

# VADS: Coming to your Town

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# Introduction:

- Background on Ventricular Assist Devices
- Types of VADS
- Purpose of VADS
  - Bridge to transplant
  - Destination Therapy
- EMS Considerations
- Managing VAD patients

# Background

- Ventricular Assist Devices: Implanted medical devices to augment the patient's own heart in the presence of heart failure

# History of Implanted Cardiac Devices

- Jarvic Artificial Heart

# Publicity

- Today show
  - 22 year old female
  - <http://today.msnbc.msn.com/id/37354143/>
- Vice President Cheney
  - In Virginia

# Previously on VADS

- EMSAT 2007
- Thoratec Heartmate LVAS (I)
- Hand pump
- Large, fire truck style pump
- Pulse present
- Sounds

# Things have Changed

- More patients
- More centers
  - Not necessarily university hospitals
  - What is “new” in one area is old in another
- More education
- Improved technology

# Heart Failure

- Defined as

# Heart Failure Causes

# Device Purpose

- Bridge to Transplant
- Destination Therapy

# Home devices

- Previous Heartmate LVAD had hand pump
  - In less use now
  - Had a hand pump
- Heartmate II
  - NO hand pump, battery only
- Total Artificial Heart
  - Syncardia Freedom Driver

# Evolving technology

Impeller driven

- Freedom Driver
  - VCU to start clinical trials for select patients

# Complications of VADs

- Infection
- Right ventricular failure
  - Left side helped, right side still in need of support

# Devices

- Waiting for FDA approval
  - Levacor VAD
- Hospital and Critical Care
  - Abiomed AB5000 Bi-VAD
  - Balloon Pump
    - Arrow
    - Datascope

# Device in the Community

- Thoratec
  - Heartmate XVE
  - Heartmate II
- Jarvik 2000

# Heartmate II

- Most common device at home
- Impeller style, capable of 10000 rpm
- Supports heart through by providing a continuous flow
- NO PALPABLE BLOOD PRESSURE
  - If the device is providing majority of support
- ECG present

# EMS Considerations

- ABCs
- Fluids
  - IV only if unstable
- Meds:
  - Medical Control

# Two Emergencies

- Device related:
  - Failure
  - Infection/Pneumonia
  - CVA/Neurovascular event
- Everything else
  - Vehicle accidents
  - Other trauma
  - Underlying/pre-existing medical conditions

# CPR

- Chest compressions
- Defibrillation

# Destination

- VAD patient's are very hospital specific
  - Territorial and often geographical
- Tertiary facilities
- “Heart Failure Centers”

# Hospitals

- Sentara Heart Hospital
- VCU Health Systems
- UVA Health Systems
- Bon Secours St. Marys (Recent, not-transplant)
- Duke University
- Washington Hospital Center
- John Hopkins
- University of Maryland Baltimore

# Assessment

- Level of Consciousness
  - Neuro exam key
- Rhythms
  - Altered

# Device assessment

- Alarms/lights
- Connections
- “Go bag”
  - Extra batteries, power supply
  - Contact information

# Comparisons

- High-tech kids
  - Parents often lead care, very tuned in
    - Essential in emergencies
  - Life long/part of every day life
  - Sustains life while finding quality of care
- VAD patients
  - Patient often directs own care
  - Family adjusts, not necessarily
  - Big lifestyle adjustment
    - Bridge to transplant vs destination
  - Quality of life is key

# Resources:

- [www.hearthope.com](http://www.hearthope.com)
- [www.thoratec.com](http://www.thoratec.com)