Introduction
Extracorporeal Membrane Oxygenation (ECMO) is an important treatment tool in the management of paediatric patients with severe hypoxemic respiratory failure and circulatory failure. It has been shown to be a valuable tool in selected group of patients like acute fulminant myocarditis, refractory septicaemic shock and severe pneumonia. We introduced ECMO program in Hong Kong in 2000 and case number has been increasing since 2010.

Objectives
To evaluate the outcomes of patients receiving ECMO support and to compare with the existing registry in literature

Methodology
A retrospective analysis of paediatric ECMO registry in Hong Kong was conducted. Patients admitted to Cardiothoracic Intensive Care Unit, Queen Mary Hospital, Hong Kong during 2000 to November 2014 were included. Their demographic characteristics, indications for ECMO, underlying pathology and outcomes were extracted. We separated the patients into two groups for analysis: veno-arterial (VA) and veno-venous (VV) extracorporeal membrane oxygenation. Analyses were performed on the total group and each subgroup separately. Descriptive statistics and non-parametric tests were applied.

Result
During the period of 2000 to 2009, nine patients received VA ECMO. During the period of 2010 to November 2014, twenty-eight (68%) and thirteen (32%) patients received VA and VV ECMO respectively. Among the total number of 50 patients, 1
patient received VA followed by VV ECMO for pneumococcal pneumonia and septic shock. VA ECMO were indicated in 16 patients for acute myocarditis, 16 post-cardiopulmonary bypass, 2 for septic shock, 2 for dilated cardiomyopathy and 1 for cardiac arrest post-arrhythmia. Among the 13 VV ECMO, 5 were for pneumococcal pneumonia (3 had concomitant respiratory syncytial virus) and 5 for viral pneumonitis (3 adenovirus, 1 RSV, 1 human herpes virus 6), 1 for persistent pulmonary hypertension in newborn (PPHN), 1 for idiopathic pulmonary fibrosis and 1 post-tracheoplasty in neonate for tracheal stenosis. Overall the median age was 6.1 years (ranged 1 day to 16.4 years). Duration of ECMO in survivors ranged from 2 to 16 days (median 5 days) for VA, and ranged from 8 to 34 days (median 14 days) for VV. Nine patients had cardiac arrest prior to ECMO. Regarding outcomes, the overall survival rate was 62% (23/37) and 54% (8/13) for VA and VV ECMO respectively. The survival rate was 85% for acute myocarditis, 60% for pneumococcal pneumonia, 50% for septic shock but only 33% for adenovirus pneumonitis. Four patients were bridged to ventricular assisted device and 1 successfully received heart transplant. Lung damage was found to be irreversible in adenovirus infection complicating immunodeficiency. The occurrence of intracranial haemorrhage or infarct was 24% and 15% for VA and VV ECMO respectively. On follow-up, 84% of survivors had normal neurodevelopmental outcomes.