CASE STUDY AND LESSONS LEARNT

Developing partnerships and a whole-system approach for the prevention of musculoskeletal conditions in England

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ABSTRACT

Background: Musculoskeletal (MSK) conditions represent a global public health problem, comprising over 200 conditions affecting the bones, joints, muscles and spine. They constitute the greatest cause of disability, both worldwide and in the United Kingdom, and are costly for health services, with 20% of the United Kingdom's population consulting their general practitioner about an MSK problem each year. As an ageing population with rising physical inactivity and obesity levels, and where the prevalence of almost all MSK conditions is increasing, we need a public health approach to MSK.

Approach: This case study reviews our experience in England of developing and implementing a public health approach to the prevention of and early intervention in MSK conditions. We reflect on key elements of the approach, and the essential role of galvanizing and supporting partnerships, as well as achievements and lessons learnt so far.

Achievements: Since 2013, through investment in people and partnerships, evidence synthesis, development of support tools and communications, we have built a strong foundation for MSK public health in England. Important relationships have formed and policy direction and commitment established for health improvement, work and health, health intelligence, local planning and delivery, the public health workforce and embedding MSK health in the work of Public Health England.

Lessons learnt and recommendations: Significant progression of the MSK conditions prevention agenda in England has been possible because of strong partnerships based on a clearly articulated common vision and a shared narrative for a public health approach. On this journey, we have adopted dynamic reflection and review as a critical part of our growth as a partnership and network. Ultimately, only a whole-system approach to MSK health can substantially reduce the burden on those affected, their families and carers, public health and care services, the economy and the wider society. Flexible, committed partnerships, when combined with sustained political will and leadership for change, can bring this about.

Keywords: MUSCULOSKELETAL, PUBLIC HEALTH, PARTNERSHIP, HEALTH INTELLIGENCE, WORKPLACE

INTRODUCTION

Musculoskeletal (MSK) conditions represent a global public health problem. These noncommunicable diseases (NCDs) comprise over 200 heterogeneous conditions affecting the bones, joints, muscles and spine. They may be broadly grouped as 1) inflammatory conditions such as rheumatoid arthritis; 2) conditions of MSK pain, such as osteoarthritis of the hip or knee, and back or neck pain; and 3) osteoporosis and fragility fractures *(1)*.

According to Global Burden of Disease (GBD) Study data, MSK conditions constitute the greatest cause of disability, both worldwide and in the United Kingdom of Great Britain and Northern Ireland (30.5%) *(2)*. Lower back and neck pain were the leading causes of disability in England from 1990 to 2016 *(3)*, and estimated MSK condition prevalence in 2012 found that 17% of all ages have back pain *(4)*. MSK conditions are costly for health services, with 20% of the United Kingdom's population consulting their general practitioner about an MSK problem each year, and the National Health Service (NHS)

spending £5 billion each year on treating them *(5)*. However, despite the burdens, MSK conditions persist as some of the most unrecognized and underfunded diseases and disorders *(1)*.

Most MSK conditions rise in prevalence with increasing age. For example, in the United Kingdom, a third of people aged 45 years and over, and half of the population aged over 75 years, live with osteoarthritis *(5)*. Ageing populations and growing physical inactivity and obesity levels increase the prevalence of almost all MSK conditions. Unlike other conditions, such as dementia, which occur mainly among the oldest age groups, MSK conditions also affect the working-age population, reducing independence, employment and the ability to take part in family and social life. In the United Kingdom, only 59.4% of people of working age who have an MSK condition are in work. In 2016, poor MSK health was the second most common cause of sickness absence in the United Kingdom, accounting for 30.8 million days lost in work and 22.4% of total sickness absence *(5)*.

In order to effectively address these concerns at scale and in an equitable and sustainable manner, a public health approach to MSK health is needed, for a number of reasons. First, the scale of the problem and its impact is undeniably a public health problem. Second, a broader public health approach emphasizing the benefits of improved, lifelong MSK health for all – regardless of whether people have a specific condition – is a more attractive and feasible proposition than clinical treatment of individual conditions. Third, major amenable risk factors for developing or worsening MSK conditions, including excess body weight and physical inactivity, are shared with other NCDs. Fourth, for many MSK conditions, such as osteoarthritis and back and neck pain, approaches based on supported self-management, including physical activity, have a better evidence base for success than the traditional medical model. Fifth, better national and local intelligence about the nature, scale and impact of MSK conditions and their treatment will improve the design and delivery of services. Finally, only a public health whole-system approach is likely to be an affordable way to improve population MSK health, representing value for money for taxpayers and insurers.

From experience, an approach to developing policy and practice is through health networks that bring together the key actors with a shared concern for a health condition, identifying the policy environment and working collaboratively. The MSK community has developed such networks and collaborative working between professional and patient organizations in several countries under the umbrella of the Global Alliance for Musculoskeletal Health of the Bone and Joint Decade, which is working with policy-makers to improve the prevention and management of MSK conditions *(6)*.

This case study reviews our experience in England of developing and implementing a public health approach to the prevention and early intervention of MSK conditions, as well as the systems required to deliver this. We reflect on key elements of the approach, and the essential role of galvanizing and supporting partnerships, as well as achievements and the lessons learnt.

DEVELOPING A PUBLIC HEALTH APPROACH TO MSK HEALTH THROUGH PARTNERSHIPS

Health policy change is best achieved through networks and partnerships, with organizations contributing their specialist expertise and collaborating to deliver change. Partnerships between organizations can be particularly beneficial for MSK conditions, where interventions are complex and multifactorial, and therefore cannot be resolved by the efforts of one organization alone.

In 2012, the Chief Medical Officer for England stated that osteoarthritis was a "generally unrecognised public health priority" *(7)*. Arthritis Research UK (ARUK) responded to this in 2013, bringing together a group of senior MSK researchers from across the United Kingdom, Public Health England (PHE), public health leadership, non-profit organizations and professional bodies to discuss a life-course, public health approach to MSK conditions. The result was a manifesto for lifelong good MSK health, published in the landmark 2014 report *Musculoskeletal health: a public health approach (8)*. Since then, leading organizations, including PHE, ARUK, the National Osteoporosis Society (NOS) and the Arthritis and Musculoskeletal Alliance (ARMA), have worked in partnership to define, prioritize and promote a public health approach to MSK health. Regular meetings between these and other MSK community organizations began in early 2014 to share their work on MSK public health and prevention and identify opportunities to work collaboratively to develop a shared narrative and amplify messages around MSK prevention and treatment. Key milestones that have contributed to making MSK health promotion a priority in England are outlined in Table 1.

TABLE 1. KEY MILESTONES AND PARTNERSHIPS BETWEEN MSK ORGANIZATIONS IN ENGLAND FROM 2012 TO 2017

Year	Milestones and partnerships
2012	The United Kingdom's Chief Medical Officer states that osteoarthritis is a "generally unrecognized public health priority" *(7)*.
2013	The GBD Study 2010 reports that MSK conditions constitute the greatest cause of disability in the United Kingdom (30.5%) *(2)*.
	PHE is established as an executive advisory agency to the United Kingdom's Department of Health *(9)*.
	An expert workshop of researchers, public health specialists and others with an interest in helping shape a national agenda for MSK public health and a shared vision of lifelong good MSK health, hosted by ARUK *(8)*.
	ARMA and ARUK meet with PHE to discuss making MSK health a priority within PHE's new strategy *(10)*.
2014	*Musculoskeletal health: a public health approach* is published by ARUK, informed by their 2013 workshop *(8)*.
	The first MSK local bulletins on hip and knee osteoarthritis are published by PHE and ARUK *(11)*.
2015	Musculoskeletal health in the workplace project kick-off meeting is held, supported by PHE and ARMA *(12)*.
	A fair assessment by ARUK finds that one in four local authorities in England did not include MSK conditions in their JSNAs[a] *(13)*.
2016	An internal memorandum of understanding is signed by PHE and ARUK.
	ARUK seconds two people into PHE: one into the Health and Wellbeing team, and one into the Health Intelligence team.
	Working with arthritis is published by ARUK *(14)*.
	Joint guidance to promote the implementation of first-contact physiotherapy roles in general practice, to improve care for people with MSK conditions in primary care, is published by British Medical Association, Royal College of GPs and Chartered Society of Physiotherapy *(15)*.
2017	*Providing physical activity interventions for people with musculoskeletal conditions* is published by ARUK in partnership with PHE, the Department of Health and NHS England and is presented at a policy session at the LGA[b]/ADPH[c] conference to an audience of local councillors, directors of public health and health professionals. The session focuses on the local implementation of physical activity programmes for people with MSK conditions *(16)*.
	The first *Musculoskeletal calculator* local bulletins on back pain are published by PHE and ARUK *(4)*.
	NHS England, in collaboration with ARMA and PHE, sets up a cross-sector stakeholder working group (including professional bodies and voluntary sector) to roll out first-contact MSK practitioner roles in general practice, with these roles incorporating a health prevention component *(15)*.
	ARMA publishes prevention information in support of MSK on PHE's *One You* online tool *(17)*.
	On the International Day of Older Persons, PHE, ARMA and the MSK community launch a partnership consensus on MSK health with the publication of *Living well for longer (18)*.
	PHE launches the first MSK conditions publication on the Fingertips website with data from ARUK's *Musculoskeletal calculator (19)*.
	Falls and fracture consensus statement for England is published by PHE, underpinned by the most recent evidence to support commissioners and providers to deliver the best treatments and reduce variation in outcomes across England *(20)*.
	Musculoskeletal health in the workplace: a toolkit for employers, developed with the support of ARMA, is published by PHE *(21)*.
	PHE's annual conference keynote speech from CEO Duncan Selbie highlights MSK health, recognizing that MSK conditions are a major cause of personal disability and loss to the economy (*22*).
	The Musculoskeletal Data Advisory group, led by ARUK, is brought together to explore options emerging from the government's mandate to NHS England for 2017/18. It makes six recommendations for improvements in MSK health and work data; these recommendations are later adopted by NHS England *(23)*.
	PHE publishes *Productive healthy ageing and musculoskeletal health* edition of *Health Matters*, a resource for professionals that brings together the latest data and evidence and highlights tools and resources that can facilitate local or national action, together with a suite of supporting content, including infographics, case studies, blogs and tweets *(24)*.
	PHE produces *Musculoskeletal conditions: return on investment tool*, aimed at helping local commissioners provide cost-effective interventions for the prevention and treatment of MSK conditions *(17)*.

[a] Joint Strategic Needs Assessments.

[b] Local Government Association.

[c] Association of Directors of Public Health.

The changes in MSK health policy and implementation coincided with a period of unprecedented financial constraint for public services in England and were therefore only possible because of partnership working. A number of different partnership models have been used over the past five years, including the following:

- formal partnership agreements: formal agreements, such as the internal memorandum of understanding signed by ARUK and PHE, commit organizations to shared goals;
- shared staff: staff secondments support sharing of expertise and relationships between organizations, as well as supporting short-term business goals when projects are in the start-up or testing phase;
- academic internships: academic internships for public health master's and PhD students provide opportunities for mutual learning and development and add capacity to deliver activity;
- joint workshops and events: whether stand-alone or as part of a larger proceeding, these provide opportunities to identify potential partners, increase stakeholder engagement for activities and widen the knowledge base;
- joint working groups: in-depth work with partners builds trust and synthesizes knowledge and multiple perspectives, producing high-quality outputs with buy-in from across communities;
- joint publications: joint development and badging of publications increases the acceptability and impact of the final products.

A WHOLE-SYSTEM APPROACH TO MSK HEALTH: KEY ACHIEVEMENTS

Since 2013, through investment in people, research and service delivery, these collaborations have embedded an approach to MSK public health in England, engaging and aligning multiple sectors, levels (national to local) and constituencies (health, community, business, education, etc.) towards a shared ambition. Our achievements are underpinned by six key factors in addressing MSK conditions:

1. MSK conditions represent a major public health problem.
2. Providing the benefits of improved, lifelong MSK health for the whole population is an attractive and feasible proposition.
3. Major amenable risk factors of MSK conditions are shared with many other NCDs.
4. For many MSK conditions, approaches based on supported self-management have a better evidence base for success than the traditional medical model does.
5. Better intelligence about the nature, scale and impact of MSK conditions and their treatment will improve the design and delivery of services.
6. Only a public health whole-system approach is likely to be an affordable way to improve population MSK health.

HEALTH IMPROVEMENT STRATEGIES

The report *Providing physical activity interventions for people with musculoskeletal conditions* was launched in 2017 at the annual Local Government Association (LGA)/Association of Directors of Public Health annual conference to an audience of local councillors, directors of public health and health professionals. It aims to educate public health professionals about the benefits of physical activity for people with MSK conditions and to support local planning and implementation. This jointly badged report, endorsed by the Royal College of General Practitioners, LGA and the Chartered Society of Physiotherapy, was the result of a successful collaborative project between ARUK, PHE and the Department of Health (*16*). In addition, web links to ARUK and NOS's physical activity-specific resources were included in *One You*,[1] PHE's flagship health promotion programme, which uses consistent messaging across multiple channels to encourage and support people to make lifestyle changes to improve health (*17*). In 2017, PHE, ARMA, the NOS and ARUK published *Living well for longer*, an evidence-based joint MSK health prevention statement outlining major risk factors and consistent public messaging for all to use *(18)*.

WORK AND HEALTH

Three quarters of working-age adults are in work in the United Kingdom and spend on average a third of their waking hours in the workplace, making workplaces one of the most important settings for actively promoting MSK health and well-being. In 2016, ARUK published *Working with arthritis*, which summarizes the evidence base for good MSK health and work *(14)*.

In 2017, Business in the Community, in partnership with PHE and ARMA, published *Musculoskeletal health in the workplace: a toolkit for employers*, which was designed for employers, to

1 http://www.nhs.uk/oneyou.

raise awareness about the role of employers, employees and health-care professionals in the prevention, early detection and early treatment of MSK conditions *(21)*.

HEALTH INTELLIGENCE

In her 2011 Annual Report, the Chief Medical Officer for England highlighted the lack of routine health intelligence at a national level for certain MSK diseases, and recognized that, although osteoarthritis is the single largest cause of pain and disability in England, "it is a generally unrecognized public health priority" and that "it is difficult to obtain accurate data on prevalence" *(7)*. To address this, ARUK and PHE worked with Imperial College London to produce and publish, for the first time, local and national prevalence estimates for some of the most prevalent MSK conditions such as hip and knee osteoarthritis and back pain (for example, via the *Musculoskeletal calculator*[2] *(4)*). Along with GBD data, these estimates have supported national and local decision-makers in quantifying the scale and impact of MSK conditions. In 2017, a joint effort by PHE and ARUK led to the MSK disease profiles being added to PHE's Fingertips data tool, which provides a wealth of information to improve the commissioning and delivery of MSK health services *(19)*. ARUK also worked with LGA to include *Musculoskeletal calculator* local prevalence estimates in their *LG Inform*[3] tool *(25)*, making these local level estimates widely accessible to local planners *(4)*.

In 2017/2018 the government asked NHS England to "work with Government to identify opportunities for regular collection of data about incidence, prevalence, clinical activity and outcomes of MSK patients and services in England". To support this, ARUK established and led a data advisory group comprising professional and patient organizations, researchers and policy-makers. The group made six recommendations for improvements in MSK health and work data; these recommendations were subsequently recommended for adoption by NHS England *(23)*.

SUPPORTING LOCAL PLANNING AND DELIVERY

In addition to determining and influencing national policy, PHE and non-profit organizations work to support local decision-makers and front-line public health teams to plan, implement and evaluate change locally. In England, local plans are captured in a statutory document called the Joint Strategic Needs Assessment (JSNA). However, research by ARUK in 2015 found that one in four local authorities in England did not include MSK conditions in their JSNA*(13)*.

Collaborative efforts to address this issue included publishing public health bulletins on knee and hip osteoarthritis *(11)* and back pain*(4)*; these were developed by PHE and ARUK for all 152 local authorities in England. The bulletins drew on local prevalence estimates from the *Musculoskeletal calculator* and included practical public health messages for local planners *(4)*.

In 2017, PHE led on producing *Musculoskeletal conditions: return on investment tool*, which was aimed at helping local commissioners provide cost-effective interventions for the prevention and treatment of MSK conditions *(17)*. Also in 2017, PHE and the 18-organizations National Falls Prevention Group published *Falls and fracture consensus statement for England (20)*, which was underpinned by the most recent evidence to support commissioners and providers in delivering the best interventions and reducing variation in outcomes across England. Three years prior to the publication of the consensus statement, the NOS worked closely with PHE and the NHS to increase the population coverage and quality of fracture liaison services as a high-quality and cost-effective secondary prevention service *(20)*.

PUBLIC HEALTH WORKFORCE

The workforce required for improved population MSK health includes clinical practitioners with enhanced public health skills, public health practitioners with improved MSK knowledge, and recognition of the significant role of the wider public health workforce. Recognizing this, PHE, NHS England, Health Education England and ARMA worked together to develop an MSK core capabilities framework, which was launched in March 2018 (*26*). In addition, PHE's website *Making every contact count*[4] uses the opportunity of people's day-to-day interactions with professionals and organizations to support people make positive changes to their physical and mental health and well-being *(27)*. PHE, ARUK and ARMA have worked collaboratively to embed messages about MSK health in their lifestyle programmes In 2018, ARUK and ARMA contributed to a chapter in *All Our Health*, a PHE resource aimed at the wider public health workforce and interprofessional learning to help health-care professionals across England to maximize the impact they can have on improving health outcomes and reducing health inequalities (*17*).

[2] http://www.arthritisresearchuk.org/arthritis-information/data-and-statistics/musculoskeletal-calculator.aspx.
[3] http://lginform.local.gov.uk/
[4] http://makingeverycontactcount.co.uk/.

EMBEDDING MSK HEALTH IN THE WORK OF PHE

When PHE was established in 2013, MSK health was not among its priorities. However, owing to the power of collaborative partnership working, in 2016 ARUK funded two roles at PHE: "MSK Policy Implementation Manager" and "MSK Information Analyst". These roles support specific projects on MSK issues within public health. Recognizing the success of this approach and the potential for impact, PHE established MSK health as a priority programme in 2018.[5]

LESSONS LEARNT AND RECOMMENDATIONS

WHAT MADE OUR COLLABORATIONS WORK

Progress has been possible because the partnerships between the government, NGOs, academics and professional and patient representative organizations have been based on a clearly articulated common vision – a shared narrative and journey for a public health approach to MSK health. It has been important that this vision be person-centred, focusing on what matters to people with MSK conditions, including being in control of symptoms such as pain, fatigue, loss of mobility and dexterity; being able to remain independent; and being recognized in public policy and practice. This has been accompanied by partners' willingness to share relevant information, to agree to openness and transparency, to work with one another flexibly and to contribute their own areas of expertise to shared projects.

The success of these partnerships would have been impossible without the support from senior leadership teams within all the organizations involved, along with their agreement to commit resources – both time and money – towards this work. It was particularly important that partners were willing to contribute asymmetrically, with non-profit organizations substantially investing in capacity in the early years to pump-prime activity. These factors, which contributed to our success, can be used as criteria for measuring continued success.

THE CHALLENGES WE FACED

Starting new programmes is always difficult, owing to an inevitable lack of capacity to provide the intellectual and practical leadership for driving the work forward. Creativity and flexibility, for example, receiving support from interns and trainees, individual leadership and teamwork can all help address this.

When this work started, there was little evidence to support what should be done or how at local or national level, and little MSK health data to guide the approach. Therefore, an early priority for this work was to curate and publish the evidence that could be found and then to build upon this pragmatically. An incremental approach, working locally with early adopters then seeking to spread best practice, has demonstrated the possibility of impact.

The partnership tackled pervasive perceptions that MSK conditions were not amenable to a public health approach because they were an inevitable part of ageing, insufficiently important to prioritize and so common and complex that tackling them could not be resourced. A collaborative approach with multiple voices repeating shared messages helped dispel these misconceptions.

THE FUTURE TRAJECTORY IS BRIGHT

Now that PHE has designated MSK health as one of the priority programme areas, the future trajectory for MSK public health in England is bright. PHE's robust partnerships with academic institutions, MSK patient charities and professional associations, combined with strong links to local innovation and learning, and work to enhance sources of MSK health intelligence, should provide a growing evidence base for impact, and a rich source of local, national and global perspectives on the opportunities and challenges ahead. For success, an understanding of population need and of what works must be combined with a skilled and informed workforce for delivery. This workforce must be able to provide consistent messaging for both the public and health professionals and be willing to adopt a flexible, interprofessional approach.

Our key priorities for the next three to five years of the programme are as follows:

- enhance surveillance
- reduce inequalities
- strengthen workforce skills and capacity
- embed evidence-based MSK interventions in the workplace
- scale and spread the evidence base.

[5] Restructure of the health improvement functions, March 2018, PHE Business Development Office.

The authors believe that only a whole-system approach to MSK health can substantially reduce the burden on those affected and their families and carers, on public health and care services and on the economy and wider society. The Global Alliance for Musculoskeletal Health is supporting other countries to take this approach by encouraging stakeholders to work as networks. We encourage others to form flexible, committed partnerships between key stakeholders and policy-makers, particularly in public health. Combined with sustained political will and leadership for change, these should enable us to reduce the burden of MSK conditions globally so people live both longer and healthier lives.

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