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Arthritis Research UK and Arthritis Care response to the Scottish Government's *A Healthier Future* strategy consultation

1. Arthritis Research UK incorporating Arthritis Care welcomes the opportunity to respond to the Scottish Government's consultation on *A Healthier Future – Action and Ambitions on Diet, Activity and Healthy Weight.*[1]

2. Arthritis Research UK and Arthritis Care invest in breakthrough treatments, the best information and vital support for everyone affected by arthritis. We combine cutting edge research and the expertise of people with arthritis to make everyday life better for all 10 million people with these conditions in the UK.[2] We currently fund £16.7 million of research in Scotland, across 38 different projects from understanding the molecular mechanism of arthritis to health interventions to support people to manage the pain of their condition.

3. Arthritis Research UK and Arthritis Care have joined together so that we can do more to help people with arthritis to live full and active lives. For example, our Joint Activity self-management programme which operates across Scotland aims to support people living with arthritis to get active and stay active within their own community.[3]

4. It is estimated that over one million in Scotland live with back pain, nearly 700,000 people with osteoarthritis and 44,000 people with rheumatoid arthritis.[4] Furthermore, one in five people in Scotland live with chronic pain,[5] and one in twenty experience severe disabling chronic pain with the most common sites of chronic pain being the back and the joints.[6]

5. Musculoskeletal conditions have a substantial impact on Health and Social Care services. The NHS spend on the annual musculoskeletal health budget in Scotland is £353 million.[7] This is the amongst the ten largest NHS Annual Programme Budgets in Scotland. In 2012/13 there were over 600,000 consultations with a GP or practice employed nurse due to back pain in Scotland.[8] In Scotland back and neck pain are in the top 10 most frequent conditions seen by GPs.[9]

6. Arthritis is a major component of multimorbidity which falls disproportionately on those from poorer backgrounds, with people in the most deprived areas of Scotland developing multimorbidity 10-15 years earlier compared to those in the least deprived.[10]

7. Furthermore, people with musculoskeletal conditions are less likely to be employed than people in good health and more likely to retire early.[11] This impacts the wider economy, with the combined direct and indirect costs of osteoarthritis and rheumatoid arthritis to the UK economy estimated at £21.6 billion.[12]

8. Given the prevalence of arthritis in Scotland, its impact on the healthcare sector, the wider economy and its links to deprivation, we are concerned that the consultation on the *A Healthier Future* strategy lacks specific reference to musculoskeletal conditions.

The Scottish Government's strategy to address diet, obesity and healthy weight must take into account the relationship between obesity, physical inactivity and musculoskeletal conditions:

9. Musculoskeletal problems constitute one of the greatest threats to the health of people who are obese. Obesity substantially increases the risk of developing knee and hip osteoarthritis and other musculoskeletal conditions such as back pain, gout and to some extent rheumatoid arthritis. Being overweight or obese can also make the symptoms of musculoskeletal conditions, especially joint pain, worse, and pain-relieving treatments for musculoskeletal conditions less effective. However, public awareness of the link between obesity and musculoskeletal conditions is low compared to the association of obesity with other long-term diseases.[13] Furthermore, amongst people of working age in the UK, the prevalence of arthritis is more than double in the most deprived areas (21.5%) compared to the least deprived areas (10.6%), and evidence shows being from a more socially deprived background increases the risk for pain.[14,15]

Obesity increases the risk of developing osteoarthritis and need for joint replacement

10. Obesity directly damages weight bearing joints such as knees and hips because of the abnormally high loads they have to carry.[16] Osteoarthritis is a major contributor to healthcare costs attributable to obesity-related diseases in the UK.[17] Obese people are more than twice as likely to develop osteoarthritis of the knee than those of normal body weight,[18] with many estimates putting the risk between four and six times greater.[19,20,21,22] Rising levels of obesity, combined with our ageing society, could lead to a near-doubling in UK prevalence of osteoarthritis by 2035 with a corresponding increase in need for joint replacement surgery.[23] More than two out of three knee replacements and one in four hip replacements in middle-aged women in the UK are attributable to obesity.[24] Artificial joints wear out more quickly in obese people compared with people of normal body weight, and surgical complication rates, including longer hospital stays, increased risk of major complications and higher rates of re-admission following discharge, all increase with rising body mass.[25]

Obesity and the risk of developing other musculoskeletal conditions

11. Obesity also increases the risk of developing other musculoskeletal conditions. Obese people are twice as likely to develop gout, and tend to develop it at a younger age.[26] Over a million people in the UK have been affected by gout and prevalence is rising, largely due to changes in diet and obesity.[27] The risk of developing back pain also increases with rising body mass index with the most obese four times more likely to develop back pain than those of healthy body weight.[28,29] For reasons that are not well understood, obesity also appears to increase the risk of rheumatoid arthritis.[30]

Joint pain is a barrier to participating in physical activity

12. Musculoskeletal pain can be a significant barrier to physical activity. For example, people with knee osteoarthritis report a decreased quality of life due to a fear of movement associated with their condition.[31] Furthermore, a musculoskeletal condition can be a barrier to physical activity due to pain and restriction of movement, this can make it harder for

people to remain active and limit their ability to use exercise as a way of maintaining a healthy weight.[32]

Therefore, we recommend that:

- **The Scottish Government ensures that services and health promotion programmes designed to address obesity, poor diet and physical inactivity appropriately acknowledge and address the close relationship between deprivation and musculoskeletal conditions**.
- **Local health and care providers should ensure obese young people receive appropriate clinical support to achieve and maintain a healthy weight, and should work with schools, parents, guardians and carers to raise awareness and increase access to these services.**
- **The Scottish Government should consider extending its commitment to a new approach to weight management for type 2 diabetes to include people with, or at risk of, musculoskeletal conditions, including a prevention framework developed in association with people with arthritis and key health, care and charity stakeholders from across the musculoskeletal sector in Scotland.**
- **The Scottish Government should support local healthcare providers to ensure availability of physical activity programmes appropriate for people with musculoskeletal conditions and collect data to identify where gaps in service provision exist.**
- **The Scottish Government should ensure current and future health and care strategies endorse good musculoskeletal health across the life-course and empower healthcare professionals to utilise contact with people with arthritis to promote healthy weight, diet and wellbeing.**
- **The Scottish Government should ensure that national and local healthcare providers and authorities are appropriately capturing and utilising data on people with musculoskeletal conditions to support planning and delivery of activities in support of the *A Healthier Future* strategy.**

Living Healthier and More Active Lives

Question 7: Do you think any further or different action is required to support a healthy weight from birth to adulthood?

Health Inequalities

People with musculoskeletal conditions face substantial health inequality

13. We very much welcome the Scottish Government taking action to make obesity a priority, but we also seek to ensure the link between obesity, physical inactivity and arthritis is recognised as part of this wider ambition. This need is highlighted by the results of a nationally representative survey of UK residents in which arthritis was the least selected condition (50%) when respondents were prompted to identify health conditions that could result from being overweight or obese from a list that included cancer (57.5%) and diabetes (93.6%).[33]

14. We welcome the recognition by the Scottish Government that the obesity strategy can play a role in tackling inequality and seeks to prioritise work with families in poverty and on low

incomes to design services and approaches that meet their specific needs and are impactful. Inequality is a feature of obesity with a higher proportion of children at risk of obesity in Scotland's most deprived areas (21% in 2015) compared to the least deprived (13%).[34] In addition, the proportion of children meeting the physical activity guideline (including school-based activity) is lower amongst children in the most deprived areas of Scotland (70%) compared to those in the least deprived areas (79%).[35] As detailed in *A National Clinical Strategy for Scotland*, musculoskeletal conditions are the leading cause of long-standing illness in every quintile of the Scottish Index of Multiple Deprivation, with prevalence increasing in line with deprivation.[36] Similarly, people in the most deprived areas are much more likely to report arthritis (21.5%) than people in equivalent age groups who live in less deprived areas (10.6%).[37] It is therefore essential that **the Scottish Government ensures that services and health promotion programmes designed to address obesity, poor diet and physical inactivity appropriately acknowledge and address the close relationship between deprivation and musculoskeletal conditions**.

Developing a positive relationship with food from birth to adulthood

Maternal health and musculoskeletal conditions

15. We endorse the commitment in the strategy to: *improve the way in which services engage, inform and support women before first pregnancy*. Research funded by Arthritis Research UK at Southampton University has found that musculoskeletal health throughout life is affected by conditions in the womb and a woman's health before conception.[38] Women who have a good diet and are physically active have babies that go on to have stronger bones throughout life. Infants with higher birthweight have stronger bones in adult life, while those with lower birthweight are at higher risk of osteoporosis and fragility fractures in later life.[39,40] Improving health for women who are trying to conceive and during pregnancy may reduce the risk of falls and fractures in future generations. We recommend that **healthcare professionals providing support to women who are pregnant or attempting to conceive are aware of the link between poor maternal nutrition, physical inactivity and the subsequent increased risk of poor bone health in children, and they should be adequately resourced to address these issues through the provision of training and information resources.**

Obesity in children and musculoskeletal conditions

16. As acknowledged by the strategy, overweight and obese children are more likely to become obese adults, and have a higher risk of morbidity, disability and premature mortality in adulthood. Specifically, a systematic review of studies in this area has concluded that overweight and obesity are related to various musculoskeletal complaints in childhood, and musculoskeletal pain is found to be significantly higher in overweight children than in normal weight children.[41] Evidence also has shown obese children also experience impaired physical health-related quality of life, activity restrictions and more frequent musculoskeletal problems and lower extremity problems than their normal-weight peers.[42,43] It may be helpful for the Scottish Government to review the approach taken by the Amsterdam Healthy Weight Programme which succeeded in both a 12% and absolute decrease in the number of overweight children over a three year period, across all socio-economic status groups.[44] At the heart of this project's success is its focus on integrated, cross-sector and cross-departmental actions involving politicians, local authorities, schools, medical professionals,

planning bodies, sports organisations, communities and neighbourhoods, charities, and the business sector.[45]

17. Childhood obesity may also have an impact on persistent pain in later life by placing strain on vulnerable joints. Joint hypermobility is very common among adolescents, present among one in four teenage girls and one in ten teenage boys.[46] Young people with joint hypermobility are nearly twice as likely to report joint pain at certain sites like the knee, but this rises to over ten-fold in those who are also obese.[47] Adults who are hypermobile have a 40% increased risk of severe pain compared to those who are not.[48] Therefore reducing obesity in childhood may reduce both the risk of developing persistent pain in adolescence and of pain continuing into adult life. We recommend that **local health and care providers should ensure obese young people receive appropriate clinical support to achieve and maintain a healthy weight, and should work with schools, parents, guardians and carers to raise awareness and increase access to these services.**

Question 8: How do you think a supported weight management service should be implemented for people with, or at risk of developing, type 2 diabetes – in particular, the referral route to treatment?

Supported weight management

18. The strategy has outlined a comprehensive approach to tackling type 2 diabetes, however over one-third (36.2%) of people aged 45 years and over with this condition also have a diagnosed musculoskeletal condition, with comorbidity increasing with age (40.2% in people aged 65 years and over).[49] Furthermore, the risk of developing knee osteoarthritis associated with overweight and obesity appears to be similar to that of developing type 2 diabetes or high blood pressure.[50] The risk increases with the level of obesity, so being very obese rather than very slim could increase people's odds of developing persistent knee pain by 14 times.[51]

Obesity causes irreversible osteoarthritis

19. Unlike certain other conditions, where tackling obesity can reverse or halt the onset of symptoms, for osteoarthritis, the damage to the surface of the joint is irreversible. This highlights the need for early intervention and prevention. However, once joints are damaged, relatively modest weight loss, particularly when combined with increased physical activity, can reduce pain and disability in those who have already developed osteoarthritis.[52,53,54,55]

20. Successful weight loss typically requires a supported programme, and public health approaches to tackle obesity in the population generally, and those specifically targeted at people with osteoarthritis, could reduce the incidence of this condition. For those who have already developed the condition it could result in improved symptoms and quality of life, and it may improve surgical outcomes for those with severe osteoarthritis requiring joint replacement. [56,57]

21. The above evidence highlights how addressing the needs of people with musculoskeletal conditions will be central to the success of the *A Healthier Future* strategy. Therefore, we recommend that **the Scottish Government should consider extending its commitment to a new approach to weight management for type 2 diabetes to include people with,**

or at risk of, musculoskeletal conditions, including a prevention framework developed in association with people with arthritis and key health, care and charity stakeholders from across the musculoskeletal sector in Scotland.

Question 10: How can our work to encourage physical activity contribute most effectively to tackling obesity?

Physical Activity

Physical activity for people with musculoskeletal conditions

22. Increasing participation in physical activity is one of Arthritis Research UK's key public health priorities as there is a strong link between physical activity, maintaining a healthy weight and the risk of developing a musculoskeletal condition. The close relationship between inactivity and obesity is often set early in life and continues through to adulthood. In addition, supporting overweight and obese adults to be physically active is a key part of reducing the impact of musculoskeletal conditions. This is reflected in the Scottish Government's Active Scotland Outcomes: *to encourage and enable the active to stay active throughout life*.[58]

23. We welcome the Scottish Government's commitment to increasing the levels of physical activity as a National Performance Indicator, in previous national strategies [59] and as in its vision in *A More Active Scotland*.[60] In particular, we are very supportive of the Government's ambition to: *achieve 50% of all adults aged over 16 and 80% of all children aged 16 and under meeting the minimum recommended levels of physical activity by 2022*.[61] However, we note that performance against this indicator has not improved and the total physical activity, sport and legacy budget was reduced in 2017-18 from 2016-17.[62]

Physical activity as preventative approach in children

24. The proposed strategy commits to: *work[ing] with NHS Boards to maintain and examine expanding the child healthy weight work as a core part of preventative service provision*. A key part of maintaining a healthy weight is to ensure children and adults meet physical activity guidelines. Over 90% of adult bone mass is accumulated during childhood and adolescence,[63] therefore keeping children physically active is a key part of preventing both obesity and musculoskeletal conditions as they are more likely to stay physically active as adults, and are at a reduced risk of fracture. Young people who take part in sport have greater bone density in adult life, and high-impact activities increase bone density much more than moderate and low-impact activities such as jogging and walking.[64,65] However, just under one-quarter (24%) of children in Scotland failed to meet the guideline on physical activity (including school-based activity), a similar proportion to that seen in 2008 (29%).[66] We therefore recommend that **the Scottish Government should support greater promotion of the benefits of physical activity for children, and resources should be targeted at reducing the gap in participation amongst socioeconomic groups, including after school and community sports activities in deprived areas.**

Physical activity as preventative approach in adults

25. Data from the Scottish Health Survey 2016 detailed that only 64% of adults aged 16 and over met the current moderate/vigorous physical activity guideline of 150 minutes a week.[67]

There has been no significant change to this proportion since 2012. Furthermore, over 58% of people with musculoskeletal conditions in Scotland do not meet the physical activity guidelines, compared to 37% of the general population.[68] This substantial gap in physical activity participation is worrying and we are concerned it may increase despite the Scottish Government's Active Scotland Outcome*: to encourage and enable the inactive to be more active*.[69]

26. Reducing this gap is a challenge, because people with musculoskeletal conditions face barriers to being physically active, such as experiencing pain, finding suitable activities, facilities and health professionals who understand their condition. Physical activity intervention programmes can provide a supportive environment where people with musculoskeletal conditions can exercise safely and appropriately for their condition and build their confidence to also be independently physically active. Ensuring access to suitable programmes will increase levels of physical activity for people with musculoskeletal conditions, which can contribute to a reduction in the prevalence of obesity amongst this population and the future impact on health and care services (see box). **The Scottish Government should support local healthcare providers to ensure availability of physical activity programmes appropriate for people with musculoskeletal conditions and collect data to identify where gaps in service provision exist.**

> Arthritis Research UK's recent report – *Providing physical activity interventions for people with musculoskeletal conditions* – was produced in partnership with the Department of Health, NHS England and Public Health England. This landmark report summarises the evidence of the benefits of physical activity for people living with musculoskeletal conditions, presents a framework for local physical activity provision to meet the needs of people with these conditions, supports the mapping of local provision for people with arthritis allowing identification of potential gaps, and provides case studies of how programmes, services or schemes have been developed to support people with arthritis to be physically active, including the Walk with Ease programme at the University of Aberdeen.[70]

Incentives to increase physical activity in people with musculoskeletal conditions

27. We welcome the *A Healthier Future* strategy's commitment to being a 'Daily Mile' nation[71] and are pleased to see the success this has already had in schools. We also note the aspiration to roll this out across other settings including workplaces and support increased recognition of the role businesses and employers can play in supporting good health. For example, the Musculoskeletal Health Toolkit for Employers has been developed by Business in the Community, Public Health England and the Arthritis and Musculoskeletal Alliance (ARMA), of which we are a member.[72] This resource offers a suite of materials to help employers support employees with musculoskeletal conditions with their physical and mental health needs. **The Scottish Government should examine how they can engage with employers, such as providing information and guidance on best practice, to ensure they are resourced to support people with musculoskeletal conditions to participate in incentives to increase physical activity and be active in the workplace.**

28. We are pleased the strategy has made a commitment to: *putting active travel at the heart of…transport planning* and to: *increase [investment] from £40 million to £80 million per year, from 2018-19*. Encouraging people to build physical activity into their daily lives through active travel is positive for improving musculoskeletal health. **The Scottish Government**

and local planners must ensure that the needs of people with musculoskeletal conditions are taken into account when designing and implementing services that facilitate active travel, including working with employers to support employees with specific needs to participate in active travel to and from the workplace.

Leadership and Exemplary Practice

Public sector leadership

Question 11: What do you think about the action we propose for making obesity a priority for everyone?

29. As highlighted by the strategy, tackling the causes and contributors to obesity will require support from the health and care community, and we welcome the commitment to*: develop training and resources to ensure front-line staff…have the knowledge, skills and confidence to discuss weight, portion control and good mealtime behaviours to give the right advice and refer appropriately*.

30. There are a number of opportunities, including the forthcoming *Child and Adolescent Health and Wellbeing Action Plan* and the formation of a new single national body for public health, for the Scottish Government to address the links between obesity, health inequalities and poor musculoskeletal health.[73,74] For example, the recently announced framework in support of the Active and Independent Living Programme 2016-2020, aims to support Allied Health Professionals with specific wellbeing programmes – Move & Improve, Eat Well and Making Every Communication Count – which to a large degree reflect the aims of the *A Healthier Future* strategy.[75] **The Scottish Government should ensure current and future health and care strategies endorse good musculoskeletal health across the life-course and empower healthcare professionals to utilise contact with people with arthritis to promote healthy weight, diet and wellbeing.**

Question 13: What further steps, if any, should be taken to monitor change?

Evidence-based improvement

31. Data are essential in driving improvement in musculoskeletal health at a local and national level, and can generate an iterative process of improvement in the quality of health and care services and ultimately in outcomes. By providing information on the healthcare system, data - and the health intelligence it generates - enables questions to be raised, problems identified and priorities set. Therefore, we welcome the *A Healthier Future* strategy's commitment to: *put in place a robust monitoring and evaluation programme to…measure the impact of new proposals.*

32. However, while there are currently a limited number of mandated targets against which certain musculoskeletal healthcare services are monitored, NHS Scotland does not undertake comprehensive collection of epidemiological, clinical activity or outcome data for musculoskeletal conditions; three areas where data is essential to drive improvements in health outcomes and patient experience. Arthritis Research UK has already pioneered the development of tools to increase the quality and availability of data about musculoskeletal

conditions in Scotland via the Musculoskeletal Calculator (see box). **The Scottish Government should ensure that national and local healthcare providers and authorities are appropriately capturing and utilising data on people with musculoskeletal conditions to support planning and delivery of activities in support of the *A Healthier Future* strategy.**

> The Arthritis Research UK **Musculoskeletal Calculator** is a series of prevalence models developed in collaboration with Imperial College London and estimates the prevalence of back pain, osteoarthritis of the hip and knee and rheumatoid arthritis at the local authority and health board level in Scotland. The bespoke data packs developed through the Calculator can be used to support local service planners identify which patient pathways could offer the best improvement opportunities in terms of spend and outcomes by comparing their data with that of their peers. The tool is also useful for those conducting research into musculoskeletal conditions, policy makers at a local and national level and members of the public.[76]

33. As highlighted by Professor Sir Harry Burns recently published review,[77] targets and indicators have led to significant improvements in health and social care in certain areas. However, the review also highlighted the need for these to be: *pragmatic, coproduced and subject to continuing review* and that: *Improving early life, social and economic circumstances of people living with deprivation as well as improving health and social services are all interventions which interact to increase healthy life expectancy*. Arthritis Research UK have already utilised these principles in developing the Musculoskeletal Recommended Indicator Set (see box), some of which are relevant to the aims of the *A Healthier Future* strategy. We recommend that **monitoring and evaluation programmes developed in support of this strategy adequately capture the impact of obesity on people with musculoskeletal conditions.**

> The use of appropriate indicators can help those responsible for planning, managing and improving services to better understand the activity of health and social care services and the outcomes they deliver. Arthritis Research UK led the development of the **MSK Recommended Indicator Set**.[78] This is a standard set of indicators for musculoskeletal health services created in partnership with primary and specialist care clinicians, people with arthritis, commissioners, public health experts and policymakers, intended to improve the quality and value of services. A number of these indicators are of relevance to national and local planners attempting to address obesity, for example:
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> - **Indicator 6:** Percent of patients with osteoarthritis or with rheumatoid arthritis who have a body mass index (BMI) of 30 and above (obese)
> - **Indicator 7:** Percent of adults with osteoarthritis who receive advice on participating in muscle strengthening and aerobic exercise

34. We welcome the strategy's intent to utilise the Scottish Health Survey to support monitoring of progress, especially as this tool records relevant information on obesity and physical activity levels.[79] However, while the latest survey captures information on overweight and obesity amongst people with certain long-term health conditions, including diabetes and cardiovascular disease, this information is not currently collected for people with musculoskeletal conditions. Given the strong correlation between arthritis and obesity as set

out in our response, **the Scottish Health Survey should collect information on the prevalence of musculoskeletal conditions in Scotland, including overweight and obesity status of people with them.**

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