# Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

## eAppendix 1. Methods

**Eligibility criteria**
Eligible studies were prospective or retrospective cohort studies, case-control studies or case-cohort studies that compared outcomes of children (≤ 19 years of age) admitted to hospitals following trauma in PTCs to those in ATCs, CTCs, or non-designated hospitals (eTable 1).

## eTable 1. Definitions Used for Study Inclusion Criteria

| **Inclusion criteria** | |
|---|---|
| Pediatric patients | Children or adolescents ≤19 years of age[1,2] |
| Hospital admission | Admitted to an acute care hospital – admission to the ward or died in the emergency department |
| PTC | Acute care hospital equipped and staffed to provide care for **pediatric** patients[1] suffering from major traumatic injuries, designated by a recognised authority (e.g. state, American College of Surgeons) |
| ATC | Acute care hospital equipped and staffed to provide care for **adult** patients[1] suffering from major traumatic injuries, designated by a recognised authority (e.g. state, American College of Surgeons) |
| CTC | Acute care hospital equipped and staffed to provide care for **adult or pediatric** patients[1] suffering from major traumatic injuries, designated by a recognised authority (e.g. state, American College of Surgeons) |

PTC, pediatric trauma center; ATC: adult trauma center; CTC, combined trauma center
[1]There is currently no consensus on age cut-offs for pediatric trauma populations so the World Health Organisation definition of children and adolescents was used (https://www.who.int/health-topics/adolescent-health#tab=tab_1)
[2]Studies including patients >19 years of age were included if ≤ 19-year-olds represented more than 80% of the study population.

We applied no restrictions to language or date of publication. Articles in languages other than English were translated. If information to be extracted was unavailable or unclear, we contacted the study authors for clarification. Studies reporting on diverse populations were included if data on pediatric trauma patients could be extracted. We also excluded studies presenting no data on selected outcomes and exposures, conference abstracts, unpublished studies, narrative reviews, case reports, in addition to studies reporting drowning, burns, foreign bodies, poisoning, late effects of injury, cadaver or animal studies.

**Information sources**
We conducted a systematic search of the Medical Literature Analysis and Retrieval System Online (MEDLINE, via PubMed), Excerpta Medica dataBASE (EMBASE), Web of Science and Cumulative Index to Nursing and Allied Health Literature (CINAHL) from inception to up to February 28th, 2023. Thesis repositories, healthcare quality websites and references of included studies were also screened.

**Search strategy**
Our search strategy was designed using a combination of Boolean terms with relevant keywords and subject headings for EMBASE (EMBASE tree; EMTREE) and MEDLINE (Medical Subject Headings; MeSH), and then adapted to the remaining databases (eTable 2). Clinicians practising in pediatric trauma care and information specialists were consulted to refine the search strategy using the Peer Review of Electronic Search Strategies checklist.[1]

## eTable 2. Search Strategies

| Concepts | PubMed search strategy | Search | # Results |
|---|---|---|---|
| Pediatric trauma | ("Wounds and Injuries"[Mesh:NoExp] OR Trauma*[TIAB]) AND (child[Mesh:NoExp] OR child*) OR "Pediatric Emergency Medicine"[Mesh] | #1 | 90,491 |
| Trauma center | "Trauma Centers"[Mesh] OR pediatric trauma cent*[TIAB] OR Adult trauma cent*[TIAB] | #2 | 12,990 |
| Total for PubMed | #1 AND #2 | #3 | 2,792 |
| **Concepts** | **Embase search strategy** | **Search** | **# Results** |

| | | | |
|---|---|---|---|
| Pediatric trauma | 'injury'/de AND 'child'/de OR 'pediatric emergency medicine'/de | #4 | 36,323 |
| Trauma center | 'emergency health service'/de OR "pediatric trauma cent*":ti,ab,kw OR "Adult trauma cent*":ti,ab,kw | #5 | 113,274 |
| Total for Embase | #4 OR #5 | #6 | 1,511 |
| **Concepts** | **Web of Science search strategy** | **Search** | **# Results** |
| Pediatric trauma | TS=(injury or child*) | #7 | 3,233,494 |
| Trauma center | TS=("pediatric trauma cent*" OR "Adult trauma cent*") | #8 | 1,139 |
| Total for Web of Science | #7 OR #8 | #9 | 1,049 |
| **Concepts** | **CINAHL search strategy** | **Search** | **# Results** |
| Pediatric trauma | MH Child AND MH "Wounds and Injuries" | #10 | 5,456 |
| Trauma center | MH "Trauma Centers" OR TI "pediatric trauma cent*" OR AB "pediatric trauma cent*" OR TI Adult trauma cent* OR AB Adult trauma cent* | #11 | 3,142 |
| Total for CINAHL | Limit to articles since 2007 | #12 | 200 |

**Selection process**
Pairs of reviewers (KM, LM, PAT, AA, TD) independently assessed study eligibility. Inter-reviewer agreement on eligibility was assessed using the first 500 citations. We repeated this process until acceptable inter-rater agreement was attained. Discrepancies between reviewers were resolved by consensus and a third reviewer adjudicated when necessary (LM). Citations were managed using EndNote software (version X9.3.3, New York City: Thomson Reuters, 2018). We managed duplicates via electronic and manual screening. If multiple publications based on the same dataset are identified by crosschecking authors, dates and settings, we selected only one publication for analyses based on study dates (most recent) and sample size (largest).

**Data collection process**
We developed a standard electronic data extraction form and a detailed instruction manual and piloted it on a representative sample of ten publications. Pairs of reviewers (KM, LM, PAT) independently extracted data including study design, setting (country), patient characteristics (age, injury mechanisms, type and severity of injuries), hospital characteristics (PTC/ATC/CTC, trauma center designation level, and verification organisation), outcome measures, adjustment variables, and measures of association and variation.

**Outcomes**
Our primary outcomes of interest, defined *a priori* in collaboration with our advisory committee, were mortality, complications, functional status, discharge destination, and quality of life (eTable 3). Secondary outcomes were resource utilisation and processes of care. For example, use of computed tomography [CT] imaging or operative management of blunt solid organ injuries.

## eTable 3. Definitions Used for Study Outcomes

| **Outcomes** | |
|---|---|
| Mortality | Any emergency department or in-patient death, all causes |
| Complications | In-patient complications as defined by authors[1] |
| Functional status | As measured by a validated instrument (e.g. Glasgow Outcome Scale, the Functional Independence Measure) on discharge or during follow-up |
| Discharge destination | Patient destination on hospital discharge (e.g. home, rehabilitation, long-term care) |
| Resource use | Hospital length of stay, intensive care unit admission, intensive care unit length of stay, ventilator days, costs, or charges |
| Processes of care | Any diagnostic or therapeutic intervention considered by the authors as an outcome of interest (e.g., use of computed |

| | |
|---|---|
| | tomography imaging or operative management of blunt solid organ injuries[2]) |

[1]Currently no consensus on a definition of complications for pediatric injury populations
[2]Does not include interventional radiology

**Risk of bias assessment**
Three content experts (LM, PAT, JG) independently rated risk of bias using the Risk of Bias in Non-randomized Studies of Interventions (ROBINS-I) tool.[2] The tool considers bias due to confounding, selection of participants into the study, misclassification of interventions, deviations from intended interventions, missing data, measurement of outcomes, and selection of the reported results. We resolved disagreements via arbitration with a third reviewer (NY). Two content experts (LM, PAT) evaluated the quality of evidence using Grading of Recommendations, Assessment, Development and Evaluation (GRADE) criteria.[3] We assessed publication bias using a contour-enhanced funnel plot and estimated the magnitude of the potential bias with the trim-and-fill method.[4]

**Effect measures**
We summarized data for dichotomous outcomes using odds ratios (ORs) along with 95% confidence intervals (CIs). Mean differences (MDs) or geometric mean ratios (GMRs) were used for continuous outcomes.

**Synthesis methods**
We restricted data synthesis to studies presenting risk-adjusted measures of association, i.e. measures minimally adjusted for age and injury severity; in the context of a review limited to observational studies with a very high risk of indication bias, unadjusted comparisons were considered not to produce meaningful results. When two studies or more evaluated the same exposure-outcome association, we conducted meta-analyses. We calculated pooled effect estimates and 95% confidence intervals (CIs) using random-effects models with an exact Mantel-Haenszel method, as design-related heterogeneity was present. Due to variations in sample sizes, we estimated between-study variance ($\tau^2$) with the restricted maximum likelihood estimator and CIs with the Q-profile method. We applied a Hartung-Knapp correction in order to reflect uncertainty in estimating $\tau^2$. We presented results using forest plots. We measured the heterogeneity of included studies using the $I^2$ statistic and interpreted as low if 0 to 40%, moderate if 30 to 60%, substantial if 50 to 90% and considerable if 75 to 100%. Given that $I^2$ tends toward 100% as sample sizes increase, we calculated prediction intervals around the pooled effect size as recommended in the Cochrane handbook.[5] These intervals present the range within which we expect the effect sizes of future studies when taking into consideration the current evidence. All analyses were conducted using R Statistical Software (4.2.1; R Core Team 2021) using the following R packages: meta (v6.0.0; Balduzzi, Rücker, and Schwarzer 2019), metafor (v3.8.1; Viechtbauer) and dmetar (Harrer, Cuijpers, Furukawa, T.A & Ebert, 2019).

**Grading evidence**
Two content experts (LM, PAT) independently graded evidence by applying Grading of Recommendations Assessment, Development and Evaluation (GRADE) criteria:[3] 1) risk of bias in the individual studies, 2) inconsistency, 3) indirectness, 4) imprecision, and 5) publication bias. In accordance with GRADE guidelines for grading evidence from non-randomized intervention studies, we then graded the certainty of evidence as high, moderate, low, or very low.

**Pre-specified subgroup and sensitivity analyses**
We conducted subgroup analyses for factors thought to modify the effectiveness of PTCs identified on consultation with our advisory committee: age, type of injury, injury severity, trauma center designation levels and verification body, country, and study period (eTable 4). To assess the impact of risk of bias on effect estimates, we repeated analyses excluding studies with a critical risk of bias. Finally, outliers were identified using a two-step analysis aiming to identify (1) studies whose upper bound of the 95% CI was lower than the lower bound of the pooled effect (extremely small effects) and (2) studies whose lower bound of the 95% CI was higher than the upper bound of the pooled effect (extremely large effects).[6]

## eTable 4. Subgroup and Sensitivity Analyses

| **Pre-specified** | |
|---|---|
| Age | ≤15 years; 14-19 years[1] |
| Injury type | Traumatic brain; blunt solid organ; penetrating[2] |
| Injury severity | Major trauma (ISS≥12)[3] |
| Trauma center designation level | All level I; all level I or II ACS |
| Accrediting body | All TCs accredited by the same organisation (e.g. ACS) |
| Country | USA; other countries[4] |
| Study period | 2010-2014; 2015-2019 |
| Risk of bias | Moderate or serious[5]; critical |
| Outliers | According to recommendations |
| **Post-hoc** | |
| Patient transfers[6] | Excluded; included and adjusted for; included and not adjusted for |

ISS, Injury Severity Score; ACS, American College of Surgeons; TC, trauma center; USA: United States of America
[1]Due to insufficient number of studies, preplanned categories 0-8 and 9-15 had to be grouped and preplanned category ≥16 had to be extended to 14 (11 studies focussed on adolescents but only one used an age cut-off of 16)
[2]Insufficient number of studies to conduct analyses for a priori categories spinal cord injury and major orthopedic injury
[3]Insifficient number of studies to conduct analyses for other categories of injury severity
[4]Insufficient number of studies to look at countries other than the US individually
[5]Only one study was moderate and none were low
[6]This subgroup analysis was added to assess the impact of what was considered potentially the most important source of bias

**Protocol deviations**
We were unable to limit our review to major trauma because studies used heterogeneous criteria to define injury severity (ISS, AIS, physiological criteria, LOS, interventions). We thus used 'admission to an acute care hospital following injury' as our inclusion criteria and conducted subgroup analysis for major trauma. We had to group pre-specified subgroup categories, <8 and 9-15 years of age due to the lack of studies on children 9-15 years. We had to extend our pre-planned threshold for older adolescents from 16 to 14 because although 11 studies focussed on adolescents, only one used an age cut-off of 16 years of age or greater. Planned subgroup analyses for country/continent had to be modified to analysis of studies conducted in the USA as only 19% of included studies were conducted in other countries. Due to lack of studies or differences in measures reported, we were unable to conduct meta-analyses for the following preplanned outcomes: functional status, quality of life, discharge destination, hospital and ICU LOS, ventilator days, and costs. We were also unable to conduct meta-analyses for the contrast PTC versus non-designated hospitals, and subgroup analyses for outcomes other than mortality and operative management.

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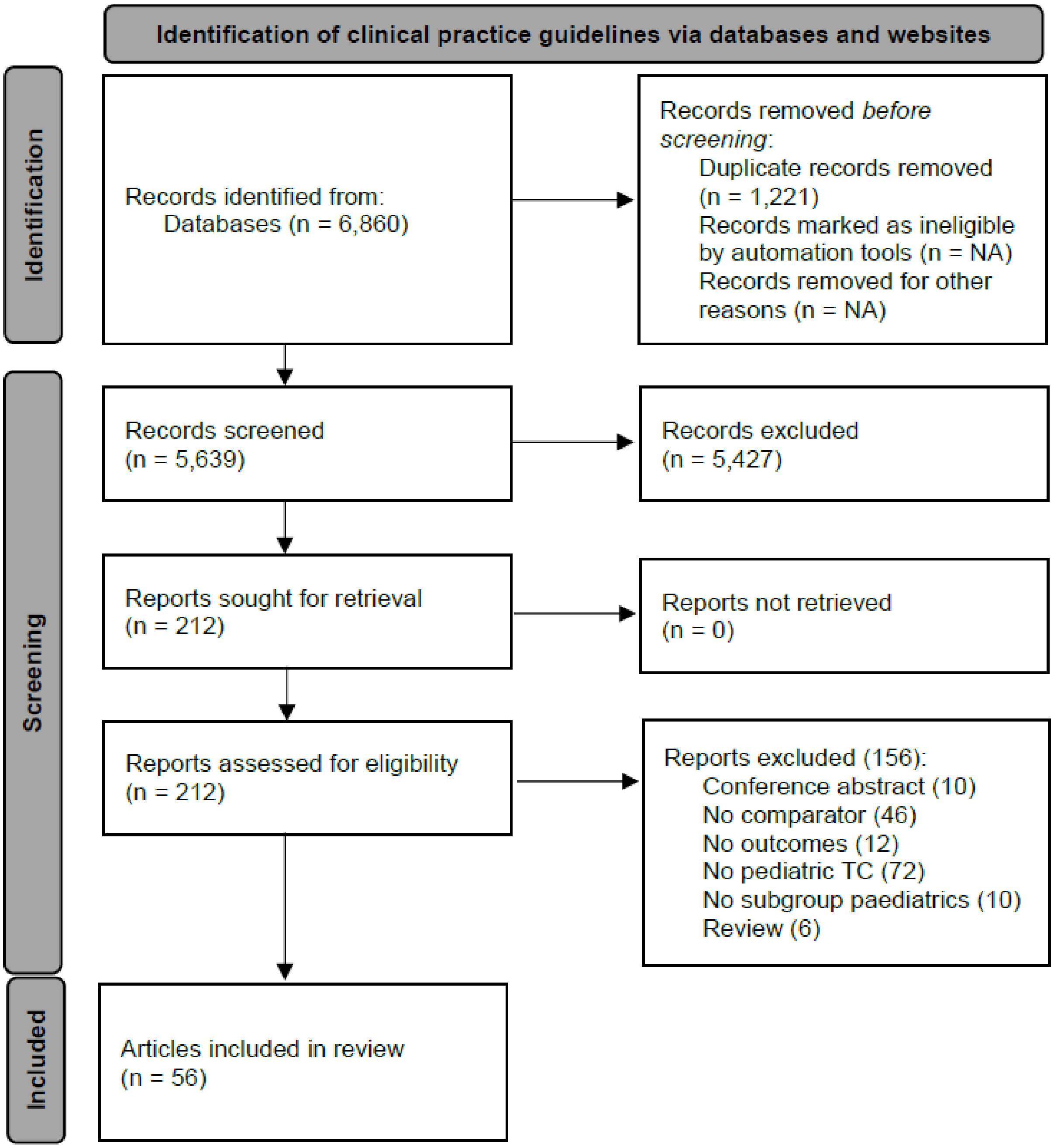
## eAppendix 2. Results (Tables, Figures and References)

## eFigure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analysis Flow Diagram



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## eTable 5. Characteristics of Included Studies

| First author<br>Year | Country<br>Study period | Setting | Population | **Intervention**<br>Type of center; designation level; verification status | **Comparator**<br>Type of center; designation level; verification status | Outcomes |
|---|---|---|---|---|---|---|
| Gerber<br>2023[1] | USA<br>2011-2015 | ACS-verified level **I-II** trauma centers submitting to the NTDB | Children **< 18 yoa** with isolated mild traumatic brain injury | PTC; **I-II**; ACS | ATC; **I-II**; ACS | Head CT* |
| Derderian<br>2022[2] | USA<br>2016-2018 | Trauma centers participating in TQIP | Adolescents **16 - 19 yoa** with **blunt solid organ injuries** | PTC; nr; nr | ATC; nr; nr | Mortality*<br>ICU admission<br>Hospital LOS<br>Operative management<br>RBC transfusions |
| Hairr<br>2022[3] | USA<br>2017-2017 | Trauma centers participating in TQIP | Children < **19 yoa** admitted following **injury** | PTC with <600 beds | Non-designated with <600 beds | Mortality* |
| Lewit<br>2022[4] | USA<br>2015 | Trauma centers submitting to the NTDB | Children **< 17 yoa** with **isolated head injuries** | PTC; nr; nr | ATC; nr; nr<br>CTC; nr; nr | Mortality*<br>ICU admission<br>LOS<br>Ventilator use |
| Killien<br>2022[5] | USA<br>2007-2016 | Level **I** and **II** trauma centers submitting to the NTDB | Children **<18 yoa** with **isolated severe traumatic brain injury** | PTC; **I-II**; state ± ACS | ATC; **I-II**; state ± ACS | Tracheostomy* |
| Pulido<br>2022[6] | USA<br>2003-2018 | All ACS-verified level **I-II** trauma centers in Pennsylvania (PTOS) | Children < **15 yoa** with **liver injuries** | PTC; **I-II**; ACS | ATC; **I-II**; ACS | Mortality*<br>Hospital LOS<br>ICU LOS<br>Operative management*<br>Functional status on discharge |
| Sheff<br>2022[7] | USA<br>2013-2017 | Trauma centers participating in TQIP | Adolescents **15 - 17 yoa** with **isolated severe traumatic brain injury** | PTC; **I**; state ± ACS | ATC; **I**; state ± ACS<br>CTC; **I**; state ± ACS | Mortality*<br>ICU admission* |
| Stephenson<br>2022[8] | USA<br>2016-2019 | ACS-verified level **I-II** trauma centers submitting to the NTDB | Adolescents **14 - 18 yoa** admitted following injury | PTC; **I-II**; ACS | ATC; **I-II**; ACS<br>CTC; **I-II**; ACS | Mortality* |
| Ali<br>2021[9] | USA<br>2013-2015 | Level **I** and **II** trauma centers submitting to the NTDB | Children **≤ 14yoa** with **pelvic fractures** | PTC; **I-II**; state ± ACS | ATC; **I-II**; state ± ACS | Mortality*<br>Complications*<br>Abdomen/pelvis CT*<br>Head CT* |

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| | | | | | | Thoracic CT*<br>Whole body CT* |
| Evans 2021[10] | UK<br>2012-2018 | All major trauma centers in the UK (TARN) | Adolescents **14 - 18 yoa** with **moderate to severe injuries** (TARN inclusion criteria) | PTC; major trauma centers; UK MoH | ATC; major trauma centers; UK MoH<br>CTC; major trauma centers; UK MoH | Mortality* |
| Khalil 2021[11] | USA<br>2011-2012 | Level I-IV trauma centers submitting to the NTDB | Children **< 19 yoa** with **severe injuries** (ISS>15) | PTC; I-II; state ± ACS | ATC; I-IV; state ± ACS | ED mortality*<br>IP mortality*<br>IP complications*<br>Hospital LOS<br>ICU-free LOS<br>Ventilator days<br>Discharge disposition |
| Kim, 2021[12] | USA<br>2016 | Trauma centers submitting to the NTDB | Children **< 15 yoa** with **cervical spine injury** | PTC | ATC; I-III; state ± ACS<br>CTC; I-III; state ± ACS<br>Non-designated | Operative management<br>Imaging |
| Massoumi 2021[13] | USA<br>2015-2016 | Trauma centers participating in TQIP | Children **< 18 yoa** admitted following **injury** | PTC; I; state ± ACS<br>PTC; all; state ± ACS | ATC; I; state ± ACS<br>ATC; I-IV; state ± ACS<br>Non -designated | Cervical spine CT*<br>Cervical spine MRI<br>Cervical spine X-ray |
| Scantling 2021[14] | USA<br>2007-2017 | Stand-alone urban PTC and ATC in Pittsburgh and Philadelphia (PTOS) | Children **14-18 yoa** with **firearm injuries** | PTC; I; nr | ATC; I-II; nr | Mortality* |
| Swendiman 2021a[15] | USA<br>2010-2016 | ACS-verified level I-II trauma centers submitting to the NTDB | Children **13-16 yoa** with **firearm injuries** | PTC; I-II; ACS | ATC; I-II; ACS<br>CTC; I-II; ACS | Mortality* |
| Swendiman 2021b[16] | USA<br>2010-2015 | ACS-verified level I&II trauma centers submitting to the NTDB | Children **< 18 yoa** with **blunt splenic injuries** | PTC; I-II; ACS | ATC; I-II; ACS<br>CTC; I-II; ACS | Angioembolization*<br>Splenectomy* |
| Yanchar 2021[17] | Canada<br>2012-2016 | One PTC and one ATC in southern Alberta trauma system | Adolescents **15-17 yoa** with **intra-abdominal injury, femur fracture or TBI** | PTC; I; provincial | ATC; I; provincial | Whole body CT |
| Filipescu 2020[18] | USA<br>2011-2015 | ACS-verified level I-II trauma centers submitting to the NTDB | Children **0-18 yoa** with **splenic injuries** | PTC; I-II; state ± ACS | ATC; I-II; state ± ACS<br>CTC; I-II; state ± ACS | Operative management* |

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| Hatchimonji 2020[19] | USA 2010-2016 | ACS-verified level I trauma centers submitting to the NTDB | Children **< 20 yoa** with **firearm injuries** | PTC; I; ACS | ATC; I; ACS<br>CTC; I; ACS | Mortality* |
| Prieto 2020[20] | USA 2016 | ACS-verified level I-II trauma centers submitting to the NTDB | Children **< 17 yoa** with **extremity vascular injuries** | PTC; I-II; ACS | CTC; I-II; ACS | Surgical amputation* |
| Prieto, 2020[21] | USA 2007-2014 | All trauma centers in California | Children **< 18 yoa** with **extremity arterial injury** | PTC | ATC | Mortality<br>Amputation |
| Strait, 2020[22] | USA 2014-2016 | Trauma centers submitting to the NTDB | Children **< 15 yoa** with **minor injury** | ACS; I-II; PTC | ACS; I-III;<br>state ± ACS | CT scans |
| Swendiman 2020[23] | USA 2010-2014 | ACS-verified level I-II trauma centers submitting to the NTDB | Children **< 10 yoa** with **isolated blunt solid organ injuries** | PTC; I-II; ACS | ATC; I-II; ACS<br>CTC; I-II; ACS | Interventional radiology* |
| Yung 2020[24] | USA 2007-2016 | ACS-verified level I and II trauma centers submitting to the NTDB | Children **< 20 yoa** with **isolated liver and spleen injuries** | PTC; I-II; ACS | ATC; I-II; ACS<br>CTC; I-II; ACS | Operative management* |
| Alexander 2019[25] | USA 2004-2017 | ACS-verified level I trauma center in Iowa | Children **< 18 yoa** admitted for a **blunt splenic injuries** | PTC; I; ACS | ATC; I; ACS | Average hospital charges<br>Average professional charges |
| Myers 2019[26] | USA 2006 | All US hospitals (HCUP) | Children **< 17 yoa** with **injury diagnostic code** | PTC; I-II; state ± ACS | ATC; I-II; state ± ACS | Mortality* |
| Sathya, 2019[27] | USA 2010-2013 | Trauma centers participating in TQIP | Children **< 19 yoa** with **blunt moderate to major trauma** | PTC | CTC<br>ATC | CT imaging |
| Vassallo, 2019[28] | GB | All major trauma centers and trauma units in GB (TARN) | Children **< 19 yoa** with traumatic cardiac arrest | PTC or CTC | ATC | Mortality |
| Bardes 2018[29] | USA 2007-2014 | ACS-verified level I trauma centers submitting to the NTDB | Children **< 15 yoa** with **isolated, blunt, severe TBI** | PTC; I; ACS | ATC; I; ACS<br>CTC; I; ACS | Mortality* |
| Schlegel, 2018[30] | USA 2005-2016 | ATC that became ACS-verified PTC | Children **< 16 yoa** presenting as level I trauma activations | PTC | ATC | Mortality<br>ICU admission<br>Operative management |
| Adams 2017[31] | Australia 2000-2011 | All hospital in New South Wales | Children **0–16 yoa** with **blunt splenic injuries** | PTC; NSW MoH | ATC; metropolitan or rural; NSW MoH<br>Local health facility; metropolitan or rural; NSW MoH | Splenectomy* |

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|---|---|---|---|---|---|---|
| Mitchell 2017[32] | Australia 2009-2014 | Trauma centers submitting to the New South Wales Trauma Registry | Trauma patient **< 16 yoa** hospitalised with **major trauma** (ISS > 12) | PTC; I; MoH | ATC; I; MoH<br>ATC; II-III; MoH | Mortality* |
| Miyata 2017a[33] | USA 2007-2014 | Level I or II centers submitting to the NTDB | Children **<19 yoa** with grade III-IV **blunt splenic injuries** | PTC; I-II; state ± ACS | ATC; I-II; state ± ACS<br>CTC; I-II; state ± ACS | Mortality*<br>Splenic surgery*<br>Total splenectomy* |
| Miyata 2017b[34] | USA 2007-2012 | Trauma centers submitting to the NTDB | Children **≤ 18 yoa** with **penetrating injuries** | PTC; nr; state ± ACS | ATC; nr; state ± ACS | Mortality*<br>Discharge destination |
| Baudin, 2016[35] | France 2005-2007 | Un CTC and a PTC in Lyon | Children **1-15 yoa** admitted for **major trauma** | PTC | CTC | Early mortality<br>Time to CT |
| Pandit 2016[36] | USA 2011-2012 | Level I-II trauma centers submitting to the NTDB | Patients **< 18 yoa**, with **head, chest, or abdominal & pelvic CT** | PTC; I-II; nr | ATC; I-II; nr | Whole body CT* |
| Safavi 2016[37] | USA 2011-2012 | ACS-verified level I-II ATC and PTC submitting to the NTDB | Patients **<18 yoa** with **isolated blunt solid organ injuries** | PTC; I-II; ACS | ATC; I-II; ACS | Splenic surgery* |
| Walther 2016[38] | USA 2007-2011 | ACS-verified level I ATC and PTC submitting to the NTDB | Adolescents **15–19 yoa** with **LOS> 1 day** | PTC; I; ACS | ATC; I; ACS | Mortality* |
| Webman 2016[39] | USA 2010 | Level I-II trauma centers submitting to the NTDB | Patients **15-19 yoa** with **injuries** | PTC; I-II; nr | ATC; I-II; nr<br>CTC; I-II; nr | Mortality*<br>In-hospital mortality<br>Discharge to rehabilitation |
| Kelley-Quon 2015[40] | USA 2000-2013 | Community hospital that became level II PTC in Los Angeles | Children **< 15 yoa** admitted for **injury** | PTC; II; | ATC; II; nr | CT imaging* |
| Marin 2015[41] | USA 2010-2013 | 14 network-affiliated EDs in Pittsburgh | Children **< 19 yoa** with an **injury diagnosis** | PTC; I; nr | Non-designated | Any CT*<br>Abdominal CT*<br>Head CT*<br>C-spine CT*<br>Chest CT* |
| Sathya 2015[42] | USA 2010-2013 | Level I-II trauma centers participating in TQIP | Children **< 19 yoa** with **moderate-severe injuries** (AIS ≥ 2) | PTC;I-II; ACS or state | ATC;I-II; ACS or state<br>CTC;I-II; ACS or state | Mortality* |
| Walther 2014[43] | USA 2008-2012 | Level I-II trauma centers in Ohio | Children **15-19 yoa** with **LOS≥1 day** | PTC;I-II; ACS | ATC; I; ACS | Mortality*<br>Hospital LOS<br>ICU LOS<br>Ventilator days |
| Lippert 2013[44] | USA 1999-2010 | Level I ATC and PTC in New York State | Adolescents **14-17 yoa** with **blunt splenic injuries** | PTC; I; nr | ATC; I; nr | Splenectomy* |

| | | | | | | |
|---|---|---|---|---|---|---|
| Matsushima 2013a[45] | USA 2005-2010 | Trauma centers in Pennsylvania (PTOS) | Adolescents **13-18 yoa** with **moderate to severe injuries** (LOS>48hrs, transfer-in, ICU unit admission, or death) | PTC; **I**; state ± ACS | ATC; **I-III**; state ± ACS | Mortality*<br>Complications*<br>CT<br>Laparotomy* |
| Matsushima 2013b[46] | USA 2005-2010 | Trauma centers in Pennsylvania (PTOS) | Adolescents **13-18 yoa** with **blunt spleen, liver, or kidney injuries** | PTC; nr; state ± ACS | ATC; nr; state ± ACS | Splenic surgery* |
| Mitchell 2013[47] | Australia 2003-2008 | Trauma centers in New South Wales | Children **< 16 yoa** with **severe injuries** (ISS > 15) | PTC; **I**; MoH | ATC; **I**; MoH<br>ATC; **II-III** or non-designated; MoH | Mortality* |
| Wang 2013[48] | USA 1999-2014 | All hospitals in California (patient discharge data) | Children **< 19 yoa** with **injury diagnostic code** | PTC; **I-II**; state ± ACS | ATC & CTC; **I-II**; state ± ACS | Mortality* |
| Amini 2011[49] | Canada 1998-2005 | 58 designated trauma centers in regionalized trauma system in Québec (two PTC, four level I,four level II, 20 level III and 28 level IV ATC) | Children **< 17 yoa** with **moderate to severe injuries** (LOS>48hrs, transfer-in, ICU unit admission, or death) | PTC; **I**; MoH | PTC; **I**; MoH<br>PTC; **II**; MoH<br>PTC; **III**; MoH<br>PTC; IV; MoH | Mortality* |
| Potoka 2002[50] | USA 1993-1997 | Trauma centers in Pennsylvania (PTOS) | Children **<17 yoa** with **blunt splenic injuries** | PTC; **I**; state ± ACS | ATC; **I-II**; state ± ACS | Splenectomy* |
| Osler 2001[51] | USA 1985-1996 | Trauma centers submitting to the National Pediatric Trauma Registry | Children **<19 yoa** admitted for **injury** | PTC; nr; state ± ACS | CTC; nr; state ± ACS | Mortality* |
| Potoka, 2001[52] | USA 1993-1997 | All trauma centers in Pennsylvania | Children **0 to 16 yoa** admitted for injury | PTC; **I**; PTSF | ATC; **I**; PTSF<br>ATC; **II**; PTSF<br>CTC; **I**; PTSF | Functional status on discharge |
| Potoka, 2000[53] | USA 1993-1997 | All trauma centers in Pennsylvania | Children **0 to 16 yoa** admitted for injury | PTC; **I**; PTSF | ATC; **I**; PTSF<br>ATC; **II**; PTSF<br>CTC; **I**; PTSF | Mortality |
| Frumiento, 2000[54] | USA 1985-1995 | All hospitals in Vermont | Children **< 19 yoa** admitted for **splenic injury** | PTC; **I**; nr | Regional hospitals | Hospital charges<br>Nonoperative management |
| Bernardo, 1997[55] | USA 1993 | University-affiliated PTCs and ATCs in Pennsylvania | Adolescents **14-18 yoa** admitted for ≥48h with **isolated musculoskeletal, chest, or abdominal injuries** | PTC; level **I**; PTSF | ATC; level **I**; PTSF | Prescription and administration of analgesics |
| Nakayama, 1992[56] | USA 1986-1989 | All trauma centers in Pennsylvania | Children **< 15 yoa** admitted for injury | PTC; nr; PTSF | ATC; nr; PTSF | Mortality |

ACS, American College of Surgeons; ATC, adult trauma center; CT, computed tomography; CTC, Combined adult and pediatric trauma centers; FSD, functional status at discharge; ICU, intensive care unit; LOS, length of stay; MRI, magnetic resonance imaging; NTDB, National Trauma Data Bank; PTC, pediatric trauma center; PTSF, Pennsylvania State Trauma Systems Foundation; TQIP, Trauma Quality Improvement Program; USA, United States of America; Yoa, years of age
*Comparisons minimally adjusted for age and injury severity
References from studies are available in eReferences 3 below

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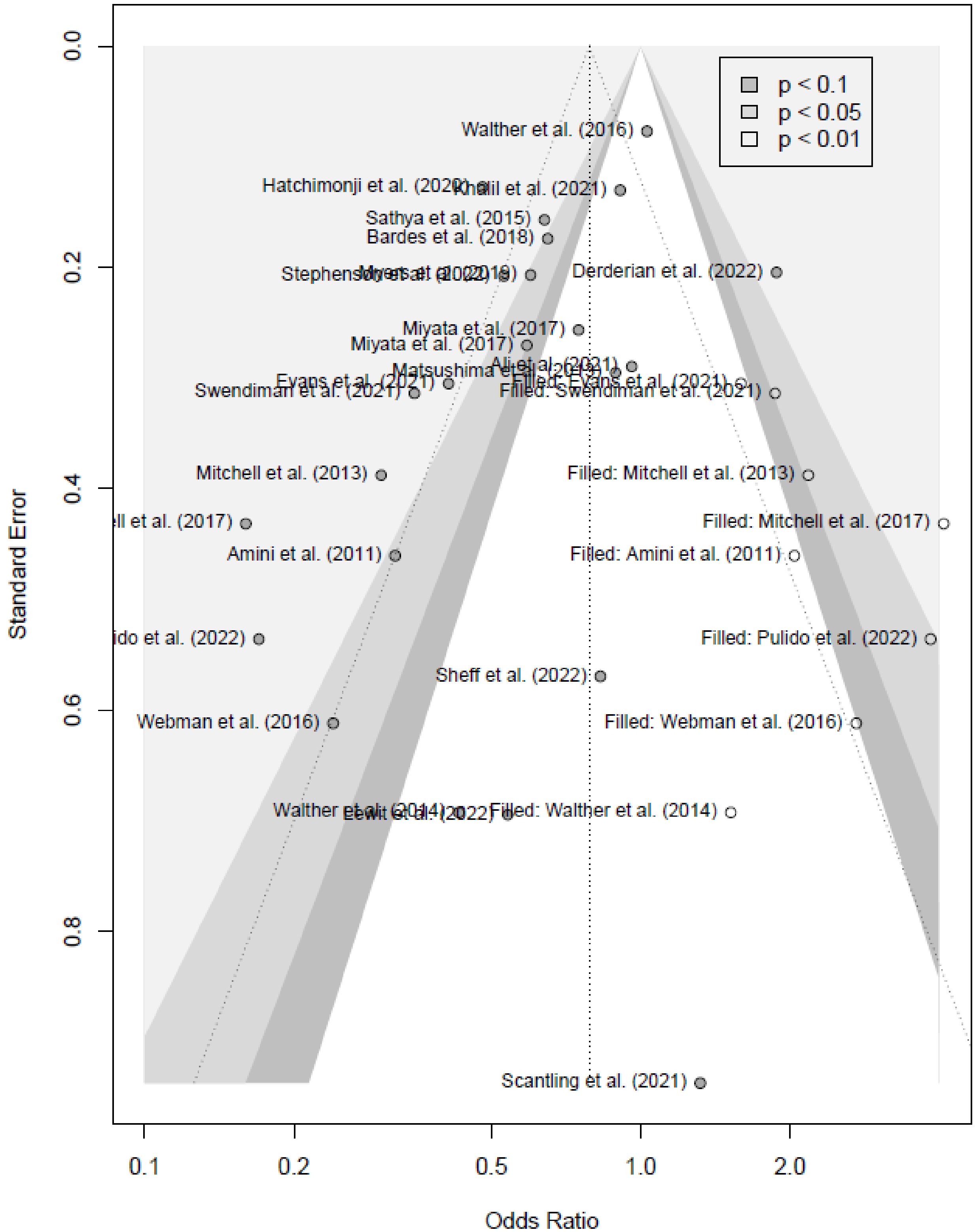
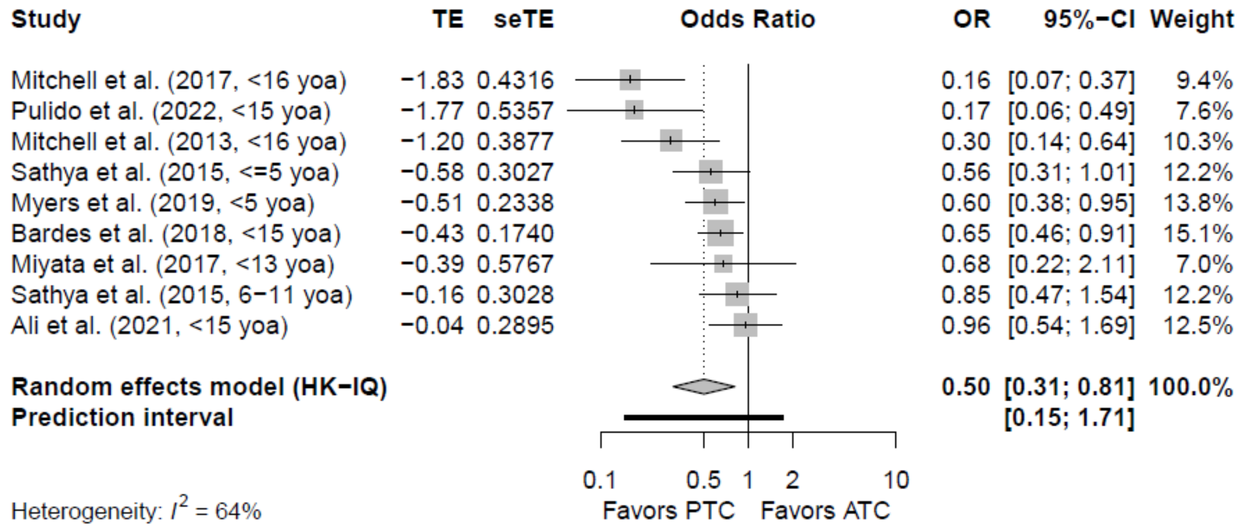
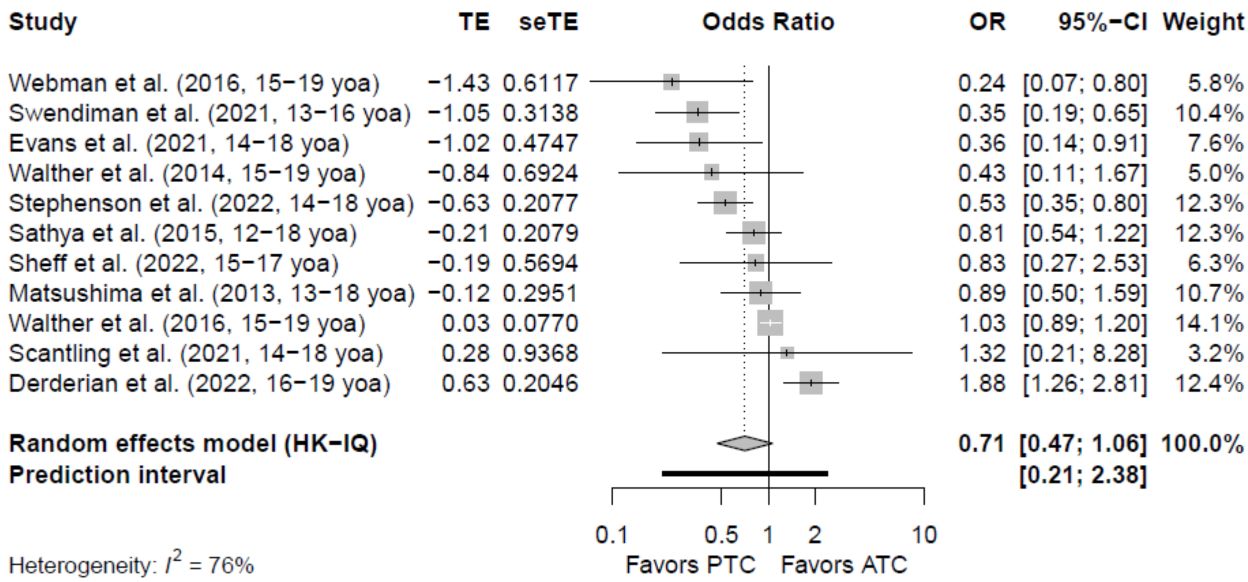
**eFigure 2. Enhanced Funnel Plot of Studies Evaluating the Odds of mortality in Pediatric Major Trauma at Pediatric Trauma Centers vs Adult Trauma Centers (Trim and Fill Method)**



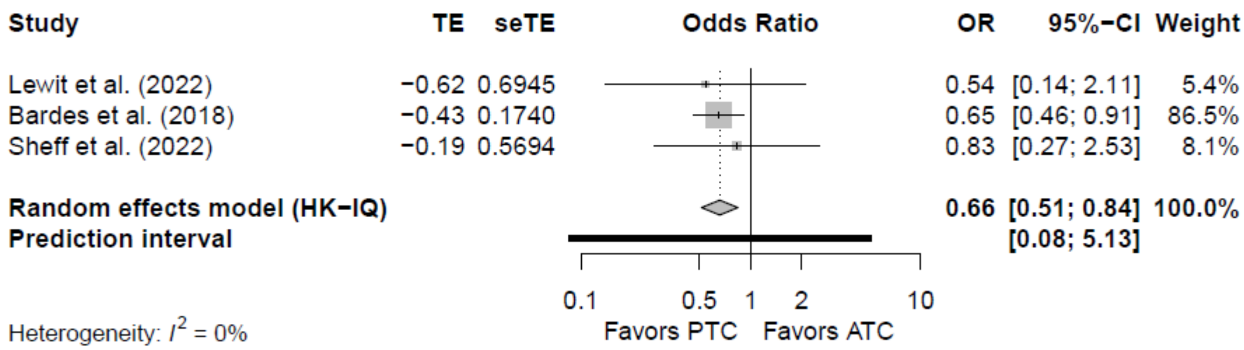
**eFigure 3. Forest Plots Describing the Odds of Mortality for Children Aged 15 Years or Less Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) Versus Adult Trauma Centers (ATCs)**



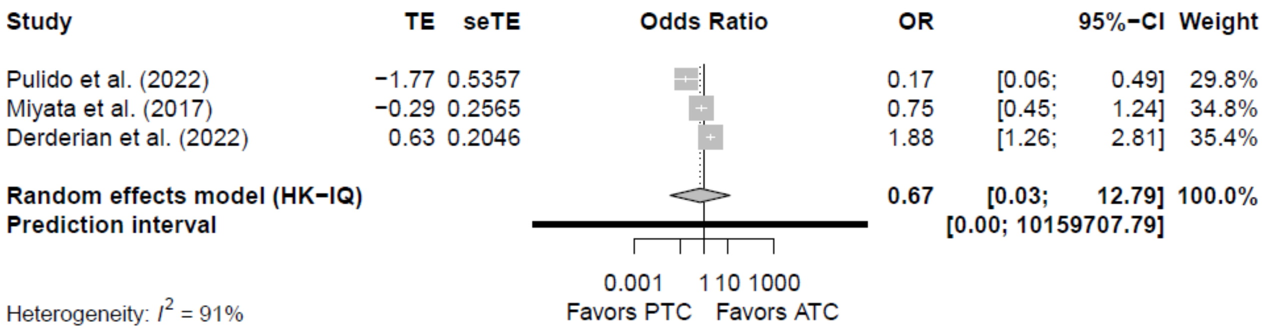
**eFigure 4. Forest Plots Describing the Odds of Mortality for Children Aged 14 Years or Less Admitted to Hospitals Following Trauma Treated at pediatric Trauma Centers (PTCs) Versus Adult Trauma Centers (ATCs)**



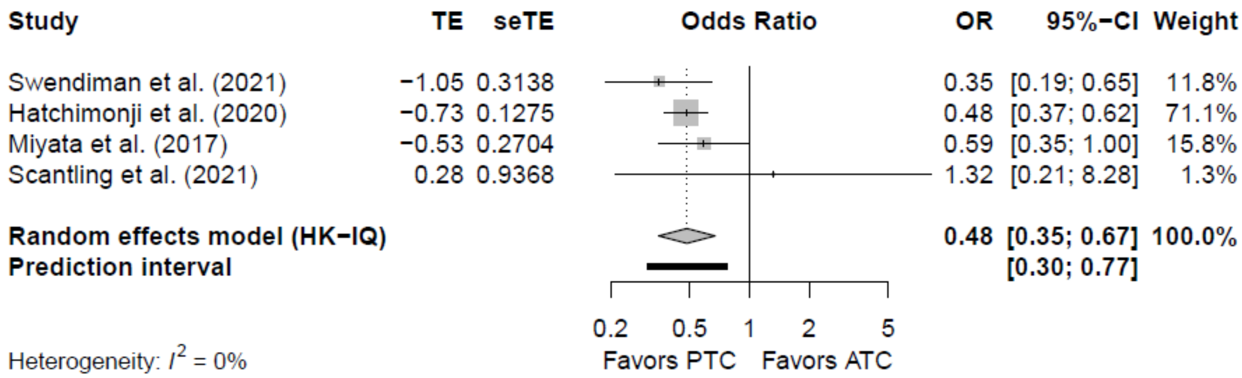
**eFigure 5. Forest Plots Describing the Odds of Mortality for Children With Head Injury Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**



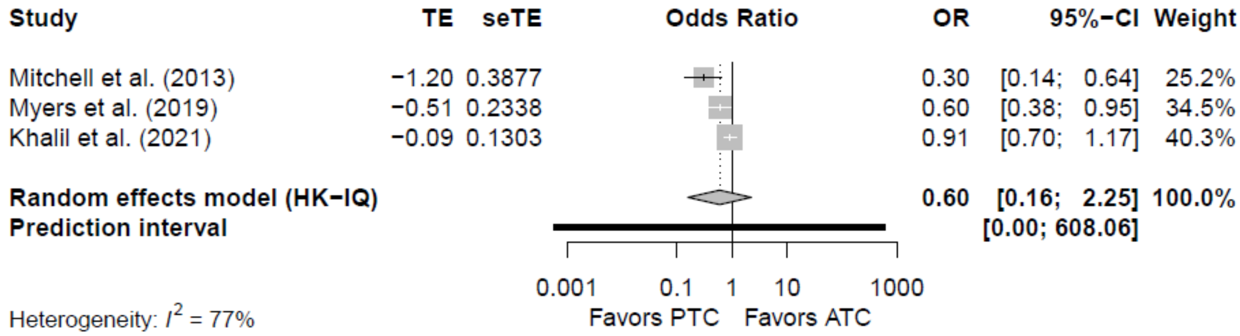
**eFigure 6. Forest Plots Describing the Odds of Mortality for Children With Blunt Solid Organ Injury Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**



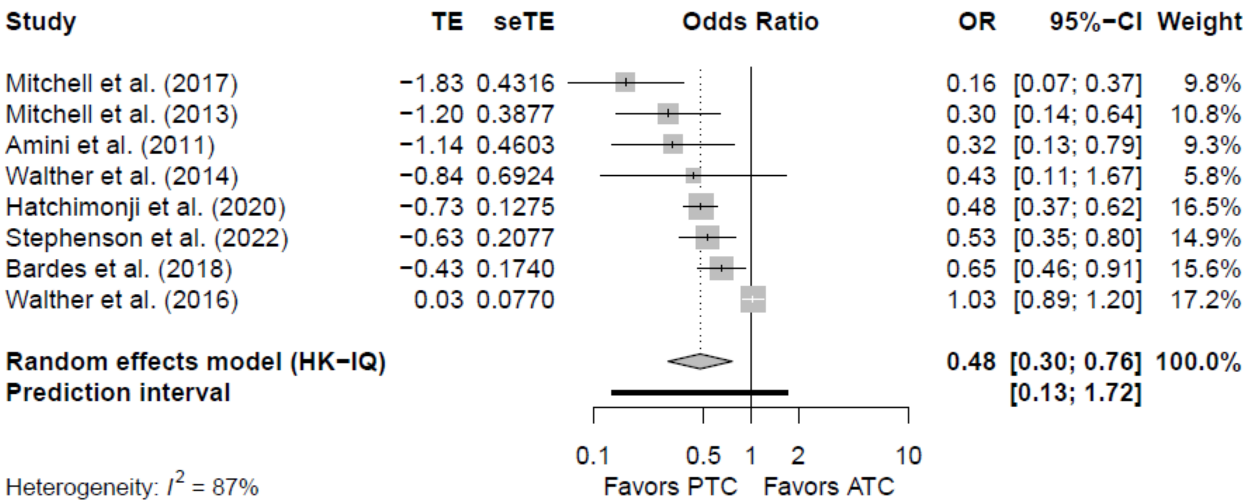
**eFigure 7. Forest Plots Describing the Odds of Mortality for Children With Penetrating Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**



**eFigure 8. Forest Plots Describing the Odds of Mortality for Children With Major Trauma (ISS ≥ 12) Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**

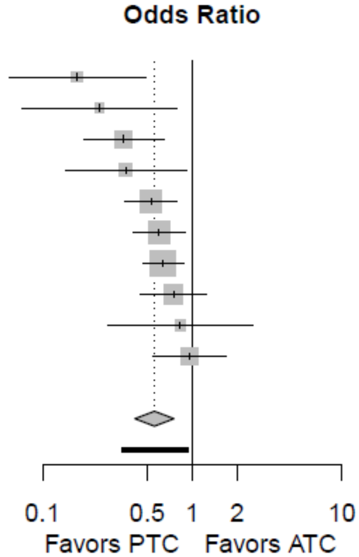


**eFigure 9. Forest Plots Describing the Odds of Mortality for children Admitted to Hospitals Following Trauma Treated at Level I Pediatric Trauma Centers (PTCs) vs Level I Adult Trauma Centers (ATCs)**



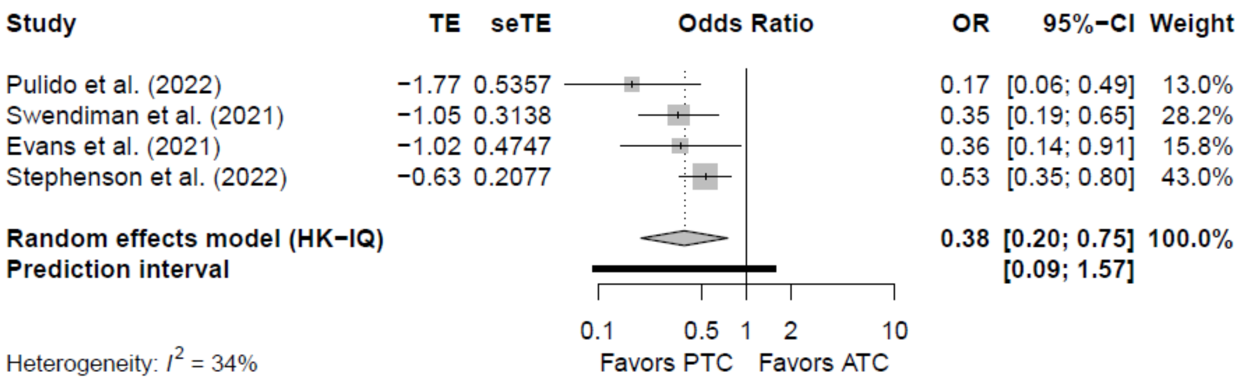
**eFigure 10. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Level I and II Pediatric Trauma Centers (PTCs) vs Level I and II Adult Trauma Centers (ATCs)**

| Study | TE | seTE | OR | 95%−CI | Weight |
|---|---|---|---|---|---|
| Pulido et al. (2022) | −1.77 | 0.5357 | 0.17 | [0.06; 0.49] | 3.9% |
| Webman et al. (2016) | −1.43 | 0.6117 | 0.24 | [0.07; 0.80] | 3.1% |
| Swendiman et al. (2021) | −1.05 | 0.3138 | 0.35 | [0.19; 0.65] | 9.4% |
| Evans et al. (2021) | −1.02 | 0.4747 | 0.36 | [0.14; 0.91] | 4.8% |
| Stephenson et al. (2022) | −0.63 | 0.2077 | 0.53 | [0.35; 0.80] | 15.9% |
| Myers et al. (2019) | −0.51 | 0.2069 | 0.60 | [0.40; 0.90] | 15.9% |
| Sathya et al. (2015) | −0.45 | 0.1571 | 0.64 | [0.47; 0.87] | 20.7% |
| Miyata et al. (2017) | −0.29 | 0.2565 | 0.75 | [0.45; 1.24] | 12.3% |
| Sheff et al. (2022) | −0.19 | 0.5694 | 0.83 | [0.27; 2.53] | 3.5% |
| Ali et al. (2021) | −0.04 | 0.2895 | 0.96 | [0.54; 1.69] | 10.5% |
| **Random effects model (HK−IQ)** | | | **0.56** | **[0.41; 0.76]** | **100.0%** |
| **Prediction interval** | | | | **[0.34; 0.93]** | |



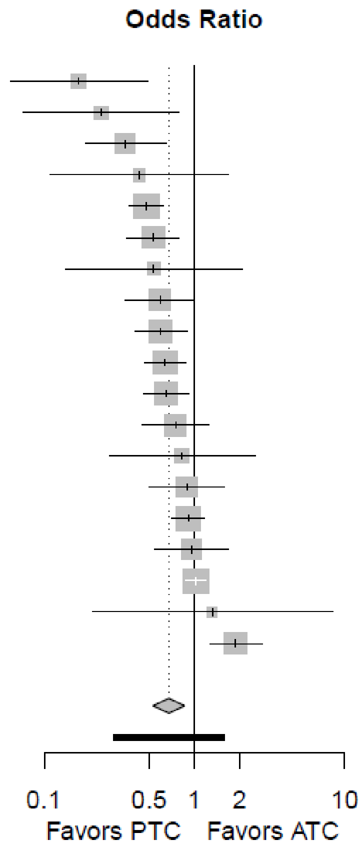

Heterogeneity: $I^2 = 44\%$

**eFigure 11. Forest Plots Describing the Odds of Mortality for children Admitted to Hospitals Following Trauma Treated at Level I and II Pediatric Trauma Centers (PTCs) vs Level I and II Adult Trauma Centers (ATCs) With the Same Verification Organization**



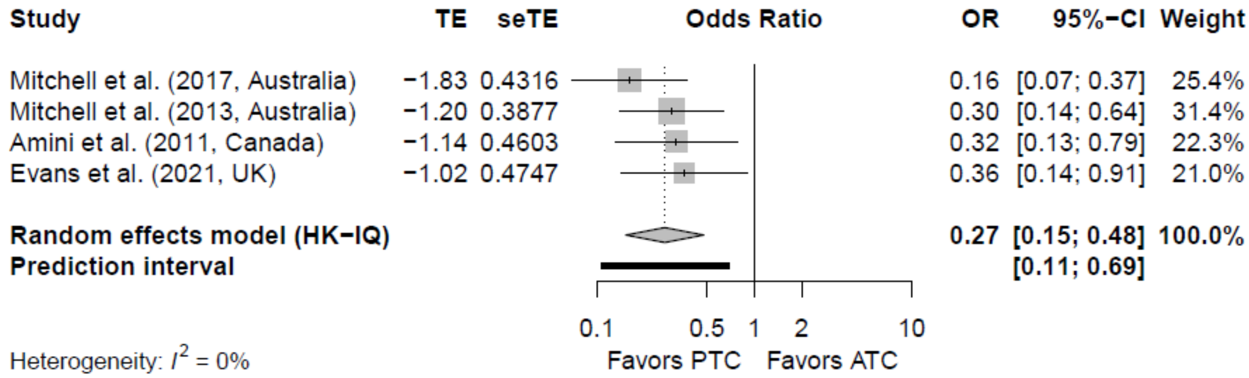
**eFigure 12. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) in the US**

| Study | TE | seTE | OR | 95%−CI | Weight |
|---|---|---|---|---|---|
| Pulido et al. (2022) | −1.77 | 0.5357 | 0.17 | [0.06; 0.49] | 2.9% |
| Webman et al. (2016) | −1.43 | 0.6117 | 0.24 | [0.07; 0.80] | 2.4% |
| Swendiman et al. (2021) | −1.05 | 0.3138 | 0.35 | [0.19; 0.65] | 5.2% |
| Walther et al. (2014) | −0.84 | 0.6924 | 0.43 | [0.11; 1.67] | 2.0% |
| Hatchimonji et al. (2020) | −0.73 | 0.1275 | 0.48 | [0.37; 0.62] | 7.8% |
| Stephenson et al. (2022) | −0.63 | 0.2077 | 0.53 | [0.35; 0.80] | 6.7% |
| Lewit et al. (2022) | −0.62 | 0.6945 | 0.54 | [0.14; 2.11] | 2.0% |
| Miyata et al. (2017) | −0.53 | 0.2704 | 0.59 | [0.35; 1.00] | 5.8% |
| Myers et al. (2019) | −0.51 | 0.2069 | 0.60 | [0.40; 0.90] | 6.7% |
| Sathya et al. (2015) | −0.45 | 0.1571 | 0.64 | [0.47; 0.87] | 7.4% |
| Bardes et al. (2018) | −0.43 | 0.1740 | 0.65 | [0.46; 0.91] | 7.2% |
| Miyata et al. (2017) | −0.29 | 0.2565 | 0.75 | [0.45; 1.24] | 6.0% |
| Sheff et al. (2022) | −0.19 | 0.5694 | 0.83 | [0.27; 2.53] | 2.7% |
| Matsushima et al. (2013) | −0.12 | 0.2951 | 0.89 | [0.50; 1.59] | 5.4% |
| Khalil et al. (2021) | −0.09 | 0.1303 | 0.91 | [0.70; 1.17] | 7.8% |
| Ali et al. (2021) | −0.04 | 0.2895 | 0.96 | [0.54; 1.69] | 5.5% |
| Walther et al. (2016) | 0.03 | 0.0770 | 1.03 | [0.89; 1.20] | 8.3% |
| Scantling et al. (2021) | 0.28 | 0.9368 | 1.32 | [0.21; 8.28] | 1.2% |
| Derderian et al. (2022) | 0.63 | 0.2046 | 1.88 | [1.26; 2.81] | 6.7% |
| **Random effects model (HK−IQ)** | | | **0.68** | **[0.53; 0.86]** | **100.0%** |
| **Prediction interval** | | | | **[0.29; 1.57]** | |

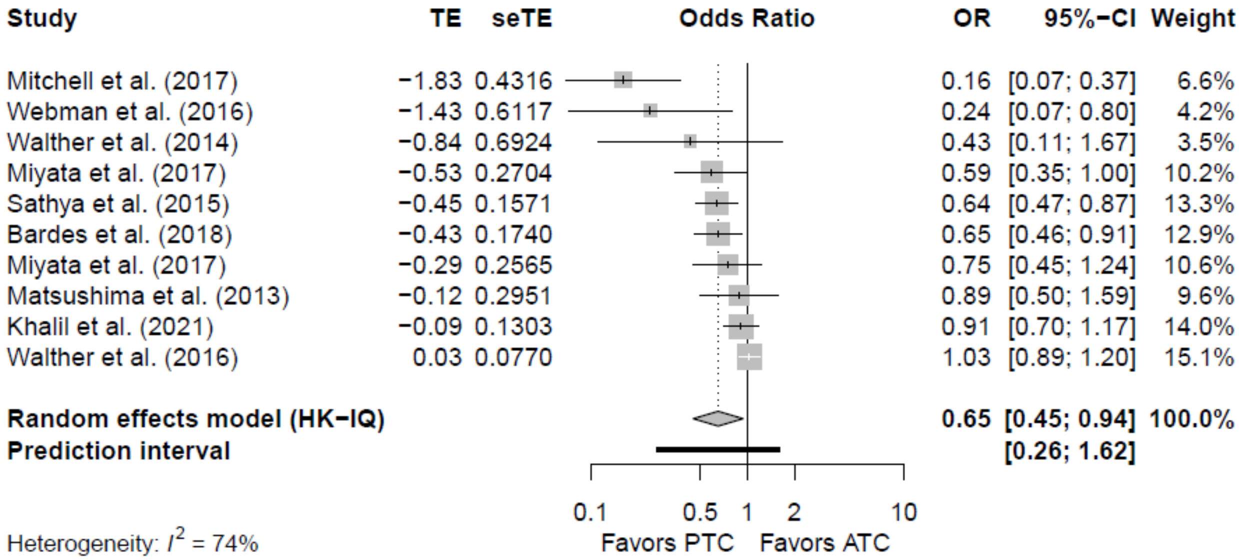



Heterogeneity: $I^2 = 77\%$

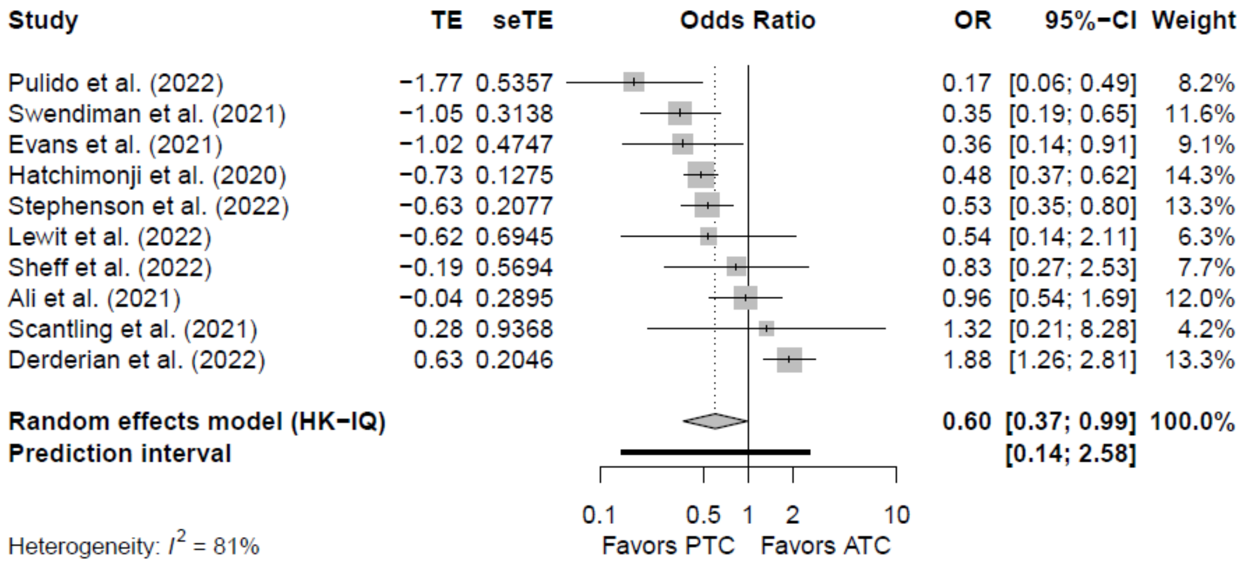
**eFigure 13. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) in Other Countries**



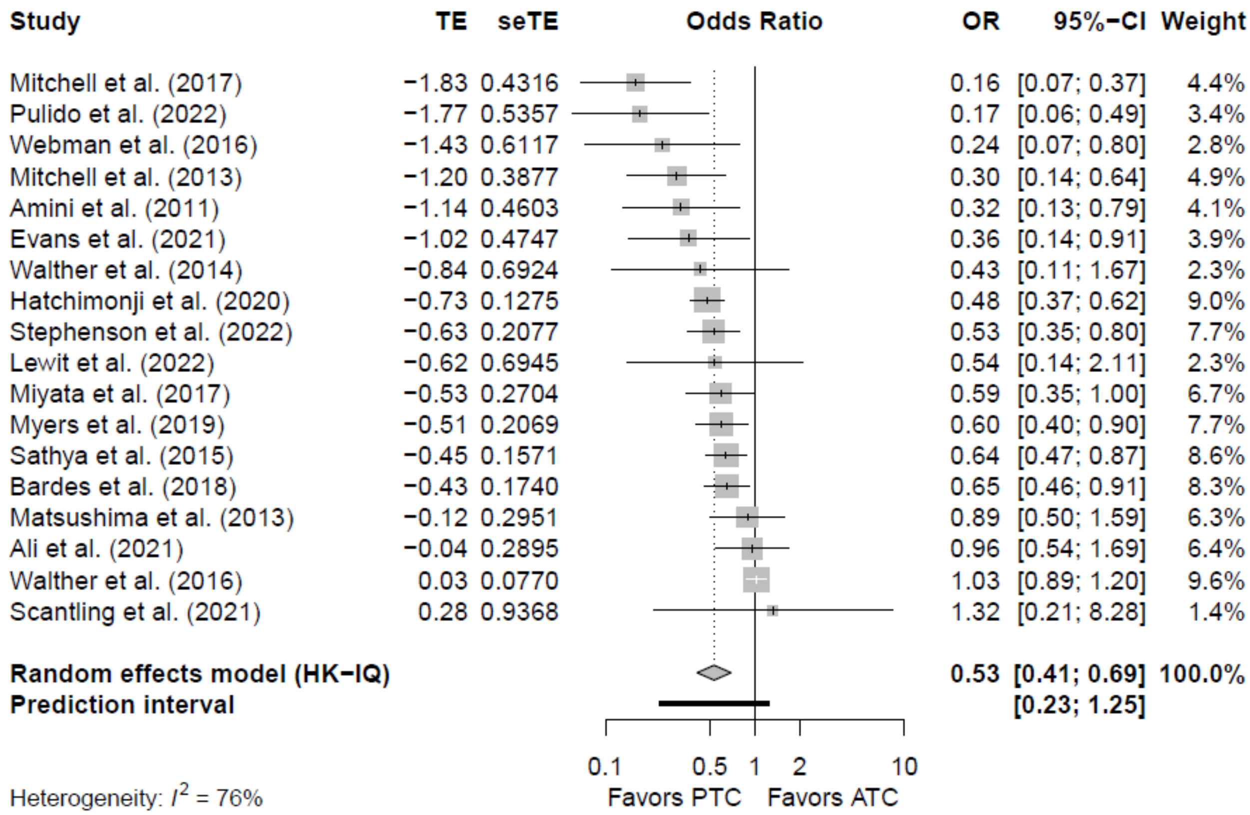
**eFigure 14. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) in Studies Recruiting Patients up to 2010 to 2014**



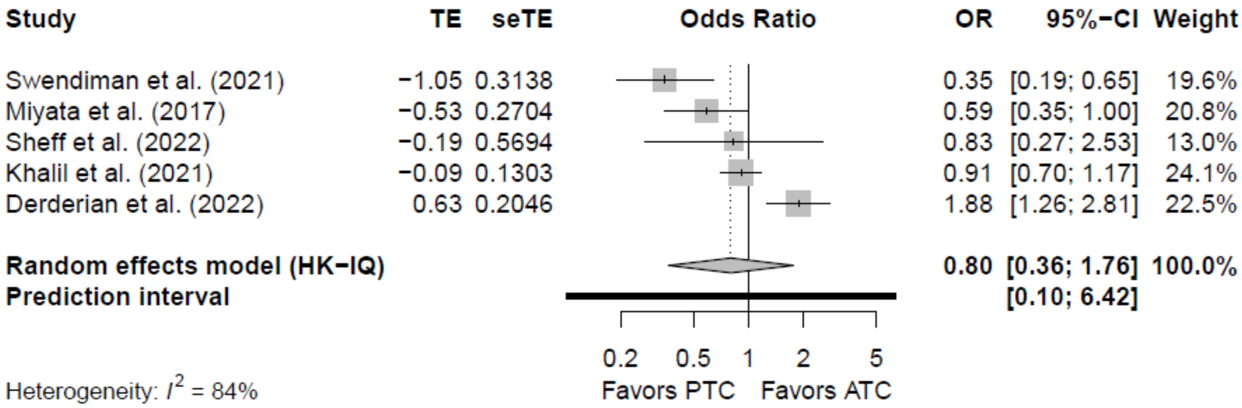
**eFigure 15. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) in Studies Recruiting Patients up to 2015 to 2023**



**eFigure 16. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) With Studies at Moderate (n=1) or Serious Risk of Bias**

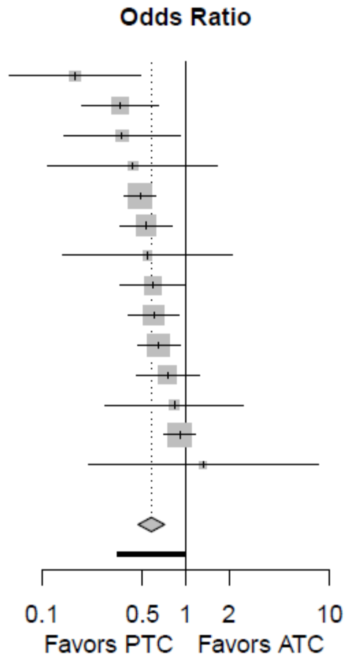


**eFigure 17. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) With Studies at Critical Risk of Bias**



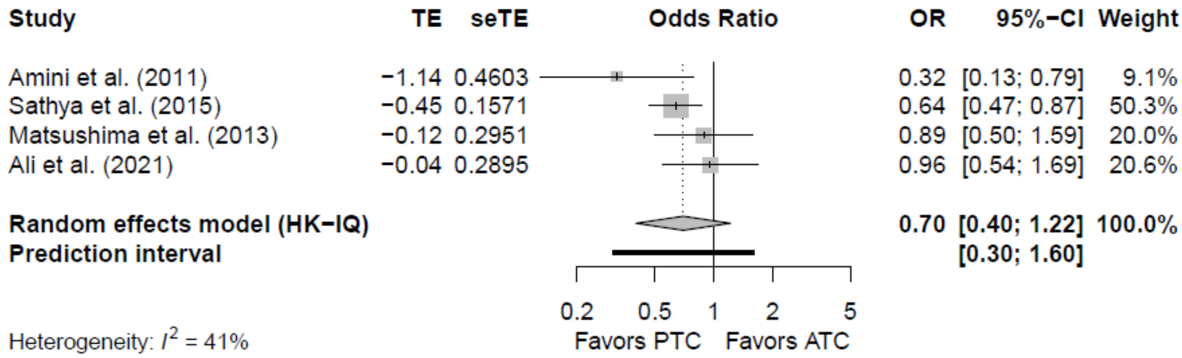
**eFigure 18. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) for Studies With Transfers Excluded**

| Study | TE | seTE | OR | 95%-CI | Weight |
|---|---|---|---|---|---|
| Pulido et al. (2022) | −1.77 | 0.5357 | 0.17 | [0.06; 0.49] | 2.9% |
| Swendiman et al. (2021) | −1.05 | 0.3138 | 0.35 | [0.19; 0.65] | 6.6% |
| Evans et al. (2021) | −1.02 | 0.4747 | 0.36 | [0.14; 0.91] | 3.6% |
| Walther et al. (2014) | −0.84 | 0.6924 | 0.43 | [0.11; 1.67] | 1.9% |
| Hatchimonji et al. (2020) | −0.73 | 0.1275 | 0.48 | [0.37; 0.62] | 14.8% |
| Stephenson et al. (2022) | −0.63 | 0.2077 | 0.53 | [0.35; 0.80] | 10.6% |
| Lewit et al. (2022) | −0.62 | 0.6945 | 0.54 | [0.14; 2.11] | 1.9% |
| Miyata et al. (2017) | −0.53 | 0.2704 | 0.59 | [0.35; 1.00] | 8.0% |
| Myers et al. (2019) | −0.51 | 0.2069 | 0.60 | [0.40; 0.90] | 10.6% |
| Bardes et al. (2018) | −0.43 | 0.1740 | 0.65 | [0.46; 0.91] | 12.2% |
| Miyata et al. (2017) | −0.29 | 0.2565 | 0.75 | [0.45; 1.24] | 8.5% |
| Sheff et al. (2022) | −0.19 | 0.5694 | 0.83 | [0.27; 2.53] | 2.6% |
| Khalil et al. (2021) | −0.09 | 0.1303 | 0.91 | [0.70; 1.17] | 14.6% |
| Scantling et al. (2021) | 0.28 | 0.9368 | 1.32 | [0.21; 8.28] | 1.1% |
| **Random effects model (HK−IQ)** | | | **0.58** | **[0.47; 0.71]** | **100.0%** |
| **Prediction interval** | | | | **[0.34; 0.99]** | |

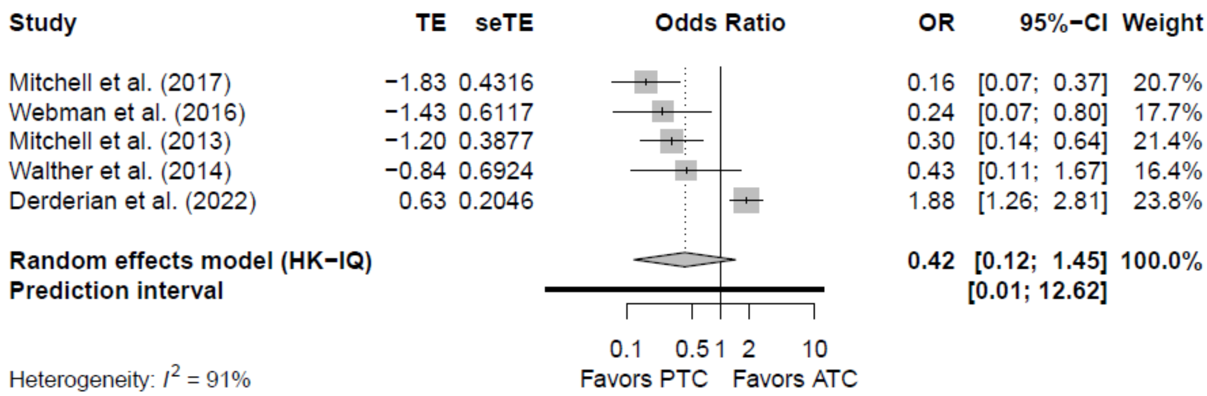



Heterogeneity: $I^2 = 49\%$

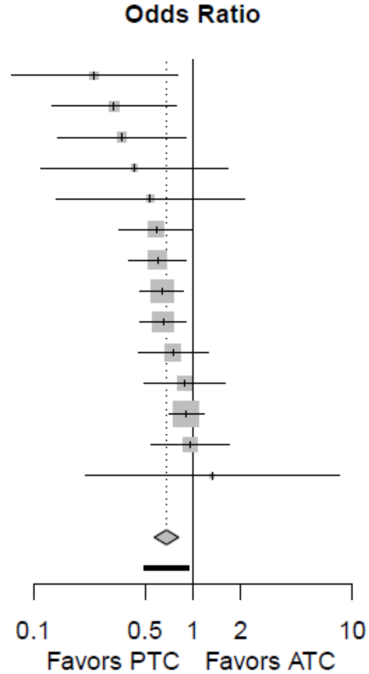
**eFigure 19. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) for Studies With Transfers Included and Adjusted For**



**eFigure 20. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) for Studies With Transfers Included and Not Adjusted For**



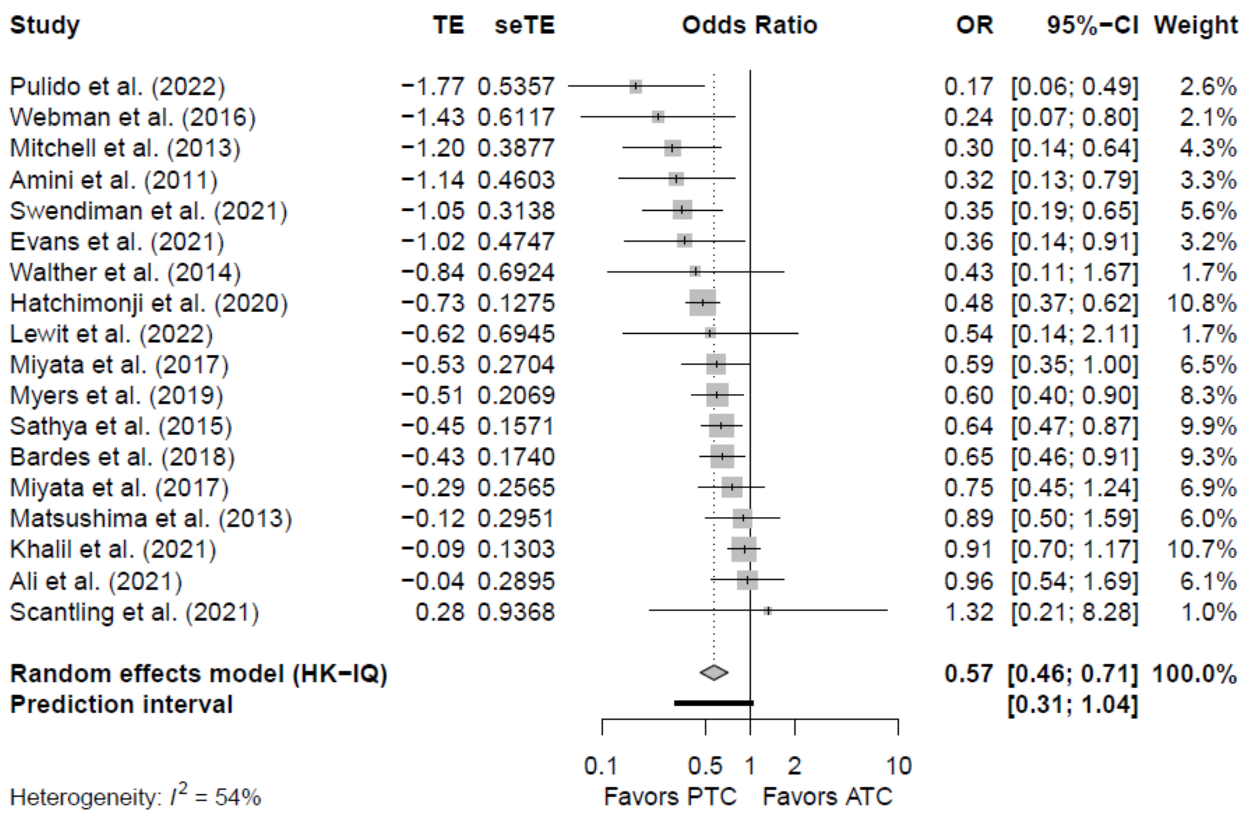
**eFigure 21. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) With 7 Outliers Removed**



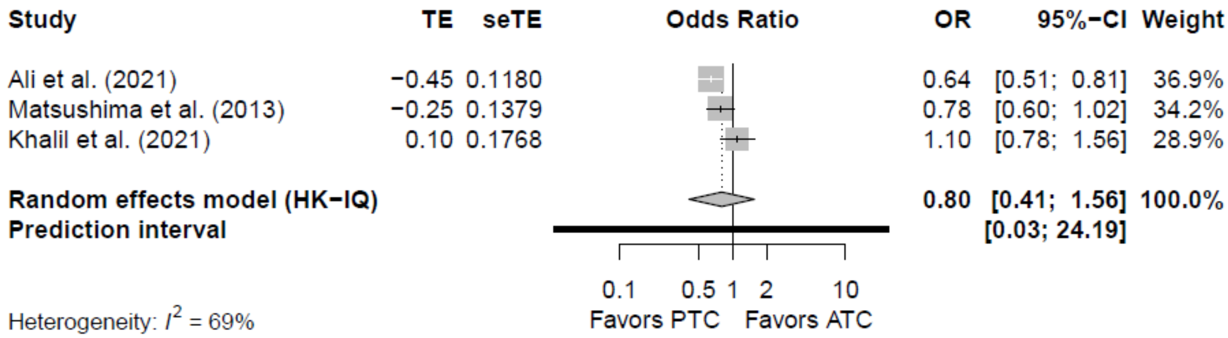

| Study | TE | seTE | OR | 95%−CI | Weight |
|---|---|---|---|---|---|
| Webman et al. (2016) | −1.43 | 0.6117 | 0.24 | [0.07; 0.80] | 1.7% |
| Amini et al. (2011) | −1.14 | 0.4603 | 0.32 | [0.13; 0.79] | 2.9% |
| Evans et al. (2021) | −1.02 | 0.4747 | 0.36 | [0.14; 0.91] | 2.7% |
| Walther et al. (2014) | −0.84 | 0.6924 | 0.43 | [0.11; 1.67] | 1.3% |
| Lewit et al. (2022) | −0.62 | 0.6945 | 0.54 | [0.14; 2.11] | 1.3% |
| Miyata et al. (2017) | −0.53 | 0.2704 | 0.59 | [0.35; 1.00] | 7.3% |
| Myers et al. (2019) | −0.51 | 0.2069 | 0.60 | [0.40; 0.90] | 11.1% |
| Sathya et al. (2015) | −0.45 | 0.1571 | 0.64 | [0.47; 0.87] | 16.1% |
| Bardes et al. (2018) | −0.43 | 0.1740 | 0.65 | [0.46; 0.91] | 14.1% |
| Miyata et al. (2017) | −0.29 | 0.2565 | 0.75 | [0.45; 1.24] | 8.0% |
| Matsushima et al. (2013) | −0.12 | 0.2951 | 0.89 | [0.50; 1.59] | 6.3% |
| Khalil et al. (2021) | −0.09 | 0.1303 | 0.91 | [0.70; 1.17] | 19.9% |
| Ali et al. (2021) | −0.04 | 0.2895 | 0.96 | [0.54; 1.69] | 6.5% |
| Scantling et al. (2021) | 0.28 | 0.9368 | 1.32 | [0.21; 8.28] | 0.7% |
| **Random effects model (HK−IQ)** | | | **0.68** | **[0.57; 0.81]** | **100.0%** |
| **Prediction interval** | | | | **[0.49; 0.94]** | |

Heterogeneity: $I^2 = 21\%$

**eFigure 22. Forest Plots Describing the Odds of Mortality for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs) With 3 Outliers Removed**

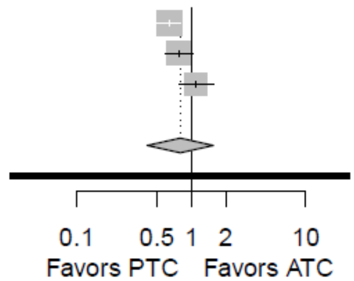


**eFigure 23. Forest Plots Describing the Odds of Complications for Children Admitted to Hospitals Following Trauma Treated at pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**



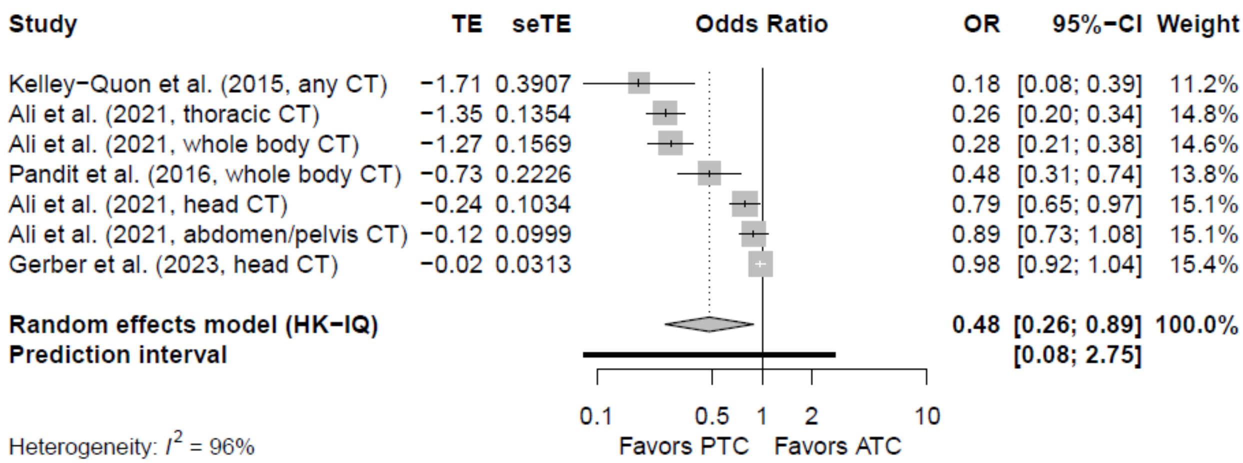
**eFigure 24. Forest Plots Describing the Odds of Complications for Children Admitted to Hospitals Following Trauma Treated at Level I and II Pediatric Trauma Centers (PTCs) vs Level I and II Adult Trauma Centers (ATCs)**

| Study | TE | seTE | Odds Ratio | OR | 95%−CI | Weight |
|---|---|---|---|---|---|---|
| Ali et al. (2021) | −0.45 | 0.1180 | | 0.64 | [0.51; 0.81] | 36.9% |
| Matsushima et al. (2013) | −0.25 | 0.1379 | | 0.78 | [0.60; 1.02] | 34.2% |
| Khalil et al. (2021) | 0.10 | 0.1768 | | 1.10 | [0.78; 1.56] | 28.9% |
| **Random effects model (HK−IQ)** | | | | **0.80** | **[0.41; 1.56]** | **100.0%** |
| **Prediction interval** | | | | | **[0.03; 24.19]** | |



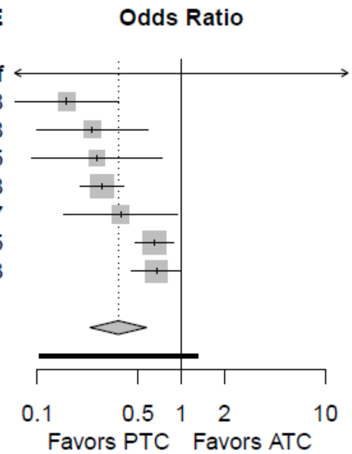

Heterogeneity: $I^2 = 69\%$

**eFigure 25. Forest Plots Describing the Odds of Computed Tomography (CT) Imaging for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**



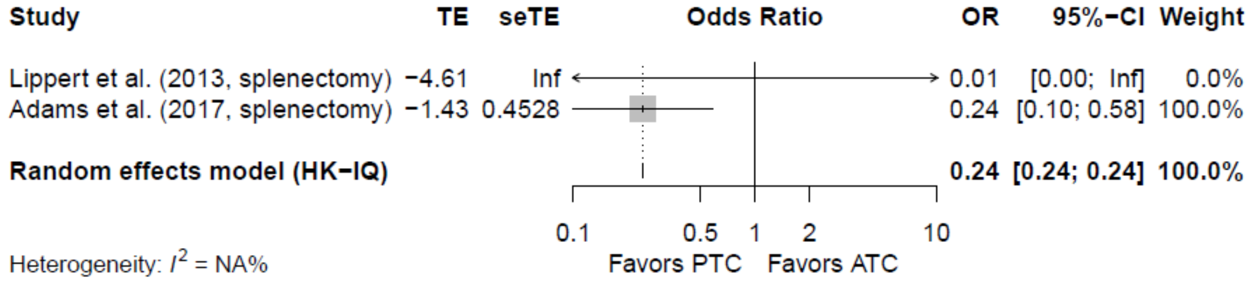
**eFigure 26. Forest Plots Describing the Odds of Operative Management for Children With Blunt Solid Organ Injuries Treated at Pediatric Trauma Centers (PTCs) vs Adult Trauma Centers (ATCs)**

| Study | TE | seTE | OR | 95%−CI | Weight |
|---|---|---|---|---|---|
| Lippert et al. (2013, splenectomy) | −4.61 | Inf | 0.01 | [0.00; Inf] | 0.0% |
| Matsushima et al. (2013, splenic surgery) | −1.83 | 0.4248 | 0.16 | [0.07; 0.37] | 11.9% |
| Adams et al. (2017, splenectomy) | −1.43 | 0.4528 | 0.24 | [0.10; 0.58] | 11.2% |
| Potoka et al. (2002, splenectomy) | −1.35 | 0.5305 | 0.26 | [0.09; 0.74] | 9.5% |
| Miyata et al. (2017, splenic surgery) | −1.27 | 0.1768 | 0.28 | [0.20; 0.40] | 18.9% |
| Pulido et al. (2022, hepatobiliary surgery) | −0.97 | 0.4627 | 0.38 | [0.15; 0.94] | 10.9% |
| Matsushima et al. (2013, laparotomy <= 2h) | −0.43 | 0.1575 | 0.65 | [0.48; 0.89] | 19.4% |
| Safavi et al. (2016, splenic surgery) | −0.40 | 0.2043 | 0.67 | [0.45; 1.00] | 18.2% |
| **Random effects model (HK−IQ)** | | | **0.36** | **[0.23; 0.57]** | **100.0%** |
| **Prediction interval** | | | | **[0.10; 1.29]** | |

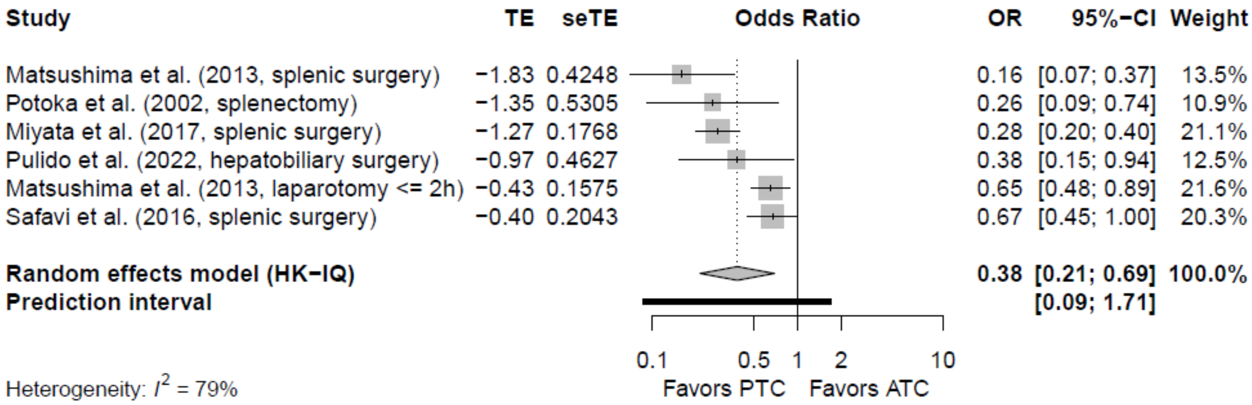



Heterogeneity: $I^2 = 76\%$

**eFigure 27. Forest Plots Describing the Odds of Operative Management for Children Admitted to Hospitals Following Trauma Treated at Level I Pediatric Trauma Centers (PTCs) vs Level I Adult Trauma Centers (ATCs)**

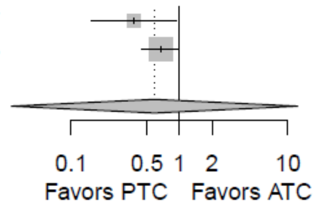


## eFigure 28. Forest Plots Describing the Odds of Operative Management for Children Admitted to Hospitals Following Trauma Treated at Level I and II Pediatric Trauma Centers (PTCs) vs Level I and II Adult Trauma Centers (ATCs)



**eFigure 29. Forest Plots Describing the Odds of Operative Management for Children Admitted to Hospitals Following Trauma Treated at Level I and II Pediatric Trauma Centers (PTCs) vs Level I and II Adult Trauma Centers (ATCs) With the Same Verification Organization**

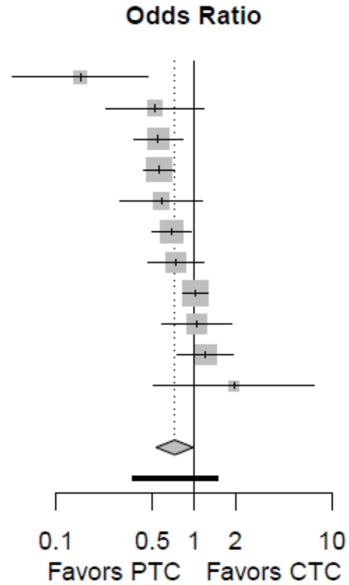
| Study | TE | seTE | Odds Ratio | OR | 95%−CI | Weight |
|---|---|---|---|---|---|---|
| Pulido et al. (2022, hepatobiliary surgery) | −0.97 | 0.4627 | | 0.38 | [0.15; 0.94] | 23.2% |
| Safavi et al. (2016, splenic surgery) | −0.40 | 0.2043 | | 0.67 | [0.45; 1.00] | 76.8% |
| **Random effects model (HK−IQ)** | | | | **0.59** | **[0.03; 12.30]** | **100.0%** |




Heterogeneity: $I^2$ = 20%

**eFigure 30. Forest Plots Describing the Odds of *Mortality* for Children Admitted to Hospitals Following Trauma Treated at Pediatric Trauma Centers (PTCs) vs Combined Adult and Pediatric Centers (CTCs)**

| Study | TE | seTE | OR | 95%−CI | Weight |
|---|---|---|---|---|---|
| Webman et al. (2016) | −1.90 | 0.5823 | 0.15 | [0.05; 0.47] | 3.4% |
| Evans et al. (2021) | −0.65 | 0.4193 | 0.52 | [0.23; 1.18] | 5.5% |
| Stephenson et al. (2022) | −0.60 | 0.2061 | 0.55 | [0.37; 0.82] | 11.3% |
| Hatchimonji et al. (2020) | −0.58 | 0.1315 | 0.56 | [0.43; 0.72] | 14.1% |
| Swendiman et al. (2021) | −0.54 | 0.3537 | 0.58 | [0.29; 1.16] | 6.8% |
| Sathya et al. (2015) | −0.37 | 0.1637 | 0.69 | [0.50; 0.95] | 12.9% |
| Miyata et al. (2017) | −0.30 | 0.2425 | 0.74 | [0.46; 1.19] | 10.0% |
| Osler et al. (2001) | 0.02 | 0.1065 | 1.02 | [0.83; 1.26] | 15.0% |
| Sheff et al. (2022) | 0.05 | 0.2936 | 1.05 | [0.59; 1.87] | 8.4% |
| Bardes et al. (2018) | 0.20 | 0.2383 | 1.22 | [0.76; 1.95] | 10.1% |
| Lewit et al. (2022) | 0.67 | 0.6824 | 1.96 | [0.51; 7.47] | 2.6% |
| **Random effects model (HK−IQ)** | | | **0.73** | **[0.53; 0.99]** | **100.0%** |
| **Prediction interval** | | | | **[0.36; 1.48]** | |




Heterogeneity: $I^2 = 69\%$

## eTable 6. Results Not Included in Meta-Analyses[1]

| First author, year | Intervention (I) | Comparator (C) | Outcomes | Results | |
|---|---|---|---|---|---|
| **Mortality/morbidity** | | | | **OR (95% CI)** | |
| Swendiman, 2021b | PTC | ATC, CTC | Mortality | 0.58 (0.29-1.16) | |
| Khalil, 2021 | PTC | ATC | Discharge home | 1.5 (1.1-1.7) | |
| Miyata, 2017 | PTC | ATC | Non home discharge | 0.83 (0.67-1.04) | |
| Webman, 2016 | PTC | ATC, CTC (L2) | Discharge to rehabilitation | 0.76 (0.38-1.56) | |
| **Resource use** | | | | **Mean (I)** | **Mean (C)** |
| Walther, 2014 | PTC L1 & L2 | ATC L1 | LOS (blunt) | 4.4 | 4.6[2] |
| Walther, 2014 | PTC L1 & L2 | ATC L1 | LOS (penetrating) | 6.1 | 4.6[2] |
| Walther, 2014 | PTC L1 & L2 | ATC L1 | ICU LOS (blunt) | 0.5 | 0.7[2] |
| Walther, 2014 | PTC L1 & L2 | ATC L1 | ICU LOS (penetrating) | 0.5 | 0.7[2] |
| Sheff, 2022 | PTC | ATC | ICU admission | OR: 0.47 (0.36-0.61) | |
| Sheff, 2022 | PTC | CTC | ICU admission | OR: 0.52 (0.41-0.67) | |
| Khalil, 2021 | PTC | ATC | ICU free days | RR: 1.22 (1.16-1.23) | |
| Khalil, 2021 | PTC | ATC | Ventilator free days | RR: 1.07 (1.01-1.15) | |
| Walther, 2014 | PTC L1 & L2 | ATC L1 | Ventilator days (blunt) | 0.3 | 0.4[2] |
| Walther, 2014 | PTC L1 & L2 | ATC L1 | Ventilator days (penetrating) | 0.2 | 0.3[2] |
| Alexander, 2019 | PTC | ATC | Average hospital charges<br>Average professional charges | \$72,700<br>\$14,636 | \$121,935[3]<br>\$30,807[3] |
| **Processes of care** | | | | **OR (95% CI)** | |
| Marin, 2015 | PTC L1 | Non-designated | Any CT<br>Head CT<br>C-spine CT<br>Chest CT<br>Abdominal CT | 1.15 (1.09-1.21)<br>0.93 (0.88-0.98)<br>0.23 (0.19-0.27)<br>0.43 (0.29-0.64)<br>1.23 (1.01-1.50) | |
| Derderian, 2022 | PTC | ATC | Blood product transfusion | 5.8% | 35.3%[3] |
| Swendiman, 2020 | <br>PTC<br>PTC<br>PTC<br>PTC | <br>ATC<br>CTC<br>ATC<br>CTC | Interventional radiology:<br>Splenic injury<br>Splenic injury<br>Splenic, hepatic, renal injuries<br>Splenic, hepatic, renal injuries | <br>0.11 (0.05-0.28)<br>0.10 (0.04-0.27)<br>0.21 (0.12-0.37)<br>0.21 (0.11-0.38) | |
| Killien, 2022 | PTC | ATC | Tracheostomy | 0.55 (0.45-0.68) | |
| Killien, 2022 | PTC | CTC | Tracheostomy | 0.68 (0.55-0.83) | |
| Swendiman, 2021 | PTC | ATC | Angioembolization, splenectomy | 0.11 (0.14-0.19) | |
| Filipescu, 2020 | PTC | ATC, CTC | Operative management | 0.19 (0.11-0.32) | |
| Prieto, 2020 | PTC | CTC | Surgical amputation | 0.28 (0.1-1.4) | |
| Yung, 2020 | PTC | ATC, CTC | Operative intervention | 0.42 (0.36-0.48) | |
| Miyata, 2017 | PTC | ATC, CTC | Total splenectomy | 0.28 (0.20-0.40) | |
| Matsushima, 2013 | PTC | ATC | Splenectomy | 0.16 (0.07-0.37) | |

PTC, pediatric trauma center; ATC, adult trauma center; CTC, combined trauma center; OR, odds ratio; CI, confidence intervals; LOS, length of stay; ICU, intensive care unit; RR, Rate Ratio; CT, computed tomography

[1]Could not be included because there were fewer than two studies with same exposure, comparator, and outcome

[2]$p>0.05$

[3]$p<0.05$