**Implementing an allied health reablement program in the community and in residential aged care**

**Research question**

Can a multidisciplinary allied health service model improve outcomes focussed on falls, frailty and engagement in older people living in residential aged care and in the community?

**Design**

This is a mixed methods implementation study design where published best practice in the management of frailty and falls prevention (previously described) will be implemented specifically in relation to allied health services. Therefore, rather than estimating differences between groups, we aim to estimate the average change outcomes across subjects. We will collect qualitative data from participants, their families and staff around their thoughts, experiences and opinions of the intervention.

**Sample Size**

In order for power to exceed 0.8 to detect effect sizes larger that dZ =0.4 (for paired t-tests) a sample size of 50 is required. Assuming that 80% of the existing nursing home and/or home based residents clients (n=160) at both sites meet the inclusion criteria (i.e. are frail and/or are at risk of falling and are physically and cognitively able to participate) and that 40% of these residents will agree to consent to enroll in the project we will have 51 people eligible at the start of the project. Assuming a 20% dropout rate we will need to recruit another 12 participants across the life of the project.

**Participant recruitment**

The project will take place across two aged care sites in Sydney. Both sites have residents living independently in the community and residents who live in an assisted living environment. The sites are:

Estia Health Blakehurst

392 Princes Hwy Blakehurst NSW and

Estia Health Bexley

3-5 Eddystone Rd

Bexley NSW 2207

Potential participants are any older people living at the two Estia run facilities listed above requiring allied health intervention. These people could be residents of the aged care facility (nursing home) or living independently in the associated independent living village. All new referrals from Estia to ConcentricHealth will be eligible for the study and will be asked if they want to participate.

**Information and consent**

Informed consent will be sought from all participants prior to study enrollment, and consent will be considered an ongoing process. We may recruit people with dementia and/or cognitive impairment. Dementia and cognitive impairment are not reasons to abdicate consent, however in some circumstances participants will have a guardian, power of attorney, or family member who has been approved to be involved in making decisions with and for the participant. In these cases, the relevant guardian or power of attorney will be consulted.

Prior to completing the consent form, potential participants (and/or their legal representative as appropriate) will be provided with a Participant Information Form (PIF). The PIF will provide written information describing the context of the study, the time commitment, what is required during participation, and the potential risks and benefits. A member of the research team will be available to have a discussion with the resident and family to clearly explain and/or provide further details about the program, with all potential participants being given the opportunity to ask questions about the project. The aim will be to ensure that the participant and their family/authorised person understands the information and the implications of participating or not. We will request participants to verbally express that they understand they will be receiving a health intervention delivered by a team of health professionals. Written consent will be sought from participants to take part in the project, and all participants will be free to withdraw at any time, for any reason throughout the study. The PIF clearly states that participation is voluntary.

Where participants speak English as a second language or have low levels of literacy (as identified by staff), we will only meet with the participant in the presence of their guardian, power of attorney or family member who has been approved by Estia staff.

Participants will be enrolled into the study after the informed consent process has been completed and the participant has been assessed to meet all the inclusion criteria and none of the exclusion criteria. Study participants will be given a unique study identification code and this will be documented in the participant’s medical (or personal) record and on all study documents.

**Inclusion criteria**

Participants will need to meet the following inclusion criteria:

* Any new or existing (permanent) resident (nursing home or independent living) of Estia Bexley and Estia Blakehurst.

**Exclusion criteria**

In some case people with severe cognitive impairment will not be able to engage in the allied health program. For example, people who have severe expressive and receptive communication impairment and who are immobile due to dementia are unlikely to be able to meaningfully engage in the program. For those residents with severe dementia, we will liaise with the relevant medical team at the Estia to determine if these people should ethically be considered for the program. Residents who elect not to participate in the trial will receive their regular medical and other health services as usual.

**Data collection and timeline**

All outcomes will be collected at baseline and when the participant has completed their program

In order to describe the cohort, baseline information will be collected including age, gender, residence (community living or facility living), cognitive status, falls frequency, used medical diagnoses and any comorbidities. This information will be collected and de-identified by the Project Manager and stored on a password protected laptop.

Validated and reliable outcome measures will be administered before and after the allied health program. Primary outcome measures relating to frailty (strength, speed, fatigue, weight loss/gain, muscle mass) quality of life and engagement. All other measures are secondary outcomes, see Table 1 and 2 below for a summary of outcome measures. It is important to note that the scope, nature and duration of the allied health intervention will differ for each participant, however the implementation of the allied health interventions will be done in accordance with discipline-specific protocols as outlined in Tables 1 and 2 below.

All outcome measures will be recorded on hard copy pre intervention and post intervention and transferred to SPSS. (IBM SPSS Statistics v27). Data will be presented descriptively (e.g age, sex, time in residence). Paired sample t tests will be used to calculate effect sizes for the primary outcome measures.

We will collect qualitative data from participants, their families and staff around their thoughts, experiences and opinions of the intervention. This will be collected in a semi-structured interview immediately after the intervention in the case of the participant and their family. In the case of staff, they will need to have been involved in the implementation of the intervention for at least 6 weeks to be interviewed. All interviews will be recorded, transcribed verbatim and analysed using Braun and Clarke’s Reflexive Thematic Analysis approach (Braun and Clarke 2019).

***Table 1: Summary of the interventions, allied health involved and outcome measures***

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| **Intervention** | **Delivered by** | **Outcome measures**  **\*= primary \*\* = secondary** |
| All participants will be assessed at the commencement and the end of the program for: frailty, quality of life and physical function by a qualified allied health professional. An appropriate program will be developed and delivered by the allied health professional. | Physiotherapist, Occupational Therapist, and/or Speech Pathologist | Frailty \*: The Frail NH Scale (Kaehr 2015)  QOL-ACC (Hutchinson et al., 2021) \*  Physical function: Short Form Physical Performance Battery \* (Guralnik et al., 1994) |
| An occupational therapist will focus on what meaningful activities are important to the resident to maintain or to improve. For example, self-care, leisure, or productive activity. | Occupational Therapist | Canadian Occupational Performance Measure \*\* (Carswell et al., 2004) |
| Physical intervention:  A physiotherapist and exercise physiologist will deliver an intervention targeting strength and balance | Physiotherapist or Occupational therapist and/or  AHA | Short Form Physical Performance Battery \* (Guralnik et al., 1994) |
| Communication and Social engagement:  A speech pathologist will facilitate communication partner training among residents and staff. Interventions may involve manipulating the environment by decreasing background noise, distractions, and distance between speakers. Other programs involve memory books and other written and graphic cues. We will have staff check hearing aids, replace batteries, or organise an audiologist where required. | Speech Pathologist | RISE Social Engagement Scale (Gerritsen et al., 2008).\*\* |

***Table 2: Detailed description of the intervention***

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| **Occupational Therapy** | |
| **Intervention** | All participants will complete a Canadian Occupational Performance Measure (COPM) using the guidelines found here: <https://www.thecopm.ca/learn/>. The COPM can be completed with the participant and/or family member and/or authorised person.  Once the COPM is completed a prioritised list of occupational performance challenges will be identified in three broad areas: self-care, leisure and/or productivity. As these challenges are self-reported and unique to the participant, the associated intervention will also be unique. In this way there is no set ‘protocol’ for the occupational therapy intervention but there may be common interventions based upon the broad areas mentioned above. For example:  Self-care: Participants may have difficulty completing everyday tasks such as showering, dressing or eating. If the participant identifies these activities as challenging the occupational therapist is trained to modify the task or the environment to address these challenges. There are standard assessments of daily living that can be used to quantify changes in performance in daily living tasks. Again, this will vary depending on the participant.  Leisure: All participants will come with their own valued leisure activities. Many of these may not be able to be conducted in the facility due to staffing, resource or other issues. If a participant identifies a leisure activity as a goal in the COPM, the occupational therapist and allied health assistant should liaise with the facility management to do all they can to meet this goal. It is important the occupational therapist records how these decisions are made and then enacted for the process evaluation.  Productivity: Some participants may have productivity goals defined in their COPM. This could be things like volunteering or making items for donation (for example). People can still be productive in residential aged care so the occupational therapist should explore these options with participants and negotiate with the relevant staff and/or family to meet these goals if they are identified.  As there will be multiple residents enrolled in the study at once, there may be opportunities for groups activities if there are common goals identified. These often relate to leisure-based occupations. If the occupational therapist identifies that a group program could address the goals of multiple participants, this should be considered. It is important the occupational therapist records how these decisions are made and then enacted for the process evaluation. As each occupational therapy program will be different so will the duration of the occupational therapy program. A mean of 12 weeks for each participant is expected but should not be used as a definitive duration. |
| **Outcome measure** | Canadian Occupational Performance Measure (COPM) |
| **Physiotherapy and Exercise Physiology** | |
| **Intervention** | A falls and balance intervention will target leg strength, standing balance exercises (reaching in standing, stepping)  Everyday living interventions include practice of everyday activities such as squats to reach downwards, stairs, negotiating obstacles and turning.  Format and Dose: Physiotherapy or exercise physiology sessions weekly for 6 weeks. Participants will receive a combination of 1-1 and group sessions based on their individual needs. 1-1 sessions will be twice weekly for 30 minutes.  Sessions to include exercises that are tailored to the resident’s mobility and physical ability.  Group intervention: Classes led by a physiotherapist or exercise physiologist and stratified by participants’ mobility level (grouping people of similar abilities wherever possible)  2 x 50 min classes per week for 6 weeks  Group size: 6-8 people per class |
| **Outcome measures** | Short Form Physical Performance Battery \* (Guralnik et al., 1994) |
| **Speech pathology** | |
| **Methods** | In addition to the usual assessments and interventions dealing with swallowing, eating and drinking, the Speech Pathologist will target communication and social engagement.  Interventions: This will include changing the environment to promote communication and use of alternative communication methods such as memory books and graphic cues. In many cases, the Speech Pathologist will work with the Occupational Therapist in group or individual sessions.  Format and duration of intervention: We will offer each participant speech pathology for 1-2 hours, 2 times/per week for 6 weeks either individually or in groups. |
| **Outcome measures** | RISE Social Engagement Scale (Gerritsen et al., 2008) |

# References

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6. Kaehr, E., Visvanathan, R., Malmstrom, T., & Morley, J. (2015). Frailty in nursing homes: The Frail-NH scale. Journal of the American Medical Directors Association. 16(2):87.

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