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The co-location of health care and leisure as part of a whole-system approach to physical activity promotion

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ABSTRACT

Individual-level interventions are insufficient to create the enabling conditions for population-level shifts in physical activity. This is evidenced by a lack of progress tackling physical inactivity across the globe. A more integrative and holistic approach is needed that recognizes the different contexts within which physical activity takes place. The interactions that occur between individuals and wider policy, environmental, and structural factors are also worthy of attention. This article explores an attempt to apply systems thinking and co-design to a health care context. We argue that co-locating health care clinics within leisure facilities can make it easier for people, particularly those with a health condition, to engage in physical activity.

Keywords: co-location, exercise as medicine, health care, inequalities, physical activity, systems thinking, whole-system approach

INTRODUCTION

Evidence supporting the benefits of a physically active lifestyle is well established and compelling (1). The policy message across the lifespan is “some is good, more is better” (2), with national policies on sport and physical activity commonplace (3). Accompanied by physical activity guidelines across multiple countries, there is consensus about the type, volume, frequency, and intensity of physical activity required to benefit children, adults, and older people (4). Despite increasing research and policy attention and myriad interventions (3), more than a quarter of adults remain physically inactive globally (5). There is also substantial inequity in physical activity participation across the lifespan and limited evidence of observable improvement in participation rates in most countries (6,7). A similar pattern of insufficient movement and inequality has been observed for children and adolescents (8). Without a step change, the World Health Organization (WHO) goal to reduce global physical inactivity by 15% by 2030 will not be achieved (9).

WHOLE-SYSTEM APPROACHES TO PHYSICAL ACTIVITY PROMOTION

This step change in the approach to increasing population physical activity has been toward systems thinking and whole-system approaches (10). There are many uses of the term “systems” in current physical activity work, which is potentially unhelpful. We have therefore set out how we understand and use the term in Fig. 1.

Reflected in the 2020 guidance from WHO (9), whole-system approaches are born out of a recognition that, although salient, individual-level interventions are not sufficient to create the enabling conditions for population-level shifts in physical activity (11). Instead, whole-system approaches acknowledge physical activity as a complex behavior that takes place in multiple contexts, settings, and systems and is heavily influenced by socioeconomic and environmental factors (12). Whole-systems approaches can be characterized as aiming to address a shared challenge through intervention at multiple layers (10,12). These layers cover policy, environmental, and organizational practices as well as individual values and beliefs (13). Whole-system approaches by their very nature adapt and respond to local contexts. This requires a coordinated approach to change, involving multiple societal, institutional, and departmental collaborations (14). Therefore, whole-system approaches have the potential to not only increase physical activity (in this case), but simultaneously benefit from or be constrained by the agendas and outcomes valued by others (13); for example, improving air quality and traffic congestion via the promotion of active travel. Given the number of factors involved in changing physical activity behaviors, it can be difficult to know how to integrate individual-level factors with wider environmental and social factors. This is compounded by scarce examples that translate what is essentially an abstract concept into a pragmatic approach for implementation by system actors (15). For a recent review of how whole-system approaches have been applied to physical activity, see Nau et al. (12).

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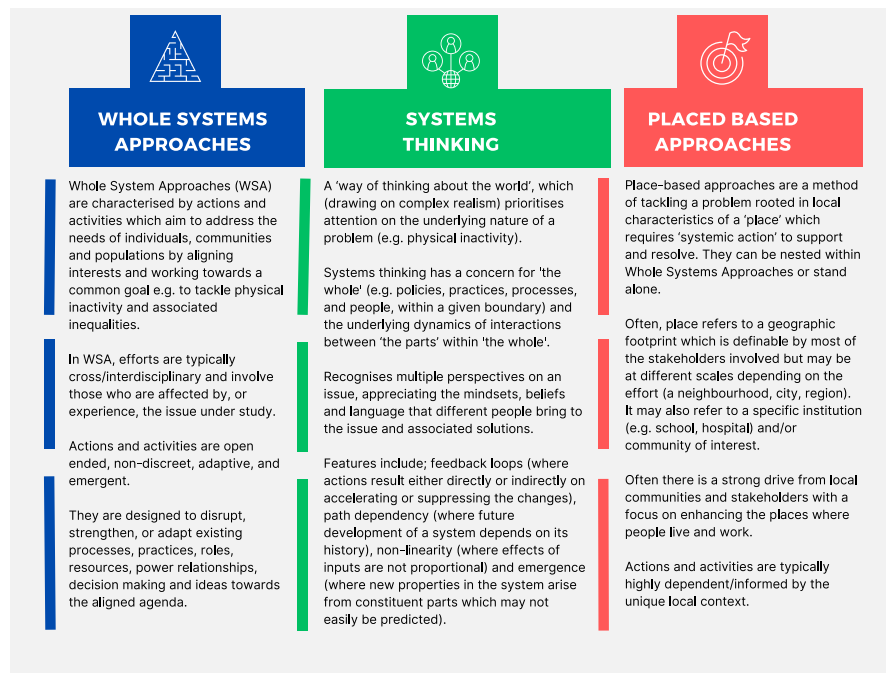


Figure 1. Definitions for whole-systems approaches, systems thinking, and place-based approaches in the context of physical activity and associated inequalities.

In the United Kingdom, one of the first attempts at a whole-system approach was Move More (16,17), established in Sheffield as part of the National Centre for Sport and Exercise Medicine (NCSEM). NCSEM was a legacy commitment of the London 2012 Olympic Games which aimed to extend the reach of sport and exercise medicine through education, research, and clinical services. NCSEM comprised three hubs: London, the East Midlands, and Sheffield, UK. Each hub received capital investment of £10 million from the Department of Health and Social Care to deliver the vision and co-locate researchers, clinicians, and other stakeholders. In the Sheffield hub, this investment served as the catalyst for action promoting physical activity and led to the development of the Move More plan (16,17). The Move More plan exemplified a whole-system approach, involving a partnership board of 12 stakeholder organizations representing every aspect of civic life in the city. This collaborative effort ensured that assets, power, and decision-making were leveraged across various sectors and communities to create an environment conducive to physical activity.

For context, Sheffield is the fourth largest city in England with approximately 600,000 residents. The city could be described as a scale model of England in that it represents one hundredth of England's population with a similar overall demographic. The population demographic of Sheffield is diverse, with significant variation across the city. For example, people with Black and minority ethnic backgrounds range from 5% to 65% of a neighborhood's population. Like many post-industrial northern UK cities, Sheffield's diversity is particularly geographically distributed; the west, and particularly the southwest, is largely affluent and White, with high employment, good health, and relatively high physical activity. The east reports low physical activity and greater ethnic diversity, and experiences high poverty and poorer health. These stubborn inequalities are perhaps best characterized by the gap in healthy life expectancy, which decreases by 20 yr moving from

the richest to the poorest areas of the city (18). Closing this gap was central to the Move More plan.

CO-LOCATION OF HEALTH AND LEISURE POSITIONS PHYSICAL ACTIVITY AT THE HEART OF HEALTH CARE

A key context within the Move More plan was health care. Physical activity can be therapy for a broad range of health conditions, and health care settings have huge potential to implement this therapy. Indeed, UK policy over the past 10 yr, such as Everybody Active Everyday (19), has pushed for a greater role for health care in directly tackling inactivity, yet interventions to date have resulted in mixed effectiveness (20). Exercise referral and brief advice are two of several approaches that incorporate physical activity into health care; evidence suggests, however, that they are undermined by poor adoption from clinicians and limited uptake from patients. This is often due to intimidating environments, inadequate supervision, and inconvenient points of access (e.g., distance needed to travel, timing, and cost of sessions) (21). Inequalities also exist in participation and engagement in these interventions (22). Overcoming these challenges is perhaps best addressed through a systems lens. As part of the Move More plan, the NCSEM capital investment from the Department of Health and Social Care was used in Sheffield to establish an innovative hub and spoke model of co-location. This model brought together clinics from a range of medical specialties with physical activity opportunities within bespoke community leisure facilities. The approach was informed by a program of co-design and co-production (17,23). Co-location aimed to shape the environment to make it easier for people with health needs to engage in physical activity as part of their treatment. The model was designed to overcome the limited health care practitioner referral (24), poor patient adherence (20,21), and high dropout rates that are reported with other physical activity

programs in health care, such as exercise referral schemes (22). Figure 2 shows images of the NCSEM Sheffield co-located centers at Concord, Graves, and Thorncliffe.

The NCSEM Sheffield model of co-locating health care clinics alongside other health-related services is progressive but not entirely novel. Examples of co-location can be found in primary care settings, mental health care settings, and private health care (25–27). Studies suggest that a co-location model can improve patient experience of a health care encounter, promote self-management (28), and help reduce barriers to engagement in physical activity more generally (26). Indeed, facilities that are designed so that patients see people like themselves participating in exercise have been shown to normalize physical activity (26). This can help overcome the fear of exercise making a condition worse and facilitate the creation of a different psychological contract about what treatment (and the role that physical activity might play in it) could involve (23). Facilities designed this way might also provide opportunities for health care professionals to model physical activity behavior to patients by using the leisure facilities at the same time (26). Co-location also increases a health professional's awareness of physical activity opportunities for patients. This is important because insufficient knowledge of local physical activity opportunities has been shown to negatively impact clinician exercise referral rates (29). In addition, co-location has the potential to reduce environmental barriers to referral and access and help create greater confidence in the referral pathway for health care professionals. As part of a whole-system approach, co-location helps reduce travel-related carbon emissions by moving services closer to local communities. Closer proximity to services simultaneously promotes walking behavior while enhancing other public health outcomes, such as air quality (30).

THE DESIGN OF THE NCSEM SHEFFIELD MODEL OF CO-LOCATION

The NCSEM Sheffield co-location centers opened over a period of 2 yr, with Concord being the first in 2013 followed by Graves and Thorncliffe in 2015. The facilities were a mix of new-build and refurbished centers. The geographical locations of the three sites

were chosen for the following characteristics: a) proximity to areas of higher-than-average deprivation, b) high incidence of non-communicable disease, c) low physical activity participation of adjacent communities, and d) proximity to green space. The geographical spread across the city also enhanced access to as much of the population as possible. Figure 3 presents an Indices of Multiple Deprivation map of Sheffield with the three co-located sites identified. The intention was that these facilities would primarily serve individuals in those communities and, in doing so, help address health inequalities and accessibility issues.

All three facilities were developed with attention to the internal physical environment, ensuring that they contained elements of health-supportive architecture (31,32). For example, the interior décor is brightly painted, well-lit, and open with clear lines of sight to physical activity opportunities (such as the pool and fitness studios). Psychosocially supportive design also includes aspects like large windows with views of the outdoors and attractive colors in clinical as well as leisure areas (33). Artwork and quotations from users demonstrating the benefits of physical activity were applied to the walls. Stairways are visible and accessible, and the centers include social areas such as cafés. This attention to design is important because it is in contrast to traditional hospital/clinical architecture and design, promoting a well-being-oriented model of health (33).

Priming strategies for physical activity were also implemented in the facilities. This was achieved using signage, case studies, and other environmental features, such as prominent decision prompts to use the accessible stairs. Use of a single reception (dealing with leisure and clinical appointments) is also in place in two facilities. Bus routes and walkways were re-engineered to improve access, and staff and patients are provided with free parking and secure bike storage. Evidence suggests that staff who are themselves physically active are more likely to discuss and promote physical activity with patients (24). Clinical and leisure staff at the facilities are therefore given free leisure center membership. The features aimed at clinical staff were intended to overcome known barriers of knowledge, attitudes, and confidence when discussing physical activity with patients and help normalize physical activity discussions during health care appointments (24). Further interventions

Clear line of sight to physical activity opportunities, clinic spaces and stairs



Use of bright colours, patient case studies and single reception for health and leisure

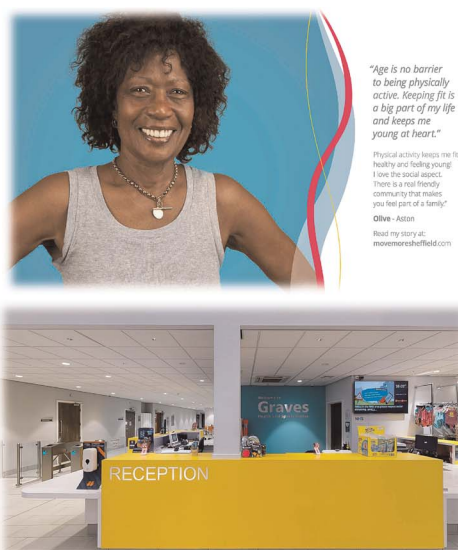


Figure 2. Images of the National Centre for Sport and Exercise Medicine Sheffield co-located centers in Concord, Graves, and Thorncliffe.

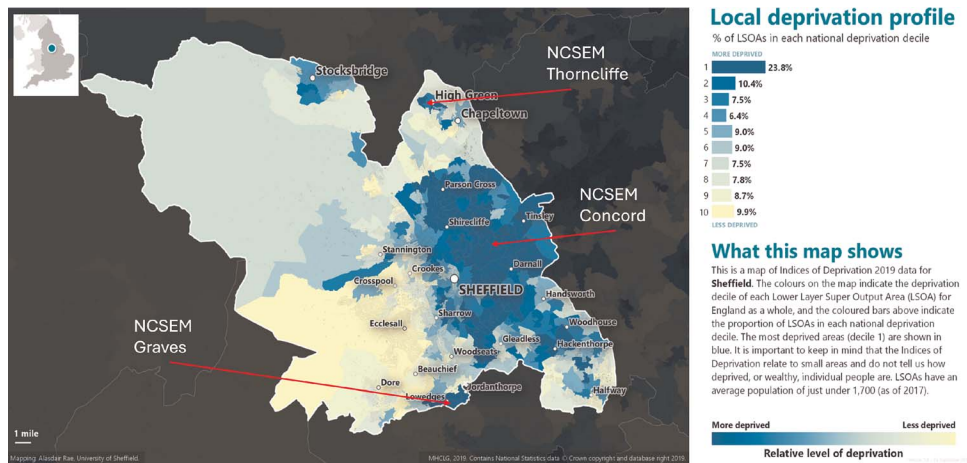


Figure 3. National Centre for Sport and Exercise Medicine (NCSEM) co-located centers mapped onto Sheffield Indices of Multiple Deprivation. Adapted from: Rae A. Mapping the 2019 Indices of Deprivation. *People Places Policy*. 2020;14(1):55–7. doi: 10.3351/ppp.2020.3244845467 (CC BY 4.0 license).

at the centers include a) making changes to patient clinical appointment letters to include statements about physical activity conversations, b) embedding the assessment of physical activity status into patient screening questionnaires, and c) changing policies about the content and location of vending machines. Patients referred to physical activity support during or after a clinical consultation also have access to free leisure opportunities for a 3-month period. Recognizing that traditional exercise pathways are not for everyone, the co-located facilities also act as referral points for community support, including signposting to walking groups, health trainers, employment advisors, and other social prescribing activities.

IMPACT AND INSIGHTS FROM THE NCSEM SHEFFIELD MODEL OF CO-LOCATION

The NCSEM Sheffield co-location centers have been operating for almost decade. The model delivers more than 120,000 appointments per year across 20 clinical specialities supporting over 150 National Health Service (NHS) staff. It is beyond the scope of this article to provide a deep dive into the impact of the NCSEM Sheffield model of co-location. Readers are instead directed to a realist evaluation and synthesis of the approach for further information (34). Briefly, service evaluation and research evidence has built confidence in the benefits of the co-location model across local NHS Trusts and commissioning groups (34). This includes improving staff and patient experience and reducing missed appointment rates, with consequential savings for the health care system. Bringing together NHS staff from different services and leisure professionals has increased the capacity to deliver musculoskeletal services, creating a more efficient and effective service for staff and patients. Co-location has also driven the development of new patient pathways and smoother referrals from clinic to physical activity opportunities. An example of this is the integrated pathway for those who suffer from chronic pain. Co-locating the Improving Access to Psychological Therapy services and musculoskeletal teams has enabled a joined-up approach to support people with chronic pain in physical activity, which is delivering meaningful impacts for patients. One patient said of the service, “It has helped me to understand there is a strong link between physical and mental health. If either is not as good as it should be it can impact on

the other. It was nice to find something that would help to manage the physical symptoms while looking at emotional support as well. It puts you back in control.” This new service is cited as best practice in delivering mental health services by NHS England (35). Sheffield Teaching Hospitals NHS Foundation Trust staff said the centers better support their professional development, enable innovative collaborations, and improve peer support. There has also been a positive impact on workplace well-being because NHS staff are able to use the leisure facilities at the centers to exercise. This has shaped a shared sense of community between staff and patients, which promotes referral behavior and patient adherence. For leisure providers, co-location has increased foot traffic, with data from one of the refurbished centers (Graves) suggesting that monthly attendance has more than doubled from 21,009 in March 2013 (pre-refurbishment) to 48,992 in March 2024. Fitness membership also increased by 186% over that period.

Co-location of health care services with leisure opportunities has made it more likely that health care professionals will have conversations with patients about their physical activity, which is a key strength of the model (34). This happens regularly when incentives and managerial support are in place and where permission and access to use leisure facilities for their own well-being are promoted. Modeling being physically active to colleagues and patients and taking patients into exercise spaces as part of clinical appointments are central to leveraging the benefits of co-location (26,34). One of the strengths of the co-location model has been the opportunity to foster a collaborative culture between health care professionals and exercise professionals, creating an environment for the development of new services and shared learning across patient pathways. Research findings highlight that this culture is less likely when there is a misalignment of business models (e.g., compatible organizational objectives, information technology systems, working processes, governance, and performance metrics) (34). Indeed, the conditions for joint working will not just occur through co-location itself, they need to be leveraged, and there remain untapped opportunities to move beyond business as usual for both health and leisure teams at the NCSEM Sheffield co-located sites (23).

The reality of delivering this model of co-located health care has not been without its challenges. The locations of the centers were

identified to overcome barriers of access and opportunity to physical activity, helping to tackle inequalities. This has materialized in some instances, increasing convenience for the people who live close by and can afford to attend the leisure center, but cost remains a barrier for many. Accessing physical activity close to home via a clinical appointment in one of the centers has also proved challenging because the current operational model of clinic bookings means that patients tend to prioritize the timing of an appointment (i.e., how soon they can be seen by a clinician) over the location of the appointment (i.e., proximity to home). This means that patients are referred to the NCSEM sites from postcodes across the city and beyond. For many patients, the usual logistical barriers of access persist. For patients who live close to a center and have their appointment at that same center, the model works well (34).

The promotion of physical activity through co-location of services can be enhanced (or inhibited) by intentional, health promoting, and psychosocially supportive building design (32,33). The co-location of health care with leisure is not merely about creating adjacent facilities, but rather considering how best to use the physical environment to create opportunities for the interaction of these services and cultures to promote physical activity. For example, due to constraints on an existing building design, the Concord site had a separate reception and entrance for the clinical and leisure spaces. This restricted the flow between health care and leisure services such that patients were not able to see others like them being active without navigating corridors and staircases. Referrals to physical activity at this site were inhibited as a result. On the contrary, the bright, open, and attractive design of the Graves center delivered better outcomes. Key features of the Graves center included prominent and accessible staircases, a clear line of sight to physical activity opportunities, and spaces for clinical and leisure staff to eat together and share stories (34).

CONCLUSIONS

The NCSEM Sheffield model of co-locating health care services and leisure opportunities demonstrates the value of applying co-design and systems thinking to the integration of two sectors that have traditionally worked in silos. By harmonizing building design with wider organizational and societal interests, the model has delivered shared benefits for health and leisure. This includes the design of new services that directly impact patient outcomes (35). The model has also enabled the constituent services to deliver synergistic effects. Experiences to date suggest that the approach helps to normalize physical activity, improve access, and increase awareness and convenience of physical activity opportunities for patients and health care professionals. The co-location model has enhanced attendance and memberships for leisure providers and helped drive collaboration between health care and leisure staff. Others are encouraged to explore the potential for co-location to deliver benefits across different health and leisure contexts.

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