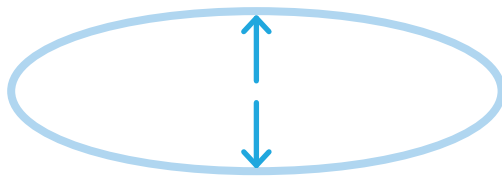


# NUTS AND BOLTS

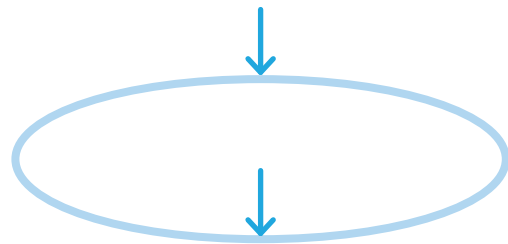
## Making measurements

To help you make your measurements, here are some things to keep in mind:

- Use the same conventions as the rest of your department.
- Make sure the normal ranges you use are appropriate for your patients, and that you are using the same measuring conventions used when the normal range was devised.
- In general, a leading edge convention is used for measuring in the parasternal views. However, the left ventricular outflow tract (LVOT) is usually measured inner edge to inner edge. Historically the aorta was measured leading edge to leading edge in systole but there is a trend towards measuring inner to inner and some centers now measure in diastole.
- Don't over measure Doppler velocities. Trace around the main body of the waveform, ignoring artifacts, especially at the tips.
- Don't try to perform a Simpson's ejection fraction if you can't see the endocardium.



Inner edge to inner edge convention:  
bottom of interface to top of next interface.



Leading edge to leading edge convention:  
top of an echo interface to the top of the interface below.