Utilizing public health core competencies to share data effectively with community organizations to promote health equity

Nicole Andruszkiewicz¹ · Cassandra Ogunniyi¹ · Christina Carfagnini^{1,2} · Allison Branston¹ · M. Mustafa Hirji^{1,3}

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Abstract

Objectives This article utilizes an adapted model for research transfer to highlight the important role of Local Public Health Agencies (LPHAs) to share data more effectively with local community organizations to advance health equity.

Methods A literature review related to public health data sharing with local community partners was conducted using Medline, Embase, and CINAHL databases and grey literature sources with 12 articles included for analysis. Six LPHAs distributed an online survey to 405 local community organizations to define their current data uses and needs. Survey and literature review findings informed a one-day deliberative dialogue event with 19 participants who brought multiple perspectives together on the barriers and potential solutions for data sharing.

Results Results are discussed utilizing the three stages of data sharing: awareness, communication, and collaboration. Awareness of the barriers and needs of community partners related to data, and the public health core competency of assessment and analysis is the first stage. More effective is the second stage, where LPHAs proactively communicate to understand and meet the needs of community partners. Data sharing is the most effective when LPHAs use the third stage of collaboration to work with community partners to mutually benefit from data sharing.

Conclusion When LPHAs utilize their core competencies of assessment and analysis, communication, and collaboration to share data with community partners, they are able to share data more effectively. This allows community partners to modify programs to better serve priority populations and improve population health.

Résumé

Objectifs Nous avons utilisé un modèle adapté au transfert des connaissances acquises par la recherche pour faire ressortir le rôle important des organismes de santé publique locaux (OSPL) lorsqu'il s'agit de partager efficacement des données avec des organismes de proximité pour favoriser l'équité en santé.

Méthode À l'aide des bases de données Medline, Embase et CINAHL et de sources de littérature grise, nous avons mené une revue de la littérature spécialisée traitant du partage de données de santé publique avec des partenaires associatifs locaux; 12 articles ont été inclus dans notre analyse. Par ailleurs, six OSPL ont envoyé un sondage en ligne à 405 organismes de proximité pour déterminer leur usage actuel des données et leurs besoins en la matière. Les constatations du sondage et de la revue de la littérature ont alimenté une activité de dialogue délibératif d'une journée, durant laquelle 19 participants ont confronté leurs nombreux points de vue sur les obstacles au partage des données et les solutions possibles.

Résultats Les résultats sont présentés en fonction des trois étapes du partage de données : la connaissance, la communication et la collaboration. En premier lieu, il faut connaître les obstacles et les besoins des partenaires associatifs en matière de données, ainsi que les compétences en santé publique essentielles à l'évaluation et à l'analyse des données. La deuxième étape, qui donne plus

✉ Cassandra Ogunniyi
Cassandra.Ogunniyi@niagararegion.ca

¹ Niagara Region Public Health & Emergency Services, 1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7, Canada

² Brock University, St. Catharines, ON, Canada

³ Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, ON, Canada

de résultats, consiste pour les OSPL à communiquer activement avec leurs partenaires associatifs afin de comprendre leurs besoins et d'y répondre. Le partage des données est encore plus efficace quand les OSPL s'engagent dans une troisième étape, la collaboration, pour travailler avec leurs partenaires associatifs à tirer des avantages mutuels du partage des données.

Conclusion Quand les OSPL utilisent leurs compétences essentielles d'évaluation et d'analyse, de communication et de collaboration pour partager des données avec des partenaires associatifs, ils sont en mesure de partager ces données plus efficacement. Les partenaires associatifs peuvent ainsi modifier leurs programmes pour mieux servir les populations prioritaires et améliorer la santé de ces populations.

Keywords Data sharing · Health equity · Community partners · Deliberative dialogue · Core competencies

Mots-clés Partage des données · Équité en santé · Partenaires associatifs · Dialogue délibératif · Compétences essentielles

Introduction

Advancing health equity at the local level requires collaboration across multiple sectors that affect population health (Chircop et al. 2015; Fosse et al. 2018; National Collaborating Centre for Determinants of Health 2013). Non-health agencies, such as employment centres, housing supports, and police departments, can improve health outcomes at the community level and positively impact the social determinants of health (SDOH) (Robert Wood Johnson Foundation 2015; World Health Organization 2013). Population-level demographic and health outcome data can enable these agencies to identify barriers and opportunities to advance local health equity work (National Collaborating Centre for Determinants of Health 2013; World Health Organization 2013; Pauly et al. 2017). Previous research has described the importance of public health sharing data with community organizations, however effective data sharing has not been widely practiced, which affects the organizations' ability to plan evidence-based programs (Robert Wood Johnson Foundation 2015; World Health Organization 2013; Neudorf and Muhajarine 1998; Van Panhuis et al. 2014). Research conducted by Niagara Region Public Health & Emergency Services in 2016 indicated that community partners felt limited in their capacity to collect and analyze data, and were interested in receiving more analyzed data.

In response to this identified gap, a Locally Driven Collaborative Project (LDCP), funded by Public Health Ontario, was sought to identify how Local Public Health Agencies (LPHAs) across Ontario can best select, analyze, and distribute health data to local community partners to enable them to advance health equity. Six LPHAs from across Ontario participated in the project, including agencies with urban, mixed urban-rural, and rural geographies. The project included a literature review, a survey of community partners data needs, and a deliberative dialogue for LPHA and community partner staff to discuss barriers and solutions to data sharing.

This article presents results analyzed using a data sharing model adapted from Anderson and colleagues' (Anderson et al. 1999) model for research transfer. This model discusses sharing information at the local level, incorporating a broad

definition of research that is applicable to public health's core functions of surveillance and population health assessment, communication, and collaboration (Anderson et al. 1999; Public Health Agency of Canada 2007). Anderson et al. (1999) identify three stages of research transfer: awareness, communication, and interaction. Awareness is the least effective stage of sharing data, when LPHAs and community organizations are cognizant of the needs of each other. The second stage is more effective, with communication that involves a proactive approach where LPHAs and community organizations discuss their needs and share data. Interaction, or collaboration, is the most effective stage, where both parties are benefiting from the research transfer; there is discussion and action associated with the data (Anderson et al. 1999).

The five core functions of public health, including population assessment and surveillance, are essential to promote and protect the health of all Canadians (Public Health Agency of Canada 2007). The Public Health Agency of Canada identifies seven core competencies, a set of crucial knowledge, skills, and abilities that enable public health professionals to fulfill the core functions (Public Health Agency of Canada 2007; Public Health Research Education and Development (PHRED) Program 2006). This article focuses on three core competencies that relate to data sharing and the model for research transfer (Anderson et al. 1999): assessment and analysis, communication, and partnership, collaboration and advocacy. Sharing local, analyzed data between LPHAs and community partners fulfils multiple public health roles for improving health equity, which include assessing and reporting health equity data, partnering with non-health organizations who are interested in reducing barriers to health, and tailoring services to the unique needs of vulnerable groups (National Collaborating Centre for Determinants of Health 2013).

Methods

The LDCP incorporated three modes of data collection. A literature review of public health data sharing with community

partners was conducted with academic and grey literature. Concurrently, a survey of community partners' data needs was distributed and analyzed. Results from the literature review and survey were used to inform a deliberative dialogue.

Literature review

A literature review was conducted of publications related to public health data sharing with community stakeholders. The search queried: 1) What are local community agencies' needs, challenges, and enablers to collecting, analyzing, presenting, and sharing health equity-related data for decision making? 2) How can LPHAs optimally collect, analyze, and share health equity-related data to facilitate uptake, and what are stakeholders' opinions about these approaches? 3) How can local health equity-related data be most effectively presented and shared with community agencies to support their needs?

Databases searched included Medline, Embase, and CINAHL. Grey literature was searched using Google Scholar and various repositories (e.g., Canadian Best Practice Portal, National Collaborating Centre for Methods and Tools, and the National Academies Press). The search resulted in 2792 articles published between 2007 and 2017, in English, of which 2696 were eliminated due to irrelevance. Abstract screening eliminated a further 79 articles that did not meet the inclusion criteria; see Fig. 1 for a PRISMA Flow Diagram, including the inclusion criteria (Moher et al. 2009). Two project team members each used the Mixed Methods Appraisal Tool, developed at McGill University, to critically appraise the remaining 17 articles that satisfied the inclusion criteria. Disagreements were resolved by consensus, excluding a further five articles, for a final 12 included articles. Included studies were analyzed using a thematic analysis (Braun and Clarke 2006).

Survey of community partners

The six participating LPHAs identified 405 local community partners within their catchment areas that address the SDOH and with whom they had collaborated on health equity initiatives. These community partners include government bodies, health service providers, locally based non-profit organizations, local branches of non-profit organizations, and other similar organizations. In July 2017, these community partners were invited to participate in an online survey related to data sharing to improve health equity. The survey was developed by a subgroup of the team with diverse professional expertise, integrating concepts from knowledge transfer tools such as the Knowledge Translation Planning Primer (Public Health Agency of Canada 2012). The survey was validated through review and revisions with the whole project team, followed by a pilot with three community partners, whose feedback was incorporated into the final version.

The survey asked multiple choice and open-ended questions related to the uses, preferences, barriers, and facilitators of sharing and using health-related data. This survey had a 24% response rate with 99 completed surveys; see Table 1 for details of the survey respondents compared to the sample of organizations to whom the survey was distributed. Due to the qualitative nature of this project, no statistical analysis was performed on close-ended multiple-choice questions.

Deliberative dialogue

The purpose of a deliberative dialogue is to bring multiple perspectives together to apply locally relevant contextual information and tacit knowledge of stakeholders to a problem-solving discussion (Boyko et al. 2012). This process was selected because it recognizes that research evidence is one input to decision-making (Lavis et al. 2009). The deliberative dialogue can be used in conjunction with a variety of research methods to collect research evidence, while involving knowledge users in the process to increase the likelihood of relevant action to address health system issues (Moat et al. 2014).

In preparation for the day-long dialogue event, background research, in this case the online survey and literature review, were summarized into an evidence brief (Boyko et al. 2012). The evidence brief included three main foci: the problem (barriers in data sharing and use), options to solve the problem, and implementation considerations. After the dialogue, a summary report was circulated to attendees that synthesized the key findings (Boyko et al. 2012).

The deliberative dialogue occurred in September 2017 with 19 participants. Of the 52 survey participants who indicated interest in participating in the dialogue via the survey, the project team selected 20 to participate in the dialogue. The selection aimed to include representation from each of the participating LPHAs, with organizations who provide a range of services (i.e., mental health, housing, or food insecurity) and serve a range of clients (i.e., Francophone, homeless, youth, older adult populations). Of these 20 invitations, 16 were able to attend the dialogue. Additionally, three LDGP project members participated in the dialogue to provide a public health perspective (refer to Table 1 for characteristics of the survey and deliberative dialogue participants). The Managing Director of the McMaster Health Forum, an expert in deliberative dialogues, facilitated the dialogue. Two project staff took notes throughout the dialogue, which were then analyzed by theme.

Results

The first section of the results, population assessment and analysis, examines the data needs of community partners, the barriers they face, and the role public health could fill. The second section examines the barriers and opportunities

Fig. 1 PRISMA flow diagram (Moher et al. 2009)

for using communication and collaboration to improve data sharing between community partners and LPHAs. Both sections include results of the literature review, survey, and the deliberative dialogue.

Population assessment and analysis: barriers and needs

Literature review

It is evident that community partners would benefit from population health and demographic data, which can be obtained from health records, vital statistics, and surveys of community attitudes, behaviours and opinions (Baird Kanaan et al. 2012). This supports community partners to address the social determinants of health (Baird Kanaan et al. 2012), and to be “proactive instead of reactive” in their program planning to meet local needs (Robert Wood Johnson Foundation 2015).

There are several barriers related to community partners’ capacity to collect, analyze and report data. Previous studies (Van Panhuis et al. 2014; Institute of Health Economics 2008) found that data users often lack the skills, technological capacity, or funding to analyze and interpret data shared with

them. Therefore, data providers are often hesitant to provide data to users because of the potential to misinterpret data (Van Panhuis et al. 2014). Kothari et al. (2016) identified that culture within agencies place precedence on experiential knowledge over an evidence-informed approach, and thus do not seek additional data.

Survey

Survey respondents were asked about the types of data they collect, their barriers, and the types of data they would like to receive. The percentage of respondents who collect demographic and health outcome data from their clients is summarized in Figs. 2 and 3. The majority of community partners collected demographic data, such as age (92%), gender (79%), and postal code (79%). Community partners collected health outcome data less often, with self-reported physical and mental health (63%) collected the most often, followed by mental health (51%).

Although many community partners collect data, survey results demonstrate that these organizations lack the capacity to analyze and interpret data. The top three internal factors survey respondents ranked that would aid data sharing include improving community partners’ capacity to conduct analyses, enhancing their data analysis skills, and increasing their understanding

Table 1 Characteristics of survey and deliberative dialogue participants

Variable	Category	Survey sample (<i>N</i> = 405)	Survey participants (<i>N</i> = 99)	Dialogue participants (<i>N</i> = 19)
Local public health agency	Niagara Region Public Health and Emergency Services	75	22	3
	Kingston, Frontenac and Lennox & Addington Public Health Unit	96	19	0
	Leeds, Grenville and Lanark District Health Unit	42	9	4
	North Bay Parry Sound District Health Unit	42	16	4
	Ottawa Public Health	56	11	6
	York Region Public Health	94	22	2
	Government ^b	112	10	8
Organization type ^a	Health service provider ^c	72	11	1
	Local branch of (provincial/national/international) non-profit organization ^d	207	10	3
	Locally based non-profit/community organization ^e		55	6
	Not identified	1	1	0
	Other	13	12	1

^a The organization type was identified by the LPHA supplying the community partner list in the first column, while the organizations self-identified in the survey; these two categories may not align

^b Government bodies or programs/services provided by their departments. Agencies and boards that are arms-length to government are not included in this category

^c Agencies whose primary function is the provision of health care (e.g., community health centres, mental health services) whether publicly or community funded

^d Agencies which have local branches but are coordinated at a provincial or national level. In the lists provided by the LPHAs, this category was combined with locally based organizations

^e Agencies existing solely at the local level that provide services and/or advocate for social change in specific areas

of the value of data. Five respondents provided additional comments that they lack the skills, tools, or time within their agencies to process and analyze data. Furthermore, 69% of survey respondents indicated that they would prefer to receive analyzed and interpreted data from LPHAs, compared to raw data (18%) or analyzed data that was not interpreted (13%), indicating their desire for external analysis.

Survey respondents also expressed their need for demographic and health outcome data at the population level. The most requested demographic data was age (*n* = 63), geographic location (*n* = 53), and income (*n* = 36) (see Fig. 4). Mental health (*n* = 62), self-reported physical and mental health (*n* = 56), and early childhood development (*n* = 40) were the most requested health outcome data.

Deliberative dialogue

Deliberative dialogue participants discussed the lack of emphasis on collecting SDOH data among community partners. Many dialogue participants shared that the purpose of their data collection is to address government funder requirements with specific end goal measures, such as number of clients

served. These basic measures often do not address the SDOH, nor demonstrate whether community partners are addressing the needs of their clients or the community through their programs.

Deliberative dialogue participants discussed the various barriers frontline staff experience when collecting SDOH-related data from clients. Participants agreed that the frontline staff are often uncomfortable asking clients personal questions pertaining to the SDOH, such as income. Dialogue participants noted that frontline workers experience difficulty when balancing demands to provide clients with the best possible services and collect personal data from them. All participants agreed that providing services would be given precedence over data collection. However, participants noted the value of SDOH data, since without the data it is more difficult for community partners to determine how services have affected clients, and plan appropriate programs to address their needs.

Community partners identified capacity barriers, including a lack of time, skills, and/or resources to mine, collect, analyze, and interpret health and epidemiological data. This was noted to be especially true when applying for grant funding, which is often constricted to a short time frame. Community partners

Fig. 2 Percent of survey participants by type of organization that collect client demographic data

were unaware of what data LPHAs had access to, the capabilities of LPHAs to analyze data, or the difference between personal health and population-level aggregated data. Some community partners stated that they receive data from sources such as LPHAs, the Canadian Institute for Health Information, or Statistics Canada but may not have the time and/or skills to analyze and therefore cannot fully utilize this information. Financial limitations were identified as a significant capacity

barrier, affecting community partners' ability to pay fees to access data that meet their specific needs from organizations that house data, such as Statistics Canada. Community partners may be understaffed, and even with funding to recruit staff, community partners noted it could be difficult to recruit a data analyst to meet their needs. Additionally, many participants agreed that they do not have the software and/or technological abilities to analyze and interpret additional data.

Fig. 3 Percentage of survey respondents that collect client health outcome data

Fig. 4 Top five types of demographic and health outcome data that community partners would like to receive, ranked as 1 to 3 out of 7

Dialogue participants discussed how LPHAs have the expertise to analyze and interpret data, which can be shared with community partners electronically. Examples of analyzed and interpreted data include fact sheets, executive summaries, and detailed reports. Participants described that they would save time from having to interpret raw data if they had snapshot summaries provided to them from their LPHA. One community partner noted, “We have a project arrangement that includes epidemiological support. Getting the summary results back about the program [from the epidemiologist] has been really helpful.”

Participants raised several potential challenges of receiving data from LPHAs. They noted that LPHAs provide reports that are not always relevant for all community partners. LPHAs also have limited resources and do not have the capabilities to provide tailored data packages for all community organizations. Thus, they attempt to share a wide scope of information while approximating what data may be relevant to community partners. A number of participants suggested that this is largely due to a lack of knowledge among LPHAs about what types of data would best serve the needs of community partners. For instance, dialogue participants highlighted the need for qualitative data to provide insights about how and why certain conditions or outcomes are influenced by a number of determinants. The example provided was a program aimed at addressing low high school graduation rates, and the lack of qualitative data to explore why these rates were low in the first place. In addition, partners noted that

summaries often only show a snapshot in time, which provides limited information for community partners who may want to examine long-term data results.

Dialogue participants voiced their concerns surrounding data ethics and privacy as an additional barrier to LPHAs sharing data with community partners. One participant specified that is difficult to use neighbourhood level data, such as postal codes, since it can lead to identification of clients. Participants agreed that there is a lack of understanding about the regulations and ethics of collecting, analyzing, and sharing data, particularly sensitive client health data. One participant stated that this is partly due to a “culture of hypervigilance to protect privacy.” Dialogue participants were unclear about who owns the data once they are collected and at what point data are considered secondary data within data sharing initiatives between community partners and LPHAs.

Communication and collaboration

Literature review

The literature indicates that a significant barrier to effective data sharing is a lack of communication between LPHAs and community partners. This may be due to insufficient resources and capacity for LPHAs and community partners to develop effective data sharing relationships (Institute of Health Economics 2008). This is supported by research that suggests work environments

among LPHAs and community partners do not give precedence to data sharing initiatives prior to other work commitments (Van Panhuis et al. 2014; Institute of Health Economics 2008). Research evidence emphasizes the effectiveness of direct communication between LPHAs and users, suggesting emails, face-to-face meetings, policy briefs, professional organizations, or workshops (Institute of Health Economics 2008). In addition, using graphics and compelling statistics and working collaboratively with community partners can help effectively communicate data with the intended users (Woolf et al. 2015).

The research evidence emphasized the importance of communicating the objectives and goals of data sharing with partners in order to confirm shared goals (Robert Wood Johnson Foundation 2015; Baird Kanaan et al. 2012; Brack and Castillo 2015). Clarifying project goals and the purpose of data sharing builds relationships of trust that are essential to facilitate collaboration between organizations (Robert Wood Johnson Foundation 2015; Baird Kanaan et al. 2012; Brack and Castillo 2015; Harper et al. 2017). This process should consider populations that experience health inequities and set goals based on their needs (Robert Wood Johnson Foundation 2015; Woolf et al. 2015; Brack and Castillo 2015).

One tool to achieve these shared goals is a ‘value proposition’, which is a document that explains how data will be used and to define project goals among all parties involved (Baird Kanaan et al. 2012; Brack and Castillo 2015). In addition, data sharing agreements can help identify common goals, describe how data will be used by community partners, ensure data confidentiality standards are maintained, and clarify any ethical implications (Harper et al. 2017). Data sharing agreements can be especially helpful because the lack of official public health guidelines describing safe data sharing procedures for data providers and users makes the process more challenging for both groups (Van Panhuis et al. 2014; Baird Kanaan et al. 2012).

Developing a data sharing network where there is a two-way exchange of data between public health and community partners with the collaborative goal of advancing health equity holds much promise. A data sharing network counters the silo effect of individual agencies, and engages all participating agencies in knowledge sharing when addressing community-wide issues together (Kothari et al. 2016). Previous research (Robert Wood Johnson Foundation 2015; Brack and Castillo 2015; Harper et al. 2017) outlines the importance of having a transparent network in which the community partners are heard, noting that careful consideration is required to ensure all types of community partner organizations representing diverse clients are included. Networks allow community partners to share data they have collected with their LPHA to be analyzed and interpreted in evidence briefs. Data sharing networks also enable community partners to access health equity and population health data while gaining knowledge and skills regarding data management, analysis, and interpretation

which they may not have. Previous studies (Kothari et al. 2016; Harper et al. 2017) recommend that LPHAs host workshops to help community partners identify relevant provincial, regional and local data sources, understand how data have been collected and analyzed, and understand the value and potential risks of sharing health data.

Survey

Survey results indicated that community partners are interested in improved communication and collaboration to promote data sharing. The top three external factors that would assist community partners with data sharing initiatives include having consistent data sharing agreements, improved communication between data providers and community partners, and enhanced partnerships with external experts (such as those at academic institutions, or in public health organizations). Notably, 40% of survey respondents ranked creating data sharing agreements as their top choice for external factors that would help their organization use data more efficiently. Community partners prefer online methods for delivering shared data (60%), as opposed to in-person meetings (35%), or conference presentations (18%).

Deliberative dialogue

Participants identified the lack of a strategy for sharing health data as a common challenge resulting in fragmented data sharing initiatives among community partners and other local health organizations. Participants agreed that there is no universally applied method to collect data, even within communities. As a result, community partners often have their own unique datasets. This leads to problems such as duplication of data counts when data are shared across organizations. For example, one dialogue participant stated, “Many agencies count the same homeless youth, which is not reliable.” Other issues encountered included variances in definitions for similar indicators (i.e., using different age ranges for ‘youth’ across different organizations), which can lead to unreliable findings and difficulties for comparison across organizations. Within their individual data collection systems, agencies often collect data with different geographic boundaries and scales (i.e., neighbourhood, municipal, LPHA, or Local Health Integration Network boundaries), which can be difficult and costly to combine into one data set.

A common theme in the discussion was the need to take steps towards a common way to collect and share data between LPHAs and community partners. A suggestion was to develop a universal way to collect and present health data, similar to the Census, with accessible results found online. One dialogue respondent stated, “If similar sectors within regions can use a single database to cover similar issues, this would be a good baseline.” Another suggestion was to develop a data collection

framework specific to the SDOH for frontline workers when they collect data from the clients they serve. An example of such a framework is The Tri-Hospital + TPH Health Equity Data Collection Research Project Report, which includes a questionnaire that frontline workers can use to ask clients specific socio-demographic questions related to factors such as age, gender, income, and language (Wray et al. 2013).

Data sharing networks were identified as an option to increase communication between LPHAs and community partners in order to share information about what data exists, where it exists, and how community partners can prioritize their data needs. A participant explained, “I am interested in networking, making stronger linkages, and learning how to involve other social agencies. Working together to create a vision of what data sharing looks like.” However, many community partners attending the dialogue already participate in small networks and experience challenges. This includes the power dynamics present within networks containing organizations of vastly different sizes. Additionally, it can be difficult to coordinate networks since community partners may not have the capacity to dedicate time to them. Participants highlighted that having a common goal among participating organizations is essential for networks to be successful.

A culture of competition among community agencies may prevent community partners from sharing data in order to work towards a common goal of health equity. Community agencies often use data in support of bids for funding, which puts them in direct competition with other similar and/or nearby agencies. One participant stated that “We use data to fight against [other agencies] to apply for funding instead of working together.” This culture of competition undermines potential opportunities for LPHAs and their community agencies to collaborate on data sharing initiatives.

Suggestions to improve data sharing initiatives shared by participants included moving away from the current top-down approach for data sharing and moving towards a more collaborative and non-hierarchical data sharing approach among all organizations. A data sharing reservoir or online database at the provincial level could provide community partners with access to data, the ability to ask the data authors or local LPHAs questions about the data, and the option to tailor the data to local needs. An example of a similar initiative is the Government of Canada’s Homelessness Partnering Strategy, which uses shared terminology to collect homelessness data across the country at a single point in time, with additional diverse questions that were applied to address local contexts (Government of Canada n.d.).

Similarly, participants agreed that changes to the current culture of expensive and restricted data would be beneficial to all. Open-data sharing initiatives and/or making current data more affordable were noted as solutions. One example noted by a dialogue participant of this

approach already taking place is from the Canadian Council for Social Development, which has a Community Data Consortium for nonprofits that provides them with access to large quantities of data for a small fee (Canadian Council on Social Development n.d.).

Discussion

LPHAs have the opportunity to utilize the Public Health core competencies to support data sharing initiatives that respond to the limited capacity, skills, and funding available within community organizations, and advance health equity. Utilizing an adapted model of research transfer from Anderson et al. (1999), three stages of effective data sharing are discussed in relation to the results from the literature review, survey, and deliberative dialogue, and in conjunction with the relevant public health core competencies. Public health professionals have the expertise and knowledge, as evidenced by the core competencies, to address the needs of community organizations.

Awareness

The first stage of research transfer, as outlined by Anderson et al. (1999) is for the two groups to be aware of the needs and capabilities of each other. Previous studies (Anderson et al. 1999; Institute of Health Economics 2008) report that community partners and researchers have insufficient resources to develop effective data sharing relationships and are unaware of each other’s data needs. Community partners need local population-level data from a variety of sources in order to more effectively and proactively address health inequities (Robert Wood Johnson Foundation 2015; Baird Kanaan et al. 2012), however, they are unaware of what data LPHAs can access. LPHAs can access a large variety of data sources and have the competencies to analyze such data (Public Health Agency of Canada 2007). However, some LPHAs also lack the funding and capacity to analyze and share large amounts of data.

The literature review (Van Panhuis et al. 2014; Institute of Health Economics 2008) survey and deliberative dialogue results concur that community partners lack the skills, capacity, and funding to analyze and interpret data, which restricts their ability to effectively plan or evaluate programs. Health assessment and surveillance are essential public health functions, which can support local organizations with useful data for program planning and evaluation. Being unaware of the barriers, needs, and competencies of community organizations can lead to LPHAs sharing information that lacks relevance and usefulness, as mentioned by deliberative dialogue participants.

Communication

Sharing data more effectively goes beyond an awareness of the barriers and basic needs of community partners, to proactively communicate the specific needs and capacities of each group (Anderson et al. 1999). LPHAs can utilize the core competency of communication, which involves the following: interchange of ideas, opinions, and information; interpreting information for various audiences; and using current technology to communicate effectively (Public Health Agency of Canada 2007). Improved communication includes discussing what data are currently collected, what the data are used for, what data are desired, and in what format. While data collected by community partners are representative of the client population, population-level data, including socio-economic, demographic, and health outcome data, should also be analyzed to assess health inequities and identify gaps in current programming (National Collaborating Centre for Determinants of Health 2013). Integrating both data types can support community partners in program planning to utilize limited resources to address the SDOH and best serve priority populations (Anderson et al. 1999; Baird Kanaan et al. 2012). Understanding the needs and skills of both community partners and LPHAs through improved communication can lead to sharing data more effectively and is a stepping-stone to mutually beneficial interactions (Anderson et al. 1999).

Collaboration

According to the research transfer model, data sharing is most effective when LPHAs and community partners go beyond communication to collaboration, where both groups benefit from meaningful data sharing interactions (Anderson et al. 1999). Data sharing is mutually beneficial for LPHAs and community partners when it is associated with action and partnerships develop into networks or coalitions that work together to address complex community issues. Using the core competencies of collaboration and partnership, including identifying partners in addressing public health issues, building partnerships through group facilitation, managing conflict, team building, and negotiating (Public Health Agency of Canada 2007; Public Health Research Education and Development (PHRED) Program 2006), can build collaborative data sharing networks that prioritize community needs, address the social determinants of health, and build community partner capacity (Kothari et al. 2016; Harper et al. 2017). LPHAs can utilize the core competency of leadership to build trust, develop shared vision and goals, create universal data collection frameworks, and establish data sharing agreements, which address privacy and ethics

concerns (Robert Wood Johnson Foundation 2015; Public Health Agency of Canada 2007; Public Health Research Education and Development (PHRED) Program 2006; Baird Kanaan et al. 2012; Brack and Castillo 2015; Harper et al. 2017). The public health competency of leadership is beneficial to develop key values, a shared vision, and more equitable access to data resources in the community, which can address unequal power dynamics, the culture of competition, and support community partners in times of scarce resources (Public Health Agency of Canada 2007). LPHAs benefit from data sharing initiatives, as they collaborate with community partners who serve diverse populations and together can advance the goal of health equity.

While future technological advancements, such as open data, online data repositories, and big data, will enable more accessible data sharing across organizations, without effective leadership from public health, the barriers to intersectoral collaboration may prevent organizations from using these opportunities to work towards health equity. Utilizing the core competencies of leadership and collaboration, public health can effectively provide community partners with the local population health data needed to address community problems proactively and orient their programs to best serve priority populations (Public Health Agency of Canada 2007).

Conclusion

The analyzed results from the literature review, survey, and deliberative dialogue reveal that LPHAs providing population-level data to community partners can impact health equity through significant improvements to program planning and service provision. Currently, most data sharing relationships between LPHAs and community partners operate at the least effective stage of research transfer, where there is an awareness of a need for data by community partners and LPHAs know that they have the assessment and analysis competencies to provide population-level data for community partners. However, there is a lack of communication to discuss the actual needs and capabilities of each group. In order for data sharing to become more effective, LPHAs need to utilize their core competencies to foster a dialogue of what is needed and what could be provided. When LPHAs utilize their leadership and collaboration competencies to work with community partners, they maximize the effectiveness of data sharing to address the barriers faced by diverse populations and advance health equity. While this article describes the importance of public health data sharing with community organizations to improve health equity, future research should include evaluation of existing data sharing initiatives, and long-term analysis of the

impact of effective data sharing with community partners on health inequities.

Advancing health equity requires multisectoral collaboration, and public health has the core competencies to provide the needed leadership to make lasting impacts on the health and well-being of all Canadians. In order to fulfil this core function, it is imperative that LPHAs maintain a robust set of data sources, and the capacity to collect, analyze, and share this data. Surveillance capacity is not a luxury that can be eliminated in times of austerity, but is foundational to making lasting impact on the health of all people. When combined with the core competencies of communication, collaboration, and leadership, this impact can multiply through communities to improve the health of all.

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