Full echo protocol

- Parasternal Long Axis (PLAX) view:
    - 2D with deep field of view to exclude pericardial/ pleural effusion
    - 2D at best depth for PLAX view
    - 2D measurement of LV (at least 2 different beats)
    - M-mode through AV and LA (measure only if perfect angle)
    - Zoom AV
    - LV outflow tract (LVOT) diameter measurements (at least 2 different beats)
    - Colour flow imaging (CFI) over AV both on and off zoom (pan through valve)
    - M-mode through MV
    - Zoom MV
    - Colour flow imaging over MV both on and off zoom (pan through valve)
    - Ascending aorta clip in real time
    - Ascending aorta 2D measurement
- Parasternal LAX right ventricular (RV) inflow view:
    - 2D clip
    - CFI clip over tricuspid valve (TV) (pan through valve)
    - Continuous wave Doppler (CW) through tricuspid regurgitation (TR) jet if present + measure peak velocity
- PLAX RV outflow tract (RVOT):
    - 2D clip
    - CFI clip over pulmonary valve (PV) (pan through valve)
    - CW across PV + measure
    - Pulsed wave Doppler (PW) of RVOT + measure
- Parasternal short axis (PSAX) AV level:
    - 2D clip
    - AV zoom
    - CFI over AV (pan through valve)
    - 2D pulmonary artery (PA) bifurcation
    - CFI RVOT/PA bifurcation (pan through to look for acceleration of flow)
    - CW across PV + measure
    - PW of RVOT + measure
    - CFI wider across AV (to rule out ventricular septal defect)
    - CFI TV (pan through valve)
    - CW if TR present + measure
    - CFI interatrial septum (IAS) (reduce colour scale and pan through IAS)
- PSAX MV level:
    - 2D clip
    - MV zoom
    - CFI MV (pan through valve)
- PSAX pap muscle level
    - 2D clip
- PSAX LV apex
    - 2D clip
- Apical 4ch:
    - 2D (all 4 chambers)
    - Optimise for LA volume and measure

- Zoom MV
- CFI MV both zoom on and off (pan through valve)
- CW if MR present
- PW MV inflow
- Measurements: E & A velocity, DT and A duration
- CFI pulmonary veins (reduce colour scale)
- PW pulmonary veins
- Measure peak of S, D, AR waves and AR duration
- Doppler tissue imaging
- Septal annulus + measurement E'
- Lateral annulus + measurement E'
- Optimised LV view
- Simpson's biplane
- RV/RA optimised view
- RAV
- CFI TV (pan through valve)
- CW if TR present + measure
- TAPSE + RV s'
- RV optimised view
- RV strain measurement (optional depending on machine)
- RV basal, mid and length
- 3D volume acquisition for LVEF and LAV (optional depending on machine)
- Apical 5ch view
  - 2D clip
  - CFI AV (pan though valve)
  - PW LVOT
  - Measure LVOT VTI
  - CW AV
- Apical 2ch view
  - 2D clip of LV/LA
  - LA volume
  - Zoom MV
  - CFI MV (pan through valve)
  - CW of MR if present
  - Optimised view for LV
  - Simpson's biplane
- Apical LAX view
  - 2D clip of LV/LA/Ao
  - Zoom AV
  - CFI AV (pan though valve)
  - Zoom MV
  - CFI MV (pan through valve)
  - Optimised view for LV
  - Perform LV global longitudinal strain measurement
  - Perform LA strain measurement (optional depending on machine)
- Subcostal view
  - Clip of all 4ch
  - CFI over IAS (reduce colour scale and pan though)

- CFI over IVS (pan through)
- SAX images at all levels
- Inferior vena cava (IVC) with 'sniff' in 2D
- M-mode for size and reactivity (with 'sniff')
- CFI of IVC/ hepatic vein
- PW hepatic vein
- Suprasternal view
  - 2D clip
  - CFI descending aorta
  - CW in descending aorta
  - PW in proximal portion of descending aorta (near arch)
  - PW further into descending aorta (just past area of ductus ligamentum)
  - PW as far into descending aorta as possible noting any flow acceleration from above