Aims & Objectives:
To investigate the feasibility of the application of resuscitation in pediatric emergency department, and to provide the reference for the development of targeted interventions.

Methods
Using FPDR-BRS (Family Presence During Resuscitation Benefits-Risks) investigated the attitude of parents about family presence in the resuscitation.

Results
297 family members participated in the study, 10 (3.4%) families didn’t agree family presence in the resuscitation after they completed the scale. 287 (96.6%) families agreed family presence. There was significant differences in the resuscitation presence in the family (P=0.032). The families with this experience showed more agreed to family presence than family without experience. In the items of benefits, families had lowest degree in identities of sadness expression and prevention of psychological trauma. In the items of risks, families had highest degree in identities of scare and disturbance in the medical work.

Conclusions
Most families agreed with family presence. From the results in the scale, we can find that family members had obvious tendencies in the risks. We recommend that we should take targeted measures in the practice, which can relieve anxiety of families, promote the communication between patients and medical workers, and ensure orderly rescue process.

O-12
INTERMITTENT VERSUS CONTINUOUS SCVO2 MONITORING DURING EARLY GOAL DIRECTED THERAPY IN SEPTIC SHOCK: A RANDOMIZED TRIAL
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Aims & Objectives:
To compare the effect of ‘intermittent’ central venous oxygen saturation (ScvO2) monitoring with ‘continuous’ ScvO2 monitoring on shock resolution and mortality in children with septic shock.

Methods
We randomly assigned children <17 years of age with septic shock to ‘intermittent’ ScvO2 or ‘continuous’ ScvO2 groups. All children were subjected to subclavian/ internal jugular line insertion and managed as per the Surviving Sepsis Campaign Guidelines. ScvO2—estimated at 1, 3, 6, 12, 24, 48 and 72 hours in the ‘intermittent’ group and continuously using the central venous oximetry catheter in the ‘continuous’ group—was used to guide resuscitation: other clinical and laboratory parameters were monitored similarly in the two groups. Major outcomes were achievement of therapeutic goals within first 6 hours and in-hospital mortality. Data were analysed using STATA 13.

Results
We enrolled 101 [62 boys; median (IQR) age: 6 (1.5 to 10) years] children: 50 and 51 in ‘intermittent’ and ‘continuous’ groups, respectively. Baseline characteristics including organ dysfunction and mortality risk scores were comparable between the groups. When compared to ‘intermittent’ group, more children in the ‘continuous’ group achieved therapeutic end points within first 6 hours (33% vs. 16%; RR 2.08, 95% CI 0.98 to 4.38) but there was no difference in mortality (43% vs. 46%; RR 1.06, 0.69 to 1.64) between the groups.

Conclusions
Continuous ScvO2 monitoring resulted in higher proportion of children attaining therapeutic end points in the first 6 hours. However, this did not seem to affect the mortality. Larger studies are required to compare the effect on mortality.

RESPIRATORY I: PEDIATRIC ARDS

O-13
BIOMARKERS MAY PREDICT CLINICAL COURSES IN PEDIATRIC PATIENTS WITH ACUTE RESPIRATORY DISTRESS SYNDROME
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Aims & Objectives:
Acute respiratory distress syndrome (ARDS) has high mortality. Early identification of sick patients with ARDS may help management and predict prognosis. We examined the potential roles of several biomarkers in the blood to predict the clinical outcomes in pediatric ARDS.

Methods
Design: A prospective observational study
Setting: A Tertiary Pediatric Intensive Care Unit in Vietnam

Interventions:
Mechanical ventilation parameters were recorded in the first 12 hours and blood samples for biomarkers were collected within an hour of mechanical ventilation.

Results
25 patients were enrolled. Age varied from 1 month to 9 years (median 6 months), 14 males and 11 females. 24 of them had pulmonary and 1 had extrapulmonary origin. 17 survived (68%), PaO2/FiO2 ratio (P/F) and oxygen index (OI) were significantly different between survivors and non-survivors at 1 and 12 hours, respectively (Table). Biomarker levels including interleukin 8 (IL-8), interferon-gamma induced protein 10 (IP-10), angiopoietin 2 (Ang-2) and receptors for advanced glycation end-products (RAGE) were significantly higher in non-survivors than survivors (Table).

Table. Mechanical ventilation parameters and biomarkers in survivors and non-survivors

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Survivors</th>
<th>Non-survivors</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/F</td>
<td>119</td>
<td>46</td>
</tr>
<tr>
<td>OI</td>
<td>11.9</td>
<td>38.4</td>
</tr>
<tr>
<td>IL-8 (pg/ml)</td>
<td>135</td>
<td>70</td>
</tr>
<tr>
<td>IP-10 (pg/ml)</td>
<td>153</td>
<td>37.3</td>
</tr>
<tr>
<td>Ang-2 (pg/ml)</td>
<td>17</td>
<td>216</td>
</tr>
<tr>
<td>RAGE (ng/ml)</td>
<td>1019</td>
<td>124</td>
</tr>
<tr>
<td>Numbers are expressed as median (range)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
Early mechanical ventilation parameters and biomarkers indicating inflammation and endothelial/epithelial injury may predict the clinical courses in pediatric ARDS patients.

O-14
NON-INVASIVE VENTILATION IN CHILDREN WITH PEDIATRIC ACUTE RESPIRATORY DISTRESS SYNDROME
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Aims & Objectives:
The evidence supporting non-invasive ventilation (NIV) use in Pediatric Acute Respiratory Distress Syndrome (PARDS) is sparse. We aim to describe the characteristics of patients with PARDS supported with NIV.

Methods
This is a multicenter, retrospective cohort study, from 10 pediatric intensive care units across Asia, of PARDS patients from 2009–2015. Only patients who were ventilated on NIV on the first day of PARDS was included in this study. Primary outcome was NIV failure which was defined as conversion to invasive ventilation or death.

Results
54/438 (12.3%) patients with PARDS from 5/10 (50.0%) centers were ventilated on NIV on day 1 of PARDS and included in this analysis. The median age, Pediatric Index of Mortality 2 score and oxygen saturation/ fraction of inspired oxygen ratio was 50.3 (12.6, 110.6) months, 16.0 (9.5, 17.6) % and 156.7 (119.7, 192.5) respectively. NIV was mainly used for increased work of breathing [27/54 (50.0%)] and hypoxia [22/54 (40.7%)]. 31/54 (57.4%) were supported on bilevel positive airway pressure ventilation. NIV failure occurred in 47/54 (87.0%) and was associated with increased median length of PICU [13.0 (8.0, 25.0) vs. 5.0 (3.0, 6.0) days; p < 0.001] and hospital stay [25.0 (17.0, 38.0) vs.11.0 (8.0, 21.0) days; p = 0.018]. Overall mortality rate was 17/54 (31.5%). There was limitation of care/ do-not-resuscitate orders for 10/54 (18.5%) patients, although only 7/10 (70.0%) of these died.

Conclusions
NIV use in PARDS was associated with high failure rate. Future studies should examine the optimal selection criteria for NIV use in PARDS.

O-15
COMPARISON OF OUTCOMES USING PEDIATRIC ACUTE RESPIRATORY DISTRESS SYNDROME (PARDS) DEFINITION AND THE BERLIN DEFINITIONS IN CHILDREN
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Aims & Objectives:
Our objective was to determine the prevalence of Acute Respiratory Distress Syndrome (ARDS) and compare outcomes by using Pediatric Acute Respiratory Distress Syndrome (PARDS) definition and Berlin definition.

Methods
We screened case records of all children aged 1 month to 17 years of age admitted to the Pediatric Intensive Care Unit (PICU) over a 3 year period (2015- 2017) for presence of respiratory difficulty at admission or during PICU stay. We applied both PARDS and Berlin definition to these patients. Data collection included definition and outcome related variables. Data were compared between the 'PARDS alone' group and the 'Berlin with or without PARDS' group using Stata 11.

Results
Of a total of 615 admissions, 246 were identified as having respiratory difficulty at admission or during PICU stay. The prevalence of ARDS in our PICU was 9.9% (95% CI: 7.8 – 12.4) with either criteria. Prevalence of ARDS with PARDS definition was 9.75% (6.1, 11.8) and with Berlin definition was 4.2% (2.9, 6.1) (p <0.001). There was poor agreement between the two (Kappa: -0.033). There was no difference between the two groups with regard to key clinical outcomes such as duration of ventilation (7 vs. 8 days), PICU stay (7 vs. 8 days) or mortality (51.7% vs. 57.7%).

Conclusions
In comparison to Berlin definition, the PARDS definition identified more number of patients with ARDS. There were no differences in key clinical outcomes between the groups.

O-16
THE RESPONSE TO LOW DOSE METHYLPREDNISOLONE THERAPY FOR PAEDIATRIC ACUTE RESPIRATORY DISTRESS SYNDROME (PARDS) - A RETROSPECTIVE OBSERVATIONAL STUDY.
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Aims & Objectives:
A recent meta-analysis in adult ARDS patients found improved mortality with methylprednisolone, but there remains a lack of level 1 evidence in paediatrics (1). This study aims to characterise response to steroid treatment in paediatric patients with severe pARDS treated in two PICUs.

Methods
A retrospective, observational study, included all patients prescribed IV methylprednisolone for the indication of pARDS between January 2011 and December 2016. All patients met the PALICC definition of pARDS, and were prescribed IV methylprednisolone (2mg/kg/day). Oxygenation index (OI) was evaluated daily, from admission until 7 days after methylprednisolone initiation.

Results
84 patients met inclusion criteria. Median age was 9 months. 52 patients survived to ICU discharge (62%). A multi-linear regression analysis demonstrates improvement in mean OI in the 7 days following steroid administration (figure 1).

63 patients had an arterial catheter at the time of steroid commencement, and of these, 49 (77%) had a >20% improvement in OI following steroid administration, 80% of patients who demonstrated any improvement in OI did so in <72hrs. These patients were classified as ‘responders’ (n=38, 60%). Baseline characteristics were similar between ‘responders’ and ‘non-responders’. Univariate analysis showed a significant difference in VFD (p<0.05) between responders and non-responders. On a multivariable analysis including likely confounders, response to steroids did not independently predict VFD.

Conclusions
Improvement in OI following administration of IV methylprednisolone for pARDS occurred within 5 days of commencement in most patients. These data can be used to inform the design of future trials of steroids in pARDS.