Intensive Care Application

* Refer to operating handbook for additional haemodynamic parameters provided by the CardioQ-ODM.

### Locating the Descending Aortic Waveform

1. **Switch power on (rear of CardioQ-ODM).**
2. **Connect probe to Patient Interface Cable (PIC).**
3. **Press** to enter. Repeat process for new patient.
4. **Use the large control knob to dial in patient age.**
5. **Correct depth or slightly low. Rotate** probe to optimise the waveform.
6. **Set vertical range to suit height** and weight.
7. **Peak velocity** indicating activation.
8. **Select** or to auto gain/peak velocity values and insert into oesophagus.
9. **Correct depth or slightly low. Rotate** probe to optimise the waveform.
10. **Adjust probe to find** highest signal quality.
11. **Initial probe depth** to locate the descending aortic waveform.
12. **Blue line (peak) and the sharpest** to locate the descending aortic waveform.
13. **Activate** monitoring begins.

### Using the CardioQ-ODM - Getting Started

### Using the CardioQ-ODM - Optimise the Waveform

**Locating the Descending Aortic Waveform**

- Using the CardioQ-ODM
- Optimising the Waveform
- Basic Setup & Haemodynamic Parameters
- Using the CardioQ-ODM - The CardioQ-OVM Waveform
- Fluid management algorithm protocol parameters
- Quick Reference Guide

---

**Basic Setup & Haemodynamic Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SVRI</strong></td>
<td>Systemic vascular resistance normalised for body surface area (dyn.s/cm⁵/m²)</td>
</tr>
<tr>
<td><strong>Cl</strong></td>
<td>Cardiac output normalised for body surface area (I/min/m²)</td>
</tr>
<tr>
<td><strong>SV</strong></td>
<td>Stroke volume (ml)</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>Distance a column of blood moves through the descending thoracic aorta per minute (cm)</td>
</tr>
<tr>
<td><strong>MA</strong></td>
<td>Mean acceleration Average acceleration of blood from start of systole to detected peak velocity (cm/s²)</td>
</tr>
<tr>
<td><strong>FTc</strong></td>
<td>Flow Time Corrected Systolic flow time corrected for heart rate (ms)</td>
</tr>
<tr>
<td><strong>SD x HR</strong></td>
<td>Stroke Volume is the area under the waveform and is the basic measured parameter upon which calculations of Stroke Distance and Stroke Volume are made. Stroke Distance (SD) and Stroke Volume (SV) and all other Cardiac Output (CO) and indexed measurements are made. Stroke Distance is the area under the waveform and is the basic measured parameter upon which calculations of Stroke Distance and Stroke Volume are made. Stroke Distance (SD) and Stroke Volume (SV)</td>
</tr>
</tbody>
</table>
Fluid Management

Typically, optimisation is achieved through the use of a fluid management algorithm. Continuous Volume (CV) or Stroke Distance (SD) optimisation algorithms may also help guide further interventions. Such algorithms have been utilised routinely in outcome studies with Deltex Medical Oesophageal Doppler Monitors.

Organ Hypoperfusion?

Hypotension?

Circulatory Optimisation

200ml fluid challenge over 5 minutes

Patient losing fluid at rate exceeding input

Still compromised (e.g. Low BP, Oliguria)

Other therapies as appropriate e.g.

- Dilators (± more fluid) if low FTc, low PV and BP acceptable
- Inotropes if low PV and low BP
- Vasopressors if high FTc, high SV/SD and Low BP

Monitor SV/SD & FTc

SV/SD increase >10%?

Yes

No

Yes

No

Yes

No

Probable high SVR/afterload.

Reduced SV/SD, PV and FTc.

After inotrope.

Increased SV/SD and PV.

Left ventricular failure.

Reduced SV/SD and PV. Rounded waveform apex.

Possible hypovolaemia.

Reduced SV/SD, decreased FTc.

Positive fluid response.

SV/SD increases by more than 10%.

Reduced SVR/afterload.

Increased SV/SD, PV and FTc.

Interventions

Base Line

Favourable Response

FLUID

6.7

47

300

63.0

10.0

64

349

63.5

INOTROPE

6.6

44

330

46.0

9.0

59

335

76.0

VASODILATE

5.8

42

232

42.0

9.3

71

365

81.0

Deltex™ and CardioQ-ODM™ are trademarks of Deltex Medical. © Deltex Medical 2010. www.deltexmedical.com

Typical Parameter Values*

*These values should not be confused with a physiological target.

Extrapolated values are in plain text.

Flow Time Corrected (FTc)

330 - 360 milliseconds

Note – the effects of vasodilating drugs may elevate the FTc.

Peak Velocity (PV)

20 years 90 - 120 cm/s

30 years 85 - 115 cm/s

40 years 80 - 110 cm/s

50 years 70 - 100 cm/s

60 years 60 - 90 cm/s

70 years 50 - 80 cm/s

80 years 40 - 70 cm/s

90 years 30 - 60 cm/s

Intervention


Typical Parameter Values

Inotrope

Vasodilate

Number of Cycles per Calculation

To change cycle settings: While in the Run Mode, press . Rotate the large control knob to make the required change, and press the control knob to finish. Increasing cycle setting may aid parameter averaging on patients with an irregular rhythm or a respiratory swing, while decreasing cycle setting may be useful for monitoring during diathermy.

Storing a Waveform/Snap Function

While in a Run screen, press . Rotate the large control knob to place the desired section within the red Snap Window box. Press to activate the Snap Window mode. To return to full screen press and then press and then . Record and view up to eight recorded waveform images.

Setting the Signal Filter

In Run Mode press . Press a second time to de-activate. Activate only to reduce artefact from excess heart valve or wall motion noise.

In addition, it is useful to monitor the Heart Rate (HR) and to select a higher noise threshold in diathermy mode.

CardioQ-ODM Quick Reference Guide

Intensive Care Application - Getting Started

This document is to be used by experienced clinical staff and is not intended to replace the operating handbook.

Fluid Management

Interpreting Results - Fluid Management

Typical Parameter Values

Flow Time Corrected (FTc)

330 - 360 milliseconds

Peak Velocity (PV)

20 years 90 - 120 cm/s

30 years 85 - 115 cm/s

40 years 80 - 110 cm/s

50 years 70 - 100 cm/s

60 years 60 - 90 cm/s

70 years 50 - 80 cm/s

80 years 40 - 70 cm/s

90 years 30 - 60 cm/s

Note – the effects of vasodilating drugs may elevate the FTc.

Intervention


Typical Parameter Values*

*These values should not be confused with a physiological target.

Extrapolated values are in plain text.

Flow Time Corrected (FTc)

330 - 360 milliseconds

Peak Velocity (PV)

20 years 90 - 120 cm/s

30 years 85 - 115 cm/s

40 years 80 - 110 cm/s

50 years 70 - 100 cm/s

60 years 60 - 90 cm/s

70 years 50 - 80 cm/s

80 years 40 - 70 cm/s

90 years 30 - 60 cm/s

Note – the effects of vasodilating drugs may elevate the FTc.

Intervention


Typical Parameter Values*

*These values should not be confused with a physiological target.

Extrapolated values are in plain text.

Flow Time Corrected (FTc)

330 - 360 milliseconds

Peak Velocity (PV)

20 years 90 - 120 cm/s

30 years 85 - 115 cm/s

40 years 80 - 110 cm/s

50 years 70 - 100 cm/s

60 years 60 - 90 cm/s

70 years 50 - 80 cm/s

80 years 40 - 70 cm/s

90 years 30 - 60 cm/s

Note – the effects of vasodilating drugs may elevate the FTc.

Intervention


Typical Parameter Values*

*These values should not be confused with a physiological target.

Extrapolated values are in plain text.

Flow Time Corrected (FTc)

330 - 360 milliseconds

Peak Velocity (PV)

20 years 90 - 120 cm/s

30 years 85 - 115 cm/s

40 years 80 - 110 cm/s

50 years 70 - 100 cm/s

60 years 60 - 90 cm/s

70 years 50 - 80 cm/s

80 years 40 - 70 cm/s

90 years 30 - 60 cm/s

Note – the effects of vasodilating drugs may elevate the FTc.

Intervention
