INNOVATIVE HEALTH SOLUTIONS

HealthRx

HealthRx - Food, Movement and Nature: Utilizing trauma-informed and client-centered cared to improve health outcome for older adults during a pandemic Preliminary Report

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Background

The COVID-19 pandemic has placed older adults at a great disadvantage and high risk for adverse health outcomes. Our goal is to develop multilevel integrated interventions to address both the emotional and physical health needs of the growing population. The HealthRx program is an enhanced case management model that aims to link and coordinate community-based services to address social determinants of health. The model creates partnerships between healthcare, housing, and social service providers to connect clients to food, movement, and nature with the goal of reducing chronic disease, increasing health equity, and improving overall community health for older adults. Building off evidence-based practices, HealthRx combines parks prescriptions; medically tailored meals and food pharmacies; and fall and arthritis prevention into one promising and emerging model which has been found to be effective in improving health outcomes for older adults[1], specifically;

- medically tailored meals have been shown to lower adverse clinical outcomes[2]by alleviating chronic health conditions such as type 2 diabetes, hypertension and linked to food insecurity, depression, and malnutrition older adults[3];
- fall and arthritis prevention classes have been shown to decrease the risks of falls and increase flexibility among older adults; and
- Parks prescription (ParkRx) and time in nature have been proven to increase participation in outdoor physical activity, outdoor socialization in older adults, reduce toxic stress levels and blood pressure as well as improve overall wellbeing. [4]

Meeting Community Need

Chronic illness is the leading cause of mortality accounting for 65% of the deaths for older adults[5]. Prior to COVID, physical activity was declining in older populations, leading to decrease in muscle strength and an increase in the risk of falls. [6] In addition,

[1] Centers for Disease Control and Prevention. (2021, July 14). *Older Adult Falls*. Centers for Disease Control and Prevention. Retrieved December 17, 2021, from https://www.cdc.gov/falls/index.html

[2] Berkowitz et al., 2019

[3] Simon et al., 2019

[4] Müller-Riemenschneider et al., 2020

[5] Healthy Aging Team. (2021, April 23). *The Top 10 Most Common Chronic Conditions in Older Adults* . The National Council on Aging. Retrieved December 17, 2021, from https://www.ncoa.org/article/the-top-10-most-common-chronic-conditions-in-older-adults

[6] Koeneman et al., 2011

almost half of the older adults in Solano County (47%) reported being lonely[7]. With 7%[8] of the older adults in Solano County living at or below the Elder Economic Index, the impact of food insecurity as it correlates to higher healthcare costs is of great concern. This factor alone equates to over $13 million annually in associated healthcare costs in Solano County[9]. Diabetes, hypertension control and women's health are among several quality improvement measures for the Solano Family Health Services, one of the federally qualified health centers serving low-income seniors. Considering the health challenges, the pandemic created a unique opportunity to integrate healthcare and social services to support improved health and reduced health care costs among seniors in Solano County.

Partners Creating a Coordinated Approach

While more complex to initially design and coordinate, integrating healthcare and social services to support clients in a holistic way is critical to improving health outcomes. HealthRx was designed to look outside of traditional single-focused programming and develop an enhanced intervention that focused on policy, systems, and environmental changes across sectors to leverage resources for impactful outcomes. Focusing on the social determinants of health, the activities were promoted, guided, and supported through strategic collaborations. The Napa/Solano Area Agency on Aging served as the anchor agency by providing CARES funding. This supported wrap-around referral services for fall prevention, nutrition education, community events and meal services for chronically ill clients. Ceres Community Project prepared and delivered medically tailored meals, weekly. The Solano Community Family Health Services (FHS), a federally qualified health center (FQHC) helped with outreach and recruitment of clients and provided baseline data for clients. California Human Development, a low-income older adult housing location, was instrumental in allowing us to have a site-based approach by providing a safe and inviting location for community members to gather. This latter was key for retention, ongoing activity coordination, community engagement, and social service support. Solano County Nutrition Services, Solano Moves, the Food Bank of Contra Costa & Solano and the Solano Transportation Authority (STA) all played key in provide services and resources.

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[7] *May 2021 Update Four-Year Area Plan on Aging PSA 28*. Napa/Solano Area Agency on Aging . (n.d.). Retrieved December 17, 2021, from https://www.aaans.org/sites/aaans.org/files/2021%20Area%20Plan%20Update%20Final%204.27.21.pdf

[8] *May 2021 Update Four-Year Area Plan on Aging PSA 28.* Retrieved December 17, 2021.

[9] Seligman MD MAS, H. (2017, October 25). *Food Insecurity in the U.S: What is the Health Cost?* University of California San Francisco: Global Health Sciences . Retrieved December 17, 2021, from https://globalhealthsciences.ucsf.edu/sites/globalhealthsciences.ucsf.edu/files/hilary-seligman.pdf

HealthRx Program Model

The model includes four phases: assessment, implementation, evaluation, and sustainability.

Assessment: To enroll in the program, clients were screened for the following;

- **Chronic illness:** All clients had one or more chronic illnesses such as diabetes, hypertension, and/or depression. The assessment also identified conditions that would exclude them from participating in the meal program. (i.e.Celiac, chronic kidney disease, or end stage renal disease)
- **Food Insecurity:** Clients completed the two question USDA food security screener and confirmed they were not a current Meals on Wheels client which would exclude them from participating to avoid funding conflicts.

Implementation: By utilizing the "power of the white coat"[10], co-branded outreach letters with the clinic were mailed to over 3,000 chronically ill older adults and 214 responded or "self-prescribed". Our team completed 120 health screenings and enrolled 91 clients. The intervention took place over the course of 20 weeks and was delivered at two sites: a FQHC and a low-income senior housing site. The team provided a wide range of activities infusing trauma and client-centered care such as motivational interviewing, goal setting, mindful practices, and weekly communication, all of which services that were integral to the success of the program. Table 1 outlines the intervention framework.

Table 1- Intervention Framework

FOOD	• Weekly FoodRx fresh groceries • Bi-weekly senior food pantry • 10 weeks of 7 medically tailored meals per week • CalFresh enrollment referrals
MOVEMENT	• 20 weeks of fall/arthritis prevention classes • Weekly walks
NATURE	• 40 hours of outdoor group classes & fresh air • 3 community events • Monthly activities at parks • Weekly visits to community garden

Evaluation: Pre and post surveys were administered to evaluate participants' changes in attitudes, dietary intake, sleep, and physical activity behaviors, as well as biometrics. The team collected periodic blood pressures and documented individual goals set each week with each client.

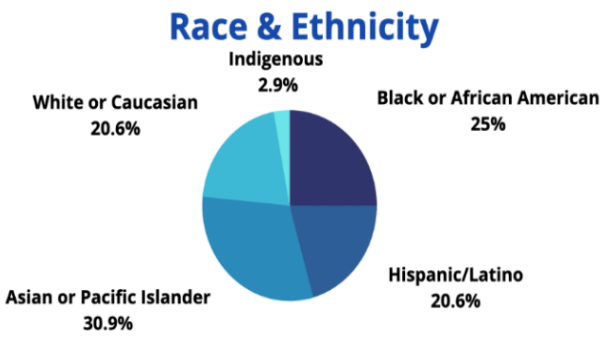
Sustainability: To build in support for sustainable changes for clients and partners, program components were coupled with existing programs such as Title IIID health promotion and fall prevention activities. This allowed the team to stay engaged with the

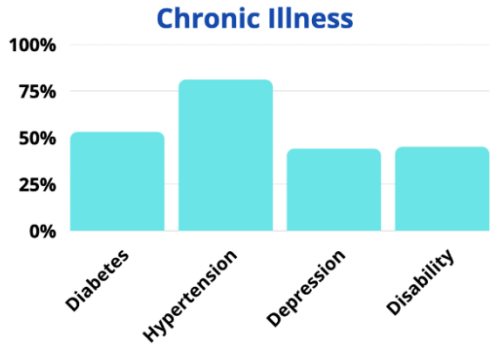
[10] Kothari, J. (2020, December 24). *Power of the White Coat*. Medelita. Retrieved December 17, 2021, from https://www.medelita.com/blog/power-of-the-white-coat

older adults client even after they completed one of the elements of the program. Clients were regularly contacted about program offerings or adjustments using text messaging where possible as well as with phone calls. In addition to program provided services, clients were referred to local food pantry offerings through the Solano Food Bank.

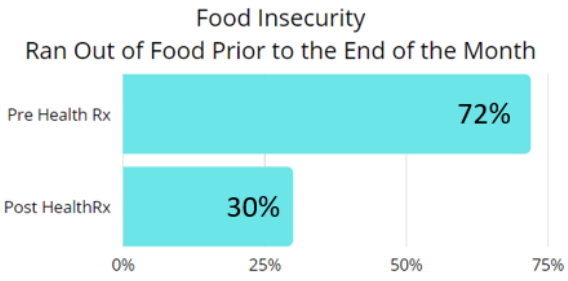
The team will continue to communicate with clients via the Ring Central platform by sending text messages about future events, classes and community engagement opportunities. Also, by working in a tight geographic area (and within a single housing development at one of the pilot sites) the team was able to create connections that will be easier for residents to maintain as many met new friends and were supported by the social services offered by the housing staff such as assisting with CalFresh applications, housing placement and referrals.

Population Served





Participants represented a diverse ethnic population. Of the 91 enrolled, 49% were non-native English speakers, 73% were women and the average age was 71. All were low-income and food insecure. The majority of clients suffered from hypertension and half were suffering from some form of depression, sadness or isolation.



Results

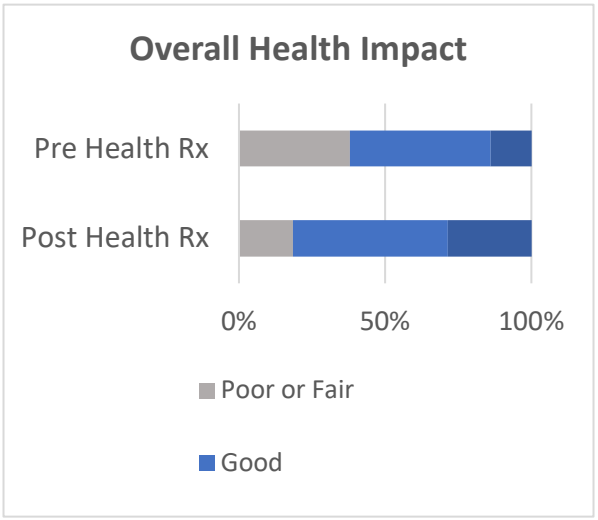
In summary, the program had a positive impact on the physical and mental health of the participants. Of the 50 pre/post matched surveys analyzed, the following significant impacts were demonstrated.

- 48% reported an improvement in their overall health
- 48% fewer people reported they were food security
- 44% improved eating habits
  - 98% tried a new food
  - 46% are now using food labels to help when shopping
- 52% are being more active

The results also demonstrated a positive impact on hypertension, loneliness and mental health;

- 40% are spending more time in nature and 36% are feeling more energized;
- 73% met a new friend and 43% of them met outside of class time; and
- 39% improved blood pressure based on lowest measurements taken after utilizing mindfulness techniques.

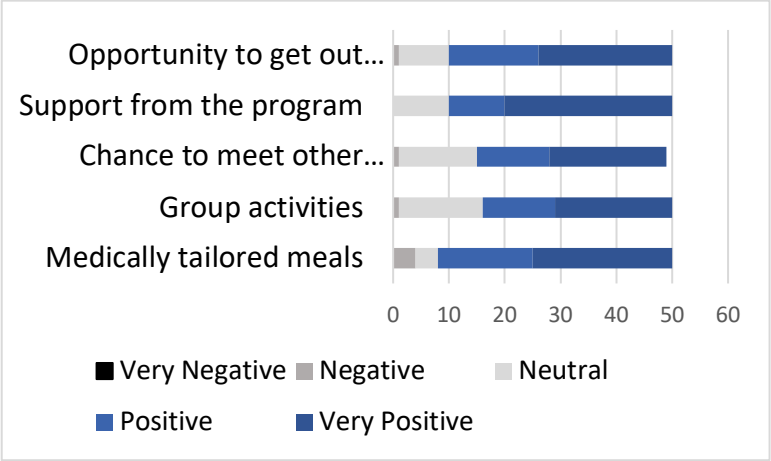
Lastly, there were no COVID cases reported during the 20-week program where the team took strong precautions to use COVID prevention best practices. Overall, participants reported feeling healthy, happy, and food secure. We were able to help 25 sign up for food pantry access and 6 sign up for CalFresh which will help them as they transition away from the program provided medically tailored meals. These efforts have a direct correlation to reducing healthcare utilization costs. Our findings suggest these strategies can achieve positive cost-effective healthcare outcomes due to;



- Improved nutrition;
- Reduction in fall risk;
- Lower hypertension;
- Reduced feelings of isolation and depression; and
- Most importantly, increased food security[11]

Lessons Learned

Designed as a pilot, the HealthRx program created opportunities for future learnings, best practices, and emerging strategies. The successful outcomes illustrate a strong case for replication on a wider scale. The lessons learned include;



- Reminder calls established accountability and sincere social support.
- Weekly communication and trauma-informed case management that includes patience goal setting around food, movement and experiences in nature supported healthy behavior changes in diet, exercise and community connections.
- Partnering with low-income housing sites so we could meet people where they lived was key, yielding a 50% greater participation rate than the clinic site.
- Food continued to be the glue that brings community together and fresh, beautiful, healthy tasty food can be inspiring.

[11] Seligman MD MAS. (2017, October 25) *Food Insecurity in the U.S.: What is the Health Cost?*

- Older adults are craving and thriving from social interaction with peers and want comprehensive place-based programming.

Program Sustainability

Due to the nature of this one-time funding opportunity, building program sustainability throughout the planning, implementation and evaluation process was critical. Possible long-term individual and system level effects include:

- Increased client knowledge of local resources including food access, nutrition, transportation, and health services.
- Positive behavior changes including meeting new friends, trying new foods, and engaging in new activities.
- Increased collaborative efforts among local agencies creating partnership, connections, and leveraging resources for enhanced coordinated care.
- Awareness about using mindful techniques to reduce blood pressure.
- Decreased food insecurity and associated healthcare costs.
- Support for the roll out of medically tailored meals and enhanced care management through CalAIM.

Next Steps

HealthRx can be used as an integrated model for case management and adjunct therapy both can be covered by insurance and federal prevention funding. Future program planning will focus on;

- Supporting clients with nutrition education, fall prevention and referrals to community resources. We learned 7% of our clients experienced a decline in income during their time in the program;
- Responding to the overwhelming interest from housing partners to create joint use agreements with low-income senior housing sites by identifying additional resources to support partnerships;
- Expanding access to food resources such as medically tailored meals, food pharmacies, senior pantries, produce distributions, and markets.
- Creating new public health, social services, and healthcare partnerships to support bundled prevention services.
- Conducting additional research and analysis to further understand the return on investment (ROI) for a multilevel integrated approach to client care.

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Appendix A
HealthRx's Coordinated Approach to address
Social Determinants of Health

Economic Stability	• Medically Tailored Meals: healthy, medically tailored meals (7 meals per week per participant for 10 weeks) aligned with specific health conditions in the study group (heart disease, diabetes, depression) • Food Pharmacy: Access to additional fruits and vegetables to support healthy eating beyond meals • CalFresh Application Support: education about CalFresh opportunities for longer term food assistance and support signing up for various programs.
Education	• Weekly Nutrition Education: Focused lessons on healthier eating and food purchasing best practices • Weekly Physical Activity Education: Movement classes to increase physical activity and engage groups in positive active living habits • Mindfulness Education: Positive feedback around blood pressure and mindfulness; regular mindfulness group activities and community engagement
Health and Health Care	• Clinic Coordination: Clinic provided support with initial recruitment and ongoing coordination around health care issues, biometrics, and patient care. • Medically Tailored Meals: Low sodium, low fat, carb-restricted meals with a focus on plant-based menu items for a 10-week cycle created a break from typical eating patterns, allowed participants to try new foods and increased healthy eating behaviors. • Blood Pressure Monitoring: Periodic blood pressure monitoring and mindfulness exercises to reduce stress.
Neighborhood and Built Environment	• Older Adult Housing Sites: Programs at a housing site proved the steadiest participation and community building opportunities • Clinic Coordination: Coordinated timing of classes, food distribution, and Food Pharmacy helped create a hub for clients seeking and connecting to new services • Transportation Assistance: Connecting community members to transportation services helped facilitate attendance and awareness of ways to get around the local environment

Social and Community Context	• Peer Connections: Participants met new friends and connected around a common opportunity to make positive changes, created plenty of space and time for community connections to occur • Accountability: Setting personal goals and sharing accomplishments with the group created peer accountability and support for making positive progress • Incentives & Celebrations: Incentives were provided midway and at completion of the meal program to reinforce healthy habits and celebrate individual accomplishments. The final program party brought together participants from both sites to support older adults in meeting new friends and to acknowledge their successes throughout the program in a festive social event supported by AAA CalFresh Healthy Living.

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Appendix B
Results Table A & B

Table A: Demonstrates Statistical Significance

Topic	Pre-Survey Results	Post-Survey Result	P-Value
General Health and Well-Being			
Often feels sad or depressed (1=yes, 0=no)	0.440	0.260	0.0376
Overall health ranking (1=poor, 5=excellent)	2.620	3.163	0.0012
Nutrition and Food Security			
Eating fruit/veggies for snacks (0=no, 4=every day)	2.367	3.200	0.00005
Drinking fruit drinks, sport drinks, or punch [Depressed group 2; n=19] (0=no, 4=everyday)	1.563	1.000	0.0287
Drinking soda [Depressed group 2; n=19] (0=no, 4=everyday)	1.180	0.940	0.0187
Eating more than 1 vegetable a day (0=no/rarely, 1=anything else) – condensed response scale	0.720	0.900	0.0019
Eating more than 1 vegetable a day [Depressed group 2; n=19] (0=no, 4=often, 5=yes)	2.813	4.063	0.0170
Eating more than 1 fruit a day [Depressed group 2; n=19] (0=no/rarely, 1=anything else) – condensed response scale	0.750	1.000	0.0205
Use food labels when shopping (0=no, 5=yes, everyday)	1.204	3.120	0.00000
Run out of food before the end of the month (0=No, 5 = yes, always)	2.160	1.040	0.0005
Eating habits [Depressed group 2; n=19] (scale of 1-10 with 10 being the best)	6.125	6.938	0.0483
Physical Activity			
Does activities to increase flexibility such as yoga once per week or more (0=no, 1=yes)	0.240	0.460	0.0263

Table B: Demonstrates Increases in Behavior Change

Topic	Pre-Survey Results	Post-Survey Result
General Health and Well-Being		

Topic	Pre-Survey Results	Post-Survey Result
Report their health is poor or fair	38%	18%
Report their health is excellent or very good	14%	28%
Spending more time in nature		40%
Getting more sleep		36%
Individual decrease in blood pressure (combined systolic/diastolic)		39%
Nutrition and Food Security		
Eat fruit/veggies for snacks often or everyday	32%	78%
Eating more vegetables		42%
Meeting daily vegetable guideline (2+ cups)	14%	18%
Eating more fruit		40%
Meeting daily fruit guideline (1.5+ cups)	32%	30%
Regularly using food labels when shopping (sometimes, often, always)	16%	46%
Ran out of food before the end of the month	70%	32%
Improved eating habits (on a scale of 1-10)		44%
Tried new foods		98%
Physical Activity		
Improved the amount of exercise they do weekly		52%
Activities to increase flexibility such as yoga once per week or more	24%	46%
Improved their reported level of energy (scale of 1= tired to 5=energized)		36%

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Appendix C
Quotes and Meaningful Input from Clients

Quotes from clients are a good reminder of the personal impact that the program provided to them. Below are comments that represent themes noted by clients when asked how the program helped them.

General Well-Being

- "This is a much-needed **resource** for senior people who may not be aware of how they can **take responsibility** for their own health and wellbeing."
- “This program is immensely helpful for senior citizens, and they have a chance to go out of the house and **meet new friends**, and they also get some **healthy food** and groceries. I must recommend it.”
- "Dare to **make a difference**, one person at a time."
- “Keep doing what you are doing because it is **a blessing** to have in the community.”
- "It is a **simple** thing to do and the **benefits** are great."
- "Rain or shine **service mentality** is what made the service work."
- “All different peoples were **united** and came together as one **family**.”
- “Great program because they **teach you** how to eat better, move more, share with friends, and connect with **community** members.”

Nutrition and Food Security

- “Health RX **opened my mind and taste buds** to new ways to eat healthier.”
- “**Exceptionally healthy food**, and variety, saved money.”
- “I liked the meals. They introduced me to different foods **I would never cook for myself**.”
- “I **lost weight** and I feel **younger**!”

Physical Activity

- "The exercise made **improvement** to my body."
- "This program has helped my mother and myself. The **exercises** have helped me very much, as well as getting to **socialize** with people has helped us a lot."
- “I thought it was informative and fun, to get together to **learn different skills**, move and **cope** with stuff. It was a **relaxing** time.”
- “Do the arthritis exercises, it really helps **make a difference** and **feels so great**!”

When asked to describe what they liked about the program clients provided the following comments:

Community

- “I like **meeting other people** in the program and everything that came with this program.”
- “I like it very much. My favorite part is **group meetings** because it is nice to see other people.”
- “I loved that I was able to **meet new people**.”
- “This program shows they want to **help the community**.”

- "I **joined because of anxiety**, and it helped me. I have learned to participate in every discussion, I really liked it. I think when the program is done, I will be sad. Physically and mentally, I have improved a lot. **No more sadness** whatsoever."
- "I get to know **new people**, and I love people. The food is delicious."
- "I liked getting together with a group of **people my age** group, since there is hardly anything happening for seniors these days. Good location, good set of people, informative."

Food

- "The meals were healthy and filling. I started **snacking less**."
- "I like the **variety** of the meals. They introduced me to **different foods** I would never cook for myself."
- "I like that the meals are described in detail. Meals were **packaged nice**. Staff made sure meals were **timely**."

Easily accessible support

- "I was **unable to join classes**, due to mobility, but **enjoyed meals** and provided caregiver respite for spouse in having to prepare healthy meals."
- "Nice to have programs so **close to home**, cannot drive so it helps to have it downstairs."
- "The **convenience** of the location (it is on my way to the store and to my volunteer site). The helpfulness/knowledge of the individuals there about health information (food, flyers, etc.). Some of the exercises were good. The people were **pleasant, and patient** and I just enjoyed that.
- "I like the resources, exercises, information, and people **talking in my language**. But the doctor's information/tips to get more info to help us."

Education

- "I liked the fact that it was **educational**. I liked the focus was on **food/healthy eating**, because I do not think a lot of people know about that. Overall, the program should be expanded for others."
- "The **facilitators**, I love them! They were **genuinely concerned** about our wellbeing. **"**
- "Making friends! **Learning how to eat healthy** and extend health. **Motivation** and being healthy."
- "Did not realize the **importance of eating fruits and veggies**, feels much better daily with healthier eating habits."

Exercise

- "The exercises were **helpful**. The food was good."
- "Doing class exercise, **walking around together**, and walking around the **garden**."
- "The **exercises**! Trying to continue doing it (loved Gio)."

When asked what the program could do better, participants often said "nothing" or that they were satisfied with the program, but some clients did offer suggestions. Those included:

Food

- "**More weeks** with food."
- "More **fish**."
- "**Presentation & flavor** in the meals was not always good."
- "The food wasn't always palatable; there was also always a salad dressing but no salad. I did not understand why. I want **more greens**.
- "Incorporate more **fruits and salads** in the meals."

Accessibility

- "**Convenience** of location, no **transportation** was needed."
- "**Language barrier**, there are no Russian speakers."
- "It is better if they **come over** to the Redwood Shores so that more people are attending. They want to exercise. Also wants less repetitive recipes at the food pharmacy, especially easy **Korean recipes**."
- "Wants to attend tai chi but it's **not at a convenient time** for her."
- "**Translation**"
- "More Spanish for those who **speak Spanish** for the classes."

Programming

- "The exercises are **too easy** for me."
- "They can find a good **balance between older people** and people my age (~60-65). I was the youngest in the group."
- "A flyer with **what to expect** when entering the program (layout, activities, etc.)"
- "Not as many people, **expected more people**."
- "Include walks at **new locations**."

When asked to provide their final goals for the program, participants responded:

General Well-Being

- "I have **met or surpassed** my goals."
- "Maintain walking, eating healthy food, and having enough **sleep**."
- "**Movement & exercise**, healthy food."
- "**Improve my injuries** so that I can do the work that I want to do."
- "Trying to walk more; trying to eat more fruit/veg, drink more water, try to do exercises from class at home, **do not go grocery shopping on an empty stomach**."
- "To exercise more and to **eat less junk food**."
- "Getting out and **meeting more people**."
- "To continue, the walks/exercises, meal plans and **tips to live a healthier life**."
- "I **lost weight**!"
- "Try a **new recipe** once a week. Exercise and Environment: **Walk trails**."
- "No donuts, **participate** in activities."
- "Live a happy life. Being active and **helpful to others**."
- "To continue the exercises, eat less sugar and salt, **visit the garden**, and **enjoy the fresh air**."

- "Eat healthier, do more hand exercises/stretches, and enjoy & **observe tree** outside of room window."
- "Daily walk for 40 minutes and increase over time, consume a more variety of vegetables, goal to **walk at park** for an hour once a week."

Nutrition and Food Security

- "Try to cut out rice, use **new grain options**."
- "Working on healthy eating and **finding the foods that work** with her dietary habits and needs."
- "**Lower sodium** intake (success!)"
- "Stick to **low carb** diet."

Physical Activity

- "By the end of the year, I would like to be **walking w/o my cane**, and to be able to up and down my stairs without needing to hold onto the rails."
- "Go to the **park**; exercise more for my belly (I have a big belly)."
- "Exercise for **fall prevention**."
- "Go **outside 3x** per week."
- "Doing more **exercise outside** of the house."
- "To do exercises, walk, and **work in my backyard**, so that I will not be bored and will stay busy."
- "**Walking to and from** the program twice a week."
- "Walking in outdoors, **meeting individuals**."