMS), home care companies are being neither encouraged nor compensated by the market or by state or federal programs for their implementation or use of available technology.

The modest size of most home care enterprises and the extremely fractured nature of the industry (90+% of enterprises are single-person entities and no company controls more than 3% of the industry), combined with low profit margins and a patchwork of state and county reimbursement procedures, make it unlikely that technological innovation will be led by individual firms in the marketplace. And despite the obvious role that home care could play in meeting the objectives of the Affordable Care Act (ACA) for lower-cost, more effective, more patient-centric care, it does not appear that home care is even on the radar of most healthcare systems advocates or professionals. This is unfortunate, as clear and easily adoptable technological improvements currently exist that could increase operational efficiencies and support home care workers as an important link in the care team for fragile seniors and those straining to manage one or more chronic conditions.

While the case for using available technology for back office functions such as scheduling and billing is quite straightforward (and this is the area where technology is most commonly utilized in the industry), other areas provide more of a challenge. At first glance, it would seem that consistent implementation of technology in reporting and interfacing with public funders would save time and money. The technology exists, is not overly complex (although the issue of patient confidentiality is a concern), and there would appear to be a clear benefit to all systems players of a consistent system for tracking resource utilization and outcomes. However the fractured nature of the payer system (every state and sometimes even county is different) makes this a difficult area for an individual home care company, or even a coalition of them, to influence.

The issue of the potential for the use of portable technology by home care workers themselves is perhaps the most knotty and intriguing part of the puzzle. The sophistication and ease of use of portable technology in the form of smart phones and tablets has rocketed in recent years, while prices have dropped precipitously. Beyond the application in such limited functions as tracking workers' whereabouts, it is easy to imagine how, with the right support in place, this revolution in portable

technology could function to support an in-home care worker as a valued member of a coordinated care team working to keep elders functioning in their own homes rather than ensconced in a nursing home at three times the cost. Yet the use of technology in this way is rare in the industry. Those that have experimented, often with funds provided by philanthropy, report that funders, workers, clients and care companies all saw advantages with the application of portable technology; however, funders were not willing to pay the extra cost for it. With profits margins so slim and worker compensation already inadequate, companies cannot absorb the extra cost. So for the time being, such programs have unfortunately remained only experimental initiatives.

Implementing a technology program on a more consistent basis would require not only initial funding of the technology and monthly maintenance fees, but also a concerted effort at dialogue and partnership with funding agencies and other systems players such as hospitals. Additionally, it would demand the diligent collection and analysis of data to support the effectiveness of the intervention in meeting multiple objectives. Beyond that, it would require industry recognition of home care workers as contributing members of a coordinated care team, valued for their observational skills and real time personal knowledge of patient circumstances.

Like most tools, technology has potential to be useful or not; portable technology could be implemented industry-wide, but then used only for the most menial aspects of worker tracking and nothing else. To unpack the full potential of portable technology to enhance job quality and respect for care givers, not to mention give workers a shot at a capturing a portion of systems savings for themselves, will require a concerted effort by advocates and home care companies. However, who better to lead such an effort than worker-owned home care cooperatives?

Background on Technology Use in the Home Care Industry

Currently neither the private pay market nor publicly-subsidized programs require any specific type or use of technology for tracking or submitting data and information. For example, to avoid fraud, home care companies are required to have a system in place for guaranteeing that workers are actually at a person's house. However, this can be tracked through a variety of means including high tech GPS, or the very low tech methodology of spot checks, or simply having the caregiver call from the client's house. No system dominates, although GPS is still the least used due mainly to cost, and practice is driven by convenience, short term considerations, or the simple fact that it has always been done a particular way.

The use of technology in home care can be divided into three major areas:

- Back office functions such as scheduling, accounting, billing
- Interfacing with different funding sources for reimbursements
- Home care workers use of portable technology on the job for efficiency, convenience, or to improve job quality or patient care

Each of these will be described and evaluated below based upon their ability to contribute to a number of different objectives including:

  - Market differentiation
  - Quality of care
  - Operational efficiency
  - Job quality

Back Office Technology

In general, most home care companies have found that using back office technology designed for the home care industry has increased efficiency and reduced paperwork. QuickBooks is the most common choice for small business accounting while there are a variety of software packages that provide for scheduling, tracking and payroll. Efforts at implementing back office technology are mostly centered around issues of operational efficiency, and the funding stream for implementation are also found here, as individuals companies are generally looking to see direct cost savings in order to implement a new system.

Since most of the activities encompassed by these systems is internal to the individuals company, there are only extremely limited ways in which this kind of technology would affect the other factors of market differentiation, quality of care, or job quality. A more efficient and reliable scheduling system, however, could bolster a company's reputation in the eyes of clients and funders, and using technology to limit travel time between clients and more efficiently schedule to maximize care hours could hold advantages for both care giver job quality and the company's bottom line.

In our interviews, we found smaller companies often did not invest in back office technology from the start, but that most ended up buying some package and reported that it improved efficiency.

We have made recommendations for the type of back office technology we believe would be best used by new enterprises below.

Funder Interface

Interfacing with different funding sources continues to be a challenge for all home care companies in both the private and publicly-paid markets, and use of technology is greatly dependent on the funding source's requirements.

In Wisconsin, for example, publicly-funded programs are administered by one of eight different independent Managed Care Organizations (MCOs)[1], which cover overlapping geographic areas so that one county may have as many as four or as few as one MCO serving it. With the exception of densely populated urban areas such as Dane County (Madison) or Milwaukee, most home care companies of any size must serve multiple counties, which usually means they are billing multiple funders. A company providing care to clients under public programs in Wisconsin may need to submit paper forms to one agency, use a web portal for another, and use a third party software that generates reports for a third agency. Private insurance companies and other organizations like the VA may have different systems.

This is a clear area of frustration for administrators, as home care companies do not have control over any of these systems, nor is there yet a meaningful effort yet underway to coordinate them. Care agencies do have the ability to "opt out" of a particular payer's system by discontinuing their contract with that MCO. And indeed, home care agencies *should* be monitoring the cost of submitting reimbursement to determine if that stream of revenue justifies the expenses associated with billing, including staff time and lengthy reimbursement delays. However, this is far from an effective system, as discontinuing the relationship with a particular MCO would necessarily mean a loss of revenues, as well as a loss of contact with clients, while doing nothing to improve the system.

Since funder interface decisions are driven by the funders themselves, there is no meaningful opportunity for market differentiation of home care agencies in this space. Similarly, it does not directly affect job quality (except perhaps for the administrative employees who must deal with multiple systems) and is only tangentially-related to care quality in that a poorly administered MCO will have fewer care options for their members. The main contribution to be made in this area of technology is again, operational efficiency (or lack thereof). For individual care agencies, there is not much to be done other than keeping lines of communication open with MCOs, and joining with others in the system to advocate for change.

[1] Counties may also opt to manage their own programs

Portable Technology for Home Care Workers

It is hard to visualize a future scenario where portable technology like smart phones and tablets will *not* be part of the working day of every direct care provider. Already apps like "T-Sheets" are being used in other industries with mobile workforces to conveniently input hours, location, and other data in real time and seamlessly integrate it into other programs like QuickBooks. Industry analysts[2] stress that the most robust and attractive markets opportunities in home care in the coming years will be in chronic disease management, an area where the regular monitoring and reporting of key health indicators play a significant role. It is easy to see how the appropriate use of portable technology on the part of home care workers could make significant contributions to all four of our key outcome measures: health outcomes, job quality, operational efficiency and, because current industry practice is so embryonic, market differentiation.

The reality, however, is more challenging. Home care agencies that have experimented with portable technology programs have struggled to pay for them long-term, as the traditional funders of Medicare and Medicaid have not equated the benefits with higher payments. At least one experiment is currently under development to tap non-traditional funders—in this case hospital systems—as potential allies, given that these systems will now pay a penalty for high rates of readmissions. Counties or other entities that have made use of federal waiver programs also generally have more flexibility to recognize and pay for innovations.

A second area of challenges lies in the workforce itself. According to a report by the Paraprofessional Healthcare Institute (PHI)[3] over 40% of Wisconsin and surrounding state's home care workers receive public assistance, and these low income households are less likely than the average population to own personal smart phones. Those who do have cell phones often have very limited plans where they must pay for every text. The high turnover rate in the industry—over 60% nationally—also makes it difficult to train and support workers in the consistent use of portable technology. A relatively older workforce (at least in some markets) is another impediment, although other agencies report attracting younger workers who are more technologically savvy.

Whatever the barriers and regardless of whether such change arrives sooner or later in a particular market, it is clear that documenting and tracking social and health outcomes will play a larger and larger role in the future in terms of demonstrating the value added of a home care company to the health system.

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[2] IBISWorld 62160

[3] Paraprofessional Healthcare Institute, "State Facts: Wisconsin's Direct Care Workforce", December 2011

Technology will play an important role in this tracking and so any company that can begin to integrate more technology will likely be at an advantage.

Current Uses of Technology

A summary of the areas where technology is currently being used in the home care sector include:

Billing, accounting, etc.

QuickBooks is the most commonly used software and it integrates nicely with other programs such as Excel and technology specifically designed for the home care industry. Our recommendation is that all companies should use automated billing and accounting systems.

Scheduling software

This software allows company to schedule, send out reminders, and track hours. There are a number of companies that provide this kind of software including Generations, Arrow, Sandata, Kinnser, and ClearCare. Its use cuts down on scheduling errors, particularly when a company must track a large number of clients and franchise agreements typically require its use. With new rules mandating that employees be paid for travel time between clients, such software can also play an important role in implementing more efficient scheduling. Our recommendation is that all companies should have some automated system of this sort.

Care worker check-in

All care givers must report in some manner when they arrive at and leave a client's home, as well as report (generally marking off on a list) what they have done while at the house. At the current time, most care givers are not taking any notes beyond this and most are not interacting with medical professionals.

Some current systems include:

- Paper: While some companies still use paper time sheets, we do not recommend this practice as paper time sheets cannot address situations where care givers do not show up.
- Telephony: This is the most common practice we found where workers call in and out and information is relayed to company through software. The system alerts the company if a caregiver does not arrive for a scheduled appointment so the company can send another care giver.
- App/web program: These are similar to telephony, but rely on GPS to check in/out. It is superior to telephony in that GPS-based system can accurately determine exactly where someone is calling from, while telephony cannot track this information and thus is vulnerable to fraud. One large home care

company we interviewed had a cell phone pilot program using GPS five years ago, which worked very well. However, they could not afford the technology long term and reimbursements were not increased to cover costs of phones and service.

Billing (Revenue Cycle Management)

This is another challenging area as Medicaid and Medicare will not allow any software to integrate directly with their systems. Instead, home care companies can pay a third party vendor to take their information, process it, and put it into a form that is acceptable to these funding sources. Some companies that provide this service include ZirMed and TriZetto. If a company does not contract with a third party to use this type of software, their alternative is to manually enter all data into the state systems. States differ on which systems will integrate with this software and companies need to consider the cost of manual entry and in delays in payment compared with the cost of third party administrators. Some scheduling and billing technology companies partner with these revenue cycle management companies and provide discounts to their customers. For example, Kinnser works with ZirMed and provides a discounted package.

Future Uses: Telehealth

Telehealth is a general term that describes a wide range of technologies used to monitor health. One large care company we interviewed is currently working with a managed care company to test the use of tablets to monitor patients in their home. The outcomes tracked in this pilot include: emergency room visits, preventable re-hospitalization, and care giver burnout. This technology is new and being funded by a combination of philanthropy and the managed care company; it is only in a nascent experimental stage and is therefore unlikely to be available to most home care companies in the near future. However, this pilot project does illustrate the potential for the use of technology to expand the role of care givers in an integrated care delivery system.

Recommendations

While disappointing, the conclusion cannot be avoided that the *promise* of technology in the home care sector currently far exceeds what is compensated for and delivered in practice in the industry on a day-to-day basis. Absent a dedicated funding source to subsidize implementation and ongoing support of state-of-the-art technology, we must recommend that a new start-up company be prudent in its

purchase and use of technology, focusing mainly on adaptions that will pay for themselves through demonstrable efficiencies and/or an increased revenue base. These include:

- Start ups in the private pay market only
    - Accounting software (QuickBooks)
    - Scheduling software that integrates with QuickBooks
    - Telephony or web-based check in system (many now offer telephony and smartphone apps in one package)
- Start ups seeking Medicaid/Medicare/VA funding
    - All of the above
    - Revenue Cycle Management or other system that allows for electronic submission of reimbursements. The particulars will depend on funding sources and requirements.

Some Considerations for All Companies

If the new co-op plans on seeking philanthropic dollars, other outcome metrics will likely need to be tracked and measured. Having care givers become comfortable with the above technologies will help them quickly adjust if they are asked to use technology to track other metrics in the future. Most companies offering telephony also offer apps for smartphones and these should be utilized where costs allow (perhaps being written into the funding proposal etc.).

Another important point for all home care agencies to consider is the opportunity cost of ineffective systems. We recommend that all companies diligently monitor the true costs, for example, of the additional staff time needed to fill out paper forms or use a stand-alone reporting system for one agency that no other agency uses, as well as the real cost of delayed reimbursements due to archaic systems (many home care agencies, for example, must maintain a line of credit or working capital account to fund salaries until such time as payment for the work is received; if payment is delayed an additional 30 days from one agency compared with another, that is a real cost).

New markets must be evaluated not only on their overall revenue potential or reimbursement rate, but also in terms of their "hidden costs" of inefficiency and delay on the part of the funding agency, and priorities set accordingly. Systematically collecting and using such data (and perhaps strategically sharing it with public officials) will help the home care cooperative to identify their best local partners, and work with them to achieve systems change that will benefit all.

Some Considerations for Allies

Given the low profit margin, stagnant wages, and largely intractable system of federal reimbursements, it is unproductive and perhaps even unfair to expect home care companies themselves—even the most progressive among them—to embrace the full spectrum of possibilities that existing technology holds for improving health outcomes and job quality as well as operational efficiency. The largest among our interviewees, at over 1,000 workers each, were able to sponsor some pilot initiatives; the others made the best of what was reasonable in their particular situation.

It is not usual for an outside ally or organization to help bring innovation to smaller players in a marketplace. We have seen this happen at least twice in the cooperative sector, where philanthropic dollars (in this case RCDG funds) paid for the initial adoption and use of the CoCoFiSt benchmarking technology for smaller, rural cooperatives, while the Urban Homestead Assistance Board (UHAB), a nonprofit based in New York City, developed and implemented a common bookkeeping system for small housing cooperatives. In both cases, the work eventually found stable funding, but only after the risk of the "proof of concept" stage was borne by philanthropic dollars. It may be that home care cooperatives will require the same commitment from their allies in order for them to benefit from the promise that technology holds.

Although this report has focused very little on job quality and work force recruitment, the fact of the matter is that this is the key challenge that a new or growing home care agency faces above all others—the work is there, it is the workers who are not. If there is any way that allies can help support the worker cooperative sector to use technology more wisely and efficiently in their bid to be the "workplace of choice" for all care givers, such initiatives should be strongly considered.

Appendix A: Technology Resources

Pricing of software and other technology varies greatly depending on volume and the features a company selects. We have given names of several companies above that our interviewees currently use and with which they are satisfied, but it is by no means an exhaustive list. Some companies are national, while others are more regionally focused.

Appendix B: Sources

Interviewee	Organization
Karen Kulp President and CEO	Home Care Associates Philadelphia, PA
John Prindle Executive Director	Cooperative Care Wautoma, Wisconsin
Stacey Hammerlind, RN,CT,CCM,CDP Adult and Geriatric Care Manager	Senior Care Resources, Inc. Belmont, MA
Angelina Del Rio Drake Executive Coordinator	PHI (Paraprofessional Healthcare Institute) Bronx, NY
Lisa Gurgone Executive Director	Massachusetts Home Care Aide Council Belmont, MA
Jo Ann McNerthney	Circle of Life Caregiver Cooperative Bellingham, WA
Emma Yorra Cooperative Business Developer	Center for Family Life Sunset Park, NY
Michael Elsas President	CHCA (Cooperative Home Care Associates) Bronx, NY
Jeremy Barta	Kinnser Private Duty Software, Inc.
Todd Costello Executive Director	Community Living Alliance Madison, WI