

GLOSSARY OF RCCE AND EPIDEMIOLOGY TERMS

Part 1. Glossary of RCCE Related Terms

Accountability to Affected Persons (AAP): The active commitment of humanitarians to ensure communities have the power and influence to determine and act on their own priorities for preparedness, response and recovery. It ensures humanitarian programs are relevant, inclusive, and accessible to those most marginalized. AAP is grounded in the rights, dignity, capacity and safety of people.

Behavioral Drivers: In public health emergencies, these are the multiple factors in our own psychology, society and in our environment that influence our decisions on our health and well-being in the face of disease risks. This could include anything from personal values, beliefs and social norms, peer pressure and family power dynamics to policies and access to services and supplies, and constructs such as racism, gender, and religion, to name just some examples.

Behavioral Economics (BE): Behavioral economics is grounded in observations that people do not always make the rational or best decisions, despite the information and the tools available to them. Overconfidence, loss aversion, and self-control are foundational concepts in behavioral economics, as is the “availability heuristic” (that says people tend to rely on easily recalled information rather than actual data when evaluating an outcome). An approach used in public health that includes concepts of BE is “nudges,” which is a conceptual device for leading people to make better decisions.

Communication Channel: A medium or method used to deliver a message to the intended audience. Examples used in public health emergencies include mass media, such as radio (including community radio), television and newspapers; community engagement (including community mobilization, community dialogues, listening groups or action planning); print media (such as posters, flyers and leaflets); social and digital media (such as mobile phones, applications and social media), and inter-personal communication (such as door-to-door visits, phone lines and discussion groups).

Communication with Communities (CwC): CwC is another term used primarily among humanitarian actors for communication and community engagement in a humanitarian response. CwC helps to meet the information and communications needs of people affected by crises. It is based on the principle that information and communications are critical forms of aid, without which disaster survivors cannot access services or make the best decisions for themselves and their communities.

Community Engagement (CE): In an outbreak context, CE is a process of working collaboratively with affected communities, response organizations and within and between communities. As a dialogic, participatory and inclusive process, it is designed to inform and build trust and acceptance of outbreak control and prevention measures among communities, and to partner with communities to address the outbreak while building upon community capacities to identify challenges and design solutions. CE can leverage multiple communication channels, from face-to-face exchanges to remote options including traditional media and mobile and digital technology, which are important considerations in an infectious disease outbreak.

Community Feedback Mechanisms: A systematic method of collecting information shared by a community member to an organization. It may be positive, negative or neutral. Feedback can come from different sources (for example through social media or directly from a person using a service or interacting with a volunteer) and can be about anything from questions about services, suggestions on how to improve a program/service, to rumors, myths and misconceptions that are circulating in communities.

Community Mitigation: Actions taken to prevent further spread of infectious diseases and protect all people, especially groups of people at increased risk for severe illness, disproportionately affected groups, and essential workers. The goal for using mitigation strategies in countries that are experiencing community transmission is to decrease transmission overall while minimizing the negative social or economic effects of public health and social measures, such as isolation, quarantine, or closing of businesses, schools, etc.

Community Mobilization (often used interchangeably with social mobilization): A process that engages and motivates a wide range of partners at national and local levels to raise awareness of and facilitate change around a particular objective, e.g. the control of an outbreak. This approach typically leverages experienced community health workers or volunteers or influential and active community groups, such as youth groups, to engage communities to become their own agents of change in order to reduce transmission and improve the health and well-being of their families and communities.

Diffusion of Innovation: This theory describes the process by which new ideas (innovations) are spread through a community or social structure. It sees innovations as being adopted initially by a minority of individuals who are more receptive to new ideas. Important to this theory is how certain ideas are spread throughout communities or societies. This theory can be helpful in situations where changes in ideas or behaviors in communities can make significant inroads into crisis situations. For example, changes in burial practices during an Ebola outbreak could be diffused throughout a community to address the spread of Ebola. In particular, this theory tells us that interventions should:

- Assess how, why and how quickly populations respond to the introduction of new ideas. Then, use these findings to inform activities.
- Work with leaders and other influential individuals in target communities to encourage them to adopt the new desired behaviors and promote them to the rest of the community.

- Use agents of change to “diffuse” the new behavior.
- Identify changes in ideas or behaviors that can be diffused by looking at the important factors that affect how quickly they can spread throughout communities.

Disinformation: Deliberately engineered and disseminated false information with malicious intent or to serve agendas. An example of this is ‘fake news’, which is disinformation disguised as news, often spread for political or economic gain.

Disease Control: The reduction of disease incidence, prevalence, morbidity or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction.

Emergency Preparedness and Response Plans (EPRP) (sometimes referred to as Emergency Preparedness Plans): The EPRP is a continuous process designed to assess a country’s risk profile, humanitarian situation on the ground and the operational capacity of an organization and partners to respond to emergencies. According to the IASC guide for Emergency Response and Preparedness, there are three elements of emergency response planning: risk analysis and monitoring, minimum preparedness actions, and advanced preparedness actions and contingency planning.

Extended Parallel Process Model: This model tells us that RCCE activities and messages need to create a balance between perceived threat and perceived efficacy. In emergencies, developing activities that increase both response efficacy and self-efficacy is especially important because perceived threat is already likely to be high – it is critical that people understand what to do to reduce the threat. In particular, this theory tells us that interventions should:

- Provide clear, accurate, believable, humane and respectful information about risk-reduction behaviors and their effectiveness – without escalating fear and panic – to increase efficacy.
- Provide tools, skills and services that support people’s engagement in risk reduction behaviors, thus increasing efficacy.
- Maintain a certain level of risk perception when emergencies start to subside and people no longer sense the danger even when it still exists.

As the emergency evolves from the initial and maintenance phases into resolution and evaluation, other theories can begin to inform activities. In the resolution stage, the focus is likely to be on reinforcing new behaviors that have not been promoted by the emergency response. In the evaluation phase, RCCE can start to address at longer-term, sustainable behavior change to prevent further emergencies.

Gender Norms: Gender norms are the spoken and unspoken rules of societies about the acceptable behaviors of girls and boys, women and men—how they should act, look, think or feel. Perpetuated and challenged in families, communities, institutions, and the media, these expectations start early and shape individuals' attitudes, opportunities, experiences, and behaviors, with important health consequences.

Health Promotion: Activities that raise awareness about healthy behaviors for the general public, specific affected populations, and key audiences, which may include public service announcements, health fairs, mass media campaigns, community or social mobilization and health education using job aids and other means and materials.

High-risk subpopulation: A segment of the population that has characteristics that increase the risk of infection or severe disease. For example, people aged 60 years and older, people who live in long-term care facilities and people with underlying conditions like chronic respiratory disease or cardiovascular disease are considered high-risk subpopulations for COVID-19, while unvaccinated younger populations, pregnant women and immunocompromised people may be at higher risk a disease such as measles.

Human Centered Design (HCD): A process that places program beneficiaries and related stakeholders at the center of the design and implementation process. HCD uses research, ideation, iteration, and prototyping, to develop solutions to problems, for example, vaccine acceptance. HCD is said to be rooted in empathy, a comprehensive understanding of the stakeholder(s) involved.

Infodemic: Too much information, including false or misleading information, in digital and physical environments during a disease outbreak. It causes confusion and risk-taking behaviors that can harm health. It also leads to mistrust in health authorities and undermines the public health response. With growing digitization – an expansion of social media and internet use – information can spread more rapidly, which more quickly fills information voids but can also amplify harmful messages.

Information, Education and Communication (IEC): A communication approach emphasizing information and education to enable individuals, groups, and communities to take actions to improve their own health. Embodied in IEC is the process of learning that empowers people to make decisions, modify behaviors, and change social conditions.

Knowledge, Attitudes and Practices (KAP): In an outbreak, KAP surveys are representative studies to collect data from specific populations on what is known (knowledge), believed (attitudes) and done (practices) in relation to an infectious disease. Knowledge typically relates to causes, symptoms, transmission, prevention, and treatment. Attitudes are peoples' opinions and how they feel about the disease and issues related to the disease. Practices are peoples' behaviors in relation to the disease. KAP surveys can also assess communication processes and sources that are key to defining effective activities and messages.

Knowledge Management: A strategic and systematic process of collecting and curating and connecting people so they can act effectively. Knowledge management can improve coordination and enhance meaningful learning, collaboration, and application.

Misinformation: Incorrect information spread by people without the intent to deceive, for example through a misunderstanding.

Non-pharmaceutical interventions (NPIs): Actions or measures people can take other than vaccines or medication, to prevent or slow the spread of infection. For example, wearing a mask, hand washing, and social distancing are all examples of NPIs.

Nudge: In behavioral economics, a “nudge” is a way to manipulate people’s choices to lead them to make specific decisions: For example, demarcating places to stand to nudge people in a line to practice social distancing or placing painted footsteps on the ground that lead to a handwashing station, are examples of a “nudges” to get people to choose healthy and risk averting options.

Risk Factors: An aspect of personal behavior or lifestyle, an environmental exposure, or a congenital characteristic that is associated with an increased occurrence of disease or other health-related event or condition.

Remote Engagement: RCCE activities undertaken in situations where restrictions prevent in-person meetings and interactions. Assessments, trainings, communication, and engagement can be done through telephone, teleconferencing, SMS, social media platforms, mass media such as radio, and other means. Many of these platforms allow for participant interaction, such as call-in radio programming (or radio programming that allows listeners to send questions or comments via SMS text), WhatsApp groups, and so on.

Risk Communication and Community Engagement (sometimes used interchangeably with Risk Communication): In a public health emergency, risk communication and community engagement uses a variety of communication channels and approaches to support affected populations to take informed decisions to protect themselves and their communities from an infectious disease and its impacts. Risk communication focuses on the real-time exchange of information, advice and opinions between experts or officials and people who face a threat (hazard) to their survival, health or economic or social well-being. Community engagement fosters two-way, participatory approaches with community feedback loops to gain trust and a community-led response. RCCE requires the understanding of stakeholder perceptions, concerns and beliefs, as well as their knowledge and practices, manage rumors, misinformation and other communication challenges.

Rumors: Unverified pieces of information that can take the form of misinformation (spread in good faith) or disinformation (spread intentionally to deceive). Rumors spread rapidly through a group or population, are unpredictable and can seriously hamper efforts to control and contain an epidemic. Rumors can lead to mistrust of health systems, diversion of critical resources needed to stop transmission and increase fear that incites divisive and harmful behaviors.

Rumor tracking: The process of systematically collecting, analyzing, visualizing, and addressing rumors. Rumors can be identified through a range of sources including embedded community correspondents, national hotlines, or social media.

Social Cognitive Learning Theory: Acknowledges the constant interaction that exists between the individual and his or her environment, both structural and social, to shape behavior. Three personal cognitive factors that are affected by the environment influence behavior:

- **Observational learning:** Individuals are more likely to perform a desired behavior if they observe others modeling that behavior and experiencing the subsequent positive rewards.
- **Outcome expectations:** Individuals are more likely to practice a desired behavior if they believe the benefits of performing that behavior and outweigh the costs.
- **Self-efficacy:** Individuals are more likely to practice a desired behavior if they perceive that they have the necessary skills and capacity to do so.

In particular, according to this theory, interventions should:

- Promote role models who practice the desired behaviors and experience resulting benefits. This can be done through entertainment education activities such as radio and TV dramas, and through community events in which people performing the desired behaviors are celebrated.
- Promote the rewards and benefits that can be expected from engaging in the desired behaviors.
- Provide information, tools and skills to increase people's perceived ability to engage in the desired behaviors.

Social Norms: The implicit and informal rules that most people accept and follow. They are influenced by belief systems, perceptions of what others expect and do, and sometimes by perceived rewards and sanctions. There are two primary categories of norms: descriptive norms (what people think others do) and injunctive norms (what people think others approve of). Social norms are enforced in part by a feeling of wrongness or rightness when we think or act in the "right" or "wrong" way.

Socio-Ecological Model: A person's behavior is influenced by many factors both at the individual level and beyond. The levels of influence on behavior can be summarized by the socio-ecological framework. This framework recognizes that behavior change can be achieved through activities that target four levels: Individual, interpersonal (family/peer), community and social/structural.

Social and Behavior Change (SBC) (sometimes referred to as behavior change communication or social and behavior change communication (SBCC)): A process that seeks to understand and facilitate change in behaviors and the social norms and environmental determinants that drive them at different levels of society: individual, community, services and structural or policy levels. SBC interventions are grounded in a number of different disciplines, including SBCC, community mobilization, marketing, advocacy, behavioral economics, HCD, and social psychology.

Social Listening: The systematic monitoring of conversations, rumors, and public discourse among different populations through traditional media, digital media, off-line and on-line sources, including community feedback mechanisms. Insights drawn can inform RCCE strategies, policies, service delivery and quality improvement activities.

Social Science (sometimes used interchangeably with behavioral science): The study of how society and individuals interact with each other, how people behave and the dynamics between different population groups. In a public health emergency, social science primarily draws from anthropology, psychology, sociology, and political science to understand behaviours, culture, belief systems, historical roots, power dynamics and other related areas that influence them in the context of the emergency.

Stigma: In the context of health, it is the negative association between a person or a group of people who share certain characteristics and a specific disease. In an epidemic, this could lead to people being labelled, stereotyped, discriminated against, treated separately and unfairly, and/or experience loss of status because one perceives link with a disease.

Theory of Planned Behavior: Behavior is influenced by three factors:

- Attitude toward the desired behavior: This is determined by the individual's belief that a beneficial outcome will occur if a particular behavior (the desired behavior) is practiced.
- Subjective norms: These relate to the individual's belief about what people in their reference groups (peers, family or social networks) think about the desired behavior as well as their motivation to comply with these norms.
- Perceived behavioral control: This refers to the individual's belief about his or her capacity to practice the desired behavior.

The theory of planned behavior acknowledges the individual's role in changing a behavior (attitude and perceived ability), as well as the influence of significant others (subjective norms) In particular, this theory tells us that interventions should:

- Highlight the short-term benefits of the desired behavior as this improves attitude toward that behavior.
- Target close social networks to promote a desired behavior and improve the individual's perceived norms.

Two-way Communication: A type of communication in which both the parties involved in the conversation transmit the message or share the information. During community engagement efforts, two-way communication allows community members to ask questions, comment, share concerns and opinions. Examples of two-way communication channels include in-person interactions, telephone/ WhatsApp conversations, interactive radio programs, video conferencing, etc.

Sources and Additional Resources

Definitions and examples in this glossary were adapted from a wide range of resources. Please see below for a list of these resources and some additional resources that may be of interest.

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Part 2. Glossary of Additional Epidemiologic Terms

Agent: Cause of disease; a factor whose presence is essential for the occurrence of a disease. An agent can be biological, physical, or chemical. For infectious diseases, the agent is biological for example a virus, bacterium, fungus, protozoan or worm. For non-communicable diseases, the agent can be a physical environmental factor like exposure to air pollution or toxins. Note that an agent may be present but if it is not in a large enough quantity it may not cause disease unless other conditions are met.

Asymptomatic: Showing no signs or symptoms of a disease. Cases with asymptomatic infection normally do not feel ill and often do not know they are infected. They often continue their regular activities, which can contribute to continued transmission of the agent to others.

Attack Rate: A measurement of the transmissibility of an infectious agent. The attack rate measures the cumulative number of people in a given population that become symptomatic during a specified time period. The attack rate is normally presented as a percentage (%). Also referred to as the incidence proportion or risk. To calculate the attack rate:

$$\frac{\text{New cases in a population in a specified time period}}{\text{Total population at the start of the specified time period}}$$

Attack rates can be further analyzed by age, sex, occupation or other key factors to provide further insight into an **outbreak**. Note that attack rate is cumulative during the specified time period.

Case: An identified person having a particular disease, disorder, or condition. A variety of criteria may be used to identify cases—for example, a clinical diagnosis or a positive laboratory test.

Case Classification: In epidemiology, cases can be classified differently based on how much information is available. For example, a confirmed case is a case that meets the case definition as set by the surveillance reporting system. A laboratory confirmed case is a case that meets the clinical case definition and is laboratory confirmed, meaning the infected person received results from a laboratory test indicating their infection. A suspected or probable case normally meets clinical signs and symptoms and has known exposure to the agent (perhaps an infected family member) but has not been laboratory-confirmed (due to lack of access to laboratory testing, lack of laboratory capacity, etc.). The clinical signs and symptoms and laboratory confirmation criteria will vary by disease and context.

Case Definition: A case definition is an agreed-upon set of criteria which need to be present for an infection to be defined as a case. A case definition normally includes:

- clinical criteria (the signs and symptoms associated with the infection)
- a standard description of person, place, and time (i.e. a description of the characteristics of the people that are affected, the geographical location and the time period)
- an epidemiological link, meaning the patient can be linked to another confirmed case, such as a close contact
- confirmation by laboratory testing (if a case cannot be identified through symptoms only and if a laboratory test exists and is available).

Case definitions should be standardized so that everyone is counting the number of cases in the same way. However, they will often vary between countries or regions or within levels of a disease surveillance system or at various different stages in an outbreak response. For example, the case definition for COVID-19 has changed over the course of the pandemic as scientists and physicians discovered more information about identifying and diagnosing the disease.

Case Fatality Ratio (CFR): The proportion of cases who die from a specific condition or disease in a set period of time. CFR is a useful measure of how severe a disease or condition is. Note that the CFR is calculated based on cases that are *infected and detected* by the surveillance system. It does not necessarily include the number of asymptomatic cases or symptomatic cases that were not reported (for example if someone chose not to seek medical care). See the infection fatality ratio (IFR) definition for more information. CFR is typically presented as a percentage. For example, if there are 500 confirmed cases in January and of those, 50 die, the $CFR = 100 * 50 / 500 = 10\%$. CFR can be influenced by case definition, testing capacity, care seeking behavior, and the lag between infection and death. In an ongoing epidemic, like COVID-19, the CFR will likely change over time due to changes in the likelihood of detecting cases (new laboratory tests or decreased laboratory capacity) and changes in reporting systems (active cases may die after calculation or be recorded more rapidly as the epidemic progresses).

Cluster: A greater-than-expected number of cases of a disease that occurs in a group of people, often those living or working in the same area. For example, a high number of cases of a disease among a group of students at a university would be a cluster. Disease clusters typically occur with infectious disease outbreaks but may occur also for non-communicable diseases.

Compartmental Model: A type of model in which individuals in a population are divided into groups or compartments and tracked collectively. People can progress through the different groups/ compartments. For example, in the **SEIR model**, individuals are grouped into 4 "compartments": susceptible, exposed (but not yet infectious), infectious and recovered (or immune).

Contact: A previously uninfected person who has been exposed to a case or a case's environment such that they had an opportunity to acquire the infection. For example, if a person that is infected with influenza (the case in this example) goes to a birthday party, the other people at the party would be considered contacts. Depending on the type of disease and how it is transmitted, the term close contact may be used to indicate those who had more exposure to the case. For example, the US CDC defines a close contact of a COVID-19 case as "an individual within 6 feet of an infected person for a total of 15 minutes or more".

Contact Tracing: The process of identifying people who have been exposed to an infected person (i.e. contacts) and who might have been exposed to the disease. Once a potential contact is identified they are informed of their risk and advised to take precautions such as quarantine or, for some diseases, vaccination or prophylaxis.

Diagnostic Testing: Testing to confirm or rule out a condition or infection. For infectious diseases, this is often laboratory testing of blood or other samples. However, there are hundreds of procedures that can be used ranging from X-rays to biopsies and more.

Endemic: The constant presence of a disease or infectious agent within a given geographic area or population group; may also refer to the usual prevalence of a given disease within a given area or group. For example, malaria is endemic in most of Sub-Saharan Africa.

Epidemic: The occurrence of more cases of a disease than expected in a given area or among a specific group of people over a particular period of time. An epidemic is actively spreading, the number of new cases is higher than expected and often occurs quite suddenly. Epidemic and outbreak are often similarly defined but the term outbreak is normally used when discussing a more limited geographical area such as a town or province. The epidemic threshold (the level of cases that has to be reached to classify as an epidemic) varies for each disease and context.

Epidemic Curve (epi curve): An epidemic curve, commonly called an “epi curve,” is a visual representation of the number of cases of a disease over time. Epidemic curves are often used to help understand key transmission characteristics including incubation period, magnitude of the outbreak and trends over time. Epidemic curves are bar charts with the number of cases on the Y axis (vertical axis) and the date when symptoms start (date of onset) on the X axis (horizontal axis). However, in some epidemic curves the reporting date may be used instead of the date of onset.

Epidemiology: The study of the distribution and determinants of health-related events in a population and the application of this study to improve population health.

Herd Immunity: When a large enough proportion of the population has immunity to a disease either through vaccination or acquired immunity, there are limited susceptible individuals in the population and the disease can no longer be widely transmitted. The most common example of herd immunity is when a population acquires immunity to a vaccine-preventable disease like measles due to high vaccination rates.

Host: A person or other living organism that can be infected by an infectious agent under natural conditions. For example, a person can be infected with varicella, the virus that causes chickenpox, and act as a host. A host can develop symptoms or remain **asymptomatic**.

Incidence Rate: A measure of the frequency with which an event, such as a new case of disease, occurs in a population over a period of time. The numerator is the number of new cases occurring during a given time period and the denominator is the population at risk over the same time period. It is important to note that attack rate is % and incidence is cases per population per time (e.g. cases per 10,000 per day).

Incubation period: The time interval between infection of an individual by an infectious agent and the appearance of the first sign or symptom of the disease. For SARS-CoV-2, the incubation period is on average 4–5 days but may be as long as 14 days.

Index Case: The first documented person in a disease epidemic within a population. This may not in fact be the first case in the population as often this is never known (as with HIV) but simply the first case to be detected and reported.

Infection Fatality Ratio (IFR): The number of people who die of the disease among all the infected individuals (both asymptomatic and symptomatic). To calculate the IFR, we need to know the total number of infected individuals, not just those who present with symptoms (this is the key difference between IFR and CFR, which only looks at fatality amongst detected cases). For SARS-CoV-2, this requires serological (blood) testing because of the possibility of asymptomatic infection. The formula for IFR is (*Note: like CFR, IFR is typically presented as a percentage*):

Number of deaths from a disease in a specific time period

Total number of all cases of a disease in a specific time period

Infectious disease: Diseases that are caused by pathogens, including bacteria, viruses, parasites, or fungi. Some can be spread from one person to another, or from one animal to another or from one animal to a person. For example, measles is an infectious disease caused by a virus and can be spread from person to person by direct contact or through the air. Rabies is an infectious disease that is commonly spread from animals like dogs to humans through a bite or scratch.

Infectious period: Period of time during which an infected individual is able to transmit the infectious agent to others.

Immunity: The ability of an organism to resist a particular infection due to specific antibodies or sensitized white blood cells. A person is considered immune if they have this ability. The main types of immunity are:

- **Active immunity** is immunity that is developed in response to an external stimulus like vaccination.
- **Passive immunity** is immunity from antibodies produced from another host and acquired naturally like how infants received antibodies from their mothers. However, you can also develop passive immunity from anti-serum or immunoglobulin.
- **Acquired immunity** is immune resistance developed as a result of previous exposure to the pathogen like how people who have measles develop immunity. *(Note that this is not true of all pathogens!)*

Isolation: Separation of a case from contact with susceptible individuals. Isolation occurs under conditions that will prevent or limit the transmission of an infectious agent to those who are susceptible (for example, having a private bedroom and bathroom or having an isolation ward in a health care facility to keep the case away from other patients). Cases should be isolated for the entirety of their infectious period. Unlike quarantine, isolation applies to those who are ill. For example, a person who is sick with COVID-19 should be in isolation. Their close contact who is not currently sick should be in quarantine.

Latent Period/Latency Period: The time period between exposure to an infectious agent and being able to transmit the agent to others. In some scenarios, this can be shorter or longer than the incubation period as a person may become infectious before or after developing symptoms.

Mode of Transmission/Transmission: Transmission is the mode or mechanism through which an infectious disease can spread in the environment and from one person to another. An infectious agent may be transmitted from its natural reservoir to a susceptible host in different ways. Some common modes of transmission for infectious diseases are listed below:

- **Direct contact** - When a pathogen spreads through direct, person-to-person (or person-to-animal or animal-to-animal) contact. A common example is sexually transmitted infections that spread through direct contact. Droplet transmission (see glossary definition above) is a form of direct contact. For example, through coughs or sneezes.
- **Indirect contact** - When a pathogen spreads through suspended air particles, fomites (physical objects like forks, tissues, doorknobs that are able to transmit infectious agents), or vectors (see glossary definition below).

Outbreak: Occurrence of more than the expected number of cases of disease in a specified time and place. An outbreak can be localized and only include a small number of cases if that is more than expected or can also refer to a generalized epidemic. Epidemic and outbreak are often similarly defined but outbreak is normally used when discussing a more limited geographical area such as one town or province.

Pandemics: An epidemic that has spread over several countries or continents, usually affecting a large number of people.

Pathogen: A pathogen is an organism that can produce disease. Pathogens can be bacteria, viruses, fungi, or other microorganisms. Note that while all pathogens are considered to be agents, there are many agents that are not pathogens (for example air pollution or toxins).

Prophylaxis: A measure taken to prevent disease. This can be medication (like taking a malaria medication when travelling to malarial areas), screenings (mammograms or colonoscopies), lifestyle adjustments (exercise, healthy diet), or vaccines.

Public Health Surveillance: The systematic ongoing collection, collation and analysis of data for public health purposes, and the timely dissemination of public health information for assessment and public health response as necessary. There are different types of surveillance depending on the needs and resources available:

Quarantine: The act of restricting a contact's activities. The contact is separated from others to prevent onward disease transmission to those who are susceptible. Contacts should be quarantined for the duration of the incubation period. Unlike isolation, which is for people who are confirmed cases, quarantine is for those who have been exposed to an infectious disease but have not yet developed symptoms. People in quarantine may never develop symptoms and leave quarantine after the incubation period has passed or they may become ill and then be counted as a case.

Active Surveillance - A system that actively looks for **cases** of a disease or condition by conducting interviews, looking at health facility and laboratory data, and conducting investigations to confirm suspected cases. For example, during an Ebola outbreak, case investigators and community health workers visit communities to try to identify cases proactively, instead of waiting for cases to present at a health post.

- **Passive Surveillance** - Disease reporting through routine reporting. For example, hospitals monitor and record patients that suffer or die from specific diseases on a weekly, monthly, or quarterly basis, but may not actively seek out new cases.
- **Sentinel surveillance** - Specific facilities or sites are identified as key reporting units and are trained to identify cases of a specific disease. Sentinel surveillance is often used to measure incidence rates of vaccine-preventable diseases.
- **Syndromic Surveillance** - Public health surveillance in which cases are identified based on symptoms instead of laboratory confirmation. This is often used to detect outbreaks early, in the hopes of preventing further spread. For example, community health workers use fever-rash surveillance to detect potential measles outbreaks.

Reservoir: The habitat in which an infectious agent normally lives, grows and multiplies; reservoirs include human reservoirs, animal reservoirs, and environmental reservoirs. For example, rabies has several animal reservoirs like dogs, bats, racoons, etc. and can be transmitted animal to animal or from animal to human.

Respiratory droplets: These are particles of respiratory secretions that are exhaled and typically consist of water-like fluid. Respiratory droplets may contain a disease agent, and therefore be infectious. Respiratory droplet particles cannot float in the air; they drop to the ground by gravity, usually within 3–4 feet (0.9-1.2 meters). From a technical standpoint, these particles are defined as >5 microns in diameter.

SEIR Model: A common infectious disease model where the population is represented in a series of compartments that relate to different stages of disease transmission and progression. Rate and probability parameters are used to model how the population moves through the compartments. The four compartments in an SEIR model are:

- **Susceptible:** The fraction of population that is made up of susceptible individuals.
- **Exposed/Pre-Infectious:** The fraction of exposed individuals (infected but not yet infectious).
- **Infectious:** The fraction of individuals who are infected and capable of transmitting the infection to others.
- **Recovered:** The -fraction of individuals who are “resolved” --that is, either recovered or dead.

Susceptible Individual: A member of a population who is at risk of becoming infected by a specific pathogen. A susceptible individual does not have immunity. At the start of an outbreak of a new disease, the entire population are susceptible individuals, as no one had previously had the disease and developed immunity and there was no vaccine.

Sources and Additional Resources

Definitions and examples in this glossary were adapted from a wide range of resources. Please see below for a list of these resources and some additional resources that may be of interest.

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