Original Article

Public–private partnerships in trust-based public health social networking: Connecting organizations for regional disease surveillance (CORDS)

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ABSTRACT We describe a new trust-based global health security initiative known as CORDS: Connecting Organizations for Regional Disease Surveillance. Initiated and managed by the Nuclear Threat Initiative with support of The Rockefeller Foundation, Fondation Mérieux and the Skoll Global Threats Fund. CORDS is a non-governmental platform to transform dialogue among public health, veterinary and wildlife professionals from multi-country infectious disease surveillance networks. It also links with the World Health Organization, World Organization for Animal Health and other global partners in managing cross-border emerging infectious disease threats and building disease surveillance capacity. The public–private partnerships of CORDS create a global social fabric and continuity of disease experts based upon trust.

INTRODUCTION

Globalization renders national boundaries 'practically meaningless' from a pathogen point of view.[1] This reality, combined with advances in information and communication technologies, has led to the emergence of a variety of surveillance networks that are providing for the first time on a global scale the opportunity to exchange near–real–time data on emergency infectious disease threats.[2,3]

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However, there is no guarantee that this unprecedented abundance of information, most of which is mined from online news wires, ProMED-mail, Google search queries and other informal electronic data sources, is actually being used to inform timely decision-making and action.[3] The sharing of information is often constrained by vertical organizational boundaries, for example between different jurisdictions or professional cultures. Khan *et al*[3] argued that the biggest challenge is not to develop new technical tools or ways to access the information; rather it is to cultivate social networks of professionals who have the collective strength to translate the information into near-real-time action during emergency situations.

Others have made similar pleas. At a 2008 Institute of Medicine (IOM) workshop, 'Globalization, Movement of Pathogens (and Their Hosts), and the Revised International Health Regulations', removing organizational, political and other barriers to sharing information and establishing collaborative alliances was identified as being critical to building core surveillance capacity as mandated by the revised International Health Regulations (IHR).[1] At the same meeting, nurturing trust among surveillance professionals in different countries was identified as being a necessary step to building the collective multi-country capacity required to deal with cross-border infectious disease threats.[1] The communications among IHR focal points, however, are based on vertical organizational structures, whereby permission from the top administrative is usually required to allow sharing of information. Many times it is too late or the information are screened.

An innovative health security initiative, *Connecting Organizations for Regional Disease Surveillance* (CORDS), provides a new tool for meeting this social networking challenge on a global scale – by fostering the growth of trust-based partnerships among professionals that transcend not just organizational but also geopolitical boundaries. CORDS was founded by consensus among the leaders of many regional networks related to disease surveillance, with the Nuclear Threat Initiative (NTI) playing the role of Secretariat, with the support of NTI, The Rockefeller Foundation and Fondation Mérieux. CORDS was established in response to the pressing need – and opportunity – to strengthen the overall capacities and capabilities of the Mekong Basin Disease Surveillance (MBDS) and other similar trust-based multi-country networks, and their respective member countries. CORDS provides a central forum for global exchange of best practices, surveillance tools and strategies, training courses, innovations, successful operating procedures, and, where appropriate, case studies. In addition to regular regional and international workshops where member networks meet with each other and with the World Health Organization (WHO), the World Organization for Animal Health (OIE) and other regional and global partners, member networks maintain continual contact via a virtual networking site. There is currently no other international organization, governmental body or initiative organized to facilitate this type of regular information exchange among disease surveillance practitioners from different regions of the world.

THE DEMONSTRATED VALUE OF MULTI-COUNTRY SURVEILLANCE NETWORKS

In recognition of the critical role that transnational surveillance plays in the prevention of regional and worldwide epidemics, several multi-country networks for infectious disease surveillance have emerged over the past 10 years. They include, in alphabetical order, the Asian Partnership on Emerging Infectious Diseases Research (APEIR), which links researchers in Cambodia, China, Indonesia, Vietnam and Thailand; the East African Integrated Disease Surveillance Network (EAIDSNet), which links ministries of health and public health experts and researchers in Burundi, Kenya, Rwanda, Tanzania and Uganda; MBDS, which links disease surveillance and control epidemiologists

and other health professionals in Cambodia, the Yunnan and Kwangsi provinces of the People's Republic of China, Lao People's Democratic Republic (Laos), Myanmar, Thailand and Vietnam; the Middle East Consortium on Infectious Disease Surveillance (MECIDS), which links public health experts and ministry of health officials from Israel, Jordan and Palestinian Authority; the South African Centre for Disease Surveillance (SACIDS), which links medical, veterinary and agricultural experts and researchers from the Democratic Republic of Congo, Mozambique, South Africa, Tanzania and Zambia; and the South Eastern European Health Network (SEE), which links the ministries of health of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Montenegro, Romania and Serbia. All of these listed networks are members of CORDS.

While CORDS is a new initiative, already its member networks have demonstrated that even in parts of the world historically (for example, Southeast Asia) or currently rife with conflict (for example, Middle East), public health and veterinary experts and officials from neighboring countries can come together in emergency situations and successfully coordinate efforts to prevent the spread of infectious disease.[4–6] For example, the MBDS network has successfully directed a number of coordinated efforts to investigate disease outbreaks and develop joint strategies for containing disease in the Mekong Basin. In 2007, MBDS networking was critical to the containment of cholera outbreaks on the Thailand–Myanmar and Thailand–Laos borders. That same year, MBDS networking also played a key role in the joint Thailand–Laos investigation into Laos's first case of human H5N1 (detected in a hospital in Thailand) and successful containment of the outbreak. In 2008, during the aftermath of Cyclone Nargis in Myanmar, the existing relationships and collaborative procedures made possible by MBDS networking fueled post-disaster relief efforts to prevent the spread of respiratory

diseases. The MBDS network was identified at the previously mentioned IOM workshop as an example of a mechanism for establishing the type of trust necessary for maintaining effective cross-border infectious disease surveillance activity over time and despite occasional rifts at the ministerial level.

The key to success is trust. Trust empowers experts and officials to manage the uncertainty that pervades infectious disease outbreaks, even in cross-border situations, by enabling rapid sharing of accurate information, rapid joint outbreak investigations, and rapid movement of antivirals, vaccines or other necessary resources. MBDS is a network of trust-based social relationships that have developed over time and which did not exist 10 years ago. As the network matured and as disease surveillance and control epidemiologists and other professionals from neighboring countries routinely worked together on joint surveillance goals, the sharing of data, tools and innovative ideas and approaches increased substantially.

Trust-based professional partnerships drive the MECIDS network as well. MECIDS was established in 2003 with an initial focus on food- and waterborne diseases. Through regular cross-border information exchanges and trainings, coordinated laboratory testing protocols, and shared communication technologies, the focus of the partnership has expanded. MECIDS has played an instrumental role in detecting salmonella and mumps outbreaks and containing the influenza viruses H5N1 and H1N1.[4–6] We also note that a unique infectious disease collaboration of a major US medical institution, a humanitarian NGO and NTI, has achieved a critical public health objective in the Democratic People's Republic of Korea during a period otherwise marked by profound deterioration of relations with the United States and its allies in East Asia. The establishment of a reference-level National TB Laboratory in DPRK addresses an important 'blind spot' in tuberculosis control for Northeast Asia.[7] We argue such engagements can translate to

broader assimilation within the international health community.

A UNIQUE OPPORTUNITY: LINKING AND BUILDING THE CAPABILITIES OF MULTI-COUNTRY DISEASE SURVEILLANCE NETWORKS

There are no how-to manuals for building trust. CORDS takes on this challenge by supporting network members in a global 'community of practice'. A community of practice is a learning partnership among people who draw on their common practice, share a common concern – in this case improving infectious disease surveillance capacity through cross-border networking – and who come together regularly to learn how to do it better.[8] Specifically, CORDS contributes to the development and growth of MBDS, MECIDS and other multi-country networks by convening representatives from the networks on a regular basis and, between face-to-face-meetings, engaging the networks in interim communication through use of a private wiki[9] and other online tools. The CORDS community of practice enables networks from different parts of the world to get to know each other, build friendship and trust, share technical expertise and best practices so that the networks and member countries can distribute innovative ideas and approaches to disease surveillance, develop new surveillance skills, and establish operational partnerships across regions. In addition, a major strategic objective of CORDS is to advance One Health as well as EcoHealth principles and improve coordination among animal, human and environmental health surveillance professionals. CORDS also supports networks in their efforts to achieve sustainability, for example, by providing technical support for fund-raising efforts and facilitating communication with ministry-level officials from the networks' respective national governments.

The 2010 annual CORDS conference, held at the Fondation Mérieux's Les Pensières

Conference Centre in Annecy, France, 17–19 March, was an excellent example of the CORDS community of practice in action. Most of the conference comprised collaborative activities and break-out sessions designed to support CORDS participants in taking ownership over the learning agenda and to engage everyone present in relationship-building, lesson-learning and capacity-building discussions and experiences. For example, conference participants watched a video with two case studies – the first reported human case of avian influenza, which occurred in 2007 on the Laos–Thailand border,[10] and a 2006–2007 Rift Valley fever outbreak in Kenya, Somalia and Tanzania.[11] After the video was shown, conference attendees participated in a 'fish bowl' discussion, whereby four or five people sat in an inner circle (the fish bowl), sharing their understanding of the issues raised by the two case studies, with the other participants watching from an outer circle. When inspired, anyone in the outer circle could enter the fish bowl and contribute to the debate by replacing someone in the inner circle. There was frequent entering and exiting, with multiple voices spoken. Much of the discussion revolved around the need for regional networks to conduct proactive, not reactive, surveillance, particularly with regards to animal health, and the challenge of engaging community animal workers in the process. Later, small group discussions reviewed issues that came up during the fish bowl activity and strategized how networks could move forward to resolve some of these issues.

Much of the strength of CORDS derives from the fact that what CORDS is doing is related to what WHO is doing. While the 2005 revised IHR (2005) provide a long overdue international legal mechanism for global governance of infectious disease surveillance, requiring member states to develop and strengthen core surveillance capacities, many countries lack the necessary financial, technical and human resources to

actually do so.[1,12] Recognizing this, the IHR 2005 also include provision for member states to seek technical assistance from WHO. However, many public health experts, including WHO leadership, have called for additional strategies to complement WHO efforts to build the mandated core capacities.[1,12,13] CORDS serves this purpose by functioning as a platform for regional networks to interact not only with each other (horizontally) but also with WHO (vertically). For example, the member countries of MBDS belong to two different WHO regions (Cambodia, China, Lao PDR and Vietnam belong to WHO's Western Pacific region; Myanmar and Thailand belong to the Southeast Asia region), creating a bureaucratic gap under the WHO umbrella. MBDS fills this gap with a reporting structure that facilitates real-time information exchange and joint outbreak investigations during crises.[14] At the 2010 annual CORDS conference in Annecy, France, it was suggested that it may be desirable to formalize CORDS-mediated interactions with WHO in a way that gives CORDS and its participating networks a voice at the World Health Assembly.

The CORDS platform can also be used to share information and data with other global infectious disease surveillance partners, such as the OIE and the Food and Agriculture Organization. Indeed, a key strategic objective of CORDS is to apply a One Health as well as EcoHealth approach[15] to improve coordination between human, veterinary and wildlife health surveillance experts at both regional and international levels. Representatives from OIE and the Wildlife Trust actively participated in the 2010 annual CORDS conference in Annecy, France, where there were several discussions on the challenges of implementing a One Health approach at the regional network level. At the regional level, SACIDS has arguably made the most progress with respect to adopting a One Health approach. Founded in 2009, SACIDS is governed by two Deputy Directors, one for the

human and the other for the animal health sector; each national SACIDS coordinator is assisted by a deputy from the opposite sector. Already, SACIDS has developed active partnerships with Sokoine University of Agriculture, the Royal Veterinary College and the London School of Hygiene and Tropical Medicine, with broad representation from all sectors – human, animal and agricultural.

CORDS does more than nourish the development and growth of existing networks. It also spawns new networks. In fact, one of CORDS's first major achievements was the accelerated launch of SACIDS, the youngest CORDS network member. SACIDS was established following the 'Bellagio Call for Action', a publication issued by participants of a 2007 meeting in Bellagio, Italy.[16] The Bellagio meeting was in effect the first CORDS meeting, even though CORDS was not officially initiated until after the meeting. Currently, CORDS is facilitating dialogue to explore the feasibility of yet another new regional network, this one in South Asia. At the 2010 annual CORDS conference, representatives from Pakistan's Ministry of Health and the Public Health Foundation of India met with representatives from MBDS, MECIDS, SACIDS, NTI, The Rockefeller Foundation, Google and the Wildlife Trust to discuss the need for a South Asian network, how to develop such a network (for example, how to leverage existing mechanisms and resources), and next steps. The fact that CORDS representatives from Pakistan and India met to discuss the possibility of forming a regional partnership across arguably one of the most difficult boundaries in the world embodies the vision of CORDS as a trust-based global social network of infectious disease experts.

CONCLUSION

CORDS provides the public health community with an innovative set of public

private partnerships to dialogue on global health security.[17] Through its community of practice and by serving as an information sharing platform for surveillance among professionals from across the world to interact with each other and with WHO, OIE and other partners, CORDS is creating a global architecture for responding to potentially catastrophic biothreat events – one that is built on a foundation of trust and social capital. CORDS is cultivating the type of public health culture that is needed in order to take full advantage of opportunities made available by advances in information and communication technologies and to ensure near real-time responses to emerging infectious disease threats.[3] Not only is CORDS a pioneer in developing an open, secure information-sharing culture at the global level, it also serves as a model for other initiatives aimed at strengthening social capital for the purpose of building surveillance capacity at any level.

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