OUTCOMES OF PEDIATRIC RESPIRATORY RAPID RESPONSE PATIENTS ADMITTED TO VARYING SUBSPECIALTIES

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Background: Rapid Response (RR) implementation has reduced unplanned ICU admissions, in-hospital cardiopulmonary arrests, and mortality. Respiratory decompensation is a leading trigger for pediatric RR, however limited data exists for this population. We hypothesize that characteristics, interventions, and outcomes after respiratory-triggered RR (Resp-RR) vary by subspecialty service.

Materials/Methods: We reviewed demographic and clinical variables of pediatric RRs retrospectively over one year. Among outcome measures included was critical deterioration (CD: ventilatory or hemodynamic support within 12 hours post-RR).

Results: 681 (59%) of 1158 events (923 patients) were due to Resp-RR. Of these 681 events, patients were admitted to: 394 General Pediatrics (GP), 72 Hematology-Oncology (HO), 63 Cardiology (C), 52 Pulmonology (P), 54 Surgery (S), and 46 Other (O). The frequency of complex chronic conditions was lowest in GP (33%, $p<0.01$) compared to all Resp-RR, and pre-RR viral illness was most likely to be identified in GP (21%, $p=0.01$). Median age was lowest for C (median 0.41 years, IQR 0.2-1.1, $p<0.01$), and highest for HO (median 9.4 years, IQR 3.2-15.5, $p<0.01$). Recent ICU discharge was more likely for S (15%, $p=0.01$). Pre-RR fluid resuscitation was more likely in patients on GP service (50%, $p<0.01$) and less likely in C (pre-RR 10%, $p<0.01$). Pre-RR antibiotics were more likely to be initiated for HO (53%, $p<0.01$) and less likely for C (11%, $p<0.01$). Pre-RR breathing treatments were more likely to be administered for P (79%, $p<0.01$). Use of noninvasive ventilation was more likely for P (64%, $p<0.01$). Although CD events were less likely for C (21%, $p<0.01$), eventual need for hemodynamic support was more likely (38%, $p<0.01$), including extracorporeal membrane oxygenation (2%, $p<0.01$). Use of mechanical ventilation (41%, $p<0.01$), high frequency oscillatory ventilation (17%, $p<0.01$), continuous renal replacement therapy (19%, $p<0.01$), and mortality (36%, $p<0.01$) were more likely for HO. ICU length of stay was longer for C (median 3 days, IQR 0-34, $p<0.01$).

Conclusions: The knowledge of differences in characteristics, interventions, and outcomes of pediatric Resp-RR can help alignment of ICU triage and admitting service expectations.