

Medication Management Technologies

PROVIDER CASE STUDIES

2015

CASE
STUDY



MEDICATION MANAGEMENT TECHNOLOGIES
PROVIDER CASE STUDIES
2015

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LeadingAge Center for Aging Services Technologies:

The LeadingAge Center for Aging Services Technologies (CAST) is focused on accelerating the development, evaluation and adoption of emerging technologies that will transform the aging experience. As an international coalition of more than 400 technology companies, aging-services organizations, businesses, research universities and government representatives, CAST works under the auspices of LeadingAge, an association of 6,000 not-for-profit organizations dedicated to expanding the world of possibilities for aging.

For more information, please visit LeadingAge.org/CAST

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1 Introduction

The LeadingAge Center for Aging Services Technologies (CAST) is pleased to provide the following three case studies on the impacts and benefits of medication management technologies. We hope they will demonstrate for providers the benefits of using medication management technologies.

The case studies are designed to help long-term and post-acute care (LTPAC) providers understand the benefits that medication management technologies can offer to their care settings.

This set of case studies is a companion to the 2015 CAST whitepaper entitled Medication Management Technologies for Long-Term and Post-Acute Care: A Primer and Provider Selection Guide. The whitepaper will also include a link to the 2015 Medication Management Solutions Selection Matrix that compares 32 medication management products from 29 vendors. The medication management technology vendors that chose to participate in the self-review were offered an opportunity to nominate a provider to write a case study on its use of the vendor's medication management product.

1.1 Case Study Guidelines

CAST provided guidance as well as a template for the case studies to help case study contributors. The template included the following required sections:

- Category (select applicable ones): Impacts and Benefits of:
 - ePrescribing/ Medication Ordering
 - Medication Management Clinical Decision Support Systems
 - Medication Therapy Management/ Medication Reconciliation
 - Medication Dispensing
 - Medication Administration
 - Medication Adherence
 - Interoperability and Health Information Exchange with Other Care Providers either Directly or through a Health Information Exchange (HIE)
 - Analytic Tools (e.g., Medication Error Reporting, and Quality Reports)
- Organization Name:
- Organization Type (Physicians' Offices, Emergency Department, Hospitals, Attending LTPAC Physician, LTPAC Pharmacy, Retail Pharmacy, Specialty Pharmacy, Consulting Pharmacy, Telepharmacy, Mail Order Pharmacy, Housing with Services, Home Health/Home Care, Hospice, Attending LTPAC Physician, Adult Day Care/Senior Centers, Assisted Living Facilities, Acute Rehab Facilities, Long-term Acute Care Hospitals, Long-term Care Rehab Facilities, Skilled Nursing Facilities, Intermediate Care Facilities, Intellectual Disabilities/Mental Retardation/Developmental Disabilities (ID/MR/DD) Facilities, Continuing Care Retirement Communities (CCRC), Program of All-Inclusive Care for the Elderly (PACE), Accountable Care Organizations (ACO)/Integrated Delivery Networks (IDN)):
- Organization Description (brief):
- Project Description (brief, no more than 6 lines; what the project is about and which business line it was applicable to):
- Implementation Approach:

- Outcomes (medication errors, adverse drug events, medication adherence, quality of care, staff efficiencies, workflow improvements, readmission rates, financial, etc.):
- Challenges and Pitfalls to Avoid:
- Lessons Learned/Advice to Share with Others:

CAST received four completed case studies from nominated providers. We believe that LeadingAge members and other LTPAC providers will benefit from these case studies and learn from other providers who have already selected, implemented, and used medication management technologies.

2 Lessons Learned and Advice Drawn from the Case Studies

Readers can learn many lessons from the following case studies. Each participating provider took a slightly different approach to choosing and utilizing a medication management technology, and shared the factors that led to their success. Below is a summary of lessons learned and advice from these as well as previous CAST medication management case studies ([See the 2014 Medication Management Case Studies Report for more information](#)):

Planning and Implementation

- Introducing technology into processes that have been historically paper-based requires a significant culture change for many care providers. Creating a supportive and safe technology-embracing culture throughout the workforce helps achieve a smooth and successful transition to any new technology implemented.
- The ability to access medication records, analytics, and reports from anywhere, at any time, presents LTPAC providers and their management with unprecedented insight into care operations and opportunities to improve care quality and efficiencies.
- A team-based approach to implementation of medication management technology, auditing and ongoing feedback with education leads to a high level of staff satisfaction. Down the road, the team can develop into a true support system to discuss what's happening with the technology, why and brainstorm the best approach to success.
- An implementation team should be comprised of representatives from all functional areas of the organization involved in medication management in one way or another so that hand-offs, transitions and processes that cross departmental functions can work more effectively together.
- The adoption of new technology requires the effort to review existing policies, procedures, and workflow practices to identify where current policies and practices require modification. In addition, a careful review of existing policies and practices is required to identify gaps in these areas for the development of new practices related to the adoption of a new system like EMAR.
- A new workflow that takes advantage of electronic medication management technology is a key foundational element of implementation that would help providers attain and maintain an excellent level of care.
- During planning and implementation, providers should make sure to take advantage of advanced functionalities in their medication management system such as alerts, reminders and clinical decision

support, to ensure best practices, continuous quality improvement, and deliver the highest quality care.

- Having a team member as the point person for the project is highly recommended. This person should have a thorough working knowledge of your systems software and have a clinical foundation. A strong clinical leader is also necessary to coordinate and provide training and guide table and form building.
- Communication is vital to the success of any technology implementation project. There are many stakeholders– residents, nurses, physicians, the pharmacy, medical records, etc. – and appropriate communication as needed will keep the project running smoothly.
- Order sets are invaluable to the success of a CPOE implementation. This can be accomplished by taking the vast First Databank (FDB) database, simplifying it and delivering its care quality standards and protocols from within the solution.
- Management should re-distribute workloads as needed, and ensure best practices are being followed by all staff, especially for specific drugs associated with increased risks.
- When starting the roll-out of any electronic medication system, providers should allot sufficient time to ensure things are done correctly. Audits must be conducted as part of the implementation and ongoing use to assure compliance and allow benchmarking.
- Encourage adoption by key stakeholders and empower staff to fully adopt and utilize the system.
- Medication adherence technologies can increase a patient’s awareness of the importance of their medications, improves patient engagement with their overall health care and enables self-management, which in-turn lead to improve their outcomes.

Training

- Educating the staff is not a one-time exercise. Start educating early and continue throughout and beyond go-live with education and ongoing communications.
- Create champions and internal experts as the first line of contact, with additional staff as backup, to better manage system training internally.
- Ongoing training will help you discover who uses the system proficiently and who needs re-education. It can also help you identify and recognize the more experienced staff so that they can share their knowledge and assist the other staff in elevating their skill levels.
- Provide the right education to the right staff at the right time.
- Daily basis audit of the previous day’s documentation can identify what is missing and those who need follow up. Encouragement of compliant staff may gently push non-compliant ones to do better. One-on-one follow-up training and education with any staff not in compliance can improve outcomes and performance.
- Make sure you have the proper high-level administrative support in place to assure that attendance of key staff in training and educational programs is mandatory.



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3 Using EMAR to Reduce Medication Error Rate

3.1 *Provider: Epiphany Assisted Living*

Contributors: Terri Pratt, LPN, Asst. Executive Director

3.2 *Vendor: Eldermark*

Category

Medication Administration – EMAR

Organization Type

Assisted Living Provider Community, Home Care

Organization Description

Epiphany Assisted Living is a non-profit Housing-With-Services provider offering assisted living program services to residents under a Minnesota Comprehensive Home Care License. This community consists of 44 apartment units for assisted living and 23 apartment units for memory care. A workforce of 70 employees serves the housing and services needs of residents. 33 of these employees work within the licensed home care agency. The home care workforce is managed by a team of four full-time nurses, including the Assistant Executive Director.

Project Description

The project focused on the implementation of the Electronic Medication Administration Record (EMAR) within the EHR of our licensed home care program. The project goals include:

- Achieving a more complete Electronic Health Record by incorporating an integrated electronic medication administration system;
- Enhancing workflow efficiencies;
- Reducing medication error rates;
- Enhancing regulatory compliance;
- Enhanced caregiver accountability;

- Increasing resident and workforce safety; and,
- Mitigating drug diversion.

Implementation Approach

The approach to achieve the goals of Epiphany's Project was adoption and implementation of the EMAR software module and its workflow components within Eldermark Software. Implementing the EMAR technology provided a real-time direct electronic connection to the primary pharmacy vendor, Merwin LTC Pharmacy. Physician-orders for medications were sent directly to the pharmacy enabling the pharmacy to complete the order in the EMAR and port the complete order data to the EHR for review and acceptance by the on-site Clinician. Once the medication order is accepted by the on-site Clinician, the medication order is sent directly to the Medication Administration Record and to the medication pass schedule for caregivers.

Adoption of the EMAR technology required activating the software within the EHR and training from Eldermark for nurses and caregivers. Current policies and procedures related to medication administration practices were reviewed for workflow changes and gaps. These policies and procedures were updated and changes were incorporated into the workforce EMAR training prior to implementation. The EMAR technology moves the med pass workflow from paper to electronic. Caregivers sign on to the EMAR with their unique credentials and access their med pass schedule at the appointed times. Performing a med pass is as simple as clicking on a resident's name, clicking on the medications to be passed, scanning the bubble pack cards pre-packaged by the pharmacy, administering the medications, then clicking on CONFIRM that the medications were administered as ordered. There are options to also document missed/refused/attempted meds and to document vital signs or other clinical data at the time of a med pass. Medication administration Data flows into the EHR and the MAR electronically in real time from the field.

The EMAR technology provides a real-time Dashboard for in-the-moment monitoring of the medication administration activities occurring throughout the senior living community. The Dashboard monitors potential duplicate med orders, PRN medication administration and effects, medications held, medications requiring a refill request, and medications not administered for any reason. Periodic monitoring of the Dashboard data allows the Clinician to catch issues or concerns before they become adverse incidents.

Outcomes

- *Achieving a more complete EHR*
 - The adoption of EMAR technology helps to complete the EHR by supplementing the clinical e-assessments, the e-service/care plan, and the balance of the EHR with electronic record of all medication information – all within each resident's electronic clinical record (EHR).
- *Enhanced workflow efficiencies*
 - No more month-end reconciliation workflow required – this is now performed by the pharmacy. Prior to the use of the EMAR the nurses were spending over 10 hours at the end of each month reviewing Med Sheets to ensure that all changes from the previous month were captured on the new monthly MARs from the pharmacy. The MARs were printed about 12 days prior to the start of the new month. The extensive time (10 hours each month per nurse) required to perform the handwriting changes needed to reconcile the MAR is no longer needed.
 - All the information the direct care staff need to safely and efficiently perform a medication pass is in one comprehensive location in the EMAR software module for direct and quick access when needed. Direct care staff can access information about the medication to be

passed currently; the time of the previous pass, if a refill is needed or has already been ordered; medication side effects; available PRN medications; recent PRN medications given; recently Missed/Held medications; and resident allergies; in addition to a summary of resident information such as diagnosis, diet, DNR status, evacuation status, special nurse notes, and Responsible Party/Family contact information.

- EMAR has helped Epiphany to achieve a very low medication error rate. On average, between medication administration and treatments, the direct care staff are signing the MAR approximately 22,000 times per month or an average of 290 times per resident per month (nearly 10 MAR documentations daily per resident).
- Prior to converting to the Electronic MAR it was difficult to strictly regulate medication administration. Each day the nurses would have to review the paper MARs for meds/ treatments that staff did not initial. This could easily take a minimum of one hour daily and then if there were discrepancies between the MAR and Medications then an active investigation would take place on each discrepancy that would add more time to this process.
- *Reduced medication error rate*
 - The Medication/Treatment error rate for 2013 was .072%; for 2014 it was .011% and Epiphany is trending toward a lower rate for 2015. Med errors before EMAR = 192/yr. Med errors after EMAR = 31/yr.
- *Enhanced regulatory compliance*
 - Changes in the MN Home Care Rules for the Comprehensive Home Care License under which Epiphany operates require new assessments and enhanced documentation. The adopted EMAR system permits ease in demonstrating regulatory compliance requirements.
 - With the adoption of EMAR, it is now very easy for nurses to audit the meds to make sure each medication has a reason/diagnosis associated with it. Again, it is a simple EMAR report that can be run any time and the report helps to keep Epiphany compliant in this area (see also enhanced accountability below).
- *Enhanced caregiver accountability*
 - Currently the nurses run a missed medication/treatment report towards the end of their shift. If the nurses notice that something was noted as a missed medication they are able to question the staff during that shift. It is a report that can be run in seconds. They have found that this “real time” monitoring has helped to make the Home Health Aides more conscious of the medication administration process and therefore they pay far better attention to the details and task of administering medications and treatments.
 - When performing medication administration and when confirming that the medication administration has been completed, the direct care staff confirm in the EMAR and the documentation for the confirmation is done in real-time, associated with their unique identification. This accountability ensures that med passes are performed and documented as they should and in a timely manner– a significant improvement from paper documentation at the end of the shift.
- *Increased resident/workforce safety*
 - The built-in accountability features translate into a safer, more reliable workflow that benefits resident safety, and, contributes to the confidence and attentiveness of the direct care staff in the performance of medication administration duties.

- *Mitigation of drug diversion*
 - No health care provider involved in medication administration is immune from the potential for medication diversion, but the proactive steps available through EMAR implementation can help detect and mitigate diversion before it becomes an issue.
 - Medication usage pattern reports available within the EMAR can help identify potential diverters.
 - Personnel assigned to perform medication administration must login to the EMAR system with their unique credentials – the system will record who is active in the system as access and duties are performed, aiding in the identification of individuals potentially involved in drug diversion if suspected or noted.
 - The EMAR Dashboard alerts the Nurse to any medication administration activity that is outside of required practice, enabling early identification of potential medication diversion, i.e. premature refill requests, medication counts out of sync with med administration documentation, etc.

Challenges and Pitfalls to Avoid

The initial challenge of getting everyone on board with any new technology can be difficult. Fortunately, the EMAR for medication administration module in Eldermark is very user-friendly. You also need to have one person manage and oversee the training to ensure that everyone is practicing the right workflow to achieve EMAR expectations. Moving toward a paperless medication administration system can be very intimidating to many people. We found that one-on-one training along with the video modules from Eldermark worked well. Once the staff viewed the video modules assigned and were tested out, we were able to go live with confidence.

An additional challenge faced with implementing the EMAR was working with some of the nuances of medication ordering communication with the pharmacy. We discovered that it was important to have a very good foundation for communication between the primary pharmacy and collaboration between the nurses and the pharmacy to ensure best outcomes. The introduction of EMAR changes the way nurses communicate with the pharmacy and it is sometimes very easy to find blame within the technology versus focusing on how the entities could work better together. Epiphany enjoys an excellent relationship with their primary pharmacy. It is important to realize that human error is inevitable but with good communication and a clear understanding of how the electronic system communicates between the facility and the pharmacy, we find that resolution of issues can be quick and painless.

Lessons Learned/Advice to Share with Others

- Introducing technology into processes that have been historically paper-based requires a significant culture change for many care providers.
- Creating a supportive and safe technology-embracing culture throughout the workforce helps achieve a smooth and successful transition to any new technology implemented.
- The adoption of new technology requires the effort to review existing policies, procedures, and workflow practices to identify where current policies and practices require modification. In addition, a careful review of existing policies and practices is required to identify gaps in these areas for the development of new practices related to the adoption of a new system like EMAR.
- We advise any assisted living provider to not give up or become easily frustrated with staff within the transition from a paper-based MAR system to the EMAR system. It is important to remember that

everyone's skill level and understanding of technology is different - work with each individual based on their own knowledge level. Having a good technology vendor partner that provides good training and 24/7 technical support/training assistance is key to the success for any EMAR implementation.

4 Increasing Efficiency and Reducing Paper through Medication Management Technology

4.1 *Provider: Goodwin House Bailey's Crossroads*

Contributor: Colleen Goodwin, Goodwin House, Corporate Director of Health Information Services

4.2 *Vendor: AOD*

Category

ePrescribing/ Medication Ordering

Organization Type

CCRC

Organization Description

Goodwin House Incorporated is a nonprofit, faith-based organization with two continuing care retirement communities that offer life care through a continuum of services and health care, Home Care, Palliative Care and Hospice, an accredited Clinical Pastoral Education program, and a new Goodwin House at Home program designed to serve individuals who want to remain in their homes. This year, Goodwin House Alexandria is celebrating its 47th anniversary and Goodwin House Bailey's Crossroads is celebrating its 27th anniversary. The Goodwin House organization serves more than 1,000 residents and employs 700 staff members. For more information about the Goodwin House communities, call 703-926-5025 or go to the website www.goodwinhouse.org.

Project Description

Goodwin House Bailey's Crossroads' focus for the medication management implementation project was twofold. First, to safely manage medication administration electronically, ensuring that medication orders are received and accurately entered into AOD's software solution, Answers™, and medications are appropriately

administered using Answers™ Integrated Medication Management (“IMM”). Secondly, the implementation would be the final step to paperless documentation utilizing several Answers™ documentation components.

Implementation Approach

The Goodwin House Bailey’s Crossroads nursing team decided to incorporate two additional projects into the AOD medication management project. The first, a polypharmacy initiative, was a coordinated effort among the Goodwin House Bailey’s Crossroads nursing team, the OmniCare pharmacy, and the residents’ physicians. All resident medications were reviewed to identify areas where medication reduction would be appropriate, thereby decreasing the average number of medications for each resident.

The second project was to institute an open med pass for appropriately identified medications. Over the past two years, Goodwin House has been ‘Creating Home’ for residents and the open med pass fits this resident-centered care philosophy. Goodwin House provides opportunities for residents to make choices about their medications. Residents can choose when, in the ‘open’ span of time, to receive medications. Nurses also benefit by not feeling that medication administration is an intrusion upon the resident.

Onsite training by AOD staff for Answers™ Physician’s Orders and eMARs started in July 2013 in anticipation of the launch of Answers™ Integrated Medication Management. AOD asked Goodwin House Bailey’s Crossroads to pilot the CMS mandated NCPDP Script 10.6 platform in the fall of 2014. Prior to, and during, the implementation the Goodwin House Bailey’s Crossroads nursing team trained extensively on Answers™ IMM with individual, group, and open lab training sessions. Almost every nurse was involved with ‘clean up’ of the order import prior to the ‘go live’. This gave everyone lots of practice in order entry. As an added surprise, state surveyors arrived two weeks before the go live. In spite of everything, Goodwin House Bailey’s Crossroads had a very successful survey and an uneventful go live.

Outcomes

Since the implementation of Answers™ IMM in October 2014, Goodwin House Bailey’s Crossroads nurses have become more efficient and effective at order entry and the med pass in the electronic system. While the med pass takes approximately the same amount of time, follow-up for accuracy and compliance has increased dramatically. At crucial intervals the nurse can easily assess on screen if a medication or treatment has not been signed for and follow-up accordingly. The nurse can also pull up a missed medication report to view any missed medications for her assignment. This greatly reduces the possibility of residents not receiving a medication or treatment, and decreases the amount of time that was previously spent reviewing paper MARs/ TARs. In addition, popup alerts following PRN medication administration have led to increased compliance for required documentation. The alert will keep popping up until the nurse completes the documentation.

Nurses are more engaged and take pride in accurate order entry and medication administration. The nurses utilize mobile computing devices that are mounted on the med cart to document medication administration. If necessary these devices can be easily carried to the point of medication administration for documentation. The nurses prefer electronic documentation over paper to the point that it is often difficult to even find a pen.

By utilizing Answers™ Integrated Medication Management reports, Goodwin House Bailey’s Crossroads is also able to identify trends and track information that would have required many hours of manual work in the paper chart. This lends to better medication management and helps to ensure accurate order entry and reduce medication administration errors.

Physicians at Goodwin House Bailey's Crossroads have been active partners in this project and have committed to entering their own orders when on-site. The physicians have experienced a drastic decrease in time spent managing medication orders. Prior to the implementation, physicians would spend, on average, one hour reviewing and signing piles of paper orders. With Answers™ IMM the physicians' login takes them directly to the order signature page. The physician is able to review each order and the resident record prior to signing the orders. With all orders available on one screen, the time for review and signature of the orders decreases significantly. The entire process is far more efficient and effective than in the paper chart where physicians would move from household to household to page through voluminous resident charts to locate necessary information prior to signing orders. Legibility concerns are also eliminated and this in turn decreases the amount of time that nurses previously spent making phone calls for order clarification.

As a final point, medical records has decreased active paper record storage by approximately 30-40 linear feet since the first go live with AOD Software's Answers™ in August 2012, and is no longer accumulating paper records. The decrease in paper has not only reduced paper purchasing and printing costs, but also reduced storage space requirements and associated costs.

Challenges and Pitfalls to Avoid

As the pilot site, Goodwin House Bailey's Crossroads recognized and embraced the responsibility to work through concerns with the AOD team. The Answers™ IMM product was evolving and changing frequently prior to and during the pilot which increased the amount of training the nurses participated in. The nurses could always see the positive outcome of the changes, so they were engaged and enthusiastic to be a part of the pilot. This did require everyone to stay patient and keep the end product in mind.

Lessons Learned/Advice to Share with Others

Having a team member as the point person for the project is highly recommended. This person should have a thorough working knowledge of your systems software and have a clinical foundation. A strong clinical leader is also necessary to coordinate and provide training and guide table and form building.

Communication is vital to the success of the project. There are many stakeholders in the project – residents, nurses, physicians, the pharmacy, medical records, etc. – and appropriate communication as needed will keep the project running smoothly. Communication after the go live is even more important to ensure that everyone has a thorough understanding of how and why things are happening the way that they are. The project is a merge of three distinct entities, the CCRC, the pharmacy, and the software vendor, who for the most part don't know about the inner workings of each other. With good communication all three can understand and work with each other. For Goodwin House Bailey's Crossroads, both AOD and OmniCare were supportive, responsive partners who wanted very much for the project to be a success.

Finally, your team will rise to positive expectations. The Goodwin House Bailey's Crossroads Director of Nursing set a very positive tone for the Answers™ IMM project and the nurses were amazing. Each nurse accepted the responsibility to master order entry and electronic documentation of medication administration. Each nurse not only attended hours of mandatory training, but also hours of voluntary open labs. The uneventful go live was evidence of how much work each nurse did to prepare.



5 Reducing Pharmacy Spend using ePrescribing/Medication Ordering with Clinical Decision Support

5.1 Provider: PharmcareUSA

Contributor: Kent Abbott, PharmD, President/CEO, PharmcareUSA

5.2 Vendor: OmegaLTC

Category

ePrescribing/ Medication Ordering

Medication Management Clinical Decision Support Systems

Organization Type

LTPAC Dispensing Pharmacy

Organization Descriptions

PharmcareUSA currently operates 11 pharmacies that specialize in servicing the Long Term Care Industry. With locations in Colorado, New Jersey, Oklahoma, Louisiana and Texas, we can service multiple bordering states. Each pharmacy partners with its facilities to assure uniform service levels and superior medication care without losing focus on the individual patient and facility needs.

Project Description

In 2013, PharmcareUSA began searching for operational efficiencies to streamline Computerized Physician Order Entry (CPOE) through Therapeutic Interchange support data to result in not only effective drug alternative suggestions, but financial opportunities to reduce pharmacy spending at the Nursing facility level on their Medicare Part A and Managed Care populations. PharmcareUSA implemented the OmegaLTC LinkRx system to bring-real time formulary alerts and Clinical Decision support tools to prescribing clinicians at the point of prescription entry.

Through this technology and collaboration with the nursing facilities that PharmcareUSA serves we were able to show significant cost containment at the facility level by implementing the Therapeutic Interchange with our Formulary Management tool.

Implementation Approach

The Contributors. PharmcareUSA began the process by identifying missed opportunities by analyzing historic pharmacy orders that were not clinically effective or financially sound. A number of factors went into the process to custom build a Therapeutic Interchange Formulary that would address the inefficiencies in those capitated populations. PharmcareUSA assembled a team of Consultant Pharmacists, Dispensing Pharmacists, Physicians and Nurses, to develop a drug formulary that would capture both clinical and financial data that would both consider the clinical efficacy of the interchange and optimize cost savings by significantly decreasing pharmacy spending. Once PharmcareUSA finalized the above we then set out to collaborate with the nursing facilities.

The Administration Teams at the nursing facilities were approached with the opportunity to significantly decrease their pharmacy spend without jeopardizing patient care and impairing the clinical outcomes of medication therapy.

The Physicians were approached by the nursing facilities and the Pharmacy and were asked to participate in this new approach to medication management at each facility. Appropriate physician orders were obtained allowing for the Therapeutic Interchange to occur and the allowed interchanges were built into the Formulary Management tool.

The Nursing Staff quickly adapted to the Formulary Management tool due to its intuitive approach and the built in interchanges that facilitated a seamless process where the interchange occurs without the nurse having to obtain clarification or additional orders to complete the process.

Outcomes

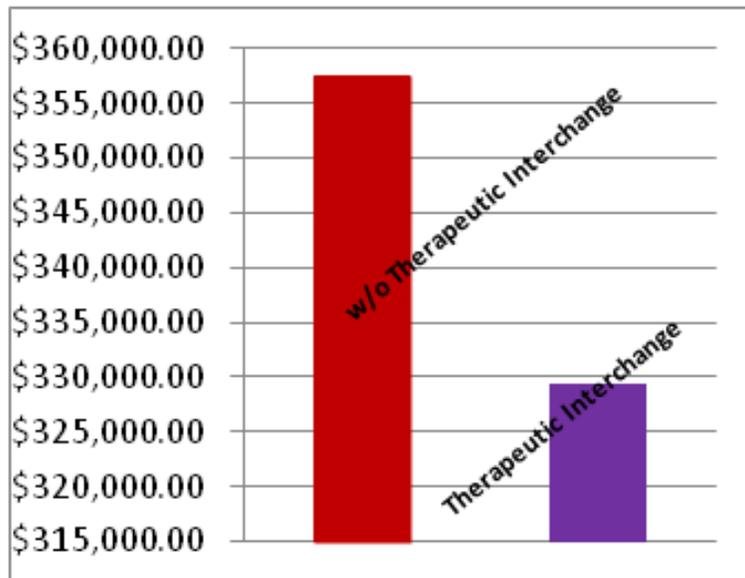
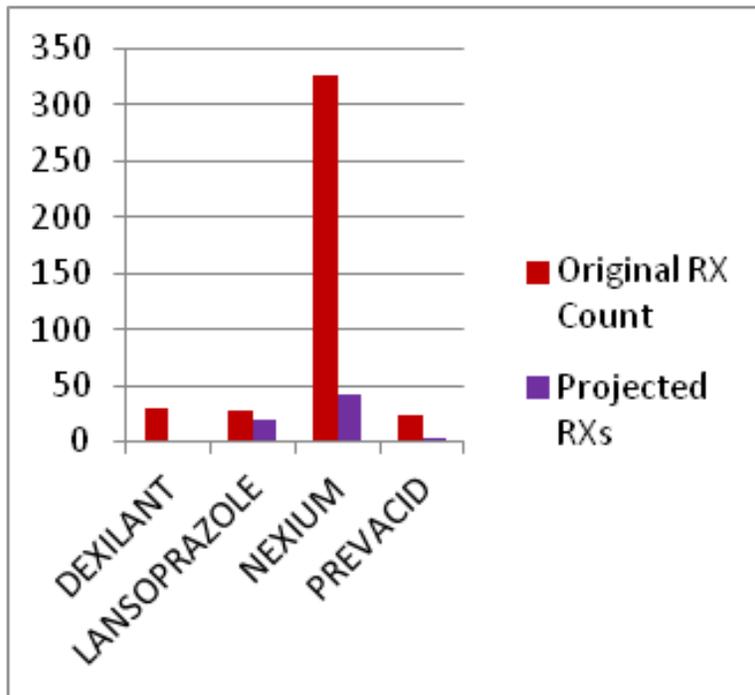
The Pharmacy was able to present to the Administration Team and Physicians real data that showed the success of the of the Therapeutic Interchange process by customized reporting that indicated actual pharmacy spend and savings along with a report indicating Missed Opportunities. The Missed Opportunities report provided real data on opportunities to utilize Therapeutic Interchange but for whatever reason did not, and the potential savings the facility would have obtained if the interchange had occurred. All of this real data is at the Administration fingertips.

Although multiple therapeutic types were studied and included in our Therapeutic Interchange program and tracked through our Formulary Management tool, for the purpose of this study we will only be focusing on two specific categories; (a) Therapeutic class Proton Pump Inhibitors (PPI's) and (b) The Therapeutic Interchange involving Restasis® eye drops.

The following data indicates that a seamless process as provided by the Formulary Management Tool developed by both PharmcareUSA and OmegaLTC – LinkRx significantly reduces the number of non-formulary prescriptions in the nursing facility that in turn drastically reduces the pharmacy spend of the nursing facility.

a) *Proton Pump Inhibitors (PPI's)*

An analysis of prescription filling history and overall cost was conducted for proton pump inhibitors (PPIs). Clinical research was also evaluated for dose equivalents and treatment suggestions for various uses of PPIs. Based on the above, the decision was made to create a therapeutic interchange which switched all PPIs to omeprazole (Prilosec®) at equivalent doses. It was also determined that an alternative to omeprazole was necessary for certain drug interactions, thus, pantoprazole (Protonix®) was chosen and interchanged in situations of interactions at equivalent doses. The interchange, once implemented, showed an overall cost savings of approximately \$28,000 over one year while retaining clinical effectiveness.

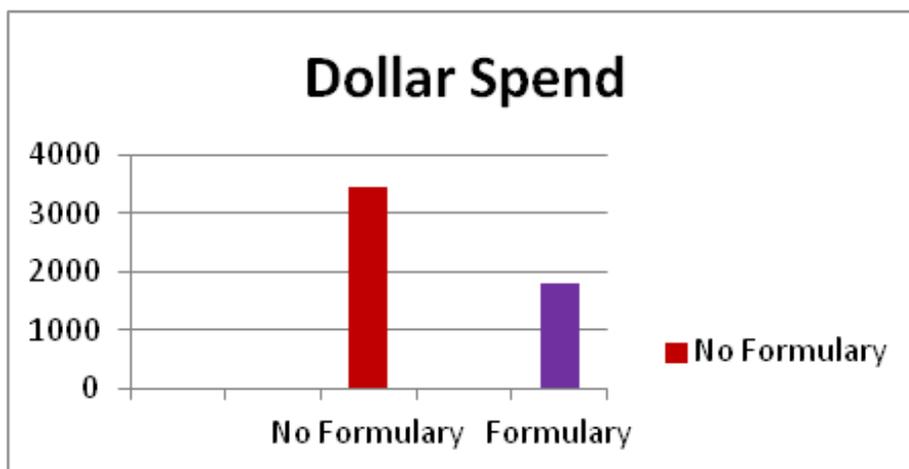
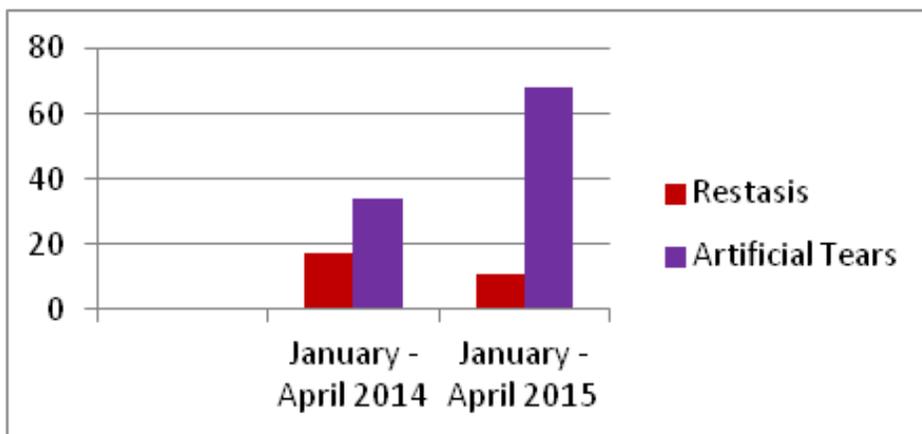


The above graph(s) indicates the effect of Therapeutic Interchange on Non-Preferred Prescribing and the difference as it relates to the Nursing facility's pharmacy spend over one year when actively utilizing PharmcareUSA's Therapeutic Interchange and the Formulary Management Tool potential savings of thousands of dollars for the Nursing Facility would be realized.

b) Restasis® to Eye Lubricant Drop

Clinical research was conducted on the usage of Restasis® for various conditions. It was found that for any condition other than keratoconjunctivitis sicca, it is considered an off label use. Furthermore, treatment of various other conditions was often found to have other effective types of eye drops and/or treatments.

A review was conducted with regards to the dispensing of Restasis® eye drops. It was found that many prescription fills were being used for conditions other than the FDA indication of Keratoconjunctivitis sicca. It was decided, based on clinical evidence and dispensing history, that residents without the FDA indicated diagnosis could benefit from an eye lubricant drop as a replacement for Restasis®. Those residents that were using Restasis® for keratoconjunctivitis sicca remained on the medication. Upon reaching this decision, an interchange was created. The software, through its diverse customization of formulary management and therapeutic interchange, allowed for the interchange to be created and executed effectively.



The above graph(s) indicates the effect of Therapeutic Interchange on Non-Preferred Prescribing and the difference as it relates to the Nursing facility's pharmacy spend when actively utilizing PharmcareUSA's Therapeutic Interchange and the Formulary Management Tool for this particular medication the drug spend for Restasis® is approx. \$150.00 per dispense whereas the Artificial Tears is less than \$7.00 per dispense, ultimately offering the potential savings of thousands of dollars annually to the facility.

Challenges and Pitfalls to Avoid / Lessons Learned

PharmcareUSA has had tremendous results with the Therapeutic Interchange and Formulary Management Tool, the one challenge, which in turn is a lesson learned, is to have everyone – Pharmacy, Nursing Facility Management, and Physicians – on board and working together to ensure success and best outcomes.



6 Medication Management Technology Improves a Patient’s Understanding of Medication Schedule and Adherence

6.1 Provider: Meridian Health

Contributor: Sandra Elliot, Vice President of Consumer Technology and Service Development

6.2 Vendor: iMPak Health

Category

Impacts and Benefits of medication adherence

Organization Type

Hospitals, Rehab Facilities, Home Care Services, Ambulatory Pharmacies, an ACO and Physician Practices.

Organization Description

iMPak Health was founded by Meridian Health to create low cost, easy to use, mobile health solutions. Kraken, our Medication Management System, was designed to allow staff to collect compliance data that can trigger reminders, activate alarms and populate adherence trend reports. Kraken encourages patient engagement and promotes self-management allowing Meridian Health to more actively manage their high-risk patients. Developed by the Consumer Technology and Service Department at Meridian Health, the Kraken improves overall medication compliance resulting in improvement of readmissions and quality scores. The system contains a 7 day Sorting Station and a daily dispenser, the DayPak, that electronically time and date stamps exactly when the patient open and closes the appropriate medication compartment and sends the information to a back-end patient portal.

Project Description

Patients were identified by Care Management nurses and/or a Pharmacy Liaison as patient at risk of readmission due to previous medication compliance issues. Patients were approached prior to discharge, enrolled in the program and given the Kraken along with the appropriate training. The discharge medication reconciliation was reviewed with the patient at that time.

Implementation Approach

We would like to highlight one patient in particular, “Nancy”, to demonstrate the effectiveness of our implementation approach. Nancy had been admitted to the hospital with “vague” symptoms that dissipated after 24 hours in the hospital. With no exact cause identified, the family felt strongly that the symptoms were a result of the patient’s medications. The patient and her physician agreed she was being compliant with her

medication. Once the patient started using the Kraken medication device, and we were able to see exactly when she was taking her medication and very quickly discovered discrepancies in her dosing schedule. After reviewing the alarms and reports, it was shown that even though the patient had medications scheduled for four different times each day (AM, noon, PM and bedtime), the patient was taking all her medications at noon. When the patient was called to discuss what was going on, she explained that she did not feel well either mentally or physically in the morning or at night and was afraid she would take her medication incorrectly or forget to take them all together so she felt it was “safer” to just take them all together at one time. She would then report to her physician that she was 100% compliant and taking all of her medication.

We were able to explain to the patient the importance of taking her medications only as prescribed and monitor her compliance. We alerted her family and physician of the dosing pattern that we had identified.

Outcomes

Nancy started taking medications as scheduled and her “vague” symptoms ended. She began to feel better as a result of the proper medication regime and has not been readmitted to the hospital since that time.

Challenges and Pitfalls to Avoid

Patients very often do not understand their medications. They may not understand the importance of taking it as scheduled (when to take it), administration instructions (how to take it) or even why they need to take it. Very often this information is explained to the patient while in the hospital but not retained by the patient after discharged. Patients need to be followed and providers need to maintain a line of sight to the patient to track the patient’s compliance until it is established that the patient understanding and compliance are where they need to be.

Lessons Learned/Advise to Share with Others

In her eyes, Nancy was 100% compliant with her medications because she was taking all of them every day. If it weren’t for the Kraken Medication Management System, her medication errors may have continued and may have resulted in a hospital readmission or even caused potentially serious harm. What we have found with using the Kraken Medication Management System is that it increases the patient’s awareness of the importance of their medications, improves patient engagement with their overall health care and enables self-management which in-turn lead to improve their outcomes.