Project:
AMRNETWORK

Designing a Coordinated One Health Response to Antimicrobial Resistance in Canada

Series 2 Consultations:
Network Structure
Nov. / Dec. 2020

In This Discussion Document...

Guiding Our Conversation

Our intent with this document is to prompt critical thinking, so that you and your peers can suggest ways in which the aforementioned model options can be be improved and further refined. We encourage you to attend our upcoming series of virtual consultations, where we will discuss these ideas in considerable detail. Session dates are as follows:

- Tuesday, November 24, 2020 at 9:00 a.m. EST
- Thursday, November 26, 2020 at 1:00 p.m. EST
- Monday, November 30, 2020 at 6:00 p.m. EST
- Wednesday, December 2, 2020 at 9:00 a.m. EST
- Friday, December 4, 2020 at 1:00 p.m. EST

We may add additional sessions in early-December if there is appetite from the stakeholder community. Registration is open at **amrnetwork.ca.**

If you are unable to attend one of the sessions, we encourage you to submit written feedback to some or all of our discussion questions. Please send your responses to **feedback@amrnetwork.ca** by December 4, 2020 and we'll ensure that your comments are captured and considered as we move on to our next steps.

Thank you for reading this document and participating in this important work. We look forward to hearing your thoughts!

Discussion Questions

The objective of this discussion paper is to briefly review the issues and challenges of antimicrobial resistance (AMR) and antimicrobial use (AMU) governance in Canada, describe two network model options and how they would work, and seek your input. As you read this discussion document, please consider the following questions.

1. How comfortable are you with each model option to help advance the AMR action plan? What are some specific points of interest or contention from your perspective?

2. In thinking about the implications for the network's likelihood of achieving success, is one model option better suited than the other to…

    i. move the action plan forward efficiently, effectively, and nimbly?
    ii. earn trust and legitimacy, both from members and partners as well as externally?
    iii. engage stakeholders across One Health, across sectors, across regions, across languages, etc.?
    iv. bring together federal, provincial, and territorial government interests? What about non-government or private sector interests?
    v. reduce duplication of effort and increase the value of contribution?
    vi. allow priorities to be determined in the short-, medium-, and long-term?
    vii. mitigate inequalities in access to healthcare in Canada (e.g. rural communities, Indigenous Peoples, people with low income)?
    viii. spur increased investments in AMR-related work?
    ix. fund network operating costs?

3. How should the Network Coordinating Council/Board members be appointed? Should a different process be used in the initial setup of the network vs. future appointments?

4. Should the network be accountable for (a) implementing the forthcoming Pan-Canadian Action Plan (PCAP) and/or (b) owning and updating it on a go-forward basis?

5. What additional wisdom or advice can you offer regarding AMR governance in Canada?

1. The Project

Funded by the Public Health Agency of Canada (PHAC), this project is developing recommendations for a network model(s) that will catalyze a national, One Health response directed at mitigating the threat of antimicrobial resistance (AMR) for all Canadians.

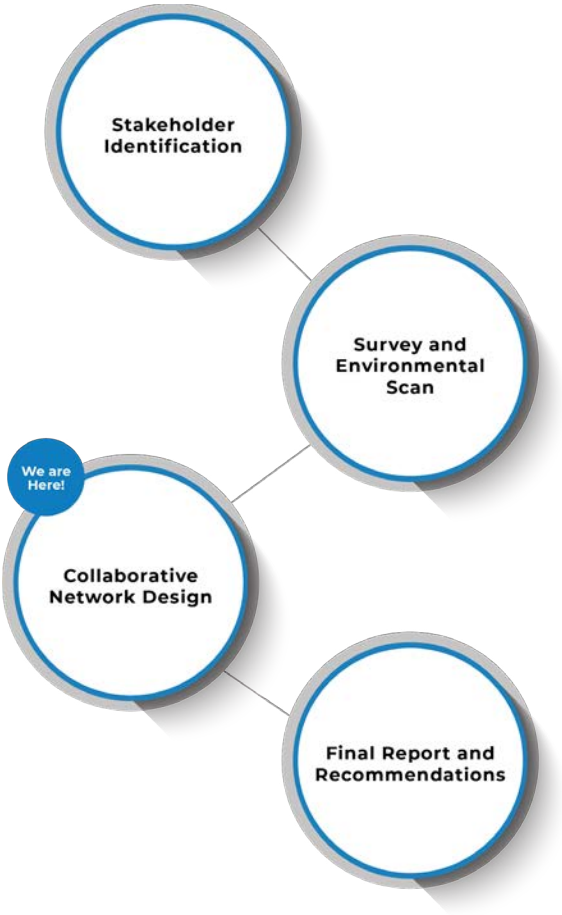
Project leadership consists of chairs, committee members, and special advisors who come from a diversity of backgrounds from all corners of the One Health spectrum. You can learn more about our team at amrnetwork.ca/team.

After several months of stakeholder identification, environmental scanning, and internal discussions about network objectives, our project team is now working through a collaborative network modelling process. We spent Summer 2020 examining candidate network functions and have since turned our attention to network form. This document is designed to present ideas, foster discussion, and generate feedback from Canada's diverse AMR stakeholder community.

Our goal is to propose a network model that can support implementing the Action Plan and demonstrate how such a network could provide value to the many different AMR stakeholders across Canada.

By Spring 2021, we plan to submit formal recommendations to PHAC and other funders that make a strong case for investing in a national, One Health network focused on mitigating AMR with confidence that it will effectively implement the Pan-Canadian Action Plan (PCAP or "action plan"), a document that is being developed by PHAC to guide Canada's AMR-related priorities.

Funding of the network is not guaranteed and is out of scope for our project. Once a funding decision is made, an implementation project team will need to form to bring the network to life.



1.2. The Problem

Antimicrobials, used to treat infections in humans and animals, are losing their effectiveness — and the implications are stark. In fact, the Review on Antimicrobial Resistance suggests AMR is likely to surpass cancer as the leading cause of death by 2050, claiming up to 10 million lives per year across the globe in the process.

In response to the growing threat, the World Health Organization (WHO) adopted the Global Action Plan on AMR in 2015. Since then, more than 115 countries have developed their own national action plans or frameworks on AMR. But many — including Canada — have been unable to secure funding, develop effective governance systems, or implement their plans in a meaningful way.

Given the size and scope of the issue, that's not entirely surprising. Plus, now more than ever, AMR must compete for resources against more immediate health priorities, like COVID-19. However, the reality is AMR itself is an immediate health priority and addressing it would fundamentally enable our global health systems to more efficiently home in on emergent threats.

Because AMR is a One Health issue — in other words, it transcends human health and impacts our animal and environmental health systems, too — addressing AMR requires a level of cross-discipline coordination perhaps only paralleled by that of climate change. While great work is already underway in Canada, it is largely being performed in silos. Building bridges across disciplines, sectors, regions, and areas of expertise will be integral to achieving any degree of success against AMR.

In the sections that follow, we will explore different network models to do just that. Networks, as you'll learn throughout the sections ahead, can be structured in different ways to solve different problems. This document will explore networks in a general sense, and then delve into two distinct model options — a distributed collaboration model and a lead-entity model. You will notice that both models contain many similar elements, but there are also some significant differences. We acknowledge that AMR is a large problem and that governance is just one piece of the puzzle, but we hope that this document and the discussion it subsequently generates can help you see how effective governance can lead to change in the bigger picture.

2. The Coordination Challenge of AMR in Canada

While there is increasing recognition of the negative health and economic impacts of AMR in Canada, the issue currently falls outside the sole jurisdiction of any single existing oversight body. This gap has generated widespread recognition of the need to better coordinate. However, due to the complexity of the response required and the vast number and diversity of actors involved, this level of coordination is inherently challenging.

Appropriately addressing the threat of AMR in Canada will require a strategic, coordinated, and highly collaborative approach that encompasses all aspects of the One Health continuum, all levels of society and government, and all regions of the country.

There has already been a long history of Canadian AMR action across these different dimensions, and the current federal, provincial, and territorial (F/P/T) focus is on the development of the PCAP. However, even with its development underway, current F/P/T structures are not expected to provide sufficient coordination and oversight to fully implement and monitor the action plan. Implementing the action plan will require coordinated action across an ecosystem of autonomous organizations and experts — some with competing interests, and many with priorities that extend far beyond AMR.

In 2017, Canada responded to this increasingly complex situation by publishing *Tackling Antimicrobial Resistance and Antimicrobial Use: A Pan-Canadian Framework for Action.* Since then, Canada has continued to take steps toward improving the country's international standing in the response to AMR. According to the 2018 Joint External Evaluation of the International Health Regulations, Canada demonstrated several strengths in addressing AMR, particularly in the areas of surveillance, diagnostic capacity, and infection prevention and control (IPC). Furthermore, the Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS) is regarded as the global gold standard for AMR surveillance, as it combines data from human, animal, and food sources.

However, Canada still has to make considerable changes if it is to achieve mitigation of the issue. According to The Lancet, Canada is the only member of the G7 without a national-level government-approved action plan that contains operational strategies, monitoring arrangements, and, in some cases, funding.

While the action plan that is currently in development will set forth the steps to mitigating AMR in Canada, there are currently no governance mechanisms to guide its implementation.

Right now, several barriers and problems exist that may reinforce the challenge of coordination. Some notable examples include:

- Lack of large-scale action and implementation success has caused skepticism amongst the stakeholder community
- Limited AMR-specific funds, resources, and delivery capacity has caused frustration
- The AMR community is susceptible to being sidetracked by emergent issues, like COVID-19
- Achieving full representation — One Health, public and private organizations, F/P/T governments, equity-seeking groups, English and French stakeholders, etc. — is a massive undertaking
- Connecting Canada to international initiatives may be challenging in the AMR sphere
- AMR and One Health in Canada are complex ecosystems

2.1. How A Network Can Help

Through surveys and consultations conducted by our project team and other groups, Canada's AMR community has voiced a strong desire for a network to help coordinate the AMR ecosystem. Between stakeholder feedback and the priorities outlined in the PCAP draft, we know that such a network must:

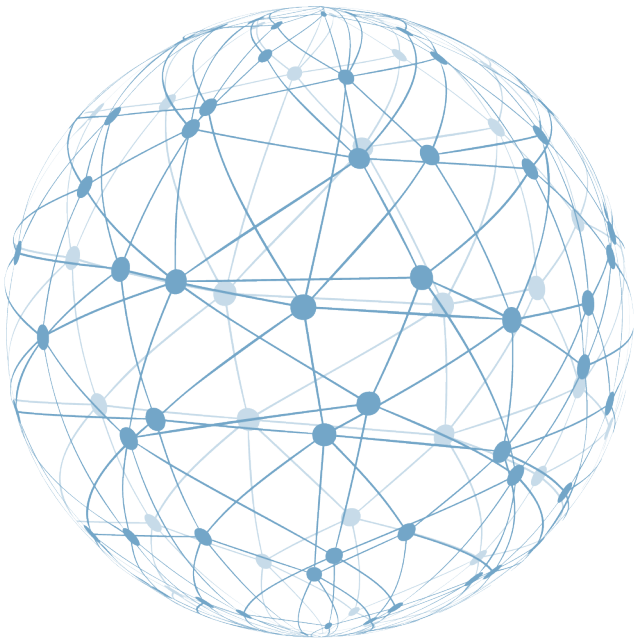
- Support (or perhaps even spearhead) the implementation of the forthcoming action plan
- Leverage and scale up innovation and best practices across sectors, disciplines, and jurisdictions
- Identify and incentivize investment opportunities in AMR-specific research across sectors
- Facilitate connection and collaboration across disciplines, sectors, and jurisdictions
- Enable knowledge sharing to promote collective actions
- Lead and coordinate action in areas ranging from surveillance and stewardship to research and infection prevention and control

The Project Steering Committee has articulated the following purpose for a potential network: "To catalyze a national response directed at mitigating the threat of AMR for all Canadians, by assembling, coordinating and supporting action across the One Health domain."

3. Considerations As We Design This Network

In order to make robust recommendations for AMR governance in Canada, we have closely examined a number of different elements that pertain to networks. The upcoming sections delve into some of those elements, including the notion of a network in general, how change can occur, how networks can interact with the notions of accountability and governance, and much more.

3.1. Thinking About the Notion of a Network



Networks bring together groups of autonomous people and organizations to achieve a shared outcome. These groups (network participants or members) typically have limited formal accountability for network-level goals. Unlike other types of organizations, networks have special characteristics that have implications for how they are governed and managed. Specifically, conformity to network rules and procedures is often voluntary. In other words, people join and participate at their own discretion.

With that in mind, the role of governance in network oversight is to ensure that participants engage in collective and mutually supportive action, that any potential conflict is addressed, and that resources are acquired and utilized efficiently and effectively.

In reviewing literature on network governance, we found numerous models for how networks can be designed. However, the models themselves tend to vary according to how they strike a balance along several dimensions:

- The need for administrative efficiency versus a need for inclusive decision-making
- The need for legitimacy of the network within its membership versus the need for the network to be seen as legitimate by partners and external stakeholders
- The need for flexibility versus the need for stability

While networks take a wide range of shapes and designs, nearly all models "have a few common elements including social interaction (of individuals acting on behalf of their organizations), relationships, connectedness, collaboration, collective action, trust, and cooperation."

Furthermore, at their foundation, "networks consist of the structure of relationships between actors (individuals and organizations) and the meaning of those relationships. Trust is the lubricant that makes cooperation between these actors possible, and higher levels of trust are believed to lead to more effective collaboration."

Organizations join or form networks for a variety of reasons, including the need to gain legitimacy, serve clients more effectively, attract more resources, and address complex problems, like AMR in Canada. But regardless of the specific reason, in a general sense, all network organizations are seeking to achieve some goal that they could not achieve independently.

The realms of AMR, AMU, and One Health require coordinated action across a complex ecosystem of autonomous actors and organizations based all around Canada. While some people and organizations may actually have competing interests and differing priorities within their individual mandates, they are all connected by a shared goal: mitigating AMR in Canada. A network can enhance this connection and lead to meaningful change.

3.2. How Change Occurs

In our consultations to date, we have heard many perspectives on how the network should be structured and governed in order to ensure effective implementation of the PCAP. While it is easy to get lost in the details of each individual proposal, there are common elements that connect each one. Informing these elements are the participants' beliefs about how change in an area as complex as AMR could and should occur.

Some stakeholders view this as an issue of leadership — if there was a focused leader in charge of directing action, they argue, AMR work would be more efficient and effective, leading to timelier and potentially less expensive operations against AMR. Some view this as a coordination issue — that if we brought people together, then there would be more alignment and creative solutions available to reduce the development and spread of AMR in our communities. Meanwhile, others simply view this as a matter of funding — that if there is an increased investment in AMR, then there will be more research/innovation, and in turn new vaccines, antimicrobials, ideas, and guidelines that would lead to a decrease in AMR.

Whether change can be directed from a focused leader or is a function of a coalition of the willing, remains to be seen. In the sections ahead, we will address how each of the proposed options speaks to these various theories of change.

4. Two Possible Network Models

In considering possible network options, it is evident that many models could achieve the overall purpose previously outlined in this document. Close examination of our problem statement and our operating environment resulted in a closer look at two models in particular: the distributed collaboration model and the lead-entity model. The Project Team is not set on either of these models; they are being presented as options to generate conversation.

As you read on, you may find it helpful to think about **who makes decisions about what should be done** versus **who implements those decisions**. In lots of ways, the differences between the model options are about the latter, not the former.

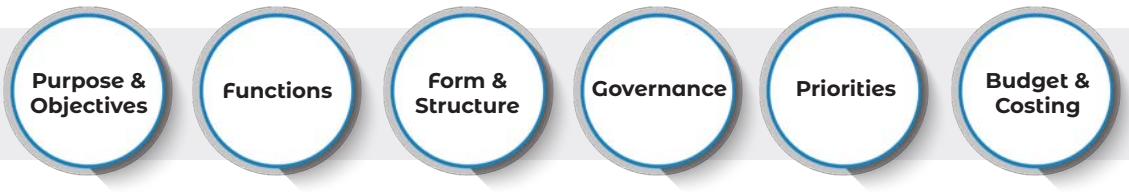
The Distributed Collaboration Model

Advocates of this model would argue that the problem is owned by everybody and is too complex to allow a single locus of control. They recognize that there is an engaged community and a lot of good work underway, and they want to build on that — not disrupt it. They feel that the best way to do that is to have a small coordinating body that can promote information sharing across the community, connect disparate groups, identify new opportunities and solicit interest to work on them, and nudge toward greater alignment across the community at large.

The Lead-Entity Model

Advocates of this model would argue that strong leadership is needed to set a focus and to move the agenda forward. They want a new organization responsible for overseeing the implementation of the forthcoming action plan and assigning people to the tasks required to do so. While partners would be invited to contribute as desired, it is the new organization that would be held accountable.

Composition of a Network Model



4.1. The Possible Functions of the Network

To achieve effective governance, the network must perform a core series of functions, and we're still solidifying which functions deliver most value. Functions describe what actions the network will do to achieve its purpose. These actions are the backbone of the network and could apply to virtually any network model — including the two discussed in depth in this document. We have presented the following options as candidate functions for a national One Health AMR network:

- **Convening:** Bringing people and organizations in the system together to build communication links, share data and learning, collect early input, and identify collective priorities.
- **Paymaster:** Administering payments to organizations and tracking delivery of work.
- **Undertaking Projects:** Co-creating solutions by working with diverse partners on projects with common goals.
- **Allocating Resources:** On behalf of a funder, determining how funds are allocated to the AMR community.
- **Aligning Advice:** Connecting key stakeholders to align policy advocacy and advice on investments.
- **Demonstrating Progress:** Measuring and reporting on the status and impact of AMR improvement In Canada.
- **Brokering Knowledge:** Collating, curating, and distributing new evidence, knowledge, and practices so that they can be scaled up and applied across sectors.
- **Socializing:** Raising broad understanding of AMR-related risks and solutions.

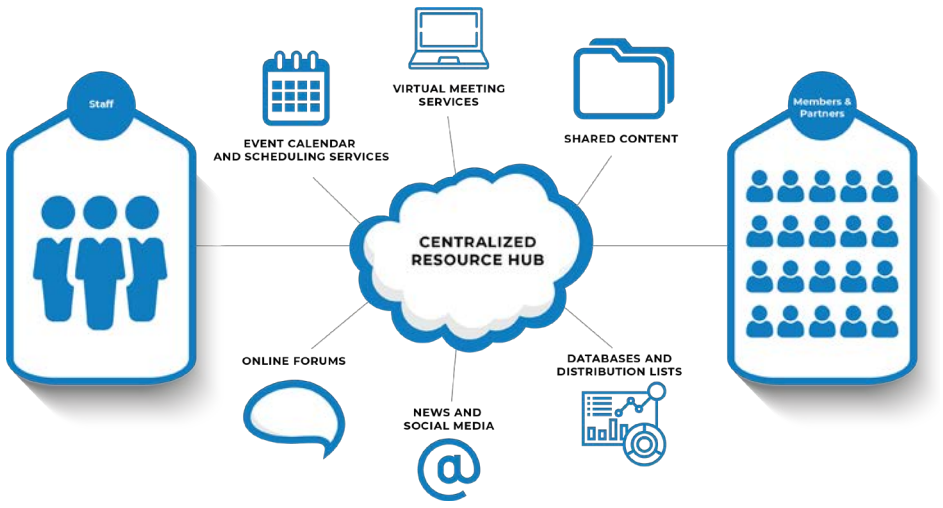
In our efforts to determine which of these candidate functions offer the most value, we invited hundreds of stakeholders to participate in one of 16 online town hall events that we scheduled over Zoom throughout August and September of 2020. These virtual town halls were structured in such a way that allowed us to hear the diverse voices of Canada's One Health ecosystem. Focussing on these functions, we split our participants into small breakout groups and tasked them with workshopping different network utilities.

We captured the opinions, values, suggestions, and concerns of 150 different stakeholders from all across Canada in our "Summary of Findings" document, which can be read **here.**

4.2. The Staff Component of the Network

Both models that we are discussing in this document are going to require a staff component. The roles and number of network staff will differ depending on the model itself, but there will be some commonalities. Here are some responsibilities that we expect to be present, regardless of structure:

- Provide administrative support for the different elements of the network
- Centralize resources for network members and partners to leverage
- Mediate potential conflicts and maintain neutrality across One Health
- Offer support and resources to members and partners in both English and French
- Ensure that any and all network activities respect the principles of equity, diversity, and inclusion



4.3. The Notion of Accountability & Governance

Another concept that is important when thinking about network design is accountability. Accountability addresses issues such as who is responsible for what, how to measure joint success, and how to attribute value to the contributions of the various network participants.

A national One Health AMR network is going to require a governance model that represents all sectors and jurisdictions and has the accountability mechanisms in place to enable effective implementation of the PCAP.

In the context of this network, accountability can be considered at several different levels. For example, the network could be:

- Responsible for the **proper use of the funds** that it has been given, and for reporting on how funds were used and what results were achieved
- Responsible for **enabling and ensuring the effective implementation** of the PCAP, including funding strategies, setting near-term priorities, measurement, monitoring, and reporting on the effectiveness of said implementation
- Responsible for the **outcomes of the PCAP**, including refreshing it over time to ensure that it continues to focus on high value and high impact areas of work

The first — and perhaps least controversial — level of accountability is to funders. Namely, being accountable for the delivery of results in accordance with funding agreements. Mechanisms that can be used to set expectations and demonstrate value for money include accountability agreements, annual reports, periodic evaluations, audits, and more. Our network must be able to support this level of accountability.

The next levels of accountability — to the goals outlined in the PCAP and for henceforth updating and owning the PCAP — are considerably more controversial than the first. We learned through our Series 1 Consultations that there is significant heterogeneity across the stakeholder community as to whether or not the third role is appropriate for the network to have.

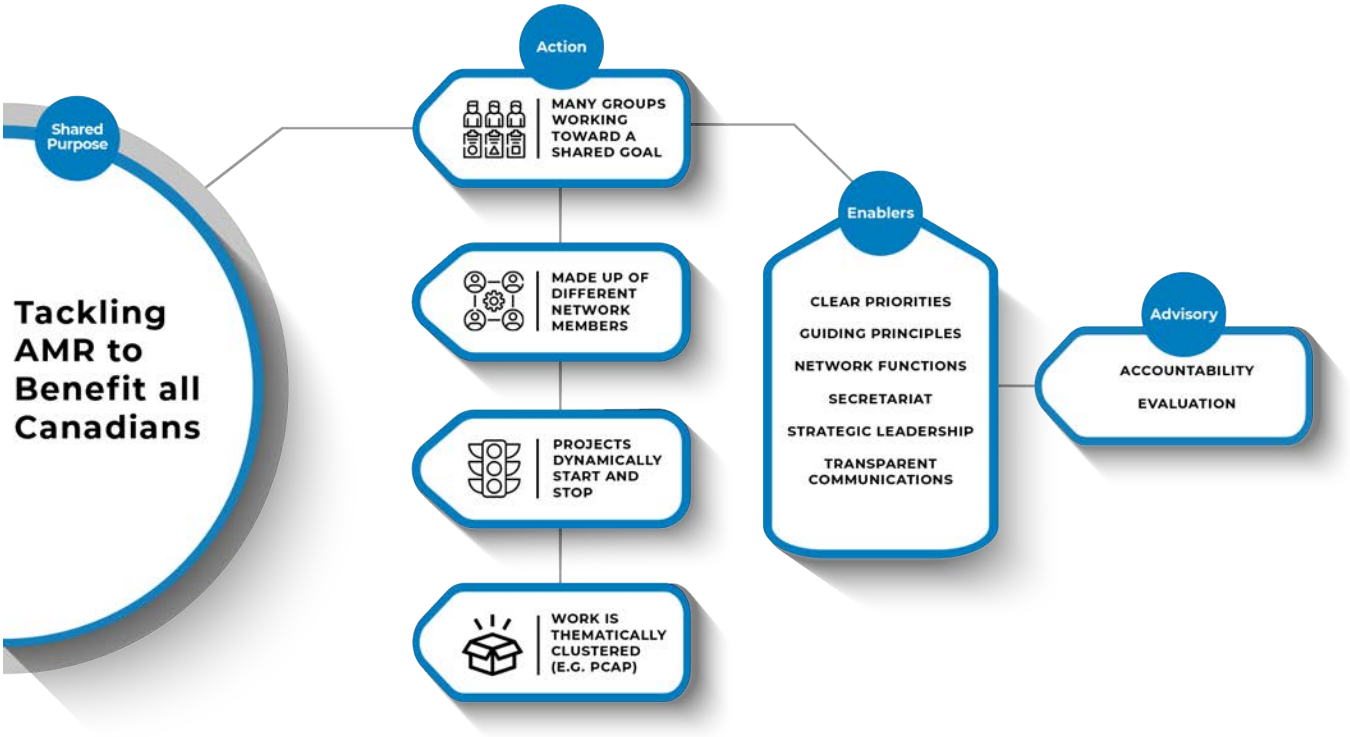
In addition, different model options lend themselves to different levels of accountability. These options are explored in more detail elsewhere in this document. Regardless of the model, the network's senior governing body will likely be accountable for:

- Drafting priorities and preferred outcomes
- Ensuring steadfast commitment to One Health
- Working to ensure that AMR remains a key focus in Canada, regardless of emergent public health issues, like COVID-19
- Allocating resources on behalf of the network
- Measuring and demonstrating progress toward mitigating AMR in Canada
- Reporting to governments as required
- Adhering to legal and auditing reporting requirements in accordance with government guidelines
- Providing strategic advice to government officials
- Deliberating on AMR-related requests from government figures
- Fostering collaboration and cooperation amongst the key AMR stakeholders in Canada

The network can only be accountable for things within its control. For example, while we recognize the need for increased AMR-related funding, the network cannot be accountable for increasing the overall funding for AMR work in Canada. While it can advocate for more funds and work closely with potential funders, whether or not those funders decide to invest is within their own accountability — not the network's. The governance challenge specific to funding that this project team has been asked to solve is not about the absolute amount of money invested; rather, it is about the model that determines how whatever funds that are available are distributed.

"A national One Health AMR network is going to require a governance model that represents all sectors and jurisdictions and has the accountability mechanisms in place to enable effective implementation of the Pan-Canadian Action Plan."

4.4. Exploring the Distributed Collaboration Model



The distributed collaboration model is generally used to move forward large agendas like eliminating homelessness, tackling climate change, and addressing AMR. Embracing professional and organizational independence while still offering boundless potential for collaboration, this model puts the onus of action in the hands of its stakeholders. While there are different approaches to foster distributed collaboration, we have adopted/adapted one developed by the Centre for Social Innovation — the "constellation model."

Collaborators are pulled together by a common desire, opportunity, or interest. Mitigating AMR, for example, might draw together environmental scientists, policymakers, manufacturers, researchers, food producers, veterinarians, pharmacists, dentists, social scientists, and physicians — people and groups that would otherwise, in all likelihood, not collaborate.

These unique cross-disciplinary collaborations are called action groups, which are struck when members of the network have the desire to take action on a specific idea. For example, farmers, environmental scientists, and engineering firms may form an action group to change current organic waste management practices in an effort to reduce the burden of AMR in manure before it is released into the environment. When priorities change or objectives are met, action groups are disbanded. Given the size and scope of this potential network, the distributed collaboration model could foster hundreds of different action groups in the first few years alone.

Since efforts and action are driven from the bottom-up in this model, there is a need for coordinating mechanisms to provide structure (and infrastructure):

- **A Network Coordinating Council (NCC)** helps establish strategic direction and ensure that all work being conducted by the action groups adheres to the network's guiding principles. This mechanism guides action groups as needed, but it in no way manages or meddles in their work. The NCC is also responsible for drafting annual priorities, which are designed to help inform the creation and direction of new action groups. The NCC would likely be elected on a periodic basis (e.g. two years) by the network members. If there is appetite for this model, the specific terms of reference for the NCC will be completed later in the project and will consider factors such as sector and regional representation, skills and competencies, etc. The NCC is also accountable for funding agreements and navigating potential conflicts of interest. The primary objective of the NCC is network development and not issue area development. In other words, its focus is to achieve and maintain network health — not to solve AMR.

- **A secretariat** is the glue that holds the network together by providing support to both the NCC and the various action groups. The appropriately-sized team will ensure transparency and coordination and provide communications and administrative support for the different elements of the network — think contact information, distribution lists, annual reports, finances, project management,

meeting and event organization, and so on. This staff unit It may also help establish new action groups or incubate existing action groups. As a centralized resource hub, through which members can access a variety of services, neutrality of the secretariat will be vital to maintaining an equitable balance of power. The people working for the network's secretariat will need to be highly skilled, have clearly defined roles, and embody collaborative leadership. Their purpose is to provide process support to network members, which means constantly balancing leading the process with responding to needs. Responsibilities might include facilitation, conflict mediation, project development, partnerships, and more. They will employ and maintain a robust suite of online tools that enable community building and support peer-to-peer dialogue and knowledge sharing. The staff could be deployed across Canada and would be able to work in both official languages. The secretariat will be led by somebody who excels at collaborative management, is comfortable with ambiguity, and brings a solid grasp of partnership development to the role. The key leadership responsibilities that will help achieve network goals include fostering the development and support of action groups, resolving conflicts of interest, and serving as the communications liaison between the network's various partners.

• **An external advisory group** and different evaluation mechanisms such as audits, evaluations, or reviews will ensure Canada is a world leader in solving AMR. The external advisory group would be "sector leaders" (primarily from outside of Canada) who meet quarterly to help the network identity issues and opportunities, provide feedback and advice, and ensure that the network is positioning Canada at the international AMR leadership forefront.

• **Members** of the network form the largest body of this model. Members will be asked to sign a membership agreement, which will document the network's guiding principles, its expectations of members, and other relevant information. There will almost certainly be different levels of membership — individuals versus organizations, for example — and there would absolutely need to be a minimum viable number and diversity of members in order to adequately represent the ecosystem and demonstrate external legitimacy. Finally, there would not be a membership fee.

While it is in no way top-down, it may be helpful to visualize this model's workflow as such. The NCC establishes a shared purpose, strategic priorities, and guiding principles and approves any action group proposed by the membership that is consistent with these components. The secretariat may also leverage these components to help create and support action groups. The action groups then undertake the work that supports the goals of the network.

However, unlike in top-down models, it is the members who drive the network — they get to carry out the work that is important to them, without instruction, interference, or approval from the network itself. Members of the distributed collaboration model are considerably more empowered than members of a more traditional top-down model.

Rationale for the Distributed Collaboration Model

This model appeals to those who view the AMR ecosystem in Canada as sufficiently complex, both in terms of the diversity of stakeholders involved and the range of actions that are required to address the issue at hand. Acknowledging the immense amount of work that is already underway in Canada, this model would lend itself to a network that enables and empowers its members to work on the things that they value while also contributing to overarching network goals. In doing so, this model will enable new work that transcends disciplines, sectors, geographies, and cultures. This model argues that the problem of AMR is owned by everybody and that a single point of control is therefore unrealistic and potentially ineffective. To function optimally, a network leveraging the distributed collaboration model must have a clearly articulated goal, employ non-hierarchical oversight, encourage coordinated autonomy, achieve trust and legitimacy, and be nimble and flexible in the face of ever-shifting priorities.

In terms of how this model relates to the different levels of accountability outlined in section 4.3. of this document, this model lends itself well to being accountable for enabling and ensuring the effective implementation of the PCAP. However, given that it is the members who drive action, this model is not well suited to owning and updating the action plan itself. Both model options presented in this document should be accountable for properly using funds and reporting on said use appropriately.

Achieving Network Goals

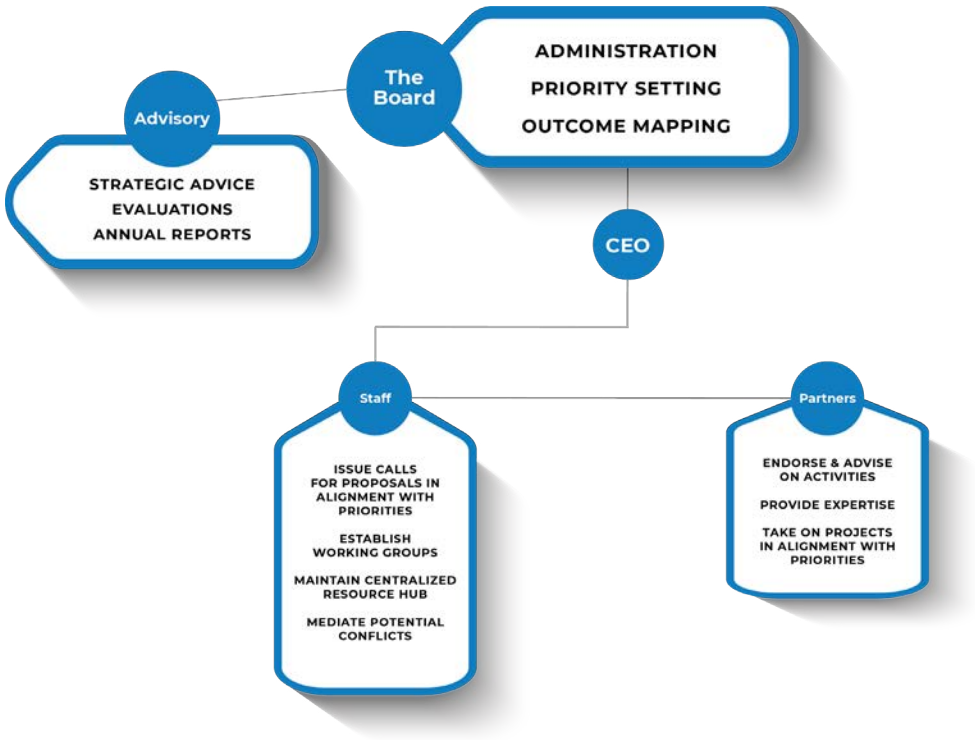
As noted, the crux of network activity is carried out by action groups in this model. These groups are created upon recognition from within the community of a need or opportunity that is matched with the energetic leadership to move a particular issue forward. In the case of AMR, the PCAP will likely be the foundation from which needs and opportunities are generated.

Over time, we anticipate that two types of action groups may emerge: member-driven action groups and network-driven groups. Member-driven groups allow for nimble action as priorities change over time.

For example, had this network existed as COVID-19 began to spread across Canada, an action group may have formed to explore upticks in resistant hospital-acquired infections during epidemics. This allows AMR to remain a priority for network members, regardless of extenuating circumstances. Network-driven action groups, on the other hand, allow for strategic development in priority areas. For example, the network coordinating council could establish categories that all action groups must fall under — infection prevention and control, surveillance, research and innovation, stewardship, etc. This creates a foundation upon which members can build. It also prevents members from straying too far from network goals.In either case, a lightweight governance model like this allows for considerable autonomy and decision-making to reside at the membership level.

4.5. Exploring the Lead-Entity Model

A lead-entity model is a common model used in many corporations and not-for-profit organizaitons. Under a lead-entity model, the network would be guided by an independent not-for-profit organization with the dedicated mandate of improving antimicrobial resistance (AMR) and antimicrobial use (AMU) in Canada across One Health. Ideally, this would enable knowledge sharing at a national scale, ultimately catalyzing coordinated and accelerated action across the country.



The operations of the lead-entity model would be funded by government, but the entity itself would not be a government agency. Instead, the legal entity would be established outside of the formal mandate of the federal government and be held financially accountable to each of the entities that fund it.

The lead-entity is governed by a **Board**, which holds the discretion to undertake activities according to the mandate of the entity. The Board would appointed by federal, provincial, and territorial governments according to a Terms of Reference that outlines the required competencies and perspectives. For example, the Board could be comprised of a chair, four regional nominees, six nominees from the medical, scientific, technical, and business sectors across the various One Health domains, two nominees with relevant consumer experience, and so on.

The entity would seek to accelerate action on AMR for all Canadians by augmenting, building upon, and implementing the forthcoming action plan. It would be responsible for the translation, transfer, and sharing of knowledge in the strategic priority areas of the PCAP, which include stewardship, research and innovation, infection prevention and control, and surveillance.

The Board would be responsible for administering the entity, establishing its priorities, goals, and preferred outcomes, and ensuring that the action plan is implemented in such a way that captures the values of its diverse constituents. The board will engage directly with the AMR community by way of advisory committees that would be designed to accommodate the complexity of the AMR ecosystem in Canada through encompassing One Health, geography, language, and more. Through such broadly representative advisory structures, the Board will receive the input needed to inform its plans and decisions and ensure that it continues to be aligned with the AMR community.

Like any Board, a key function of this group would be to hire a **CEO** to oversee the day-to-day operations of the entity. The entity would be staffed to deliver against the strategic and operating plan established by the Board; **staff** could be deployed across Canada and would be able to work in both official languages.

Leadership in this model will be more akin to a typical CEO role — directing programs and services, ensuring deliverables, and being responsible for cultivating a results-driven organization.

As with the distributed collaboration model, the lead-entity would establish an external advisory function, conduct regular evaluations, and issue annual reports. External guidance, comprised of international experts, is particularly important in this model to ensure that the Board is both representative and collaborative. This is imperative, given the One Health composition of the Board.

Rationale for the Lead-Entity Model

This model appeals to those who view the AMR ecosystem in Canada as one that requires a strong and focused leader to bring about change. Proponents of the Lead-Entity Model believe that a single organization with responsibility for driving AMR work forward will provide that necessary leadership. Through partnerships and involvement of

stakeholders in its work, the lead entity can engage broadly with the AMR community, and identify areas where it can move forward most quickly and effectively. With a single Board responsible for setting overall strategy and priorities, the lead entity will present a unified face to funders and can coordinate which organizations and/or individuals will join a project team. Where the distributed collaboration model relies on organic action, the lead-entity model is more directive. The entity sets its goals and pursues achievement.

In terms of how this model relates to the different levels of accountability outlined in section 4.3. of this document, this model lends itself well to being accountable for enabling and ensuring the effective implementation of the PCAP. For example, where the distributed collaboration model allows for action that may fall outside of immediate priorities, the lead-entity model stresses focus and only endorses action that will lead to achievement of its clearly marked goals. As well, this model would be accountable for refreshing and updating the Action Plan as outcomes are met and as priorities shift.

As noted in the previous section, both model options presented in this document should be accountable for properly using funds and reporting on said use appropriately.

Achieving Network Goals

The detailed operations and tactical-level network activity will likely be carried out in a similar fashion as in in the other model — what differs here is the mechanisms by which priorities are determined and how the project teams are established. In this model, the lead-entity ultimately determines which projects are undertaken and pulls together the project teams that do the work.

The lead-entity could structure its project teams to reflect its priorities — for example, building teams that specialize in the areas of infection prevention and control, surveillance, research and innovation, stewardship, etc. This ensures that the work efforts of the network are focused on identified priorities and may assist with closer alignment with the PCAP.

4.6. Working Through Some Examples

It might be helpful to work through a couple of examples, leveraging items laid out in the forthcoming PCAP. The point of these examples is not to say that what's below is the best or only way to approach the action plan item — it is simply to describe how it could be approached under the two models.

For the first example, imagine a scenario where there is a general consensus that an early priority is to focus on hand hygiene in daycares. Here's how would things move forward in each model.

The Distributed Collaboration Model: In this model, a couple of people — say, for example, from an Association of daycare operators, IPAC professionals in health organizations concerned about hand hygiene, and academics interested in the spread of innovation — are interested in the increasing the effectiveness of hand hygiene in daycares across Canada leveraging best practices from other areas. These people approach the secretariat to learn of others across the country who may be interested in joining this budding action group. Through outreach and collaboration enabled by the secretariat, a small group is established. They apply to the NCC for designation as a Network Action Group with a defined support envelope from the secretariat (in areas of project management, meeting administration, translation, evaluation support, funding to convene meetings, etc.). The group, using this support, creates a summary of best practices and develops a plan to spread them to other areas. From there, the group will identify change champions or impact enablers in the required areas to join the action group and help deploy new guidelines. In time, the secretariat leads an evaluation of the action, lessons learned are folded into the next tranche of spread, and the information is leveraged in reports assessing the overall success of the PCAP. The participation of individuals in the action group is dynamic — evolving as the work and the location of the work changes.

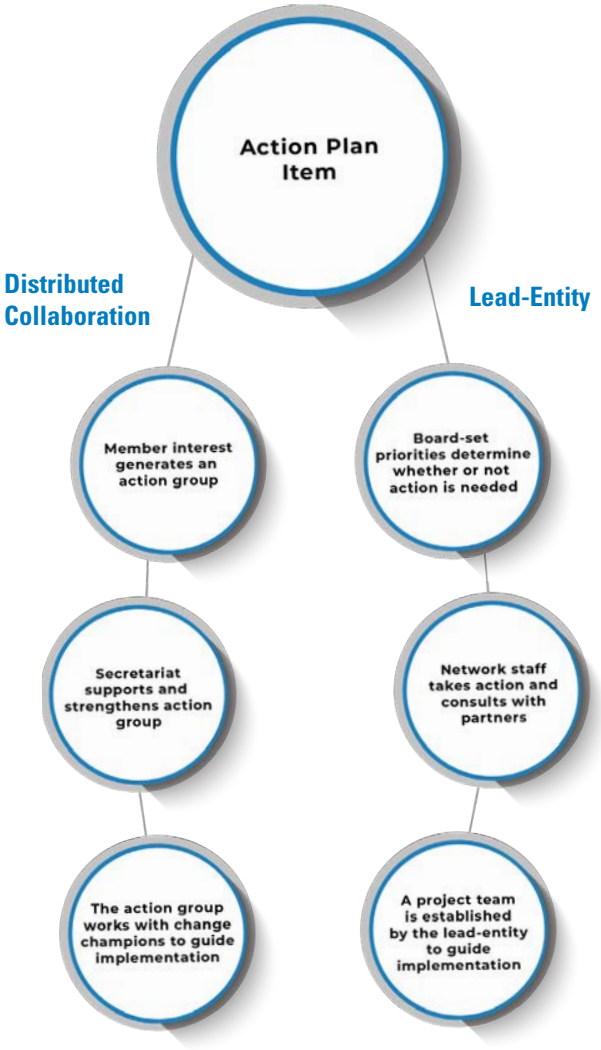
The Lead-Entity Model: In this model, the lead entity undertakes a strategic planning exercise that identifies that, of the more-than-50 action items in the PCAP, infection prevention and control in non-healthcare settings should be an initial priority, and that within that broad plan action item, the initial focus should be on hand hygiene in daycares across Canada. The entity staff are directed to create a best practice guideline and implementation approach, which is then endorsed at a consensus meeting of relevant experts from across Canada. To guide the next stage, the lead entity establishes a working group, being careful to ensure the working group represents the full range of perspectives that might arise over the course of the project. A call for proposals is issued by the lead entity to identify a small number of pilot implementation regions supported by the staff from the lead entity. The implementation and subsequent evaluation of the work would proceed in a similar fashion to the other model.

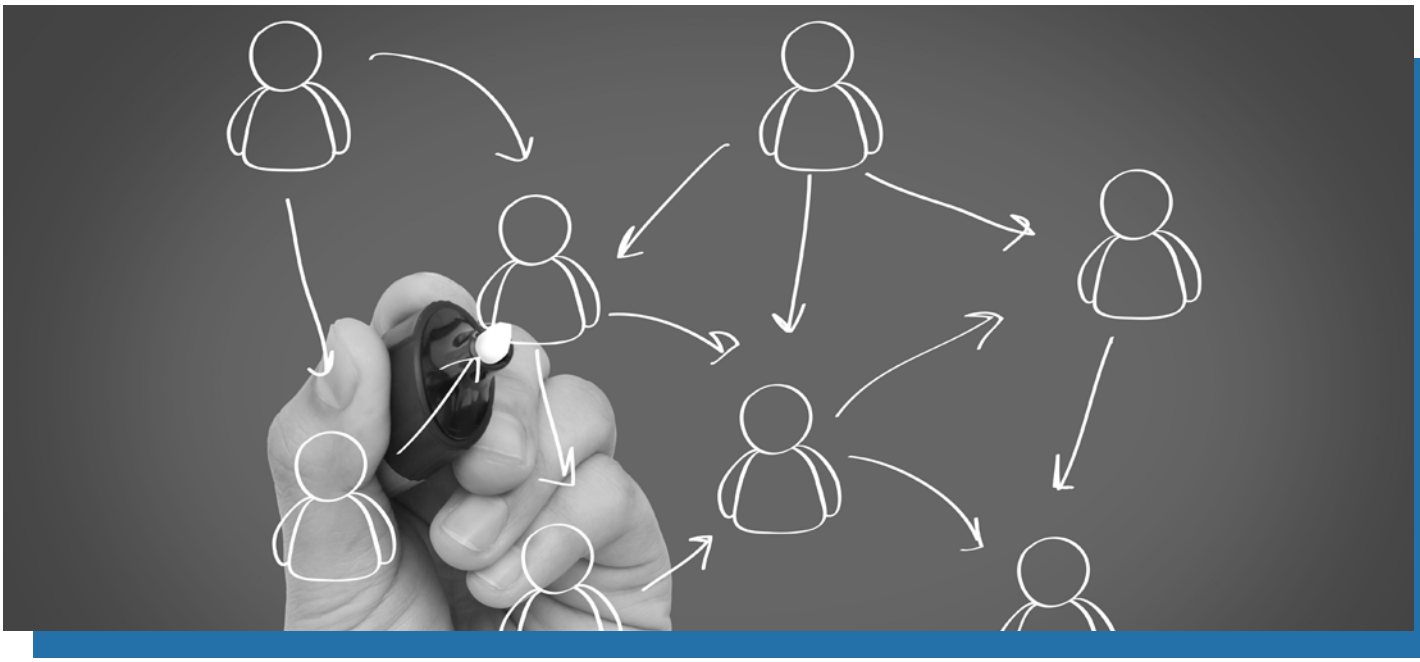
A second example relates to establishing a platform to share data widely in a way that can support effective decision-making and enhance surveillance systems of AMR and AMU.

The Distributed Collaboration Model: In this model, people — likely those who work with data infrastructures, those who set data standards, AMR surveillance specialists, information consumers, privacy experts, and key influencers — are intrigued by the action plan item, recognizing

that there are lots of existing data platforms, but there is a general lack of awareness across One Health regarding their contents and availability, making it difficult to both access the data and to understand true gaps. They approach the NCC to propose an Action Group that will establish an annotated catalogue of all data platforms across the One Health continuum, with descriptions of data sources and outputs, which terminology and nomenclature standards are applied, and a sense of the data quality and coverage. The administrators of the various data holdings are encouraged to join the Action Group. The Action Group is supported by the secretariat to maintain this catalogue and promote its use, while the Action Group advocates for broad use of this new resource. The Secretariat also flags cross-linkages with other work underway — like new innovative data collection projects, for example. A second action group might use the annotated catalogue to identify a specific gap that is not being met right now and create a proposal to funders to create a new data repository.

The Lead-Entity Model: In this model, the lead-entity determines that one of its roles will be to develop and operate a data infrastructure that can house AMR information from across One Health and hires a CIO to lead the initiative. As part of designing the new infrastructure, the CIO would need to propose the extent to which the infrastructure would simply fill gaps, or whether it would, over time, replace some of the disparate existing platforms. Funding for the infrastructure would flow to the lead entity.





5. Comparing The Two Models

Feature	The Distributed Collaboration Model	The Lead-Entity Model
Purpose	To address coordination gaps in AMR governance in Canada	To address coordination gaps in AMR governance in Canada
Structure	Multiple approaches are possible, including a separate not-for-profit legal entity or members could provide structure (e.g. employ network staff)	Separate not-for-profit legal entity
Senior Governing Body	Network Coordinating Council, elected by membership	Board, appointed by F/P/T government
Members/Partners	Lots of members with signed agreements. Some partners, but desire is those engaged in AMR become members and ideally work in the network action groups	No membership, but lots of partners
How Priorities are Determined	Bottom-up process based on energy, interest, and values	Board-led process
Flexibility	Nimble	Structured
Design Balance	Prioritizes inclusive decision-making, internal legitimacy, and flexibility	Prioritizes administrative efficiency, external legitimacy, and stability
Accountability & Evaluation Mechanisms	External advisory board, periodic evaluations, audits, reviews, etc.	External advisory board, periodic evaluations, audits, reviews, etc.
Alignment With Functions	This model is ideal for 'convening' and 'brokering knowledge.' It supports 'aligning advice.' Network staff is unlikely to 'undertake projects,' since the members tend to carry out that work in this model	This model is ideal for 'undertaking projects' and 'allocating resources.' It supports 'brokering knowledge,' 'convening,' and serving as a 'paymaster'
Source of Funding for Network Operating Costs	F/P/T Governments	F/P/T Governments
Source of Funding for Projects	F/P/T Governments, private sector, philanthropy, funding agencies	F/P/T Governments, private sector, philanthropy, funding agencies
Staff	For 'convening' and 'brokering knowledge' functions, the staff would be slightly larger than other model For 'undertaking projects,' staff would be smaller as most projects will be undertaken by action group members, rather than network staff	For'convening' and 'brokering knowledge,' there is a small staff. It is more likely that the lead-entity organization will 'undertake projects' themselves, a meaning larger staff for this function

Project:
AMRNETWORK
Designing a Coordinated One Health Response to Antimicrobial Resistance in Canada

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