THE STATE OF THE FIELD OF MULTISECTOR DATA SHARING FOR COMMUNITY HEALTH

Report from 179 community responses to the All In National Inventory 2019

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ALL IN

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Acknowledgments

Who We Are

The Robert Wood Johnson Foundation, the nation's largest philanthropy focused solely on health, funds DASH to support communities in building shared data and measurement systems that support efforts to align health, public health and social services. DASH carries out its mission through grant-making, peer-to-peer learning, and the creation, translation, and dissemination of a body of knowledge related to the opportunities, barriers, lessons learned, promising practices and indicators of progress for sharing data and information across and beyond traditional health sectors.

The DASH National Program Office (NPO) is led by the Illinois Public Health Institute (IPHI) in partnership with the Michigan Public Health Institute (MPHI).

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Overview

Multi-sector partnerships are increasingly engaged in data-driven projects in order to make an impact on community health, wellbeing and equity. In DASH's first environmental scan of the field, published in 2015, we found significant interest in, and also significant barriers to, data sharing to support aligned systems across the sectors of public health, health care, and social services. In 2019, DASH and its partners at All In: Data for Community Health began a project to track progress over time, as well as understand how barriers can be overcome to reach greater maturity.

This report uses data from the first *All In National Inventory of Data Sharing Collaborations for Health* to describe the current state of the field. 179 data-sharing initiatives shared information about the focus of their efforts, participating sectors, alignment of vision, and progress towards data sharing. This is the first report from that initial community survey

Key findings include:

1. Collaborations sharing data are found throughout the country.

2. Three quarters of responding collaborations have been collaborating for five years or less – and a full 40% less than 2 years.

3. Healthcare, public health and social services are the most common participants in multi-sector data sharing; among the latter, projects focused on housing and food predominate (Figure 10).

4. Two thirds of collaborations report using multi-sector data to support both whole person care/care coordination and population level/upstream intervention improvement. Top use cases support population health:
   a. Well over half of the collaborations report that multi-sector data are needed for planning, evaluation, community health assessments, mapping, and community dashboards
   b. About half of the collaborations report sharing data for care coordination use cases, especially screening and referral for services

5. Half of collaborations are in the planning or building phase of multi-sector data collaboration, about a third have implemented and are scaling and innovating, with the remainder in the launching/beta testing phase. This is consistent with other indicators:
   a. Most collaborations have the fundamentals for data sharing in place: an existing community collaboration, shared vision, and leadership committed to the project.
   b. Only 9% report having legal agreements in place (with an additional 24% who are not sharing data in a way that requires legal agreements)
   c. 6% have significantly redesigned workflows to take advantage of shared data; and an additional 22% have changed some aspects of how work is organized (but there is more to do)

6. Barriers to data sharing readiness relate to resource limitations:

a. 40% reported that insufficient data skills among participants hampers progress
b. Only 5% reported having a sustaining funding structure

7. A minority of communities reported having robust forms of community engagement; for instance, moving beyond focus groups and other forms of input gathering towards active collaboration and/or shared leadership.

8. Of those who have implemented shared data, technical function tends to be perceived as sufficient most often in the areas related to analysis, mapping, and visualization of data, as well as individual identity matching; capability is more limited in the areas of real-time record linking, automated decision-support, and predictive analytics

In summary, while the interest in multi-sector data sharing accelerates and healthcare, public health and social service sectors work to build collaboration and shared vision; this report demonstrates key barriers remain: understanding and attending to legal requirements, continued reliance on manual and imperfect data management processes in the absence of standards, sustainable financial models, and a lack of robust community engagement efforts.

Sharing Multisector Data for Healthier Communities:
Visual summary of the All In National Inventory 2019 key findings

Aligning systems to advance community health, well-being and equity depends on shared data and measurement. In 2019, 179 respondents representing unique initiatives submitted information to the All In National Inventory. Health care, public health and social services are the most common participants in multi-sector data sharing. Among the latter, organizations focused on housing and food predominate.

Geographic Distribution of Respondents

Respondents are located across the country. Most represent relatively young collaborations with 40% being less than 2 years old.
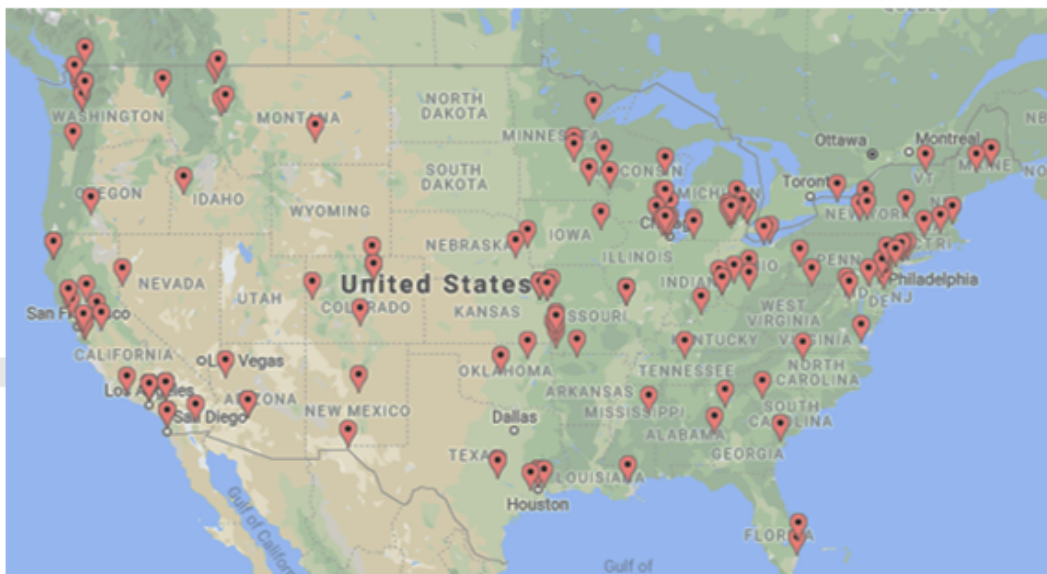
Use Cases for Data Sharing

Two thirds of collaborations report using multisector data to support alignment around both whole person care/care coordination and population level/upstream improvement.

The top use cases reported to support whole person care were:
- **Client/patient screening and assessment**
- **Quality and performance measurements**

Within the population level interventions, top reported use cases were:
- **Planning**
- **Evaluation**
- **Community needs assessments**

Use Cases Groups
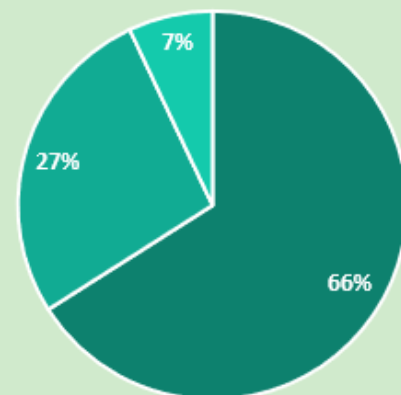
- Both whole person and population level upstream interventions use cases
- Strictly population level upstream interventions use cases
- Strictly whole person care coordination use cases

Data Sharing Phase

Half of responding collaborations are not yet sharing data across sectors. Nearly one third of respondents are still in the planning phase. Slightly over one fifth have progressed to system building.

| Planning 31% | System Building 22% | Launching 11% | Scaling 19% | Innovating 16% |
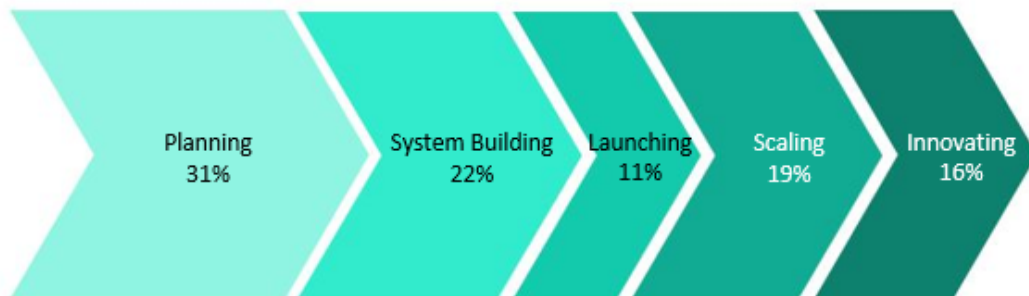
Fundamentals in Place

Collaborations report having the needed foundations for data sharing.

87% have a shared vision of what they want to accomplish

87% have committed leadership
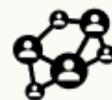
77% meet frequently

Progress to Date

Collaborations have not tackled all the elements that are needed to benefit from multi-sector data sharing.

Staff with Data/Information Systems Skills

55% Report sufficiently skilled staff

39% Impeded by lack of staff with data and information skills

Legal Agreements

9% Finalized necessary agreements

24% Are unsure if legally able to share; and **22%** experiencing legal barriers

Workflow

6% Redesigned workflows to use shared data

40% Haven't identified shared data work process improvements

Funding

5% Have self-sustaining financing

44% Lack financing plans

Technical Function

Collaborations struggle with system technical functionality. Of those who have live systems in place, respondents were most likely to rate the functionality as sufficient in terms of data visualization, and record matching; and least likely to find predictive analytics and automated decision-support functionality sufficient.

- 48% Data manipulation and visualization
- 41% Cross-system record matching
- 13% Predictive analytics
- 9% Automated decision-support
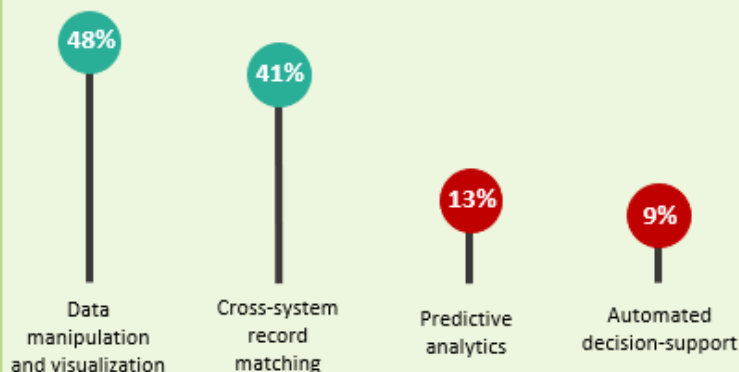
Technical Systems Integration

Collaborations use data infrastructures at different frequencies. Data repositories, electronic health records and open data platforms are most commonly used.

- 47% Data repositories
- 38% Electronic Health Records
- 34% Open data platforms
- 15% Multi-payer claims data
- 13% HHS eligibility and enrollment
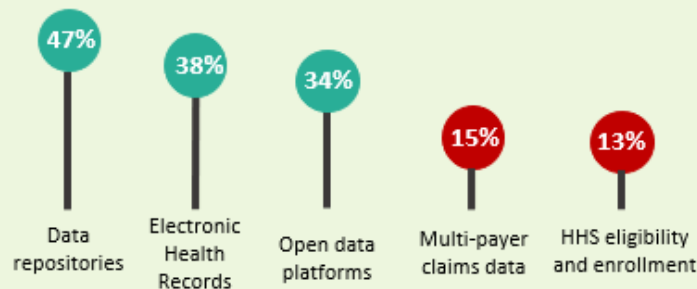
While the promise of increased efficiency, deeper insights, and better care continue to accelerate efforts to share data across sectors, collaborations report barriers. Community engagement and sharing leadership is important to successful, equitable governance, but most respondents did not report having robust participation at this level. Further, 40% mention insufficient staff resources, and only 5% have a sustainable funding model in place.

Introduction

Across the nation, efforts are underway to align health care, public health, and social service systems to better address individuals' needs and goals and ultimately to build healthier and more equitable communities. This reflects a recognition of the importance of the social determinants of health, which the World Health Organization describes as the conditions in which we "*are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems."[a] [1]*

Shared multi-sector metrics and data systems are a core component of aligned systems that enable organizations across sectors to effectively coordinate activities and measure shared progress. The National Inventory of Multi-sector Data Sharing revealed significant, ongoing barriers remain to effective, equitable, and sustainable development and implementation. These barriers include: lack of resources, navigating the regulatory environment (including laws such as HIPAA and others), mistrust in how the data will be used or perceived, a lack of will or buy-in, and difficulty linking data across settings (interoperability).[2]

Purpose

This report presents comprehensive data on how community collaborations are sharing data across sectors to drive individual and population level improvement in health, equity, and well-being. The results highlight opportunities to advance a common agenda that can help support and expand this crucial work. The insights and questions raised by the data, may be useful to public health and health care organizations, diverse social service organizations, policy makers and other community leaders seeking to align their work.

The survey was fielded in 2019 by the Data Across Sectors for Health (DASH) Program Office, in collaboration with partnering program office members of All In: Data for Community Health (All In).[b] All In partner networks are supporting community efforts and building the evidence base to advance practice, identify gaps, highlight investment needs, and inform policy around multi-sector data.

DASH Framework

The conceptual framework underlying the National Inventory reflects over five years of research and learning through collaboration, informed by key informant interviews, a review of DASH funded projects, published peer reviewed and grey literature, and ongoing environmental sensing. The DASH framework was initially developed out of an Environmental Scan completed in 2015. [3] Between 2015 to 2019, DASH funded 88 community multi-sector data sharing projects. DASH continues to build on this

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[a] Different organizations and people use language differently. Terms that are central to the DASH framework are included in a Dictionary at the end of the report.
[b] Visit Allindata.org for more information. All In is a learning network of communities led by DASH along with BUILD Health Challenge, Network for Public Health Law, New Jersey Health Initiative, Public Health National Center for Innovations, and Population Health Innovation Lab.

framework through monitoring grantee progress and synthesizing lessons learned. DASH applies its framework for:

- Organizing learning resources for the field and for the All In community
- Developing tools for community practitioners
- Assessing progress of individual initiatives
- Monitoring progress of the field
- Creating relationships and collaborating on policy

The DASH framework is reproduced below (Figure 1). This National Inventory assesses many of the domains of the DASH Framework for the purpose of understanding the progress of the field and deepening our understanding of what works – as well as what to avoid.

Figure 1. DASH Framework

Outer setting includes the economic, political, and social context within which an implementing system resides.
- Market Forces may drive competition and/or collaboration of various actors, such as: health systems, payers, social services providers, and vendors
- Policy and regulation promulgated by government, including rules, laws, incentives, direct investment, and contractual requirements

Inner setting includes features of structural, political, and cultural contexts through which the implementation process will proceed.
- Community context includes leadership development, resources (financial and human), collaboration, governance, shared vision, and shared power – across organizations and with residents and people with lived experience
- Organizational readiness relates to an organization's ability to undertake a transformational process or change with sharing data while identifying potential challenges that may arise

Data infrastructure to support data sharing, includes:
- Technical assets and processes that include software, platforms, organizations that enable data collection, processing, analysis, storage, sharing, access, and disposal
- Data governance: rules for collecting, protecting, sharing, and acting on data; specifying use cases; and being transparent about data stewardship.
- Use cases: describe the interaction between an actor and the data system to produce a desired result

Change strategy encompasses the phases of data system implementation and categorizes the actions planned and/or taken to achieve systems change

Systems change is the near-term goal of multi-sector data sharing supported by DASH. Systems change is about advancing equity by shifting the conditions that hold the problem in place. More specifically DASH supports communities to share data across sectors in order to build and support aligned systems that advance health, equity, and well-being.

Outer setting:
Market Forces and
Policy & Regulation

Inner setting:
Organizational Readiness,
Community Context & Engagement

Data infrastructure: Technical and governance aspects that support shared data use cases

Change: Encompasses phases of change and methods used to achieve it.

Outcome = Systems Change
Communities and sectors have sustainable and equitable data infrastructure in place and the motivation, resources, and practices to use data to align around health, well-being, and equity

Data and Analysis

For this report, data were collected from January 2019 to August 2019 through two related survey instruments: the DASH Capacity Assessment completed by DASH grantees and their partners, and a briefer version of the DASH Capacity Assessment instrument— the National Inventory survey. Several items in the DASH Capacity Assessment were adapted from existing instruments while other items were developed based on a review of related literature including other assessment tools and surveys.[4][5][6][7][8][9] [10][11][12][13][14][15][16][17][18][19][20][21][22][23][24][25][26][27] The DASH Capacity Assessment was also tested through multiple iterations over 3 years of grantmaking.

The Capacity Assessment is required of every DASH grantee and their community partners and is an optional activity for All In partner communities. Recruitment for the National Inventory occurred through widespread dissemination via social media and the All In Newsletter; as well as appeals and forwards from other organizations in the field. For the current report, 20% of included cases come from collaborations who completed the capacity assessment as a current DASH grantee; the remainder completed the National Inventory. Collaborations accessed the National Inventory through various outreach channels listed in Figure 2, below.

Figure 2. National Inventory Participant Recruitment (n = 179)
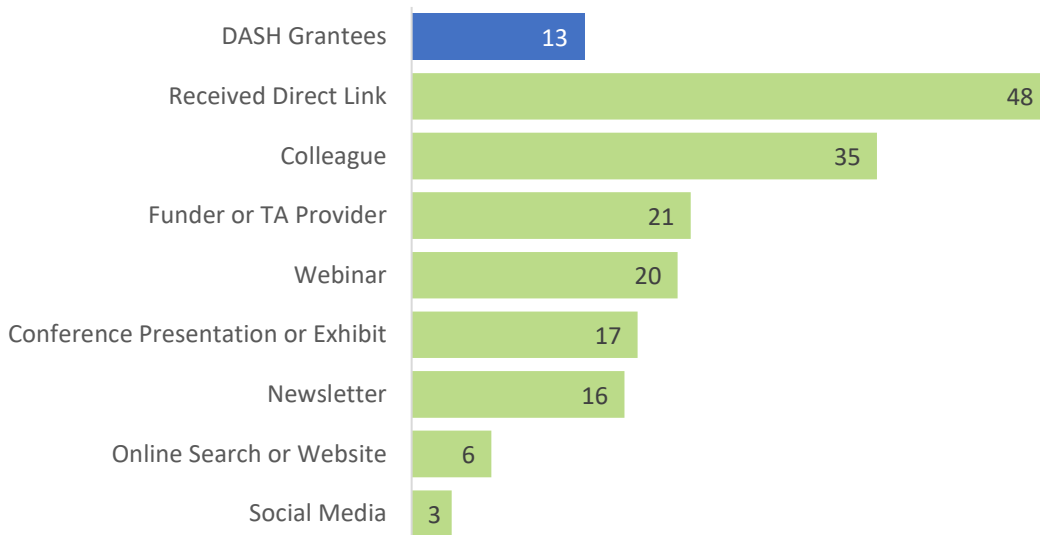
Note: The blue bar indicates the collaborations were current grantees that completed only the DASH Capacity Assessment during their DASH award. All green bars include collaborations responding to an email or posted email which are a mix of prior (non-current) grantees and others.

Data from the described sources were combined into a single data set and thoroughly investigated for accuracy and validity by multiple analysts. We conducted univariate analyses to characterize data along key variables relating to the DASH framework. We report these data descriptively and provide visual depictions in a color and gradient scheme denoting the extent to which responses are understood as beneficial toward building community capacity to share data across sectors for health.

Results

Scale of Multi-sector Data Sharing

The location of collaborations is seen in Figure 3 with concentrated activity found in California and the Pacific Northwest, Midwest, and the East Coast consistent with population density across the US.

Figure 3. Geographic Distribution of Respondents

Alignment across sectors can be and is happening at multiple levels: community, system, region, state (Figure 4). While DASH has typically focused on local collaborations, some collaborations did report large target areas.

Figure 4. Scale of Impact of Data Sharing (n=135)

■ County ■ Region ■ City/Town ■ State ■ Neighborhood/village
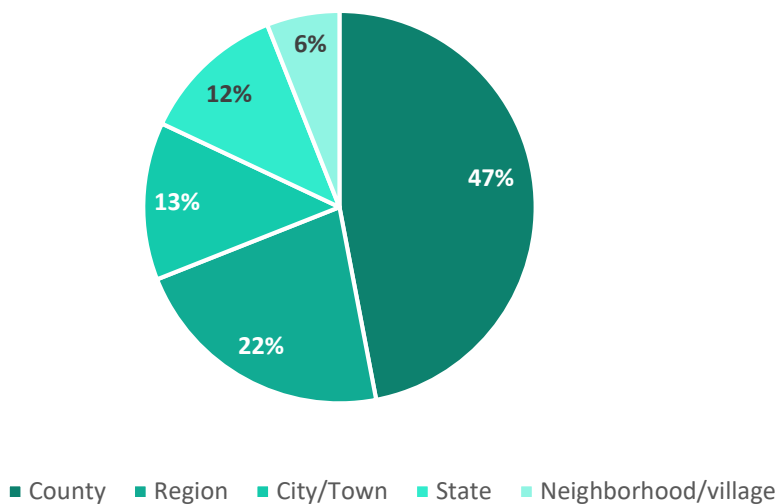
More than 60% of responding collaborations reported targeting health at the county or smaller units. Just under 34% worked at a regional and state levels.

Respondents were asked how long their multi-sector collaborations had been working together. Most were less than five years old (Figure 5).

Figure 5. Years collaborating

40%	35%	15%	9%

■ 0-2 years ■ 3-5 years ■ 6-10 years ■ >10 years
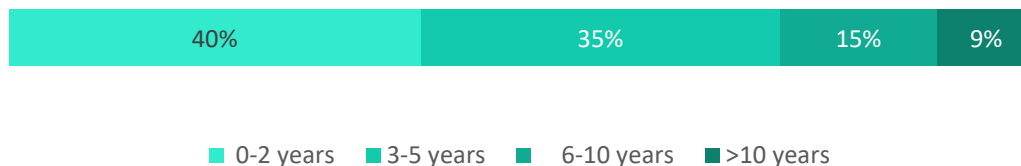
Role of Multi-sector Data Sharing in Community Health Initiatives

Technology and data sharing initiatives often use the term "use case" to describe activities in a succinct and broadly understandable way.   In DASH funding programs and survey results, we noted that these activities are situated in various (often simultaneous) locations on a continuum of those that seek to provide more holistic and coordinated care for individuals and families who are experiencing negative health impacts, to those that are trying to change the underlying structural or root causes that create inequity through population health interventions: place-based systems, or policy and environmental change (Figure 6). [i] These are both essential for addressing power imbalances that place minoritized populations at increased risk for health concerns. [28] We refer to these as "use case categories" on the DASH Framework as seen above, with individually focused systems or outcomes called "whole person care,"

Figure 6. Description of Data Sharing Use Cases

Whole Person Systems of Care
- Targets existing needs, effects of causes
- May include: secondary/tertiary prevention and/or treatment

Place-based System, Policy, and Environmental Change
- Targets underlying conditions
- For purpose of primary prevention

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[i] Adapted from: Health Begins (2019). Upstream Communications Toolkit.
https://www.healthbegins.org/uploads/2/2/0/4/22040328/upstream_communications_toolkit_-_may_2019.pdf

and broader collaboration or impact as "population-level upstream place-based policy, systems and environmental change." [29] [30]

Two thirds of collaborations pursue data sharing to support both whole person systems of care and population-level upstream place-based policy, systems and environmental change (which we also call population health for brevity) (Figure 7). Just over a quarter of collaborations are focused on change at a community level independent of care coordination systems.

Figure 7. Use Case Groups (n=179)

- ■ Both whole person and place-based system, policy and environmental change use cases
- ■ Strictly place-based system, policy and environmental change use cases
- ■ Strictly whole person care coordination use cases
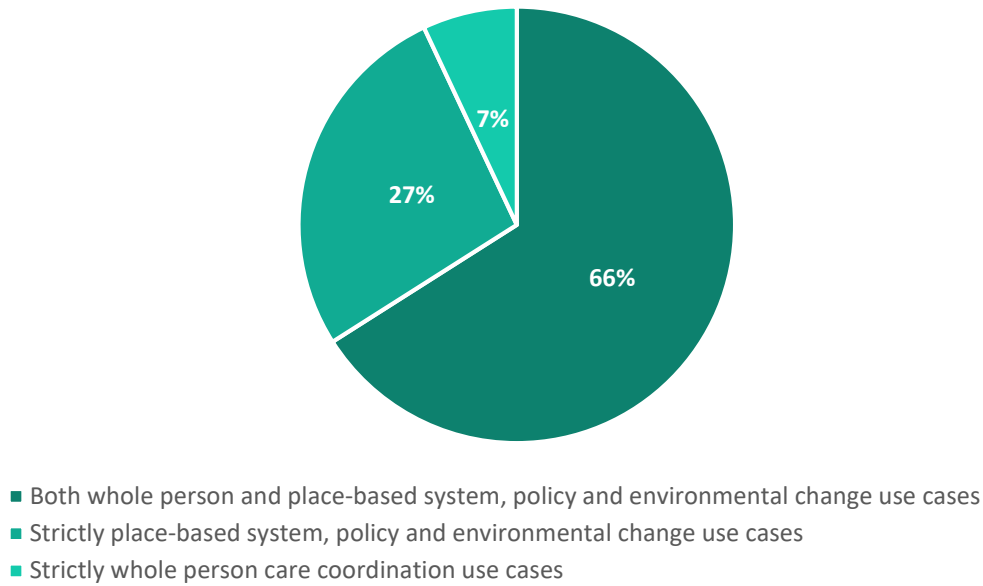
In terms of Population Level, Place-based Policy and Environmental Change use cases, Figure 8 depicts the specific activities or outcomes that shared multi-sector data is meant to support. Illustrative examples of select population level use cases are provided in table 1. Data systems are envisioned for planning, evaluation, and community needs assessment. Both mapping/hot-spotting and community dashboards are important use cases in these efforts.

Figure 8. Use Case: Population Level, Place-based Policy and Environmental Change Intervention (N=179)

Use Case	Count
Planning	129
Evaluation	123
Community Health Assessment	121
Mapping/hotspotting	119
Community dashboard	103
Monitoring or surveillance	87
Addressing the built or natural environment	48
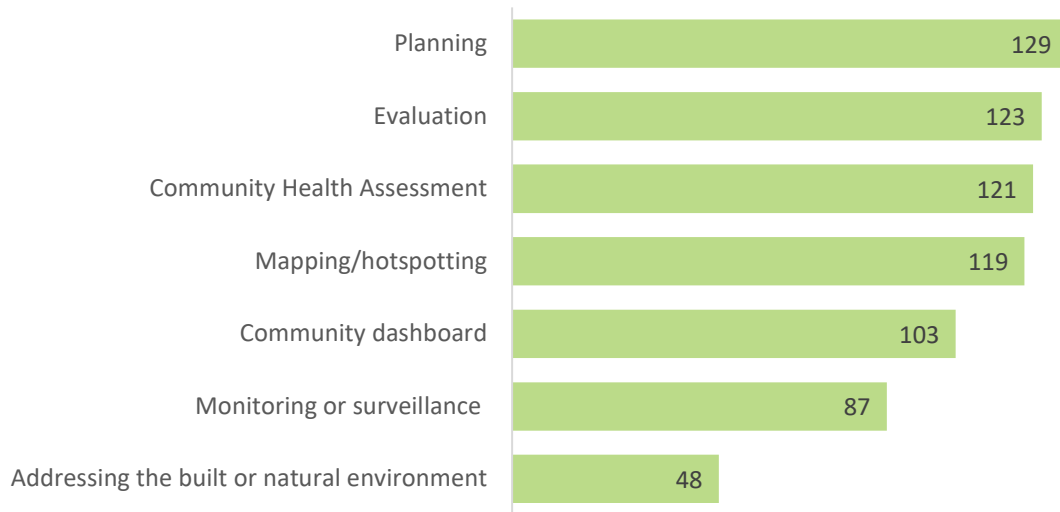
Table 1. Examples of Population Level, Place-based Policy and Environmental Change Use Cases

Use Cases	Example
Mapping/Hot spotting	*"Data will be used by…community organizations to map neighborhoods with problematic housing."*
Community Health Assessment Planning	*"We aim to use data from across sectors to develop a regional community health assessment and improvement plan as well as share data that demonstrates the level of success with initiatives adopted by the collaborative."*
Evaluation	*"We are primarily looking at population level data and using the data to determine community impact of strategies used to increase health, social determinants of health, and health equity."*
Community Dashboard Monitoring and Surveillance	*"[Our] data dashboard is designed to monitor progress to asset-based, population-level indicators over time. The data, including stories that capture the context that surrounds the quantitative data, helps inform and guide direction and decision, monitor progress, and communicate intentions."*

As shown in Figure 9, whole person care across sectors requires supportive data at multiple points in the process: client/patient screening and assessment, sending and receiving of referrals, client prioritization, intake and eligibility, and quality and performance measurement. Illustrative examples of select whole person systems of care use cases are provided in table 2. Community resource directories are common – and generally important in conjunction with referrals. Although fewer collaborations selected appropriate setting/diversion programs as the use case for data-sharing, this is often the goal of improving component use cases such as eligibility determination and client prioritization, and of better whole person care coordination overall.

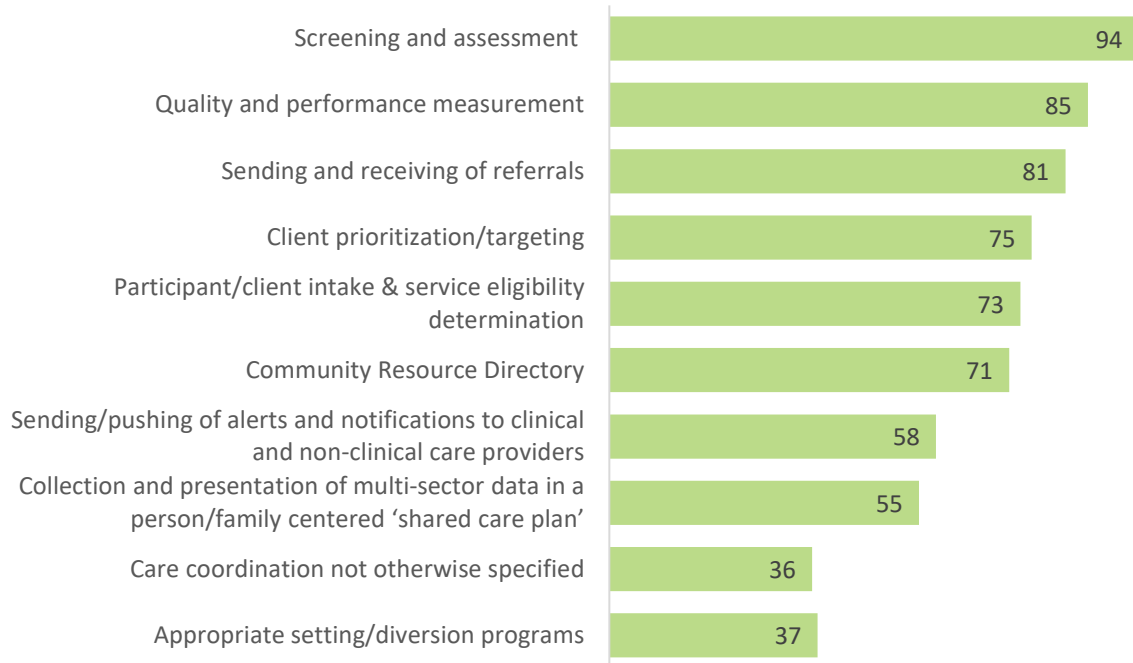*Figure 9. Use Case: Whole Person Care Coordination Intervention (n=179)*

Use Case	Value
Screening and assessment	94
Quality and performance measurement	85
Sending and receiving of referrals	81
Client prioritization/targeting	75
Participant/client intake & service eligibility determination	73
Community Resource Directory	71
Sending/pushing of alerts and notifications to clinical and non-clinical care providers	58
Collection and presentation of multi-sector data in a person/family centered 'shared care plan'	55
Care coordination not otherwise specified	36
Appropriate setting/diversion programs	37

Table 2. Examples of Systems of Whole Person Care Use Cases

Use Cases	Example
Sending and receiving of referrals **Service eligibility determination**	*"ADT feeds will be shared with a community assistance organization and provide demographic information for patients that had a recent encounter at the provider organization, this information will be used to help determine eligibility and referral for social service programs."*
Client prioritization/targeting	*"[We] will be using this data to outreach to underserve, older adults in need of benefits and ultimately enroll them in these benefits."*
Quality and performance measurement	*"The data elements that we collect and contribute include client demographics, enrollment / eligibility information, and referral initiation and closeout… We aim to decrease call queue wait time and improve client well-being (measured on a scale of crisis to thriving) over time."*

Sector Participation in Data Sharing

Once the importance of multi-sector data is established, the question often becomes which sectors are important stakeholders. Respondents were asked which sectors were contributing or using data from other sectors in the collaboration (Figure 10). DASH also monitors awardees to determine where sharing is occurring, or simply envisioned. Clinical healthcare, public health, and social service organizations are the most represented sectors as both sources and users of data. Survey respondents reporting on their collaboration could select 'all that apply,' meaning they could report multiple data roles for multiple sectors. Social services providers also frequently checked food/nutrition along with housing sectors, with over half selecting both food/nutrition and housing sectors as a data user. Behavioral healthcare is also a frequently represented sector, which presents interesting challenges as

regulations regarding substance use present considerable complexity for collaborations seeking to share data with behavioral health care providers. Education is a participant in over 1/3 of the reported data sharing collaborations. Academia and philanthropy appear to more frequently engage as data users than data sources. Presently, sectors that are less frequently reported as engaged include health care payers, business, faith-based institutions, and elected officials.

Figure 10. Sectors of Key Stakeholders and Involvement (n=179)
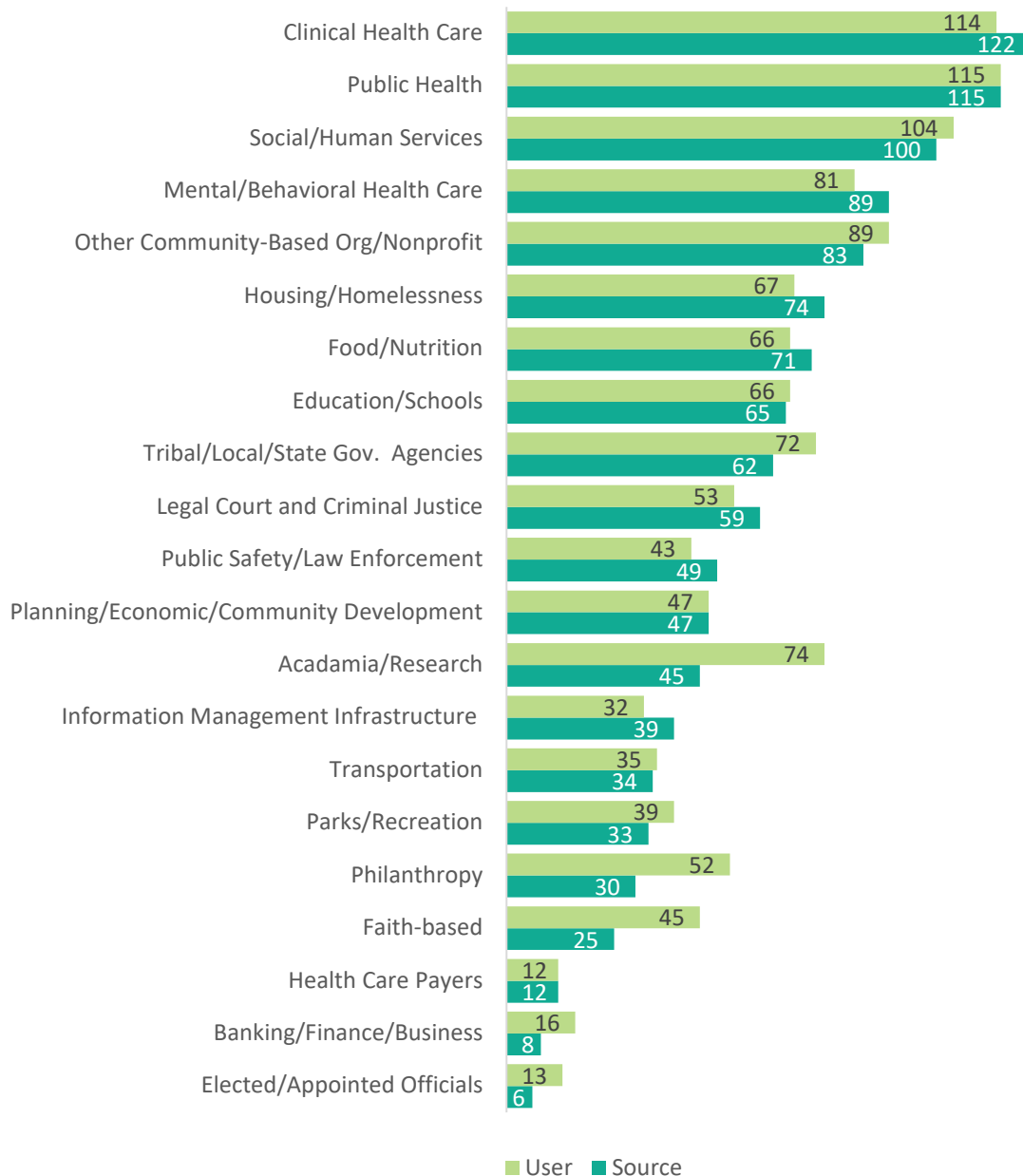
Foundations of Data Sharing: Leadership, Shared Vision, and Community Engagement

Understanding how individuals and organizations come together to solve complex systems problems and achieve common goals in the area of community health is a robust field of study[8][13]. Our instrument captured constructs related to leadership, governance, vision, membership, and engagement. Data show that the collaborations – if at least planning for multi-sector data sharing – report they have achieved a foundational level of readiness (Figure 11).

Figure 11. Facilitators of Successful Collaboration (Item 1 & 2, n=179; Items 3-5, n=135; Item 6, n=168)
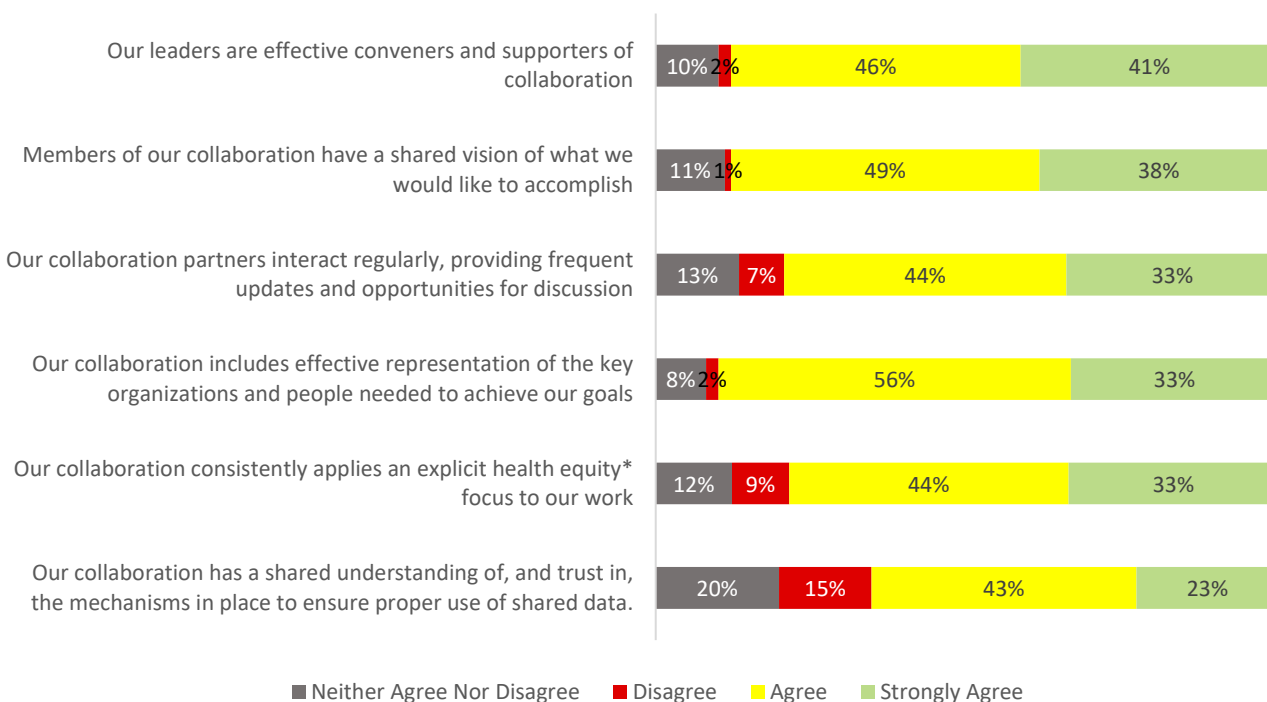
Note: Responses of disagree and strongly disagree were combined due to a low number of responses for both disagree and strongly disagree choices. Health equity means that everyone has a fair and just opportunity to be healthier. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.

Follow-up questions ask about how people with lived experience are engaged with data sharing collaboration on. People with lived experience include residents, program participants, patients—the persons who directly experience the conditions being addressed by your collaboration. Engaging people with lived experience is conceptualized as a continuum from: no engagement; to opinion gathering only; to more active types of engagement in planning, implementation, and/or leadership positions. Figure 12 reports the number of projects that engage people with lived experience along this continuum (selecting multiple response options was possible).

Figure 12. Identified Roles of People with Lived Experience (n=179)

Role	Value
Lead	32
Active engagement in planning and/or implementation	50
Provide feedback	96
Lack consistent engagement	45
Don't know	15
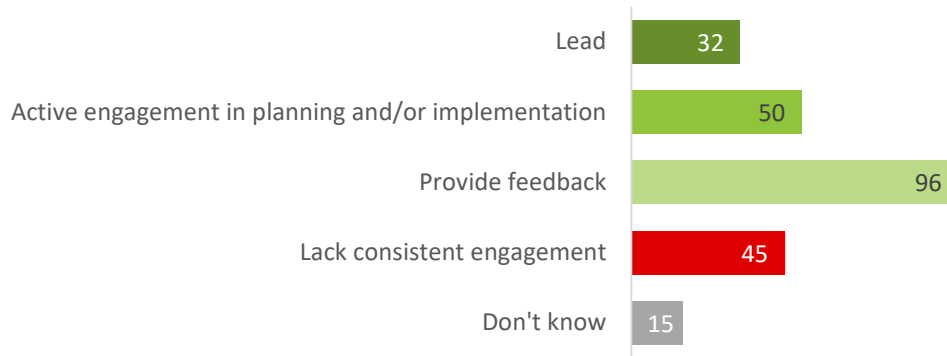
Foundations of Data Sharing: Data Sharing Infrastructure

Investment in shared data properly begins with an assessment of the human resources, technologies, and data intermediaries that facilitate linking and sharing data. Only about half of the collaborations reported that constituent organizations have personnel with skills sufficient for data-sharing (Figure 13), while nearly 40% reported that organizations' lack of personnel skills hampers the progress toward and ability to share data.

Figure 13. Skills for Data Sharing (n=179)

5%	9%	30%	27%	28%

- ■ Don't know/Not Applicable
- ■ Lack of data and information system skills is a significant barrier to data sharing
- ■ Some organizational members lack staff with data and information system skills, hampering the ability to share data
- ■ Sufficient staff with the basic data and information skills to share data
- ■ Key program staff have the necessary understanding and skills to manage and share data

Note: 'Community Information Exchange' is a relatively new infrastructure type and was not included on the inventory as a category – this infrastructure has risen in popularity lately and will be included on future surveys.

Figure 14 presents data on the core infrastructure that collaborations report utilizing to share data. As the data show, the most commonly used infrastructure is "repository of data from different sources." This could indicate that in the absence of shared infrastructure (such as health information exchange (HIE), open data platforms, or integrated eligibility/enrollment systems), communities are building one-off solutions. A little over a quarter of collaborations report leveraging infrastructure such as an integrated data system or health information exchange for multi-sector data sharing.

Figure 14. Use of Community Data Assets toward Data Sharing (n=179)
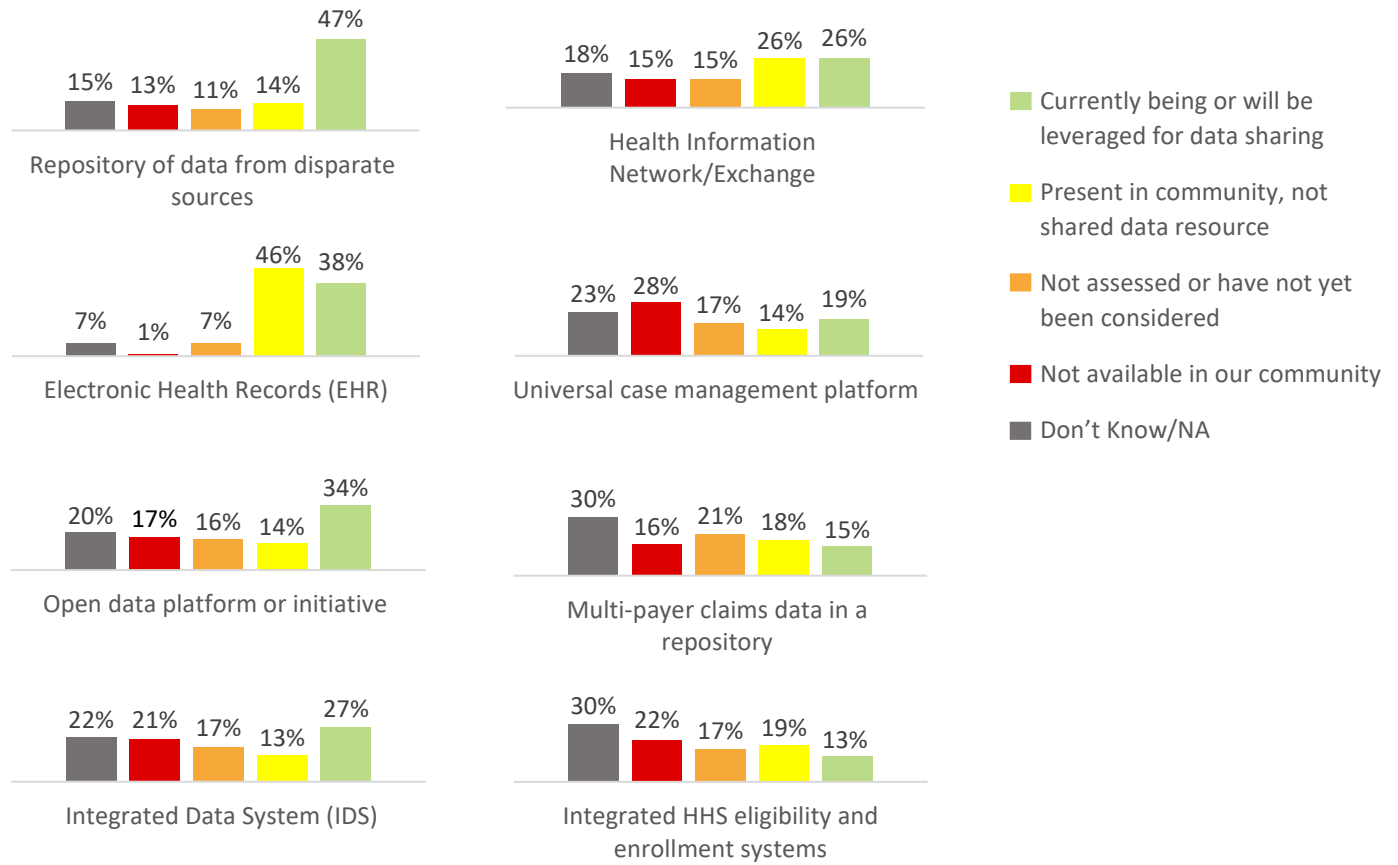
Data Sharing Progress: Project Implementation, Legal, Workflow, Technical Function, Sustainability

The purpose of the National Inventory was to drill deeper into the ways collaborations were sharing and using multi-sector data. Figure 15 shows how respondents represented data sharing collaborations that were generally early on in their development: about 65% were planning, developing systems, or in the process of launching or beta testing. Less than 40% responded being post-launch: either scaling or innovating.

Figure 15. Distribution of Developmental Phases (n=166)

Planning	System Building	Launching	Scaling	Innovating
31%	22%	11%	19%	16%
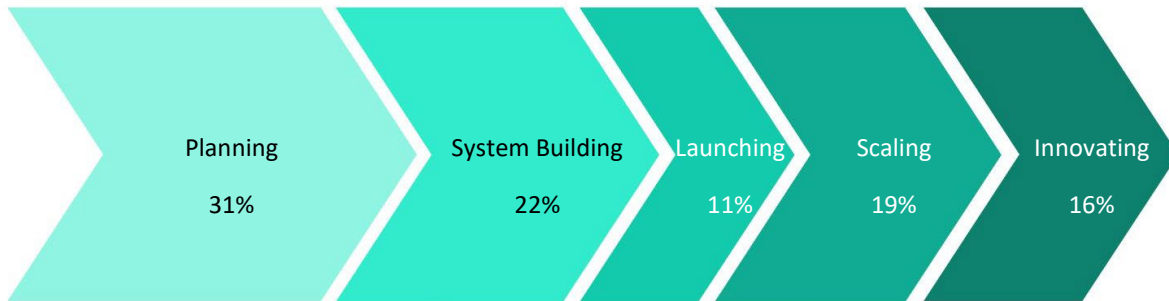
The remainder of this section summaries key areas of progress, including legal agreements, workflow redesign, technical function, and sustainable financing.

Data Sharing Progress: Legal Agreements

Collaborations report spending an inordinate amount of time and money negotiating legal agreements. While laws such as the Health Insurance Portability and Accountability Act of 1996 (HIPAA), Family Educational Rights and Privacy Act (FERPA), and Confidentiality of Alcohol and Drug Abuse Patient Records (42CFR2) impose meaningful restrictions and requirements, their implications for the possibility of data sharing is subject to interpretation and risk tolerance. Condition-specific and state laws must also be reviewed and interpreted. "Legal compliance requires conducting a comprehensive legal analysis of all proposed data types and sources. The sheer volume of potentially applicable laws makes the process daunting, even for those with legal training."[31] Only 9% of collaborations have identified the relevant requirements and finalized the necessary agreements for data sharing (Figure 16). Of the collaborations that needed legal agreements, 9 in 10 respondents reported their collaboration is still working to finalize the necessary data agreements.

Figure 16. Legal Status and Data Agreements (n=160)

24%	24%	24%	18%	9%

■ No legal agreements are needed for our work.

■ We are unsure of the requirement for data use agreements and/or if privacy laws will allow us to share data.

■ We think we have identified the relevant requirements and understand the extent to which we can share data, but are experiencing barriers or delays in moving forward.

■ We have identified the relevant requirements, and necessary data sharing/data use agreements are in process.

■ Necessary agreements for data sharing are finalized.

Data Sharing Progress: Workflow

Sharing data is generally done for the purpose of supporting new practices and procedures or improving existing ones. Effectively using new data systems requires attention to workflow redesign: mapping out

current processes and planning for how these will change (Figure 17). As collaboratives mature in their alignment toward shared goals, and work toward those goals collectively, organizations tend to coordinate their processes and workflows. The ability to carve out novel and efficient processes amongst organizations to complete work related to data sharing indicates an accomplishment toward successful collaboration. The RWJF alignment strategy suggests communities characterized by a proliferation of nimble organizations able to evaluate and adapt workflows may be more prone to succeed in shared goals. We found one in four respondents reported at least some changes to organizational workflow has occurred as a result of multi-sector collaboration toward data sharing.

Figure 17. Workflow Redesign (n=167)

40%	32%	22%	6%

- ■ Participating organizations have not yet started to review how shared data can improve work processes.
- ■ Participating organizations are reviewing current work processes and planning how they could be designed to incorporate the use of multi-sector data.
- ■ Participating organizations have changed some aspects of how work is organized in order to utilize multi-sector data, but there is more to do.
- ■ Participating organizations have significantly redesigned workflows to take advantage of shared data.

Data Sharing Progress: Technical Function

Technical function is the extent to which the technical aspects of a system facilitate its core functions while complying with relevant policies and regulations. Among the respondents who reported that their collaboration completed the planning and system building phases, we see a range in the functions of shared data systems. Capabilities such as data visualization, mapping, case matching and data transformation are most commonly reported as sufficient. Automation, prediction and real-time case matching were least commonly reported as sufficient (Figure 18).

Figure 18. Shared Data System Capability (n=75)

Data manipulation, visualization and presentation
9% 9% 33% 48%

Report functionality
19% 11% 41% 29%

Calculation and display of metrics and indicators
12% 12% 31% 45%

Real time data linking and record matching
24% 28% 23% 25%

Using identifying information to match records across systems
29% 16% 13% 41%

Predictive analytics
24% 32% 31% 13%

Legend:
- ■ Sufficient Capability
- ■ Limited Capability
- ■ No Capability
- ■ Don't Know/NA

Mapping/geographic information systems
12% 15% 33% 40%

Automated decision- support
35% 35% 21% 9%

Look up and query specific individuals
31% 21% 11% 37%

Note: Data are only included for respondents who indicated collaboration was either in the launching, scaling, or innovating phases.

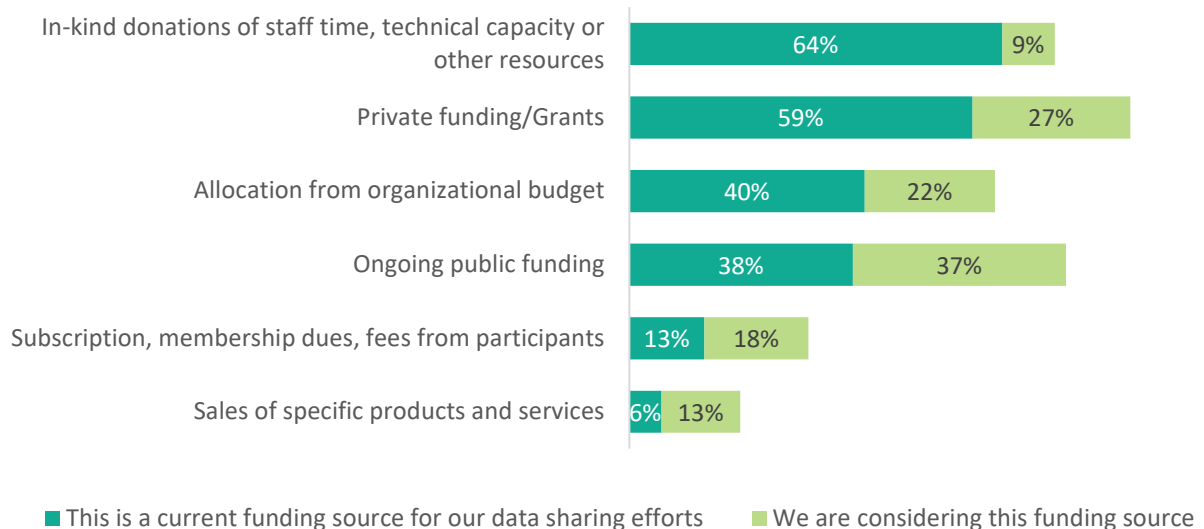## Data Sharing Progress: Sustainable Financing

As shown in Figure 19, less than one in five respondents reported their collaboration has a long-term financial plan with a critical mass of partners. A small proportion have identified a funding structure that is self-sustaining.

Figure 19. Sustainability (n=179)

6%	44%	33%	12%	5%

■ Don't know/Not Applicable

■ We do not yet have financing plans for our initiative

■ We know how to pay for some parts of our long-term strategy but not others

■ We have a financing plan for long-term sustainability and a critical mass of institutions and partners

■ We have established a self-sustaining funding structure

A majority of respondents report that data sharing is funded by leveraging existing resources such as staff time and technical assistance, as well as grant funding, as depicted in Figure 20. Generally, these temporary funding mechanisms pose risk for long-term sustainability of respective collaboration initiatives.[13] The remaining four funding categories relate to organizational and community funding, as well as money generating mechanisms (i.e. product and service sales; membership fees and subscriptions) that tend to pose less sustainability risk.

Figure 20. Funding

Funding source	Current	Considering
In-kind donations of staff time, technical capacity or other resources	64%	9%
Private funding/Grants	59%	27%
Allocation from organizational budget	40%	22%
Ongoing public funding	38%	37%
Subscription, membership dues, fees from participants	13%	18%
Sales of specific products and services	6%	13%

■ This is a current funding source for our data sharing efforts   ■ We are considering this funding source

Conclusion

When DASH released our first request for proposals in 2015, 409 applicants responded, indicating considerable interest in the field of multi-sector data sharing. DASH has observed continuing momentum, propelled in part by changes in the healthcare system, a recognition of the importance of social services in promoting health outcomes, and continued drive to improve the quality of public health practice. As we write this in 2020, the combination of the Covid-19 pandemic, mounting concerns about the economic, educational, and social fall-out, and widespread activism for racial justice show signs of accelerating the work but not necessarily increasing the resources for investment.

While the interest in multi-sector data sharing accelerates, this report demonstrates key barriers remain, including: lack of robust community engagement, legal ambiguity, continued reliance on manual and imperfect data management processes in the absence of standards, and unsustainable financial models.

DASH's next steps will be to continue supporting communities to address these barriers through grants, peer to peer learning and technical assistance. DASH also realizes the need to address some of the underlying conditions that lead to these barriers. In 2020, we launched a policy initiative aimed at state-community collaboration as well as a national conversation to promote equitable community data sharing ecosystems.

Dictionary: Definition of Terms

Collaboration	Collaboration refers to relationships in which two or more independent parties voluntarily decide to work together to address a common purpose.
Community Alignment	According to the Robert Wood Johnson Foundation, systems and leaders that share a set of priorities for outcomes that are valued by the people they serve; create a shared data, metrics, and measurement system; establish stable financing with incentives and shared accountability; and have strong governance with leadership and structured relationships.
Data Infrastructure	A critical factor in community readiness for multi-sector data exchange is the existing data infrastructure. Before data can be exchanged, they must be systematically captured, curated, and stored with mechanism to share and link across organizations and systems. Within the health care sector, there have been significant recent investments in data infrastructure, and many of these are being leveraged for community health improvement efforts. Examples include the proliferation of Electronic Health Records (EHRs) in ambulatory and hospital settings, the increased development of integrated data systems and data warehouses for human and social service administrative data, and the expansion of health information exchange (HIE) services and organizations.
Data Sharing	Data sharing is the exchange of digital information between various organizations, people and technologies. For the purposes of this project, data sharing includes the exchange of information between the health, education and human service sectors.
Data Sharing Readiness	A systematic analysis of an organization's ability to undertake a transformational process or change with sharing data while identifying potential challenges that may arise.
Data System Technical Function	Technical function is defined as the extent to which the technical aspects of a system facilitate its core functions and comply with relevant policies and regulations. Strong technical function supports data exchange in electronically sending, receiving, and processing data and/or messages internally between programmatic information systems as well as with external partners and securely sending and receiving electronic health data with clinical partners. Technical function can also be assessed by understanding the extent of linkages across the health care delivery system and to behavioral health/social care services and agencies to address broad determinants of health.
Environmental Change	A change or disturbance of the environment most often caused by human influences and natural ecological processes.
Multi-sector	Involving multiple sectors including, health, human services, education, among others.
People with Lived Experience	People with lived experience include residents, program participants, patients - the persons who directly experience the conditions being addressed by your collaboration.
Place-Based	Rooted in a geographically defined locality, place-based health initiatives focus resources and efforts in selected communities to create systemic change through interconnected approaches

Policy	A course or principle of action adopted or proposed by a government, party, or business.
Population Level/Upstream Intervention	Place-based activities focused on the drivers of community health, well-being, and equity. More specifically, the health outcomes of a group of individuals, including the distribution of such outcomes within the group. Population level recognizes that outcomes include factors outside of traditional health care delivery, including social determinants of health.
Scale	A system or series of marks used for measuring or registering. In this case, the geographical measurements include neighborhood, county, region, state, multistate etc.
Shared Vision	Common vision and common language within a collaboration are foundational to multi-sector data sharing. These elements develop as organizations and individuals establish and nurture relationships and form partnerships around community health goals and strategies. In order to get to a shared vision, a value case must be made to generate buy-in among partners. Diverse stakeholders have different goals and incentives driving their work. All stakeholders must see the value of data sharing at the start of the initiative to ensure continued interest, participation, and commitment.
Use Case	A use case is a list of actions or event steps typically defining the interactions between a role and a system to achieve a goal.
Whole Person Systems of Care	The coordination of health, behavioral health, and social services in a patient-centered manner with the goals of improved health outcomes and more efficient and effective use of resources
Workflow	Strong workflows include performance attributes that support the quality of stakeholders' experiences in using a system. This can be understood as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use."

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