The Direct Flow Medical®
Bernard E. Lyons, Ph.D.
President & CEO

Jefferies Healthcare Conference
Grand Hyatt, New York
June 2-3, 2014

CAUTION: The Direct Flow Medical Transcatheter Aortic Valve System has not been approved for sale in the USA or use in Canada, or Japan.
Basic Facts

- Founded: May 2004
- $125M Private Equity & Debt Financing
- Headquarters: Santa Rosa, CA
  - Valve Manufacturing & Technology Center – Lake Forest, CA
  - 40,000 sq. ft. – Class A Facilities
    - 5,000 sq. ft. Class 100K clean rooms
  - European Office: Frankfurt, Germany
- 210+ Employees
- 20 Issued Patents
DFM Valve – Design Objectives

- Facilitate Access
- Improve Procedure
- Minimize Aortic Regurgitation

Second Generation TAVI
The Direct Flow Medical®
Transcatheter Aortic Valve

Minimized Risk of Aortic Regurgitation
- Double-ring design for a tight and durable seal
- Truly repositionable, fully retrievable

Predictable Procedure
- Fully competent during positioning
- No rapid pacing, no post-dilatation

Low Vascular Complications
- Flexible, low profile 18F delivery system for all valve sizes
- Non-metallic valve frame
DFM Animation
## Valve Sizing

<table>
<thead>
<tr>
<th>Valve Size (mm)</th>
<th>23</th>
<th>25</th>
<th>27</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Annulus (mm)</td>
<td>19 - 22</td>
<td>21 - 24</td>
<td>&gt;24 - 26</td>
<td>&gt;26 - 28</td>
</tr>
<tr>
<td>Patient Perimeter (mm)</td>
<td>60 - 69</td>
<td>66 - 77</td>
<td>75 - 83</td>
<td>82 - 90</td>
</tr>
<tr>
<td>Aortic Ring Diameter (mm)</td>
<td>25</td>
<td>27</td>
<td>29</td>
<td>31</td>
</tr>
</tbody>
</table>

### Native annulus (mm):
- **23mm Valve**: Not CE approved
- **25mm Valve**: 19 - 22, 21 - 24
- **27mm Valve**: 24 - 26, 26 - 28
- **29mm Valve**: 26 - 28

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**Diagram:**
- **Not CE approved**: Grey
- **23mm Valve**: Light green
- **25mm Valve**: Purple
- **27mm Valve**: Red
- **29mm Valve**: Brown
Predictable Procedure
Precise valve positioning and reduced hemodynamic stress

- Positioning wires allow for controlled, millimetric adjustments of valve position
- Immediate valve competency upon expansion
- Minimum to no contrast necessary
- No rapid pacing required
- No post-dilatation required

DFM – Designed for TAVI
DFM – Designed for TAVI

Easy Access
Reduced vascular complications

- Flexible, low profile 18Fr delivery system for all valve sizes
- Non-metallic valve frame
- Excellent trackability
- Compatible with 0.035” guidewire
- **Minimum vessel diameter treated: 5mm**
Direct Flow: Fully Repositionable

Initial Valve Placement
AR Grade  Moderate

Final Valve Placement
AR Grade  None
Direct Flow Medical Clinical Results

- **Direct Flow 22F Trial**
  - Single arm, N=22 (Extreme)
  - Enrollment completed
  - 5-year FU presented at PCR14

- **DISCOVER CE Mark Trial**
  - Single arm, N=100 (Extreme/High Risk)
  - Enrollment completed
  - 12-mo FU presented at PCR14

- **DISCOVER Post-Market Study**
  - Single arm, N=250 (All-comers)
  - Enrollment ongoing / (Naber N=103 pts at PCR)

- **SALUS IDE Feasibility Trial**
  - Single arm, N=30 (Extreme Risk)
  - Enrollment completed
  - 30-day data presented at PCR14

- **SALUS Pivotal Trial**
  - Single arm, N=650 (Extreme Risk)
  - Enrollment initiated June 2014
Prospective, Multicenter Evaluation of the
18F Direct Flow Transcatheter Aortic Valve:
DISCOVER (CE Mark) Study
12 Month Results

Joachmin Schofer, M.D.
On behalf of the DISCOVER Trial Investigators
Presented at EuroPCR 2014

CAUTION: The Direct Flow Medical Transcatheter Aortic Valve System has not been approved for sale in the USA or use in Canada, or Japan.
## DISCOVER Trial: All Patients (N=100)  
### Baseline Patient Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (yrs, mean &amp; range)</strong></td>
<td>83.1 (63 – 95)</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>50% (n=50)</td>
</tr>
<tr>
<td><strong>Logistic EuroSCORE (mean)</strong></td>
<td>22.5 ± 11.3 [n=99]</td>
</tr>
<tr>
<td><strong>STS Score</strong></td>
<td>9.7 ± 8.7</td>
</tr>
</tbody>
</table>
DISCOVER Trial:
Freedom from All Cause Mortality
(N= 100)

Kaplan-Meier Survival Curve

12 Month survival = 90%
DISCOVER Trial: Freedom from Mortality and Major Stroke

(N= 100)

Kaplan-Meier Freedom Major Stroke and All-Cause Mortality

12 Month Freedom from Event = 86%
DISCOVER Trial:
Mean Gradient by Core Lab

Evaluable Cohort

<table>
<thead>
<tr>
<th>Time</th>
<th>Mean Gradient (mmHg)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening</td>
<td>45.9</td>
<td>72</td>
</tr>
<tr>
<td>Discharge</td>
<td>14.4</td>
<td>62</td>
</tr>
<tr>
<td>30 Days</td>
<td>12.5</td>
<td>62</td>
</tr>
<tr>
<td>6 Months</td>
<td>13.1</td>
<td>53</td>
</tr>
<tr>
<td>12 Months</td>
<td>12.3</td>
<td>52</td>
</tr>
</tbody>
</table>
DISCOVER Trial:
Paravalvular Aortic Regurgitation by Core Lab

Evaluable Cohort

<table>
<thead>
<tr>
<th>Time</th>
<th>None/Trace</th>
<th>Mild</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Procedure</td>
<td>78.1%</td>
<td>20.3%</td>
<td>1.6%</td>
</tr>
<tr>
<td>30 Day</td>
<td>81.7%</td>
<td>16.7%</td>
<td>1.7%</td>
</tr>
<tr>
<td>6 Months</td>
<td>75.5%</td>
<td>24.5%</td>
<td></td>
</tr>
<tr>
<td>12 Months</td>
<td>77.1%</td>
<td>22.9%</td>
<td></td>
</tr>
</tbody>
</table>
Prospective, Multicenter Evaluation of the Direct Flow Transcatheter Aortic Valve System: SALUS (US IDE) Study 30-Day Results

E. Murat Tuzcu, M.D.
On behalf of the SALUS Trial Investigators
Presented at EuroPCR 2014

CAUTION: The Direct Flow Medical Transcatheter Aortic Valve System has not been approved for sale in the USA or use in Canada, or Japan.
# SALUS Trial: Enrollment by Site (N=30)

<table>
<thead>
<tr>
<th>Co-Investigator</th>
<th>Co-Investigator</th>
<th>Institution</th>
<th>SALUS Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samir Kapadia, MD</td>
<td>Lars Svensson, MD</td>
<td>Cleveland Clinic</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cleveland, Ohio</td>
<td></td>
</tr>
<tr>
<td>James Flaherty, MD</td>
<td>S. Chris Malaisrie, MD</td>
<td>Northwestern Memorial</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chicago, IL</td>
<td></td>
</tr>
<tr>
<td>Jeffrey Southard, MD</td>
<td>Walter Douglas Boyd, MD</td>
<td>UC Davis Medical Center</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sacramento, California</td>
<td></td>
</tr>
<tr>
<td>Susheel Kodali, MD</td>
<td>Matt Williams, MD</td>
<td>Columbia University</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New York, NY</td>
<td></td>
</tr>
<tr>
<td>William O’Neill, MD</td>
<td>Gaetano Paone, MD</td>
<td>Henry Ford Hospital</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Detroit, MI</td>
<td></td>
</tr>
<tr>
<td>Alan Zajarias, MD</td>
<td>Hersh Maniar, MD</td>
<td>Washington University</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>St Louis, MO</td>
<td></td>
</tr>
</tbody>
</table>
## SALUS Trial: Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% (n) or mean ± SD, range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>83±7.5, 66-94</td>
</tr>
<tr>
<td>Male</td>
<td>33% (10)</td>
</tr>
<tr>
<td>STS Score</td>
<td>8±3.7</td>
</tr>
<tr>
<td>Logistic EuroSCORE II</td>
<td>6±3.5</td>
</tr>
<tr>
<td>NYHA Class II</td>
<td>7% (2)</td>
</tr>
<tr>
<td>NYHA Class III or IV</td>
<td>93% (28)</td>
</tr>
<tr>
<td>Coronary Artery Disease</td>
<td>73% (22)</td>
</tr>
<tr>
<td>Previous MI&gt;30 days</td>
<td>13% (4)</td>
</tr>
<tr>
<td>Previous CABG</td>
<td>13% (4)</td>
</tr>
</tbody>
</table>
## SALUS Trial: Baseline TTE

<table>
<thead>
<tr>
<th></th>
<th>% (n) or mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aortic Valve Area – cm²</strong></td>
<td>0.66 ±0.16</td>
</tr>
<tr>
<td><strong>Mean aortic Valve Gradient - mmHg</strong></td>
<td>44 ±9.7</td>
</tr>
<tr>
<td><strong>Mean LV Ejection Fraction</strong></td>
<td>57 ±6.7</td>
</tr>
<tr>
<td><strong>Moderate MR</strong></td>
<td>20% (6)</td>
</tr>
</tbody>
</table>
### SALUS Trial

#### CT Valve Morphology

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate to Severe Calcium</td>
<td>89%</td>
</tr>
<tr>
<td>LVOT Calcium</td>
<td>44%</td>
</tr>
<tr>
<td>LVOT Calcium &gt; 3mm</td>
<td>30%</td>
</tr>
<tr>
<td>Elliptical Annulus (&gt;33%)</td>
<td>22%</td>
</tr>
</tbody>
</table>
SALUS Trial: Freedom from All Cause Mortality and Disabling Stroke 30 Days

Kaplan-Meier Analysis

Survival Probability (%)

Days Post-procedure

0%  20%  40%  60%  80%  100%

0  10  20  30

97% (29/30)
SALUS Trial:
Core Lab TTE: Mean Gradient

Mean Gradient (mmHg)

<table>
<thead>
<tr>
<th></th>
<th>Screening (N=30)</th>
<th>Discharge (N=23)</th>
<th>30 Day (N=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error bar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>44.5</td>
<td>12.2</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Error bar=1std
SALUS Trial: Total Aortic Regurgitation
TTE Core lab Analysis

No Moderate or Severe AR at Discharge and 30D

Discharge
N=27
81.0%

30 Day
N=27
89.0%

- 0.0% None/Trace
- 11.0% Mild
- 19.0% Moderate
- 0.0% None/Trace

No Moderate or Severe AR at Discharge and 30D
The SALUS study evaluated the Direct Flow Medical system in 30 patients at 6 US clinical centers.

No center had prior hands-on experience with the DFM system.

The Direct Flow Medical system allows the operator to position and reposition as needed to achieve optimal hemodynamic outcomes.

At 30 days freedom from all cause mortality & disabling stroke was 97%.

Valve hemodynamics are comparable to other TAVI technologies in properly sized valves.

At 30 days, aortic regurgitation was none to trace in 89% of patients and 100% had mild or less AR.
2014 Key Marketing Focus

1. 29mm Launch
   Objective: OWN the large size segment

2. No Contrast Promotion
   Objective: Differentiate from competition with unique advantage

3. 23mm Launch
   Objective: FULL size spectrum

4. New Delivery System Launch
   Objective: Change perception regarding ease-of-use

Q1 2014  Q2 2014  Q3 2014