Key Indicators for Evaluating Contact Tracing Programs for COVID-19 in Low- and Middle-Income Countries

Who is the intended audience of this document?

Programs planning to review and use these indicators should have a basic data management system for case investigation and contact tracing from which data can be abstracted and manipulated.

Document Rationale

Contact tracing is a key component of controlling transmission of infectious diseases. Monitoring and evaluating contact tracing programs are vital to case investigation and contact tracing success. By routinely reviewing and using key indicators, contact tracing programs for COVID-19 can recognize areas needing improvement and quickly implement necessary changes to strengthen the program.

Key Indicators

These key indicators have been compiled from multiple guidance documents provided by CDC and other organizations.[1-9] Key indicators have been divided into three main categories: impact, process, and outcome indicators.[10] A definition and description has been provided for each indicator.

These indicators can be adapted to specific countries and programs. In addition, contact tracing programs should consider how each indicator can be used to best drive program improvements. Considerations for each indicator include—

- Stratification (e.g., demographics, geography, high risk/low risk exposure, contact classification—close contact, or by case investigator/contact tracer)
- Frequency of evaluation based on a program's specific needs (e.g., bi-weekly, monthly), and
- Targets in line with the epidemiology of the outbreak in the program area.[6, 8, 9]

Contact tracing programs might not be equipped to monitor all indicators initially. As programs become more established and improve their data management infrastructure, it might be possible to incorporate more indicators into a program's monitoring and evaluation framework.

Impact Indicator

Description	Definition	Indicator
Tracks the quality and completeness of contact tracing.	*Numerator*: # new cases who were registered contacts in a given period. *Denominator*: # new cases in a given period.	# and % of new COVID-19 cases arising from registered contacts[1, 2, 4-7, 9]

Process Indicators

Staffing

Description	Definition	Indicator
Tracks the completeness of contact tracing staffing needs. This allows programs to understand when scale-up or staffing adjustments might be needed.	*Numerator*: # of staff trained on case investigation or contact tracing. *Denominator*: Total # of staff to be trained on case investigation or contact tracing (might change as program progresses).	# and % of staff trained on case investigation[3], [8] # and % of staff trained on contact tracing[3], [8]

Case/Contact assignment

Description	Definition	Indicator
Evaluates case investigators' and contact tracers' workloads. This indicator helps assess if the program currently has the appropriate number of staff needed. Workforce calculators can help programs determine the target workforce size based on the current outbreak epidemiology.[1, 11-13]	*Numerator*: Total # of case investigations assigned in a given period. *Denominator*: # of case investigators in a given period.	Mean # of case investigations assigned per case investigator during a given period*[3] **Period defined by program guidelines (e.g., 14 days); alternative option to calculate median*
	Numerator: Total # of contacts assigned in a given period. *Denominator*: # of contact tracers in a given period.	Mean # of contacts assigned per contact tracer during a given period*[3] **Period defined by program guidelines (e.g., 14 days); alternative option to calculate median.*

Interview/Notification timeliness

Description	Definition	Indicator
Evaluates the time elapsed between assignment of a case to case interview.	*Numerator:* Sum of the # of days from case assignment to interview during a given period. *Denominator:* # of cases interviewed during a given period.	Mean # of days from case assignment to interview during a given period[4] **Period defined by program guidelines (e.g., 14 days); alternative option to calculate median*
Evaluates the time elapsed between initiation/assignment of a contact to contact notification to quarantine.	*Numerator:* Total of the # of days from initiation/assignment of identified contacts to notification during a given period. *Denominator:* # of contacts notified during a given period.	Mean # of days from initiation/assignment of identified contact to notification to quarantine during a given period*[3] **Period defined by program guidelines (e.g., 14 days); alternative option to calculate median.*

Outcome Indicators

Cases and contacts notified and completing isolation/quarantine follow-up

Description	Definition	Indicator
Tracks the ability and completeness of contact tracing to connect with contacts.	*Numerator*: # contacts notified. *Denominator*: Total # contacts reported/ listed.	# and % of contacts notified*[1, 2, 5, 9] ** The term 'notified' here refers to notifying (e.g., in-person, by phone, SMS) a contact, providing quarantine instructions, and facilitating access to social support services*[1]
Monitors the adherence of cases and contacts to isolation and quarantine. This indicator can also help inform if additional activities and communication are needed to encourage adherence to the full isolation or quarantine period.	*Numerator:* # cases reporting completing full isolation period. *Denominator:* Total # of cases interviewed.	# and % of cases reporting completing full isolation period*[2] **Per program guidelines (e.g., 14 days)*
	Numerator: # of contacts reporting completing full quarantine period. *Denominator*: Total # of contacts with follow-up initiated.	% contacts reporting completing full quarantine period*[2] **Per program guidelines (e.g., 14 days)*

Testing of contacts

Description	Definition	Indicator
Monitors testing of contacts and adherence to program testing guidelines. This provides the contact tracing program the opportunity to identify areas of improvement in testing referrals, access, and capacity.	*Numerator:* # of contacts tested per program guidelines. *Denominator*: # contacts with follow-up initiated.	% of contacts tested for SARS-CoV-2 per program guidelines[2, 4]

Together, these key indicators can give programs a quick snapshot of their contact tracing program. As programs continue to grow their contact tracing and data systems and management capacity, there might be other indicators of interest, and those can be added to a program's monitoring and evaluation framework as needed.

References

1. Centers for Disease Control and Prevention. *Operational Considerations for Adapting a Contact Tracing Program to Respond to the COVID-19 Pandemic*. Retrieved 28 Aug 2020, from: https://www.cdc.gov/coronavirus/2019-ncov/global-covid-19/operational-considerations-contact-tracing.html.

2. Centers for Disease Control and Prevention. *Evaluating Case Investigation and Contact Tracing Success*. Retrieved 28 Aug 2020, from: https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/evaluating-success.html.

3. Centers for Disease Control and Prevention. *Guidance for US Centers for Disease Control and Prevention Staff for the Establishment and Management of Public Health Rapid Response Teams for Disease Outbreaks: COVID-19 Disease Supplement*. Retrieved 28 Aug 2020, from: https://www.cdc.gov/coronavirus/2019-ncov/downloads/global-covid-19/RRTManagementGuidance_COVID-19-Disease-Supplement.pdf.

4. Centers for Disease Control and Prevention. *ELC Performance Measures Guidance for Project E: Enhancing Detection* Retrieved 28 Aug 2020, from: https://vital.ent.box.com/s/fmpabl5nezdr732amokblgmcffp0r6uz.

5. Pan American Health Organization. *Considerations for the implementation and management of contact tracing for Coronavirus Disease 2019 (COVID-19) in the Region of the Americas*. Retrieved 28 Aug 2020, from: https://iris.paho.org/handle/10665.2/52384.

6. Resolve to Save Lives. *COVID-19 Contact Tracing Playbook*. Retrieved 14 Sept 2020, from: https://contacttracingplaybook.resolvetosavelives.org/checklists/metrics.

7. World Health Organization. *Contact Tracing in the context of COVID-19*. Retrieved 28 Aug 2020, from: https://www.who.int/publications/i/item/contact-tracing-in-the-context-of-covid-19.

8. Harvard Global Health Institute. *Key Metrics for COVID Suppression*. Retrieved 14 Sept 2020, from: https://ethics.harvard.edu/files/center-for-ethics/files/key_metrics_and_indicators_v4.pdf.

9. Resolve to Save Lives. *COVID-19 Contact Tracing Indicator List for Consideration*. Retrieved 14 Sept 2020, from: https://vital.ent.box.com/s/29g4oj8rsb7gt843ffw08tbi4p3znuuj.

10. Centers for Disease Control and Prevention. *Indicators - CDC Approach to Evaluation*. Retrieved 25 Sept 2020, from: https://www.cdc.gov/eval/indicators/index.htm.

11. Centers for Disease Control and Prevention. *COVIDTracer 1.0*. Retrieved 29 Sept 2020, from: https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/COVIDTracer.html.

12. George Washington University. *Contact Tracing Workforce Estimator*. Retrieved 29 Sept 2020, from: https://www.gwhwi.org/estimator-613404.html.

13. Prevent Epidemics. *Contact Tracing Staffing Calculator*. Retrieved 29 Sept 2020, from: https://preventepidemics.org/covid19/resources/contact-tracing-staffing-calculator/.