**SUPPLEMENTAL METHODS**

**CMR Protocol**

All imaging was performed supine and head-first with cardiac anesthesia and ECG-gating. A standard protocol was employed which included a) localizers, b) a stack of static steady state free precession (SSFP) images encompassing the entire thorax; c) cine SSFP imaging in the four-chamber, two-chamber, and outflow tract views; d) a stack of cine SSFP images in short-axis from base to apex; e) phase contrast magnetic resonance to measure flows across the aortic, pulmonary, and atrioventricular valves as well as the branch pulmonary arteries; and f) gadolinium-based three-dimensional imaging. To obtain the four-chamber view, we first obtain a stack of static bright blood images in the axial plane from diaphragm to the thoracic inlet. This stack is then imported into a multiplanar reconstruction module and the exact slice orientation and position was obtained to intersect the middle of the right side of the common atrioventricular valve, the left side of the common atrioventricular valve and the apex of the dominant ventricle. These coordinates were then transferred back to the scanner to perform cine imaging in the four-chamber view and standardized our approach. If needed, cine was also performed in other regions.