## original
| First Author (last name, first initial) | Study Record | Publication Year | Study Date | Study Duration | Study Type: Prospective | Study Type: Retrospective | Location (Tertiary/ Academic vs Community) | Country of Study | Setting | Population Age | Population Type | Data Obtainment Method | # Pediatric Subjects Included | Disease Subtype | Adverse Event Rate | Total # Ped Events | Percentage of Ped Events | Comments/ Notes | Death Rate | Total # Ped Events.1 | Percentage of Ped Events.1 | Comments/ Notes.1 | Severe Permanent Harm Rate | Total # Ped Events.2 | Percentage of Ped Events.2 | Comments/ Notes.2 | Temporary Harm Rate | Total # Ped Events.3 | Percentage of Ped Events.3 | Comments/ Notes.3 | Additional Treatment Rate | Total # Ped Events.4 | Percentage of Ped Events.4 | Comments/ Notes.4 | Cardiovascular Events | Total # Ped Events.5 | Percentage of Ped Events.5 | Events Collected, Comments/ Notes | Airway/ Respiratory Events | Total # Ped Events.6 | Percentage of Ped Events.6 | Events Collected, Comments/ Notes.1 | Equipment Related Events | Total # Ped Events.7 | Percentage of Ped Events.7 | Events Collected, Comments/ Notes.2 | Medication Events | Total # Ped Events.8 | Events Collected, Comments/ Notes.3 | Handoff/ Communication Event | Total # Ped Events.9 | Percentage of Ped Events.8 | Events Collected, Comments/ Notes.4 | Other Events | Total # Ped Events.10 | Percentage of Ped Events.9 | Events Collected, Comments/ Notes.5 | Pt Factors Associated w Events | Provider Factors Associated w Events | Author Recs for Harm Prevention | Existing Guidelines for Intra-Hospital Transport Mentioned? | Overall Comments/ Notes | BQ1 | BQ2 | BQ3 | BQ4 | BQ5 | BQ6 | BQ7 | BQ8 | BQ9 | BQ10 | Interventional Studies Only: Pt Population | Intervention | Comparator | Outcome | Study Outcome | Harm collected? | What? | Study type - recode |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bastug O | 61 | 2016 | 1/1/2012 - 1/1/2014 | 2 yr | Observational | Cohort | Tertiary/ Academic | Turkey | Ped unit in hospital | Neonates alone | NICU | Audit of electronic data | 284 | NICU | No total rate | NaN | NaN | NaN | NR | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NR | NR | NR | 8 (2.8%) hypoglycemia; 54 (19%) hyperglycemia; 77 (27.1%) hypothermic; 5 (16.7%) reintubation; higher risk in smaller pt (500-1500 g) | 144 events | NaN | 0.507 | Rate not available | NC | NaN | NaN | NaN | 5 | NaN | NR | Reintubation, other events not collected | NaN | NaN | NaN | NaN | NC | NaN | NaN | NC | NaN | NaN | NaN | NR | NR | NR | Hypothermia, Hypoglycemia | smaller size = higher risk (500-1500g); 21/31 (65.6%) hypothermia; 13/31 (40.6%) hyperglycemia; only 55% of total cohort in incubators; may be related to surgical stress | NC | Pre-transport stabilization; Active efforts against hypothermia - incubators, hats, polyethylene sheets ; Pre-warming | NaN | Selection bias- sicker pts not transported | No | Can't tell | Yes | Yes | No | Yes | No | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Peak heart rate, breathing rate, cglcuose, temperature, blood glucose | No | NaN | Unclear |
| Agrawal S | 129 | 2010 | unkn | 6 mo | Observational | NaN | Tertiary/ Academic | USA/TN | Ped hospital | Children (all under 18) | Gen ICU | Questionnaire | 8 | Head CT | 2018-06-08 00:00:00 | 6 | 0.75 | NaN | NR | NR | NR | NaN | NR | NaN | NR | NaN | NR | NaN | NR | NaN | 6/8 events | NaN | NR | 3 fluid boluses/ inotrope increase ;2 Rx for increased ICP; 2 suction or vent change; ages 3 wk - 11 yo | 2018-03-08 00:00:00 | NaN | NR | Volume +/- inotropes | 2018-02-08 00:00:00 | NaN | NR | NR | 2018-02-08 00:00:00 | NaN | NR | Equip failure (not specified) | NR | NaN | NaN | NR | NaN | NaN | NaN | 2018-02-08 00:00:00 | NaN | NR | Increased ICP requiring Rx | NR | NR | NaN | NaN | Decreased staff time/resource utilization with portable CT; All portable CT images of adequate diagnostic quality | Yes | Yes | Yes | Yes | Yes | Can't tell | No | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Hemodynamic changes, instability and interventions | Yes | Instability; Cardiac massage, ETT dislodged, bagging, inotrope use, other adverse events | Survey instrument |
| Nakayama D | 330 | 2012 | 2009 | 12 mo | Observational | NaN | Tertiary, Community Center | USA/GA | Ped unit in hospital | Children (all under 18) | Surgical ICU | Checklist | 903 transfers, 583 pts | Surgical-pediatric | 14/903 | 14 | NR | NaN | NR | NR | NR | NaN | 1/903 | 1 | NR | Tracheotomy due to airway obstruction en route from OR to NICU | Unclear | NaN | NaN | NaN | 10/903 | 10 | NR | 6 hemodynamic instability; 4 pain | 6/903 | 6 | NR | Hemodynamic instability; Hypovolemia; Tachycardia w Hypothermia | 2/903 | 2 | NR | Tracheotomy due to airway obstruction; Intubation for post-op apnea | 1/903 | 1 | NR | No monitor | 2 | 2/903 | Antibiotics not given | 13/903 | 13.0 | NR | No H+P 5; No pt ID 2; No face to face report 2; Antibiotics not given 2; Blood not available 1; "Other" 1 | 4/903 | 4 | NR | Antibiotics not given 2, Not NPO 1, No monitors 1 | NR | NR | Critically ill neonates remain intubated if were intubated pre-op; More aggressive warming in OR; Warm blankets for transfer; Use of Checklists | NR | 1 year checklist implementation to improve post-op hadover | Can't tell | Can't tell | Yes | Yes | Yes | No | No | Can't tell | Yes | Yes | NaN | NaN | NaN | NaN | Handoff checklist | Yes | Problems encountered | Survey instrument |
| Vieira A | 341 | 2011 | 1/97 - 12/08 | 12 yr | NaN | Cohort | Tertiary | Brazil | Ped unit in hospital | Neonates alone | NICU | Audit of electronic data | 641 pts; 1197 transfers | NaN | 0.357 | 427 | 0.357 | NaN | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NR | NC | NR | NR | NR | Hypotension 3, 0.3%; HTN 2 0.2%; Brady 7, 0.6%; Tachy 3, 0.3% | NR | NR | NR | Bronchospasm 1 (0.1%); Hyperoxia 65 (5.4%); Hypoxema 3 (0.3%); Hypocapnia 8 (0.7%); Hypercapnia 3 (0.3%); Desaturation 51 (4.3%); Apnea 12 (1%), Increased Resp Support 50 (4.2%); Extubation 7 (0.6%); Mainstem 2 (0.2%); ETT Obstruction 1 (0.1%) | 0.048 | NaN | NaN | IV dislodged 37 (3.1%); Foley dislodged 3 (0.3%); Lack of O2 10 (0.8%); Pulse Ox malfxn 19 (1.6%); Incubator 14 (1.2%); Infusion pump 13 (1.1%); AMBU bag 1 (0.1%); Ventilator 1 (0.1%) | NC | NaN | NaN | NC | NaN | NaN | NaN | NR | NR | NR | Hypothermia 182 (15.2%); Increased T 17 (1.4%); Increased Blood Glucose 17 (1.4%); Decreased Blood Glucose 3 (0.3%) | See 356 | NC | Gel pillow to prevent excess movement of head+ ETT | Yes - Warren J et al 2004 | Only included weekday day time transports; Included 3 distinct periods - introduction of incubator; transport ventilator; small unit, only 12 beds; Multiple events in 6.6% of cases | Yes | Can't tell | Yes | Yes | Can't tell | Yes | No | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Checklist pre/post | Yes | "clinical problems during transport" | Survey instrument |
| Vieira A | 356 | 2011 | 1/08 - 12/08 | 8 yr | Observational | NaN | Community Center | Brazil | Ped unit in hospital | Neonates alone | NICU | N/A - Secondary Analysis | NaN | NICU | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | From score: Mechanical vent, OR = 4.0; Supp O2 = 3.3; Surgery = 2.38; MRI/CT = 1.2; CNS- 1.9; T < 36.3 or > 37 = 1.5; Gest < 28 = 3.2; Gest 28 - 34 = 1.5 | NR | NR | NR | Same data as 341, just creation of a score | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN |
| Benavente-Fernandez | 422 | 2010 | 6/08 - 12/08 | 7 mo | Observational | NR | Academic Center | Spain | Ped unit in hospital | Neonates alone | NICU | Data collection form | 33 pts, 46 transfers | Preterm VLBW stable | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | Transported w neonatologist; Neo-puff for intubated pts; Pre-warmed mattress for imaging | NR | NaN | NaN | NaN | 2/46 | 46 | NR | "Minor changes in ventilation" | NR | NaN | NaN | NaN | NR | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NaN | Yes - Mathur et al Ped Radio 2008 | Study to provide reassurance for MRI (unsedated) | No | No | No | Yes | No | No | No | Can't tell | Can't tell | No | NaN | NaN | NaN | NaN | Vitals only | No | NaN | Survey instrument |
| Frawley G | 841 | 1999 | 1/89 - 12/97 | 10 yr | NaN | Cohort | Tertiary/ Academic | Australia | Ped hospital | Neonates alone | NICU | Audit of electronic data | 71 | NEC | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | Disruption of stable ventilatory parameters | NR | NaN | NaN | NaN | NR | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | "Exposure to hypothermia"; "Exacerbation of sepsis syndrome": " | Weight < 1500 g; Sepsis | NR | NaN | NaN | Vs laporotomies for NEC in NICU, marked hypothermia; Post-Op T; -1.58 °C vs -0.64 °C; p = 0.0005; No other meaningful difference | Can't tell | Can't tell | Yes | Yes | Yes | Can't tell | No | Can't tell | Can't tell | Can't tell | NaN | NaN | NaN | NaN | Labs, vitals, mortality | No | NaN | Chart review |
| Dockery WK | 849 | 1999 | 3/93 - | NR | Randomized | NaN | Tertiary/ Academic | USA - VA | Ped unit in hospital | Children (all under 18) | Gen ICU (PICU) | Trained Observers | 49 | Post-op cardiac | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NaN | NaN | Routine use of ventilator with complex features, to maintain skills at setting and adjusting it | NaN | Higher variance in pH, pCO2, pETCO2 in pts randomized to manual ventilation vs portable ventilator; underpowered to see actual differences in these parameters | Yes | Yes | Yes | Yes | Yes | Can't tell | Can't tell | Yes | Can't tell | Yes | NaN | NaN | NaN | NaN | Blood gases | No | NaN | Direct Observation |
| Tobias J | 922 | 1996 | unkn | unkn | Observational | NaN | Tertiary/Academic Center | USA/TN | Unclear/Unknown | Children (all under 18) | Gen ICU | Audit of electronic data | 12 (28 transfers) | NR | 0.69 | NR | NR | Only hyper- or hypo-ventilation | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | 0.69 | NR | NR | NR | 61% Hyperventilation; 23% more profound, < 20 torr pCO2, 7% Hypoventilation | NR | NaN | NaN | NR | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | Monitoring of ETCO2 recommended due to large # of out-of-range values | NaN | Prospective study, blinded, of ETCO2 alterations during transport. No other data recorded | Yes | Yes | Can't tell | Yes | Yes | Can't tell | Can't tell | Yes | Can't tell | Can't tell | NaN | NaN | NaN | NaN | ETCO2 | No | NaN | Direct Observation |
| Wallen E | 956 | 1995 | 3/90 - 6/90, 7/91 - 6/92 | 16 mo | Observational | NaN | Tertiary/Academic Center | USA/PA | Ped hospital | Children (all under 18) | Gen ICU | Data collection form | 85 + 139 pts, 269 transfers | PICU | NR | NR | NR | 129/180 had some physiologic change (71.1%) | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | 25/180 had an intervention (13.9%) | NR | NR | NR | Change in HR 84/180 (46.7%) 15/89 (16.9%); Change in BP 38/180 (21.1%) (27%) 24/89; Vasoactive dry 9/180 (5%) 1/89; Fluid bolus ≥ 20 ml/kg 6/180 (3.3%) 3/89 | NR | NR | NR | Change in 52/180 (28.9%) 28/89 (31.5%); ETT event 4/180 (2.2%) 0/89; Change in vent settings 12/180 (9.1%) 7/89; Change in O2 sat 5/89 (5.6%) | NR | NR | NR | IV related 7/180 (3.9%); NG/CT related 3/180 (1.7%); 0/89 in 2nd phase | NR | NR | Medication error 1/180 (0.6%); 0/89 in 2nd phase | NR | NaN | NaN | NaN | NR | NR | NR | Hypothermia 18/180 (10%); 10/89 (11.2%); "other" 2/180 (1.1%) - mannitol for increased ICP 3/89 | Illness severity; intubation; Not significant: age | # providers not associated | Dedicated transport teams; team approved critical | NaN | Diagnostic imaging transport time much longer than other types; 81.3% incidence of change in vitals in intubated pts; 15.6% incidence of equip issues; Illness severity and duration were independent predictors of needing an intervention; physiologic changes due to severity of underlying illness, over-/under-ventilation, effect of physical movement and adequacy of sedation; Usefulness of diagnostic study must be weighed against risk of transport | Yes | Yes | Yes | Yes | Yes | Can't tell | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Hemodynamic variables, adverse events | Yes | Major interventions such as loss of a line | Direct Observation |
| Patel R | 1130 | 1988 | unkn | unkn | Randomized | NaN | Tertiary/Academic Center | USA/DC | Ped hospital | Children (all under 18) | Anesthesia | Trained Observers | 200 | Anesthesia to PACU | 21% VS 3% | 24 | NR | Desaturation SPO2 < 90% for 30+ sec | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | 24 | 0.12 | NR | NR | NR | NaN | NaN | NaN | NR | NR | NR | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | Younger age appears to be related (not tested) | NR | Routine use of supplemental O2 during transport to PACU | NaN | Randomized study of O2 vs room air in pediatric anesthesia en route to PACU - 200 PG | Yes | Yes | Yes | Yes | Can't tell | Can't tell | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | O2 sat | No | NaN | Direct Observation |
| Pullerits | 1155 | 1987 | NR | NR | Observational | NaN | Tertiary/Academic Center | Canada/ON | Ped hospital | Children (all under 18) | Anesthesia | Trained Observers | 71 | Post-general anesthesa | 0.281 | 20 | NR | Desaturation < 90% | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | 20 | 20 | 0.281 | Desaturation < 90%: 20 (28.1%); Desat 85-90%: 15 (21%); <85%: 5 (7%) | NR | NaN | NaN | NaN | NR | NR | NR | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NaN | NR | NaN | NaN | Prospective study of desaturation en route to PACU | Yes | Yes | Can't tell | Yes | Yes | Yes | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | O2 sat | No | NaN | Direct Observation |
| Harish MM | 1426 | 2017 | 6/14 - 11/14 | 6 mo | unclear | NaN | Tertiary/Academic Center | India/Mumbai | Ped unit in hospital | Children (all under 18) | Gen ICU | Unclear, likely audit of electronic data | 80 | NaN | Unclear | Unclear | NR | 67 events in 80 transports, sometimes >1 event in 1 transport | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | Bradycardia 4; Hypotension 21 (MAP <50); CPR 6 | NR | NR | NR | ETT dislodged 3; Intubation 4; Desaturation <80% 4 (none intubated) | NR | NR | NR | Central line dislodged 3; IV dislodged 14; Drain dislodged 4 | NR | NR | NR | NR | NaN | NaN | NaN | NR | NR | NR | Pneumothorax 3 - all required chest tubes | NR | Higher rate in 1st year Senior residents vs 2nd year Senior or Junior 1st/2nd year; Could be due to unfamiliarity with ICU protocol | "Should not transport unless absolutely needed" "Carry out minor interventions at bedside if possible" "Stabilize before transport" "prepare adequately with appropriate drugs, equipment, monitoring” “have trained personnel accompany the patient” consider specialized teams | NaN | Indian study of adverse events in pediatric ICU transport - recorded physiologic changes, devices dislodged (ETT/ICU), and interventions only | Can't tell | Can't tell | Can't tell | Can't tell | Can't tell | Can't tell | Can't tell | Yes | Yes | Can't tell | NaN | NaN | NaN | NaN | Unexepcted events and hemodynamics | Yes | Adverse events, interventions | Unclear |
| Don Paul JM | 1445 | 2018 | 4/15 - 9/16 | 17 mo | Observational | NaN | Tertiary/Academic Center | Australia | Ped hospital | Neonates alone | NICU | Trained Observers | 62 | NR | NR | NR | 0.48 | Only hypothermia (T< 36.5 °C) recorded | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | NR | NaN | NaN | NaN | NR | NR | NR | 48% hypothermia rate | Type of surgery - externalization of viscera; trip to OR more hypothermia than MRI | NR | "Evidence-based guidelines to manage temperature...are needed" Active warming prior to initiating MRI scan, to ensure normothermia | NaN | Study of: incidence of normothermia (36.5 - 37.5°C) in NICU pts having surgery or MRI. Transport to MRI not assoc w hypothermia but MRI scan time was. Surgical pts loss 0.81°C prior to surgery; MRI scan lost 0.41°C. Study included pts who were hypothermic prior to transport. Nice references for neonatal anesthesia + hypothermia | Yes | Can't tell | Yes | Yes | Yes | Can't tell | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Temperature | No | NaN | Direct Observation |
| Hu XJ | 1472 | 2017 | 1/1/15 - 6/30/15 | 6 mo | Randomized | NaN | Tertiary/Academic Center | China/Shanghai | Ped hospital | Neonates alone | NICU | trained Observers | 108 | Very low birthweight in infants | NR | NR | NR | 73/108 hypothermia (T < 36.5°C) | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | NR | NaN | NaN | NaN | NR | NR | NR | 73/108 hypothermia T<36.4°C; 17/108 moderate hypothermia T<36°C; 1 hyperthermia 37.5°C < T < 38°C | NR | NR | Polyethylene bags should be used to prevdent hypothermia | NaN | Randomized study of use of polyethylene bags to reduce hypothermia during transport from delivery room to NICU. Hypothermia T < 36°C was 3.7% vs 27.8% (p < 0.001) with bag | Yes | Yes | Yes | Yes | Yes | Yes | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Temperature, glucose | Yes | IVH, mortality | Unclear |
| Nikhar SA | 1578 | 2016 | NR | NR | NaN | Single case report | Tertiary/Academic Center | India | Unclear/Unknown | Children (all under 18) | Anesthesia | Review of reported events | 1 | postop | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NaN | NaN | Transport ventilator or Ayre's T-piece with long expiratory limbwould be safer than short limb | NaN | Case report of 8 year old postop, intubated to ICU, breathing spontaneously on Ayre's T-piece. Expiratory limb obstructed lead to bilateral tension pneumothoraces requiring chest tubes and 3 additional days of intubation | No | No | Can't tell | No | No | No | No | Can't tell | Can't tell | Can't tell | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN |
| Viera ALP | 2093 | 2010 | 1/97 - 12/08 | 12 yr | NaN | Cross sectional (all pts) | Tertiary/Academic Center | Brazil | Ped unit in hospital | Under 1 yr/10 kg | NICU | Audit of electronic data | 1197 transports; 640 pts | NICU | 326/1191 | all | 0.274 | 79 (6.6%) had multiple events | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NR | NR | No events noted, but hypo-/hypertension defined; tachy/brady defined - not reported | NR | NR | NR | Extubation, accidental 7 (0.6%); Mainstem 2 (0.2%); ETT obstruction 1 (0.1%); Hyperoxia 5.5%; Decreased saturation 4.2%; Needed increased ventilation 4.2%; Apnea 1%;(Hypo-/hypertension defined but not repressed) | 0.09 | NR | NR | Venous access lost 37 (3.1%); Foley dislodged (0.3%); Equip failure 58 (4.9%); O2/Air 10 (0.8%); Oximeter 19 (1.6%); AMBU bag 1 (0.1%); Incubator (14 (1.2%); Pump 13 (1.1%); Vent 1 (0.1%) | NR | NR | NR | NR | NaN | NaN | NaN | NR | NR | NR | Hypothermia (<36) 15.3%; Hyperthermia 1.4%; Increased glucose (>150) 1.4% | For hypothermia: lower weight, CNS malfunction, surgery (vs diagnostic), longer duration, pre Transport 7 36-36.8°C (vs warmer), pre-transport mechanical ventilation | NR | CME, Implementation of standard routines; dedicated and trained transport team can minimize these risks. Consider delaying transport if mild hypothermia (T = 36-36.4°C) | NaN | Audit of transport team records for pt < 1 yr < 10kg, weekdays only; 6.6% of cases had multiple issues; In infants/neonates BS typically increased slightly w tranport; Similar rates to other studies;"Risks in intrahospital transport similar to risk in interhospital tranport"; Interhospital data - equipment/technical issues more common when trasports not performed by trained team. | Yes | Yes | Yes | Yes | Can't tell | Can't tell | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN |
| da Silva | 2960 | 2017 | 9 - 11/2014 | 3 mo | NaN | Cross sectional (all pts) | Tertiary/Academic Center | Brazil | Ped unit in hospital | Neonates alone | NICU | Audit of electronic data | 34 intra-hospital | NICU | Unknown | NaN | NaN | NaN | NR | NaN | NaN | NaN | Unknown | NaN | NaN | NaN | Unknown | NaN | NaN | NaN | Unknown | NaN | NaN | NaN | Uninterpretable | NaN | NaN | NaN | Uninterpretable | NaN | NaN | NaN | Uninterpretable | NaN | NaN | 6 (10.5%) | Uninterpretable | NaN | NaN | Uninterpretable | NaN | NaN | NaN | NR | NR | NR | "Accidents 1 (3.2%)" "Clinical change in newborn 10 (51.6%) {numbers don't add up); Fever or hypothermia | "NR?" | NR | Pre-transport instability insults accrued during critical transport periods (inter-) related to neuroogic insults and mortality. Calculation of risk scoring may be helpful. In this population, risk scoring would predict a 38% incidence of complications | Yes- ref 2 - Brazilian; 8 - England; 16 Irish | 57 transports on 34 babies - only 34 intra. Used scoring system from #356 for intra-. Incidence data on complications is not intra-specific. | No | No | Can't tell | Can't tell | No | No | Can't tell | Can't tell | Can't tell | Can't tell | NaN | NaN | NaN | NaN | Hemodynamics | Unclear | "Accidents and equipment failure" as outcomes but not in methods | Unclear |
| Zambrick | 2996 | 2014 | NaN | NaN | NaN | Single case report | Tertiary/Academic Center | USA/MI | Ped pts in a mixed unit | Children (all under 18) | Anesthesia | Review of reported events | 1 | Surgery | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | Uninterpretable | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | Numerous systems factors identified - last minute change to plan; different PACU; unfamilarity w routine workarounds by other units; failure to ask questions/communications | NaN | (Improvised T-piece) Case-report - 16 yo for osteotomies, transferred to PACU, intubated to speed turnover. O2 tubing placed into ETT right angle connector; CO2 sampling port left open. On arrival PACU nurse closed port and turned O2 to 102 - rapid inflation; (B) PTX requiring chest tubes and PICU admission. Intubated. Unplanned | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN |
| Prodhan P | 427 | 2010 | 1/96 - 3/07 | 11+ yrs | NaN | Case series | Tertiary/Academic Center | USA/AR | Ped hospital | Children (all under 18) | Gen ICU | Record review | 38 pt; 57 transports | ECMO. No OR transport. . Transport CT or cath | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 4 bleeding around ECMO cannulae | NaN | NaN | NaN | 3 required boluses. 14 ECMO flow changes. 12 inotropes titrated. "additional fluids requirement and some change in acid-base status in a majority." 14/20 caths-management change due to results (70%). 14/15 pts for CT had pathology. 12/15 support withdrawn as a result. | NaN | NaN | NaN | Inotropes: increase 9, decrease 3. Flow: increase 10, decrease 4. Additional fluid 17. FFP 10. PRBC 21. Plt 10. | NR | NR | NR | 23 changes in FiO2. NR. | NaN | NaN | NaN | 1 cannula problem - mechanical. 5 circuit problems. | NR | NR | NR | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | protocol for transport provided. Included attending + NP at bedside | 13. Warren J. Cnt Core Med 2004 PMID 14707589 adult | pts w systemic- PA shunts or PA abnormalities most likely to benefit from cath. Ref #3 and #4 both have no complications due to transport on ECMO. (neither defines complications) | Can't tell | Can't tell | Yes | Yes | Can't tell | Yes | No | Yes | Yes | Yes | NaN | NaN | NaN | NaN | ECMO parameters, Monitors, medications | Yes | ECMO or ETT-related only | Chart review |
| Yeager SB | 595 | 2006 | 2002 | 1 yr | NaN | Cross sectional (all pts) | Tertiary/Academic Center | USA/Boston | Ped hospital | Neonates alone | Cardiac | Record review | 192 (70 to be included in this study) | Cardiac | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | Unknown | NaN | NaN | NaN | Unknown | NaN | NaN | NaN | Unknown | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NR | NR | NR | Desaturation < 70% 12/70; (includes cyanotic patients) | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NR | NR | NR | Hypothermia 9/70; Acidosis pH < 7.25 11/70 | Hypothermia associated with worse long-term outcomes | NR | NaN | NaN | Includes inter-facility pts - excluded from this form. 44% had suboptimal arrival values/labs (pH, SpO2, T). Study only abstracted lab/vitals from chart. | No | No | No | Yes | Yes | Yes | No | No | No | Can't tell | NaN | NaN | NaN | NaN | Hemodynamics, vitals, complications, blood gas data, mortality | Yes | Catastrophic events; hospital mortality | Chart review |
| Wilson C | 769 | 2002 | NR | 1 mo | Observational | NaN | Community Center | UK | Ped hospital | Children (all under 18) | Anesthesia | Trained Observers | 200 | Anesthesia | 0.035 | NR | NR | NR | NR | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | NaN | 0.035 | NR | NR | 3.5% desaturation below 90%; 25% below 95%. | NR | NaN | NaN | NaN | NR | NR | NR | 25% desaturation below 95%. 3.5% desaturation below 90% | NR | NaN | NaN | NaN | NR | NR | NR | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | Younger age; mean 2.57 yrs vs overall mean 7.3 yrs | NR | Have O2 available during transfer to PACU | NaN | Letter to the editor | Yes | No | Can't tell | No | No | Can't tell | No | Yes | Yes | Yes | NaN | NaN | NaN | NaN | O2 sat | No | NaN | Direct Observation |
| Ramirez R | 3634 (on sheet, D) | 2004 | 6-9/2003 | 4 mo | Observational | NaN | Tertiary/Academic Center | Philippines | Ped unit in hospital | Children (all under 18) | General ICU | Data collection form | 36 (40 transports) | PICU | 12/40 | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | 6/40 | NaN | NaN | HR change (>20% change or abnormal) | 2/40 | NaN | NaN | 1 Desaturation 5% change for > 5 minutes; 1 RR Change | 4/40 | NaN | NaN | Loss of O2 Supply 2/40, Pulse Ox malfunction 2/40 | NR | NaN | NaN | NR | NaN | NaN | NaN | 1/40 | NaN | NaN | Hypothermia | Age not a factor, illness not a factor | NR | Non specific | None referenced | Study of transport of ICU patients to/from unit only collected equipment issues and changes in vitals | No | Can't tell | Yes | Can't tell | No | No | Can't tell | Can't tell | No | Can't tell | NaN | NaN | NaN | NaN | Alterations in hemodynamics | No?? | NaN | Unclear |
| Harer MW | 3653 | 2017 | 2014-2015 | NR | Observational | NaN | Tertiary/Academic Center | USA/VA | Ped hospital | Neonates alone | NICU | Record review | 325 (168 pre-intervention, 157 post) | Preterm infants | 0.267 | NaN | NaN | 26.7% of total population with abnormal T (>37.5 or < 36) 87/325. 72/325 wtih T<36 15/325 T>37.5 | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NaN | NR | NaN | NaN | NR | NaN | NaN | NaN | Hypothermia 22.2%; Fever 4.6% | NaN | NaN | NaN | NR | Bundle (warmer room, radiant heat, plastic wrap) reduced hypothermia and moderate hypothermia rates. Fever rate increased, not statistically significant | Use of warm delivery rooms, exothermic mattresses, radiant warmers and plastic wraps can reduce temperature loss. | No - reference is for neonatal resuscitation program which doesn't address transport? | QI Study, pre/post interventions looking only at hypothermia/fever rate in premature infants, looking at transfer from delivery room to NICU | Yes | Yes | Yes | Yes | Can't tell | Yes | Can't tell | Yes | Yes | Yes | NaN | NaN | NaN | NaN | Temp | No | NaN | Direct Observation |