

## Backgrounder

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### About Critical Heart Failure

- **Heart Failure**
  - When the heart is too weak to pump enough blood, fluid accumulates in the lungs and other parts of the body. This condition, known as heart failure, often develops over a period of years, or may result soon after damage to the heart muscle caused by a heart attack or a virus.
  - It can develop rapidly and can be immediately life threatening because the heart and the body do not have time to compensate.
- **Chronic Heart Failure**
  - Affects up to 70,000 British Columbians.
  - Most of those affected are older and can live with this disease for many months or years.
  - Many people with chronic heart failure are not candidates for a heart transplant due to their age or other medical problems, and are cared for with medications and treatments to make their lives as comfortable as possible. Chronic heart failure is not usually curable.
- **Critical (Acute) Heart Failure**
  - Critical heart failure may result from a major heart attack, “heart shock” after major heart surgery, a viral infection of the heart, serious heart valve problems or serious heart rhythm problems.
  - Many patients with critical heart failure die. However if patients are referred to expert centres early on, the condition can often be managed successfully by special drugs or technology to help the heart beat.
  - Sometimes critical heart failure can recover if the heart is given the opportunity to rest. This can be achieved with a ventricular assist device (VAD, also commonly known as a mechanical heart). However, if left untreated, almost all patients with critical heart failure will die.
  - If the heart does not recover, a heart transplant is the only option for patients who are suitable for this surgery.
- **Symptoms**
  - Severe shortness of breath, fatigue, extremely low blood pressure, loss of consciousness, heart stoppage.
- **Heart Failure Facts**
  - Heart failure is the fastest growing form of heart disease in North America.
  - Heart failure is the most common cause for an adult to be hospitalized in Canada.
  - It is estimated that close to 1 million Canadians are affected by heart failure each year. The yearly death rate in Canada from heart failure varies from 5 per cent for mild heart failure to 50 per cent for critical heart failure.
  - The impact of heart failure alone outstrips other causes of disability, illness, and death in Canada and throughout the world.
  - It is estimated that more than 15,000 people are hospitalized for heart failure each year in B.C.

- **Critical (Acute) Heart Failure Statistics**

- Approximately 35 or more patients per year in B.C. need mechanical support for critical heart failure. Of these, some recover, some go on to get a heart transplant and some die despite the treatment.
- Approximately 100-150 patients are referred for a heart transplant each year in B.C. Of these, only 20-30 are accepted and more than half of these will need a VAD or other support for acute heart failure.
- It is believed that many more British Columbians should be referred for assessment for heart transplant or support for critical heart failure.

**About Ventricular Assist Devices**

- Ventricular Assist Devices, also known as VADs, are used in critically ill heart failure patients that are confirmed heart transplant candidates. VADs are used as a “bridge to transplant”, that is, to keep patients alive until they can receive a heart transplant.
- VADs can relieve the symptoms of critical heart failure if needed for up to five years and allow patients to live at home and even return to work while they wait for a heart transplant.
- The average wait for a heart transplant through the B.C. Acute Heart Failure Program is six months.
- The B.C. Acute Heart Failure Program currently uses two types of VADs:
  - A tiny temporary VAD called Impella® (Abiomed). This device is inserted through a small cut in the leg and sits inside the heart. A tiny propeller sucks blood into the tube and helps to circulate it through the body. A fact sheet, video and general information about this device can be downloaded at: [www.abiomed.com/products/impella.cfm](http://www.abiomed.com/products/impella.cfm)
  - A new, long-term VAD called HeartMate II® (Thoratec Corp.) that can work for many years. This new, sleek device is easy to implant and completely quiet. It can last potentially for up to 10 years. This device is the first step towards designing a device that is small enough to be completely implanted under the skin. Eventually, when the next generation of VADs are designed with small enough components, these devices could serve to replace the need to do a heart transplant. A fact sheet and general information about this device can be downloaded at: <http://www.thoratec.com/about-us/media-room/index.aspx>

**About the B.C. Acute Heart Failure Program**

The B.C. Acute Heart Failure Program, part of the Providence Heart + Lung Institute at St. Paul's Hospital, is the only program in B.C. which provides the full range of specialized care to patients with critical heart failure. It is currently the biggest and busiest program of its kind in Canada, now receiving referrals not only from B.C., but also from other provinces such as Alberta and Manitoba.

Launched in May 2002 and funded through Cardiac Services BC (a program operated by the Provincial Health Services Authority) and Providence Health Care, the B.C. Acute Heart Failure Program boasts some impressive firsts. The program is a national leader in Ventricular Assist Device (VAD) implants, equipping critically ill heart failure patients with mechanical heart pumps to keep them alive until they can receive a heart transplant. It is the only program in BC to do VAD implants. Cardiac specialists at the program were the first in North America to successfully perform two breakthrough heart-pump implants in patients with failing hearts using new-generation VADs, including North America's first clinical use of the tiny temporary VAD called Impella® (Abiomed) and North America's first clinical use of the new, long-term VAD called HeartMate® II (Thoratec Corp.) that can work for many years. The HeartMate® II allows patients to live at home with the device in place while they wait for a heart transplant.