

# Device Improves Some Heart Transplant Outcomes

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PHILADELPHIA — The bridge-to-transplant approach for stabilizing patients prior to heart transplantation is working.

Of patients who received a mechanical circulatory support device as a bridge to heart transplant in 2002-2004, half (50%) of those over age 50 and three-quarters (74%) of those under 30 survived to receive a heart transplant during the first

year after receiving the device, Marshall I. Hertz, M.D., said at the annual meeting of the International Society for Heart and Lung Transplantation.

"The findings show, in a nonanecdotal way, that you can get a lot of patients to [heart] transplant who otherwise would not get transplanted," said Dr. Hertz, professor of medicine at the University of Minnesota in Minneapolis, and medical director of the International Heart and Lung Transplant Registry.

"The results of several studies have shown that patients who have a heart transplant after receiving a ventricular assist device can do better than patients who are transplanted with no device. It's paradoxical, because the sickest patients get devices, but then they are stabilized and they can get physical rehabilitation and improved nutrition, and they become better candidates for heart transplantation a few months later. The bridging idea started as a last ditch effort for patients, but

now it's viewed as interim therapy," Dr. Hertz said in an interview.

Starting in January 2002, the registry began a voluntary program for submitting case reports for patients who received a mechanical circulatory support device, and as of December 31, 2004, 699 patients were registered.

These patients had received a total of 831 devices at 60 centers worldwide. Follow-up data were available for 655 patients, including 513 who had received a device as a bridge to transplant and 78 patients who received a device as destination therapy.

In addition, 35 patients received a device as a bridge to recovery, and 29 patients had received a device with an unspecified purpose.

Among all patients who received a device, the actuarial survival rate was 83% after 1 month, 74% after 3 months, 67% after 6 months, and 50% after 1 year.

Survival was linked with age in patients who received a device as a bridge to transplant. Among 292 patients who were aged older than 50 years, mortality was 37% during the first year after they received the device. In contrast, among the 52 patients who were aged younger than 30 years, first-year mortality was 13%, Dr. Hertz reported.

A similar analysis was not reported for the remaining 169 patients who were aged 30-50 years.

"The survival to 12 months is not as good as we'd want. Additional technical improvements are needed," Dr. Hertz said.

During 12 months of follow-up of the entire group of 513 patients who received bridge-to-transplant devices, 501 patients had infection episodes, 302 had bleeding episodes, and 75 had thrombotic episodes.

The high rate of infection was not surprising, Dr. Hertz said. Infections occur primarily as a consequence of the transcatheter catheters that devices currently require.

Most of the 78 patients in the registry who received devices as destination therapy were ineligible for heart transplants either because of their advanced age (49%) or comorbidity (36%). An additional 10% received a device without listing for a transplant because of fixed pulmonary hypertension.

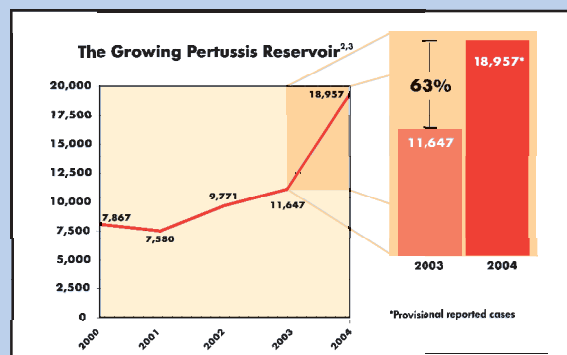
The long-term prognosis for these patients was not good, especially among older patients.

Of the 41 patients in the registry who received destination therapy and were at least 65 years old, 52% died within 6 months of receiving the device, and 74% died within 1 year. Among the 37 patients aged younger than 65 years, 13% died within 6 months and 39% were dead after 1 year.

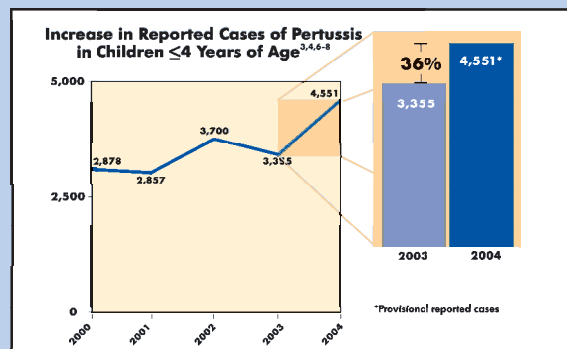
## begins at home

### The growing threat of pertussis — an often silent disease reservoir

Long thought to be nearly eradicated, pertussis case reports are at a 40-year high.<sup>2</sup> Today pertussis is the only communicable disease that is on the rise in all age groups for which a routine immunization is available. In 2004 there were 18,957 cases reported to the CDC, a 63% increase over 2003 and a startling 1000% increase from 20 years ago when incidence reached its nadir.<sup>2,3</sup>



Especially troubling are two facts: first, there has been a 36% increase in reported cases among children ages 4 years or less<sup>3,4</sup>; second, over the last decade, 80% of deaths attributed to pertussis occurred in infants under 6 months of age.<sup>5</sup>



Among the many explanations on the explosion of pertussis in the United States are better reporting, better diagnosis, and waning immunity. What they all have in common is the acknowledgment that there exists a reservoir of disease among adolescents and adults, and more importantly, from this reservoir pertussis transmission occurs. Pertussis is most contagious during

the first few weeks of illness before it is recognizable.<sup>9</sup> In both adolescents and adults the disease is often mild in nature, and not associated with the trademark "whooping cough."<sup>9,10</sup> However, studies have reported significant morbidity including pneumonia, rib fractures, urinary incontinence, weight loss, otitis media, and sinusitis.<sup>11</sup> People with pertussis are also at risk of hospitalization and other complications such as seizures and encephalopathy. Beyond the morbidity are the social, financial, and psychological costs of pertussis disease. One recent study reported that 70% of affected adolescents lost 5 to 10 days of school while 49% of afflicted adults were out of work for 5 to 10 days.<sup>11</sup> In addition, 49% of adults reported that their sleep was disturbed for more than 21 consecutive nights with 9% reporting disturbed sleep for an astounding 60+ nights.<sup>11</sup> It's no wonder the ancient Chinese called pertussis "the cough of 100 days."

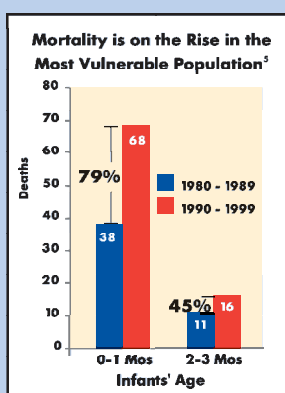
### Soon pertussis prevention will begin in the home too

Building on the heritage of the proven pediatric acellular DTaP vaccines, acellular Tdap vaccines for adolescents and adults will soon be available. This intervention will allow health-care providers to protect a broad spectrum of people from the morbidity of primary disease, as well as limit the morbidity and mortality in vulnerable infants by curtailing disease transmission.

You can find out more about pertussis by visiting any one of the following Web sites:

[www.pertussis.com](http://www.pertussis.com); [www.cdc.gov](http://www.cdc.gov);  
[www.nfid.org](http://www.nfid.org); [www.napnap.org](http://www.napnap.org);  
[www.aap.org](http://www.aap.org)

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