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**Canadian Researchers
at the End of Life Network**

Speak Up
Start the conversation
about end-of-life care



Cardio-Pulmonary Resuscitation (CPR):

**A Decision Aid For
Patients And Their Families**

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This CPR Decision Aid was developed by Daren Heyland and Christopher Frank



1. What is CPR?

Cardio-pulmonary Resuscitation (CPR) is the term often used to describe the treatment to try to restart a person's heart after it has stopped beating. The heart may stop for many reasons, such as due to an unexpected event, such as an accident, or as a result of a longstanding or serious illness.

- Unexpected events would include drowning or an accident. An unexpected heart attack can also cause the heart to stop beating.
- The heart may stop because of serious illness such as advanced heart disease, kidney failure, pneumonia, blood infection or cancer. With conditions like terminal cancer, sometimes the heart stops because the person is actually dying from the terminal condition.

When someone's heart stops beating, they become unconscious within a few seconds because there is not enough blood going to their brain. During this time they are not aware of things around them and do not likely experience pain. If the heart stops and is not restarted within a few minutes, the person will die.

CPR was originally used to treat people whose hearts that had stopped because of unexpected heart attacks. Later it was used in all situations where someone's heart stopped. In many of these situations, CPR was not successful (such as when the person was dying from a terminal illness). With experience and research, we now have a better understanding of who is likely to benefit from CPR.

CPR will at best, bring the patient back to how they were before their heart stopped. It will not improve the illness that caused their heart to stop beating.

2. What happens during CPR?

If a person's heart stops while he/she is in hospital and the decision is made to attempt CPR to resuscitate them:

- An emergency call goes out to a team of doctors and other health care professionals.

- They rush to the patient's room and begin to try to keep the blood flowing around the body by pushing hard on the patient's breastbone.
- They try to help the person breathe by putting a breathing tube through the mouth to the lungs.
- They may use electric shocks to try to get the heart restarted.
- If the heart is successfully re-started, the person is usually transferred to the Intensive Care Unit. They are placed on life-support and often need a breathing machine, or ventilator while they recover. People who recover often need additional treatments and to stay in hospital for a long time.

You may have seen CPR on television shows. In real life, CPR is much less successful in restarting the heart than it is on TV.

3. Why is the doctor or another professional asking me about CPR?

- About 2-3% of all patients admitted to hospital will have a cardiac arrest — or their heart will stop beating — while they are in hospital¹. The doctor wants to make sure that your thoughts about medical decisions are taken into account when planning your care. Often in the case of cardiac arrest, things happen too quickly to discuss treatment at the time. Your doctors want to understand what you would wish if there was an emergency.
- Your doctors may talk to you about CPR even if it is unlikely your heart will stop beating.
- Like other treatment options, you and your family should be active participants in decision-making. Choosing CPR is a treatment decision made with the doctors and your input is crucial. Just as the surgeon would not operate without discussion with and consent of the patient, doctors should not decide about resuscitation without your input and opinions.

(continued...)

Question and Answer

(continued)



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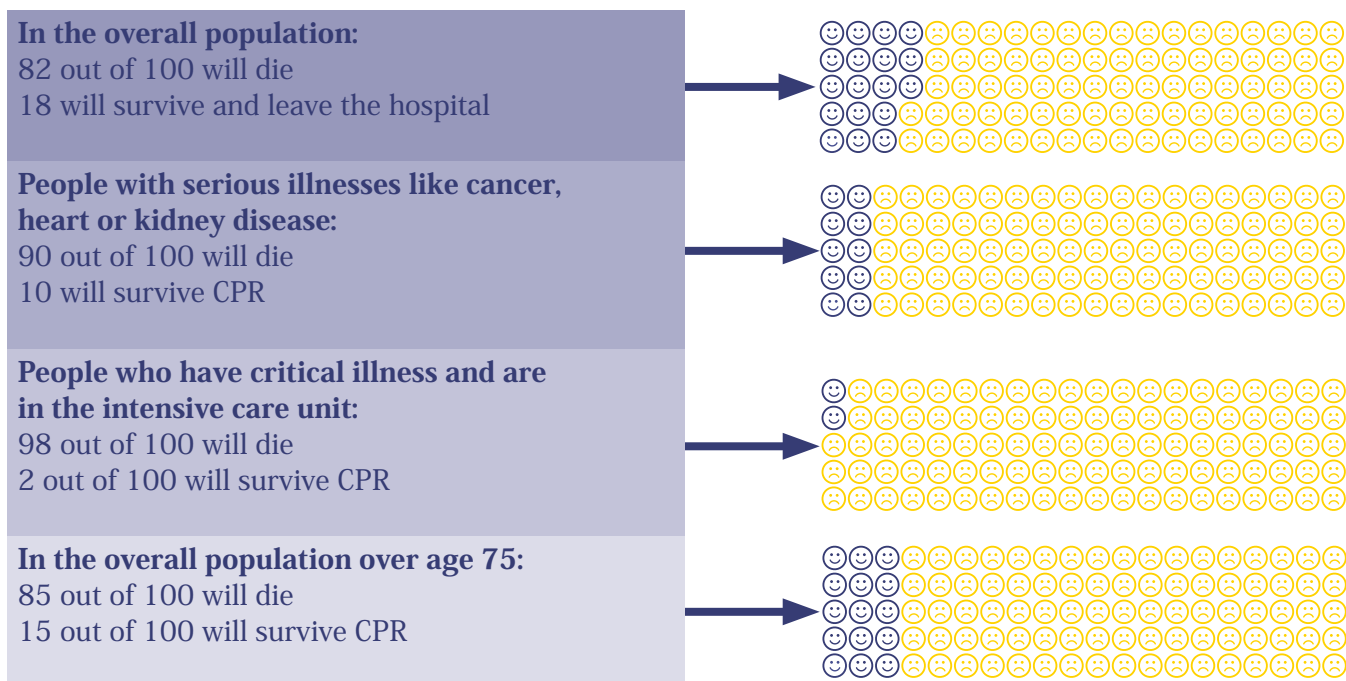
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- It is important that you discuss your thoughts, concerns and wishes with your family and your Substitute Decision Maker. This is the person who would make medical decisions for you if you cannot speak for yourself. This person may also be known as a medical proxy, health representative, agent or a Power of Attorney for Personal Care. Your Substitute Decision Maker and your doctors and nurses should follow your wishes if you are unable to speak for yourself.
- Doctors may wish to discuss other treatment options in case you develop a serious illness. They will want to know your thoughts about being in an Intensive Care Unit (ICU) or being put on a breathing machine (machines that help you breathe with a tube down to your lungs).

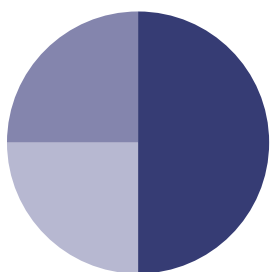
¹ Saklayen M, et al. In-hospital cardiopulmonary resuscitation: survival in 1 hospital and literature review. *Medicine* 1995;74:163-175

4. How well does CPR work?

How well CPR works depends on the health of the patient. Studies have shown the chance of success with CPR. (See more details and References on page 8.)

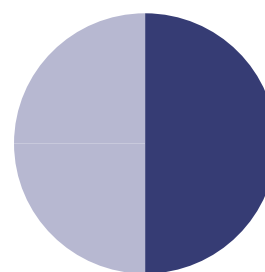


What is the chance of survivors going home from hospital?



- **About ¼** will go home independently.
- **Another ¼** will go home but require help at home.
- **About ½** will need to live in an institution – like a nursing home or rehab centre

What is the chance that survivors will have thinking or communication difficulties?



About ½ will have problems such as memory loss, problems with attention and problems getting things done.



5. Are there side effects from CPR?

There can be side effects from CPR:

- Broken breastbone and ribs are common, due to pushing down hard on the chest during CPR. This is particularly common in older people who are frail, have other chronic health conditions or have brittle bones.
- Bruised or punctured lungs from pushing on the chest. Sometimes people need to remain on a breathing machine to breathe for them for a long time after CPR.
- Some patients who survive CPR have brain injuries such as memory loss, paralysis, or speech problems. This may happen because the brain has not received enough oxygen during the time the doctors were trying to restart the heart. These injuries may mean a person can no longer live at home without a lot of care from family and caregivers. Severe forms of mental disabilities are seen in a quarter to half of survivors.

6. What other things should I consider?

As with many medical decisions, it is important to consider your values, beliefs, and experiences. In discussions about CPR your current health, your religious beliefs or experiences with other family members may affect your decisions.

Personal Beliefs:

Some people may not want doctors to try to resuscitate them because they have a serious and incurable illness. Others may feel they have lived a long life. Other personal beliefs may include:

- “Even if it is only a 10% chance, that is enough for me” (Risk/Odds)
- “I have lived a good life and when it is my time…” (Life is complete)
- “Nothing is worse than death” (Fear of death)
- “I want to see my daughter married and then I can go” (Unfinished Business)

Religious Beliefs:

- Some people believe life is sacred and that maintaining life at any cost is a priority
- Some people believe their death is God’s will and it is appropriate to accept death

Personal Experiences:

- People may have seen a family member with a “Do Not Resuscitate” or “No CPR” order who did not receive other treatments that were appropriate, such as antibiotics. Others may have seen a family member have a very peaceful death because they did not receive CPR.
- Some people may have seen a family member getting resuscitated with CPR and found it to be very upsetting.

7. What happens if I don’t have this discussion and I am unable to communicate my wishes because I am too sick?

It is important for you to know that if there is no discussion of these treatments and your heart were to stop, the doctors and nurses may do CPR even if that was not what you would want. Your family members may also be asked to make a difficult decision; guessing what you might have wanted.





• 8. What will happen after I speak to the doctor about CPR?

- The outcome of your discussion will be written in your hospital chart. If you are unable to speak for yourself this will guide the doctors and nurses. If you and the doctors feel CPR and resuscitation is not the most appropriate treatment for your situation, this will be written as a NO CPR order. Doctors and nursing staff are aware of these orders and your preferences about resuscitation, and will use them to guide care if your heart stops.
- If it is decided that CPR is an appropriate treatment, this will be written in your chart.
- If you and the doctor decide on other life sustaining treatments, such as being on a ventilator (breathing machine), this may also be noted as an order in your chart.
- Your decision to accept or decline CPR does NOT mean that no other treatments will be provided. If antibiotics, intravenous fluids or other medical treatments are appropriate, they will still be discussed and offered to you. It does mean staff will focus on helping you to stay as comfortable as possible while providing the care you need.

NOTES



Advantages and Possible Disadvantages of CPR



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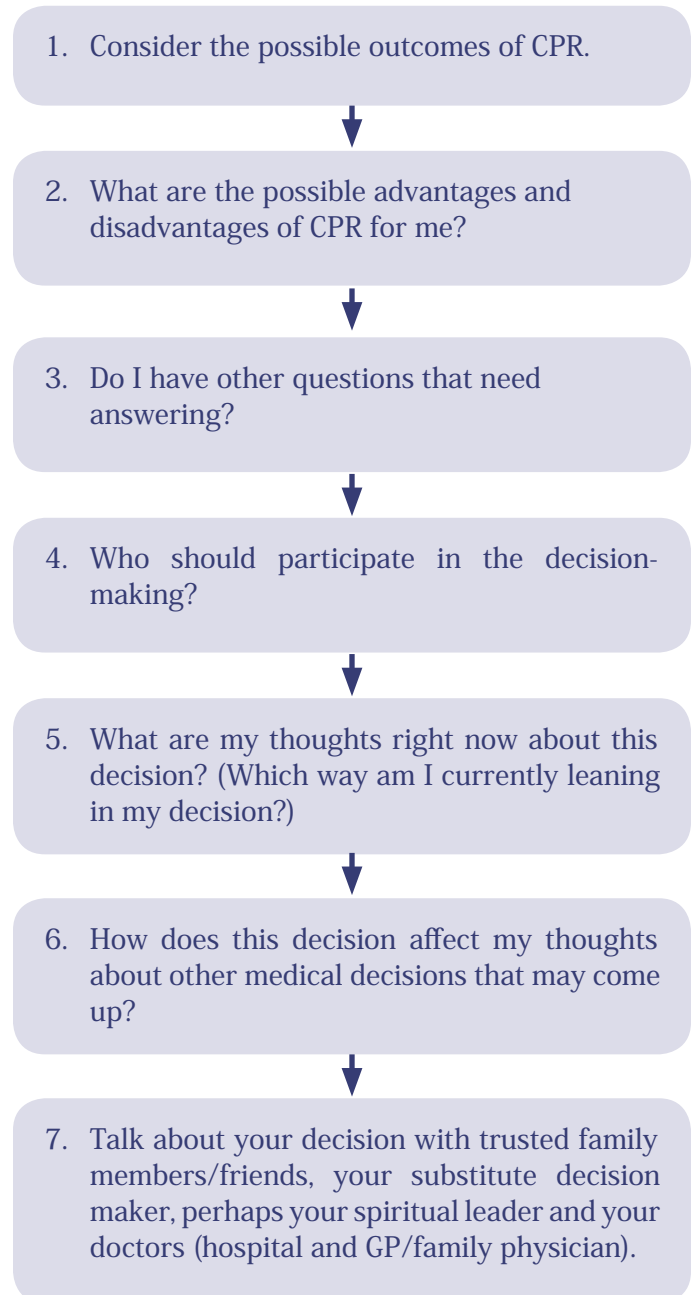
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Choice	What's Involved	Possible Advantages	Possible Disadvantages
CPR	<p>Chest compression</p> <p>Electric shocks to restart heart</p> <p>Tube down your throat to breathe for you</p> <p>Transfer to ICU on life supports</p>	<p>May prevent immediate death</p> <p>Chance of returning to near previous function (even if small).</p>	<p>High rate of stroke and brain injury</p> <p>Risk of broken breast bone or ribs and bruised lung</p> <p>Does not improve other health issues</p> <p>You may need a lot of care from your family or home care services in order to return home.</p>
NO CPR	<p>Other medical treatments such as antibiotics or going to an ICU may be given depending on your treatment choices</p> <p>Comfort measures may be the main treatment. These are treatments to keep you comfortable but not to keep you artificially alive or cure illness.</p>	<p>May be less traumatic for family members at the time your heart stops beating</p> <p>Death with less likelihood of discomfort from tubes, procedures or fractured ribs</p>	<p>Death occurs when your heart stops beating</p> <p>Some people worry that 'No CPR' means that no other treatments will be provided. This is not true.</p> <p>Lose out on small chance of prolonging life</p>

Important things to consider about CPR discussions and your CPR treatment decision:

- Studies have shown that physicians do not always start discussions with patients in hospital about this treatment decision. Please think about asking your doctor to discuss this with you.
- In some provinces and territories it is legal to write a medical directive or personal directive to express your health decisions, such as CPR. If this is the case where you live, and you have done this, give a copy to your healthcare team.
- It is important to understand your medical conditions and how serious they are. This will help you get the most out of these conversations. Ask your doctor about this.
- Share your views about CPR and other life prolonging treatments with your family. Share this document with them so they can learn about CPR.
- Share your wishes with your Substitute Decision Maker.
- If you change your decision about CPR let your healthcare team know.

CPR treatment decision process:



If you have questions or concerns about this information, please feel free to discuss them with your doctor or other members of your healthcare team. If you are in hospital, other staff members such as nurses, Spiritual or Religious leaders or bio-ethicists may help.

	Survival to Discharge	Discharge Disposition	Chance That Survivors Will Have Thinking or Communication Difficulties
Overall Population	24.7% (range 20-27%) ¹ 23% ³ 18% ^{4,5} 13% ⁷	30% going home (Self care) ¹ 14% going home (home care) ¹ 55% will go to an institutionalized setting ^{1,4}	Among survivors, approximately 55% to 75% will be able to think and write clearly. ^{5,8}
Serious chronic illnesses like heart or kidney disease	7-18% ^{2,4}		A systematic review of 28 studies examining cognitive impairment ≥ 3 months after out-of-hospital cardiac arrest found impairment (mainly memory, attention, and executive function) in 6% to 100% of patients. ⁶ In the same report, the three largest prospective studies showed high rates of impairment, ranging from 42% to 60% at three months.
Terminal Cancer	6%-15% ² 2% if in the ICU ²	11% discharged home (care not specified) ⁷	
Overall population over age 65	11-22%; lower if older (11% for patients 90+) ^{2,4}		

- ¹ Kolte et. al. Regional Variation in the Incidence and Outcomes of In-Hospital Cardiac Arrest in the United States. *Circulation*. 2015;131:1415-1425.
- ² S Sehatzadeh. Cardiopulmonary resuscitation in patients with terminal illness: an evidence-based analysis. *Ont Health Technol Assess Ser* [Internet]. 2014 December;14(15):1-38. Available from: <http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations/ontario-health-technology-assessment-series/eol-cpr-terminal-illness>
- ³ Kazaure, et. al. Epidemiology and outcomes of in-hospital cardiopulmonary resuscitation in the United States, 2000-2009. *Resuscitation* 84(2013)1255-1260.
- ⁴ Ehlenbach et al. Epidemiologic Study of In-Hospital Cardiopulmonary Resuscitation in the Elderly. *N Engl J Med* 2009;361:22-31.
- ⁵ Nadkarni VM, Larkin GL, Peberdy MA, Carey SM, Kaye W, Mancini ME, Nichol G, Lane-Truitt T, Potts J, Ornato JP, Berg RA; National Registry of Cardiopulmonary Resuscitation Investigators. First documented rhythm and clinical outcome from in-hospital cardiac arrest among children and adults. *JAMA*. 2006;295:50-57.
- ⁶ Moolaert VR, Verbunt JA, van Heugten CM, Wade DT. Cognitive impairments in survivors of out-of-hospital cardiac arrest: a systematic review. *Resuscitation*. 2009; 80:297-305.
- ⁷ Brindley PG, et. al. Predictors of survival following in-hospital adult cardiopulmonary resuscitation. *CMAJ* 2002;167(4):343-8.
- ⁸ Ebell MH, Alfonso, AM. Pre-arrest predictors of failure to survive after in-hospital cardiopulmonary resuscitation: a meta-analysis. *Fam Pract*;2011;28(5):505-515.