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Pandemic management in the oil and gas industry

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Acknowledgements

The IOGP-IPIECA Health Committee has worked intensively to help the oil and gas industry respond to the unprecedented demands of the COVID-19 pandemic. This guidance document presents the information and strategies the Committee has developed during the course of the pandemic. As scientific knowledge and practical experience evolves, a further update will likely be required.

IOGP and IPIECA would like to recognize all those who contributed during the initial phases of the outbreak, including the Member Companies who shared resources.

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Pandemic management in the oil and gas industry

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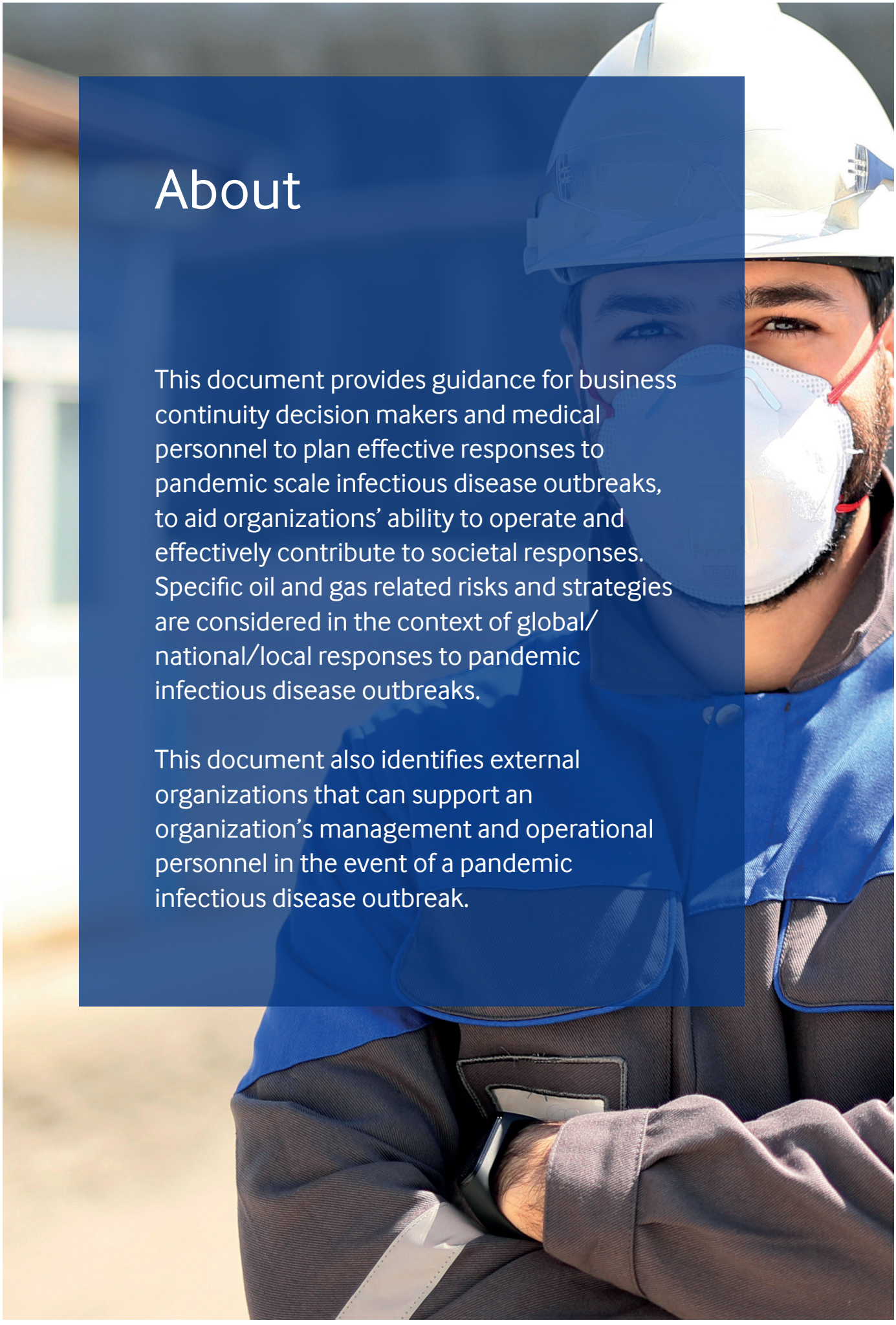


About

This document provides guidance for business continuity decision makers and medical personnel to plan effective responses to pandemic scale infectious disease outbreaks, to aid organizations' ability to operate and effectively contribute to societal responses. Specific oil and gas related risks and strategies are considered in the context of global/national/local responses to pandemic infectious disease outbreaks.

This document also identifies external organizations that can support an organization's management and operational personnel in the event of a pandemic infectious disease outbreak.

1. Introduction

1.1 OVERVIEW

The oil and gas industry navigates numerous risks that impact its business continuity, from hurricanes to process safety incidents, from supply chain disruptions to violent conflicts. One of these potential risks, a global pandemic, became reality in 2020. The COVID-19 pandemic has profoundly disrupted the global economy and the oil and gas industry, with direct health impacts on employees as well as operational consequences. The industry relies on an internationally mobile workforce that often spends prolonged periods living in close quarters on offshore platforms, vessels, and onshore camps, which amplifies the potential impact of the pandemic on operations.

A full scale pandemic outbreak will affect all aspects of society. Existing collaboration channels will be tested, and new ones will form. Society will be faced with uncomfortable decisions which need to balance priorities such as economic impact versus health, national versus global imperatives, and the needs of developed versus developing countries.

The extended duration of such a crisis will test societal resilience to recommended controls and social restrictions, both within and between countries. Willingness to adhere to restrictions could be reduced by uncertain timelines and lack of confidence in steps needed to return to a new normal.

Throughout a pandemic the role of the global energy sector will be to ensure energy security for society through continuity of businesses, while ensuring the health and safety of personnel as well as contributing to societal responses in areas of operations.

As such, it is useful to consider the model, shown in Figure 1, indicating the different phases of a pandemic, and develop scenarios for these expected timelines.

Further, the societal response may give rise to different long term projections and "waves" of the pandemic. Countries will approach their challenges differently based on economic needs, status of healthcare systems, population profile and density, and climate, all within the context of the specific pathogen characteristics. New information and associated controls evolve and potentially cause both confusion and progress throughout the different phases. The pattern of spread will mean that different parts of the world experience the pandemic at different times, which will cause both challenges and provide opportunities to improve responses.

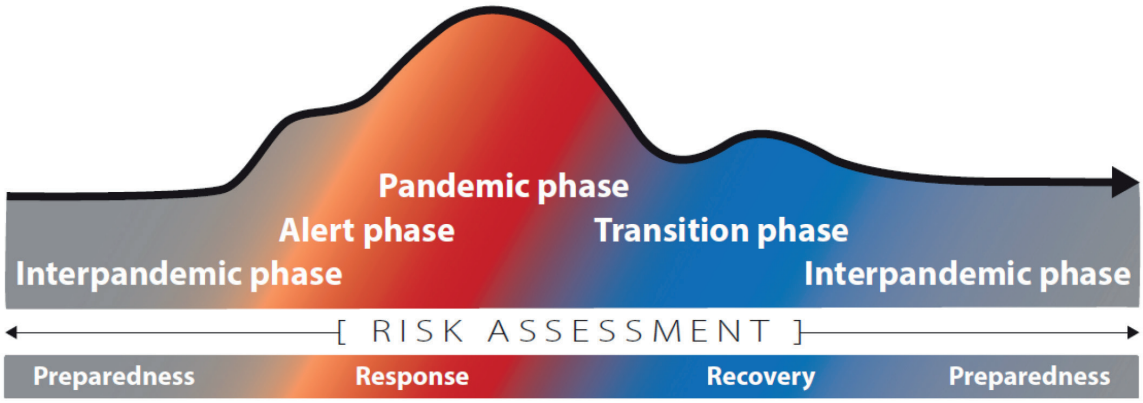


Figure 1 – Phases of a pandemic (Source: World Health Organization[1])

[1] https://www.who.int/influenza/preparedness/pandemic/h5n1phase/en/

Successful management of an infectious disease outbreak with pandemic potential requires planning. The complexity of a pandemic spreading across the world will mean different countries may define pandemic phases differently, and act accordingly, potentially without international or regional coordination. As such, this document refers to Figure 1 above and uses:

- Preparedness (or interpandemic) phase
- Response (alert and pandemic) phase
- Recovery (transition) phase signifying moving back to the preparedness phase

Section 3 of this Report describes the preparatory actions that can be taken during the preparedness or interpandemic phase, including some generic control measures to contribute to raising societal resilience to this threat. It includes considerations around business continuity plans which companies need to consider on a global, national, local, and remote site level.

Section 4 addresses the response phase or alert/pandemic phase and includes some generic control measures in addition to short descriptions of implementation methodologies for preparedness plans.

Section 5 provides guidance on the recovery or transition phase out of a pandemic that can be taken after the initial pandemic outbreak period. Whilst this period may be prolonged, it includes capturing and sharing lessons learned with management and medical personnel, return to work policies and restocking supplies which may also be relevant during the pandemic.

To support the industry in effectively facing these challenges, IOGP has published several guidance documents. IOGP-IPIECA Reports 510 - *Operating Management System Framework*, and 511 – *OMS in Practice* provide guidance on how to prepare business continuity contingency plans. IOGP-IPIECA Report 343 - *Health management in the oil and gas industry* provides guidance on identifying health hazards and mitigating the associated risks. Infectious disease outbreaks are addressed in general terms in Report 343 and in more detail in IOGP-IPIECA Report 559 - *Infectious Disease Outbreak Management* (hereafter referred to as Report 559, IDOM), which focuses more specifically on local/offshore/remote site outbreak prevention and mitigation. This Report was developed because Report 559 by itself does not address the unique challenges associated with a global pandemic.

This document aims to provide guidance on pandemic response management for the oil and gas industry. By providing effective risk mitigating measures to reduce the risk of international and local transmission of infectious disease, our work force can be protected and companies can actively contribute to societal priorities. The document covers considerations for companies preparing responses and business continuity plans at the global, regional, national, and office/site level. Whereas many of the considerations are generic, as in Report 559, there is more detailed guidance offered for remote and offshore sites as these are specific to our industry. Pandemic specific challenges that are addressed include:

- Available health care systems may be overwhelmed
- Diagnostic availability and contact tracing capability may be inadequate
- New, unknown pathogen with limited understanding of how to best respond
- Effects on local or global economies, potentially with specific impact on the oil and gas market
- Inability to travel or travel limitations, e.g., due to border closures, and national or regional restrictions
- Societal concern and potential resulting panic
- Diversity in national response, in terms of control measures and timing
- Prolonged period of imposed restrictions on business and society
- Limited availability of personal protective equipment (PPE) and other required response materials
- Access to quarantine and/or isolation facilities, treatments and vaccinations may be limited
- Managing extended rotations, delayed repatriation, and lack of availability of key personnel
- Fatigue and mental well-being of personnel over prolonged periods
- Postponed training, fitness for duty assessments and competence certification requirements
- Deferred maintenance and asset integrity concerns
- Clarity on societal priorities linked to whether the oil and gas industry provides a critical societal service

The document has been developed during the global COVID-19 pandemic, with a view to provide useful guidance to help the oil and gas industry manage and successfully embed lessons learned from this crisis. The content of the report is not specific to COVID-19. However, it is recognized that in a globally mobile society, any future pandemics will likely result from infectious respiratory pathogens rather than other types of societal diseases.

1.2 SCOPE AND TARGET AUDIENCE

This document provides guidance for business continuity decision makers and medical personnel to plan effective responses to pandemic scale infectious disease outbreaks, to aid organizations' ability to operate and effectively contribute to societal responses. Specific oil and gas related risks and strategies are considered in the context of global/national/local responses to pandemic infectious disease outbreaks.

This document also identifies external organizations that can support an organization's management and operational personnel in the event of a pandemic infectious disease outbreak.

1.3 PURPOSE

The purpose of this document is to provide:

- General guidance on actions companies may take or consider in their preparation and implementation of business continuity plans in response to an infectious disease outbreak with pandemic potential, addressing considerations from global/regional to the national and local or remote site level
- Health surveillance practices to quickly incorporate potential outbreaks in business continuity decision making
- Recommendations to limit or interrupt workforce infectious disease transmission and actions to be taken when an outbreak occurs or is suspected to have occurred
- Guidance on sharing lessons learned with management and medical personnel
- Awareness of the benefits of response preparation activities across the organization prior to an infectious disease outbreak/pandemic situation to enhance response effectiveness
- Data needs as the basis for preparedness and response recommendations
- Descriptions of interventions that could be implemented as effective components of a health crisis response
- Defined actions to return to a normal operating state following a health crisis including recovery actions, lessons learned and feedback for improvement

The guidance in this document is complemented by three appendixes:

- Appendix A provides a table of pandemic aspects relevant to geographic areas as per Section 3.5
- Appendix B provides an example list of stakeholders
- Appendix C provides example tables for triggers and actions

1.4 RISKS AND TRIGGERS

The impact of a pandemic on a business is unique primarily because of its scope (affecting many assets at the same time), duration (pandemics can last months or even years), and associated economic consequences. Nevertheless, the individual components of the challenge (from dealing with patients to supply chains, from downsizing to motivating a strained workforce) already exist in most businesses. A pandemic response therefore is largely an exercise in executing numerous business continuity plans (BCPs) simultaneously.

The relative rarity of pandemics can mean they are overlooked as a business risk. Linking pandemic response to other elements of and scenarios for BCPs will help with making pandemic preparedness sustainable in a business.

Any infectious disease with pandemic potential will likely initially appear local and contained. The likelihood and speed of spread will depend on timing of identification, local response in the area where it originated, the transmissibility, travel patterns, generic societal preventive individual behaviours, hygiene, and effectiveness of imposed societal/company responses. The consequence will largely be a function of transmissibility of such diseases, readiness of health care systems and if and how the wider population has inherent (or can quickly develop) immunity, either naturally or through vaccinations. Several of these factors will be unknown at the outset.

Company plans thus need to consider continuous risk assessment, monitoring, and how to define trigger points as well as roles and responsibilities in business continuity plans, both at global and national levels.

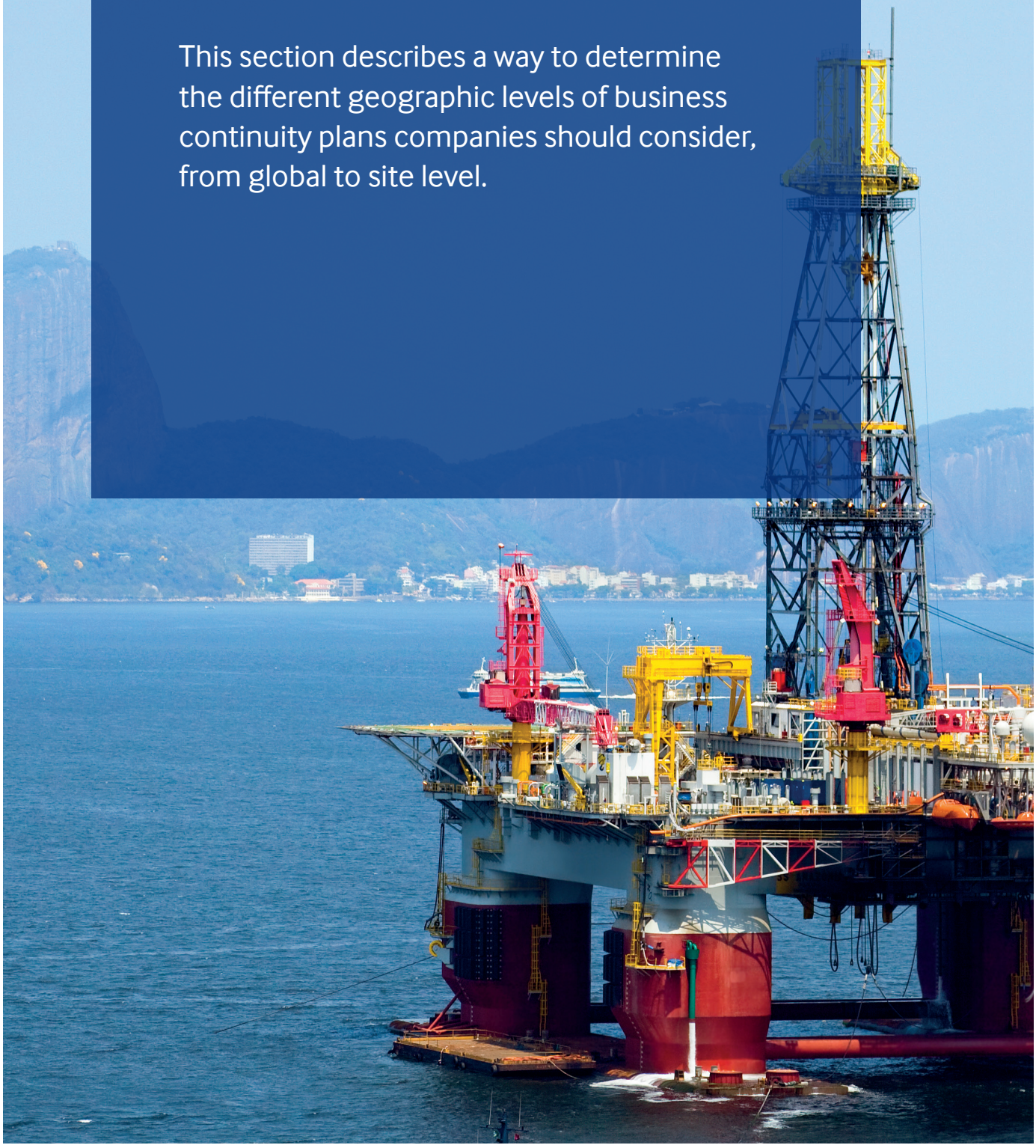
1.5 APPLICABLE REGULATIONS

Key personnel should be aware of the specific requirements for pandemic prevention and mitigation controls that need to be implemented to comply with applicable laws and regulations and thus support national and global societal responses. Such requirements may include diagnostic testing, treatment of infected personnel, reporting of any infectious disease outbreak or specific illnesses, travel restrictions, restrictions in general local movement, quarantine requirements imposed, or physical distancing. Whereas global best practices for how to manage a pandemic will emerge and harmonize with time, factors such as demographics, health care system readiness, geography and economic factors will result in individual countries adopting different approaches. This must be recognized in BCPs.

Section 2

Scalability of preparedness

This section describes a way to determine the different geographic levels of business continuity plans companies should consider, from global to site level.



2. Scalability of preparedness

2.1 ORGANIZATION

Consideration should be given to the fact that most business continuity plans related to health or safety of employees in the oil and gas industry will typically be scaled to deal with a local or national risk, which has a potential global impact on an organization. A pandemic poses a global risk with local health and safety impacts, different national responses and timelines, and a global economic impact. As such, BCPs for pandemics should give additional consideration to:

- Available medical/health expertise
- Consistency of global/national data sources and analysis for decision making
- Effective communication channels
- Clarity on global versus national decision-making hierarchies
- Economic impact on the company
- Recognition that oil and gas organizations operate in a society which is also dealing with the same issues, including any associated harmonization opportunities and challenges in terms of available resources

This means companies need to consider including organizational structures specific to the global nature or the pandemic in their business continuity plans.

2.2 GEOGRAPHICAL BUSINESS CONTINUITY PLANS

It is useful to consider four levels of general response preparedness in preparing for a pandemic: global/regional, national, local, and remote site. Companies need to consider their geographical footprint, their travel patterns within each geographical area, and any specific risks for a particular business or operation. Due to shared infrastructure and supply chains, the oil and gas industry is best served by a consistent response at national and global levels. Companies are encouraged to adopt guidance from international health groups such as the World Health Organization (WHO) and collaborate globally and regionally through entities, including the International Maritime Organization (IMO) and IOGP-IPIECA, and to ensure harmonized responses at the national level via national industry associations, regulators, health authorities, unions, and other stakeholder who will have roles to play.

The capability of internal response resources will inform any response efforts a company has in place at all four levels in Table 1 below. Further details on preventative measures are provided in Section 3.5, and a detailed checklist is provided in Appendix A.

Table 1 - Response preparedness at different geographic levels

LEVEL	KEY STAKEHOLDERS (SEE ALSO APPENDIX B)	CONSIDERATIONS
Global/Regional	World Health Organization International Maritime Organization Regional centres for disease control like US CDC, ECDC Relevant global and regional trade associations like IOGP, International Association of Drilling Contractors (IADC), HeliOffshore, International Maritime Organization (IMO), International Air Transport Association (IATA), International Labour Organization (ILO), and others	Geographical/regional footprint, response organization and capability International travel and resilience to imposed travel restrictions Active monitoring, early implementation, supporting risk prevention and mitigation measures Benefits and means for consistent global responses Timeframe for responses, globally/regionally, nationally and locally
National	US CDC National regulators, including health authorities Other companies National trade associations	Specific national requirements and response Lessons learned from internal and external sources Collaboration with national organizations/companies/bodies to harmonize/align approaches Resilience to imposed travel restrictions
Local	Local/national (health) authorities Other companies Trade associations, and applicable regulators/local authorities	Specific local risks and available local infrastructure/resources Learnings from other areas Collaboration with national organizations/companies/bodies to discuss and achieve consistent approaches
Remote site	Local/national health authorities and their capabilities	Prevent infection from reaching site, entry screening, and other risk mitigating measures Medevac capability Travel for rotating personnel Remote sites may have delays in personnel rotations or supply deliveries as a result of travel disruption, border closures, or supply chain disruption – continuity plans should account for these possibilities Fatigue management in case of extended rotations Site preparedness and medical facilities, evacuation routes and medical/isolation/testing requirements

Section 3

Preparedness or interpandemic phase

This section describes the preparatory actions that can be taken during the preparedness or interpandemic phase, including some generic control measures to contribute to raising societal resilience to this threat. It includes considerations around business continuity plans which companies need to consider on a global, national, local, and remote site level.

3. Preparedness or interpandemic phase

3.1 COMMUNICATION

A company should have plans to coordinate the collection, analysis, and dissemination/communication of essential information on health risks, needs, response, gaps, and performance to all personnel, management and, as appropriate, to external stakeholders, regardless of pandemic phase.

Communication strategies are an important component in managing any health crisis and are essential in the event of an outbreak or epidemic. Providing accurate and timely information to all levels of the organization is essential to minimize disruption and to maximize the effective outcome of their response.

The threat of a health crisis will create a high demand for information both within the company and from stakeholders and the wider community. It will be vital to coordinate the information that is circulated at all levels of the organization, to identify external stakeholders, and appropriately inform and communicate to ensure harmonized approaches.

In general terms, the development of a communication plan plays a strategic role:

- To influence the behaviour of personnel
- To direct the behaviour of health professionals
- To coordinate all the company departments
- To ensure connection with stakeholder and community engagement
- To ensure connection with external medical providers

An effective communication plan should:

- Build trust
- Provide an early announcement to contribute to early containment
- Be transparent
- Treat public concerns as legitimate

Communication should be considered a part of the general plan to reduce the spread of an outbreak.

Therefore, a communication plan should be prepared to provide timely and consistent information to all personnel. This should identify focal points for coordinating information and communication to avoid confusion and misinformation. The focal point should:

- Organize the communication campaign
- Release company approved, official, periodical, epidemiological bulletins during the pandemic
- Collect data from local authorities and medical providers and promptly communicate this information to the company's health function and crisis management team
- Provide directly collective and individual training and information sessions

3.2 GENERAL PREVENTIVE MEASURES

This section outlines some general measures that can be useful in preventing the spreading of infectious disease. More detailed pandemic preparation measures are described in Section 4.1 for the four geographic levels of response.

3.2.1 Pandemic illustrative risk visual

Consider the respiratory pathogen pandemic risk in the form of a bow tie illustration as shown below. Several observations can be made:

- Individual barriers are only partially effective, effectiveness will not be adequately understood, and will - in isolation - not provide sufficient protection against infection. Therefore, a combination of "layered" barriers is needed to provide sufficient risk reducing mitigations
- A key barrier is individual behaviours. This depends on societal and cultural factors, and companies can strengthen them through improving internal company culture
- Many societal barriers (e.g., testing, effective treatment options, vaccines) may not be available at the onset of a pandemic or may only emerge at some point during the pandemic, or not at all. As such, they may only contribute to effective risk management at some point into the pandemic
- It is possible to generally increase company resilience to the pandemic risk before an outbreak (e.g., through hygiene practices, physical distancing, reduction in travel), and this will also contribute to reduce societal pandemic risks

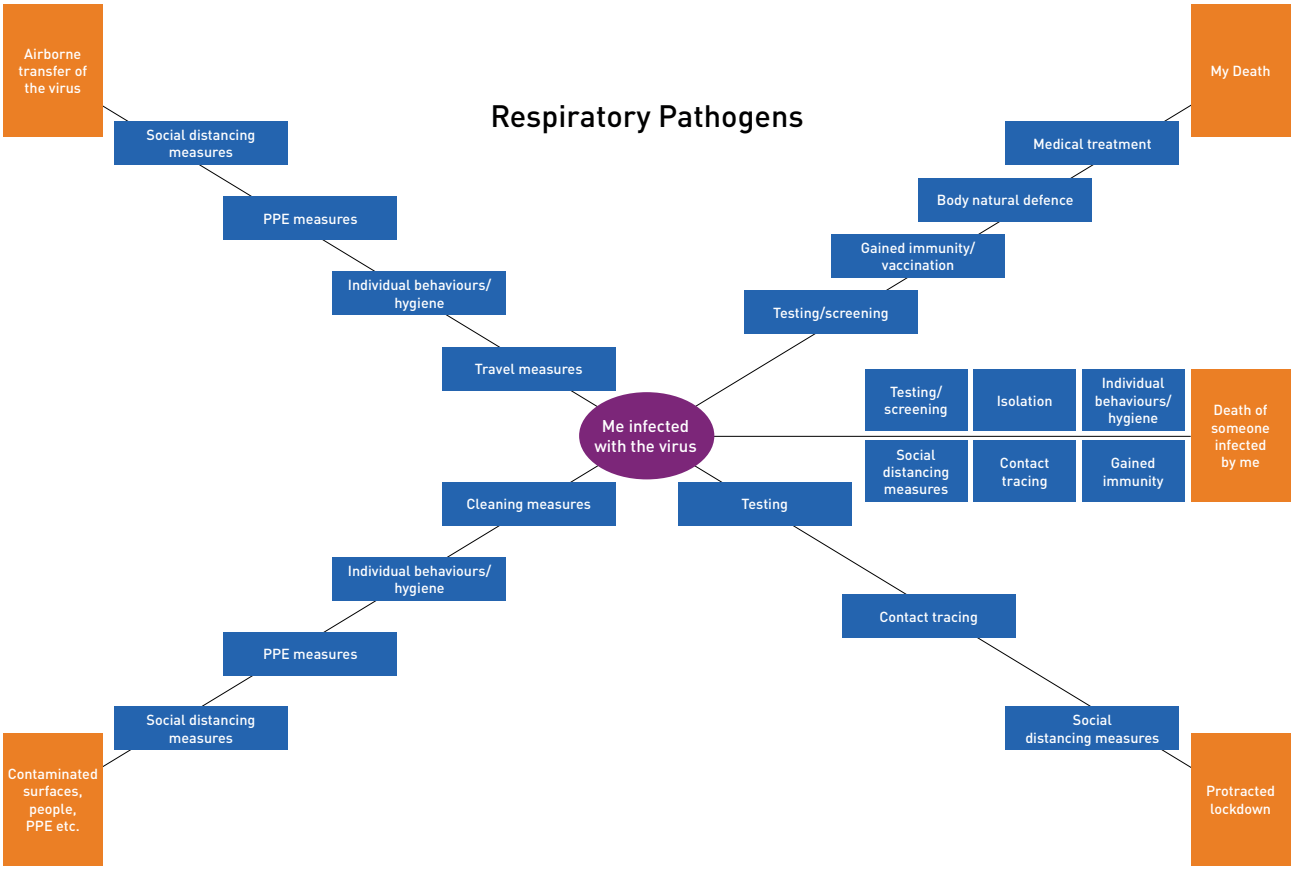


Image intended for illustrative purposes only. Publicly available materials from Energy Institute and others have been consulted in creating above image.

Figure 3 – COVID-19 Hazard, illustrative bow tie model

3.2.2 Individual behaviours

A key risk management barrier to the spread of any infectious disease is the behaviour of individuals. Desired individual behaviours can best be achieved by providing:

- An organizational culture and working environment where there is no perceived risk to income or job security if an individual needs to be absent from work to quarantine, isolate, or recover. This will help reduce any perceived pressure for a person to come to work and expose others to an infectious disease, if they have symptoms themselves (even if mild) or if they have been exposed to someone with symptoms or who has been confirmed to have the disease
- Training and awareness sessions including individual vulnerability and general infectious disease prevention good practices such as hand washing, wearing masks, maintaining a recommended physical distance, and encouraging the reporting of any symptoms of the illness

Influencing individuals to change to the desired behaviours and sustaining these behaviours over prolonged time periods requires a great deal of trust in decision makers, from national authorities to business leaders at various levels. Plans and the reasoning behind the plans need to be communicated clearly, openly, and regularly by leaders.

3.2.3 Testing for infectious diseases

In additional to monitoring for symptoms, companies should maintain a general state of readiness to implement testing for an infectious disease. For known diseases, readily available access to testing techniques either through public health authorities, third parties or - in specific cases - company health professionals/stock could be considered. For new or unknown infectious diseases, where specific testing techniques are not yet available, companies should monitor the situation closely, align their positions with that of public health authorities and industry partners on a global/regional/national/local level. Testing is likely to be a key control measure in preventing the spread of an infectious disease, and companies need to have plans prepared for swift implementation as situations evolve.

3.2.4 Track, trace, and management of infected parties and close contacts

Companies need to maintain a general state of readiness to track and trace potentially infected personnel at their worksites and prevent further spread. This should be aligned and coordinated with the applicable public health authorities, where possible. General considerations include health monitoring for symptoms, testing to detect the disease, workplace access controls, travel, means of identifying personnel in a worksite, provision of suitable facilities where accommodation is provided (including quarantine and isolation facilities, particularly on remote locations) and general measures for cleaning and disinfection should be considered to implement track and trace and prevent the spread of infection as part of company response plans.

3.2.5 Quarantine/isolation

An effective control measure to reduce likelihood of an infectious disease spreading is the use of quarantine before travel or isolation of infected parties. Companies should assess their existing capability to implement such measures. Additional provision for quarantine/isolation may need to be specifically designed and provided to meet requirements along with supporting processes during their confinement (e.g., providing food/drink/healthcare/well-being resources). Companies should consider all the potential effects of quarantine/isolation on business continuity.

NB: definitions of quarantine and isolation can be found in this document's Glossary.

3.2.6 Awareness training

General infectious disease prevention awareness training should be provided to personnel, and should cover issues such as reporting symptoms of the illness, actions to be taken in the event of developing symptoms or being in close contacted with an infected person, how to control coughs and sneezes, hand washing, cleaning and disinfection requirements. See Report 559 – *Infectious Disease Outbreak Management.*

3.2.7 Arrival health screenings

For international travel, in-country arrival health screenings or questionnaires should be considered as a general preventative measure to help screen for illness and confirm that new arrivals have not recently developed symptoms. For in-country screenings, national authority screening and/or quarantine requirements need to be followed.

3.2.8 Hygiene

Companies should consciously ensure a high level of awareness and actively raise standards and behaviours around general hygiene, thereby helping build resilience against disease. This may include hand washing, sanitising, disinfection of work areas, cough and sneeze droplet prevention and food and potable water safety.

3.2.9 Travel risk

International travel is a key factor in the global spread of infectious diseases. This is a factor to be considered when companies determine their tolerable risk level and develop their travel policies. Any location specific risks and individual risks should be considered prior to travel, particularly for high vulnerability individuals. Furthermore, in some geographic areas, use of public transport for daily commuting may be a key exposure to infectious diseases, and should be addressed in local plans.

3.2.10 Physical distancing

Companies should consider how to enable physical distancing at office and work site locations, including supporting facilities like accommodations, canteens, or gyms. This will include considerations for physically distanced movement within the building, and will be informed by ventilation and air conditioning, and rest rooms. It is likely that adjustments to occupancy and work patterns will form part of measures.

Further, during pandemics, society will likely need to adjust norms in terms of personal space, greeting methods, size of gatherings and general engagements between work colleagues and at home/personal time. It is recommended that infectious disease outbreak control specific risk assessments are performed for both on-site or off-site events that the company organizes or endorses.

3.2.11 Air circulation and conditioning

For any places where people work and interact a key control mechanism against airborne disease is a good supply of fresh air. Companies need to consider the capacity, use of filters and direction of air flow and the impact it will have on the spread of any virus where people interact, particularly in climate-controlled work environments where air may be recirculated.

3.2.12 Higher vulnerability individuals and existing medical conditions

A pandemic outbreak will likely result in reprioritization of medical resources, potentially resulting in delays to diagnosis of other medical conditions and/or ongoing medical treatments or shortage of critical medications for those with pre-existing medical conditions. Furthermore, there may be a need to implement additional protective measures for individuals or groups with higher vulnerability to the infectious disease. While personal medical data is subject to data protection legislation in many countries, companies should ensure protocols are in place to ensure confidentiality of personal medical information and encourage voluntary declaration by individuals (of their own or household member's higher vulnerability status) to help inform local response plans, business continuity plans, and contingency measures.

3.3 MEDICAL CARE

3.3.1 Medications and vaccinations

For many infectious diseases, the best means of preventing an outbreak is immunization through vaccination. It is recommended that personnel be inoculated against immunizable diseases where vaccines are available, depending on location-specific guidance as identified in the respective health risk assessment (HRA), the country and site epidemiology of previous epidemics, the likely number of people at risk of exposure, and the risk of potentially infectious diseases and spread in the particular geographic region. In the case where vaccines are developed during a pandemic, health authorities may prioritize which part of the population gets early access and companies needs to develop their strategies on the basis of such prioritization.

For many infectious diseases there are reliable and safe vaccines available. Vaccination may be an effective preventive measure and should be encouraged and facilitated if proven vaccines are available. For new infectious diseases where vaccines are under development, a key factor is to ensure that factual information about such developments are provided. Vaccination may facilitate herd immunity, which may offer protection to an entire community.

3.3.2 Medical supplies

A list of medical supplies (quantity and specification) along with cleaning and hygiene supplies that should be available in a healthcare facility in areas considered at risk for each disease that has a potential to create a pandemic outbreak can be found at the WHO and US CDC websites.

3.3.3 Personal protective equipment

Personnel need to be trained in the use of any personal protective equipment (PPE), including how and when to use it properly, when to clean/disinfect or replace it, and how to safely dispose of soiled or used items. Healthcare facilities should be supplied with adequate quantities of PPE. A list of PPE (quantity and type) that should be available in a healthcare facility in areas considered at risk for each disease that has a potential to create a pandemic outbreak can be found at the WHO and US CDC websites.

3.3.4 Health facilities

To minimize the morbidity and mortality caused by a pandemic outbreak, it is essential that the company health services are kept functioning, also considering the demands on these facilities for normal or emergency treatment of injuries or illnesses not related to the pandemic.

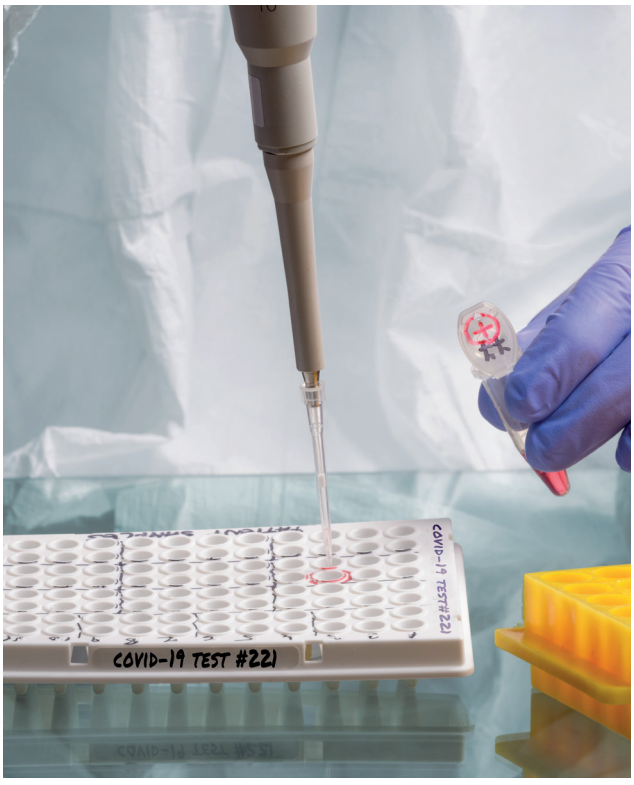
A protocol should be developed to ensure rational personnel management, and to make optimal use of facilities. These protocols should:

- Determine triage and patient flow between health-care-facilities at various levels
- Determine potential alternate sites for medical care or isolation of several patients (this may include gymnasiums, recreation rooms, etc.) in case of an infectious disease outbreak

3.3.5 Training

Companies should establish the necessary training for key healthcare personnel for the management of close contacts who have been exposed to the virus and necessary care for patients.

Medical emergency drills should include scenarios of epidemic or pandemic diseases and multi-casualty events. Drills should be carried out at a specific frequency in accordance with the determined risk level and lessons learned used to improve the response plans.



3.4 HEALTH FACILITIES NETWORK AND NATIONAL HEALTH AUTHORITIES

During a pandemic, the company should monitor and follow the instructions of the national health authorities' organizational and administrative preparedness.

All personnel and their dependants should be informed of and encouraged to follow the public health measures specified by the national/international authorities, and general recommendations regarding basic hygiene rules and hand washing should be emphasized. Where the national health authorities do not provide adequate guidance, companies may be required to provide training and awareness resources for their workforce and dependents.

There will be a need for offices and operational locations to develop and implement business continuity plans. These plans should include provision for the use of medications, health screening, health surveillance, testing, quarantine, etc. The plans should consider opportunities for some personnel to work from home and address any critical worksite personnel and the assignment of competent alternates to ensure that certain essential job functions can continue to operate.

The health function of the company (in consultation with appropriate health authorities, if required), should evaluate the available local medical facilities for health care capabilities and capacity in the event of a pandemic outbreak.

3.5 GEOGRAPHICAL LEVELS OF BUSINESS CONTINUITY PREPAREDNESS

Companies should consider risk-based pandemic inputs to their business continuity plans at each of the four levels as listed below. Companies with a global presence should use the lessons learned from their operations in areas which were affected early in the pandemic cycle to inform their plans for other geographic areas. It should be noted that countries and local/site plans may be at different response stages throughout the lifecycle of the pandemic.

A detailed checklist of considerations for each of the geographical levels is presented in Appendix A of this document.

3.5.1 Level 1 - Global/regional

An organization's geographical footprint and related risk will be a key input parameter as companies prepare response plans. It is important to note that even organizations with a footprint in a single country are advised to monitor how national responses may be affected by the global picture. The WHO has advanced systems for monitoring any emerging concerns and global industries can be both informed and help societal response through active monitoring and action.

3.5.2 Level 2 - National

It is recognized that, whilst a pandemic, by definition, is global, the key responses will be initiated and decided at the national level. Companies should therefore prepare plans to deal with an in-country epidemic outbreak, either arising from inside that country or as preparation for a global pandemic spreading to that country. The national risk profile and preparedness level are key input parameters, as is the need for industry to align on common approaches. Further, preparedness plans must recognize that national decision makers may be different to the usual stakeholders engaged as part of normal business processes. As such, active, early engagement of such stakeholders will help, particularly if at a coordinated industry level.

3.5.3 Level 3 - Local

Plans for support bases or office-level plans and actions should build on national level responses. They will need to consider and implement practical measures in terms of physical distancing, arrival health screenings, segregation of critical teams, and other practical measures to both increase resilience and minimize business disruptions. Whilst global headquarter business continuity measures will mainly consider Level 1 as their core focus, they also need to consider and implement measures to safeguard local office environments. Also, as the oil and gas industry is often "clustered", with several companies/entities having similar geographic footprints, it should remain a priority to share knowledge and good practice to coordinate approaches in such clusters.

3.5.4 Level 4 - Remote site/offshore installation

An infectious disease outbreak on a remote site or (offshore) installation constitutes a key risk for the oil and gas industry, because such a remote site may be conducive to rapid spread and the medical facilities/medical support personnel available will often not be scaled to deal with an outbreak nor have the necessary expertise. The key imperative in business continuity plans becomes to avoid any infectious disease or pandemic spreading to such an installation. Effective site preparedness depends on all personnel and management being made aware of their respective roles and responsibilities. Personnel should be knowledgeable of, or have access to, guidance on the recommended practices to apply in an outbreak situation. Tools, supplies, and services should be available onsite to ensure that an outbreak can be contained quickly and effectively.

3.6 ALERT LEVELS

Companies should consider adopting a system of alert levels in their respective plans to provide defined trigger points for when to initiate responses. Because authorities at both national and global levels are likely to have predetermined alert stages defined for infectious disease outbreaks, the use of a separate system for the oil and gas industry is not considered to be a helpful addition. However, collaboration with global and regional trade associations can provide companies with valuable global learnings and insights for the oil and gas industry that can bring organizations significant benefits. As such, it is recommended to use global health alert level guidance provided by organizations such as the WHO and national health authorities, and to adapt/adjust accordingly as the situation develops.

3.7 LOGISTICS AND HSSE PREPAREDNESS

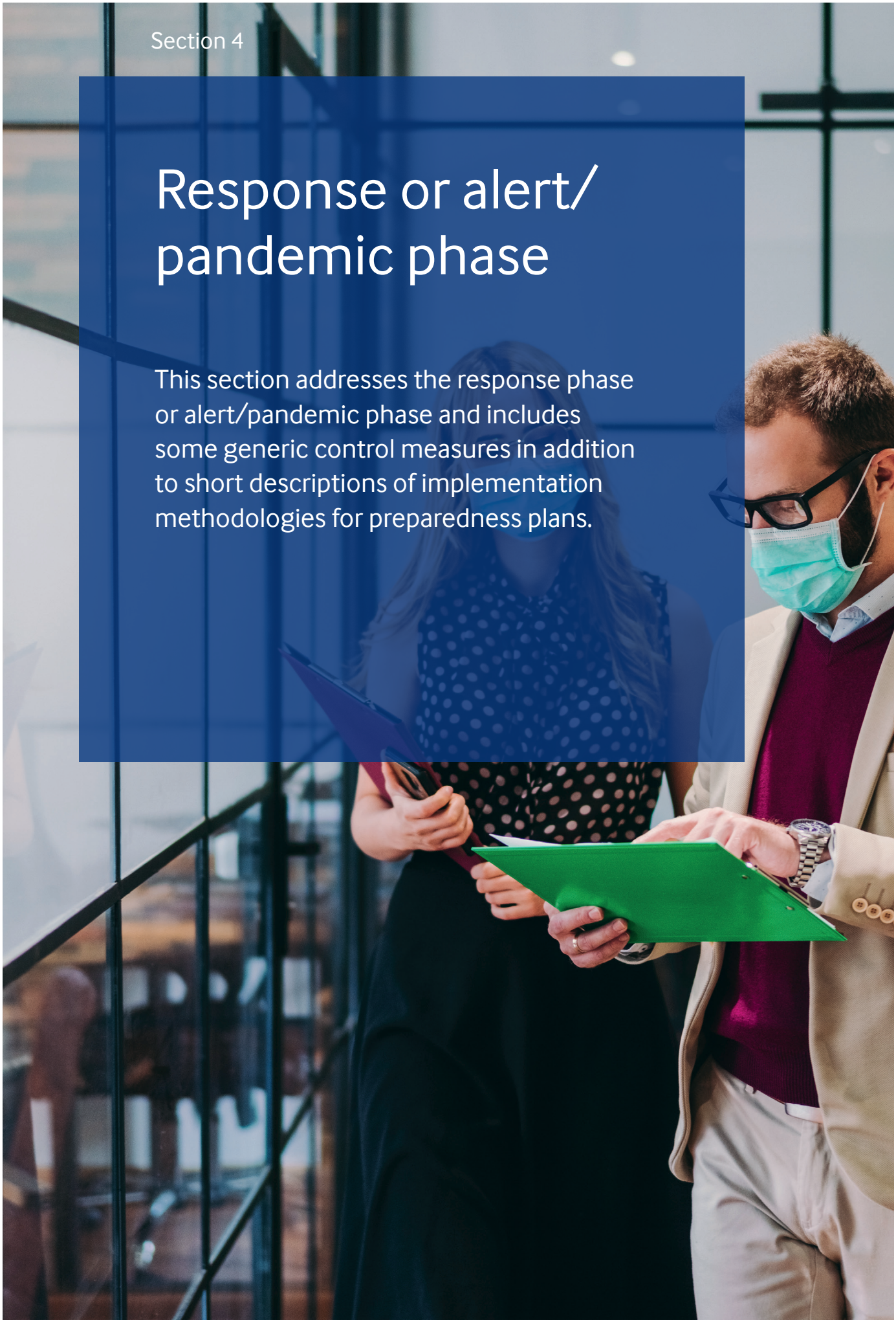
The crisis management team, implementing a specific response/business continuity plan, in collaboration with the delegated support functions, should carefully consider the effects of a pandemic on both logistics and the company's supply chain. Companies may make use of existing BCPs, but additional business disruptions to the supply chain and logistics should be anticipated due to border closures, import and export restrictions, supplier manufacturing constraints, transportation disruptions, and security concerns. As such, some high demand items such as PPE, sanitising products, cleaning supplies, and disinfectants may be in short national or even global supply or may be requisitioned by national authorities. These factors should be addressed in the planning process, in additional to operational equipment spare parts, etc. The following actions should be considered:

- Evaluate potential effects on the supply chain and consider mitigation options as early as possible
- Align response plans with joint venture partners, contractors and essential service providers, including operational services and support services
- Agree on what and how to share information on cases occurring in the workforce, and contact tracing
- Identify the criteria and define the access procedure to all company areas
- Evaluate the provision of basic supplies for sites where accommodation is provided such as laundry detergent, toilet paper, catering services, food and beverages, particularly for remote locations, and considering the potential for supplies to be affected by panic buying
- Evaluate the need for closing communal areas or adapting use protocols, e.g., limiting access to specific numbers of people, extending food serving times or removing food provision if personnel can bring their own food and utensils, cleaning procedures, and site modifications such as one-way systems, floor markings, and removal of furniture to indicate acceptable physical distancing
- Consider the effects of reducing numbers of support personnel if reducing levels to essential personnel only
- Monitor ongoing security threats resulting from the pandemic, as this has the potential for significant and abrupt change
- Verify effectiveness of any additional security measures
- If necessary, enforce quarantine rules by monitoring resident movements and behaviours in off-site quarantine facilities, e.g., hotels; this may require additional security service resources

Section 4

Response or alert/ pandemic phase

This section addresses the response phase or alert/pandemic phase and includes some generic control measures in addition to short descriptions of implementation methodologies for preparedness plans.



4. Response or alert/pandemic phase

4.1 LEVELS OF NOTIFICATION AND RESPONSE

4.1.1 General

It is important to identify specific communication requirements and appropriate messaging for specific target audiences and geographic areas in relation to the spread of the pandemic. The stage in the pandemic lifecycle that applies to a country or locations may determine the content and frequency of communication required. Company communications should be based on up-to-date scientific facts to dispel myths and avoid political biases. Communication and notification protocols should include:

- Notification and communication practices between the four geographic response levels in the case of a global/national infectious disease outbreak including decision points for when to trigger national/local/remote site responses
- Notification practices from sites in line with existing company health risk assessments
- Risk-based decision points for consistency of reporting and provision of updates
- Agreement on decision points for implementing or relaxing enhanced preventive measures and protocols at all levels; in a global pandemic, this may be done in alignment with public health authorities
- Sharing information on the crisis at hand and what mitigations are being undertaken and what employees are expected to do; it is essential that leaders stay visible and keep employees informed

4.1.2 Global level

- Initiate business continuity plans and establish working routines
- Participate and, where required, initiate engagements with relevant global stakeholders
- Decide on risk-based priorities and trigger points for any global level communication strategies
- Verify communications protocols in business continuity plans, and that data gathering efforts are effective
- Develop an accurate understanding of the infectious pathogen, transmission routes, pandemic effects and spread to geographic areas and adjust/verify plans and communication strategies accordingly

4.1.3 National level

- Initiate national business continuity plans and establish working routines
- Participate and initiate engagements with relevant national stakeholders, cooperating with other companies and/or via national or regional trade associations as appropriate
- Decide on risk-based national priorities and trigger points for any national level implementation of communication strategies
- Verify national communication protocols, availability of relevant national decision makers, and that data gathering efforts are effective
- Consider impact of any priorities set by national authorities

4.1.4 Local level

- Initiate any local pandemic response and establish working routines
- Convene or participate in engagements with local communities or other locally based companies with a view to harmonize responses
- Implement any local response measures like health screening, quarantine, or testing, and verify effectiveness
- Verify communications protocols are effective

4.1.5 Remote sites

- Initiate installation/remote site emergency response measures; see Report 559 - *Infectious Disease Outbreak Management*
- Implement remote site/installation specific measures as informed by business continuity plans and available local health system information
- Verify communication protocols and measures are effective

4.2 TRANSPORTATION

Transportation considerations during a pandemic can be organized in three categories: International and national travel, considerations per transport mode for general travel, and considerations for medical evacuations. Helicopter travel is considered in 4.2.2 and 4.2.3 as an example, but the considerations can easily be adopted for other vehicles/transport modes.

4.2.1 International and national travel

Travelling helps infectious diseases spread. As such, during an emerging pandemic, it is likely that significant travel restrictions and border closures will be imposed. Global harmonization may be lacking in terms of requirements for health screening, testing, quarantine, and acceptance of vaccination or other indications of immunity (depending on the pathogen). This has a significant impact on a global industry which relies on the international movement of people for business continuity and for service/maintenance of equipment, training, and verification activities.

Companies need to consider the following potential consequences of disruption to travel:

- Change to work patterns and rotations and related effect on their business as well as on personnel and their families
- Psychological stress resulting from travel-related uncertainty may occur
- Short term prioritization of work activities and maintenance/verification
- Imposed use of remote working and the opportunities presented by this change

Potential occurrences or actions that may mitigate the disruption to operations include:

- Early recognition of energy workers as "key workers" enabling governments to allow safe passage and less border closure restrictions
- Collaboration with national and international bodies in providing decision makers with solutions
- Collaboration between companies in providing charter flights for crew changes, which can be subject to additional company specific infection prevention controls
- Recognition that, whilst transport by helicopters typically is managed by our industry and will need special attention, some areas will rely largely on road, airplane, or vessel transport

For the purposes of this report, it is expected that companies will follow advice and guidelines as issued by authorities in the relevant country, in addition to implementing their own measures depending on the assessed risk levels. Many of the risk mitigating measures for helicopters mentioned in 4.2.2, below, can also be adopted for motor vehicles.

4.2.2 General helicopter transportation

During a pandemic, it is likely that some level of physical distancing in helicopters will be imposed. Furthermore, special PPE or changes to airflow in the aircraft may be imposed as well as special measures to protect aircraft crews who are exposed to many potentially infected passengers. Reduced seating capacity on helicopters and the potential for helicopter pilots exceeding the legal maximum flying hours may impact the ability to transport personnel to the work place and, consequently, business continuity.

Plans need to be integrated to ensure effective planning and execution of such transport in support of business continuity.

4.2.3 Medevac by helicopter

Patient transport is a critical activity. Medical expertise, emergency response, and logistics will need to align around protocols and requirements. During a pandemic, it may be challenging to find a hospital capable of treating, and a country willing to accept, infected patients, especially non-nationals. Hospitals may run out of capacity and countries may close their borders for all but their own citizens. This is a situation that requires ongoing monitoring during an outbreak. Pilots and health-care personnel that conduct medevac operations involving infected patient(s) need to be provided with suitable PPE and wear this throughout the evacuation process and follow standard infection control procedures.

Logistics personnel who are closely involved in the medevac operation should review the relevant training guidance found in Report 559 - *Infectious Disease Outbreak Management*.

4.2.4 Implementing the medevac

Logistics personnel will require as much notice as possible in advance of a medevac operation.

- Medical personnel should recommend appropriate PPE e.g., face masks/respirators, needed by the crew, passengers, patients, and assistants before entering and exiting the aircraft
- The patient should wash their hands before leaving their isolation room, and should wear the specified PPE at all times when transiting between the isolation room and the destination medical facility
- The period during which the patient leaves the isolation room and enters the aircraft should be kept to a minimum
- If the patient has an airborne disease, both the patient and any accompanying travellers/pilots/drivers should wear face masks/respirators at all times while in transit. The health-care professionals should be directed to use N95 respirators without exhalation valves. The requirements for separation from other passengers need to be assessed
- If biohazard waste is transported on a helicopter, it should be packaged and isolated with due regard to any transmission risk
- Isolation chamber use is recommended for highly contagious diseases

4.2.5 Decontamination of the aircraft

Disinfection of the aircraft should be performed after transportation of a patient who is either suspected of, or confirmed as having, an infectious disease. A typical disinfectant regime will consist of the following:

- The helicopter should be disinfected using an appropriate disinfectant solution for the type of surface
- Decontamination should be carried out after transportation and before remobilization
- Appropriate PPE (N95 respirator without exhalation valve, nitrile gloves, goggles, gowns, etc.) should be worn by those carrying out the decontamination procedure
- The disinfectant solution used for the carrier should be effective against the disease agent. Note that different disinfectants may have different dwell or kill times; these can range from 5–10 minutes
- Soft and hard surfaces should be disinfected, including doors, safety vests, earmuffs, the infected person's seat and other adjacent seats as required
- Non-porous surfaces (carrier seats, doors, etc.) should be sprayed with disinfectant solution and allowed to dry for an appropriate dwell time (follow instructions on the product label). After the dwell time has passed, these areas should be wiped down with a wet disposable cloth
- Porous surfaces should be wiped down with an appropriate disinfectant and protocols
- Used PPE and cleaning materials should be placed into biohazard plastic bags and disposed of immediately
- After the decontamination has been completed, personnel should wash their hands thoroughly with soap and water, along with any other parts of the body that may have been exposed during the decontamination procedure

4.3 GENERAL MEASURES

In addition to practical remote site guidance from Report 559 - *Infectious Disease Outbreak Management*, the following needs to be considered for remote sites/ installations with accommodation.

4.3.1 Accommodation and food provision

Companies can implement many general measures to reduce exposure to an infectious disease, in addition to physical distancing measures. Where critical services are provided from support bases, it may be necessary to close these sites and provide onsite accommodation for critical workers to maintain business continuity. In such cases, the site should be considered as remote for the purposes of required control measures, regardless of its geographic location.

- Consider whether the remote work location is a completely closed site, e.g., offshore installation, where personnel are all contained with no opportunity to mix with surrounding communities, or whether it is a semi-closed site, e.g., a land-based operation with some day workers from the local community or delivery drivers with access to the site
- Access zones and additional facilities may be required to ensure separation of workers with accommodation provided and visitors to prevent transmission to or from local communities
- Implement robust quarantine and testing protocols to ensure personnel in a closed or semi-closed work setting are free from infection prior to their rotation
- In consultation with the work force, their established representatives, and local authorities, consider extending rotational patterns to reduce the risk of importation of cases, taking note of any resulting mental health impacts
- Segregate groups by creating team or shift work "bubbles" or cohorts, and keep the same teams together in the worksite and accommodation
- Provide individual rooms where possible, with sanitization protocols between occupants; where individual accommodation is not practicable, those sharing accommodation or washroom facilities should be in a "bubble" (or cohort)
- Provide personnel with necessary cleaning and disinfection materials and training on how to best use these materials effectively (to be used for their work stations, tools/equipment and accommodation, as required)
- Provide personal issue bedding, towels, toiletries, PPE, etc., and laundry services; segregate laundry and rubbish from personnel in quarantine and/or onsite isolation
- Provide segregated on-site quarantine and isolation facilities with dedicated accommodation and bathroom and washing facilities
- If accommodation is provided in a different location to the worksite, consider the transportation required and the provisions for daily needs and transport of infected personnel to medical facilities
- Reduce use of "buffet style" food serving
- Consider daily health screenings for personnel in closed setting worksites and for any visitors to a semi-closed worksite
- Provide personnel with access to exercise facilities, entertainment, and means of communication to enable them to stay in touch with family members and friends

Should the numbers of cases in a remote location increase, isolation resources could be under pressure; 'cohorting' gathers those who are suspected of being infected into one area, and can be an effective strategy. In some cases, it may be necessary to evacuate a whole base and convert it into an isolation camp for infected persons, while supporting field operations from another location.

4.3.2 Hygiene/cleanliness

Many actions may be implemented which helps reduce the risk of transmission once an infectious disease has reached a location, be it in an office, remote site, or installation. They include enhanced measures in terms of:

- Food handling, including preparation, serving and dealing with waste
- Personal hygiene, including hand washing, and covering the nose and mouth
- Cleaning of workplaces, common areas, toilet facilities, and frequently touched items, such as elevator buttons, doors, work tools, photocopiers, etc
- Provision of cleaning materials, including hand sanitizers
- Modifications to the workplace to avoid frequently touched items, e.g., foot-operated waste bins, touch free door openers, automated lighting systems
- Waste collection, management and disposal, including biohazardous waste

4.3.3 Air supply/ventilation

For any airborne respiratory pathogen, a risk mitigation is to increase ventilation or airflow within enclosed spaces. This may be achieved through:

- Optimize the use of natural ventilation in areas where this is possible
- Consider direction of flow and optimization of existing air ventilation and air conditioning systems
- Consider inclusion or optimization of relevant filters in air conditioning systems for enclosed areas and offices

4.3.4 Medical monitoring

While the key control measure is ensuring that parties carrying any infectious disease do not reach a remote or offshore site, the environment lends itself well to medical monitoring and the opportunity to implement mitigation measures to prevent spread of a respiratory pathogen on such sites. Such measures at remote or offshore sites may include:

- Quarantine of suspected cases and isolation facilities for symptomatic or confirmed positive cases
- Identification and preventive isolation of any close contacts
- Close first line medical follow up of any infected (but non-symptomatic) or suspected cases
- Close first line medical monitoring of the population at the location at large
- Identification and management of higher vulnerability individuals

4.3.5 Mental health

The societal mental health strain that a pandemic could cause has the potential to be even more severe for individuals working remotely or away from their families. The need for quarantine or isolation in connection with work may further aggravate the effect, as will uncertainty related to future income and continued employment.

Although the mental health effects from recent experiences are not yet fully understood, companies should consider:

- Implementing campaigns to raise awareness of mental health concerns
- Solicit feedback from the workforce through surveys to better understand sentiments and concerns
- Make mental health expertise available
- Complying with data privacy laws, monitor mental health trends in the company to inform and find ways to support the work force, including reporting of cases insofar as this is possible and help develop preventive measures
- Provide personnel with access to well-being programmes and assistance programmes, offering mental health support services and encourage on-site and off-site supervision and management to be in regular contact with personnel to provide support and identify any concerns related to mental health
- Provide personnel with training and awareness materials on the signs and symptoms of fatigue and mental health issues, and encourage anyone with concerns about themselves or others to seek support

4.4 INVESTIGATION OF OUTBREAKS

It is recognized that outbreak investigations are different than most health, safety, security, and environment (HSSE) investigations, and thus the following considerations are relevant:

- It may be difficult to determine a clear and specific cause of the outbreak
- Close contact and incident investigation is likely to involve confidential medical data, including pathology results, but medical confidentiality and workers' rights have to be ensured, within applicable regulatory and company specific requirements
- The use of technology, whether available from national authorities or developed/implemented by the company, may assist with contact tracing within the worksite and/or the wider community
- Investigation is most effective when initiated immediately at the time of the outbreak, and may require the use of specialized resources identified during the outbreak response preparation and planning stages, such as virtual communication methods and contact tracing technology (Section 3.2.4 of this document). When conducting the incident investigation, the team should pay particular attention to the causes and corrective actions that are within control of the organization

It is recommended that an experienced facilitator be appointed to keep the investigation process on track.

The involvement of health professionals in the investigation is considered advantageous. Notification to and/or the involvement of local health authorities may be a requirement in some countries.

Section 5

Recovery or transition to interpandemic phase

This section provides guidance on the recovery or transition phase out of a pandemic that can be taken after the initial pandemic outbreak period. Whilst this period may be prolonged, it includes capturing and sharing lessons learned with management and medical personnel, return to work policies and restocking supplies which may also be relevant during the pandemic.

5. Recovery or transition to interpandemic phase

5.1 REDUCED STATE OF ALERT

A contained outbreak for a remote site or installation can be declared to be over in close collaboration with national health authorities or medical expertise. Depending on the jurisdiction, declaring the end of an outbreak may require approval from the national health authority. It is important to keep in contact with any affected party after evacuation to monitor their recovery and develop an appropriate return-to-work plan. This is further covered in Report 559 - *Infectious Disease Outbreak Management*.

For a pandemic, the situation is considerably more complex. An outbreak will likely continue for a considerable period, even many years. Organizations will need to stay prepared for different response measures which are likely to be necessary in different geographic locations at various stages. As such, the alert system as covered in Section 3.6 may need to be adapted for use on a more continuous basis. It is recommended to take guidance from both global, national and local authorities in defining such alert levels. Compliance with and active support of such guidance may be the industry's most effective contribution to the societal challenges a pandemic pose. A pandemic may not be fully declared over until an effective vaccine has been administered to a large percentage of society. The measures described below may be relevant during interim phases of an ongoing pandemic.

The WHO has described the following conditions as prerequisites to the lifting of any community restrictions:

- Transmission is controlled
- Health system capacities are in place to detect, test, isolate and treat every case and trace every contact
- Outbreak risks are minimised in special settings like health facilities and nursing homes
- Preventive measures are in place in workplaces, schools and other essential locations
- Measures are in place to manage the importation risk of a disease from other countries or geographic areas
- Communities are fully educated, engaged and empowered to adjust to the 'new normal'

Table C2 (Appendix C) provides an example de-escalation matrix.

5.2 RECOVERY AND MITIGATION

Following the transition out of a pandemic, a company will usually take actions to return operations, workplaces, and communities to their pre-pandemic states. There may also be permanent changes or mitigations which reduce the long term risk to pandemics. This is also relevant in case of pandemics with a sustained duration or several "waves" over a sustained period.

Example of actions:

- Training to develop behavioural, cultural, and health-oriented knowledge, in accordance with company and country or local authority health strategies
- Preparedness and communication
- Provision of vaccinations and/or prophylaxis

5.3 RETURNING TO SITE OR WORKPLACE

Employers are required to provide a healthy and safe workplace for employees and risk assessments will provide clarity as to any measures that need to be implemented.

A clear process has to be defined, which describes the "return to site" process of patients after their recovery, quarantined individuals, or the workforce at large in the case of societal lockdowns, or where work from home strategies have been imposed. The preconditions for returning to a worksite will vary depending on local health advice, the ability for site/office to safely accommodate workers, the criticality and need for returning to the worksite and general local risk considerations.

The workforce has to be informed of the existing regulations and requirements. Additional fitness to work assessments may be required, depending on any long term health effects. For further guidance on this topic refer to IOGP-IPIECA Report 470 - *Fitness to work*.

5.4 RESTOCK SUPPLIES

Outbreak supplies will need to be replenished at regular intervals, taking into account any national/global priorities and local outbreaks, both during the initial and potential second or third waves of a pandemic. Companies need to consider their long term stock levels of both direct pandemic related stocks and stocks of critical supplies, spares, etc. in light of travel/transport disruptions that may be experienced during a pandemic.

5.5 REVIEW LESSONS LEARNED

Leadership at all levels of an organization should regularly review the effectiveness of their response, from the first recognition of the pandemic, through implementation of enhanced controls, to specific incident investigation. The review should identify:

- Improvements to the response – these should be implemented as necessary
- Common trends (both positive and negative) and challenges seen across the organization
- Corrective actions identified by, for example, audits, inspections, proactive reporting or incident investigations – these should be implemented as soon as practicable
- Good practices identified from internal or external sources which should be promoted and shared for the benefit of others

Leadership should share the results of any incident investigations and their review of response effectiveness with business continuity leaders and healthcare personnel to enable wider sharing of lessons learned and enable continual improvements to be made to their organization's response processes and to inform future planning.

References and further reading

IOGP-IPIECA Report 470 - *Fitness to work*

IOGP-IPIECA Report 510 - *Operating Management System Framework*

IOGP-IPIECA Report 511 - *OMS in practice. A supplement to Report No. 510*

IOGP-IPIECA Report 559 - *Infectious Disease Outbreak Management*

IOGP-IPIECA Health Committee statement on COVID-19 testing in the oil and gas industry

IOGP-IPIECA Joint position on COVID-19 vaccines

IOGP-IPIECA Health Committee Statement on returning to workplace

Glossary

TERM	DESCRIPTION
ALARP	As Low As Reasonably Practicable
BCP	Business Continuity Plan
BU	Business Unit
CMT	Crisis Management Team
ECDC	European Centre for Disease Control
Epidemic	A sudden increase in the frequency of disease that significantly exceeds the seasonal variation normally observed in a given area
Epidemiology	The study of the incidence, distribution, and control of disease in a population
Immunity	Protection generated by the body's immune system in response to previous disease attacks resulting in ability to control or lessen a disease attack
Isolation	Isolation is intended for people with symptoms or a positive test for an infectious disease The separation of a person, known or reasonably believed to be infected with a communicable disease and potentially infectious, to prevent spread of the communicable disease Isolation for public health purposes may be voluntary or compelled by federal, state, or local public health order
Morbidity	Proportion of the population who have a particular disease
Mortality	Proportion of a population who have died from a particular disease
Pandemic	A pandemic is an epidemic which has spread across a large regions, for example multiple continents or worldwide
Pathogen	Parasites (including those causing malaria), bacteria, viruses, or fungi that can cause disease
Quarantine	Separation of individual(s) known or reasonably believed to have been in contact with a confirmed case of communicable disease
Risk	The product of the chance that a specific undesired event will occur and the severity of the consequences of the event: risk = (probability) x (consequence)
Site	Location for company work activities, including remote sites or offshore installations
US CDC	Centers for Disease Control and Prevention – United States of America
WHO	World Health Organization

Appendix A: Pandemic preparedness elements

Appendix A: Pandemic preparedness elements

PANDEMIC PREPAREDNESS ELEMENT	GLOBAL/ REGIONAL	NATIONAL	LOCAL	REMOTE SITE
Active monitoring of infectious disease outbreaks with pandemic potential	Y	Y		
Selection of reliable sources of data to inform business continuity plans	Y	Y		
Identification of key stakeholders (refer to Appendix B for more information)	Y	Y		
Investigate scientific resources and data to understand a particular pandemic risk	Y	Y		
Active and early considerations of pandemic risk and its impact on travel	Y	Y	Y	Y
Health screening, monitoring and advice for international travel	Y	Y	Y	Y
Plans for internationally assigned and rotational personnel in relation to expected border controls	Y	Y	Y	
Plans for monitoring of general vaccines and assessment of health care provision for personnel	Y	Y	Y	
Plans and considerations for testing of any new or existing infectious diseases	Y	Y	Y	Y
Resilience to business continuity when work from offices and/ or travel may not be available	Y	Y	Y	Y
Identification of business critical workers and competent alternates to perform critical tasks	Y	Y	Y	Y
Identification of higher vulnerability individuals and related control measures	Y	Y	Y	Y
Issues to take into account when defining response at national level. (e.g., local health care availability, infrastructure, social care systems, travel, repatriation or border closures)	Y			
Set guidelines to maintain company reputation and social responsibility imperatives	Y	Y		
Potential impact on then supply chain and subsequent business continuity risk	Y	Y	Y	

PANDEMIC PREPAREDNESS ELEMENT	GLOBAL/ REGIONAL	NATIONAL	LOCAL	REMOTE SITE
Potential impact to backlog in maintenance, safety critical training etc.	Y	Y	Y	
Mental health effects, resilience and fatigue management, rotation and shift planning	Y	Y	Y	
Potential security risks arising from a pandemic situation, e.g., civil unrest (also potential for infection spread due to civil unrest)	Y	Y	Y	
Identification of pandemic related stocks and materials, PPE, medicine, critical spares/materials	Y	Y	Y	Y
Measures for contact tracing and tools/systems to manage this	Y	Y	Y	Y
Exercises and drills to train and prepare for a pandemic or infectious disease outbreak	Y	Y	Y	Y
Determine acceptable conditions for when work can continue at a specific site or situations that may trigger work from home, reduced activity or site shut downs	Y	Y	Y	Y
Verification needed to confirm "state of readiness" to the pandemic risk	Y	Y	Y	Y
Define critical worker for the energy sector status with relevant authorities	Y	Y		
Monitoring of development of vaccines and treatments for any new respiratory pathogen	Y	Y		
Identification and management of pandemic relevant issues versus business continuity which may require national policy support.	Y	Y		
Identification and management of infrastructure critical to business continuity during a pandemic	Y	Y		
Considerations for "return to normal" during or after an outbreak	Y	Y	Y	Y
Communications routes and plans during a pandemic	Y	Y	Y	Y
Verifications of business continuity plans for the broader supply chain	Y	Y		

PANDEMIC PREPAREDNESS ELEMENT	GLOBAL/ REGIONAL	NATIONAL	LOCAL	REMOTE SITE
Workplace and office layouts and occupancy modifications to reduce risk of infectious disease transmission	Y	Y	Y	Y
Entry controls, health screening and checks in various workplaces/remote sites	Y	Y	Y	Y
Support for alternative working arrangements (home office, IT infrastructure, work hours/shift patterns)	Y	Y	Y	Y
Logistics plans to manage operations for local office/remote sites			Y	Y
Availability of health advice and medical support	Y	Y	Y	Y
Worksite and/or office cleaning, including disinfection and "deep clean"	Y		Y	Y
Air circulation, filtering and ventilations within offices and remote sites	Y		Y	Y
Training and awareness campaigns addressing pandemics	Y	Y	Y	Y
Documented identification, notification and reporting process for any remote site or office, including neds for contact tracing and case investigation	Y		Y	Y
Health screening prior to travel	Y	Y	Y	Y
Plans for isolation of any infected parties on remote site/ installation				Y
Availability of remote medical support, resources and capability for medical evacuation				Y
Logistic arrangements for normal (commute) travel to/from office, including transport of infected parties/ suspected cases			Y	Y
Logistics arrangements for medevacs from remote sites/ installations including status of receiving facility and regular transfer travel to remote site, including transport of infected parties/ suspected cases				Y
Harmonization of approach across remote sites or installations or geographical area or at national level, e.g., cross-company collaboration		Y	Y	Y

PANDEMIC PREPAREDNESS ELEMENT	GLOBAL/ REGIONAL	NATIONAL	LOCAL	REMOTE SITE
Ability to implement physical distancing on work locations.			Y	Y
Identification and implementation of physical isolation of critical work teams for business critical functions			Y	Y
Risk identification and mitigations for any delays to safety critical maintenance and/or safety critical training activities			Y	Y
Availability of food handling protocols, both generally and in the case of an outbreak			Y	Y
Training plans to raise awareness of pandemic both in general and for specific diseases	Y	Y	Y	Y
Training and emergency response plans on how to manage pandemics, both for business continuity and for remote site dealing with local outbreaks.	Y	Y	Y	Y
Awareness materials to raise general awareness and resilience to pandemics	Y	Y	Y	Y

Note that the above elements have been described generically across geographical levels, but the actions may differ between those levels, as will the level of detail. Typically, policy and guidance will be set at global levels, for local implementation.

Appendix B: Example list of stakeholders

This list offers a global perspective and is not intended to be comprehensive.

It can be used as a starting point to which more specific local stakeholders are added, such as national authorities (e.g., health and interior ministries, oil and gas regulators), health and safety organizations, workers unions, and community organizations.

Appendix B: Example list of stakeholders

NAME	FULL TITLE	TYPE OF ORGANIZATION	GEOGRAPHIC FOCUS	PURPOSE
API	American Petroleum Institute	Trade association	Regional, but global impact	Local advocacy/policy – International standards/ guidance
ARPEL	Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean	Trade association	Regional	Regional trade associations
CDC	Centers for Disease Control (US)	US government agency	Regional	Improve/safeguard health in US, listened to globally
CONCAWE		Trade association	European	Deals with environmental, health and safety issues for the European refining industry
EASA	European Union Aviation Safety Agency	Aviation regulator	EU, but global impact	Aircraft safety/ standards/investigation
ECDC	European Centre for Disease Control	EU agency	Regional	Improve/safeguard health in EU, listened to globally
ECSA	European Community Shipowners' Associations	Trade association	European	Voice of the European shipping industry
EOSCA	European Oilfield Speciality Chemicals Association	Trade association	European	Oilfield chemical
FAA	Federal Aviation Administration	Aviation regulator	US, but global impact	Aircraft safety/ standards/ investigations.
Heli Offshore		Trade association	Global	Helicopter safety
IACS	International Association of Classification Societies	Non-governmental organization	Global	Technical expertise for the shipping industry

NAME	FULL TITLE	TYPE OF ORGANIZATION	GEOGRAPHIC FOCUS	PURPOSE
IADC	International Association of Drilling Contractors	Trade association	Global	Represents drilling contractors, operators, and service contractors
IAGC	International Association of Geophysical Contractors	Trade association	Global	Global trade association for the geophysical and exploration industry
IATA	International Air Traffic Association	Trade association	Global	Airline trade association
ICAO	International Civil Aviation Organization	UN Agency	Global	Global cooperation in air transportation
ICMM	International Council on Mining and Metals	Trade association	Global	Mining industry equivalent to IOGP
ILO	International Labour Organization	Labour unions	Global	Represent workers
IMCA	International Marine Contractors Association	Trade association	Global	Aims to improve performance in the marine contracting industry worldwide.
IMO	International Maritime Organization	UN agency	Global	Set global shipping standards, provide direction.
IndustriALL		Trade union federation	European	Representing unionized workforces in Europe
IOGP	International Association of Oil and Gas Producers	Trade association	Global	Voice of upstream industry from oil company perspective. Issues guidance on best practices in operations.
IPIECA	The global oil and gas industry association for advancing environmental and social performance	Trade association	Global	Convenes the global the oil and gas industry to produce and share good practice on environmental and social performance including health and safety issues.
IRF	International Regulator Forum	Intergovernmental forum	Global	11 national oil and gas related regulators

NAME	FULL TITLE	TYPE OF ORGANIZATION	GEOGRAPHIC FOCUS	PURPOSE
ISO	International Organization for Standardization	Standards	Global	Publish global standards
IWCF	International Well Control Forum	Training	Global	Well Control skill assessment and certifications
OCIMF	Oil Company International Marine Forum	Trade association	Global	Safety of maritime transport in oil and gas industry
OPITO	Offshore Petroleum Industry Training Organization	Training	Global	Global, not-for-profit, skills body for the energy industry
OSRL	Oil Spill Response Limited		Global	International industry-funded cooperative to respond to oil spills wherever they may occur
SPE	Society of Petroleum Engineers	Individual member organization	Global	Technical society
UN	United Nations	Intergovernmental organization	Global	International cooperation
WHO	World Health Organization	UN agency	Global	Improve/safeguard global health

Appendix C: Example tables for triggers and actions

Appendix C: Example tables for triggers and actions

Table C1: Pandemic Flu Considerations by WHO Phase

	Monitoring Phase	Preparation Phase	Hot Standby Phase	Critical Operations Phase	
COVID-19 phases	Human to human transmission (HTHT) with new virus in the region but only rare cases of HTHT or sustained HTHT in remote isolated locations (No HTHT in the country)	HTHT with new virus in the country, but only rare cases of HTHT or sustained HTHT in remote isolated locations and potential to impact company operations	Sustained HTHT new virus in the country; potential to impact company operations; effective disease containment; potential for local civil unrest or government measures impacting company operations	Sustained HTHT new virus in the city/county/district where there are company operations; potential failing disease containment; has occurred with local threat; significant civil unrest or government restrictions	
WHO pandemic phases	Phases 1, 2 & 3		Phase 4	Phase 5	Phase 6
Current outbreak characteristics and triggers	Emerging or re-emerging human viral infections that have potential for outbreak, severe health consequences, fatality or operation disruption **AND** Confirmed cases of HTHT in any region **AND** NO/LOW potential to impact operations	Emerging or re-emerging human viral infections that have potential for outbreak, severe health consequences, fatality or operation disruption **AND** Confirmed limited cases of HTHT in the region **AND** No civil disruption **AND** No significant government /WHO restrictions **AND** potential to impact to company operations	Sustained occurrence of new cases where HTHT has been confirmed in the country and in the city with surrounding area where company operations are located **OR** 1 or more confirmed cases in workplace or company compound with limited HTHT in the city with surrounding area where operations are located **AND** Effective disease containment measures (case management, quarantine, health service delivery) **AND/OR** Potential or limited civil disruption **AND/OR** potential or limited government/WHO restrictions **AND/OR** Significant influx of population in affected area/ region (mass gatherings) with limited HTHT	Sustained occurrence of new cases with HTHT in city/county/district where there are company operations **AND** Potential failing disease containment measures (case management, quarantine, health service delivery) **OR** Multiple confirmed new cases in the workplace, where sustained HTHT is ongoing within the local area **OR** Widespread local HTHT **AND/OR** Significant civil disruption **AND/OR** Significant government restrictions	

	Monitoring Phase	Preparation Phase	Hot Standby Phase	Critical Operations Phase
Actions	Monitor disease risk Integrated functional preparation plans developed	Integrated functional preparation plans developed Establish/review tiered shut down plan and update essential list (Operations) Organizational communications focused on awareness such as company website updates and employee mass emails (country crisis management team - CMT) Infected/suspected cases & contacts containment - Plans & procedures defined/shared (Occupational Health Department OHD) Medical and evacuation services, supplies prepositioned (Business Unit - BU) Work from home and remote shift relief execution plan (Department managers) Conduct drills or exercises and close identified gaps (country CMT) CONTRACTOR management: communicate plan to resident contractors and service providers (Contract owners) Consider daily cleaning of office common surfaces	Activate 'limited' BU CMT including coordination with other impacted businesses in the region (Country Manager) Implement travel restrictions and limit non-essential travel) Apply evacuation procedure of non-essential personnel as applicable (BU) Run organizational communications focused on awareness + appropriate precautionary procedures (Country CMT) Practice social distancing and reduce nonessential face-to-face meetings (all workers) Implement IDOM measures with response where case occurs, including isolation, decontamination quarantine, entry screening, etc (BU) Apply infected case evacuation procedures as applicable (BU) Conduct drills or exercises including verification of prepositioned supplies for islandization and close identified gaps (country CMT) CONTRACTOR management: activate tiered BCP and monitor workers health (Contract owners)	Preparation or implementation of operational plans by business that could include limited staffing and/or production up and including shutdown (BU) Activate critical personnel at site (Country CMT) BU ESG activated including coordination with other impacted businesses and Corporate CMT (Follow pandemic flu response guidance including structure) Organizational communications using applicable communications methods (Country CMT) No face-to-face meetings. Teleconferencing only (all workers) Heightened general IDOM measures with full response where case occurs, including isolation, decontamination quarantine, etc... (BU) Apply infected case evacuation procedures as applicable (BU) CONTRACTOR management: Full implementation of tiered BCP (Contract owners)

NOTES

Human-to-human transmission (HTHT):

- Transmission between close contacts: Transmission from an infected (and usually) sick person to close contacts, usually household or family members or healthcare workers. Cases occurring between close contacts are often called "clusters"
- Community transmission: Wider transmission of the virus with people in the *general community*, who are not household or family members, or healthcare workers looking after cases, becoming infected. Community transmission occurs during an epidemic. Also called *sustained transmission*

Islandization

Could mean an intentional separation of certain parts of the business to isolate them from the community and prevent transmission/import of the virus. It could also be involuntary, and result from being cut-off from supplies and/or means to transport people in and out. In both of these circumstances, companies need additional supplies to last longer than during normal operations (e.g., three months).

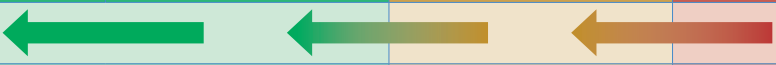
Operations disruption: To be defined in each location-specific business continuity plan to allow variation in number/critical personnel/type of operation.

Trigger conditions for business travel restrictions

- Cases: Daily occurrence of new case(s) for acknowledged incubation period AND one of the following:
- Ineffective containment measures in place locally:
  - No travel restrictions in place
  - No screening at entry ports
  - Inadequate quarantine measures (cases not linked to known clusters)
- Insufficient diagnostic capabilities
- No easy availability of, or disrupted, urgent and primary health care services

Table C2: Pandemic de-escalation triggers

Transitioning to a lower phase should be considered after the conditions (triggers) in a higher phase have been met. Note that this table shows only the medical considerations for transitioning from one phase to another.

COVID-19 phases	Monitoring Phase	Preparation Phase	Hot Standby Phase	Critical Operations Phase	
					
WHO pandemic phases	Phases 1, 2 & 3		Phase 4	Phase 5	Phase 6
Current outbreak characteristics and triggers	Outbreak over **OR** Virus/disease activity returns to normal levels **OR** Virus/disease is seasonal	Progressive reduction of new cases for two incubation periods (28 days) in the country and region where company is located	Progressive reduction of new cases for one incubation period in the city, and surrounding area where company site is located **AND/OR** De-escalation of civil disruption **AND/OR** De-escalation declared by government/WHO **WITH** Complete or partial removal of government/WHO restrictions	Sustained daily reduction of reported cases for one incubation period in city and areas surrounding company site **WITH** local health system able to manage the cases while providing urgent and primary health care services **OR** post workplace case(s): no new confirmed cases in site for one incubation period **WITH** local health system able to manage the cases while providing urgent and primary health care services **AND/OR** de-escalation of civil disruption **AND/OR** de-escalation declared by government/who **WITH** complete or partial removal of government/who restrictions	

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IPIECA is the industry's principal channel of engagement with the United Nations. Its unique position enables its members to support the energy transition and contribute to sustainable development.

International Association of Oil & Gas Producers

IOGP represents the upstream oil and gas industry before international organizations including the International Maritime Organization, the United Nations Environment Programme (UNEP) Regional Seas Conventions and other groups under the UN umbrella. At the regional level, IOGP is the industry representative to the European Commission and Parliament and the OSPAR Commission for the North East Atlantic. Equally important is IOGP's role in promulgating best practices, particularly in the areas of health, safety, the environment and social responsibility.

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