MoodSpark companion

Kansas CMPRP Report

Digital Reminiscence Therapy Program

Final Report

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EXECUTIVE SUMMARY

Despite previous research pilot success with the Alzheimer's Association, MoodSpark stuggled over the course of the CMP program term to get adoption and engagement.

In recent years, the adoption of digital companion technology in senior care facilities has gained momentum as a promising avenue for enhancing the quality of life and care for elderly residents. This executive summary discusses the implementation of our digital companion solution at Delmar Gardens of Lenexa under the CMPRP.

Challenges and Factors Hindering Program Success:

Despite our best efforts, several critical factors impeded the wide-scale adoption of digital companion technology:

1. **User Familiarity and Acceptance:** Many senior residents were unfamiliar with digital devices, making the transition challenging. Resistance to technology adoption among this demographic was a significant hurdle.
2. **Privacy and Data Concerns:** Concerns regarding privacy and the security of personal data posed a substantial barrier. Senior residents and their families were wary of potential breaches and misuse of sensitive information.
3. **Resource Constraints:** Limited resources in terms of both financial and technical support hindered the successful integration of the technology. Ongoing maintenance, software updates, and staff training demanded substantial investment.
4. **Customization and Personalization:** The technology struggled to adapt to the diverse needs and preferences of senior residents, failing to provide a truly personalized experience. Customization complexities led to user dissatisfaction.
5. **Staff Resistance and Workload:** Staff members faced challenges in incorporating the digital companion into their daily routines. Some perceived it as an additional burden, leading to resistance.

Recommendations for CMPRP

Technology focused initiatives need to be heavilty scrutinized relative to the cost of implementing and the value of service delivered. Quality of care starts and ends with the caregiver and the facility. Caregiver and facility focused initiatives should be prioritized over resident focused initiatives. The expense of delivering and monitoring 1:1 services for residents is too high relative to the cost of standing up a project, and the cost exposure it might place on the facility. Caregiver burnout presents the largest risk for quality of care outside of basic facility standards. Holding a resident's hand and talking to them about their childhood home is massively beneficial but not scalable considering the current staff shortages. Systems and processes focused on making caregivers happier and better trained will ultimately yield better results.

LESSONS LEARNED

We studied multiple facets of technology implementation with Senior Care / Skilled Nursing. Our lessons can benefit future technology initiatives.

01

Family involvement

We intereviewed more than 75 families at Delmar Gardens. We ran a phone calling campaign that spanned one month. Family members expressed interest but did not support required personalization efforts to make the technology useful for residents.

02

Data Collection / Applying Data to Care

Our systems worked well at collecting data from the environment. We could accurately measure when data collection began and ended in any given day. We learned that audio data from rooms can reveal alot about the acoustic / auditory comfort within the room. We also learned that data can be easily polluted by environmental factors which presented a problem for intervention and analysis.

03

Resident Lifestyle

Every room had a TV. The TVs were always on unless the resident was asleep. We could not compete with the TV for attention. Tablets and handheld devices were not standard within the population and as such each resident questioned how to use the device, and the useful nature of the device.

04

Resident Engagement

Personal photos worked much better than general photos during reminiscence exercises. Residents opened up when shown family photos but had to be encouraged to engage when shown general photos of nature or cities. Residents would not engage remotely with devices. This could have been due to poor hearing, low volume or other factors. Outcomes of therapist led reminiscence using the devices proved successful.

05

Facility Priorities and Needs

Innovations that enable burden reduction of staff are mission-critical. Cost savings is essential when a facility looks at a potential technology. Introducing new tools into a facility ultimately costs facility money. If an immediate ROI is not possible, then any project will only increase financial pressure on facility. While quality of care could be improved, if the cost / impact to implement increases cost exposure, these programs will ultimately fail to align to facility needs.

KEY METRICS

Low-risk, repetitive, mental health interventions ("redirections") was over burdening NH staff at program outset. When our team directly engaged in-person with residents we were able to reduce caregiver burden. Despite multiple attempts to get families engaged in providing stories and media, very few families followed up. The prevailing sentiment was that it was the facilities job to care. Our tool didn't work as expected in the environment. Set up proved difficult, devices frequently were moved, lost or misplaced, and our ability to intervene remotely was hindered as a result.

Key Indicator	Measurement	Data / Outcome
Reduce resident agitation, anxiety, agitation	Observational data. NPI Licence unavailable.	Effective with in-person therapy administrated.
Drive increased family involvement in quality of care	Family surveys, interactions and communications	Failed. Families failed to engage despite all communications.
Provide tools to reduce caregiver burden, and reduce human interventions	Measured by caregiver assessment	Failed

WORK PRODUCED

Our program focused on data collection, analysis and resident engagement. We developed multiple systems specifically for the CMPRP. We have documented all systems below, all data elements collected and how we engaged at facility.

Systems

Our solution was customized to provide a high level of data collection as well as remote systems management. We have licensed multiple software products to support the program.

35
Custom Android Systems Deployed

esper
Mobile Device Management (MDM)

cephei
VOSK Speech recognition toolkit

Google
Data storage
Speech Classification
Google Voice

TWILIO SendGrid
Family email communications

ConvertKit
Family sign up page

Data

The program generated a significant amount of data. From events to phone call recordings, the ability to collect and process audio data was a win.

2,160
Hours of audio data collected and processed

50
Resident families engaged with communications

144
Phone calls made to families. Focus on program awareness, progress and to solicit content from families

671,547
Events classified by AI

Resident Engagement

We conducted extensive in-person engagement with residents.

10
Visits to facility

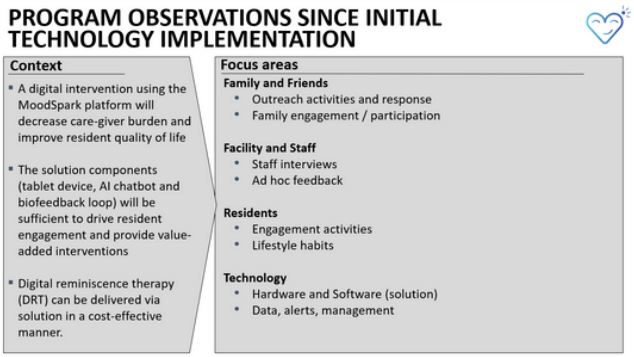
3
Hours on average spent with each participant and family

$15,750
In value added service delivered accretive of budget

DETAILED PROGRAM ANALYSIS

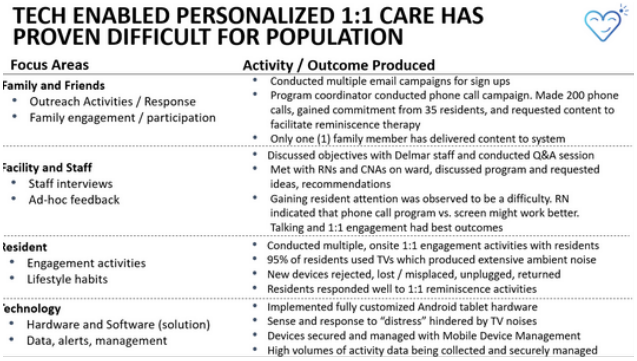
Focus areas and goal attainment

Our August Program Status presentation concluded outcomes were not met. We also discussed why outcomes were not met. While our product was designed to be “plug and play” there were many influencer involved in the usage and adoption. Those influeners (families and staff) proved to require much more training and confidence building around the program than estimated.



PROGRAM OBSERVATIONS SINCE INITIAL TECHNOLOGY IMPLEMENTATION

Context	Focus areas
▪ A digital intervention using the MoodSpark platform will decrease care-giver burden and improve resident quality of life ▪ The solution components (tablet device, AI chatbot and biofeedback loop) will be sufficient to drive resident engagement and provide value-added interventions ▪ Digital reminiscence therapy (DRT) can be delivered via solution in a cost-effective manner.	**Family and Friends** • Outreach activities and response • Family engagement / participation **Facility and Staff** • Staff interviews • Ad hoc feedback **Residents** • Engagement activities • Lifestyle habits **Technology** • Hardware and Software (solution) • Data, alerts, management

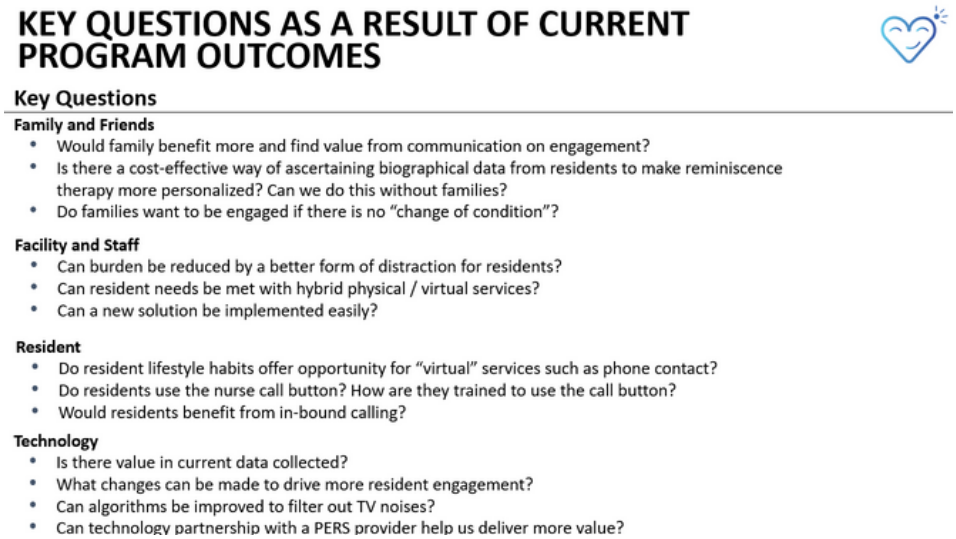


TECH ENABLED PERSONALIZED 1:1 CARE HAS PROVEN DIFFICULT FOR POPULATION

Focus Areas	Activity / Outcome Produced
Family and Friends • Outreach Activities / Response • Family engagement / participation	• Conducted multiple email campaigns for sign ups • Program coordinator conducted phone call campaign. Made 200 phone calls, gained commitment from 35 residents, and requested content to facilitate reminiscence therapy • Only one (1) family member has delivered content to system
Facility and Staff • Staff interviews • Ad-hoc feedback	• Discussed objectives with Delmar staff and conducted Q&A session • Met with RNs and CNAs on ward, discussed program and requested ideas, recommendations • Gaining resident attention was observed to be a difficulty. RN indicated that phone call program vs. screen might work better. Talking and 1:1 engagement had best outcomes
Resident • Engagement activities • Lifestyle habits	• Conducted multiple, onsite 1:1 engagement activities with residents • 95% of residents used TVs which produced extensive ambient noise • New devices rejected, lost / misplaced, unplugged, returned • Residents responded well to 1:1 reminiscence activities
Technology • Hardware and Software (solution) • Data, alerts, management	• Implemented fully customized Android tablet hardware • Sense and response to “distress” hindered by TV noises • Devices secured and managed with Mobile Device Management • High volumes of activity data being collected and securely managed

Key questions from work effort

Digital health tools represent both opportunities and challenges within Senior Care. Digital reminiscence offers the possibility to support elderly loved ones and families alike however several questions remain relative to the usefulness and effectiveness of this type of technology. In future digital health efforts a key learning stands out. The business priorities of the facility and some past performance in addressing facility problems.



KEY QUESTIONS AS A RESULT OF CURRENT PROGRAM OUTCOMES

Key Questions

Family and Friends
- Would family benefit more and find value from communication on engagement?
- Is there a cost-effective way of ascertaining biographical data from residents to make reminiscence therapy more personalized? Can we do this without families?
- Do families want to be engaged if there is no “change of condition”?

Facility and Staff
- Can burden be reduced by a better form of distraction for residents?
- Can resident needs be met with hybrid physical / virtual services?
- Can a new solution be implemented easily?

Resident
- Do resident lifestyle habits offer opportunity for “virtual” services such as phone contact?
- Do residents use the nurse call button? How are they trained to use the call button?
- Would residents benefit from in-bound calling?

Technology
- Is there value in current data collected?
- What changes can be made to drive more resident engagement?
- Can algorithms be improved to filter out TV noises?
- Can technology partnership with a PERS provider help us deliver more value?

FOLLOW-ON WORK

The project will remain commercially viable outside of CMPRP with changes to technology and processes.

Incumbent technology, known well to the Senior population, is the Personal Emergency Response System (PERS). We are incorporating our reminiscence therapy approach and emotion AI technology into a PERS workflow so that we can engage with residents using this calling device versus a tablet display. We have mapped out below details of this work underway:

Challenges

- Gathering personal / biographical information to use in performing reminiscence therapy is difficult without family involvement / input
- Providing in-person 1:1 engagement requires more personnel and budget that is not available
- TV dominates attention and prevents early intervention using tablet devices
- Ambient noises in room distort data collection efforts; many false positive distress detections
- Technology adoption is difficult even if the experience is passive to the end user
- Measuring how agitation is reduced when engaged is subjective, and inconsistent

Follow-on Work

- Telephone based companion care and reminiscence therapy
- Outbound calling program to residents to perform remote "check ins" and companion visits
- Call button solution to connect resident to remote companion
- Data analysis during phone calls (improved ability to assess and determine reduction in agitation)
- Same notification and escalation procedure with on-site care givers
- Scalable solution that can mimic 1:1 engagement without increased cost by using trained call center staff

Our re-tooling and process improvements should reduce "engagement friction" and enable more direct interactions with residents.

Benefit of tool set changes

- New toolset is built of proven technology and an established service organization
- We can deliver telephone based 1:1 engagement under current budget allocation. No additional resources needed to deliver new toolset
- Toolset will enable more accurate measurements of distress and stress / agitation reduction during interventions.
- Phone based companion support is proven effective in addressing agitation and isolation
- New technology partnership adds personnel and capability which will allow us to deliver better service to residents

Impact to commercialization

- Improved data quality
- Increased consistency of resident interactions and needed interventions
- Remaining budget will support new toolset
- MoodSpark will incur cost of implementing
- Improved escalation processes, driven by automation

ACKNOWLEDGEMENTS

People committed to this project

Neenu Kumar, Project team, Coordinator

Raj Acharya,, Support Services, Program Administration

Martin Bukowski, CTO, Telememory Holding Corp

Katie Allen, Facilities Director, Delmar Gardens of Lenexa

Michele Blunt, Chief Clinical Officer, Delmar Gardens

Kathy Gilmore, SVP Delmar Gardens

George Grossberg, MD.

All the dedicated and hardworking staff at Delmar Gardens

We thank you for the opportunity to make a difference in people's lives.

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