

Investigating the Efficacy of Allied Health: Reducing Costs and Improving Outcomes in the Treatment of Diabetes, Osteoarthritis and Stroke

A Report Drafted for Services for Australian Rural and Remote Allied Health

Virginia DeCourcy (u5006794)
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Executive Summary

Allied Health Professionals (AHPs) constitute an extremely important part of Australia's health system. This report demonstrates that AHPs can improve health outcomes and reduce the cost of treatment in the three areas of diabetes, osteoarthritis, and stroke.

Allied Health treatment of diabetes has been shown to be effective and cost-saving. Specialist treatment from podiatrists can decrease lower-limb amputations, prevent hospital admissions, and manage surgical wait lists. Dietitians can prevent the onset of diabetes, and reduce the likelihood of complications by managing patients' blood sugar levels. In general, AHPs are central to the development and facilitation of self-management programs, which have been proven to reduce costs and improve health outcomes for diabetic patients.

Allied Health play a vital role in the management of osteoarthritis, and again have been shown to improve outcomes and reduce costs of treatment. Physiotherapists and occupational therapists can deliver therapeutic interventions which reduce pain and increase function, making it less likely that osteoarthritis patients will require a joint replacement. In general, Allied Health are central to the non-surgical management of osteoarthritis patients, which decreases both the financial cost of treatment and the risks associated with surgery.

In terms of stroke management, AHPs can improve the functional outcomes of patients, which reduces their need to access additional health and community services. Multidisciplinary care involving AHPs, in a hospital setting, has been shown to decrease length of stay in hospital, increase independence rates, and decrease the likelihood of institutionalisation on discharge. Specific interventions by speech pathologists can decrease the likelihood of secondary complications, improve swallowing function, increase independence, and increase the efficiency of the health system. In general, AHPs play an essential role in increasing the functional ability and independence of patients, thus increasing their productive capacity and decreasing their burden of care.

Despite their important role in prevention, early detection, timely interventions, and expert treatment, access to AHPs in rural and remote areas is severely lacking. In demonstrating the advantages of Allied Health treatment, this report calls for the enhancement of Allied Health services in rural and remote areas. Research for this report was conducted between 28th July 2014 and 15th October 2014 and involved a review of medical literature, interviews with relevant professionals, and an online survey.

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1. Introduction

Allied Health Professionals (AHPs) are of vital importance to the functioning of Australia's health system. They provide treatment which can decrease costs and improve patient outcomes and wellbeing. This report will focus on Allied Health treatment in the three disease areas of diabetes, osteoarthritis and stroke. Each chapter will focus on one disease, and the cost of the disease to both individuals and the health system will be outlined. A review of medical literature, focusing on the involvement of specific AHPs in the disease's treatment will also be included in each of the chapters. Each chapter will then go on to conduct a qualitative analysis. The initial chapter will focus on diabetes, and will discuss the important role that AHPs play in the provision of self-management programs. The second chapter, focusing on osteoarthritis, will explore the role of AHPs in negating or delaying the need for patients to undergo joint replacement surgery. The final chapter, concentrating on stroke, will examine the role of AHPs in enhancing the independence and functional ability of patients. Overall, the report will attempt to prove that Allied Health treatments are beneficial for patients, both financially and in terms of health outcomes. Additionally, it will support the idea that AHPs are beneficial for the Australian health system, strengthening the efficiency of the system and enabling cost reductions.

2. Methodology

The research for this report was carried out in three stages: a review of medical literature, interviews with relevant professionals, and an online survey.

The medical literature review was carried out over the course of the Semester. Databases searched include Google Scholar, the Cochrane Library, the Medical Journal of Australia, and the Australian-based journals of relevant Allied Health Professions. Most literature that was reviewed fell under the following criteria:

- Published in Australia or by Australian authors
- Published recently (after 1990)
- Medical trial, condition-specific guidelines/recommendations, systematic review, or government document.

Due to the difficulty in basing research solely on Australian medical research, some trials and literature used were not published in Australia or by Australian authors, and if so this is indicated in the report.

In total, 30 relevant professionals were contacted between 9th September and 23rd September 2014 with a request to participate in an interview. Interviews were arranged and completed with 8 of these professionals. Despite contacting around 50% medical professionals, and 50% Allied Health professionals, only one of the interviews was conducted with a medical professional, and seven with Allied Health Professionals. The interviews were conducted between 11th September and 9th October.

Two online surveys were created, one for AHPs and one for patients (with diabetes, stroke, or osteoarthritis). The survey for AHPs was sent out to SARRAH members on 23rd September, and closed on 7th October. From there, several survey respondents sent the survey link on to other Allied Health colleagues. In total, the survey for AHPs had 157 responses. The link for the patient survey was supplied to the Australian Stroke Foundation, Arthritis ACT and Diabetes ACT on 23rd September. The link was posted on the Stroke Foundation website on 3rd October but only received one complete response, which was not included in this report. Thus, all online survey respondents mentioned in this report are AHPs.

Ethics approval was granted for this research by the Australian National University on 22nd September 2014 (Reference 2014:540).

2.1 Limitations

The bulk of primary research (interviews and online surveys) for this project was conducted with AHPs. The responses they gave may have been biased, as AHPs are understandably invested in promoting their own profession/s. This report has attempted to support the data obtained from AHPs with evidence collected from medical literature, in order to strengthen the legitimacy of this report's argument. Unfortunately, the low response to the patient survey meant that it could not be used in this report. Future research should be conducted with patients who have received

treatment from AHPs, into their perspectives on the efficacy of Allied Health treatment.

3. Background

3.1 What is Allied Health?

Allied Health Professionals are defined, for the purposes of this report, as health professionals other than medical doctors and nurses (For a full list of AHPs, please see Appendix 1). AHPs comprise 18% of the total health workforce in Australia, and provide an estimated 200 million services annually (AHPA 2013:10). The majority of AHPs provide primary care services, including but not limited to “promotional, preventative and rehabilitative services” (AHPA 2013:6). AHPs comprise an important and often vital part of multidisciplinary teams (MDTs), and are involved in managing and treating patients in both the acute and community setting.

3.2 Allied Health in Rural and Remote Australia

Rural and remote areas of Australia are significantly disadvantaged, both in terms of health outcomes and access to Allied Health. According to a 2014 report by the Australian Institute of Health and Welfare (AIHW), residents in rural and remote areas have a mortality rate 1.4 times as high as residents in major cities (AIHW 2014:1). Diabetes is the second highest cause of death in “very remote” areas, compared to the seventh highest in “major cities” (AIHW 2014:10). If rural and remote residents had the same diabetes mortality rate as urban residents, there would have been 1,283 fewer deaths from the disease between 2009 and 2011 (AIHW 2014:8). Additionally, people living outside major cities are 1.13 times more likely to suffer from arthritis than those living in major cities, and are more likely to undergo a joint replacement of the hip or knee (ABS 2011, Dixon et al 2011:26). Rural and remote Australians are 1.44 times more likely to die from a stroke than urban-residing Australians (ABS 2011). Thus, in the three disease areas focused on in this report, residents of rural and remote Australia fare worse than their urban counterparts.

Access to Allied Health services is similarly disadvantaged in rural and remote areas. Allied Health Professionals Australia claim on their website that approximately 11,000 of their 78,000 registered AHPs (14%) work in “rural and remote regions” (AHPA). According to AIHW, 30% of Australians reside in rural

and remote areas (2014:7). With only 14% of AHPA-registered AHPs servicing 30% of the population, it is evident that rural and remote residents have a limited access to Allied Health compared to urban residents. However, it should be acknowledged that AHPA-registered professionals may not include all AHPs working in rural areas. Limited access to Allied Health in rural areas was a topic which repeatedly came up in the primary research for this report. Shan Bergin, a senior podiatrist at Monash Health, thinks that access to vital podiatry services for diabetes patients is lacking in rural areas (Interview: 11/9/14). “Sarah”, a dietitian from Diabetes ACT, mentioned the example of a rural patient who had suffered from Type 1 diabetes for 30 years and had never seen a dietitian (Interview: 23/9/14). Simone Dorsch, a physiotherapist at Bankstown-Lidcombe Hospital, claimed that fully staffed Allied Health stroke units are lacking in rural areas, and said that “you are much more likely to be managed in a good stroke unit in an urban setting than in a rural setting” (Interview: 7/10/14). Several online survey respondents discussed the small likelihood of rural stroke patients having access to rehabilitation services post-stroke. One respondent discussed the particular example of an elderly gentleman who, despite having a high motivation to engage in rehabilitation, was transferred directly to a nursing home without seeing any AHPs, and was rendered fully dependent on staff.

This report will demonstrate the importance and effectiveness of AHPs in treating and managing diabetes, osteoarthritis, and stroke. In doing so, it will provide ample evidence for the enhancement of Allied Health services in rural and remote Australia.

4. Chapter One: Diabetes

4.1 Burden of Disease

Diabetes represents a major health challenge in Australia. In total, 1.1 million Australians currently have diagnosed diabetes, with 120,000 people currently diagnosed with Type 1 diabetes and 956,000 with Type 2 Diabetes (Diabetes Australia 2013). Type 2 Diabetes is estimated to cost the health system \$1.1 billion annually, and to have a total financial cost of \$10.3 billion annually (Diabetes Australia 2013). Additionally, complications associated with diabetes amount to 24% of potentially avoidable hospitalisations in Australia (Ketterl et al 2012).

One key element of the burden of disease for diabetes is lower limb amputations. The Australian Podiatry Council estimates that 82 lower limb amputations occur per week, leading to 4,420 amputations per year (Donovan 2012). With an average cost of \$26,700 per person per amputation, the total financial cost of lower limb amputations annually is \$118 million (NHMRC 2011:14). Approximately 85% of these amputations are associated with diabetic complications (Carls et al 2011:93). Despite the development of best-practice guidelines, the rate of diabetes-related amputations has increased by 30% in the past decade (Bergin et al 2012B:197). Other than the huge financial cost, amputations place a significant burden on patients, who lose functional and residential status, and may require long-term care (Payne 2000:353).

4.2 Review of Medical Literature

4.2.1 Podiatry

Podiatrists have a key role to play in diabetes treatment and management, particularly in the area of lower limb amputations. Medical and clinical trials have shown the efficacy of podiatrists in reducing the rate of diabetes-related lower limb amputations.

The use of a MDT is commonly accepted to be of prime importance in diabetes foot management, and can improve patient outcomes (Lazzarini and Bergin 2012,

Donovan 2012, Howard et al 2008:133, Australian Centre for Diabetes Strategies 2005:84). Podiatrists make up a vital part of these teams, with Lazzarini and Bergin referring to them as “a lynchpin” of the management of diabetic foot disease (2012). A 2010 trial conducted at the UK’s Great Western Hospital placed a highly qualified podiatrist at the head of their diabetic foot team (Cichero 2013). After the implementation of the diabetic foot team model, average length of stay per patient was reduced from 33.7 days to 23.3 days, readmissions reduced from 17.2% to 15.4%, and overall amputations decreased. Australian studies have had similar results. The Diabetes Foot Care program was implemented in NSW’s Sutherland Area Health Service in 2002 (NSW DoH 2003:55). It centred on improving podiatrist training in hospitals, increasing referrals to podiatrists, and appointing a podiatrist to the area’s health network. The program prevented an estimated 24 Emergency Department presentations and 13 hospital admissions, and saved 195 bed days. The Queensland Diabetic Foot Innovation Project, which enhanced the role of MDTs in diabetic foot management, saw a reduction of up to 64% in amputation rates and 24% in average length of stay (Lazzarini et al 2011).

Podiatrists can also enhance the efficiency and effectiveness of diabetes foot care through their role in screening orthopaedic patients. A trial conducted across the Southern Adelaide Local Health Network in 2013 involved the establishment of a weekly podiatry clinic, in which patients on the waiting list to see an orthopaedic foot surgeon were first seen by a podiatrist (Walsh et al 2014). 44 of 49 patients who saw the podiatrist rated the level of care as excellent, and 21 of 49 did not need to see the orthopaedic surgeon at all. The average waiting time was reduced from an initial 540 days to 241.6 days. With lengthy waiting list time contributing to high rates of anxiety and stress amongst patients, the clinic has both improved patient outcomes and enhanced the efficiency of the health system. A similar clinic was established in three Queensland hospitals between 2009 and 2010, and reduced the ‘non-urgent’ waiting list by 49.7% (Homeming et al 2012). Patients seen by the podiatrist at this clinic also received necessary interim treatment, lessening the likelihood of their condition deteriorating.

4.2.2 Dietetics

Dietitians are another AHP group which are vital to the treatment of diabetes. With 41% of Type 2 diabetes diagnoses being attributable to obesity, dietitian advice is key to both preventing and managing diabetes (Farrer and Golley 2014: 16).

Medical trials have shown that dietitians play a key role in preventing diabetes onset. One recent international review assessed the findings of eight trials which implemented diet and exercise interventions with the aim of reducing diabetes incidence among high-risk populations (Orozco et al 2008). The eight trials involved 2241 participants in exercise and diet interventions and 2509 participants in standard interventions. Exercise and diet interventions were most often delivered by dietitians, physiotherapists, and exercise physiologists. With the combination of interventions for both exercise and diet, the review found that the incidence of diabetes was reduced by 37%. The oft cited Finnish Diabetes Prevention Study found that intensive lifestyle intervention for at-risk patients reduced the incidence of diabetes by 58%, compared to the control group which received standard treatment (Lindstrom et al 2003). This intervention included a range of health professionals, but was fronted by dietitians, who held the face to face consultations, and orchestrated voluntary cooking and lifestyle classes.

Other than preventing the onset of diabetes, dietitians are vital in the control and management of diabetic patients' weight and blood sugar levels. Glycosylated haemoglobin (HbA1c), is a measure of glucose or sugar in blood, and is regularly used by dietitians and doctors to assess the severity of a patient's diabetes (Cusack et al 2008: 293). A 1% reduction in HbA1c has been attributed to a 37% reduction in the risk of microvascular complications and a 21% reduction in the risk of diabetes-related death (Cusack et al 2008: 293). A six year trial conducted in rural NSW found that diabetic patients who visited the dietitian on a regular basis (i.e. more than once every eight months) were "significantly more likely to achieve a reduction in HbA1c" than patients who visited less regularly (Cusack et al 2008). The Dose Adjustment For Normal Eating (DAFNE) program, run by dietitians and diabetes educators across Australia, is an intensive five day course for diabetes patients. A review of participants found that patients with Type 1 diabetes had improved glycaemic control,

slightly reduced weight, a 5% reduction in HbA1c, and improved quality of life after completing the intensive course (McIntyre 2010). Weight loss is considered a primary management strategy for diabetes, as it has been associated with reduced diabetic complications and improved blood sugar levels (Farrer and Golley 2014). Maintained weight loss of 5-10% can reduce HbA1c by 12% and blood pressure by 10%, but traditional management of diabetes has been shown to achieve an average weight loss of only 4.4% (Farrer and Golley 2014). A South Australian study administered by dietitians combined elements of traditional management strategies and the increasingly popular 'very low calorie diets' with the aim of increasing weight loss rates (Farrer and Golley 2014). The study resulted in a 6.6kg average weight loss in the intervention group, and significant changes in BMI and HbA1c, all of which were much greater than changes in the traditional management group.

4.3 Qualitative Analysis: Self-Management for Diabetes

Patient self-management is a crucial aspect of diabetes treatment. Self-management centres around educating patients, so that they have the necessary knowledge and skills to manage their chronic disease on a daily basis. Self-management interventions aim to place the patient at the forefront of decision-making, goal setting, and of course, managing (ADC 2014). Self-management also involves enhancing the patient's ability to manage the psychological and social aspects of having a chronic illness (Newman et al 2004: 1523). Self-management has been shown to improve patient outcomes, and to lead to more cost-effective treatment. When patients are able to effectively self-manage, their contact with health professionals is lessened, and their likelihood of developing complications is reduced.

A number of AHPs are involved in delivering self-management programs. Psychologists are key to self-management as they promote patient adherence and motivation, and help patients to cope with the stress and anxiety that may be a byproduct of chronic disease (Newman et al 2004:1524). In terms of diabetes, diabetes educators and dietitians have a major role in educating patients about the nature and implications of diabetes (AML Alliance 2013:28-29). GPs and medical staff may not have adequate time to devote to patient contact and thus may not be able to provide sufficient information and patient-specific suggestions (Interview with

“Sarah”: 23/9/14). Thus, AHPs are crucial to the success of self-management programs and interventions.

4.3.1 Case Study: Healthy Eating Activity and Lifestyle Program

In an interview on 23/9/14, “Sarah”, a dietitian at Diabetes ACT, discussed the development and successes of the Healthy Eating Activity and Lifestyle (HEAL) Program. HEAL is a program that targets high-risk populations, in an attempt to reduce the incidence of chronic disease, such as type 2 diabetes and chronic heart disease. The program is run by two dietitians. Currently, the program is being rolled out in ACT workplaces, and targets small-medium size businesses and low socio-economic status type occupations. It is open to all employees within targeted workplaces, and is a voluntary program. The program involves eight two-hour sessions over eight weeks, with one hour of exercise and one hour of education per week. Before commencing the program, participants are given a health assessment. The education modules mainly focus on diet and nutrition.

To measure the outcomes of the project, dietitians collect participants’ results in blood pressure, 6 minute walk test, 30 second sit to stand test, weight, waist circumference, and cholesterol levels (if the patient elects). These results are measured at the start of the program, at the end of the program, and at 5 months and 12 months after completion. According to Sarah, these indicators have been improved with the implementation of the HEAL program. HEAL is part of an increasing trend towards patient self-management. Through the education element of the program, participants are encouraged to monitor and maintain their own health, something which Sarah thinks reduces the cost burden on the health system.

4.3.2 Case Study: Hospital Admission Risk Program

In an interview on 25/9/14, Natalie Pollard, a Diabetes Educator and Nurse at St Vincent’s Hospital Melbourne, discussed the role and advantages of Allied Health involvement in the Hospital Admission Risk Program (HARP), of which she is the coordinator. The program focuses on self-management for patients with chronic diseases, including diabetes. Most patients who participate in the program have had a

poor history of self-management, have complex medical needs, or “are either already presenting frequently to hospital or at immediate risk of doing so, and require a holistic, integrated, person-centred approach” (Victoria DoH 2014). The program involves a MDT, which comprises occupational therapists, physiotherapists, diabetes educators, psychologists, social workers, speech pathologists, nursing staff, and some medical staff.

Each participant in the program is appointed a care coordinator, who manages the participant’s treatment with both Allied Health and medical professionals. The care coordinator is appointed based on the patient’s health problems; for example, if the patient has diabetes, it is likely to be a diabetes educator. The care coordinator works with the patient to advocate self-management of their chronic disease. The program is focused on making sure that the patient is making decisions alongside the MDT; lifestyle changes (such as implementing an exercise program and modifying diet) are implemented at the rate that the patient is capable of. Natalie emphasised the importance of psychologists to the MDT, as many participants in the program have pre-existing mental illness. Contact with a psychologist generally increases both a participant’s motivation to self-manage, and likelihood of continuing to do so.

According to Natalie, the program has been highly successful in increasing chronic disease patient’s capacity and willingness to manage their condition. Additionally, she thinks that the program has enhanced the efficiency of the health system by improving communication between health professionals. Having a care coordinator in charge of patients makes their connections with the health system easier and smoother, and the patient is better able to utilise the best parts of the health system. The Victorian Department of Health has reported that HARP, which has been rolled out across Victorian hospitals, has resulted in 35% fewer emergency department presentations, 52% fewer emergency department admissions, and 41% fewer days in hospital for participants in the program (Victorian DoH 2014). Thus, HARP has improved patient outcomes, and lessened the burden on the health system, resulting in more cost-effective diabetes management.

4.3.3 Results of Online Survey

The online survey for Allied Health Professionals yielded positive results pertaining to self-management. Question 7 of the survey asked:

“In your experience, how can Allied Health services reduce the cost of diabetes treatment/management (for both the government and individuals)? Please include any specific examples if possible.”

Of 157 survey respondents, 113 answered ‘yes’ to treating diabetes, and were thus eligible to answer Question 7, and 70 of those completed an answer. 33 of 70 respondents (47%) nominated self-management or patient education as a cost-effective mode of diabetes treatment.

Cost savings came up as a key advantage of self-management. One respondent, a podiatrist, reported that patient adherence to education provision can prevent foot complications from developing, saving them up to \$14,500 per year. A second podiatrist said that foot education provided by a podiatrist can lead to a patient being able to self-monitor their foot health, skin condition and sensation, decreasing the likelihood of further complications. One physiotherapist claimed that education about diet and exercise programs had enabled some of their clients to “come off diabetic medication completely”, enabling cost savings.

Several respondents to the survey believed that there is insufficient knowledge amongst diabetes patients about their condition, with one physiotherapist claiming that “some people seem to be unaware of how serious diabetes is”, and another postulating that “poor health literacy” contributes to diabetes severity. This corresponds with the findings of an interview with “Sarah”, who reported that many of her patients “really don’t understand some fundamental questions” surrounding diabetes (Interview 23/9/14). Norris et al have likewise reported that knowledge deficits exist in 50-80% of patients with diabetes (2001: 561). Thus, education provided by AHPs was perceived by survey respondents to be critical, for patients to both understand “the cause of their Type 2 Diabetes”, and “what their condition means and how they can manage it”. One respondent indicated that delivery of

education specific to the individual needs of every patient is “what allied health professionals can do well”.

4.4 Discussion

Allied Health Professionals can provide effective treatment that improves outcomes and reduces costs for patients with diabetes. Podiatrists, as evidenced in medical literature, can decrease the cost of diabetic foot treatment by reducing bed days, decreasing amputation rates, managing surgical wait lists, and preventing hospital admissions. Dietitians have been shown to be effective in preventing diabetes onset and reducing potential complications by assisting diabetic patients with managing their blood sugar levels and promoting weight loss. AHPs are central to the facilitation of self-management programs, which have been shown to have significant benefits for diabetic patients. Both the HEAL program and the HARP program are examples of self-management interventions which reduce the cost of treatment, and enhance the health and wellbeing of participants.

5. Chapter Two: Osteoarthritis

5.1 Burden of disease

Osteoarthritis is a leading cause of disability in Australia, affecting approximately 10% of men and 18% of women (RACGP 2009: 6). In 2007, it was estimated that direct health expenditure on osteoarthritis was \$2.3 billion annually, with an indirect annual cost of over \$7 billion (AIHW 2007:24). Apart from financial costs, individuals with osteoarthritis suffer from pain, disability, emotional impairment, loss of social function, and a decreased quality of life. Notably, there is a higher incidence of psychological disorders amongst patients with osteoarthritis (NAMCAG 2004:15). Osteoarthritis is especially prevalent in individuals over the age of 65, and with Australia's ageing population growing, the burden of the disease is expected to increase (RACGP 2009: 3).

One of the largest costs associated with osteoarthritis is that of joint replacements. Osteoarthritis is the leading cause of joint replacement surgery in Australia, contributing to 89% of total hip replacements and 97% of total knee replacements (Department of Health Western Australia 2010: 12). Various estimates value the annual cost of joint replacement surgery in Australia between \$1 billion and \$7.7 billion (Dunlevy 2013, Burdon 2014).

5.2 Review of Medical Literature

5.2.1 *Physiotherapy*

Physiotherapy is the foremost conservative management treatment for osteoarthritis.

A number of medical trials, from Australia and overseas, indicate that physiotherapists can improve the efficiency of the health system by monitoring wait lists for joint replacement surgery. During a trial conducted at the the Alfred Hospital Melbourne, a team of musculoskeletal physiotherapists triaged patients on the waiting list using a clinical tool (Maciel 2012). This decreased the waiting time from 18 to 3 months, and meant that the majority of patients were managed conservatively without

having to see a surgeon at all. A similar trial was conducted at the Northern Hospital Melbourne from 2005-2006, in which orthopedic waitlist patients were first seen by a physiotherapist (Oldmeadow et al 2007). The physiotherapists found that, of the 38 patients they assessed, 24 were appropriate for non-surgical management, and were thus able to receive early alternative treatment. The orthopaedic surgeon agreed with 74% of the decisions made by the physiotherapists, and thus the trial was deemed to contribute to more efficient waiting list management. A similar Canadian trial found that orthopaedic surgeons agreed with 85.5% of the decisions of physiotherapists in regards to patient management (MacKay et al 2009). Additionally, physiotherapists were more likely to recommend conservative management, education and exercise. Another recent study conducted at the Canberra Hospital involved the development of a telephone triage clinic run by physiotherapists to assess wait list patients (Morris et al 2011). Of the 116 participants, 19 were discharged after telephone triage, and two after assessment at the multidisciplinary clinic, before being seen by an orthopaedic surgeon. This removal of 21 booked appointments cost an estimated \$350 in total, whereas if the patients had proceeded to their appointments with the orthopaedic surgeon it would have cost an estimated \$675.99 in total. In addition, 30 of the 116 assessed patients received conservative physiotherapy and did not require surgery. Both face-to-face interventions and telephone triage by physiotherapists have thus been shown to enhance the efficiency of orthopedic waitlists, of which osteoarthritis patients comprise a significant percentage.

Therapeutic treatment provided by physiotherapists can be effective in reducing pain and improving function of patients with hip and knee osteoarthritis. WOMAC scores are used to measure pain, stiffness and functional limitations in patients with osteoarthritis, with a lower score representing lower levels of pain, stiffness and functional limitation (ACR 2012). A 2013 trial conducted in New Zealand found that on average, manual therapy administered by physiotherapists reduced WOMAC scores by 28.5 points, and that exercise therapy reduced WOMAC scores by 16.4 points (Hinman 2014). A US study involving 83 participants assessed the effect of manual therapy and exercise, compared to placebo therapy (Deyle et al 2000). It found that the treatment group improved in pain scores by 60%, stiffness scores by 54% and functional scores by 54%. Notably, the need for joint replacement surgery was lower in the treatment group than the placebo group. A very similar study was

conducted in Australia, and compared the impact of physiotherapy interventions and a placebo intervention for knee osteoarthritis patients (Bennell et al 2005). The study found that there were clinically significant reductions in pain scores in both the treatment group (42% reduction) and the placebo group (38% reduction). In this case, the physiotherapy intervention did not have a significantly greater benefit than the placebo intervention. However, the authors attribute the significant pain decrease in both groups to the reduction in anxiety and helplessness which may come from any contact with a physiotherapist. In an interview, Ms X, a researcher associated with the study, postulated that this therapeutic effect may be due to having a health professional take the time to listen and respond to the patient's concerns (Interview: 9/10/14). The key indications for joint replacements are radiographic evidence of joint damage, and "moderate to severe persistent pain or disability" (ACR 2000:1912). Thus, physiotherapy treatments, which have been shown to decrease pain and increase function, may lead to a decreased need for a joint replacement.

5.2.2 Occupational Therapy

Occupational therapists also play an important role in osteoarthritis management. Both the National Arthritis and Musculoskeletal Conditions Advisory Group, and the Royal Australian College of General Practitioners, encourage occupational therapy involvement in the non-pharmacological management of osteoarthritis (2004: 10, 2009: 21). Occupational therapists' main role is to assist osteoarthritis patients with their activities of daily living (ACR 2000:1906). This may include giving directions on joint protection, energy conservation, using assisted devices such as splints, and improving joint function (ACR 2000:1906).

Treatment by occupational therapists has been shown to enhance the ability of osteoarthritis patients to participate in physical activity. Physical activity promotes the maintenance of joint health, and is thus of vital importance to osteoarthritis patients (Murphy et al 2008:1480). A recent US study by Murphy et al evaluated the impact of an occupational therapist-run program, 'Activity Strategy Training' (AST) (2008). The program involved the demonstration and practice of techniques to facilitate physical activity, including joint protection, body mechanics and transfer techniques, and addressed the individual barriers of each participant to physical activity (Murphy

et al 2008:1482). A control group participated in a standard education program. The study found that participants in the AST group had a significantly higher level of intensity in exercise, and tended to have larger pain decreases and increased physical function than those in the control group (Murphy et al 2008:1480).

Occupational Therapy is particularly effective in the treatment of hand osteoarthritis. A Scandinavian study involved 33 patients with carpometacarpal joint (thumb) osteoarthritis who were awaiting surgery (Berggren et al 2001). The study evaluated various forms of Occupational Therapy treatment, including technical accessories, splints and advice on altered activities of daily living. Of the 33 patients receiving various therapies, 23 no longer required surgery after seven months, and 17 no longer required surgery after seven years (Berggren et al 2001).

5.3 Qualitative Analysis: Non-surgical management for Osteoarthritis

Joint replacement surgery commonly leads to improved patient outcomes in terms of pain and function (Brandt 2004:117). Additionally, several reports have found joint replacement surgery to be cost-effective (NAMCAG 2004:27, AIHW 2007:21).

Despite this, non-surgical options can have important repercussions for patient wellbeing. If introduced early enough, non-surgical interventions, as discussed above, may negate the need for joint replacement surgery. The avoidance of surgery decreases the financial cost of treatment (Deyle 2000:179). Additionally, therapies provided by AHPs may reduce the cost of medication for osteoarthritis patients, and are “safe, inexpensive and effective” (Brandt 2004:121). Joint replacement surgery should only be considered after non-surgical options have been explored (Brandt 2004:117, AIHW 2007:21). The AIHW recognises that the most effective non-surgical treatments for osteoarthritis are self-management programs, physical therapy, and weight loss/diet programs (2007:17-2). These treatments are most commonly provided by AHPs, and thus their importance to osteoarthritis management is evident.

5.3.1 Case Study: Osteoarthritis Chronic Care Program

In an interview on 2/10/14, Dr Y, a Rheumatologist working as a fellow in a Sydney hospital, discussed the advantages of Allied Health staff involvement in the hospital’s

Osteoarthritis Chronic Care Program (OACCP). It is a multidisciplinary, holistic, non-surgical program which aims to effectively manage patients with hip and knee osteoarthritis including those on joint replacement waitlists, and those who may be unable, unwilling, or not candidates for joint replacement. The MDT is comprised of a physiotherapist, occupational therapist, dietitian, orthotist, social worker, and rheumatologist.

Within the team, the physiotherapist is the musculoskeletal coordinator, and oversees patients for the one year duration of the program. Patients are seen first by the coordinator, and then referred on to other staff as required. The physiotherapist provides treatment involving neuromuscular retraining, muscular strengthening, and aerobic training. The rheumatologist is the medical overseer, treats comorbidities such as diabetes and heart disease, and assists with diagnosis and pharmacological pain management. The dietitian provides counselling to facilitate weight loss, as obesity is a significant risk factor for osteoarthritis progression. The occupational therapist assists the patient with activities of daily living, and provides assisted devices if necessary. Orthotists provide braces, especially for patients with knee osteoarthritis, and the social worker assists patients with social issues which may hamper the treatment of their disease, such as financial difficulties and living conditions.

The OACCP has been successful in treating patients with osteoarthritis, and has led to improved patient outcomes, including improvement in pain and function levels. The program has been able to fast-track some patients who were in urgent need of a joint replacement to surgery, decreasing their chances of disease progression. Notably, around 15% of patients on a joint replacement surgery wait list when referred to the OACCP team for treatment can subsequently be removed from the waitlist after participation in the OACCP. These patients have improved through conservative management “to the extent where they don’t have to, or don’t feel the need to proceed with surgery” (Dr Y: Interview 2/10/14). This is evidently a positive result for these patients, as their financial costs are decreased and their pain and function levels improved.

5.3.2 Results of Online Survey

The online survey results provide some interesting perspectives on the possibility and benefits of non-surgical management for osteoarthritis. Question 11 of the survey asked:

“In your experience, how can non-surgical management negate the need for joint replacement surgery? If joint replacement surgery can be avoided, how does this benefit the patient?”

Of 157 survey respondents, 86 answered ‘yes’ to treating osteoarthritis, and were thus eligible to answer Question 11. 56 of those 86 completed an answer. 47 (84%) respondents indicated that they believed it was possible for non-surgical management to either delay or negate the need for joint replacement surgery. Three respondents (5%) believed that it was impossible for non-surgical management to avoid the need for surgery, with one respondent claiming that the pain and deformity caused by osteoarthritis “cannot be adequately managed conservatively”.

The majority of respondents that believed it was possible for joint replacement surgery to be avoided also indicated that non-surgical management is not always appropriate. Several respondents indicated that, in severe cases, joint replacements can not be avoided. A prosthetist argued that “when there is bone deformity, joint replacement is probably the best option”, and another respondent similarly claimed that pain levels often mean that “surgery is [the patient’s] best option”. One physiotherapist summed up the argument aptly, saying that “for established osteoarthritis with indication for joint replacement, non-surgical management will never negate the need for total joint replacement”.

Six respondents specifically mentioned early intervention as a key aspect of non-surgical intervention, and argued that surgery is most commonly avoided if interventions occur in the initial stages of arthritis. One podiatrist said that their patients “tend to report good relief from non-surgical interventions in the initial

phases”. The most common forms of non-surgical management mentioned were strength training, exercise, weight reduction programs and pain minimisation.

A large majority of respondents who indicated that joint replacement could be avoided mentioned that this would enhance patient outcomes. The most common advantages of non-surgical management mentioned were: decreased risks from surgery (14 mentions), decreased cost to the patient (10 mentions), better overall function and mobility (7 mentions), saved time from recovery period (5 mentions), and less emotional strain (3 mentions). In terms of function, one respondent argued that “there are always limitations with joint replacement”, and another postulated that non-surgical management leads to “better functional outcomes”. Another claimed that joint replacement surgeries are costly for both the government and the patient, and create a “dependency on the [health] system”. One respondent who focused on the emotional advantages of non-surgical management argued that “surgery can be daunting and cause quite a few ramifications”.

5.4 Discussion

AHPs can provide effective treatment that improves outcomes and reduces costs for patients with osteoarthritis. Medical trials have shown that physiotherapists can effectively reduce waitlists for orthopaedic and joint replacement surgery, allowing for relevant patients to be managed conservatively, and enhancing the efficiency of the waitlist system, thus reducing costs. Medical trials support the idea that both physiotherapists and occupational therapists can administer interventions that reduce pain and increase function in osteoarthritis patients, a fact that may negate their need for joint replacement surgery. This evidence is supported by the case study of the OACCP, in which 15% of patients are able to avoid surgery after completing the program. The avoidance of surgery is advantageous, both in terms of cost savings and also in terms of patient outcomes. According to online survey respondents, decreased risk, increased mobility, saved time, and less emotional strain are important advantages of non-surgical approaches. Thus, in treating patients with osteoarthritis, AHPs are essential to the more efficient functioning of the health system, and the enhancement of patient wellbeing.

6. Chapter Three: Stroke

6.1 Burden of Disease

Stroke constitutes a significant burden on Australia's health system. It is estimated that stroke affects more than 50,000 Australians every year (Cadilhac et al 2009: 915). In 2012, the overall financial cost of stroke was \$5 billion, with productivity costs, at \$3 billion, being the major proportion of this (Deloitte Access Economics 2013:ii). The highest financial cost of stroke is borne by individuals, estimated to be approximately \$5,229 per person in 2012 (Deloitte Access Economics 2013: 41).

One third of stroke sufferers will die within a year of having a stroke (van der Walt et al 2005: 160). In 2012, approximately 42,000 Australians were living with the continued effects of stroke (Deloitte Access Economics 2013: ii). Stroke survivors suffer from limb impairment, mobility, cognitive, and communication problems, and a high rate of depression (Clarke 2013:5-7). In total, the burden of disease was \$49.3 billion in 2012 (Deloitte Access Economics 2013:iii).

6.2 Review of Medical Literature

6.2.1 Multidisciplinary Care

Multidisciplinary care is overwhelmingly cited as the most effective treatment for patients who have suffered from a stroke (NSF 2010: 31, Ritchie et al 2012:22, van der Walt 2005:160, Clarke 2013:5, Middleton et al 2011:1700, Bernhardt et al 2007:43, Langhorne et al 2002:365). Generally, a MDT will include medical and nursing staff, as well as a physiotherapist, occupational therapist, speech pathologist, social worker, dietitian and social worker (NSF 2010:31). Multidisciplinary care that involves AHPs has been proven to achieve better patient outcomes. A clinical trial in a Melbourne hospital found that stroke patients in general wards who received care from a mobile multidisciplinary stroke team had a 32% rate of independence on discharge, compared to a 9% independence rate in the control group, who received standard care (van der Walt 2005). Despite this, mobile stroke units are "inferior" to the multidisciplinary care provided in a specified stroke unit (NSF 2010:36).

Specified stroke units within a hospital have been proven to achieve the highest benefit for patients and are the “gold standard” of stroke care (NSF 2010:35, van der Walt 2005:160).

Multidisciplinary involvement in hospital stroke unit care is of vital importance because it allows for the early commencement of rehabilitation. Early intervention by rehabilitation therapists has been associated with improved health outcomes (Ritchie et al 2012:6). A study conducted in Bankstown-Lidcombe Hospital found that the availability of early and intense physiotherapy and other rehabilitation services reduced the length of stay for patients and also improved their functional outcomes (Ang et al 2003: 335-336). Another study held at the Royal Perth Hospital found that patients who received “immediate and ongoing multidisciplinary assessments” in a stroke unit had a significantly reduced likelihood of institutionalisation at 6 months post-stroke (Hankey 1997). Bernhardt et al reported that stroke units that are effective at reducing death and disability conduct early, high-intensity rehab therapy, with an average of 45 minutes of physiotherapy and 40 minutes of occupational therapy per patient per weekday (2007:48). A 2002 review of 11 clinical trials similarly found that stroke units with success in reducing death, dependence and institutionalisation commonly used early interventions by physiotherapists, occupational therapists and speech pathologists (Langhorne et al 2002:368).

6.2.2 Speech Pathology

A common effect of stroke is the development of speech and swallowing disorders. 67% of stroke patients suffer from speech or communication deficits (NSF 2010:89). Dysphagia, or a reduced ability to swallow, affects between 27 and 54 percent of all stroke patients (Geeganage 2012:1). With dysphagia comes increased risks of aspiration pneumonia (and thus chest infection), dehydration, malnutrition, infection, longer stay in hospital, and death (Carnaby et al 2006:31, Geeganage 2012:1). Speech pathologists, in treating these two conditions, play a necessary and important role in the management of stroke patients.

The treatment of dysphagia by speech pathologists has been shown to decrease the severity of the condition and to lead to faster patient recovery. A Royal Perth Hospital

study found that patients who were allocated to an “intensive standard swallowing therapy” group were more likely to achieve improved recovery of swallowing function, and less likely to develop chest infection, than patients allocated to “less intensive therapy” and usual care (Carnaby 2006). 70% of patients in the intensive therapy group were able to return to a normal diet within 6 months, compared to 67% in the low intensity group, and 56% in the normal care group (Carnaby 2006:35).

Early interventions by speech pathologists in relation to dysphagia have also been shown to improve general patient outcomes. The Fever, Sugar, Swallowing (FeSS) intervention was implemented across 19 NSW stroke units between 2007 and 2010, and involved 1126 patients. (Middleton et al 2011). The intervention focused on enhancing multidisciplinary teamwork, and utilised speech pathologists in both training nurses and treating patients. It found that, in units where the FeSS intervention was implemented, patients were 15.7% less likely to be dead or dependent at 90 days than patients from control units (Middleton et al 2011:1703).

In general, increased access to speech pathology services, both in an acute and community setting, has advantages for the health system. In 2002, the Illawarra Area Health Service implemented a “coordinated delivery system for stroke care”, focusing on speech pathology. The program improved follow-up procedures for discharged patients, enhanced access to community-based speech pathology, improved communication between speech pathology services and other health providers, and developed a specific dysphagia program to reduce complications, improve early detection, and increase staff education of dysphagia (NSW DoH 2003:50). The program also involved general staff education, lower limb training services, patient education packages, and improved referral processes. It is estimated that the implementation of this program across the Illawarra AHS prevented 45 Emergency Department presentations, 49 admissions, 188 re-admissions, and saved 2,808 bed days (NSW DoH 2003:50).

6.3 Qualitative Analysis: Enhancing Patient Independence

Independence post-stroke is of vital importance to both patient well being and to the financial cost of treatment. Two thirds of people who suffer from stroke have a

disability that impedes their ability to complete daily tasks (Deloitte Access Economics 2013:ii). Approximately one third of stroke survivors will remain dependent on care from others (Legg et al 2006:2). This contributes significantly to the aforementioned \$49.3 billion annual burden of disease. Rehabilitation services for stroke, which are majorly delivered by AHPs, have a profound effect upon patient function and independence (Ritchie et al 2012:6). These services include speech pathology, physiotherapy, occupational therapy, dietary advice, psychological advice, and contact with a social worker (Ritchie et al 2012). The role of Allied Health in stroke treatment and management is thus key in enhancing patient independence.

6.3.1 Case Study: A Sydney Hospital Stroke Unit

In an interview on 23/9/14, Mr X, a physiotherapist at a Sydney stroke unit, discussed the roles and benefits of Allied Health Professionals in the stroke unit. The stroke unit is staffed by a MDT, which includes physiotherapists, occupational therapists, a speech pathologist, nursing staff, social worker, dietician, orthoptist, medical interns and registrars, and specialist medical staff. The team has regular communication, holding a daily meeting to discuss the day's issues, a weekly case conference to discuss the issues for each patient in the unit, regular meetings with patients and their families, and a monthly stroke unit meeting.

The main role for physiotherapists in the stroke unit is to work with patients in improving their mobility. This involves activities such as getting out of bed, sitting, learning how to sit up and walk, and walking up and down stairs. Physiotherapists are also involved in managing patients' upper limb ability, holding a thrice weekly class along with the unit's occupational therapists. This class focuses on practice with reaching and dexterity, and manipulative skills such as using cutlery.

Allied Health staff in the unit have the important role of "getting the patients out of the hospital", and simultaneously ensuring that they have reached an appropriate level of independence. Medical staff, although of vital importance in the unit, play their most important role very early in stroke treatment. Stroke patients, according to Mr X, only remain medically unwell for a short period of time, unless they develop a complication such as pneumonia or a urinary tract infection. Once the patient is

medically well, their treatment is primarily conducted by Allied Health staff, who focus on maximising the patient's ability to conduct their daily activities. At this point, despite continuing to monitor patients, medical staff are "basically irrelevant", because they do not have the specified skills necessary to execute adequate rehabilitation treatment.

Mr X emphasised the role of Allied Health staff in working towards patient independence, and the advantages of this. The role of Allied Health in improving the functional ability of stroke patients is vital, because it means that patients are able to live more independently. For example, if a patient is able to learn how to walk, there is a lesser need that they be looked after by a friend or family member, thus improving the productive capacity of both the patient and their potential carer. Therefore, "the burden of care and the need for that person to receive ongoing services is reduced".

Mr X has been a long-standing member of this stroke unit, and has observed important changes in the unit's outcomes over time. 25 years ago, the average length of stay in this hospital for stroke patients was 43 days. In the last 12 months, the average length of stay has been approximately 11 days. With treatment in a stroke unit costing an estimated \$800 per day, the reduction in length of stay has had significantly reduced the cost of treatment. However, Mr X acknowledged that there are outliers, with mild stroke patients potentially only staying for 2-3 days, and serious stroke patients staying for up to two months. The stroke unit has also improved its outcomes in terms of mortality, with the mortality rate decreasing from 30% to 10% in the last 20 years. Mr X attributed this decrease to better medical care, earlier access to hospital, prevention of infection, and the ability of patients to "get out of bed earlier".

6.3.2 Results of Online Survey

Online survey respondents, like Mr X, emphasised the importance of AHP intervention for achieving patient independence and increasing their level of function. Question 18 of the survey asked:

“In your experience, how can Allied Health services reduce the cost of stroke treatment/management (for both the government and individuals)? Please include any specific examples or case studies if possible.”

82 respondents answered ‘yes’ to treating stroke and were thus eligible to answer Question 18. Of those 82, 56 completed an answer. An increase in function and/or independence was the most commonly mentioned answer, with 18 mentions.

The ability of AHP interventions to enhance patient independence was seen as positive for patient well being. Several respondents mentioned that improved function could lead to improved mental health. One respondent postulated that multidisciplinary therapy leads to a “decreased risk of secondary complications”, and a speech pathologist argued that improvement in swallowing function can reduce the risk of malnutrition and dehydration. Another respondent mentioned that AHP services enable stroke patients to “return to work”.

Significantly, increasing the functional ability of patients was seen as a financial advantage. One respondent claimed that improving the functional independence of patients decreases their “reliance on government resources”. Another argued that improving patient levels of function means that the “overall cost to the community” will be decreased, in terms of the provision of “long-term support”. Six respondents specifically discussed the fact that AHP interventions can negate the need for stroke patients to receive permanent care. One dietitian mentioned that specific interventions such as diet modification and weight management could allow patients to return home independently “when this may not have otherwise been possible”. Another respondent argued that access to appropriate Allied Health rehab services allows patients to “regain function and return home”, rather than being transferred to residential care, thus reducing the cost of overall stroke care.

6.4 Discussion

Allied Health Professionals can provide effective treatment that improves outcomes and reduces costs for patients with stroke. Medical trials have shown the effectiveness of multidisciplinary teams in increasing patient independence levels, and decreasing

their likelihood of dependency, institutionalisation and longer stay in hospital. Interventions by speech pathologists have been shown to improve swallowing function and reduce dependency. Enhanced access to speech pathology services can prevent admissions and re-admissions, and reduce length of stay in hospital. Overall, AHPs can have a major impact upon patients' independence level, through their administration of rehabilitation therapy. Enhancing patient independence means that patients are able to function more productively, be integrated into their community, and are less likely to need full-time care from a family member or in a care facility. This decreases the burden of disease, on both the individual, their family, and the health system more broadly.

7. Conclusion

AHPs provide treatments and interventions that are vital to the functioning of an efficient and effective health system. This report has established that, in the areas of diabetes, osteoarthritis, and stroke, the involvement of AHPs can reduce the cost of treatment for individuals and the health system, and achieve improved health outcomes. For diabetes, podiatrists and dietitians can implement effective interventions that reduce costs and lead to fewer complications. Through their promotion of self-management programs, AHPs contribute to more efficient management of diabetes as a chronic disease. Physiotherapists and occupational therapists can provide treatment for osteoarthritis that lessens pain and increases function. Overall, AHPs involved in osteoarthritis treatment are vital to the success of non-surgical interventions, and delaying or negating the need for joint replacements. AHPs are central to the facilitation of stroke rehabilitation, with multidisciplinary teams involving AHPs being vital to the effectiveness of stroke units. Speech pathologists can improve swallowing function and reduce the dependency of stroke patients. Overall, AHPs enable stroke patients to be more functional, thus increasing their independence and decreasing the cost of their treatment. The important role of Allied Health in the treatment of diabetes, osteoarthritis and stroke is undeniable. The effectiveness of AHPs in improving patient outcomes, increasing the efficiency of the health system, and reducing the costs of treatment necessitates enhanced access to Allied Health in rural and remote Australia.

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Appendix

1. List of Allied Health Professions

- Audiology
- Chinese Medicine
- Chiropractors
- Dental and Oral Health
- Dietetics and Nutrition
- Diabetes Education
- Exercise Physiology
- Genetic Counselling
- Health Promotion
- Medical Radiation Science
- Occupational Therapy
- Optometry
- Orthoptics
- Osteopathy
- Paramedics
- Pharmacy
- Physiotherapy
- Podiatry
- Prosthetics and Orthotics
- Psychology
- Social Work
- Speech Pathology
- Sonography

2. List of Interviews Conducted

- Shan Bergin, Senior Podiatrist at Monash Health. Phone interview conducted on 11/9/14.

- Natalie Pollard, Nurse and Diabetes Educator at St Vincent Hospital Melbourne. Phone interview conducted on 25/9/14
- “Sarah”, Dietitian at Diabetes ACT. Face-to-face interview conducted on 23/9/14. (Interviewee requested pseudonym).
- “Rose”, Occupational Therapist and University Lecturer. Phone interview conducted on 1/10/14. (Interviewee requested pseudonym).
- Mr X, Physiotherapist at a Sydney hospital. Phone interview conducted on 23/9/14.
- Simone Dorsch, Physiotherapist at Bankstown-Lidcombe Hospital. Phone interview conducted on 7/10/14. (Interviewee requested complete confidentiality)
- Dr Y, Rheumatologist at a Sydney Hospital. Interview conducted on 2/10/14. (Interviewee requested complete confidentiality)
- Ms X, research physiotherapist at an Australian university. Interview Conducted on 9/10/14. (Interviewee requested complete confidentiality)

3. Online Survey Questions

1. What is your profession?
2. In what state of Australia do you currently work?
3. Do you treat patients with diabetes?
4. What percentage (approximately) of your patients have diabetes?
5. In your field, what are the most common treatments for patients with diabetes? What treatments would you most commonly provide?
6. In your experience, in your field, what treatment has been most effective in treating diabetes or slowing its progression?
7. In your experience, how can Allied Health services reduce the cost of diabetes treatment/management (for both the government and individuals)? Please include any specific examples or case studies if possible.
8. Do you treat patients with osteoarthritis?
9. In your field, what are the most common treatments for osteoarthritis? What treatment would you use most regularly?
10. Of your patients with osteoarthritis, how many (approximately) have had a joint replacement?

11. In your experience, how can non-surgical management negate the need for joint replacement surgery? If joint replacement surgery can be avoided, how does this benefit the patient?
12. What are the most common forms of non-surgical management, and what do you estimate their average costs are?
13. In your experience, how can Allied Health services reduce the cost of osteoarthritis treatment/management (for both the government and individuals)? Please include any specific examples or case studies if possible.
14. Do you treat patients with stroke?
15. In your field, what are the most common treatments used for stroke patients? What treatments would you use most regularly?
16. Have you ever participated in a multidisciplinary team for stroke management? If yes, what was your role on the team?
17. How did the team, or your role in particular, contribute to better patient outcomes?
18. In your experience, how can Allied Health services reduce the cost of stroke treatment/management (for both the government and individuals)? Please include any specific examples or case studies if possible.
19. How do you think patients benefit from engaging with you, and other Allied Health providers, rather than only physicians and/or nurses? Please include any specific examples or case studies if possible.
20. Have you modified your practice in the past in response to research findings? If there was a more solid body of research about Allied Health treatments/interventions, would you consider modifying your practice?
21. Are you aware of any Australian studies/clinical trials that demonstrate the cost-effectiveness of Allied Health Providers in managing diabetes, osteoarthritis, or stroke?
22. Please provide details of said studies.