



Llywodraeth Cymru  
Welsh Government

# The Role of Allied Health Professionals (AHPs) in the Secondary Prevention of Type 2 Diabetes Mellitus and Frailty

An Evidence Summary

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## **Evidence Summary Limitations**

This document is designed to give a brief overview of the evidence on the role of AHPs in the secondary prevention of diabetes and frailty with a quick turnaround time. Detailed evidence synthesis is outside of the scope of this paper, so results should be interpreted with caution and in the context of informing further work rather than informing a specific policy decision.

### **Introduction:**

This paper sets out to summarise the evidence regarding the role of Allied Health Professionals (AHPs) within diabetes and frailty with an emphasis on secondary prevention. For the purposes of this paper, the following definitions were used):

*Primary prevention:* Includes interventions where the purpose is preventing a disease from ever occurring. E.g. vaccinations

*Secondary prevention:* Early detection of disease and minimising serious consequences e.g. DEXA scans to detect osteoporosis, enabling treatment to start before a fracture has occurred

*Tertiary prevention:* Reducing the severity and complications of further damage which occurs as a result of a pre-existing chronic disease e.g. taking anticoagulants to reduce the risk of a second stroke (Kisling and Das 2023)

The aim is to support policy development to increase AHP's role in prevention in line with recommendations from NHS10 (Welsh Government 2023b), which stated that *"Making the NHS more efficient will require more investment in primary care and wider workforce (e.g., Allied Health Professionals), social care and public health"*. The ambition is to support a 'shift-left' to provide earlier access to AHPs and prevent incidence and or deterioration of long-term conditions. This also aligns with one of the ten national design principles to drive change and transformation set out in A Healthier Wales (Welsh Government 2022): *"Prevention and early intervention – acting to enable and encourage good health and wellbeing throughout life, anticipating and predicting poor health and wellbeing"* (pg17). The potential scope for AHPs in the area of prevention, public health and primary care settings is also identified in the Allied Health Professions Framework. A shift towards prevention and early intervention is identified as one of the six core principles for transformation in this area (Welsh Government 2020).

This was requested by Welsh Government's Chief Allied Health Professions Advisor and the National AHP Lead for Primary and Community Care.

## **Background**

### *Allied Health Professionals (AHPs)*

AHPs are a group of 13 professions which form part of the wider team within healthcare settings and contribute to the prevention, diagnosis, treatment, and rehabilitation of various health conditions (Appendix 1). They play a vital role in health and care services

delivered in hospitals, clinics, schools, homes, and communities (Welsh Government 2020). AHPs often form part of a “multidisciplinary team”, which aims to provide a holistic, coordinated approach to healthcare across teams, prioritising prevention and improvement (NHS England 2022). For the purposes of this evidence summary, ‘multidisciplinary team’ (MDT) was used to describe teams which comprise of multiple professions e.g. podiatrist, physiotherapist, dietitian rather than those within the same profession but different disciplines e.g. GP, surgeon, anaesthetist. This context of the phrase was consistent through the systematic reviews summarised.

### *Diabetes Mellitus (Type 2)*

It has been reported that more than 190,000 people in Wales have type two diabetes (Welsh Government 2023a). Diabetes UK (2020) stated that this is the highest prevalence in the UK (7.6% compared to 6.9%)

Alongside genetic factors, lifestyle influences such as being overweight and inadequate exercise play a significant role in its development and progression. Obese adults with a BMI over 30 are more than twice as likely to be diabetic and it can lead to a vast range of serious health consequences especially when poorly managed, resulting in damage to the heart, eyes, kidneys and feet (Welsh Government 2023a). Diabetes costs the NHS in Wales approximately £500 million a year, approximately 10% of NHS Wales’ budget (National Assembly for Wales Research Service 2021). It is also one of the conditions identified in NHS10 (Welsh Government 2023b) as one of the long-term conditions which are projected to increase more quickly than demographic growth. Diabetes is also linked to other conditions with lifestyle modifiable factors such as osteoarthritis, heart disease and stroke (Chowdhury et al 2022; Barrett-Connor et al 2020; Pikula et al 2018). People with type 2 diabetes are 2.5x more likely to experience heart failure and 1.5-2x higher risk of stroke than those without (Diabetes UK 2020; Mosenzon et al 2023).

### *Frailty*

Frailty refers to a gradual loss of biological, physical and mental resilience, which often includes but is not limited to older people. As Wales faces a growing ageing population, the scale and impact of frailty will become increasingly significant as the consequences of reduced independence compounded with social deprivation, decline in nutritional status and its association with dementia risk is felt amongst an increasing number of individuals. Hip fractures are the most common serious injury affecting older people and having a fragility fracture approximately doubles the risk of another fracture, which is most likely to occur within 2 years. 1 in 10 hip fracture patients are unable to return home afterwards and are admitted to a care home as a result. The total expected local savings to the NHS and social care of preventing fractures is estimated to be £2.1 million. There are over 20,000 fragility fractures in Wales every year (FFFAP 2022).

Similarly to diabetes, early intervention and rehabilitation within these populations is crucial both to manage the condition and to reduce the risk of associated conditions (Welsh Government 2024). Frailty is associated with higher rates of complications in

patients with geriatric hip fractures, compounding their already significant morbidity and mortality rates (Emmerson et al 2023).

## Method

### Literature Search

The Welsh Government library team was asked to conduct a literature search on the role of AHPs in the secondary prevention of diabetes and frailty. For context, the NHS10 document (Welsh Government 2023b) was discussed with particular emphasis on the policy recommendations in relation to the AHP workforce such as '*Making the NHS more efficient will require more investment in primary care and wider workforce (e.g., Allied Health Professionals) social care and public health*' (Appendix 2). Since an extensive review and synthesis was not the intention, a date restriction of 2019-2024 was applied to make the task more manageable and to prioritise the most recent evidence on the topic.

### Study Selection:

The Welsh Government library initial search returned 46 results. The studies found through the library's search were prioritised based on relevance to the research question according to the abstracts. They were ranked by the library team 1 (top recommendations) 2 (recommended) and 3 (for wider information). This prioritisation was checked and agreed by the author of this paper according to the relevance of the titles and summaries, to the research question (Appendix 1). Studies about type 1 diabetes were excluded. Studies which were not in English or contained reviews which were not in English were also excluded. Unpublished literature was also not included.

Initial prioritisation of studies resulted in 8 studies relating to diabetes, 10 relating to frailty and 2 which were relating to the role of AHPs more generally. Following abstract review, there were 6 studies relating to diabetes, 8 relating to frailty and 2 relating to AHPs and or secondary prevention more generally. Details of the prioritisation process can be found in Appendix 3.

Topic	Number of Studies	Study Types
Diabetes	6	5 Systematic Reviews/Meta Analyses, 1 Randomised Controlled Trial
Frailty	8	5 Systematic Reviews/Meta Analyses, 1 Survey, 2 Primary, non-controlled studies

<b>Topic</b>	<b>Number of Studies</b>	<b>Study Types</b>
AHPs and/or Secondary Prevention	2	2 Rapid Reviews

Following the interim results, the author asked the library team to perform an additional search looking more generally at the role of AHPs in prevention, to check whether there were any further studies which might be relevant to diabetes and frailty. It was suggested to add 'health promotion' to the search terms. This added a further 8 studies to the matrix which were highlighted by the library team in blue. These studies were reviewed by title and abstract and 3 of those additional results were included in the final review. The last study added was linked to one of those additional results and they were summarised together due to their similarity (Hickson et al 2021; 2023). This process added one paper relating to diabetes, one which was 'general' and two which were included in the frailty section.

These studies formed the focus of this evidence summary due to perceived quality, availability and relevance. Please note that the papers were not subjected to critical appraisal, and necessary procedures such as analysing the full text, establishing eligibility criteria, conducting data extraction, and synthesising findings were not performed. This approach aimed to identify and summarise on a descriptive level, relevant studies that provided insights into the role of AHPs in the secondary prevention of diabetes and frailty. An emphasis was placed on self-management and how this might intersect with common comorbidities.

The summary from the library team about their methods and final results is in Appendix 6

### **Concise Paper Summaries**

The abstract of each paper was reviewed and if available and deemed relevant to the question asked, the full study was screened for any further information relating to the role of AHPs in the secondary prevention of diabetes and frailty. A high-level summary sentence/subheading was written for each to briefly summarise and introduce the content included and its context in relation to the aims of this evidence summary.

## **1. The role of AHPs in the Secondary Prevention of Type 2 Diabetes Mellitus (T2DM)**

### **1.1 Potential Effectiveness of Registered Dietitian Nutritionists in Healthy Behaviour Interventions for Managing Type 2 Diabetes in Older Adults: A Systematic Review (Dobrow et al 2022).**

*Dietitians guide T2DM patients through diet and lifestyle modifications as preventive care*

This systematic review focused on registered dietitians and concluded that they play a critical role in the management of T2DM particularly concerning glycaemic control, weight management and by extension, cardiovascular and other comorbidity management.

Assessment

Dietitians carry out comprehensive physical examinations including oral health, muscle wasting and appetite, blood pressure, blood glucose and blood lipid panel. They are important facilitators of diet education and nutrition assessment, which are essential in T2DM management

Management

A Dietitians role includes implementing individualised goals and care plans. This may consist of nutrition education and or diet prescriptions including supplements and calculating energy requirements. They also collaborate with other members of the MDT such as case managers, physicians, nurses pharmacists, speech pathologists and other health care professionals to coordinate care.

Dietitians are also able to counsel patients on food/nutrient/drug interactions

Prevention

Nutrition Counselling is part of a dietitian's role to guide patients through diet modifications and lifestyle modifications, to support long term change. Part of their role from a prevention angle, is also to provide health and wellness coaching, physical activity counselling as both preventive and therapeutic care.

**1.2 A systematic review with meta-analysis of the impact of access and quality of diabetic foot care delivery in preventing lower extremity amputation (Monteiro et al 2021)**

*Podiatrists' role in prevention lies within management and prevention of diabetic foot ulcers to reduce risk of lower extremity amputations*

This systematic review and meta analysis discussed the importance of AHPs in reducing the risk of lower extremity amputations (LEAs) in people with diabetic foot conditions. It highlights that once an LEA has occurred, the risk of subsequent amputation increases from 25-68% after 3-5 years. The risk of this preventable complication can be reduced with regular visits to a podiatrist to manage and prevent diabetic foot ulcers. The study also highlights the important of Multidisciplinary teams especially in terms of patient education and availability of diagnostic and therapeutic procedures.

**1.3 A systematic review of multidisciplinary teams to reduce major amputations for patients with diabetic foot ulcers (Musuuza et al 2019)**

*AHP roles in prevention - Orthotists, Prosthetists, Podiatrists, Occupational Therapists and Pharmacists can feature in MDT's which assess and manage diabetic foot ulcers, reducing the risk of amputations.*

Musuza et al (2019) carried out a systematic review of 33 studies to investigate MDTs and their role in reducing major amputations in patients with diabetic foot ulcers. The MDTs included medical and surgical disciplines which were not specific to AHPs (22% had physical medicine and rehab involved). Therapies such as use of negative pressure wound therapy and casting were described but not specifically documented as AHP led activities. Overall, the role of AHPs in prevention in this setting was linked to treatments such as casting, diabetes education, nutrition, prosthetics and orthotics. Professionals such as occupational therapists, pharmacists and social work were also included in some of the teams. Orthotics was the AHP discipline most commonly included. They also describe podiatrists as collaborating with primary care in the management of ulcers.

#### **1.4 Maintaining changes in physical activity among type 2 diabetics – A systematic review of rehabilitation interventions (Thomsen et al 2021).**

*Transitioning out of rehabilitation and establishing long term change is a challenge.*

The 26 articles within this systematic review focused on physical activity and its role in preventing and managing T2DM, particularly in establishing which factors were important for sustaining physical activity and transitioning out of rehabilitation programs. This did not discuss AHPs specifically however discussed many interventions which might fall under the remit of AHPs such as: Personalised counselling, generalised teaching, supervised exercise or a combination of personalised and generalised interventions, individual involvement, goal setting, social support and the formation of habits.

#### **1.5 The effects of exercise interventions on physical function tests and glycaemic control in adults with type 2 diabetes: A systematic review (Janssen and Connelly 2021)**

*The role of Physiotherapists is to assess functional outcome measures and carry out interventions to improve glycaemic control, exercise tolerance, physical function, and exercise prescription to reduce the risk of falls:*

##### Assessment

Physiotherapists use functional outcome measures e.g. 6 minute walk test (6MWT), timed up and go (TUG) and sit to stand (STS) which can indicate and flag a patient's level of physical function. They are also able to measure patient's aerobic capacity, lower extremity strength and mobility

##### Management

Janssen and Connelly (2021) state that physiotherapists can directly manage T2DM with exercise prescription and advise the numerous benefits of exercise interventions



including improving glycated haemoglobin (with aerobic and resistance training) as well as more broadly, improving physical function and fitness.

### Secondary Prevention

Secondary health complications such as neuropathy, retinopathy, cardiovascular disease and stroke are discussed. These conditions can compound a diabetic patient's pre-existing poor mobility and lead to impaired balance and increased risk of falls. Cardiovascular disease secondary to diabetes can also significantly reduce their aerobic capacity, resulting in reduced exercise tolerance and reduced function. The side effects of anti-diabetic medications can also increase risk of falls and reduce function.

Falls in diabetic patients are of particular concern due to commonly decreased bone quality and muscle wastage associated with sedentary lifestyles as well as delayed fracture healing time in diabetic patients, which increases their risk of serious complications. A serious and common cycle occurs whereby a person falls, becomes more fearful of falling, so moves less, resulting in further loss of strength, fitness and balance, and further falls. The risks increase alongside the development of the conditions associated with diabetes especially concerning osteoporotic fractures.

It is agreed that exercise and lifestyle factors play a significant role in improving glycaemic control as well as improving balance, strength and mobility in this population. Given the evidence described relating to improved balance scores and functional test scores associated with Physiotherapy input, their role is important in this area to mitigate the development of diabetes complications.

Podiatry is also recommended before and during exercise interventions to reduce risk to and assess foot health regularly.

### **1.6 Optimisation of Care for Adult Outpatients With Type 2 Diabetes Through the Diabetes Self-Management Multidisciplinary Program: A Randomized Clinical Trial (Garcia et al 2022) (Abstract only)**

*The challenge of self-management for long term lifestyle changes.*

This RCT describes the challenges of self-management strategies for long term lifestyle changes. A multidisciplinary approach was studied including a nurse, pharmacist, dietitian physical educator and social worker. Quality of life measures were improved however blood glucose test results were not. Non responders were described as having poor compliance, serious comorbidities, and mobility limitations.

### **1.7 Health Promotion in Physiotherapy Services using NHS health and diabetes checks (Rawlinson 2019)**

*Public health opportunities within elective care pathways.*

This case study demonstrated one of the ways health promotion activities can be integrated into existing services. NHS Health checks and diabetes checks were

introduced into a musculoskeletal physiotherapy service, whereby patients had a 15 minute appointment with a support worker prior to their physiotherapy appointment to take a number of measures to identify risk factors including HbA1c tests to high risk patients to identify those with poor blood glucose control and or undiagnosed diabetes. It assisted in identifying those patients in need of further input and referring them to primary care services as well as addressing their musculoskeletal problems on a more holistic level. Structuring the service this way appears to have facilitated discussions around lifestyle changes to improve overall health which is also relevant to their musculoskeletal complaint. This made use of patient waiting times and implemented the principles of 'make every contact count' for health promotion activities within the service. Links were also developed with social prescribing services such as the exercise referral service which supports lifestyle changes in the community in a non-clinical setting. This demonstrates the potential for the roles of AHP services to include opportunistic public health interventions within elective care pathways and to create a 'joined up' approach. It is again identified that there is a need for AHPs to record and collate their public health interventions to demonstrate their value, outcomes and impact.

## **2.The role of AHPs in the Secondary Prevention of Frailty**

### **2.1 Case management for integrated care of older people with frailty in community settings (Sadler et al 2023)**

*AHP involvement in Integrated community-based care interventions.*

Sadler et al (2023) briefly discuss the role of AHPs or a nurse, in leading case management interventions. They define case management interventions as patient centred, community based and focusing on planning, provision and coordination of health and social care. They report that this is supported by an MDT and that AHPs also have a role in delivery of care for older people with frailty. They identify that responsive integrated health systems should have rapid access to intermediate care, same day emergency care and 'hospital at home' services. It discussed more about helping navigate the healthcare system than working in a preventative capacity but does demonstrate that AHPs are frequently involved in leading and working within an MDT setting in the community as well as within hospitals.

### **2.2 Home- and Community-Based Occupational Therapy (OT) Improves Functioning in Frail Older People: A Systematic Review (DeConinck et al 2017)**

*Occupational Therapists are effective in assessing and reducing fear of falling, improving mobility and activities of daily living.*

This systematic review and meta-analysis demonstrates evidence that occupational therapists play an important role in improving function within frail people in the community. DeConinck et al (2017) explain that Occupational Therapists work in a client-centred way to empower the person and his environment to engage in meaningful

activities of everyday life. They work on increasing social participation, mobility and reducing fear of falling. They also identify that in the elderly population, improving accessibility to OT interventions by providing these interventions at home is recommended. Outcome measures used focus on mobility, activities of daily living (ADLs) and social participation. There were also measures recording fear of falling, cognition, disability and number of falling persons, highlighting their involvement within these areas.

### **2.3 The Scottish national LifeCurve™ survey: costs of functional decline, opportunities to achieve early intervention to support well-being in later life, and meaningfulness of the LifeCurve™ (Kelso et al 2020)**

*Improved clinical and economic measures are associated with earlier, more preventative intervention.*

This survey was based on a national “Active and Independent Living Programme (AILP)”, which was led by AHPs and focused on maximising AHP’s contributions to the health and wellbeing of people in Scotland. They discussed the stages at which interventions occurred, highlighting that too often care is more reactive than it is proactive and the cost savings and clinical outcomes which could be achieved with earlier intervention.

There was some variation between professions, with radiographers and orthoptists being more involved in earlier stages and Physiotherapists and Occupational Therapists largely were involved later in the course of patients lives and conditions. There as some evidence of some Physiotherapy input at the ‘precurve’ stage. The role of the AHPs in supporting wellbeing in later life included help and rehabilitation relating to functional challenges such as mobility, housework and toilet transfers using a personalised approach and shared decision-making. These are common themes through AHP literature.

The paper also highlights that frailty and functional decline in old age can be avoided, but that most interventions occur too late to prevent it, or that had interventions happened sooner, more significant changes could be made. They report that earlier intervention targeting functional decline could increase older people’s role and participation within their communities as well as having the potential to save health and social care costs. They predict that earlier intervention and changing the ageing trajectory could save £3200 per person per annum. This represents a need for a change in approach to the current model, to one which intervenes earlier and improves long term measures, as opposed to being responsive to acute problems which occur when frailty is more advanced.

### **2.4 Physical-activity interventions to reduce fear of falling in frail and pre-frail older adults: a systematic review of randomized controlled trials (Savvakis et al 2024)**

*The value of improved direct access to AHPs and implementing a patient centred approach.*

Savvakis et al performed a systematic review concentrating on fear of falling in pre-frail older adults. The roles of Occupational Therapists focused around improving functionality and reducing fear of falling and Physical Therapists for rehabilitation following hip fractures. This rehabilitation included strength and balance training and mobility interventions as well as balance and fear of falling assessments. They describe the positive outcomes associated with these interventions and recommend a patient centred approach with direct access to physical therapists rather than physician first approaches.

An important aspect of this process is that the patients are empowered to become active participants in their own health care. It is said that this reduces costs, improves clinical outcomes, reduces prescription medication use and imaging. Part of the Physical Therapist's role is to assess for differential diagnoses, screen for indicators of sinister pathology (red flags) and onwards referral when needed.

#### **2.5 Delaying and reversing frailty: a systematic review of primary care interventions Comparative effectiveness of non-pharmacological interventions for frailty: a systematic review and network meta-analysis (Travers et al 2019)**

*Combined protein supplementation and strength exercise was the easiest and more effective intervention.*

During this systematic review, it describes the role AHPs play in the community, particularly relating to home visits. This includes carrying out risk assessments for safety and falls risk, signposting to support services and providing mobility exercises. Travers et al (2019) highlight that participation rates in exercise were high but it appears may benefit from periodic encouragement by medical professionals. Muscle strength training and protein supplementation combined was the most effective intervention and the easiest to implement within primary care.

#### **2.6 Earlier Physical Therapy Input Is Associated with a Reduced Length of Hospital Stay and Reduced Care Needs on Discharge in Frail Older Inpatients: An Observational Study (Hartley et al 2019)**

*Physical Therapists assess and encourage early mobilisation and may reduce hospital related deconditioning via direct intervention, education and improving patient confidence with self-administered exercise.*

This observational retrospective study demonstrated the role physical therapists have in reducing and preventing hospital related deconditioning with early mobilisation and early assessment of a patient's mobility needs, activity limitations and social circumstances. This is then incorporated into their management plan to optimise function and facilitate discharge from hospital. Early physical therapy is associated with shorter length of stay. Acute illness and bed rest can have rapid and drastic impacts on

muscle wastage, so physical therapy intervention to assist in functional recovery is important and may be preventative of an otherwise accelerated increase in frailty related to hospital admissions.

### **2.7 Personalised Assessment and Rapid Intervention in Frail Patients With Lung Cancer: The Impact of an Outpatient Occupational Therapy Service (Welford et al 2023) (Abstract only)**

*Occupational Therapy Services assist in avoiding hospital admissions and reducing their duration via advance care planning & management of functional disruption.*

This article adds to the picture of the role of Occupational Therapists in terms of avoiding and reducing the length of hospital admissions through advance care planning, management of functional disruption, onward referrals and palliative care. This is in the context of frail patients with lung cancer.

### **2.8 A Case Study on the Impact of a dietitian in the multidisciplinary team within primary care: A Service Evaluation (Hickson et al 2023) and Impact of a dietitian in General Practice: are of the frail and malnourished (Hickson et al 2021)**

*The role and potential benefits of AHPs in Primary Care*

These authors wrote two papers on a similar theme: dietitians as AHPs. One focused on the role of a dietitian within a group of general practices in Devon (Hickson et al 2023), whilst the other focused solely on the dietitians impact in relation to frailty and malnutrition in a single health centre in Cornwall (Hickson et al 2021). The dietitian was working in these clinics part time (6hrs/week) and was found to improve patient outcomes in terms of reducing frailty, within the team in terms of interdisciplinary education and collaboration as well as being cost effective with high levels of patient satisfaction (Hickson et al 2023; Hickson et al 2021).

There are already some primary care based roles for physiotherapists, paramedics and pharmacists which have been established and are also shown to be clinically and cost-effective measures to improve accessibility of AHPs. They also reduce pressure on GP appointments and likely have indirect cost savings as a result. In terms of dietetics, cost savings have been identified via optimising prescriptions for oral supplements and it has been identified that their skills in chronic disease management preventative care and therapeutic consultation are all key to working within primary care. They highlight the strong case they have for managing long term conditions with secondary risk factors such as diabetes and frailty. This pilot and these roles are in early stages at present but are demonstrating promising results. The pilot was small but demonstrates some potential feasibility and value in the role of dietitians within the primary care space (Hickson et al 2023).

For their study concentrating on frailty and malnourishment, they implemented a screening process for patients who might be at risk of frailty and or malnourishment by looking at age, BMI and electronic frailty index. Those at risk were then offered

consultations within the GP surgery with the dietitian and improvements in strength, frailty and nutrition status scores were seen, demonstrating the clinical effectiveness of the role. The dietitian was working there for less than one day per week and within 6 months the cost efficiency savings from appropriate oral supplements prescription covered the cost of the dietitian's salary. They also discuss the potential role for health care assistants and or dietetic assistants in improving efficiency further, if they were to be supervised by the dietitian. The role of the dietitian would also include managing the more complex cases and leading further service developments. The authors identify the cost impacts of frailty and malnutrition and that there is likely a large cohort of patients in most general practices which would benefit from such an intervention. Cost benefits such as reduced hospitalisations/length of hospitalisations/reduced health and care service use and reduced pressure on GP appointments would be useful measures to assist in making the case for expanding this idea as a service. As a small-scale case study, it provides an interesting, although not currently generalisable, basis for future research and thinking.

### **3 The role of AHPs in Secondary Prevention**

#### **3.1 Allied health professionals: A promising ally in the work against health inequalities- A rapid review (Gkiouleka et al 2022)**

*There should be more emphasis AHPs and social outcomes and increase accessibility to AHPs to reduce health inequalities.*

Gkiouleka et al (2022) did a rapid review highlighting the impact of AHPs in reducing health inequalities due to their role in promoting health and establishing connections between clinicians, social care workers and communities. Despite this they are not universally accessible. Barriers to access are most prevalent in areas of socioeconomic deprivation, even within the context of universal healthcare. A key issue with this, Gkiouleka et al (2022) state, is that within public health interventions the focus is heavily on individual rather than structural factors. The impacts of AHPs in terms of improving function and enabling people who return to work has far reaching benefits to the individual and wider community, so they highlight that further research should be done to investigate AHPs within target groups and have more emphasis on social outcomes e.g. employment, housing and education, as opposed to the traditional biomedical model of health, which focuses mainly on an individual's structure and function (Farre and Rapley 2017).

#### **3.2 Mapping the contribution of Allied Health Professions to the wider public health workforce: a rapid review of evidence-based interventions (Fowler et al 2017)**

*AHPs role in public health needs increased recognition and expansion at community level.*

This rapid review discusses that AHPs are already playing a role in health promotion activities but that it often isn't being recognised as 'Public Health'. Fowler et al (2017) highlight that AHPs have the necessary scope and enthusiasm to expand in this area. They suggest that at present, this is limited by the fact that AHP services are typically delivered to individuals and groups however more benefit could be seen by increasing their partnership across communities to achieve more population focused outcomes. Similarly to Gkiouleka et al (2022), they also highlight the AHP role in addressing health inequality.

Early intervention is another key theme particularly concerning podiatry and foot care for people who are at risk of peripheral neuropathy, such as those with diabetes. They report that preventative podiatry and earlier diagnosis of peripheral artery disease by either an MDT or diabetic foot team improves patient outcomes. They suggest that in addition to foot care, further health promotion can be delivered at the same time such as guidance and education on smoking cessation and exercise to support self-management. They report that this is both clinically, socially and economically effective.

Dietetics is also identified as a key profession in this area for weight management and promoting behaviour change, and that dietitians are effective in supporting significant reductions in weight with weekly consultations. These interventions work by improving quality of life outcomes as well as in a preventative capacity to reduce the risk and incidence of comorbidities.

Occupational Therapists and Paramedics are said to have a significant role in secondary prevention with a particular emphasis placed on minimising the frequency of falls and maximising recovery from them. They also report that in one of the trials reviewed, the number of people who were referred to falls services was doubled and that the cost per patient reduced from £22k to £15.4k. They highlight however that compliance to national guidance for secondary prevention of falls is currently a challenge.

A further effective occupational therapy intervention was discussed concerning environmental assessments of patients homes and reduce the risk of falling. Paramedics were also identified to be effective especially in older people who frequently fall. Involvement of paramedics in this way was effective in reducing admissions and a change from more frequent hospital referrals to primary care.

This rapid review highlighted that AHPs are effective but potentially not used to their maximum potential in terms of secondary prevention and that their impact could be greater if they were more accessible.

### **3.3 A rapid review and expert identification of the allied health professions' interventions as a contribution to public health outcomes (Fowler et al 2021)**

*More large scale RCTs are needed, as well as population level outcome measures.*

As a follow up to their rapid review discussed above, Fowler et al wrote a further rapid review more recently where they expanded on some of their ideas further. They highlight

the importance of AHPs measuring the impact of their interventions at population level and the need for studies that reach the standards required to commission and fund services. Many outcome measures currently used by AHPs are focused on individual measures and more larger scale RCTs are needed. They also discuss the potential and growth of interest in the deployment of AHPs across community services in more preventative roles including screening and targeted intervention.

### **Key Findings / Themes**

These are the key themes identified relating to the activities of AHPs which focus around secondary prevention of diabetes and frailty. The quality of the evidence used has not undergone any critical appraisal process, so should be interpreted as a summary rather than a synthesis of the evidence.

The role of AHPs in the secondary prevention of diabetes:

- Assessment which may or could include blood tests, cardiovascular risk factors e.g. blood pressure, of balance, physical function tests (dietitians, physiotherapists)
- Screening and monitoring for circulation, neuropathy, signs of peripheral arterial disease and lifestyle advice to reduce the risk of LEAs (Podiatrists, pharmacists)
- Exercise Prescription to improve balance, mobility and strength (Physiotherapists)
- Dietary interventions and counselling (Dietitians)
- Improve or maintain mobility and safety including through the assessment or and provision of mobility aids (Physiotherapists, orthotists, prosthetists, occupational therapists)
- Improve blood glucose to reduce risk of neuropathy, retinopathy, CVD and stroke (Dietitians, Physiotherapists)
- Support for long term lifestyle changes – The evidence highlights that this is difficult to maintain following a transition out of rehabilitation, so there may be a role for improving the process of moving towards self-management in the long term
- Screening services within elective care pathways e.g. health checks (physiotherapists/assistants)

The role of AHPs in the secondary prevention of frailty

- Assessment/Monitoring of outcome measures relating to function and fear of falling (physiotherapists, occupational therapists)
- Diagnosis, Differential diagnosis, screening for red flags and onward referrals (physiotherapist).
- Rehab to strengthen and improve balance, mobility and cognitive function, with potential for earlier intervention and greater effect in future



- Prevention of hospital related deconditioning, reduce admissions and restore/maintain mobility (physiotherapists).
- Supporting social participation (occupational therapists).
- Integrated community-based care.
- Dietary guidance and advice including protein supplementation where needed (dietitians).
- Advance care planning to reduce and avoid hospital admissions (occupational therapists).
- There is a potential for increasing AHP roles within GP practices including dietitians to screen for and manage frailty.

AHP role general / other / scope for other conditions:

- Improvement of the accessibility of AHPs, especially in areas of socioeconomic deprivation, may reduce health inequalities.
- Research on the social impacts of AHPs in target groups is needed.
- AHPs have the skills and are already doing some work which relates to preventative care including involvement in health promotion and public health but this work is often not measured or maximised.
- AHP interventions are currently largely focused on individual level outcomes but their skills and scope could be expanded to community wide objectives.
- A move to earlier intervention and preventative roles could be clinically and economically effective particularly within the areas of diabetes care and frailty, especially falls prevention.
- There is already some research and expansion of roles of some AHPs (mainly physiotherapists, paramedics, occupational therapists and pharmacists) in primary care which appears to be promising in terms of clinical and cost effectiveness, but could be expanded to include other AHPs, such as dietitians. This work is in its early stages and is an area for further research.

### **Evidence limitations**

The full texts for two of the studies included (Welford et al 2023 and Garcia et al 2022) were not available, so only the abstracts were used in the summary. Where possible, systematic reviews were prioritised however given that the focus of this summary was to explore the roles of the professions as opposed to the effectiveness of the interventions, other research types were also included. Three Rapid Reviews were included: Gkiouleka et al (2022) and Fowler et al (2017) and Fowler et al (2021) which should be recognised as a limitation since the strength of the evidence was not rigorously assessed or synthesised. They were both however, relevant to the topic being discussed and in the context of the questions being asked, were deemed suitable by the author to include within a separate section to assist in providing wider

context. Primary research including case studies were also included in areas where the evidence base is small, with the intention of highlighting areas for future research which are still in development phases.

Several of the studies identified discussed interventions such as exercise and nutritional strategies but were not specific in their mention of AHPs. Furthermore, research often refers to multi-disciplinary teams (MDTs) which may include AHPs alongside other professionals, so quantifying their individual impact can be challenging. The composition of MDTs also varies widely in size and speciality, for example some used a physiotherapist and others used a “physical trainer”. There may be inconsistencies in outcomes based on the size of the MDT and the professions included. This summary was looking specifically for the role of AHPs, so where this data was within “MDT” papers, their individual impact may be missed or underestimated.

### **Options for further research**

The evidence demonstrates the value and untapped potential of AHPs in preventative healthcare. Further modelling on the potential economic benefits of earlier intervention and AHPs within primary care and or community settings within a Welsh context may prove worthwhile to support this transformation.

Research investigating actual and potential AHP roles within Primary Care may also assist in defining whether they are or should be incorporated in a diagnostic only or rehabilitative capacity. There has been an expansion of physiotherapy roles in primary care as a First Contact Practitioner, however it appears that these roles are largely around assessment, diagnosis, first line treatment and directing to appropriate referral pathways rather than direct involvement in ongoing treatment, so their role and its impact in terms of secondary prevention might be different to the studies on dietitian FCPs in this paper (Chartered Society of Physiotherapy 2021). The Primary and Community Care Allied Health Professions Workforce Guidance discusses the opportunities and disadvantages of the FCP model (NHS Wales 2021). Research which looks at a more holistic role, not limited to the MSK specialty and expanding further than the assessment/referral based role of an FCP would be of benefit, particularly around the incorporation of prevention based strategies.

Opportunities to improve accessibility of AHPs within primary and community care may also be beneficial. As explained in the Allied Health Professionals Framework for Wales: Looking forward together (Welsh Government 2020), AHPs are recognised as having a role and skills in prevention but are underutilised in primary and community care services, so piloting and measuring their clinical and economic impact within these areas might be an area to explore. There is some work in this area in terms of individual level intervention such as direct access pathways and diagnostic FCP roles within physiotherapy, but inclusion of other AHPs and more emphasis on community or population level outcomes may improve the case for the role of AHPs within preventative healthcare (Mercer and Hensman-Crook 2022).

Research, in line with current practice, also largely focuses on condition specific outcomes and interventions. In line with the recommendations from NHS10+ (Welsh Government 2023b), further work on clustered conditions and defining the potential impact of early intervention in reducing comorbidities may also prove useful to connect the musculoskeletal, neurological, respiratory and cardiovascular benefits of AHP interventions in a preventative capacity.

It may also be useful to consider preventative interventions in an earlier stage of the disease, for example the effects of AHP secondary preventative interventions in people who are at risk of development of diabetes, or who have a cluster of predisposing health factors e.g. overweight/family history/over 45/have had gestational diabetes/low levels of physical activity/higher risk ethnic groups/non-alcoholic fatty liver disease (NICE 2024).

### **Practical Implications**

The evidence highlights the role and impact of AHPs in the secondary prevention of diabetes and frailty and how they are effective in many areas especially those involving lifestyle and behaviour change and self-management of chronic conditions. Earlier intervention and a move towards measuring community and social impacts rather than mainly individual and or biomedical ones is an area for consideration for the future. There are many lifestyle components to diabetes and frailty which might be more clinically and economically effective if interventions were to occur earlier in the development of these conditions. AHPs appear to have a strong skillset in terms of preventative healthcare and could form part of this solution.

### **Conclusion**

Allied health professionals are a large and diverse group within the healthcare service and have a wide range of skills around health promotion and secondary prevention of frailty and diabetes. Many of their activities are already within a prevention capacity at some level but often not recognised as such. Early intervention may reduce the costs and impacts of these two conditions and AHPs play a key role in this area, moreso if they were more accessible at an earlier stage of the disease processes. Increased accessibility within Primary Care is a feasible method to achieve this but more primary research is needed to quantify their clinical and economic impact in this environment at population level.

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## Appendix

### Appendix 1 – List of AHPs [Allied Health Professions Framework for Wales \(gov.wales\)](#)

• Art Therapists • Music Therapists • Drama Therapists • Dietitians • Occupational Therapists • Orthoptists • Orthotists • Paramedics • Physiotherapists • Podiatrists • Practitioner Psychologists • Prosthetists • Speech and Language Therapists

### Appendix 2 – [Literature Search/Library Interim Results](#)

#### [Library Final Results](#)

### Appendix 3 – [Study Prioritisation](#)

Initially prioritised studies based on perceived relevance to the research question according to their title and summary are in red

Highlighted in yellow is the reason their prioritisation was reduced

### Appendix 4 – Study Prioritisation stage 2

Green – Excluded after review of abstract

Evidence Summary Prioritisation – Diabetes

1. Potential Effectiveness of Registered Dietitian Nutritionists in Healthy Behavior Interventions for Managing Type 2 Diabetes in Older Adults: A Systematic Review
2. Efficacy of Nutrition Counselling by a Dietitian in Improving Clinical Outcomes for People with Type 2 Diabetes Mellitus: A Systematic Review and Meta-Analysis of RCTs
3. A systematic review with meta-analysis of the impact of access and quality of diabetic foot care delivery in preventing lower extremity amputation
4. A systematic review of multidisciplinary teams to reduce major amputations for patients with diabetic foot ulcers
5. Non-pharmacological interventions to improve cardiovascular risk factors in people with diabetic foot disease: A systematic review and meta-analysis
6. Maintaining changes in physical activity among type 2 diabetics – A systematic review of rehabilitation interventions
7. The effects of exercise interventions on physical function tests and glycaemic control in adults with type 2 diabetes: A systematic review

8. Optimization of Care for Adult Outpatients With Type 2 Diabetes Through the Diabetes Self-Management Multidisciplinary Program: A Randomized Clinical Trial

#### Evidence Summary Prioritisation – Frailty

1. Case management for integrated care of older people with frailty in community settings
2. Home- and Community-Based Occupational Therapy Improves Functioning in Frail Older People: A Systematic Review
3. The Scottish national LifeCurve™ survey: costs of functional decline, opportunities to achieve early intervention to support well-being in later life, and meaningfulness of the LifeCurve™
4. Physical-activity interventions to reduce fear of falling in frail and pre-frail older adults: a systematic review of randomized controlled trials
5. Comparative effectiveness of non-pharmacological interventions for frailty: a systematic review and network meta-analysis
6. What works in managing complex conditions in older people in primary and community care? A state-of-the-art review (not enough about the roles)
7. Mobility training for increasing mobility and functioning in older people with frailty
8. Delaying and reversing frailty: a systematic review of primary care interventions
9. Earlier Physical Therapy Input Is Associated With a Reduced Length of Hospital Stay and Reduced Care Needs on Discharge in Frail Older Inpatients: An Observational Study
10. Integrated care at home reduces unnecessary hospitalizations of community-dwelling frail older adults: a prospective controlled trial
11. Personalised Assessment and Rapid Intervention in Frail Patients With Lung Cancer: The Impact of an Outpatient Occupational Therapy Service
12. Effectiveness of interventions to address different types of vulnerabilities in community-dwelling older adults: An umbrella review

#### Appendix 5 – Evidence Summary Tables

Evidence Summary Themes/Quotes (Diabetes)	
<b>Citation</b>	Dobrow, L., Estrade, I., Burholder-Cooley, N. and Miklavic J. 2022. Potential Effectiveness of Registered Dietitian Nutritionists in Healthy Behaviour Interventions for Managing Type 2 Diabetes in Older Adults: A Systematic Review. <i>Front. Nutr.</i> , 24 January 2022 Sec. Clinical Nutrition Volume 8 <a href="https://doi.org/10.3389/fnut.2021.737410">https://doi.org/10.3389/fnut.2021.737410</a> [Accessed 12/4/24]

<b>Type of Research</b>	SR
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes</b>	
<p>12 studies included focused on registered dietitians</p> <p>Dietitian outcomes:</p> <p>Role</p> <ul style="list-style-type: none"> <li>- Develop individualized goals and a care plan</li> <li>- Physical examinations to evaluate body systems, oral health, muscle wasting and appetite</li> <li>- Perform tests eg blood pressure, blood glucose and blood lipid panel</li> <li>- Nutrition Education / Diet prescriptions</li> <li>- Nutrition Counselling to guide through diet modifications and lifestyle recommendations</li> <li>- Collaborate with case managers, physicians, nurses, pharmacists, speed pathologists and other health care professionals</li> <li>- Counsel patients on food -/nutrient -drug interactions, advise on nutrition related plans and are responsible for accounting on prescribed diets, medical foods, dietary supplements and patient centred nutrient and energy requirements</li> <li>- Can be inpatient/outpatient/community/public/private and in individual or group environments.</li> </ul> <p>Provide health &amp; wellness coaching, physical activity counseling, lifestyle advice an health education as preventive and therapeutic care</p>	
<b>Comments</b>	<p>US Concluded that Dietitians may pay an integral role in healthy behaviour interventions resulting in improved glycemic control, weight management, cardiovascular outcomes and presumably comorbidity management. Important facilitators of diet education and nutrition assessment, which are essential in T2DM management</p>
<b>Citation</b>	<p>Siopis G., Colagiuri S. and Allman-Farinelli M. 2020. Efficacy of Nutrition Counselling by a Dietitian in Improving Clinical Outcomes for People with Type 2 Diabetes Mellitus: A Systematic Review and Meta-Analysis of RCTs. <i>Curr Dev Nutr.</i> Jun; 4(Suppl 2): 281. Published online 2020 May 29. <a href="https://doi.org/10.1093/cdn/nzaa043_132">https://doi.org/10.1093/cdn/nzaa043_132</a> [Accessed 12/4/24]</p>
<b>Type of Research</b>	SR & MA
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes</b>	
<p>Role of dietitian:</p> <p>Implementing medical nutrition therapy and reporting changes in haemoglobin A1c (HbA1c) and other clinical outcomes</p>	
<b>Comments</b>	<p>Uni of Sydney</p> <p>Abstract only</p> <p>Results – Nutrition intervention provided by a dietitian results in better clinical outcomes of T2DM compared with that by other healthcare professionals</p>
<b>Citation</b>	<p>Monteiro-Soares M., Vale-Lima J. and Pinheiro-Torres J. 2021. A systematic review with meta-analysis of the impact of access and quality of diabetic foot care delivery in preventing lower extremity amputation. <i>Journal of Diabetes and its Complications</i> 35 (4) 107837</p>
<b>Type of Research</b>	SR & MA
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes</b>	
Importance of secondary prevention	

- once an LEA has occurred, the risk of a subsequent amputation increases from 25-68% after 3-5 years and the 5 year survival rate decreases from 70% to 41%
- Management to prevent DFUs developing requires access to MDTs and education and availability of diagnostic and therapeutic procedures
- Majority of studies indicated that being regularly seen by a chiropodist or podiatry reduces the risk of LEA, especially major LEA

<b>Comments</b>	
<b>Citation</b>	<a href="#">Musuuza J., Sutherland B. L., Kurter S., Baladubramanian P., Bartels C. M. and Brennan M. B. 2019. A systematic review of multidisciplinary teams to reduce major amputations for patients with diabetic foot ulcers. Journal of Vascular Surgery 71 (4) P1433-1446. DOI A systematic review of multidisciplinary teams to reduce major amputations for patients with diabetic foot ulcers - Journal of Vascular Surgery (jvascsurg.org) [Accessed on 12/4/24].</a>
<b>Type of Research</b>	SR

**Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes**

33 studies none were RCTs.

MDTs included medical and surgical disciplines so not specific to AHPs (only 22% had physical medicine and rehab involved). MDT composition was variable but reduced major amputations in 94% of studies

The roles of nurses and AHPs were less well documented – team tasks eg use of negative pressure wound therapy and casting suggest that these disciplines were under reported

The contributions of AHPs were cited in 14 studies with even broader discipline involvement: casting, diabetes education, medical quality, nutrition, occupational therapy, orthotics, pharmacy, prosthetics and social work. Of these orthotics was the AHP discipline most commonly included on teams (30%)

Role of podiatry – relatively straightforward ulcer management with collaboration between primary care and podiatry

<b>Comments</b>	?For exclusion as not heavy focus on role of AHPs
<b>Citation</b>	Non-pharmacological interventions to improve cardiovascular risk factors in people with diabetic foot disease: A systematic review and meta-analysis
<b>Type of Research</b>	SR & MA

**Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes**

Those with DFD exhibit an extremely high degree of cardiovascular risk, greater than those with diabetes alone and cardiovascular disease mortality is the leading cause of death in this population

- Nutritional strategies

Physical activity and or exercise interventions may also provide promise though work is ongoing in this area given limitations around weight bearing status

<b>Comments</b>	Exclude – no mention of roles of AHPs
<b>Citation</b>	Maintaining changes in physical activity among type 2 diabetics – A systematic review of rehabilitation interventions
<b>Type of Research</b>	SR

**Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes**

Physical activity is a suitable way of preventing and managing T2DM.

The 26 articles described 30 interventions which were categorised as: Personalised counselling, generalised teaching, supervised exercise or a combination of personalised and generalised interventions

Individual involvement, goal setting, social support and the formation of habits are argued to be important components in sustaining PA and relieving challenges associated with the transition out of rehabilitation programs

<b>Comments</b>	Abstract only available
<b>Citation</b>	The effects of exercise interventions on physical function tests and glycemic control in adults with type 2 diabetes: A systematic review
<b>Type of Research</b>	SR

### Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes

Role of Physiotherapists – functional outcome measures eg 6MWT, TUG and STS are reliable measures of physical function in adults with T2D. Measure aerobic capacity, lower extremity strength and mobility with exercise in patients with T2D.

Physiotherapists can directly manage T2DM with exercise prescription

Exercise interventions improve physical function in patients with T2D

Increased total volume of exercise improves 6MWT scores

Glycated hemoglobin improves with aerobic and resistance training

Patients with type 2 diabetes (T2D) may go on to develop micro- and macrovascular complications including neuropathy, retinopathy, cardiovascular disease and stroke

In particular, a cross-sectional study including 198 patients with T2D and peripheral neuropathy reported a significant decrease in Berg Balance Scale scores ( $p < 0.001$ ) and single leg stance times ( $p = 0.003$ ) and a significant increase in timed up-and-go (TUG) scores ( $p = 0.002$ ) ( Timar et al., 2016 ). Therefore, peripheral neuropathy, secondary to T2D, is associated with impaired balance and increased risk of falls ( Timar et al., 2016 ). Another cross-sectional analysis observed that patients with T2D and retinopathy ( $n = 857$ ) were at an increased risk of falls ( $p = 0.002$ ) compared to patients with T2D but without retinopathy ( $n = 2012$ ) ( Gupta et al., 2017 ). In addition to balance impairments, strength and endurance may be impaired in patients with T2D.

prevalence of T2D in patients with acute stroke was 28–34.5% and were more associated with ischemic stroke compared to haemorrhagic strokes ( Lau et al., 2019 ; O'Donnell et al., 2016 ).

Cardiovascular disease, another common complication of diabetes, can have a significant impact of aerobic capacity in this population. Patients diagnosed with acute and chronic heart failure have a significant decrease in health-related quality of life, reporting reduced function and exercise tolerance with shortness of breath on exertion ( Ponikowski et al., 2016 ). In addition to diabetes complications contributing to a further decline in physical function, anti-diabetic medications (e.g., sulfonylureas) can have adverse effects such as hypoglycemia impacting physical function and increased risk of falls ( Lapane et al., 2015 ).

The prevalence of falls in patients with T2D is higher due to diabetes complications, decreased bone quality, development of sarcopenia and impaired muscle quality caused by sedentary lifestyle, obesity and skeletal muscle oxidative stress in this population ( Sarodnik et al., 2018 ).

Fractures are a common and serious complication of falling and may lead to disability and increased fear of falling ( Yokomoto-Umakoshi et al., 2017 ). A cross-sectional study examined risk of falls and osteoporotic fractures in patients with T2D and reported that increased risk of falls were associated with older age (>65 years), longer duration of T2D (>20 years), and a diagnosis of neuropathy, retinopathy, or peripheral vascular disease ( Yokomoto-Umakoshi et al., 2017 ). Furthermore, of the 72 patients with T2D at an increased risk of falls, 59.7% experienced a fracture at any location and 47.2% experienced a vertebral fracture ( Yokomoto-Umakoshi et al., 2017 ). In addition, delayed healing time of fractures through inhibition of biomarkers associated with bone repair and remodeling occur in patients with T2D ( Wu et al., 2017 ). Exercise programs to improve balance, strength and mobility can reduce the risk of falls and fractures.

Adopting a healthful lifestyle, including regular exercise, improves physical function and glycemic control and mitigates the development of diabetes complications. Systematic reviews suggest that exercise interventions consisting of aerobic and/or resistance training improved glycated hemoglobin (HbA1C), blood pressure, body mass index (BMI), waist circumference, weight management, cardiorespiratory fitness (i.e., VO<sub>2max</sub>) and strength ( Park et al., 2021 ; Pan et al., 2018 ; Bryne et al., 2017 ).

Podiatry: Medical screening may be recommended, such as an electrocardiogram and regular foot inspections before and during exercise interventions ( Ottermann et al., 2012 ).

<b>Comments</b>	
<b>Citation</b>	Garcia S.P., Madalosso M.M., Bottino L.G. Monteiro L.E.R.C., Sparrengerger K., schneiders J., Berlanda G., Blume C., Gossenheimer A.N., Telo G.H. and Schaan B.D. 2022. Optimization of Care for Adult Outpatients With Type 2 Diabetes Through the Diabetes Self-Management Multidisciplinary Program: A Randomized Clinical Trial. <i>Canadian Journal of Diabetes</i> 46 (5) pp. 449-456.
<b>Type of Research</b>	RCT

**Summary/Key Points about the role of AHPs in Secondary prevention of Diabetes**

The MP consisted of face-to-face meetings with each health-care provider (nurse, pharmacist, dietitian, physical educator and social worker) to approach diabetes self-management issues. MP topics were tailored toward local habits and culture.

A short-term self-management multidisciplinary program improved diabetes-related quality of life but failed to reduce A1C in individuals with longstanding type 2 diabetes and a low socioeconomic status.

Diabetes self-management can improve glycemic management and quality of life, but promoting self-management strategies remains a major challenge.

In a study with an individual approach carried out by a multidisciplinary team, it showed that nonresponders were those with poor compliance, serious comorbidities and limitation of mobility ( 32 ).

Therefore, self-management of the disease is essential to achieve control and to prevent complications ( 42 ). Short-term interventions have little effect on the achievement of long-term glycemic management ( 17 ), and the benefits of the intervention are reduced when measured a few months after its completion ( 43 ). In addition to the benefits achieved, increasing the number of meetings throughout the year could be beneficial to keep individuals motivated and engaged in the recommended care.

In conclusion, a short-term multidisciplinary program was able to improve diabetes-related foot care and quality of life but was insufficient to improve A1C in individuals with longstanding diabetes attending a public hospital in a middle-income country.

<b>Comments</b>	
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**SR** = Systematic Review

**MA** = Meta Analysis

**RCT = Randomised Controlled  
Trial**

<b>Evidence Summary Themes/Quotes (Frailty)</b>	
<b>Citation</b>	Sadler E., Khadjesari Z., Ziemann A., Sheehan K.J., Whitney J., Wilson D., Bakolis I., Sevdalis N., Sandall J., Sukup T., Corbett T., Goncalves-Bradley D.C. and Walker D.M. 2023. Case management for integrated care of older people with frailty in community settings. <i>Cochrane Database of Systematic Reviews (5)</i> DOI: 10.1002/14651858.CD013088.pub2. [Accessed 15/4/24].
<b>Type of Research</b>	SR
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
<p>Case Management is a community based intervention that focuses on the planning, provision and coordination of healthcare and social care tailored to meet the needs of individuals with high support and care needs. Case management interventions are multifaceted and comprise multiple intervention components including case finding, comprehensive assessment, care planning and provision, care coordination, monitoring and evaluation. Such interventions are typically led by a nurse, social worker or AHP with the support of a MDT. They are delivered in community care settings (eg individuals home) rather than acute or residential care</p> <p>Role of AHP(or others eg nurse) = Leading case management interventions</p> <p>Role in care delivery for older people with frailty, supported by a MDT</p>	
<b>Comments</b>	
<b>Citation</b>	<a href="https://doi.org/10.1111/jgs.14889">De Coninck L. Bekkering G.E., Bouckaert L. Declercq A. Graff M.J.L. and Aerteerts B. 2017. Home and Community Based Occupational Therapy Improved Functioning in Frail Older People: A Systematic Review. Journal of the American Geriatrics Society https://doi.org/10.1111/jgs.14889 [Accessed 15/4/24].</a>
<b>Type of Research</b>	SR & MA
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
AW openathens account	
<b>Comments</b>	
<b>Citation</b>	<a href="https://doi.org/10.1016/j.puhe.2019.10.014">Kelso S. Mitchell S. Rowe P.J. and Gore P. 2020. The Scottish National LifeCurve™ survey: costs of functional decline, opportunities to achieve early intervention to support well-being in later life, and meaningfulness of the LifeCurve™. Public Health 180 pp. 129-135. DOI https://doi.org/10.1016/j.puhe.2019.10.014 [Accessed 15/4/24]</a>
<b>Type of Research</b>	Survey

<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
<p>AHP led national improvement programme “Active and Independent Living Programme” (AILP). Aim has been to maximise the contribution that AHPs make to the health and well-being of the population of Scotland.</p> <p>Radiographers and orthoptists tend to see people at the earlier stages whilst Physiotherapists and Occupational Therapists in the main see people at later stages. Although a number of physiotherapists were also found to intervene at the ‘precurve’ stage.</p> <p>Help and rehabilitation relating to functional difficulties e.g. housework and toilet transfers</p> <p>AHPs are part of the Scottish Government’s delivery arm around prevention and early intervention and contribute across national policy areas such as Realistic Medicine, which is promoting a personalised approach to care through shared decision making</p> <p>AILP’s vision is to refocus AHP contribution around active and independent living by supporting individuals personal outcomes</p> <p>Most intervention occurred at the ‘Late curve’ stage – one might argue this is too late for prevention however this will depend on the level of prevention being undertaken</p> <p>We must use all suitable points of contact within our communities to help drive the message that functional decline in later life is not an inevitability... fitness in later life can be the rule not the exception</p> <p>AHPs can have a significant role to play in the paradigm shift, which will see older people viewed as assets in their community, where investing in their well-being brings societal participation consumption and social cohesion. Changing the AHP focus and contribution to address functional decline at earlier stages has potential to save health care and social care costs and presents a sustainable way to support and harness the potential of Scotlands older people</p>	
<b>Comments</b>	Looks at current role (improving function independence and mobility at later stages) and recommends earlier more preventative intervention. AHPs are intervening late in a persons functional decline with associated limitations on changing their ageing trajectory. Moving someone from late- to mid – curve could save £3200 per person per annum.
<b>Citation</b>	<a href="https://doi.org/10.1007/s41999-024-00944-9">Savvakis I., Adamakidou T. and Kleisiaris C. 2024. Physical-activity interventions to reduce fear of falling in frail and pre-frail older adults: a systematic review of randomized controlled trials. European Geriatric Meicine 15 pp. 333-344</a> <a href="https://doi.org/10.1007/s41999-024-00944-9">https://doi.org/10.1007/s41999-024-00944-9</a> [Accessed 15/4/24]
<b>Type of Research</b>	SR
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
<p>Occupational therapy interventions improve functionality and reduce FoF</p> <p>Physical Therapist – rehabilitation following hip fractures</p> <p>Strength training</p>	



Balance training Mobility interventions	
<b>Comments</b>	
<b>Citation</b>	<a href="https://doi.org/10.1093/ptj/pzaa201">Hon S., Ritter R. and Allen D.D. 2021. Comparative effectiveness of non-pharmacological interventions for frailty: a systematic review and network meta-analysis Physical Therapy and Rehabilitation Journal 101 (1) DOI https://doi.org/10.1093/ptj/pzaa201 [Accessed 15/4/24].</a>
<b>Type of Research</b>	SR & MA
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
<p>Direct access to physical therapy provides an alternative to physician first systems for patients who need physical therapy for musculoskeletal disorders</p> <p>Physical therapists direct early evidence based care with positive outcomes from MSDs</p> <p>In the United Kingdom, patients who visit physical therapists first have experienced reduced health care costs, improved patient outcomes, and reduced disabilities, with more patient-centered care.<sup>6</sup> Patient-centered care focuses on the patient and their particular needs, while empowering patients to become active participants in their own health care.<sup>7</sup></p> <p><a href="#">However, evidence from nonmilitary settings in the United Kingdom reveal that by adhering to effective evidence-based practice, physical therapists can reduce costs in the health care system; improve clinical outcomes; and decrease use of prescription medication, MRI, and injections.<sup>18</sup></a></p> <p>Physical therapists may prescribe active interventions (eg, exercise and patient education in self-management) while minimizing the use of passive interventions (eg, electrotherapy, ultrasound, and massage) that may be prescribed by physicians on the basis of older models of care.</p> <p>Physical therapists are trained to perform differential diagnosis, screen for red flags, and refer patients to physicians when medically necessary in both military and nonmilitary settings.<sup>5,16,40</sup> Current physical therapist education requirements include doctoral-level courses integrating differential diagnosis and clinical decision making</p>	
<b>Comments</b>	US based, MSDs not frailty specifically but a lot about the role of Physiotherapists/Physical Therapists
<b>Citation</b>	<a href="https://doi.org/10.3399/bjgp18X700241">Travers J. Romero-Ortuno R. Bailey J. and Cooney M.T. 2019. Delaying and reversing frailty: a systematic review of primary care interventions. British Journal of General Practice 69 (678) e61-69 DOI: https://doi.org/10.3399/bjgp18X700241 [Accessed 15/4/24]</a>
<b>Type of Research</b>	SR
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
<p>Seven studies involved home visits by nurses, AHPs, or doctors, with activities including safety and falls risk assessment, giving information about support services and basic mobility exercises</p>	

Several studies found that participation rates in physical exercise activities remained as high as 90%,<sup>66-68</sup> though some dipped to 50%.<sup>54</sup> A differentiator appears to have been the level of periodic encouragement to continue participation by practising medical professionals.

A combination of muscle strength training and protein supplementation was the most effective intervention to delay or reverse frailty and the easiest to implement in primary care

[The new NHS England GMS contractual practice interventions do not primarily include physical therapy and nutrition.<sup>7</sup> The results of this review may be helpful in a future evaluation and revision of a new NHS contract.](#)

<b>Comments</b>	
<b>Citation</b>	Hartley P.J. Keevil V.L., Alushi L., Charles R., Conroy E. Costello P.M., Dixon B. DOLinska G.A.M. Vajda D. and Romero-Ortuno R. 2019. Earlier Physical Therapy Input Is Associated With a Reduced Length of Hospital Stay and Reduced Care Needs on Discharge in Frail Older Inpatients: An Observational Study <i>Geriatric Physical Therapy</i> 42 (2) pE7-E14. DOI 10.1519/JPT.000000000000134 [Accessed 15/4/24].
<b>Type of Research</b>	Observational retrospective
<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	

Early physical therapy input was associated with shorter LOS and lower odds of needing care on discharge. This may be due to the beneficial effects of early physical therapy in preventing hospital-related deconditioning in frail older adults however causality cannot be inferred

Early mobilisation

Reducing admissions

Assisting mobilisation is often an intervention carried out by a physical therapist but by no means exclusively. Physical therapy assessment includes assessment of the patient's impairments, activity limitations and social situation – used to devise a management plan to optimise physical functioning and facilitate dc from hospital.

Physiotherapy is likely a key part of comprehensive geriatric assessment ... frail older patients are particularly susceptible to functional loss during acute illness via direct inflammatory damage to the MSK and CNS. A lack of physical activity and bed rest in this population has been shown to result in rapid muscle atrophy. It may be that early physical therapy assessment encourages increased physical activity by direct intervention, education and improving patient confidence with self administered exercise and as a result reduces hospital deconditioning, leading to faster functional recovery

<b>Comments</b>	
<b>Citation</b>	<a href="#">Welford J., Rafferty R. and Short D. 2023. Personalised Assessment and Rapid Intervention in Frail Patients With Lung Cancer: The Impact of an Outpatient Occupational Therapy Service. <i>Clinical Lung Cancer</i> 24 (5) E164-171. DOI: <a href="https://doi.org/10.1016/j.clc.2023.03.009">https://doi.org/10.1016/j.clc.2023.03.009</a> [Accessed 15/4/2024].</a>
<b>Type of Research</b>	Article

<b>Summary/Key Points about the role of AHPs in Secondary prevention of Frailty</b>	
Outpatient OT services can avoid and shorten hospital admissions through	
Advance care planning, management of functional disruption, onward referral to other AHPs and palliative care	
<b>Comments</b>	Lung cancer and its treatments cause or accelerate frailty

<b>SR</b> = Systematic Review
<b>MA</b> = Meta Analysis
<b>RCT</b> = Randomised Controlled Trial

<b>AHP Evidence Summary Table</b>	
<b>Citation</b>	<a href="https://doi.org/10.1016/j.puhip.2022.100269">Gkiouleka A., Aquino M.R.J., Aromokudu O.O., Daalen K.R., Kuhn I.L., Turner-Moss E., Thomas K., Barnard R., Strudwick R. and Ford J. 2022. Allied health professionals: A promising ally in the work against health inequalities- A rapid review. Public health in practice 3 DOI https://doi.org/10.1016/j.puhip.2022.100269 [Accessed 15/4/24].</a>
<b>Type of Research</b>	RR
<b>Summary/Key Points</b>	
<p>AHPs have a crucial role in reducing health inequalities</p> <p>Decrease healthcare or health outcome inequalities; address inequalities in the social determinants of health; and support disadvantaged groups at an individual organization and system level</p> <p>They build bridges between clinicians, social care workers and communities and promote the health of groups with intersecting vulnerabilities.</p> <p>AHP services are not universally accessible, and it has been found that socio-economic deprivation is associated with barriers in access to AHP services even in contexts where there is universal access to healthcare overall</p> <p>There is a larger body of literature discussing the patient and organisational level factors than system factors, which seems to reflect the dominant trend in public health interventions that tend to focus on modifying individual rather than structural factors</p> <p>It is important that AHPs are enabled to identify connections between their roles with individuals and social determinants of health across the population (e.g., offering rehabilitation services to people with a traumatic brain injury enables recipients to return to work which in turn has an overall positive health impact that is likely to go beyond the individual).</p> <p>Future research should seek to build the evidence base for specific inequalities for certain AHP and target groups, for example, reviewing the primary research for physiotherapy interventions which improve the quality of care for deprived groups and ethnic minorities. AHP research should include social outcomes (e.g., employment, housing, education) in addition to traditional biomedical ones.</p>	
<b>Citation</b>	Mapping the contribution of Allied Health Professions to the wider public health workforce: a rapid review of evidence-based interventions (Fowler et al 2017)
<b>Type of Research</b>	RR
<b>Summary/Key Points</b>	

AHPs have been identified as a group already making a contribution but not necessarily recognizing this as public health. They have the skills, enthusiasm and opportunity to make a greater contribution to the health of the public.<sup>4</sup>

AHP services typically deliver discrete interventions to individuals and groups. The challenge for public health is to build capacity for AHPs to work in partnership and across communities to achieve population outcomes and health improvements. Health improvement is defined by the Department of Health in the UK as 'People [being] helped to live healthy lifestyles, make healthy choices and reduce health inequalities'.<sup>5</sup> An awareness of the importance of demonstrating impact across populations and support to do so would allow AHPs to improve population health and wellbeing and address health inequalities.

A recent commissioning specification for foot care<sup>18</sup> identifies the importance of early intervention by podiatry services as a preventative intervention for people at risk of peripheral neuropathy that can lead to ulceration and possible leg, foot or toe amputation. In the UK, 6000 people with diabetes underwent lower extremity amputation as a result of ulceration and the amputation substantially reduced their quality of life and is associated with high mortality. Preventative podiatry is extremely important; early diagnosis of PAD by a vascular multidisciplinary team or the diabetic foot team, followed by specialist advice and treatment for the management of pain, results in better outcomes for patients. The interventions can include further guidance and education on smoking cessation and exercise to support self-management of diabetes.<sup>19</sup>

There is evidence of prevalence of PAD<sup>20</sup> and cost-effectiveness of routine podiatry interventions to support a change in commissioning practices. Significant gains in wellbeing and other social and economic benefits may be achieved through self-management, foot care and regular health checks to prevent ulceration and deterioration in vasculature.<sup>21-22</sup> International evidence supports podiatric interventions to manage foot care, resulting in a reduction in the incidence of major amputations in patients with diabetes.<sup>23-24</sup>

Dieticians: weight management for adults and children

Dieticians promote weight management through behaviour change techniques,<sup>30</sup> motivational interviewing,<sup>31</sup> patient-centred approaches<sup>32</sup> and technological methods. In general, calorie counting, contact with a dietician and use of behaviour change techniques that compare participants' behaviour with others were associated with the greatest weight loss.<sup>33-34</sup> Brandt *et al.*<sup>35</sup> demonstrated the effect of internet-based complex interventions aiming to promote weight loss and optimize healthy behaviours. Specialist roles and evidence for dietician interventions with people with diabetes show significant reductions in weight, based on weekly consultations.<sup>36</sup> These interventions are effective because they can demonstrate quality-of-life outcomes and in addition act as a preventative measure for a range of conditions including reduced incidence of co-morbidities.<sup>37-39</sup>

Occupational therapy and paramedic interventions as secondary prevention and risk management in falls

When an older person falls, there are a number of services they can access where AHPs are leading physical, psychological and social interventions to minimize recurrence and maximize recovery. There are 3 million reported falls per year in the UK, resulting in considerable cause of morbidity and mortality in over 65s and in major health care spending.<sup>40</sup> Falls cost the NHS £4.6 million each day and £1.7 billion per year.<sup>41</sup> In a trial of a clinical decision-making tool, twice the number of fallers were referred to falls services and costs per patient reduced from £22K to £15K.<sup>42</sup> However, the literature suggests that falls reporting and falls management as a secondary prevention is by no means secured and in many cases national guidance is not followed.<sup>43</sup>

Occupational therapy (OT) interventions include compensatory interventions using assistive technology and rehabilitation. There are high user-satisfaction rates for aids and adaptation provision when they are provided in a timely way.<sup>44-45</sup> One study evaluated service effectiveness based on the impact of an OT environmental assessment (home hazard and risk assessment) and modifications to prevent falls and used a three armed, randomized, controlled trial with follow-up at 3, 6 and 12 months. The group which received the intervention from the OT had significantly fewer falls than the control group at 12-month follow up.<sup>46</sup>

Paramedic interventions are effective as hyper acute risk management interventions,<sup>47</sup> particularly for those older people who repeatedly fall. A study of the effectiveness of patient care undertaken by paramedic emergency care practitioners across five care settings (ambulance services, GP out of Hours, urgent Care Centre, care home and Minor Injuries Unit) undertaking an 'extended role' in ultra-acute/emergency settings over 5525 patient episodes, showed some evidence of patient benefit, measured in terms of reduced admissions. The suggestion is that paramedics have a differential impact on patients, resulting in fewer urgent referrals to hospital and more referrals to primary care.

This study has elicited examples of AHP interventions which demonstrate their contribution to making health improvements which could have greater impact if scaled up and made more widely available. The study represents an initial scoping and is a novel approach to the topic, enabling policy and practice leaders to identify opportunities for developing AHP's roles in Public health.<sup>62</sup> The work was undertaken in 2015, at the beginning of an increased focus on the role of the wider workforce in public health, it does not claim to be an exhaustive list of AHP interventions. The impact of AHP interventions across populations is not often measured and as a consequence, professional practitioners often term their public health work as primary or secondary prevention. AHPs are not commonly involved in the strategic development of public health planning at a local level.

<b>Additional studies after final library results</b>	
<b>Citation</b>	Impact of a dietitian in general practice: paediatric food allergy
<b>Type of Research</b>	
<b>Key Points</b>	
Dietetics in primary care has been done in other areas e.g. food allergy to reduce GP and secondary care appointments. Also identifies patients more quickly and reduces time to dietetic input as well as reducing prescribed meds	
An example of how this could work but potentially even greater impact if they can focus on preventing clustered conditions	
<b>Comments</b>	Found relevant studies on this relating to diabetes and frailty so not needed
<b>Citation</b>	A case study of the impact of a dietitian in the multi-disciplinary team within primary care: a service evaluation (Hickson e al 2023)
<b>Type of Research</b>	Case Study
<b>Key Points</b>	
Also looked at dietitians within primary care in one service (as a FCP) – enhanced patient centred care, improved staff learning, work efficiency and cost savings around prescription of nutritional products. Physiotherapists, paramedics and pharmacists have been the first professional groups to develop roles in primary care and research shows clinical effectiveness, cost effectiveness, safety and acceptability to patients and other staff “diagnostic clinician” role “expert generalist” to work with a wide range of diagnoses.	
Research in physio and paramedic professions has shown that there are large variations in how roles are defined and organised, reflecting local needs and different ways of working inc types of patients seen, clinical problems managed and their relationships with other acute and community services.	
Evidence shows that dietetic led clinics in IBS can reduce need for referral to secondary care an save GP time.	
Dietitians can contribute to significant cost savings by optimising medicines management in oral supplements, paediatric formula etc	

Cost effective but also improves patient outcomes

Interprofessional collaborative practice (inc dietitian) delivered improves patient outcomes for diabetes and hypertension

Dietitians are trained in the management of chronic disease, behaviour change, continuity o care, preventative care and therapeutic consultation – all integral to working in primary care

Therefore a strong rational for the inclusion of dietitians within the primary care MDT

This study identifies both frailty and diabetes as two of many areas where they can act as expert generalists and support ongoing management, displace some GP workload and improve patient outcomes

FCP dietitian role is in its infancy and requires evaluation

Can help prevent deterioration and the need for GP input

This paper shows that dietitian FCP role is feasible and valuable

Can contribute to education through training staff a swell as seeing complex patients

Dietitians are well positioned to enable practice managers to deliver tailored services to provide more effective and efficient care to their patient population esp with long term conditions that are managed through dietary manipulation.

<b>Comments</b>	One of the first case studies examining how dietitians employed directly by primary care networks can contribute to care and monitoring of a general practice population
<b>Citation</b>	A rapid review and expert identification of the Allied Health Professions’ interventions as a contribution to public health outcomes (Fowler et al 2021)
<b>Type of Research</b>	

**Key Points**

Further improvement is required; for AHPs to measure the impact of their interventions which would demonstrate evidence of outcomes at population level.

The deployment of AHPs across community services and particularly in roles that prevent illness and disability via screening and targeted intervention remains a potential and are currently under consideration

Similarly, evidence-based interventions for health improvement depend on the deployment of AHP across the health and care system where they might enable person-centred approaches to population health management, to specifically address health inequalities by enabling and encouraging healthy lifestyle choices and by developing resilience

the opportunity for AHPs to engage in strategy and good practice associated with the wider determinants of health and the promotion of healthy environments is still at the ‘growing edge’ of professional activity; and generally has a multi-agency contribution rather than being provided by one AHP profession

Further activity to identify and showcase AHPs working across communities to enable vulnerable populations to access services and community assets is a part of the new AHP strategic framework

Interventions may be even more cost effective if AHP have further research to show how they are able to lead health promotion within their professional activities.

The review suggests a need to introduce a determined effort to focus on interventions where it might be possible to demonstrate efficacy and effectiveness with robust methods, rather than perpetuating a multiplicity of smaller studies that don’t meet the standards required to commission and fund services

The PHE Standard Evaluation Framework for Weight Management Services is an example of one such standardised method which has been used successfully to standardise and improve services [37]. There are several important criteria that need to be included in the planning and preparation of study design. These include; a clearly defined population that can be recognised and reproduced in different locations; for example, people with type two diabetes, community dwelling and aged between 50 and 60 years. The number of people in the total population can be difficult to define and it is important for a researcher to define the parameters of the study population with partners such as the NHS Clinical Commissioning Groups or Public Health Departments. Many studies also compared a novel health care intervention with ‘usual care’ but usual care was not well defined, for example a dietetic intervention for obese adolescence were randomised to the ‘go for it treatment’; a multi-disciplinary care versus regular dietetic involvement very limited number of large RCTs. This may be due to the ability of AHPs to access large research grants. Finally, the use of standardised and universal outcome measures were not consistently used, leading to difficulties comparing the effect of interventions and in making any clear judgement about the health economics

It is probable that AHPs are contributing to these domains of public health in the UK but the outcomes are not formally reported in peer reviewed publications.

Strategy board are also conducted a modified Delphi study to identify the UK AHP Public Health research priorities, the aim of this work is to present the research priorities that are identified collectively across the AHP

Disciplines with a view to applying for research funding to support larger scale research projects.

The review suggests that the strategic development of research and practice would benefit from a targeted approach to measuring outcomes of AHP interventions perhaps in some cases as uni-professional activity but more likely to be part of a multi-disciplinary or multi-agency approaches to health improvement and health care.

<b>Comments</b>	
<b>Citation</b>	Health promotion in physiotherapy services using NHS health and diabetes checks (Rawlinson 2019)
<b>Type of Research</b>	

**Key Points**

An enhanced health promotion service, using support staff, was implemented into a physiotherapy-led musculoskeletal service including the provision of NHS Health Checks and diabetes checks.

This service describes a successful model for embedding NHS Health Checks and diabetes checks into a musculoskeletal service, providing opportunistic health promotion and behaviour change interventions and reducing the duplication of different public health initiatives. This service uses an untapped allied health professional public health workforce to support an identification of disease, behaviour change, self-care and social prescribing within the holistic management of musculoskeletal conditions.

In the last decade there has been an increased focus, both in the UK and internationally, on patients taking more responsibility for their self-management (**Beinart et al, 2013**) and physiotherapists and allied health professionals are ideally placed to support this notion. There is also encouragement to promote social prescribing; where health professionals refer people to a range of local, nonclinical services that seek to address an individual's holistic needs and wider determinants of health (**The King's Fund, 2017**). The **Royal Society of Public Health (2017)** highlight the importance of the allied health professional's role in public health and the importance of recording their public health interventions to demonstrate value and impact.

The musculoskeletal Clinical Assessment and Treatment Service team are part of physiotherapy-led musculoskeletal services in an urban area in the North West of England. The team consists of advanced practice physiotherapists and podiatrists based in two community settings providing clinical diagnostics, interventions and management planning.

1. Provide diabetes checks including point of care HbA1c tests to high risk patients to identify patients with impaired glycaemic regulation (HbA1C 42–47) and previously undiagnosed diabetes (HbA1C 48 or above)
2. Develop links with third sector organisations in the community to support social prescribing for patients that will help to enable their desired lifestyle changes.

All results were documented on a health assessment proforma that was given to each patient to take with them into their 45-minute musculoskeletal assessment appointment. Advanced practitioner clinicians then discussed and integrated this information into their musculoskeletal assessment and management planning using a shared decision-making model and using principles of making every contact count and motivational interviewing where appropriate. Making every contact count is an approach to behaviour change that uses the thousands of contacts health professionals have every day to support individuals in making positive changes to their physical and mental health and wellbeing (PHE, 2016).

General Practitioners were advised of all findings via usual clinic letters (including relevant read codes) so that the primary care record could be updated. Patients were asked to book an appointment with their GP or practice nurse as appropriate to manage and investigate risk factors or act on blood test findings in line with NICE guidance (NICE, 2016; 2017). All clinicians received training on motivational interviewing and all band 2 staff had been trained to deliver NHS Health Checks.

The GP evaluation has been wholly positive with quotes supporting GP outcomes. One GP commented ‘I think the programme of undertaking the NHS Health Check within the MSK CATS service is a fantastic addition. The quality of the data coming back to the practices is high.’

The development of the links with the local exercise referral service, and other third sector organisations, has grown with large increases in referrals to services that will support achievement of desired lifestyle changes, e.g. active lifestyles team.

This project initially aimed to facilitate musculoskeletal clinicians to increase their focus on health promotion and prevention by taking a more comprehensive and consistent approach to addressing lifestyle issues and risk and supporting behaviour change within consultations (Royal Society of Public Health, 2017). Staff identified some barriers to the new service including lack of confidence to address some aspects of health and lifestyle e.g. alcohol use and weight management, and a lack of awareness about commissioned services available as well as limited understanding of referral routes to support lifestyle change. Lack of time was also identified as an issue; therefore, a model using support staff was implemented to reduce the burden for clinicians and allow them time to focus on exploring patients' barriers and motivations for change and use of support services. Staff training focused on public health theory and wider determinants of health, as well as motivational interviewing training to help clinicians feel more equipped to support patients and address challenging topics.

This Clinical Commissioning Group-funded project has shown how health promotion can be successfully embedded within a physiotherapy-led musculoskeletal Clinical Assessment and Treatment Service, putting health promotion at the centre of musculoskeletal service delivery (NHS England, 2015). In addition, the project has shown that NHS Health Checks and diabetes checks can be undertaken using point of care testing in an musculoskeletal interface service (NHS England, 2017).



Collecting health data and carrying out the National Diabetes Prevention Programme and NHS Health Checks opportunistically when patients are already accessing the musculoskeletal Clinical Assessment and Treatment Service has proved to be an efficient use of time that may capture those who would not normally volunteer to attend their GP surgery for an NHS Health Check. No patient declined an NHS Health Check when eligible, suggesting increased uptake compared to those who were invited in the primary care setting. Uptake of NHS Health Checks within GP practices, for eligible individuals, is still suboptimal (Robson et al, 2016) and this model is proposed as a way to increase uptake of the NHS Health Check programme.

The delivery and discussion of health data within the musculoskeletal consultation also uses a ‘teachable moment’ when patients may have increased motivation to engage in behaviour change because of pain or disfunction (Flocke et al, 2014). Linking lifestyle behaviours and health information, such as body mass index to musculoskeletal conditions, may help facilitate patient behaviour change and supports best practice for management of many musculoskeletal disorders (NICE, 2014). Further evaluation is planned to explore the behavioural change outcomes that are currently poorly reported within NHS Health Checks (Robson et al, 2016).

Communicating data and health checks completion to the GP primary care record is of utmost importance to ensure patients are managed appropriately and to avoid duplication. It is essential that services that are collecting and discussing health data have clear pathways to communicate information back to the primary care health record and for patients to follow when abnormal findings are discovered. This has been achieved successfully in this example through the development and agreement of the pathways and dictation of letters to GPs. This project emphasises the need for allied health professionals to ensure that they record and collate their public health interventions to demonstrate their value, outcomes and impact in line with the Everyday Interactions Toolkit (The Royal Society of Public Health, 2017).

Using support staff and a team approach, NHS Health Checks and diabetes checks can be successfully embedded within a musculoskeletal physiotherapy service as part of a service that prioritises and promotes health promotion and the opportunity to make every contact count. This supports collaboration and the reduction of duplicated of information collected through different initiatives. Technologies, including automated patient operated weight and blood pressure machines, placed in communal areas and point of care blood testing by support staff can improve the pathway for patients and reduce clinical time needed, hence improving the patient experience.

This service delivery model provides an opportunistic approach to lifestyle and behaviour change, addressed within musculoskeletal management, which uses the ‘teachable moment’. This may support successful long-term behaviour change.

This study supports the notion of putting prevention at the heart of the NHS services to support health improvement and self-care, social prescribing and the building of asset-based communities within an elective care pathway.

<b>Comments</b>	
<b>Citation</b>	Therapy-based allied health delivery in residential aged care, trends, factors, and outcomes: a systematic review Establishing a multidisciplinary partnership integrating podiatric care into the Quebec public health-care system to improve diabetic foot outcomes: A retrospective cohort.
<b>Type of Research</b>	
<b>Key Points</b>	
Patients with DFU who were managed in MDT which includes a podiatrist can improve both their healing rate and time.	
Implementation of integrated MDT with podiatrists is expected to reduce DFUs complications as the literature highly suggest.	
<b>Comments</b>	Canada – talks about them only being available in private practice but this isn’t the case in the NHS

<b>Citation</b>	<u>Impact of a dietitian in general practice: Care of the frail and malnourished (wiley.com)</u>
<b>Type of Research</b>	Case Study
<b>Key Points</b>	
<p>A dietitian working as a FCP within a general practice, provided care to patients at risk of malnutrition and frailty, aiming to reduce GP workload, improve patient care and make cost savings</p> <p>Screened for patients age &gt;65 and electronic frailty indec 0.26-0.36 or BMI &lt;19. Triage by dietitian and those at risk of malnutrition offered consultations. Improvements in strength, frailty and nutrition status were observed and changes to ONS prescriptions in 27 patients equated to annual cost savings of £15,379. Patient satisfaction was high</p> <p>Demonstrates a model of dietetic led care in general practice that is reproducible and sustainable. In less than 1 day/week, an experienced dietitian can make a difference to patient care as well as substantial cost savings. Have also demonstrated that dietitians can act as FCPs in frailty and malnutrition. This illustrates a principle that could be extended to other diagnostic groups with primary care. The data suggests that some cost savings are possible through the optimisation of prescribed supplements and are sufficient in the first 6/12 of working to offset the cost of the dietitians salary.</p> <p>The inclusion of less specialised staff eg HCAs for DAs under the supervision of a dietitian could make the model of care more efficient and practicable in the primary care setting. They could deal with more simple cases - undertake triage, complete basic screening and deliver initial nutritional advice for malnutrition and frailty. The dietitian would then have more time for managing complex patients and leading further service developments or managing patients with frailty and malnutrition</p> <p>Likely large cohort of at risk patients in need of dietetic intervention in most general practices. People suffering with malnutrition have higher healthcare costs because they tend to have greater use of services, longer hospital stays and worse clinical outcomes so an important group to address</p> <p>Their data indicates that the patients frailty status and nutritional status improved, markers of health and strength (weight BMI and hand grip strength) also increased and are associated with improved clinical outcomes</p> <p>ONS are used inappropriately yet they have significant cost in general practice. Roles for dietitians have emerged to optimise the use of these products, demonstrating reduced costs for prescription but no detriment to BMI and good patient satisfaction.</p> <p>Other cost savings e.g. cost of avoiding hospitalisation reduced health and care service use and reduction in GP appts.</p> <p>eFI was not suitable along to triage patients – it correlated well with mortality and hospitalisation but a low risk of frailty doesn't exclude a high risk of malnutrition- use of low BMI alone or combined with mod to high eFI recommended</p> <p>Dietitian had already developed high level skills in influencing behaviour change – important competency</p> <p>Integration as part of the whole team was also important</p> <p>Supplementary prescribing arrangement/supplementary prescribing qualification would improve efficient prescription changes</p>	
<b>Comments</b>	