



Canadian Institute  
for **Social Prescribing**

Anchored by the  
Canadian Red Cross

# Environmentally Sustainable Opportunities for Health Systems

## Primer Series

### Social and Green Prescribing

#### Issue

As a strategy designed to improve health and wellbeing through nonclinical services (1), social prescribing offers upstream and downstream benefits with implications for environmental sustainability. Upstream benefits of social prescribing occur because addressing the social determinants of health improves health outcomes and improved health in turn reduces the demand for carbon-intensive healthcare activity overall. Downstream benefits include the use of social prescriptions to treat existing conditions, while presenting a lower-carbon alternative to pharmaceuticals.

Healthcare is responsible for significant carbon emissions; Pichler et al. calculate that on average, it contributes to 5% of national CO<sub>2</sub> footprints (2). Some healthcare products and services have a greater impact on the environment than others; the National Health Service (NHS) in the England has identified medication as the largest contributor to its carbon footprint; it comprises approximately 22 percent of total health system carbon emissions (3). The carbon impacts of medication are even more significant in primary care: according to the NHS, medications account for 65% of primary care emissions

(4). In addition to carbon emissions, the production and use of pharmaceuticals contributes to microbial resistance and the release of damaging chemicals into the aquatic environment.

One pathway to reducing medication-associated emissions is medication optimization, a process whereby patient engagement, medication review and reconciliation, and other approaches are used to ensure patients are deriving the best possible outcomes from their medication use (5). Medication optimization in its fullest sense may point to the adoption of adjunct, low-tech treatments that promote health even as they reduce healthcare usage for some patients.

Social prescribing holds potential as one way that this can be pursued. Social prescribing is “a means for trusted individuals in clinical and community settings to identify that a person has non-medical, health-related social needs and subsequently connect them to non-clinical supports and services within the community by co-producing a social prescription” (6).

Moreover, social prescribing can produce benefits at the community level that improve resilience to climate change and other environmental challenges (7). One form of social prescribing with additional potential environmental benefits is green prescribing, which focuses on linking patients to resources or programs in the natural world. Green prescriptions can take many forms, some of which can result in the creation, restoration, protection, and maintenance of greenspaces with valuable community benefits and ecosystem functions (8).

Social and green prescribing is quickly gathering momentum among researchers and health care practitioners, as evidenced by the emergence in 2022 of the [Canadian Institute for Social Prescribing \(CISP\)](#), anchored by the Canadian Red Cross. In a recent report commissioned by CISP, the authors note that although there are only a few Canadian programs that use the term “social prescribing” to describe their work, many programs, services, and initiatives “focus on connecting individuals to non-clinical supports that provide a person-centred approach to improving their health and well-being,” and therefore take a social prescribing approach (6). Understanding the potential environmental benefits associated with this approach can strengthen its appeal to both patients and providers.

## Key players

Clinicians and other frontline care providers have an important role in increasing the use of social and green prescriptions, but often have limited

time to consult and counsel patients on the potential benefits of specific programs and activities. Link workers are non-health or social care professionals based in community organizations that help support access to community resources for patients (9). They can play a vital role by helping to create a personalized social prescription for patients and connecting them with organizations that can help with their specific needs. System navigators, who aim to improve patient care by reducing the complexity of navigating health, education, and social services across the continuum of care settings (10), can also play an important role in this process, although as their roles also extend to other types of care pathway, system navigators may incorporate patient advocacy and health education without necessarily having a focus on patient self-determination and health promotion. Collaboration with organizations or governmental bodies that manage programs and spaces can put in place infrastructure or legislation that enables the creation of new social and green prescribing programs. Lastly, patient awareness and adherence will play a large role in the potential effectiveness of these programs.

The priorities described in the remainder of this document include strategies and ideas that can be implemented for effective social and green prescribing in communities. We encourage all interested parties to consider how they might harness the benefits of social prescribing to make healthcare even more sustainable, and to assess where social prescribing programs can be best integrated into the care pathway.

## Options

To maximize the potential for social prescribing in mitigating the carbon footprint of healthcare, we recommend the following priorities:

1. Empower patients to engage in activities that encourage social interaction, thereby improving community resilience
2. Partner with other key players to devise or support novel and impactful social prescribing programs with potential community and environmental benefits
3. Utilize green prescribing to enhance the environmental benefits of social prescribing
4. Collect and publicize metrics on the environmental impact of social prescribing

## CASE EXAMPLE

Social Prescribing: a Resource for Health Professionals provides guidance to support health professionals in primary care to implement social prescribing in their practice (11). The resource was developed by the Centre for Effective Practice, the Canadian Institute for Social Prescribing, the Alliance for Healthier Communities, and the Academic Family Health Team at Unity Health Toronto. While targeted to practitioners in Ontario, much of the guidance will be relevant to practitioners across Canada. These include:

- Identifying current practices that already constitute social prescribing
- Tips for incorporating social prescribing into practice
- Talking points and screening tools to guide conversation in order to assess and understand the social factors impacting individuals' health
- Example social prescriptions, ways to initiate them and tips for follow-up

### **1. Empower patients to engage in activities that encourage social interaction, thereby improving community resilience**

It is now well understood that health is not determined predominantly by clinical health care, but rather by arrangements in society that inequitably limit our access to the preconditions for healthy living (12). Indeed, 80–90% of an individual's health outcomes is driven by social determinants of health, the “non-medical factors that influence health outcomes”(13). Particularly in the case of more vulnerable or disadvantaged patient populations, social prescribing can be utilized to support health improvement and diminish health inequities insofar as it can connect patients with other community members as well as community resources. For example, “education on prescription” is a referral by the physician to formal learning opportunities. This model of social prescribing can help to develop literacy and basic health skills, which can enhance the patient's socioeconomic position, self-efficacy, and access to health services and health-related information (14). Other social prescribing models also demonstrate potential to improving both patient- and community-level well-being (14,15)

Beyond these individual benefits, insofar as they can engage individuals in activities where social interaction is encouraged, social prescribing programs can contribute to the development of community resilience. Community resilience refers to the ability of a community to transform the environment through deliberate, collective action, and requires community members to

effectively manage and learn from the adversity of natural disasters (16). Communities impacted by accelerating climate change will be faced with challenges that will require individuals to harness local resources and relationships to help themselves and each other, in ways that should complement the responses of emergency services (17). By providing access to both clinical care and material supports, as well as social support and a connected, resilient community that fosters a sense of belonging, social prescribing can allow a person to reach their optimal wellbeing. While aid may be derived from physical resources and financial capital, social capital may also be critical as a form of informal insurance or mutual aid in recovery periods following climate-related risks or extreme events (18). For example, following a crisis, safe housing accommodations, food services or other basic needs may not be readily available to individuals. Community members that can rely on their connections with friends or neighbours in the event that resources need to be shared are well-positioned to contribute or draw on their social capital as a form of informal insurance against the worst impacts of climate change (19).

In contrast, individuals that are isolated or disconnected within their community before disasters may find it more difficult to form relationships and trust in the face of climate crises (18), allowing these events like natural disasters to leave a harsher toll on communities. Building community resilience begins by improving the connectedness and cohesion of individuals (17) – an objective shared by many social prescribing programs.

## CASE EXAMPLE

Time banking exemplifies the linkages between social prescriptions and community resilience. Time banking is a community exchange activity that can be prescribed, with the value linked to time (15). For example, an individual can spend an hour of their time helping another member in the Time Bank network, and this hour can then be used as a credit to “buy” someone else’s time or access a community service. Options for exchanging time for services can include childcare, transportation, housework, home repairs, and other odd jobs within the community (15). These social networks and social capital may offer a means of acting as support networks for communities to survive and better cope when faced with shocks or strains as a result of climate crises (16).

Trust and cohesion amongst community members contributes to overall community connectedness, and this helps to enhance the community's social capital (15). The power of social prescribing can be employed in creating this social capital and building communities that are more resilient to climate-related impacts globally. This represents a substantial expansion from traditional approaches to disaster preparedness (where physical capacity building is emphasized) to an approach that highlights the value of sustainable social capital building (19).

## 1.2 Identify Synergies in Patient Needs and Community Resources

In order to ensure that patients are prescribed activities and services within their communities that meet their needs (and therefore have the potential to increase their social capital and their connections to others with social capital, contributing to community resilience), a comprehensive understanding of both patient needs and community resources is required. There are various providers and social supports who can play distinct roles in this process.

### *1.2.1 Screening*

Family doctors and primary care providers have the best understanding on the physical health of the individual patient they are treating, but they may not have time to establish which programs, services, or activities will best suit a patient's needs, and may also lack knowledge on the availability of such offerings in the community they serve. In such cases, physicians would benefit from the ability to refer the patient to a local professional or organization that is better equipped to support a social prescription (20). In an ideal scenario, they can provide a referral to a system navigator or link worker and ensure short term follow-up with the patient to evaluate the efficacy of the referral. If supported by a team or link worker, the physician's strength in the context of social prescription becomes screening for this need and expanding the circle of care to include the system navigator or link worker (20).

Screening patients more frequently can help reduce the likelihood of missed opportunities to refer individuals to a link worker or social prescription. Similarly, having access to social services for patients through a social prescribing scheme can help encourage and increase healthcare provider screening on social determinants of health as a part of their care process (21). This is a double win for patients, as social determinants of health have not been largely discussed in the primary care setting; health professionals may not see any

advantage to screen for social determinants of health unless they can help patients address these issues (22) – and in most cases, this is outside the scope of primary care providers. Considering social supports to address social determinants of health also plays a role in the wellbeing and resiliency of communities after disasters; for example, Chan et al. that demonstrated higher levels of pre-disaster social support was related to lower psychological and mental health problems a year after Hurricane Katrina occurred (23). In certain scenarios, greater community resilience can function as a buffer against negative mental health effects of stressful events such as climate disasters, and support communities to better manage the situation (24). With increased possibilities for social prescribing through link workers and community programs, physicians can similarly respond with increased screening for determinants of health among their patients.

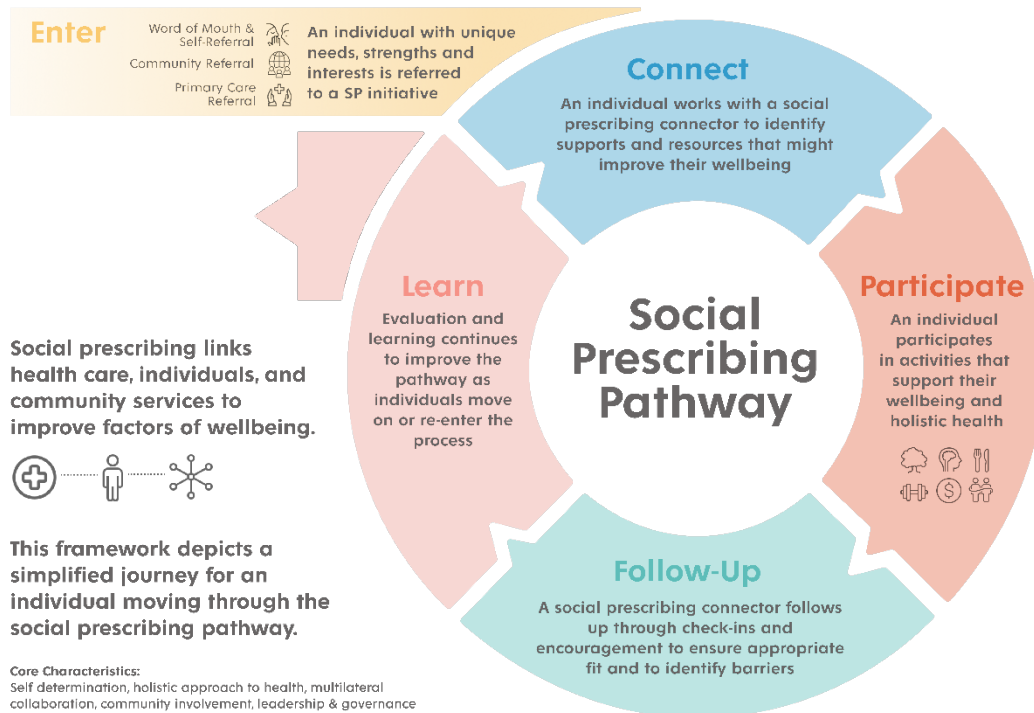
### *1.2.2 Matching*

Individuals have unique needs and communities have unique social prescribing opportunities—it is important to understand both in order to maximize the benefits of social prescribing. While clinicians, nurses, and other frontline care workers may develop a sense of patient needs during patient visits, a solid knowledge of social prescribing opportunities falls outside the scope of what can reasonably be expected of health care providers. For this reason, engaging link workers (also known as social prescribing navigators, community connectors, wellbeing coordinators and other terms) in the social prescribing process can be central to its success (8). Moreover, link workers can help clients access prescribed supports and co-create a personalized solution that incorporates their needs and interests after receiving a social prescription referral. Other resources such as web-based tools can be used in the absence of link workers, or they can be used by link workers as further support to match patients with the appropriate social prescription program.

The availability of a link worker connected to a geographical area facilitates the embedding of social prescribing models within the local primary care infrastructure (25). By engaging with community members directly, link workers or system navigators can better understand the variety of needs that may arise and support clients in addressing social determinants of health through formal and informal community-based services. Patients with social prescriptions value knowing that support is available when it may be needed during their prescription program (26). The 'open door' nature of such a social prescribing program allows link workers to provide ongoing care, understand patients' circumstances or needs, and adapt the prescribed services accordingly (27). Patients are also more likely to participate and adhere to their social

prescription when link workers contact them directly after receiving the referral, make regular follow-up phone calls, or even come along with them to the planned activities (28).

Web-based tools or digital social prescription software offer an alternative or complementary way of bridging unique patient needs and community resources. Digital social prescription refers to social prescriptions that have been facilitated through the use of technology, such as mobile phone apps and online platforms intended to benefit users (29). Such platforms can help streamline a community’s available programs and resources to enable efficient patient matching with relevant activities. Dependence on interactive technologies for the delivery of health care has become increasingly prevalent, as highlighted during the COVID-19 pandemic. As these tools are still somewhat novel and emerging, little is known about their potential advantages and disadvantages; their initial strength lies in their ability to facilitate social prescribing rapidly and affordably (29).



Source: Bridgeable. Current State of Social Prescribing in Canada Summary Report [Internet]. 2022 Jun. Simplified version.

As technologies improve and enable easier facilitation of social prescribing opportunities, social prescriptions could have a stronger impact, particularly for chronic diseases that are driven by lifestyle issues and comprise a significant burden of disease in most countries. Tech-enabled social prescriptions could be made accessible at scale and can allow a more precise and adaptable social prescribing experience for patients compared to pharmaceuticals, where precision medicine delivered via pharmacogenomics is still very expensive with a significant delay before novel drugs are available on the market (30).

## CASE EXAMPLE

GENIE (Generating Engagement in Network Involvement) is a web-based tool that empowers patients to leverage their personal social networks and increase their access to community health and social services (29). While the tool was designed by a team of researchers from the United Kingdom, GENIE has been used in Ontario, Canada as well—specifically in the Halton/Hamilton area. The tool interfaces with existing databases of resources to allow community members to connect with not-for-profit or government organizations (29). People utilizing GENIE can then identify resources that best meet their own health priorities, such as physical activity, joining social clubs, or engaging in healthy eating and living behaviours—all of which help to expand their social network and build social support within neighbourhoods.

Virtual tools like GENIE can identify both patient needs and community resources through the use of databases and questionnaires. This information can be used to help personalize social prescribing to the patient's liking and needs, and make the collaboration process between family physician, link worker, and patient more effortless. Resilient communities are composed of individuals, families or neighbourhoods that have access to health care as well as the knowledge and resources to know what to do to care for themselves and others during both routine and emergency situations (19). Introducing patients to link workers or web-based tools helps facilitate the progression of community resilience as it exposes individuals to different kinds of services and resources that they may have previously been unaware of. Engaging in these resources as part of their social prescription can help individual patients strengthen their health knowledge to care for themselves and their community members in the case of climate disasters.

## 2. Partner with other interested parties to devise or support novel and impactful social prescribing programs with potential community and environmental benefits

Exploring the opportunity for new partnerships and programs is a key part of expanding the possibilities of social prescribing. Such partnerships can focus on social prescribing programs, funding, and/or policy support.

### 2.1 Programs

Social prescribing looks different across different communities (31) due to the unique contexts and resources each community may have. Therefore, gaining a strong understanding of the potential for collaboration can be the first step in the emergence of a robust social prescribing program with the potential to contribute to community resilience and/or environmental sustainability.

Social prescribing relies on collaborative innovation, a concept that is particularly helpful in this context because it highlights the importance of multi-actor collaboration during the development and implementation stages of new programs (32). Another core component of social prescribing is inviting clients to co-create solutions based on their needs and interests. By focusing on a client's articulated needs as a member of the community, rather than on what care providers *think* they need, the client becomes more involved in supporting and developing the community to which they belong.

By creating new opportunities, the range of social prescribing options is extended to better suit people's unique health needs. When it comes to green prescribing, for example, many care facilities will not have the kind of on-site greenspace needed to facilitate nature activities; partnerships with organizations with access to greenspace can radically expand opportunities to implement such programs. The connectedness of supports in both the healthcare sector and broader community is key to the long-term success of social prescribing models. However, collaboration across sectors can be threatened by lack of proper connectedness and trust, and this may make it difficult to address patients' needs in their entirety (27). Regular communication and feedback between referring clinicians (or link workers) and community members can improve the way in which current services are used by patients and open opportunities to develop novel social prescribing programs in the community. By the same token, educating providers about the importance of creating a strong connection with their clients so that clients can communicate their social needs is essential to social prescribing success.

## CASE EXAMPLE

The Rotherham Social Prescribing Pilot from the UK increased the capacity of GP practices to meet the non-clinical needs of their patients with long-term health conditions (32). In this pilot, 24 voluntary and community organizations (VCOs) received grants to deliver 31 separate social prescribing services. Patients were referred to these funded services, consisting of information and advice, community activity, physical activities, befriending and enabling. This pilot involved collaboration of interested parties across multiple sectors, including government and community organizations, general practitioners, other health authorities, and patients. The impacts from the pilot program resulted in a 21% decrease of inpatient admissions, a 20% decrease in accident and emergency attendances, and a decreased £552,000 for NHS Costs (32). Well-being benefits reported by patients included feeling less socially isolated as well as better mental and physical health (32).

## 2.2 Support

Other key components in setting up a long-term social prescribing model for success include appropriate funding and policy support. In places like the UK, social prescribing models or programs are funded through mainstream health and social care budgets, or other awards that provide additional funding to support local level transformation (33). However, social prescribing is not always universally funded through these types of subsidies, and other funding sources may need to be utilized, including grants from independent charitable funders or social investment organizations (33). As well, policymakers within communities must be fully committed in supporting the development and implementation of social prescribing through 'upstream' approaches in a way that can complement the 'downstream' work being done by community organizations, link workers, and physicians (34).

Both funding and policy support require genuine commitment and accountability for multi-party involvement throughout the design and implementation of new social prescribing programs (33). This process includes understanding the existing problems and challenges, collaborating and testing new ideas, and lastly, implementing and monitoring newly developed social prescriptions and their efficacy.

### 3. Utilize green prescribing to enhance the environmental benefits of social prescribing

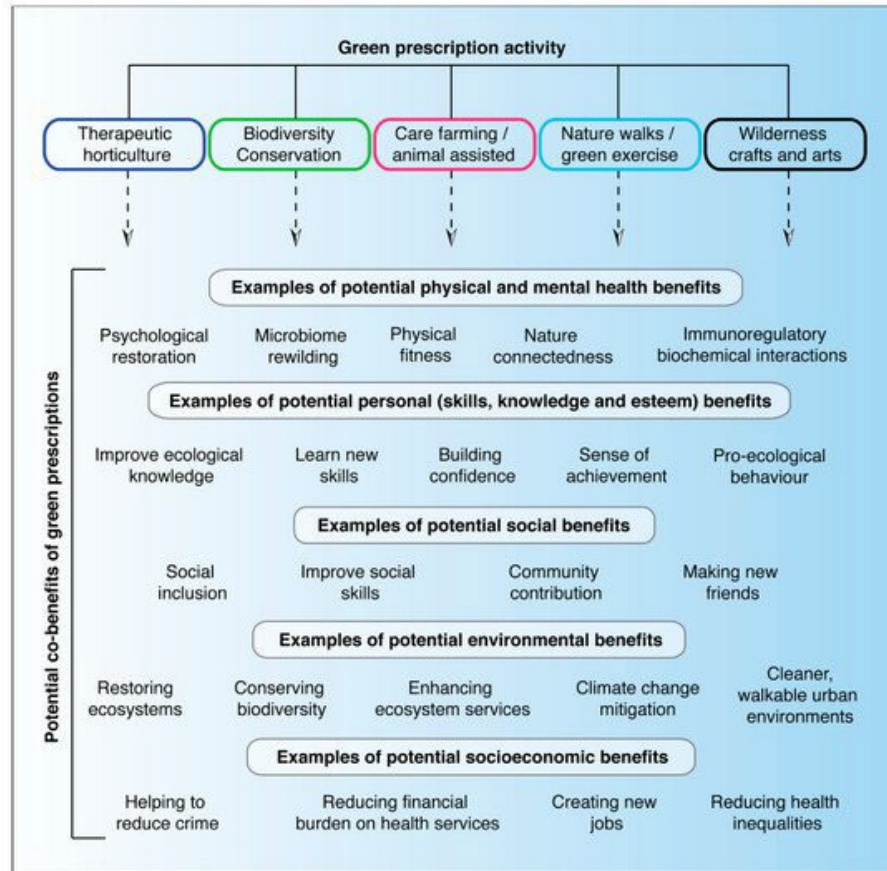
Social prescribing is inherently “green” insofar as it represents a less carbon-intensive approach to care than traditional prescribing. However, the environmental benefits of social prescribing can be extended through so-called “green prescribing,” which is the act of prescribing nature-based health interventions by practitioners (35). This subset of social prescribing involves encouraging patients to engage with the natural world – a practice with many documented health benefits, including lowered risk of cardiovascular disease (36), obesity (37), diabetes (38), and improved mental wellbeing (39).

#### CASE EXAMPLE

PaRx is Canada’s first national, evidence-based nature prescription program, driven by health-care professionals who want to improve their patients’ health by connecting them to nature (10). Each prescriber registered with PaRx receives a nature prescription file customized with a unique provider code and instructions for how to prescribe and log nature prescriptions. PaRx recommends that clinicians prescribe a minimum of 20 min of nature exposure at a time, up to two hours a week. The prescription program also advises that exposure to nature could be sedentary, such as sitting on a park bench, or active, such as hiking in the woods (40).

As green prescribing programs involve activities in natural spaces, such programs have the potential to create, maintain, and protect community greenspaces. The presence of green space within communities is a significant enabling factor for green prescribing (35). Green prescribing may encourage pro-environmental behaviours and a better sense of environmental stewardship through active engagement with and in natural spaces e.g., habitat creation and restoration (40). Conserving and enhancing diversity of flora and fauna in the community can be a group-involved task that brings community members together. This form of green prescribing aligns with “active” exposure to nature as these activities involve *doing* within the green space – rather than simply *being* in green space. In addition to physical and practical aspects (such as enhancing ecosystem services), gaining ecological knowledge, social confidence and communication skills are all potential co-benefits associated with nature-based interventions (40). Moreover, socioeconomic benefits have been associated as upstream impacts of green prescribing, including creating new jobs, helping to reduce crime, and

reducing health inequalities (40). These benefits, at the broader levels of society, help to build a greater sense of community resilience by ensuring that more individuals have equitable access to health services and financial stability.



Source: Robinson, J. M., & Breed, M. F. (2019). Green prescriptions and their co-benefits: Integrative strategies for public and environmental health. *Challenges*, 10(1), 9.

## CASE EXAMPLE

Care Farming is a type of green prescribing intervention and utilizes farming and agricultural landscapes to promote mental and physical health by encouraging individuals to engage in farming activities (40). There are currently around 230 care farms in the UK that provide health, social, and educational care services for a wide range of client groups (40). Care Farming, like other types of active green prescribing programs, is multi-faceted as a health intervention. It allows participants to be socially connected with other humans and animals on the farm, allows opportunities to build skills, engage in physical activity, and experience the restorative effects of nature (40). Currently, general practitioners in the UK have different models of linking patients to care farms, including direct referrals or community health teams similar to link workers (40).

## CASE EXAMPLE

A community garden was established in the abandoned lot next to a medical clinic in Winston-Salem, North Carolina, USA (41). Many patients who attend the clinic live in food deserts without access to fresh fruits and vegetables. Patients were among the volunteers who worked in the garden, alongside clinic staff and trainees, local community groups, and residents of the neighbourhood. Produce was distributed to patients weekly, creating an estimated 3000 opportunities to interact with patients each growing season. The garden supplied much needed fresh fruits and vegetables to patients, and created opportunities to work together towards shared goals, to enjoy physical activity, and to engage with nature. It also supported informal exchanges of growing techniques, recipes and other nutritional information for patients.

Some approaches to green prescribing suggest that a certain “dose” should be reached for the activity to have any effect on health. In the context of green prescribing, the term “dose” represents the relationships between duration of exposure, intensity of activity, and the type of greenspace (41). However, similar to other social prescribing services, caution should be taken in universally prescribing generic doses to broader populations without fully understanding each individual's unique health needs and the level of green prescribing needed to support and promote better health (42). Like any other kind of social prescription, green prescriptions should be tailored to meet the needs of patients to ensure the best use of existing or desired community resources. By connecting public health and wellbeing with the environment, we can produce an integrative strategy with beneficial outcomes for environmental and population health, economic savings, and social connections, leading to more resilient communities over time.

## 4. Collect and publicize metrics on the environmental impact of social prescribing

Social prescribing has great potential to address the health and social needs of patients; it can also benefit environmental health by offering an alternative to high-tech, high-carbon healthcare provision. But by how much? Intentionally collecting data enables the identification of any gaps or disconnects that might exist in the social prescribing process, such as discrepancies between perceived and actual processes and/or outcomes. Moving forward, it will be critical to collect activity data on social prescribing programs and place this data in conversation with emissions factors to determine the total amount of environmental savings as a result of the programs.

In primary care services, service demand often outweighs supply—this has been described as a “wicked” health problem (25). Because the demand for services oftentimes outweighs the supply, this leads to unsustainable health systems and practices, making it difficult to reduce emissions from the supply of

## CASE EXAMPLE

RECETAS (Re-imagining Environments for Connection and Engagement: Testing Actions for Social Prescribing in Natural Spaces) aims to “analyse, understand and evaluate how nature in the city can promote social interaction, help combat loneliness and improve the health and mental well-being of city dwellers” (44,45).

Funded by the EU, RECETAS has pilots in Marseille, France; Barcelona, Spain; Prague, Czech Republic; Helsinki, Finland; Cuenca, Ecuador; and Melbourne, Australia. They use a transdisciplinary lens that integrates social, behavioural, health, and natural sciences, as well as randomized controlled trials (RCT) and other epidemiological, anthropological, and health economic methods to test and evaluate nature-based social prescribing.

health services (43). It is true that the potential for social prescribing to address these unmet service demands and alleviate environmental impacts exists, but its effectiveness in doing so remains largely unknown (44). Thus, future research that collects metrics on the successes of social prescriptions in reducing environmental harm and protecting patient health is crucial for gauging the environmental potential of social prescribing schemes.

Previous social prescribing programs and pilots have demonstrated reductions in patient hospital visits and drug use (45). In a mixed method analysis study of the effectiveness of a social prescribing service, Woodall et al. gathered qualitative data from service users at the point they entered the service and again when they exited (44). Improvements in participants' well-being and perceived levels of health were demonstrated in semi-structured interviews, but data on reductions in future access to primary care were inconclusive. As well, the study did not assess any associated reductions in environmental footprints. If the measured improvements in mental health could be linked to reduced medication uses or admission rates, there would be a clear carbon benefit.

As the potential carbon savings associated with social prescribing remain unclear, programs able to track metrics with implications for environmental

sustainability have much to contribute. Metrics such as hospital visits, medication prescriptions, or usage of other healthcare resources by patients enrolled in social prescribing programs at baseline and at various evaluation intervals can be multiplied by appropriate emission factors to allow for an accounting of any carbon savings.

It can be challenging for social prescribing programs to collect data on these metrics as such programs are often under-resourced; moreover, the small size of many programs can also limit the generalizability of data. However, where possible, data collection that will facilitate carbon accounting should be prioritized. A better grasp of social prescribing's potential to diminish the climate impacts of the health sector, coupled with the growing evidence-base of its benefits for patient health, can bolster efforts to advocate for the increased use of social prescribing in communities globally.

## Methods Statement

This series provides snapshots on key areas in sustainable healthcare. These snapshots are the result of rapid literature reviews and related desk research with review by content experts where possible. Snapshots are not intended to be comprehensive nor exhaustive. Updates to this document and any comprehensive reviews will be posted on the CASCADES website.

## Version History

Version No.	Date	Contributors
1	February 2023	Research and writing: Jonathan Lin, Enoch Lam, Nicole Simms, Farah Farhat Review: Sonia Hsiung, Kate Mulligan
1.1	November 2023	Update by Cate MacLeod and Ivy Lam

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