

Rapid Contact Tracing Training Course Mapping and Recommendations for New Course Development

SUMMARY REPORT



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Scope of Work

The purpose of this exercise was to conduct a rapid mapping, review and analysis of currently available contact tracing training courses and animations. Notations of whether courses were Open Source and/or the level and type of Creative Commons License allotted to the work was also requested as part of the analysis. The mapping was conducted between the dates of June 9-15, 2020 by a team of four CORE Group technical and research staff in parallel to the larger Tier-II COVID Resources Mapping exercise that is ongoing by CORE Group.

Methodology

To conduct the rapid mapping of contact tracing courses, the CORE Group team reviewed the initial mapping of articles on the topic alongside a list of recommendations drafted by the Community Health Academy in early June. The CORE Group team then identified current courses and conducted a thematic content analysis of the findings to identify optimal modules for the creation of a new course on contact tracing. In addition, technical experts from the CORE Group Team identified ethical considerations and privacy issues for consideration. Finally, CORE Group attended the GOARN Global Contact Tracing Consultation on Thursday, June 11, 2020, with over 196 global experts on contact tracing.

The methodology included:

- Technical review of the June 2020 Community Health Academy rapid needs assessment of contact tracing resources as a baseline of overall issues and concerns for consideration.
- A desk review of current top-tier articles on contact tracing from global health organizations, including WHO, UN Agencies, the CDC, academic institutions, and non-governmental organizations to provide an overall context to the Summary Report.
- Identification of contract tracing courses from a variety of both global and country-level sources, including training handbooks, digital animations and mobile applications developed for educational purposes in support of contact tracing.
- Analysis and synthesis of key course elements and modules to arrive at recommendations to guide future contact tracing course development efforts.

Key Findings

The mapping exercise of contact tracing course materials resulted in 25 resources in five areas. These training resources included 1) virtual training courses; 2) training resources; 3) technical resources to support training course development for contact tracing; 4) digital animations; and 5) mobile applications. Of the eleven training courses, seven were free online training courses on contact tracing, and four were training course materials, including a sample training plan, a participant training handbook, a facilitator's training handbook and an operational guide.

Based on the findings, the team established that there were two main courses (the courses developed by Johns Hopkins University and the CDC on contact tracing) that were being distributed on at least two other platforms. The primary platform for the Johns Hopkins course was Coursera, with 384,122 enrolled users for the course at the date of submission this report, a nearly 8,000 increase from 376,230, the number of participants noted in the appendix for the course, which was drafted on June 14, 2020. Further, our research found that the Johns Hopkins course was actively promoted by Forbes, ABC News, CNN, and The Washington Post. In addition to Johns Hopkins, a number of universities have developed contact tracing courses that provide a basic overview of the topic key elements to trace, isolate and follow-up cases of COVID-19. Descriptions of each course are highlighted later in this report.

The CORE Group team also found that digital health and mobile applications to support contact tracing have also been on the rise, with the Government of India and Red Cross of Austria developing mobile contact tracing applications, each of which are included in the master list of training course materials submitted as a companion document to this Summary Report (attached Excel matrix). Additionally, several governments have started programs, but at the date of this report, we were not able to adequately capture these countries and mobile tracing programs. For an overview of the training course materials included in the master list, please see *Table 1* below.

Table 1: Types of Training Resources

Type of Contact Tracing-specific Training Material	Number of Items (n=25)	Global or Country-level	Open Source/Creative Commons License
Virtual Training Courses	7	Global	Copyrighted Material, No CCL
Training Resources	4	Global, Malawi, Liberia	Yes, with attribution and/or permission
Technical Resources to Inform Training Course Development	8	Global	Copyrighted Material, No CCL
Digital Animations	3	Global, US	Copyrighted Material, No CCL
Mobile Applications	3	Global, India	Copyrighted Material, No CCL

All of the virtual training courses were developed for an international audience, addressing the topic in general technical terms, without direct guidance for community-based or national level audiences or national-level policies. These courses were developed by universities in the United States and included Terms of Service tabs on their websites for copyright guidance, but none of the courses had assigned a Creative Commons License to their sites, that this research team could find. The training resources included in the master list appendix were developed by the Ministries of Health in Malawi and Liberia, through Last Mile Health, and serve as samples of the types of guidance on contact tracing being distributed by official government health departments at the country level. The technical resources to inform new training course development included in the master list were included as specific technical guidance on contract tracing. The digital animations are illustrative of potential visual support for course development that can be adapted based on their individual copyright and licensing status. It is important to note, however, that none of the resources on contact tracing were fully open source, some of the courses could be used with permission, and these are noted in the appendix when the Copyright could be determined (see Appendix 1).

Findings on Open Source and/or Creative Commons License

Each of the resources was reviewed to determine whether they could be used in whole or in part without permission and/or to note the specific level/type of Creative Commons License that was assigned to the course or resource. Of the 25 resources, only one (from the Government of Canada) could be used in whole or in part for non-commercial purposes. Two training handbooks from the Government of Liberia could be cited and/or adapted with permission from a staff member from Last Mile Health. Based on a review of their websites, including the Terms of Service, none of the courses or training resources had an allotted Creative Commons License.

Considerations for Training Course Development

Contact tracing is an approach to identify, track and manage the spread of COVID-19 within a community and across borders. But to develop a course that adequately addresses the key elements of contact tracing, one

must respect the complexities inherent in the endeavor. Contact tracing is a specialized approach that requires a specially trained cadre of implementers that understand, respect and can operate within the local context.

There are a number of overarching issues that need to be considered when developing training materials to support the implementation of contact tracing, including careful consideration of the digital tools that are available and appropriate for the area where the tracing activities will be conducted. Additionally, when infected individuals are identified, a manageable system of quarantine needs to be in place based on an understanding of the economic impacts that the quarantine will place on both the health systems and the individual being quarantined. These are highly contextualized and are country-specific in many cases.

GOARN Global Consultations on Contact Tracing

In early June, the WHO GOARN network conducted global consultations to present the current status of global COVID-19 cases and response. The main focus of the consultations was to determine how WHO and its global health, government, and technology partners, were addressing the identification of issues, the formulation of policies, and the development of tools to conduct contact tracing for COVID-19. In addition, the GOARN network worked with partners to identify issues for coordination and follow-up. The complete deck of slides with the background and highlights from specific countries can be found [here](#). During these discussions, systematic approaches to contact tracing, which incorporates integral information-sharing approaches and protocols, that were developed based on respect for privacy issues, were deemed necessary to streamline contact tracing that is scalable across multiple communities and regions. Additionally, there is a need to understand the variances in managing cases once they are identified through contact tracing, since these protocols vary widely among countries, including how countries define the incubation period and the length of time allotted for tracing contacts. These questions are currently being debated in global forums, including the GOARN global consultations on contact tracing, in an attempt to harmonize processes for contact tracing across regions. Countries and CDC Africa represented stressed multiple times the contextual nature of contact tracing due to government surveillance laws, mobile phone laws, and political atmosphere. Issues of regional security, Bluetooth problems, lack of trust, and the high political nature of contact tracing were emphasized. Additionally, the overall lack of coordination and sharing regarding best practices and lessons learned, as well as lack of multi-sectoral discussions was highlighted. We mentioned the upcoming class that may be developed by the COVID-19 Digital Classroom, and people seemed interested in learning more. The GOARN Knowledge Hub currently promotes the COVID-19 Digital Classroom resources.

Further, the GOARN consultations identified the need for guidance on the development, collection and interpretation of analytics as a critical element of data use and management, including the documentation of which KPIs should be addressed. Resolution of these issues are ongoing with future discussions anticipated between global partners and representatives from the technology industry in order to develop the necessary guidance to integrate processes when incorporating mobile and other applications. Social scientists and anthropologists should also be consulted.

Current Issues for Discussion

COVID-19 presents a unique challenge based on the evolving science that is not yet clear on direct infection via respiratory droplets (when someone coughs) vs. contact with respiratory droplets and face-touching. This makes it difficult to define what or whom constitutes the “contact” in the context of tracing. Based on past contact tracing experience for similar epidemics, respiratory diseases have been notoriously challenging to trace contacts. Additionally, access to safety/protective items when conducting contact tracing has not been uniform, and the capacity of volunteers to say ‘no’ if they do not feel safe going out into the community, which becomes a serious ethical question, is often overlooked. Finally, a clear understanding on whether national governments

or international organizations are tasked with taking the lead in the training, coordination and funding of contract tracing is necessary to align training course materials with the policy directives at the national level.

Need for Clarity when Defining Contact Tracing

One of the foremost considerations that should be included in training courses on contact tracing is to ensure that the definitions used in the elaboration of the course modules are consistent with local norms and levels of literacy. Definitions should also be considered for basic terms, since different groups define “contact” differently. For example, The How We Feel Project¹ defines a contact as being within a six-foot radius of an infected individual for more than 10 minutes, while the contact tracing protocols published by Resolve to Save Lives² cascades definitions of contacts, starting with everyone in a household.

Application of Lessons from Ebola

Contact tracing and the corresponding techniques and tools necessary to conduct a contact tracing campaign allow a country-level health system and its staff, partners and community members to work in tandem to mitigate ongoing risks. In the recommendations drafted by the Community Health Academy team (see Appendix 2), reference is made to the best practices of Ebola contact tracing methods, which outline the need to engage with communities to promote cohesion of understanding through feedback loops. The CORE Group technical review team supports the use of lessons from Ebola contact tracing in this instance with the caveat that care must be taken in developing course content for COVID-19 that clearly differentiates between the distinctions in transmission. For example, while there were specific features of direct contact with an infected individual to transmit Ebola, COVID-19 is a respiratory illness that requires more stringent distancing parameters. However, during the GOARN Contact tracing Consultation, it was mentioned several times that this was not Ebola, and the science of COVID-19 is still not understood.

Another lesson from the Ebola response that can be considered for COVID-19 contact tracing training course development, as outlined by the Community Health Academy recommendations, is that the outreach response at the community level was critical. Once community members became engaged in the contact tracing for Ebola, for example, that was the inflection point when containment took hold. Trust in the community is also vital, and needs to be developed prior to the onset and throughout the implementation of a contact tracing program. Stigma is also a concern. In Nigeria, CDC Nigeria officials removed all CDC identification from materials due to the high degree of stigma associated with contact tracing. Awareness of these issues during training course development will assist the training course development team in the selection of information and approaches that consider the challenges that will be faced by contact tracers at the community level.

The Role of the Community Health Worker

When developing training courses with Community Health Workers as a key audience, it is necessary to outline the distinction between the roles the CHWs and the Rapid Response Teams, and other MOH mechanisms that may have existed prior to the pandemic. The CHWs often hold support roles within current and complex health systems rather than as independent tracers. Additionally, the ability for a Ministry of Health or international organization (whichever is managing the process) to provide adequate training and proper protective equipment to tracers is essential to ensure the health and safety of the tracing team members who will be trained in the course, including the right for CHWs to say no to tracing if they are not provided with the minimum protection standards to safely undertake the contact tracing activity. CORE Group’s experience from our work in India, for example, was that CHWs would be at risk if sufficient safety measures were not put in place. In this case, as a

1 <https://howwefeel.org/>

2 https://preventepidemics.org/wp-content/uploads/2020/04/COV051_contacttracingprotocol_v13.pdf

best practice, community-led processes allowed for safety measures to be identified and put in place at the community level.

Technology Risks and Issues

When cell phones are used, there is a risk of misunderstanding or misinterpretation of data when adequate training is not provided and/or there is not sufficient supervision of the team of data collectors. Additionally, there is a risk of compromising data through cyberattacks. Without safeguards for data, there is also a risk of data being appropriated for other purposes. Any training programs that are developed for contact tracing therefore need to address issues of data collection, protection and storage

According to the IFRC³ there are many benefits to adopting the use of mobile apps to conduct contact tracing with the potential to decrease the spread of infection. At the same time, however, mobile apps give way to the introduction of data privacy issues. IFRC suggests that organizations consider the risks of privacy by reviewing decentralized protocols such as “DP-3T” within a well-developed data management system, which is based on local legal standards. Decentralized Privacy-Preserving Proximity Tracing (DP-3T) is a technology based on end-to-end encryption, minimizing data that is sent and/or stored on a back-end server. For a discussion of DP-3T and a link to a white paper on DP-3T technology, [click here](#).

Currently, Google and Apple⁴ are combining efforts to develop a contact tracing application based on Bluetooth technology. Together, the two technology companies will launch application programming interfaces (APIs) and corresponding interfaces developed specifically for contact tracing. This new technology is anticipated to interact with a broad base of apps which will be aligned with government health departments. For this reason, contact tracing course modules will need to have an easily adaptive approach to update modules as the technology, and the subsequent international and national policies and standards for use of these technologies in contact tracing, are revised, updated and codified into law. However, Bluetooth issues were highlighted in the GOARN Consultation, by several countries. Any mention of mobile phone use during contact tracing, mobile applications, Bluetooth and other features, must be highlighted with disclaimers and provide the current issues, evolving technologies, as well as benefits. However, some researchers have highlight the concerns on reliability and trust of mobile data , and can be read [here](#).

Ethical Issues

Tracking personal data on personal devices is the basis for serious privacy concerns as outlined by [Vox.com](#). Google and Apple have committed to maintain user privacy protections, including building in functionality for consent. And consultations will be facilitated in an open forum to assure transparency. The specifics of what these protections will ultimately be are of concern, however, since there are still so many issues that have not been fully identified, particularly as it relates to contact tracing at the national level. Based on the WHO global consultations, there was a need for improved collaboration between the private sector, mobile companies, health departments, governments and other stakeholders, as they are operating in silos at the present. The issue of data tracking through personal electronic devices, such as cell phones poses a potential ethical issue with broadly varying applications based on cultural and political contexts.⁵ In the United States, for example,

³ <https://media.ifrc.org/ifrc/2020/05/15/covid-19-contact-tracing-call-digital-diligence/>

⁴ <https://www.apple.com/newsroom/2020/04/apple-and-google-partner-on-covid-19-contact-tracing-technology/>

⁵ https://ro.uow.edu.au/cgi/viewcontent.cgi?referer=https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=data+tracking+and+ethics&btnG=&httpsredir=1&article=10215&context=infopapers

there is not currently mandatory app-based contact tracing, while the tracking of health data is mandated in other countries, even though in many cases the populations of these countries are not fully informed of the privacy issues.

In contrast, in China, where facial recognition is a widely used tool by the government to monitor movements and activities of the population, this technology is also used to target ethnic minorities. With the onset of COVID-19, the Chinese government is expanding digital surveillance throughout the country to include [health data](#). These current approaches further illustrate the potential of governments in the developing world to utilize data from contact tracing to infringe on both the privacy and human rights of minorities and other vulnerable populations, including displaced persons, migrants and refugees in addition to [ethnic minorities](#).

Current practices in China can be used as a cautionary example, particularly in the development of contact tracing modules intended for countries where there is civil unrest or internal conflict, such as in Burma, Ethiopia, Kenya or Somalia among others. In these, and similar countries, careful consideration of how training incorporates technology would be required so as not to further exacerbate protection issues for the most vulnerable.

Recommendations

I. Overall Recommendations

- Current online training courses on contact tracing vary in the modules that they include, but each has an overview of what contact tracing is as well as the overarching elements of implementing a program to trace, isolate (quarantine) and follow-up cases. What is missing in these courses is a reference to context to conduct contact tracing at the community level and/or contextual issues based on regional or national policies and guidelines. As such, the course should include elements on how to align contact tracing programs with the MOH guidelines as well as realities at the community level.
- The needs of global audiences and community-level health workers vary widely. Global policy makers need training to address privacy issues, global coordination, policy development at a number of levels, whereby community health workers and volunteers need skills-based training to prepare them to conduct contact tracing at the community level. For this reason, training on contact tracing would be divided into two tracks in order to address the different needs of the two distinct audiences adequately.
- Community engagement is a critical element of building trust among the many levels of stakeholders within the rubric of contact tracing. The training course should therefore include a clear focus on best practices to engage leaders, women, youth, and influencers at the community level based on lessons learned from the Ebola and other epidemics in lower and middle-income countries.
- Given the privacy issues of using technology, such as mobile APPs to conduct contact tracing, the training course should include a discussion of the privacy issues and how community health workers and volunteers can explain how the data will be collected and used to community members, including the process for contacts to provide consent.
- To allow for different contexts within individual countries, the training should incorporate elements that depict links or strategies to ensure national policies and/or protocols are considered and respected during contact tracing at the community level.

II. Recommendations for Potential Objectives for Course Development

The synthesis of training modules (included in Appendix 1) included a review of the objectives, format, and training content for the identified contact tracing courses and resources on the master list. Based on this analysis, the following recommendations are provided for consideration in order to guide next steps in the development of an online contact tracing training course.

A. Objectives for Community-Based Contract Tracing Course Development

- Define key elements of contact tracing, including definition of “contact,” (since there is variability in how a contact is defined in addition to multiple contexts), signs of infection, timing and scope of tracing for each contact, and data collection and management.
- Identify the role of the community health worker and/or community volunteer within the larger health systems framework for contact tracing, which will fall largely on the country context.
- Outline how to determine integrated referral systems to ensure isolation based on a manageable system of quarantine, based on locally vetted principles and approaches.
- Determine how to ensure the integration of contact tracing processes when incorporating mobile and other applications.
- Develop methods to engage with communities through community messaging and outreach to promote cohesion of understanding through feedback loops (see lessons from Ebola above).
- Create systematic approaches to information sharing approaches and protocols, developed based on respect for privacy issues.
- Identify the most common barriers to contact tracing efforts and strategies to overcome them.

B. Objectives for Contact Tracing Global Coordination and Policy Development

- Identify and/or develop best practices in the collection, protection and storage of data used in contact tracing.
- Outline global strategies to foster collaboration across borders based on a harmonization of protocols within individual countries, in line with the International Health Regulations.
- With the global community, identify minimum standards for quantitative measures within the economic context of the country where contact tracing is conducted based on the economic realities of lower and middle-income countries.
- Raise awareness and identify challenges of privacy issues and legal frameworks within a given country for data tracking through personal electronic devices.
- Identify approaches to the use of technology that do not further exacerbate protection issues for the most vulnerable populations in a country.

III. Recommendations for Potential Training Course Modules

A. Potential Modules for Community-Based Contract Tracing

- The key elements to determine and track infected individuals at the community level.
- The integration of contact tracing with established case management and surveillance strategies.
- Identification and follow-up of suspected cases.
- How to collect and collate data during contact tracing activities based on standardized measures.
- Effective Risk Communications for community outreach and engagement.

- Access to and Use of Personal Protective Equipment and Physical Distancing measures during community outreach and lack of this equipment-how to conduct contact tracing under multiple scenarios.
- How to apply contact tracing protocols to a range of scenarios and contexts.

B. Potential Modules for Global Contact Tracing Coordination and Policy Development

- Strategies to support Ministries of Health in the adaptation and cross-border sharing of national contact tracing guidelines and protocols, in line with International Health Regulations.
- Coordinated Multi-national Risk Communications and Outreach messaging strategies, related to contact tracing.
- Contact tracing legal requirements across multiple countries, taking IHR into consideration.

Limitations

This mapping was a rapid assessment and there were a number of limitations to the study. Although we were able to compile 25 resources in less than a week, this sampling may not fully represent the full array of training content currently available in online and/or additional contact tracing training programs in hard copy at the national level. Additionally, there may be other nuances we are not aware of that must be considered for contact tracing courses.

Conclusion

This rapid COVID-19 contact tracing mapping exercise reviewed the current online and other training offerings to inform the creation of training modules for a course on contact tracing for both global and community-based audiences. This course is being developed by the COVID-19 Digital Classroom to address the training needs of global partners, as well as the skills and protocols necessary to conduct contact tracing at the community level. Given the vastly different needs and topic areas for each of these distinct audiences, recommendations for two separate tracks were provided in this Summary Report. Ethical considerations were also included to highlight the potential issues that will need to be addressed during training course development, including the consideration of privacy issues, especially when mobile devices are utilized to conduct contact tracing. More research is needed to determine specific issues at the country-level, and formats incorporated in the training course will need to account for individualized country level information to be embedded into, updated or revised within the course as necessary.

Appendices

Appendix 1: Synopsis of Training Course Content and Training Resources

1: COVID-19 Contact Tracing (on [Coursera](#) Platform)

Author: Johns Hopkins University

Open Source/CCL: Copyrighted material (did not include a CCL)

Note: On the COURSERA Platform, the number of participants in this course as of 6/14/20 was [376,230](#).

This course is the most subscribed course on contact tracing, which begins with an overview of the science of the disease, how it is contracted (i.e. the period of infection), the symptoms of the disease and how it is transmitted from one person to another. The overall approach to how to conduct contact tracing is presented, with a focus on working with individuals and building trust in order to effectively identify contacts. Mitigation measures to slow transmission are also discussed, and the approaches and ethics of tracing, isolation, and quarantine are presented along with challenges to implementation and how to resolve these challenges.

[Link to Syllabus](#)

2: COVID-19 Contact Tracing Course

Author: Purdue University

Open Source/CCL: Copyrighted material (did not include a CCL)

This course is a basic course that starts with how to work with public health agencies to mitigate the pandemic through contact tracing. It outlines different phases of the pandemic and discusses the timeframes of how to address the growing need for contact tracing as cities and counties begin to loosen their stay at home orders, including how to prepare a cadre of contact tracers for a resurgence in cases.

3: Making Contact: A Training for COVID-19 Contact Tracers

Author: Association of State and Territorial Health Officials

Open Source/CCL: free for users of course (did not include a CCL)

This course is for first-time tracers without any previous knowledge or experience in contact tracing. The course outlines the protocols necessary to align the tracers with the needs specific to individual jurisdictions. Remote training is addressed in addition to how to operate effectively in the field.

4: Contact Tracing to Ease Social Distancing (Emergency Health Workforce Policies to Address COVID)

Author: Association of State and Territorial Health Officials

Open Source/CCL: free for users of course (did not include a CCL)

This is a basic course that discusses the why contact tracing is necessary. The modules also promote longer-term skills-building for the staff of the county health department in order to extend the capacity of the department to recruit and retain staff.

5: Every Contact Counts: Contact Tracing for Public Health Professionals

Author: University of Washington, Northwest Center for Public Health Practice

Open Source/CCL: Copyrighted material (did not include a CCL)

The focus of this course is on surveillance systems, and it addresses how the course can complement surveillance systems that are already in place and were operational prior to COVID-19. The course includes interactive elements to provide hands-on skills-building practice through a variety of animations, knowledge-checking and exercises that promote real-time management during the process of contact tracing.

6: UH Epi Corps Contact Tracer Certificate Program

Author: University of Houston, College of Medicine

Open Source/CCL: Copyrighted material (did not include a CCL)

This is a free college-level certification in contract tracing with four overall objectives, including: 1) basics of a pandemic; 2) signs and symptoms; 3) actions and requirements associated with each step of the process; and 4) how to apply contact tracing protocols to a range of scenarios.

7: COVID-19 Virtual Training Academy

Author: UCLA

Open Source/CCL: see Terms

This introductory course is for contact tracers without any previous experience. It is intended as expedite training of new contact tracers. The modules include a discussion on remote contact training in addition to the basic elements of conducting tracing, isolation and follow-up. The course is intended to be supplemented by health officials at the state and local levels.

8: COVID-19 Contact Tracing Training

Author: Centers for Disease Control (US)

Open Source/CCL: Yes, with Attribution

This document is a sample training plan for contract training that includes a comprehensive discussion of what contact tracing is and how it is conducted. The sample training plan includes a number of levels of potential courses, and course developers can pick and choose among training content based on their target audience needs. Each section includes learning objectives and key principles. The initial modules address strategies, approaches, and protocols to conduct contact tracing. Realistic and applicable tools are outlined in addition to protocols and approaches to ensure ongoing quality development. The sample training guide also includes a training catalogue by learning objective.

This resource is very comprehensive and can easily be adapted to a new training course. An electronic version of the information can be found, [here](#).

9: Operational Guide for Community Health Workers on COVID-19 In Malawi

Author: Government of the Republic of Malawi

Open Source/CCL: Yes, with Attribution

This is a comprehensive guide to support Community Health Workers during COVID-19. The guide includes specific information on contact tracing approaches, protocols and sample forms for data management. Specific

sections that will inform course development include: 1) Section 2.3: Identification and Follow-up of Suspected Cases; 2) Section 2.4: Adherence to Quarantine; and 3) Section 2.5: Use of Risk Appropriate PPE.

10: Liberia Community Health Workers for COVID-19, Facilitator's Handbook

Author: Government of the Republic of Liberia

Open Source/CCL: Yes, with Permission granted by Last Mile Health

The key areas of this Participant Training Handbook are Prevention, Detection and Response. Within the Response to COVID-19 Module 2, there are three sessions directly related to contact tracing, including: 1) Session 1: CHWs referral and reporting system; 2) Session 2: Contact Tracing; and 3) Session 3: Contact Identification and Listing. The training handbook also includes other useful modules for general COVID-19 topics, including supplemental information to build out contact tracing modules based on an approach grounded at the community level in West Africa.

11: Liberia Community Health Workers for COVID-19, Participant's Handbook

Author: Government of the Republic of Liberia

Open Source/CCL: Yes, with Permission granted by Last Mile Health

The Participant Training Handbook is a companion piece to the Facilitator's Guide by the same title noted above. As such, the contents related to community surveillance and contact tracing mirror the three sessions noted in the resource above. In addition, Participant's Handbook and corresponding objectives related to both general COVID-19 and contact tracing included useful graphics and drawings that can be extracted and used with permission.

12. How 'Contact Tracing' Tracks COVID-19 (Digital Animation)

Author: VOA News

Open Source/CCL: Copyrighted material (did not include a CCL)

This animation outlines the key elements of contact tracing by using a mobile phone, and presents the information as if the contact tracer were a detective. The video makes the point that using digital technology in contact tracing is a game-changer.

13: Smartphone-Assisted, Privacy-Preserving COVID-19 Contact Tracing (Digital Animation)

Author: MIT

Open Source/CCL: Copyrighted material (did not include a CCL)

This is an animation to highlight the necessity for rapid and timely contact tracing, including the need to identify everyone that an infected individual may have come into contact with over a two-week period. The labor-intensive reality of conducting contact tracing is addressed, and the MIT response to the challenge is depicted in their solution of an "automated, smartphone-assisted approach that permits effective contact tracing while preserving privacy." For more information, a story outlining the technology and how to protect privacy can be found [here](#).

14: Why contact tracing is important (Digital Animation)

Author: The Hindu

Open Source/CCL: Copyrighted material (did not include a CCL)

This animation outlines contact tracing based on the Indian context, and includes an overview on the need and approaches to contact tracing.

15: CommCare (Mobile APP)

Author: Dimagi

Open Source/CCL: Copyrighted material (did not include a CCL)

The Dimagi CommCare platform allows for rapid deployment of mobile phone applications that address multiple phases of the COVID-19 response, beginning with screening and contact tracing, and including follow-up care and patient support following resolution of the disease.

16: Stopp Corona App (Mobile APP)

Author: Red Cross Austria

Open Source/CCL: Copyrighted material (did not include a CCL)

This mobile App is based on an approach that incorporates an “anonymous contact diary” that documents contacts with a “digital handshake.” The concept is based on the automatically informing anyone who shook hands with an infected person to be informed. Contacts are then asked to self-isolate.

17: Aarogya Setu (Mobile APP)

Author: Government of India, Department of Health

Open Source/CCL: Copyrighted material (did not include a CCL)

Note: This APP is in 11 languages

This mobile APP is a product of the Government of India to protect citizens during the pandemic. The purpose is to supplement the government’s response by providing information to persons who are at high risk. Information on best practices on how to remain healthy is included, and users can access health professionals for advice on COVID-19 through the APP.

18: How Contact Tracing Works

Author: Partners is Health

Open Source/CCL: Copyrighted material (did not include a CCL)

This resource is a short video (1:45) that includes basic information on what contract tracing is, and includes a brief discussion on the key elements of contact tracing.

19: Apple and Google's Contact Tracing Bluetooth Spec For COVID-19 Explained

Author: Hussein Nasser

Open Source/CCL: Copyrighted material (did not include a CCL)

This is an informational video that discusses the Bluetooth Technology design that is being developed by Google and Apple for contact tracing, based on an analysis of the papers written on the issue. The video also includes a discussion of the privacy issues in addition to the generation of a unique tracing key for each device to address privacy issues.

20: EPI-WIN Webinar: Contact tracing in the context of COVID-19

Author: WHO

Open Source/CCL: Copyrighted material (did not include a CCL)

This is an informational webinar that includes an overview of contact tracing based on detailed steps and approaches. The presentation also includes elements of surveillance and a number of potential scenarios, including considerations for special and vulnerable populations. Includes an overview of APP development from the Austrian Red Cross (resource #16 Stopp Corona APP noted above) which outlines the interoperability issues noted for DP-3T within this Summary Report.

21: COVID-19 Contact Tracing Protocol for African Union Staff

Author: African Union, Africa CDC

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This document is a PDF that can be downloaded, and includes the contact tracing protocol for African Union Staff, including guidance on how to manage staff who are positive. This is a step-by-step guide to address investigation of cases, how to classify and document contacts, follow-up procedures, and timeframes for follow-up.

22: Guidance on Contact Tracing for COVID-19 Pandemic

Author: African Union, Africa CDC

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This document is a PDF that can be downloaded, and includes an overview on how to minimize the transmission of COVID-19 through contract tracing. General guidance on how to differentiate among various characteristics of the epidemic on a country-by-country basis is discussed, including under what conditions and when contact tracing should be employed.

23: Public health management of cases and contacts associated with COVID-19

Author: Government of Canada

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This website includes detailed information to support case management for COVID-19, including the process to implement contact management to mitigate the disease. Guidance includes timing of contact management and local transmission rates, including person-to-person transmission. Additional information on health assumptions and outbreak updates is included.

24: Guidelines on the use of location data and contact tracing tools in the context of the COVID-19

Author: European Data Protection Board

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This is a link to a document that includes guidelines on the use of location data and contact tracing tools in the context of the COVID-19 outbreak. The topics include use, location and legal analysis of data. Also included is an annex: Contact Tracing Applications Analysis Guide.

25: Privacy-safe contact tracing using Bluetooth Low Energy

Author: Google

Open Source/CCL: Copyrighted material (did not include a CCL)

This three-page infographic outlines how to safeguard privacy when using Bluetooth technology for contact tracing.

Appendix 2: Community Health Academy Surveillance and Contact Tracing Recommendations
(Included verbatim from the Mapping Document Provided to CORE Group for Technical Reference)
Update 4/26/20

I. CONTACT TRACING

Contact Tracing: During which phase of the epidemic is contact tracing effective? When should it stop (if ever)? Should CHWs, supervisors, or neither be involved in performing contact tracing? How should contact tracing be conducted if limited PPE is available?

Recommendations:

- Early aggressive case identification, contact tracing, and isolation/quarantine should be done and contacts should be tested if there is capacity to do so. Ideally, a facility-based rapid response team travels to any community with a suspected case within 24 hours of case report, tests the isolated patient, assesses need to go to the health facility (based on risk factors or danger signs), and then does contact tracing, supported by the CHA, who can make a contact listing with the patient while they are waiting for the rapid response team
 - Contact tracing by rapid response team can commence at time of confirmed case OR suspect case with known contact to confirmed case, travel to Monrovia or other area with cases or suspected cases.
- Depending on testing capacity, known contacts of confirmed cases can also be tested (otherwise can be isolated and monitored); countries such as South Korea and Singapore have been successful by rapidly scaling testing capacity, combined with efforts to isolate cases and trace and quarantine their contacts
 - Contact tracing can be done on presumptive cases even if there is limited testing capacity
 - Contact tracing should be done for suspected patients at higher risk even if there is limited testing capacity
- This process varies by epidemic phase - note that different areas within a country or even county can be in different phases at the same time:
 - Early - Employ aggressive contact tracing early in the outbreak OR when transmission is still low within a particular catchment area.
 - Widespread Transmission - Discontinue tracing, or rely on other isolation tactics during widespread transmission (e.g., population wide distancing regardless of infection); switch efforts to monitoring for symptoms and referral planning as contact tracing is only marginally useful after early stages if already employing quarantine, isolation, and other non-pharmaceutical interventions (see sources [here](#), [here](#), and [here](#))
 - There may be more asymptomatic spread in rural Liberia than elsewhere due to lower average - thus contact tracing may be less effective
 - Modeling suggests an intervention needs to trace 80% of contacts to be effective, so if not feasible, tracing/targeted isolation less effective
 - Some have made a case for at least tracing most-at-risk contacts even when you can't keep up with comprehensive tracing
 - Alternative approach: some studies suggest that community-based monitoring of whole community and limiting travel was effective during Ebola, even without contact tracing during widespread transmission
 - Lowered Transmission - Increase contact tracing again as transmission declines.
 - Ensure there is a feedback loop between data collected at the community level, at the health facilities, up to the national level both at MoH and to GoM officials that are making the policy decisions for respondent measures for the country

- We do NOT recommend CHWs doing testing or sending the patient to the test, unless they are screened verbally by a CHW as at high risk for complications, in which case they should go to the facility immediately; otherwise, patients should isolate and not travel, even to the facility for testing

Remaining questions: Is community-based testing, case management, and contact tracing a role for CHSSs? How should contacts be defined in a rural community? What is our stance on quarantining all household contacts? This would be more likely to interrupt chains of transmission, but there are concerns around the possibility of increasing transmission within a household.

II. CHW & SUPERVISOR INVOLVEMENT IN COVID-19 COMMUNITY-BASED SURVEILLANCE

To what extent should CHWs and their supervisors be involved in community-based surveillance of COVID-19, including community monitoring, identification of suspected cases, testing, and contact tracing?

Recommendations:

- CHWs should be responsible for doing regular surveillance and reporting to their supervisors on COVID-19. Once a suspected case is identified:
 - Ideally, a facility-based rapid response team travels to any community with a suspected case within 24 hours of case report, tests the isolated patient, assesses need to go to the health facility (based on risk factors or danger signs), and then does contact tracing
 - Contact tracing can be supported by the CHA, who can make a contact listing with the patient while they are waiting for the rapid response team
 - We do NOT recommend CHWs doing testing or sending the patient to the test, unless they are screened verbally by a CHW as a high risk for complications, in which case they should go to the facility immediately; otherwise, patients should isolate and not travel, even to the facility for testing
- Given significant risk of asymptomatic transmission, reducing clustering should occur before there are cases. CHWs should do early and deep community engagement and behavior change communication around physical distancing, not only between community members, but especially between the CHW and community members to ensure CHWs do not spread asymptotically; CHWs should remind the community that in younger children and adults 50%+ COVID cases can be asymptomatic, thus physical distancing is very important. CHWs should also take their temperature every day - if symptoms, stop providing care and notify supervisor.
- CHWs should screen for cases from 6 feet away, and should ask about symptoms in last 24-48 hours. The CHW should ask if the patient has had a fever, been coughing, had muscle aches, had shortness of breath/difficulty breath, been sneezing, had a sore throat, or had a new loss of smell. If the answer to 2 or more of these questions is “yes”, this is a community trigger. If the answer to 1 or more of these questions is “yes”, PLUS the patient has been in contact with a confirmed or suspected COVID-19 patient, or has a household contact that screens positive, or recent travel to known area with COVID-19 this is a community trigger.
- Patients should be tested in the community by a facility-based rapid response team (NOT by the CHW)
 - Testing should occur within 24 hours of case identification

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