Coronavirus Disease (COVID-19) Outbreak Guidance for IFRC and National Societies

Version 4 – 28 February 2020

What is new in this update
- Section on risk analysis and epidemiological update
- Explanation of the phases of outbreak response
  Asymptomatic / pre-symptomatic transmission
- Table of evidence-based activities by outbreak response phase
- WHO upgrades global risk assessment to very high

Risk analysis and epidemiological update

As of 28 February, there have been more than 80,000 confirmed cases of COVID-19, resulting in more than 2,800 deaths, in more than 50 countries. The outbreak originated in Wuhan in Hubei province, China, and most new cases within China continue to be in Hubei. However, there are now more new daily cases outside China than inside it. The risk of global spread continues to increase, with more communities affected and more potential sources of exportation. To date, in addition to China, cases have been known to have been exported from Iran, Italy, Japan, Singapore, Thailand, France and Germany. So-called "super spreader" or "amplification" events, in which one case results in many more before being identified and isolated, have occurred in several of these localised outbreaks. There are now confirmed cases reported on all continents. Although people may test positive for COVID-19 before showing symptoms, asymptomatic or pre-symptomatic transmission is not believed to be a driver of the epidemic. As of 28 February, WHO has upgraded its risk assessment to very high for all countries. Previously, the risk assessment was very high for China and high for the rest of the world.

The threat of pandemic caused by novel respiratory viruses like COVID-19 must be prepared for, given the ability of the virus to spread from person to person and the global population's lack of immunity to this new virus. This epidemic is expected to continue to grow and affect communities in more countries and regions, despite current control measures. All National Societies should be prepared for the possibility of imported cases. Please click here for the latest information on number of cases and countries affected.

Introduction

On 31 December 2019, the World Health Organisation (WHO) was informed of a cluster of cases of pneumonia of unknown cause detected in Wuhan City, Hubei Province of China; the first cases likely occurred in late November or early December. These were the first cases of a disease now called COVID-19, which was caused by a new type of coronavirus. The outbreak has quickly spread within Wuhan and to other major population centres in China, with sustained person-to-person transmission, particularly within families and at healthcare facilities. As with other serious coronavirus outbreaks like Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), many healthcare workers and other patients have been infected in health facilities. On 30 January 2020, WHO declared the outbreak a public health emergency of international concern (PHEIC) under the International Health Regulations (IHR). As part of the PHEIC declaration, the WHO issued temporary recommendations encouraging countries to enact measures to:
- reduce human infection, and prevent secondary transmission and international spread;

- contribute to the international response through multisectoral communication and collaboration;
- participate actively in increasing knowledge on the virus and the disease and addressing misinformation and rumours; and
- advance research.

What is it?

The virus that causes COVID-19 is closely related to SARS-coronavirus, and likely originates in bats. It is likely that this new virus crossed from bats to another animal population—the intermediate host could be a domestic food animal, a wild animal, or a domesticated wild animal, and has not been identified—before crossing over to infect humans in November or early December 2019. Since the original person or people were infected with the virus, the outbreak has spread due to sustained human-to-human transmission.

Some coronaviruses are associated with outbreaks of serious disease, such as SARS and MERS, but others cause common and generally mild upper respiratory tract infections, like the common cold. To date, COVID-19 causes mild symptoms in about 80% of detected cases, with approximately 10% of people experiencing severe illness and 10% experiencing critical illness requiring intensive care. Between 2-3% of people who are diagnosed with the disease die as a result; the risk of death is much higher with advanced age, and for people who have underlying illnesses like heart disease, high blood pressure, or diabetes.

The proportion of people with COVID-19 who die of the disease has to date varied widely depending on context. For example, the case fatality rate to date in Wuhan is 2-3%, while it is less than 1% in other parts of China. It is not yet clear what causes this difference. Most cases to date have occurred in countries with significant health systems capacity, for example the ability to provide breathing support to severe and critical cases. It is possible that the proportion of people with COVID-19 who die of the disease could be higher in contexts where less support is available, or where more people have underlying or complex health issues like chronic illnesses, co-infections, or malnutrition.

There is no vaccine to prevent COVID-19. Supportive care is recommended for people who are infected to alleviate symptoms; antiviral treatments are not available to treat patients who have contracted the virus. A laboratory test can confirm whether someone has COVID-19.

People with underlying illness, compromised immune systems, or with other respiratory infections at the same time may be at heightened risk of suffering serious illness as a result of COVID-19. People with compromised immune systems may also experience different or fewer early symptoms than other people with the same illness.

How is COVID-19 spread?

COVID-19 can be spread from person to person. Other coronaviruses that can be transmitted from person to person are typically spread through contact with people experiencing a symptomatic coronavirus infection, or through contact with droplets of their saliva, other bodily fluids or faeces, which can contain the virus. Previous outbreaks of coronavirus, including SARS and MERS, the two most dangerous outbreaks to date, have spread primarily through contact with ill people and with infectious droplets. Current evidence for the COVID-19 outbreak indicates that droplets and direct contact with an infected person or something they have touched are likely responsible for the vast majority of transmission.

There is likely to be a high risk of transmission of COVID-19 due to:

- Contact with droplets created when a person with COVID-19 coughs or sneezes, as droplets of saliva or other fluids carrying the virus are projected onto other people or objects that another person later touches;

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- Close personal contact, such as touching, shaking hands, or sexual contact;
- Touching an object or surface where the virus has been deposited, such as doorknobs or personal belongings, and then touching your mouth, nose, or eyes without first washing your hands;
- Some coronaviruses, such as SARS-CoV, can be found in the faeces people infected with the virus and may be spread through contact with those fluids. It is not yet clear whether COVID-19 can be spread through the fecal-oral route, but until proven otherwise it is best to behave as if this is possible.

There is some evidence that people may be able to transmit the virus before they experience symptoms; current evidence points to contact with symptomatic people being the primary driver of the outbreak. Most known cases have had direct contact with someone who was already showing symptoms of COVID-19, such as fever or coughing. Prevention activities should focus on preventing infection through droplets, spread through direct contact with symptomatic individuals and items that they have touched.

Some coronaviruses can live for several days on different surfaces, depending on temperature, humidity and light. The coronaviruses that cause MERS and SARS are easily killed by most common cleaning and disinfection protocols, and so far there is no evidence that the virus that causes COVID-19 behaves differently.[i]

Current evidence indicates that the incubation period is an average of 5-6 days (ranging from 2-14 days). Current estimates indicate that each person diagnosed with COVID-19 can be expected to spread it to more than two new people, which means that the outbreak would continue to grow in the absence of effective control measures.

What are the symptoms?

The first and most common symptom of COVID-19 is fever. Most people also experience a dry cough. These may be followed later by fatigue, and muscle aches or pain. Less commonly, people infected with the virus may produce phlegm or cough up blood, or experience difficulty breathing, headaches, confusion, or diarrhoea. People who fall ill with COVID-19 generally experience symptoms for between one and 15 days. Patients who have experienced severe illness or have died seem to begin with milder illness and deteriorate in the second week of illness. Some people with severe illness require hospitalisation for several weeks.

## How to prevent the spread of COVID-19?

Similar to preventing infection with other viruses likely to be spread through contact or droplets, all people should be encouraged to regularly and properly wash their hands – with soap and water if visibly dirty; alcohol-based hand sanitizer may be used on clean hands. Anyone coughing or sneezing should cover their mouth and nose—by coughing or sneezing into a bent elbow or clothing, or into tissue that is immediately thrown away—and wash their hands consistently. Avoid close contact with people experiencing a fever or coughing.

For people caring for loved ones with mild respiratory illnesses at home, home use of medical masks early and consistently, when used with correct and consistent handwashing, may reduce the chance that they become infected.[ii] There is no evidence for the use of particle filtering or surgical masks outside of care-providing settings, nor for the use of masks by people not exposed to people experiencing respiratory symptoms or who are not ill themselves. People who are experiencing respiratory symptoms who cannot or will not self-isolate and/or seek medical care can reduce the risk of spreading the virus by wearing a mask consistently and correctly.

Consistent application of contact and droplet protection measures by healthcare workers and anyone exposed to someone with symptoms is a key method to prevent spread of the disease.[iii][iv]

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How does epidemic response change over time?

At a population level, efforts to stop an epidemic go through three overlapping phases as the outbreak evolves.
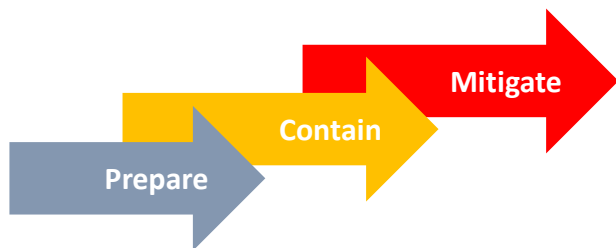
1. First, **preparedness** activities help communities not yet affected to prepare for rapid response should a case be detected;
2. Second, once a case has been detected in a new country or new community, **containment** activities—for example contact tracing, point of entry or point of control screening, enhanced surveillance, and quarantine—aim to stop transmission of the virus into the general population or to contain it within a known group of people, by rapidly detecting and isolating cases;
3. Finally, if the outbreak continues for a long time or if there are many people infected, containment activities may become impossible to sustain or may fail. In that case public health authorities will begin to switch from a containment approach to a **mitigation** approach, seeking to limit the impacts of the outbreak but recognising that transmission will occur in the community. Signs that it may be time to shift from containment to mitigation activities include, for example, if many cases are detected without known links to other positive cases, or if the regular health surveillance system picks up many cases from the general population. In this case, activities such as quarantine, contact tracing, and point of entry screening will phase out, as the virus is already circulating in the general population and the potential impact of these containment activities decreases. As the response shifts to mitigation approaches, the goal is to reduce the primary impacts (e.g. illness and death) and secondary impacts (e.g. social, economic, and broader health system) of the outbreak.

Countries experiencing a COVID-19 outbreak may be carrying out two 'phases' of outbreak response at the same time, and National Societies should be prepared to provide different but overlapping critical services depending on the nature of the outbreak response. For example, a National Society may be supporting preparedness work across a country and be asked to scale up support for containment activities in a particular community where a case has been detected, while maintaining preparedness activities elsewhere. Or, a National Society supporting containment measures in one community may be asked to support community-based care or livelihoods support in another community where containment measures are no longer possible or useful.

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What can National Societies do?

The role of National Societies and their volunteers will change through the progression of an epidemic, based on whether preparedness, containment, or mitigation activities are most impactful and needed. It is critical that National Societies work with their public authorities to understand their mandates and potential roles, and are prepared to change their operations over time as the outbreak progresses and appropriate outbreak response measures change. Below are some activities that National Societies may become involved in, depending on the phase of the outbreak. These activities may be complemented by other auxiliary roles particular to each National Society's context. Throughout, it is important that National Societies identify their high-risk activities and plan to adapt them to ensure they maintain their lifesaving humanitarian services throughout any potential epidemic.

Suggested activities and objectives		
Outcome	**Output**	**Activities**
PHASE 1 – PREPARDNESS **(no cases)**		
Support countries and at-risk communities to prepare to respond to first imported case(s) (detect, isolate, and provide appropriate treatment for initial cases); promote effective behaviour change and hygiene practices, engage communities and address misinformation and rumours. Once a case has been imported, reduce risk of secondary transmission of the virus to prevent an outbreak; support public confidence in the health system and promote effective behaviour change	• Communicate widely what we know and do not know about COVID-19 based on the latest evidence (from WHO/MoH) by addressing populations' concerns and questions while offering actions that can be taken to protect their health. • Based on community feedback, prepare for risk of importation through community engagement, risk and behaviour change communication (handwashing, social distancing, etc.) • Increase understanding of risk and safe activities based on community feedback	**Risk communication, community engagement and health** promotion (in coordination with key stakeholders) • Participate in risk communication and community engagement coordination structures • Rapid assessment to identify most at risk, barriers to healthy behaviours and gather insights on cultural and contextual factors (local cultures and languages, customs, concerns and risky behaviours and practices of communities, preferred/trusted channels of engagement) that could help or hinder an effective response • Set up a community feedback system (including rumours tracking) to monitor, address and answer information gaps, believes and misconceptions, questions and rumours and inform health approaches • Develop community engagement approaches that allow community voices, priorities and perspectives to be heard and responded to by the broader outbreak prevention and response partners • Risk communication activities based on community information needs, concerns and perceptions (through mass media, social media, and traditional media normally used to communicate with/to large audience), to share timely and trustworthy information, address misinformation and build knowledge, acceptance and intention about signs and symptoms, transmission modes, preventive actions (handwashing, social distancing) and care-seeking behaviours by people experiencing respiratory symptoms

and hygiene practices through risk communication, community engagement, community-based health activities,		• Mobilize NS volunteers' networks and key influencers (e.g. religious and community leaders) to encourage promotion of general health behaviours and address mistrust, misinformation and rumours with actionable and verified information • Preposition of community engagement and communication material for rapid use by volunteers in at risk/affected areas (e.g. FAQ documents) • Promote local dialogue and social cohesion with focus on addressing stigma and xenophobia and promote acceptance and trust.
	• Establish institutional readiness (business continuity planning, institutional linkages to Ministry of Health, Emergency Operations Centres, and other relevant stakeholders and partners)	• Carry out contingency planning • Carry out business continuity planning • Identify high-risk health activities with risk of exposure and plan for adaptation to reduce risk, or protection where exposure cannot be eliminated (e.g. clinical, paramedical, home care) • Develop a comprehensive risk communication and community engagement plan for the 3 phases which clearly indicates the Red Cross Red Crescent support to the Government-led preparedness and response plan (with focus on vulnerable groups: the elderly, women, migrants, persons with disability).
	• Enhance NS staff and volunteer capacity to prepare and respond to epidemics and enable community-led planning and action	• Provide trainings on risk communication and community engagement, including on feedback mechanisms and community-led planning (expectation management, how to clearly communication, how to address rumours etc.) • Conduct national- and branch-level readiness checks to prepare to activate CBHFA, ECV and other community-based volunteers to respond in the event of an outbreak • Localise, contextualise and/or translate COVID-19 materials and tools for community-level use
PHASE 2: CONTAINMENT *(imported cases/localised transmission)*		
Reduce risk of secondary transmission of the virus to prevent an outbreak or once local transmission has begun, reduce risk of more generalised transmission of the virus to contain the outbreak. Support public confidence in the health system and outbreak response measures, and promote effective community	• Communicate widely what we know and do not know about COVID-19 based on the latest evidence by addressing populations' concerns and questions while offering actions that can be taken to protect their health. • Prevent/reduce transmission through tailored risk and behaviour change communication (handwashing, social	**Risk communication, community engagement and health promotion (in coordination with key stakeholders and aligned to PPS approaches)** • Intensify RCCE coordination with key stakeholders • Intensify RCCE activities from preparedness phase with focus on targeted public engagement (through media), volunteers dialogue and community level activities (through/ with key influencers) to address fear, enhance trust and promote early treatment and community participation in the response • Review existing research/collect community data (social science data) to identify knowledge gaps, understand risky behaviors in affected areas • Systematically collect and analyze community feedback to inform risk communication and community engagement approaches and response activities

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	distancing, etc.) and community engagement, with activities tailored to local needs based on community feedback. • Increase understanding of risky and safe activities for general public and high-risk populations based on community values, questions and knowledge, and provide psychosocial support to reduce the mental health and social wellbeing impacts of the outbreak • Timely sharing of verified health information, and stigma-and fear-prevention activities.	• Map resources and positive practices at the community level to support locally driven actions for preparedness, containment and response are helpful and empowering preparedness activities. • **Promote acceptance and social cohesion**, by addressing perceptions, rumours, anxiety and fears, with a focus on reducing racial profiling of people of Asian descent, stigmatisation of those experiencing respiratory symptoms, people who have been cured of the disease, people who have completed quarantine, and people seeking healthcare in general. • **Communicate about relevant available services** (e.g. psychosocial support, cash), based on community questions and concerns share information about relevant • Enhance understanding and acceptance of **key containment actions** (e.g. IPC, community-based surveillance, quarantine, point of control screening, isolation and treatment. • Motivate acceptance and adherence to contact tracing, early isolation and treatment, and other public health measures to contain the outbreak. • Influence government and partner approaches to quarantine, isolation, treatment and other response approaches through community feedback.
engagement, risk communication, behaviour change and hygiene promotion approaches to motivate action and promote participation. Reduce stigma and violence		
	• Improve community-level prevention, detection of serious cases, and referral through existing community-based health and surveillance activities in the immediate area experiencing transmission	• Targeted community health programming (e.g. ECV, CBHFA) adapted as "surge" response (coordinated with RCCE approaches and PSS activities) • Screening, contact tracing and other services related to surveillance and case detection, in support of government activities • Switch from passive to active CBS and include pneumonia as a health risk for existing community-based surveillance activities in the immediate area(s) of the imported case(s)
	• Support immediate needs/livelihoods, social services, and health services for general/affected population	• Psychosocial support to affected populations • Psychosocial support to responders, including RCRC volunteers and staff • Cash and/or livelihoods support to address immediate needs/restore income of vulnerable households in communities affected by the outbreak or containment efforts (e.g. people under quarantine) • Support health and social service maintenance (e.g. support to scale up services required, direct service provision as appropriate)
	• Support emergency services to reduce impact of public	• Emergency social services and support for quarantined or movement-restricted communities • Business continuity and contingency planning

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	health measures such as quarantine	

PHASE 3 MITIGATION *(sustained community-level transmission in multiple locations, containment no longer possible)*
Reduce morbidity and mortality due to COVID-19 outbreak; reduce and/or mitigate secondary impacts on health and social system, livelihoods and wellbeing; promote effective community engagement and behaviour change approaches to motivate action, promote participation and create an enabling environment for change.	• Reduce transmission through risk and behaviour change communication (handwashing, social distancing, etc.) and community engagement, tailoring activities based on community feedback • increase understanding of risky and safe activities for general public and high-risk populations based on community values, questions and knowledge.	**Risk communication, community engagement and health promotion (in coordination with key stakeholders and aligned to PSS approaches)** • Roll out relevant research in priority areas to track understanding/acceptance of promoted health practices and mitigation measures, beliefs and trust in responders • Intensify risk communication and community engagement (from containment phase), with focus on strengthening community-led solutions to prevent and control the outbreak (closely linking to health and PSS approaches) • Scale community engagement approaches that allow community voices, priorities and perspectives to be heard and responded to by the broader outbreak response partners • Motivate acceptance and adherence to community-based protection and home care for COVID-19 and other diseases, and other activities to mitigate the health and social impacts of the outbreak.
	• Provide psychosocial support to reduce the mental health and social wellbeing impacts of the outbreak	• Provide psychosocial support to affected communities • Provide psychosocial support to first responders, including RCRC volunteers and staff
	• Improve community-level prevention, detection of serious cases, and referral through existing and scaled-up community-based health and surveillance activities, timely sharing of verified health information, and stigma-and fear-prevention activities.	• Community health programming (detection, referral, health education and hygiene promotion), scaled and adapted for medium- to long-term COVID-19 response • Infection prevention and control and other health-system interventions to improve care or access to care
	• Support health systems to mitigate secondary impacts of outbreak on access to health care • Support caregiving to those ill with COVID-19 (clinical,	• Clinical, paramedical, or homecare service provision to supplement health system in cases where capacity is exceeded • Clinical, paramedical or homecare service provision to provide specific COVID-19 treatment • Emergency social services for quarantine or movement-restricted communities, or related to systems failures

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	paramedical, home-based care, as context and mandate dictate), and reduce risk of healthcare worker infection and nosocomial transmission in health facilities	
	• Support access to immediate needs/livelihoods, social services, and health services for general population • Support emergency services to reduce impact of public health measures such as quarantine	• Cash and/or livelihoods support to address immediate needs/restore income of vulnerable households in communities affected by the outbreak (outbreak response) • Support health and social service maintenance (e.g. support to scale up services required, direct service provision as appropriate) • Business continuity for regular health and humanitarian services • Business continuity and contingency planning

Cross-cutting tactics appropriate in all contexts and stages:

- Risk communication and community engagement activities are cross-sectoral and need to be closely integrated, particularly with health and PSS
- Risk communication and community engagement at all stages of the outbreak to build trust with communities; understand concerns, questions and misconceptions of people; and address these in a timely and transparent manner, inform people of risk based on their questions, local context and values; give verified information and engage communities to give them the right tools to change behaviour and be part of response efforts and to reduce transmission, stigma and discrimination
- Maintain National Societies services and activities with appropriate adaptation to mitigate epidemic risks (e.g. blood, paramedical, homecare and clinical services; community-level activities).
- Staff and volunteer health and safety must be a priority in all actions to ensure a sustainable operation. All personnel must be provided with sufficient guidance and systemic support to reduce exposure and risk, and/or increase personal protection (including equipment) if contact with potential cases cannot be avoided.

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Strength of evidence for RCRC interventions

Intervention	Target Population	Objective	Strength of Evidence	Health Impact
Contingency planning and identifying NS' auxiliary role for pandemic preparedness and response	National Societies and appropriate Ministries (e.g. health, civil protection)	Prepare	NA	High
Business continuity planning	IFRC and NS operations	Prepare	NA	High
Risk communication and community engagement	General public, high-risk and vulnerable groups	Prevent	Strong	High
Personal protective equipment and behavioural guidance for caregivers at home	Caregivers of people experiencing respiratory illness at home	Prevent	Strong (WHO guidance and evidence from other respiratory viruses)	High
Use of face masks by ill people	People with respiratory symptoms who cannot seek clinical care or self-isolate	Prevent	Strong (WHO guidance and evidence from other respiratory viruses)	High
Services in support of government screening, quarantine, etc.	High-risk populations	Support & Prevent	NA	High
Clinical, first aid and paramedical services	High-risk populations	Support & Prevent	Strong	High
Psychosocial support	General population and vulnerable groups	Support & Prevent	Strong	High

Activities not advised: Mass distribution of PPE (e.g. face masks) for use by healthy people is not considered an effective response activity. There is no evidence that the use of masks by people who are not ill or caring for someone who is ill will protect the individual or reduce transmission in an outbreak of coronavirus disease. There is a risk of harm to the individual and the risk of increased transmission due to the incorrect use of PPE like face masks, and because people may feel a false sense of security based on their use of PPE, and therefore reduce other behaviour changes—like social distancing and handwashing—that are likely to have a significant impact on transmission and individual risk. The misuse or inappropriate use of PPE also contributes to the global shortage of PPE, which may increase the risk to healthcare workers. Any mass distribution of masks should be targeted at people providing direct clinical or supportive care to people suspected of having COVID-19, or to people who are experiencing respiratory symptoms and have confirmed or suspected COVID-19 but cannot or will not access health services or self-isolate. If masks are to be used, they must be in addition to generalised measures to prevent human-to-human transmission, particularly handwashing and other proven infection prevention and control methods. They must be properly used and disposed of in order to avoid the risk of increased transmission associated with incorrect use and disposal of contaminated masks.

Note on the rational use of PPE: Shortages and supply challenges in global stocks of PPE are expected to continue. PPE should be used exclusively by people who face exposure to COVID-19, and who cannot reduce their risk of transmission by other means, such as physical distance. Guidance on the rational use of PPE in RCRC operations will be provided.

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Resources and guidance for above preparedness, containment and mitigation activities

Please visit www.go.ifrc.org/emergencies/3972#additional-info for the latest programmatic guidance, including links to IFRC, WHO and others partners' guidance on:

- staff and volunteer health
- psychosocial support
- risk communication and community engagement
- community-level training materials
- quarantining, screening and case detection
- providing care to COVID-19 patients (clinical, paramedical and at home)
- business continuity and contingency planning

Guidance is constantly updated and new tools are being developed.

What can IFRC do?

Service to National Societies
- Provide technical support and guidance to National Societies preparing for and/or responding to the outbreak;
- Advocate for NS to be systematically involved in COVID-19 coordination, preparedness and response
- Support and provide guidance for evidence- and risk-based activities that are likely to have a public health and/or humanitarian impact, appropriate to the response phase of the particular country or community;
- Support contingency planning and mapping of gaps and needs for national outbreak response;
- Coordinate readiness and responses between neighbouring National Societies;
- Communicate and coordinate regional and sub-regional response plans and needs;
- Coordinate and mobilise surge capacity to support National Society coordination and implementation of preparedness and response activities.

Service to global/regional outbreak response community
- Identify and communicate NS capacity, plans, and responses to broader response community;
- Advocacy for the role and potential impact of National Societies in epidemic prevention and response.

Service to personnel
- Encourage and facilitate correct hand hygiene, social distancing, and other personal preventive measures;
- Ensure all staff experiencing respiratory symptoms remain home for the duration of their symptoms;
- Provide clear guidance to personnel to encourage appropriate behaviour modification and risk reduction.

Guidance under development

- RCRC support to quarantine activities – lessons learned, best practices and tools

Author: Gwen Eamer, IFRC Emergency Health Team, Geneva. Data as of 28 Feb 2020. Information and guidance will be updated as evidence emerges and tools are developed. Please use this form to provide feedback or request different information or analyses in future guidance.

[i] https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200221-sitrep-32-covid-19.pdf?sfvrsn=4802d089_2

[ii] Jefferson T, Del Mar C, Dooley L, et al. Physical interventions to interrupt or reduce the spread of respiratory viruses: systematic review. BMJ. 2009;339:b3675. [PMC free article] [PubMed] [Google Scholar]

[iii] Seto WH, Tsang D, Yung RW, et al. Advisors of Expert SARS group of Hospital Authority. Effectiveness of precautions against droplets and contact in prevention of nosocomial transmission of severe acute respiratory syndrome (SARS) Lancet. 2003;361:1519–20. [PubMed] [Google Scholar]

[iv] See WHO infection prevention and control guidelines for COVID-19 for latest guidance