This tool will help you to:

- Understand healthcare triage and the roles of municipal authorities and healthcare providers in triage
- Use your healthcare resources to save the greatest number of lives
- Plan for triage in your municipality based on four levels of care

Who will implement this tool:

- The mayor and the municipal leadership team
- Hospitals and healthcare providers
- Those already in charge of disaster triage planning and protocols
- Community healthcare organizations and volunteers

WHAT IS TRIAGE AND WHY IS IT NEEDED?

Ideally, the first people to need medical care receive it. In less than ideal conditions, somebody has to decide who receives care first. Some health facilities face these decisions on a daily basis, even without any disaster or health emergency. However, natural disasters (e.g., earthquakes) or other events (e.g., train crash or bombing) can result in a large number of injured or sick people at one time. When this happens, decisions must be made about how to best allocate care when resources are insufficient for all those who need care. This process is called triage.

The purpose of triage is to save as many lives as possible. During a severe pandemic, you can expect that the period of time when the need for care will be greater than the resources available will last for weeks or months. Using scarce medical resources to provide care for patients who may be very sick, but who will probably die even with intensive care, may result in other less sick patients not receiving care, getting sicker, and dying. When done properly, triage results in the best outcome for the greatest number of people. Without a triage plan in place, resources are likely to be wasted—and more people are likely to die. Therefore, it is important that your municipality develop a pandemic triage plan.

It is very important for you to determine in advance who will have the authority to implement the triage plan. The need for triage is likely to change rapidly and frequently during the pandemic wave, as the epidemic escalates to its peak and then begins to subside. The person or group responsible for the triage planning will need to consider the need for healthcare resources and the availability of those resources on a daily basis, then communicate to the healthcare providers the appropriate triage plan. In situations where sick patients cannot be cared for and the public panics or violently protests the decisionmaking, you may need security forces to protect healthcare facilities and providers.

Figure 1 is a graph from Tool 2, Presentation on the Threat of a Severe Influenza Pandemic that shows the number of cases that would be expected in a population of 100,000 people during a severe pandemic. During the early and late phases of the pandemic wave, there will be fewer cases at any one time. However, during the middle part of the wave, the largest number will need care at the same time. This is referred to as the peak period of the pandemic. There may be some places where health facilities and communities are able to cope with providing care during the early and late phases, but are overwhelmed at the peak of the wave and need to implement triage strategies. Other places may be quickly overwhelmed and need triage throughout the wave.
LEADERSHIP DURING A PANDEMIC: WHAT YOUR MUNICIPALITY CAN DO

THE ROLE OF MUNICIPAL AUTHORITIES

Mayors and their municipal leadership teams are responsible for the well-being of their populations. Therefore, you will be expected to take actions to reduce deaths during a severe pandemic. Part of this responsibility will involve decreasing deaths through an effective triage plan.

The mayor should rely on the health sector to develop triage protocols and standards and ultimately create a triage plan that is based on the anticipated needs of the population and the municipality's available resources. However, the municipal government will need to support the health sector plan, provide the necessary resources, ensure a legal basis to implement it, and address public information and concerns. (See Tool 1, Disaster Management in a Pandemic.)

Municipal authorities should also be aware that alternative community care centers may be needed to provide additional access to medical care when hospitals and other health facilities are full. These may be set up in closed schools, churches, or other buildings that are converted to serve as make-shift hospitals, with community health workers and other volunteers providing most of the care following brief training. (For more information, see Tool 6, Training for Community Health Responders and Tool 17, Volunteer Coordinating.)

A legal basis for the use of triage may already exist at a central, regional, or local level. If not, you should refer to your national pandemic plan for guidance, then work with health sector leaders to develop one. It should not be communicated to the public before it is needed to avoid undue concern, but it is important to have justification ready as there will not be the time to research when triage is needed.

As with other aspects of disaster response, effective triage will require the public to be calm and cooperative, which in turn is dependent on strong municipal leadership and effective public communication. Municipal authorities must be able to explain triage and why it is necessary to the community. You will also need to know whether and why alternative community care centers are needed, where they are located, and how to access them so that this information can be provided to the public and other authorities. This will be critical both in helping to prevent health services from being overloaded and in reassuring the public to avoid the possible panic a pandemic naturally generates. (For more information, see Tools 12-14 in the section Crisis and Emergency Risk Communication.)

THE ROLE OF HOSPITALS AND HEALTHCARE PROVIDERS

Hospitals and other healthcare facilities will face a number of challenges during a severe pandemic. They will need to provide care to a much greater number of patients than normal during a time when they will experience high rates of worker absenteeism. Hospital employees may be ill, or may need to care for sick family members or children whose schools have closed. Therefore, at the very same time that the number of people needing care increases, the number of people available to provide that care will decrease.

Hospitals will need to protect both staff and the other patients from the pandemic, so providing separate treatment areas with separate care providers for influenza patients may be necessary. It is very important to remember that the non-pandemic needs for hospital-level care will continue during the pandemic, and may include births, heart attacks, car accidents, and other infectious diseases (e.g., pneumonias, diarrheal diseases, malaria, and tuberculosis). Hospitals must therefore prepare to increase their resources to surge capacity in order to continue to care for those who need it most. At all times, municipalities should plan to provide the highest level of care available to all pandemic and non-pandemic patients. However, as the number of sick people overwhelms available resources, healthcare providers will need to allocate care efficiently. For all of these reasons, during a severe pandemic only the very sickest patients who are likely to survive with hospital-level care should be admitted to health facilities. All other cases will need to be cared for outside of the usual healthcare system, at home, or in alternative community care centers.

STEPS TO AN EFFECTIVE TRIAGE PLAN

STEP 1: UNDERSTAND THE HEALTH IMPACT OF A PANDEMIC ON THE POPULATION

Understanding what the impact of a pandemic will be on the population is the first step in planning how to use resources to decrease deaths. The reality of what may be needed in a municipality during a severe pandemic must be seen clearly before developing the needed plan. It is highly recommended that you begin this process by using Tool 3, Pandemic Health Impact Projection Tool and its User Guide. The tool will generate an estimate of the number of cases and deaths projected in a municipality. Please refer to this tool to fill in the boxes below:

<table>
<thead>
<tr>
<th>Name of Population (e.g., city, neighborhood, employees):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Size</td>
</tr>
<tr>
<td>Severity Level</td>
</tr>
<tr>
<td>Total # Cases</td>
</tr>
<tr>
<td>Peak-Week Cases (total)</td>
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<tr>
<td>Peak-Week Cases by Level of Care</td>
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<tr>
<td>Peak-Week Level 1 Care</td>
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<td>Peak-Week Level 2 Care</td>
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<tr>
<td>Peak-Week Level 3 Care</td>
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<tr>
<td>Peak-Week Level 4 Care</td>
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STEP 2: PLAN FOR THE PEAK

It is best to plan your triage for the time when the pandemic will cause the greatest number of cases, or the **peak week**. As the graph presented earlier showed, the pandemic is expected to follow a typical bell-shaped curve, starting at a baseline and increasing to a peak number of cases mid-wave before decreasing back down to baseline over a period of 6–12 weeks. During the peak week, the greatest number of people will be sick at one time, and, simultaneously, the number of healthcare providers that are unable to work will be at its highest level. In addition, supply chain shortages of goods and medications will be the most likely at this time. Therefore, the peak period of the pandemic wave is the time when triage planning will be most needed.

(For more information, see Tool 3, Pandemic Health Impact Projection Tool.)

STEP 3: IDENTIFY AND DESCRIBE ALL HEALTHCARE RESOURCES

Before planning the triage system for your municipality, make a complete inventory of all available resources. **Triage should only be used as last resort when healthcare resources are overwhelmed and unable to respond to all that need immediate care.** Triage is needed when the balance of need outweighs availability. This balance will change on a daily basis in a pandemic. At the start of the wave, there may not be a need for triage. As more people get sick and supplies and human resources decrease, the time will come to implement triage. As cases begin to decline post-peak, there will be a time when triage can be suspended. Therefore, it is important that you develop a plan to assess and track the availability of resources prior to, during, and after the peak of the pandemic wave. Resource tracking should include:

- **Human resources:** This should include the people involved in patient care, community education and disease prevention, transport of patients, and logistics and support personnel needed for health facility, community, and household level care. Consider all skilled and unskilled healthcare providers (doctors, nurses, technicians, and pharmacists, as well as trained and untrained volunteers).
- **Logistics:** Medical supplies, such as masks, gloves, oral and intravenous fluids, and medications (antibiotics, antipyretics, antivirals, hand washing gels, and soap); non-medical supplies such as gasoline, electricity, communication devices, clerical support, etc.
- **Financial resources**
- **Community resources for alternate care sites and staffing**
- In addition, the plan should include the names and contact information for those who will be responsible for implementing the plan (both from the health sector and the municipal government).

STEP 4: GENERATE SEVERITY-BASED PYRAMIDS OF CARE

Figure 2 on page 6 is a pyramid of care graph from Tool 3, Pandemic Health Impact Projection Tool. It is useful in developing a triage plan. All municipalities should generate and plan for a pyramid of care during a severe pandemic, and it may be useful to review the pyramids of care for mild and moderate pandemics as well. You can use the Tool’s severity drop-down menu to select a severity category, and then click on graphic #5 (“Peak Week Cases by Level of Care”). The pyramids of care can be copied and pasted into a document and/or printed out on paper.

**LEVELS OF HEALTHCARE**

The pyramid of care gives an approximation of the number of cases that will fall into each of four levels of care. Just as all pandemics are not the same, all cases of influenza in a pandemic are not the same. There are four levels of healthcare patients may need, ranging from mild to severe, depending on the severity of the disease. Many pandemic influenza cases will be very mild, similar to a seasonal influenza case (level 1). These people will be able to care for themselves at home and return to work or other activities within one to two weeks.

- **Level 1: Unassisted Home Care**
  - The level 1 cases are the mildest cases, and most are expected to recover at home without complications. Level 1 includes both self care and care by a family member or other available caregiver. These cases do not require outside assistance.

- **Level 2: Assisted Home Care**
  - Level 2 cases are uncomplicated cases that need the assistance of community resources (such as a trained community health worker) for their influenza or for other illnesses (such as TB or malaria). The most urgent needs of people falling into level 2 of care probably will be oral hydration (taking liquids by mouth), and the continuation of medications or other treatments for coexisting illnesses. People who require significant assistance with the activities of daily living (such as bathing, doing errands, cleaning, cooking, and securing food) also fit into this level of care.

- **Level 3: Skilled Clinical Care Needed**
  - Level 3 cases require care of moderate intensity by a clinically-trained provider. People who fall into this level may be cared for at home or at an alternate healthcare site in the community. Examples of skilled care include examination to see if pneumonia is developing, intravenous hydration, intravenous antibiotics, and respiratory treatments.

- **Level 4: Highest Available Level of Care Needed**
  - These are the most severe cases, and they should be treated in a hospital if one is available. However, in areas with limited resources, these cases are not likely to survive even with the highest available level of care, and may be assigned to comfort care rather than provided with skilled healthcare resources. Policies for level 4 care should be included in the municipal plan for triage.
Examples: The following figures illustrate the pyramid of care. Figure 2 shows the percent of cases that are expected to be in each level of care in a severe pandemic. Figure 3 shows the pyramid of care for the population of 100,000 that we used in Figure 2. This is based on an estimate that there would be 6,000 cases a week during the peak of the pandemic wave. This pyramid takes those 6,000 cases and estimates how many will be mild, how many will be very ill, and how many will fall between those extremes.

FIGURE 2: PERCENT ALLOCATION OF CASES PER LEVEL OF CARE IN A SEVERE PANDEMIC

![Pyramid showing the percent allocation of cases per level of care in a severe pandemic.]

FIGURE 3: PYRAMID OF CARE SHOWING NUMBER OF CASES PER LEVEL OF CARE FOR A POPULATION OF 100,000 IN A SEVERE PANDEMIC

![Pyramid showing the number of cases per level of care for a population of 100,000 in a severe pandemic.]

STEP 5: ALLOCATE RESOURCES ACCORDING TO THE LEVELS OF CARE

Using these tools will provide a projection as to how many sick people will need care during the peak week of the pandemic. With this information, you can compare the need for care with the resources available, and develop a plan to reduce the number of deaths based on the levels of care outlined above.

Because the use of triage assumes that healthcare resources are insufficient or overwhelmed, municipalities will need to plan to provide as much care as possible to patients in their homes. Many patients will have a mild form of the disease and will be able to care for themselves. Others may need the assistance of a family member or community volunteer to provide non-skilled care to prevent dehydration and to assist with eating and other activities. Some will need more skilled care at home—perhaps an examination to see if pneumonia is developing, or if short-term intravenous fluids for hydration or other care is necessary. Finally, some patients will need continuous care, perhaps even intravenous fluids and antibiotics. Skilled care providers should be used for these patients. However, you should plan for alternate community sites of care for these patients in order to maximize the use of the skilled personnel. Schools and other municipal buildings that are used as shelters in other types of disasters could be used as alternate care sites (shelters are not recommended for the general public in a pandemic as they could lead to an increase in the spread of the disease).

Example: A nurse sent to a patient's home to administer intravenous hydration would require many hours of the nurse's time to care for just one patient. Municipalities should identify a site or sites where a number of these patients could be cared for. A single nurse could provide intravenous hydration to many patients in the same amount of time it would take to care for a single patient in their homes. This is a much more efficient use of the nurse, and will result in many more lives saved.

Observation or highly skilled care but will be unable to enter a hospital because the hospitals will not have room. You should develop plans to care for these patients in community care centers. Those who are very ill but are not likely to survive should be triaged into comfort care only—in other words, these patients should be kept as comfortable as possible, without the use of life-extending treatment. Below are suggestions for planning the allocation of resources to each level:

• Level 1 Care: No resources should be allocated for these patients. These patients will have a mild form of the disease and will recover quickly without any assistance. Dedicating resources to level 1 patients during a time when resources are overwhelmed will reduce the care available to those that need it for survival.

• Level 2 Care: These patients are well enough to remain at home, but they need some care or assistance. They may need deliveries of food or medications for non-pandemic illness, such as malaria or diabetes, assistance with oral hydration for their pandemic diseases, clinical assessment to ensure their influenza is not advancing to a higher level of care, or help with general nutrition, hygiene, or other daily activities. The objective of providing care to level 2 patients is to keep them as healthy as possible. These patients should be able to survive the pandemic with minimal assistance. It is recommended that the least-skilled personnel, such as community volunteers, be used to provide this care.

• Level 3 Care: This is the most difficult level of care for municipalities to provide. These patients have a serious form of the pandemic influenza, and could die if care is not provided. The most frequent and important care that will be needed is intravenous hydration and antibiotics. Skilled care providers should be used for these patients. However, you should plan for alternate community sites of care for these patients in order to maximize the use of the skilled personnel. Schools and other municipal buildings that are used as shelters in other types of disasters could be used as alternate care sites (shelters are not recommended for the general public in a pandemic as they could lead to an increase in the spread of the disease).

Example: A nurse sent to a patient's home to administer intravenous hydration would require many hours of the nurse's time to care for just one patient. Municipalities should identify a site or sites where a number of these patients could be cared for. A single nurse could provide intravenous hydration to many patients in the same amount of time it would take to care for a single patient in their homes. This is a much more efficient use of the nurse, and will result in many more lives saved.

• Level 4 Care: While level 4 patients are those that would normally be cared for in a hospital if resources were available, many will likely die of the disease at home without ever reaching a healthcare facility. In fact, the municipal triage plan for level 4 should assume that there will not be room for the vast majority of these patients in health facilities, and decisions around referring patients for the highest level of care should be based on the likelihood that the patient can survive the disease. Those level 4 patients that are almost sure to die even with the highest level of care should be triaged to comfort care at home or at an alternate community site of care (where they may receive mental health support, pain control, child care, grief counseling, etc.). Again, it is important to re-assess the availability of care on a frequent basis. As the number of pandemic cases declines post-peak, more patients will be able to be referred for facility-based care.
STEP 6: REMEMBER THESE KEY CONCEPTS

As we have seen, the degree to which people are sick with influenza in your municipality will vary widely. For some patients, the disease will be very mild; for others, it will be rapidly fatal. Tool 3, Pandemic Health Impact Projections Tool, provides a graph that shows what the distribution of cases will be for the four levels of care during mild, moderate, and severe pandemics. As with all pandemic projections, these are just estimates for use in planning and are based on assumptions that may or may not occur in an actual pandemic. Triage planning uses key concepts of care. While the estimated demands on municipal healthcare resources may not turn out to be completely accurate, the rationale and policies of the triage strategy will remain the same. Remember these concepts in the plan for your municipality.

- Triage will be necessary in a severe pandemic.

No country in the world will have sufficient resources to care for all the patients that will need care in a severe pandemic. Not all deaths will be preventable, and not all sick patients will receive needed care. The goal of pandemic triage is to save as many lives as possible within the context of insufficient resources.

- Triage will save lives.

Triage is not about withholding care from patients, it is about providing the best care to the greatest number of people. This means providing the appropriate level of care. The objective of medical care in a pandemic, when all resources are overwhelmed, is to ensure that patients with survivable illness are provided with the care and assistance they need. Some of the patients with the most severe form of the disease will probably die even with the highest level of available resources; therefore, in a situation where there are insufficient resources to care for all patients, resources are best used to care for persons who can survive.

Patients who are very ill should be admitted to hospitals and provided with the highest level of care available, but only when the resources dedicated to them do not impair the ability to continue providing care to patients at lower levels of care. In the end, the decisions about which of the very ill patients should be admitted to hospitals, provided care in a community site, or provided the highest degree of comfort care that is possible, cannot be determined in advance since those decisions will depend on the constantly changing balance of needs and available resources.

Example: Allow level 1 patients to take care of themselves at home without assistance, and provide comfort care only to a terminal level 4 patient. Both of these actions provide appropriate care to the individuals, while reserving scarce resources to take care of other patients that may not survive without them.

- The levels of care are fluid and interdependent.

Keep in mind that the number of patients at one level of care will impact the number at the other levels. People with milder disease—those in level 1, at the bottom of the pyramid in Figure 2—will probably be able to survive the pandemic with minimal assistance. Even most of those in levels 2 and 3 will probably survive if they are able to access the care they need. However, a patient may begin with a mild case of the influenza (level 1), but then become dehydrated and move up the pyramid to level 2. They may then develop a secondary bacterial pneumonia and become very ill (level 3). Another person may begin their illness with a rapidly progressive severe form of the illness (level 4) but recover and progress down the pyramid to full recovery. This ability to move up and down the pyramid has implications for triage planning. The pyramids of care generated for your municipality are useful to begin your planning. However, during a severe pandemic, you may find that more patients than expected may be in levels 3 and 4. This could be a result of characteristics of the virus that are different from the basic assumptions used in the Pandemic Health Impact Projections Tool. Or it may indicate a need to change your triage planning. Because patients can move up or down the pyramid of care, these levels are interdependent. In many cases, the ability to provide care to level 2 and level 3 patients will determine their fate. Municipalities that can maximize the care provided to patients requiring lower levels of care will be able to prevent many deaths. However, if access to care is not available to patients at the lower levels of care, some of them will probably become more ill and will add to the number of people needing a higher level of care. In other words, a level 2 case may become a level 3 case.

Example: Level 2 patients that are slightly dehydrated may need the assistance of a volunteer to sit with them and ensure they take in fluids, and maintain their nutritional status. This does not require a skilled healthcare provider, but it does require sufficient family members or community volunteers who are able and willing to do this. If these resources do not exist, some of these patients will become more dehydrated and more ill, and will move up to level 3 and require intravenous hydration and skilled care—resources that are even more difficult to provide. The same patient with good level 2 care will likely move down to level 1 and no longer require any care at all.

This example highlights the importance of good triage implementation. In this case, if level 2 patients are progressing to level 3, rather than to level 1, a reallocation of resources should focus on level 2. If level 1 and level 2 are being well taken care of, then you should focus on how to improve care to level 3 patients.

- Build the base.

The best situation for a municipality is to have as many patients as possible capable of taking care of themselves. There are many steps in preparing and responding to a pandemic that can help build self-sufficiency. This includes good government planning and preparedness at all levels, household-level preparedness, good public information and education, the effective use of social distancing, and many other aspects of pandemic response. However, in terms of the ability to provide care to sick patients, this means having as many of the sick patients in level 1, the base of the pyramid, as possible.

Although ultimately some of the deaths from the pandemic may not be preventable, the goal of municipal-level access to care should be to minimize preventable pandemic deaths. This is best accomplished by using available resources to push as many cases as possible to the base of the pyramid, and to prevent cases from moving up the pyramid. In other words, care should be allocated to maintain the greatest number of patients at the lowest level of care. Reducing deaths during a pandemic will translate to saving as many lives as are savable, and not expending resources on those that are not savable. By using your resources to build the base of the pyramid, and preventing patients from moving up to level 3 or 4, you will prevent deaths.
LEADERSHIP DURING A PANDEMIC: WHAT YOUR MUNICIPALITY CAN DO

- Consider legal and ethical implications of triage.
- Minimize preventable deaths from all causes.
- Provide mental health support.
- Develop a plan for level 4, and train volunteers in comfort care and support.

Example: A physician is on her way to work at an alternate community site of care where 20 patients are waiting for intravenous hydration to begin. She is stopped by a community member who reports her 10-year-old son is very sick and having trouble breathing. The physician runs to the home and finds the son in desperate condition. He is in respiratory failure and needs oxygen and mechanical ventilation, neither of which is available. Not only is the referral hospital overwhelmed and out of life-saving resources themselves, the boy would never survive the trip. The physician must decide whether to stay with the child and do whatsoever she can to try to save him, or accept that the boy is going to die and request comfort care resources for the boy and the family. If the physician remains with the child for several hours before he dies, the 20 patients waiting for intravenous hydration may worsen and become level 4 patients. By providing a trained volunteer who can sit with the boy and the family to provide support and a caring and dignified death, the physician can then treat the level 3 patients. This is likely to result in some of these patients moving down the pyramid to a lower level of care, thereby building the base.

- Get ready.
- The type of triage that is best suited to a pandemic—and other catastrophic events that overwhelm healthcare systems—is very different from the typical concept of triage in a mass casualty event, such as a plane crash or earthquake. Therefore, every effort should be made to provide training in this concept of care to healthcare providers and others involved in healthcare access in the community.
- Ensure that healthcare providers are knowledgeable about the need for triage and the objectives of the plan. This should include familiarity with the impact projections for the peak of the pandemic, the levels of care, the pyramid of care, and the concept of building the base.

Municipal leaders need to review the legal framework in the local area, and involve the central government in the planning and implementation.

As with all disaster planning, you should pay special attention to ensuring that the most poor and vulnerable groups, internally displaced persons, and others that may be at increased risk of disease and death are provided for. Public transparency about the need for and objectives of pandemic triage, as well as public participation in triage planning and implementation will help to ensure an effective response. Finally, triage should only be used when it is needed, and only in proportion to that need.

- Provide mental health support.
  - Healthcare providers, patients, and their loved ones will need a great deal of support. The use of triage involves very difficult decisions for all involved. Even when it is clear that lives are being saved, and that the greatest number of patients are receiving the best possible care, many will feel great sadness, guilt, and stress. This may be heightened once the crisis has passed and there is time to reflect and grieve. You should anticipate this need, and plan to support those who are suffering. (See Tool 19, Recovery and Resilience.)

- Minimize preventable deaths from all causes.
  - During a severe pandemic, many people will die. Some of these will be deaths that would occur under any circumstances, but others will be deaths that occur because of the changes in healthcare access and resources during a pandemic. The focus of pandemic triage planning should be to prevent unnecessary deaths—those that would not occur if care were available. The deaths that are preventable will vary from country to country, and local area to local area. Municipal leaders need to work within their own context of healthcare access and resources. In addition to accepting that no one can prevent all deaths, it is important to recognize what you can do. Through effective triage planning, leaders can make the best use of limited resources to prevent deaths in the lower levels of care. Without this care, many will move up the pyramid of care and become preventable deaths.
  - Part of saving lives and preventing unnecessary deaths is related to non-pandemic illness. Healthcare resources must be used to continue to provide life-saving non-pandemic care for HIV/AIDS, malaria, diarrheal illness, pneumonia and other communicable diseases, cardiovascular disease, diabetes, and others. If all the healthcare resources are used by the pandemic populations, many deaths will occur from non-pandemic causes. Reducing all preventable deaths, pandemic and non-pandemic, should be the focus of pandemic triage. Tool 16, Maintenance of Essential Services, can help to identify the healthcare services that need to be maintained during the pandemic.

- Consider legal and ethical implications of triage.
  - There is a great deal of variability between countries on the relevance of legal protection for healthcare providers and volunteers who implement triage.
SOURCES


