



Nutrition and Aging Resource Center

Improving Nutrition and Health of Rural Older Adults Following Hospital Discharge

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Background and Purpose

A. Goal:

To improve the nutritional and health status of rural adults 60 and older with multiple chronic conditions following hospital discharge.

B. Objectives:

- Developing a referral pathway and protocol that will facilitate reaching adults 60 and older with multiple chronic conditions most in need of nutritional support and management.
- Identifying and serving 100 older adults with multiple chronic conditions through the Ibis system nutrition support module with meals in their homes.
- Leveraging AI technology and data to drive nutritional program improvements to better serve this at-risk population.
- Establishing AAA revenue enhancement capacity for nutritional support services that will then be replicable by other community organizations.

C. Overview of Project:

The Nutrition Innovations Project was a partnership between the University of Maine Center on Aging, Sencio Systems, Eastern Area Agency on Aging (EAAA), and St. Joseph Healthcare (SJH) to test a nutrition intervention for older adults with chronic conditions who have been recently discharged from hospital to home. The intervention paired the Ibis Health Management System with delivery of meals and nutrition counseling with the goal of improving outcomes related to nutrition, chronic disease self-efficacy, ER visits, and hospitalizations.

D. Project Results:

- A total of 185 individuals were referred to the program - 162 declined to participate, 14 withdrew prior to study completion, nine completed the study. Of the nine completers, four participants were in the control group and five participants were in the intervention group.
- Due to small sample size, the results of the outcome study were inconclusive. Results of chronic disease self-efficacy and nutrition outcome measures are included in the appendix.
- Interviews with study participants found that participants:
 - Were satisfied with Ibis, generally indicating it was easy to use, while having to navigate certain technical issues and some having critiques of the interface.
 - Had mixed reactions to the meals provided – some people liked specific dishes, not others. Generally, there was a feeling that the amount of food was too large for their needs.
 - Participants did not cook and were unlikely to use nutrition information from Ibis.
 - Most valued intervention supports were vitals monitoring and check-in calls/reminders through the Ibis Health Management System. Least valued supports were the recipes and nutrition information offered through Ibis.

- A process evaluation utilizing study participant and staff interviews was undertaken to identify ways to improve the intervention process. Recommendations to emerge from this process evaluation were that:
 - Adoption of nutrition and chronic disease self-management technology and support may be more successful outside of acute care settings. Prior to hospitalization or in primary care are points in time representing more effective opportunities for intervention.
 - In terms of study attrition, participants challenged with end of life issues and compliance with Ibis use/receiving meals were the main challenges.
 - Meals on Wheels intervention dosage (10 meals per week) may be optimal for nutrition, but practically was not ideal for some study participants.
 - Participants reported discarding, freezing, or giving meals to others.
 - Flexibility is key when offering support – flexibility in meals options and volume, and flexibility in interactions with health monitoring technology.
 - Interventions should be piloted in recruitment settings and with target populations to gauge potential adoption.
- A survey was conducted with Eastern Area Agency on Aging’s Meals on Wheels population to understand desired features of health technology and barriers to use. The mailed survey had a 22% response rate and a total of 154 respondents. When asked to select the most valuable features of home health management technology, 42% indicated vital signs monitoring, followed by remote access to classes and events at Area Agencies on Aging (21%), and video visits with medical providers (20%). When asked about current technology usage, 48% indicated never having engaged in a telehealth visit over a computer, smartphone or tablet. Top ranking barriers to health management technology utilization were affordability and privacy concerns. A majority (61%) of the sample disagreed or strongly disagreed that they have the money to afford a computer, smart phone, or tablet and 69% agreed or strongly agreed that they are concerned about privacy or scams when using the internet. Approximately four in ten (38%) are interested in using technology to manage their health. Additionally, 45% reported using a smartphone.



Partners and Project Staff

A. Partners:

- Eastern Area Agency on Aging: Administered home meal delivery and nutrition counseling.
- St. Joseph Healthcare: Provided referrals to the study from the population of individuals with chronic conditions who had been recently hospitalized.
- Sensio Systems/IBIS Hub: Administered training and support for participants using the Ibis Health Management System.
- University of Maine: Oversaw study design, implementation, and analysis of data.

B. Project Staff Roles:

a. List number of FTEs

- There was no single FTE staff dedicated to the project. The project staff listed below all dedicated time to the project, it is estimated between them it is the equivalent of 2 FTEs.

b. List staff title and general responsibilities

- Principal Investigators: Oversaw administration of research study design, implementation, and analysis of data.
- EAAA Chief Program Officer: Oversaw the project's Steering Committee and Administrative Operations Committee.
- EAAA Grants Manager: Oversaw the grant reporting and tracking and facilitated partner communications.
- Nutrition Administrative Coordinator: Coordinated with the project dietitian regarding menus and consumer ordering, referred for the Ibis Hub to be sent to the home, served as the EAAA point of contact for enrolled adults and facilitated data collection.
- SJH Care Management Manager: Followed all patients throughout the study to ensure that self-management data from the Ibis system was integrated into follow-up care provided by SJH.
- Sensio Systems Member Advocate - Provided day to day support for members enrolled in the study for the Ibis system.
- Data Management Coordinator: Oversaw tracking and storage of study-related data.

Funding and Sustainability

A. Initial Funding:

- Funding for this project was provided by a 2020 Administration for Community Living Nutrition Innovations Grant.
- There was an in-kind match of 25%. Examples of the in-kind services provided were non-perishable food donations, volunteer time to pack and deliver meals, additional staff time for program support, and shipping costs to send the Ibis Health Management System to the client's home.

B. Continued Funding:

The Ibis system will continue to be available to clients of Eastern Area Agency on Aging who are referred to the organization by St. Joseph Healthcare. The system is Medicare reimbursable. For Nutrition Counseling, a Memoranda of Understanding remains in place between Saint Joseph Healthcare and Eastern Area Agency on Aging to serve clients. This service is covered through Meals on Wheels funding.

C. Sustainability:

Both components of the intervention tested during the grant will be sustained going forward. Sencio Systems and the Ibis Health Management System will continue to be a resource that is available to Eastern Area Agency on Aging clients referred from St. Joseph Healthcare. Meals on Wheels was an existing service provided through Eastern Area Agency on Aging and will continue to be available to eligible individuals moving forward.

Recruitment

A. Participants

a. List Requirements

Eligible study participants were individuals age 60+ who were within 90 days of discharge from St. Joseph Healthcare and had at least one chronic medical condition.

b. What recruitment methods were used?

The recruitment process for the Nutrition Innovations study involved discharge staff at St. Joseph Healthcare identifying patients who were 60+ years of age with one or more chronic conditions being discharged from a hospital stay or who had been discharged within 90 days of a hospital stay.

Successful:

- There was evidence to suggest that having a study staff member co-located in St. Joseph Hospital was helpful in quickly engaging participants to take part in the study in person. However, due to COVID restrictions on non-hospital staff being present and low volume of referrals making co-location inefficient, this benefit was not completely realized.

Not successful:

- Although a fairly large number of individuals were referred to the study from the hospital, the number of referrals converted into study participation was low. A significant finding of the study is that the hospital is not an ideal setting for involving prospective participants in this technology-based health intervention. Acute care was a time of higher stress and clients were preoccupied with emergent health issues. Additionally, contact was lost with people who were discharged to skilled nursing facilities instead of home, which made initial and on-going engagement difficult for those who did participate.
- Staff collected reasons for declining participation in the study. The top reasons for not participating were concerns about being able to use the technology, privacy concerns, and not feeling they were able to invest the time necessary to use the Ibis system.
- More effective intervention settings, identified by staff through the process evaluation, were primary care, and at a point prior to hospitalization.

B. Marketing Tips

Marketing was a particular challenge of the initiative and efforts were generally unsuccessful as evidenced by the small proportion of client referrals that were converted into study participants. Data collected from individuals declining to participate in the study indicated that concerns about privacy and concerns about ability to use the technology were the most significant barriers. It is recommended that future efforts address these concerns upfront in marketing efforts.

Tools

A. Technology

The main technological aspect of the intervention was the Ibis Health Management System. This tablet-based health management system allows clients to enter information about medication adherence, meals, exercise, mood and vitals. A special nutrition-focused module was developed specifically for use by the intervention group in the Nutrition Innovations study. Clients using the Ibis system are supported by an advocate, and data and care is shared and coordinated with the client's healthcare providers.

B. Resources

- Ibis Health Management System: Ibis was an intervention component utilized by both the intervention and control groups, with the intervention group being able to access a special nutrition module. The module included nutrition education, recipe tips, and information from the Dietician.
- Website: <https://www.ibishealth.org/>
- The main outcome measure utilized by the project, the Mini Nutritional Assessment, is simple to administer and valuable for clinical practice. The tool is publicly available and measures nutrition status in older adults. It is available at: <https://www.mna-elderly.com/sites/default/files/2021-10/mna-mini-english.pdf>



Project Timeline

2019

- September 2019: ACL grant received by Eastern Area Agency on Aging.
- September 2019 – December 2019: Convening of subcommittees for the study and intervention design planning.

2020

- February 2020: IRB approval obtained for outcomes study.
- March 2020: Staff trained on referral process.
- March 2020: Data sharing agreements finalized.
- April 2020: Project modified as a consequence of COVID – suspension of home visits with clients.
- July 2020: First study participant enrolled.
- October 2020: Process evaluation staff interview IRB approval obtained.

2021

- March 2021: IRB modification approved loosening eligibility requirements to boost enrollment.
- November 2021: Final study participant enrolled.

2022

- Spring 2022: Study participant interview IRB submitted and approved. Interviews conducted with study participants.
- May – July 2022: Meals on Wheels survey IRB submitted and approved. Survey conducted with Meals on Wheels Participants.
- June – August 2022: Data analysis

Frequently Asked Questions

Q1: What is IBIS?

The Ibis Artificial Intelligence (AI) platform integrates individuals, care teams and providers through the IbisNexus communication platform. The AI platform, Ibis delivers daily personalized, automated care planning and monitoring, daily guidance, virtual self-recovery and long-term prevention of health decline.

Q2: Who pays for Ibis Health?

Ibis is provided under the chronic care management Medicare benefit for those with two or more chronic conditions. The program's telemedicine services for home-based chronic health management are covered by Medicare. The program is delivered by a care team including coaches, nurses, social workers, mental health counselors and is led by Medicare credentialed clinicians. Medicare beneficiaries with multiple chronic conditions requiring monitoring can choose to sign up for Ibis Health.

Q3: What conditions are covered by Medicare for Ibis Health?

Center for Medicare Services qualifies individuals for Ibis Health if they are enrolled in Medicare Part B and have two or more chronic conditions, including but not limited to: Alcoholism, Hepatitis, Alzheimer's, HIV/Aids, Anxiety, Hip Fracture, Asthma, Hypertension, Arthritis, Heart Disease, Atrial Fibrillation, Liver Disease, History of Stroke, Traumatic Brain Injury, Lung Cancer, Chronic Kidney Disease, Mobility Impairment, Chronic Pain, Multiple Sclerosis, Chronic Peptic/Duodenal Ulcer, Muscular Dystrophy, Cancer, Obesity, COPD, Obstructive Sleep Apnea, Dementia, Parkinson's Disease, Schizophrenia, Diabetes, Stroke, Heart Failure, Tobacco Dependence.

Q4: What are the suggested user guides for success outcomes with Ibis Health?

- Physical ability - Ibis members must be able to, independently or with caregiver assistance, interact with a touch screen device.
- Cognitive awareness - Ibis Health members must be able to, independently or with caregiver assistance, complete their Ibis reminders on a daily basis. If a member understands why Ibis is in their home and what it does for them, their daily usage is almost guaranteed.
- Motivation - Ibis Health works best when an individual's desire to improve their health is high. While motivation fluctuates, a willingness to try to improve the quality of day-to-day living is essential.
- Comfort with technology - New Ibis Health members do not need any experience with technology, but they should be willing to learn and adopt. Internet and Ibis hardware is provided as an insurance-covered benefit of Ibis Health.
- Phone calls - Responding and using the telephone is a basic requirement for access to Ibis Health. If Ibis members do not have a telephone line in the residence, Ibis Health can connect members with organizations to assist in set up.

Q5: How does Ibis reduce Hospital visits?

Responding to health episodes in the moment: For every day health upsets or sudden changes in vitals or symptoms, there are instant alerts. The member is guided through step-by-step actions to self-remedy

symptoms the instant they occur, at home. And when the member needs help, the advocate and nurse are there to support them.

Preventing health decline and hospitalization: Because Ibis Health monitors daily vitals so closely, they can identify when the member is at risk for a serious health event, reducing unnecessary trips to the emergency room. They work with the Primary Doctor and Specialists to make sure the health reports are reviewed and reminders are added to Ibis.

Q6: What about Privacy?

Ibis Health Services is a fully licensed and registered HIPAA compliant health care service provider. The patients' rights, privacy, health data and health records are protected under the HIPAA Privacy Rule (45 CFR 164.530(B)).

Q7: Where and how are the meals made?

Birch Stream Farms is a local food manufacturing and packaging company located in Bangor, Maine, that specializes in providing frozen entrées for Meals on Wheels programs. They take pride in the fact that their meals are not only delicious and nutritious, but they are also handmade in Maine. All of the meals are carefully created by a dedicated team of chefs and staff and are continually tested for consistency and quality. Birch Stream Farms also offers medically tailored meals including diabetic-friendly, gluten-free, heart-friendly, low-sodium, pureed, renal-friendly, and vegetarian options.

Q8: Can meals be received without using Ibis?

Depending on eligibility. Area Agencies on Aging receive Older Americans Act Funding which allows homebound adults age 60 and over to receive home delivered meals based on an eligibility assessment. Some Area Agencies on Aging also have other funding sources or private pay options to cover meals for those who were determined to be ineligible. For the purposes of this study, participants were required to receive both the Ibis technology and the meals component of the program.

Q9: Can Meals on Wheels continue when the "research" is over?

Yes, if determined eligible for Meals on Wheels. If ineligible for Meals on Wheels, alternative options will be explored such as other funding sources or private pay. Resources for local food pantries and other partnering agency services will be provided as well.

Q10: How does nutrition counseling work?

Nutrition counseling is a free service, offered by phone, with a dietician through St. Joseph Healthcare. The dietician can provide nutrition education around any health conditions, can answer any questions around nutrition and can help with food choices and meal planning.

Advice for Replication

Managing client cases: Actions taken with clients had to be coordinated across four organizations: a local healthcare system, an Area Agency on Aging, a university, and a private company. Even with a small number of clients, tracking activities and contacts can become burdensome. The project instituted regular referral check-ins to ensure everyone was on the same page about the status of each participant in the program. This was found to be very valuable in ensuring coordination of activities. Identifying and implementing shared information systems about clients will also be very important. This includes developing training for staff about the types of information to be entered about clients and standards for completeness.

Tested recruitment method: As has been mentioned previously, the project struggled with attracting participants and the hospital setting was identified as a difficult venue for recruitment. If at all possible, try to pilot your recruitment process before proceeding with an initiative to ensure that the setting you recruit in is ideal and that it will generate the number of participants necessary to sustain your program.

Flexibility in intervention supports: Process evaluation data has indicated that flexibility in intervention supports is key to a successful program. Ten meals were delivered to clients each week based on a literature review of the effective dosage of meals for positive nutrition outcomes. It was found that for many clients, this was just too many meals. Individuals reported throwing or giving away meals. Even though meals were delivered based on a research-based determination of dosage, it became clear that for practical purposes, more flexibility was needed in offering services. Study designs should make efforts to be able to measure outcomes among multiple intervention configurations.

Address privacy and technology concerns: The two most significant barriers to participation in the project by prospective clients were concerns about privacy using the health management system and concerns about having the technical ability to use the system. Staff found these to be difficult barriers to overcome and for future projects, it will be important to develop educational tools and processes to provide technical support and build confidence in device use. Introduction of new technology should also avoid points in time when potential users are confronted with stressful health issues. Additionally, efforts will need to be made to address concerns about privacy identified by clients when using electronic health management technology.

Interventions with the Meals on Wheels client population: Research done with Meals on Wheels clients indicated that affordability is a significant barrier to adopting health management technology in this population. If adoption of electronic health management technology is to be successful, it will require ongoing support for affordability of hardware and connectivity for clients in this population.

Appendix List

- A. IRB Application – Outcome Study. This IRB application covers data collection associated with the outcome study from administrative databases and assessments. This application includes screening and referral protocols, Ibis brochure, tip sheet, project flow chart, assessment instrument, informed consent form, and release forms.
- B. IRB Application – Process Evaluation Interviews. This IRB application covers data collection associated with interviews of study partners designed to evaluate the effectiveness of the study and intervention process. This application includes interview scripts, informed consent form, and interview questions.
- C. IRB Application – Study Participant Interviews. This IRB application covers data collection associated with interviews of study participants to learn about satisfaction with the Meals on Wheels and nutrition supports. This application includes interview scripts, informed consent form, and interview questions.
- D. IRB Application – Meals on Wheels Survey. This IRB application covers data collection associated with a survey of an Area Agency on Aging Meals on Wheels population to examine desired health technology supports and barriers to adoption. This application includes an informed consent form, survey questions and gift card form.