INTRODUCTION
- Pediatric patients undergoing cardiopulmonary bypass (CPB) are at an increased risk for hemodilution and need for allogeneic blood transfusions
- Allogeneic transfusions have been associated with adverse outcomes such as transfusion reactions, immune-related problems, transfusion-transmitted diseases, stroke, increased hospital, and ICU length of stay (LOS). Thus, multiple guidelines have been developed to decrease transfusion of allogeneic blood
- Cell salvage has not been a feasible option in the younger pediatric patients with low body weights until recent technological developments
- New blood salvage devices with low volume processing, such as Fresenius CATS, now make transfusion of autologous blood in pediatric patients with low body weights feasible

METHODS
- Retrospective case control study with two subgroups (≤ 10 Kg and 10-38 Kg) within each arm
- Control arm: pediatric patients who underwent cardiac surgery with CPB between 2013-2015 with blood salvaged from the residual volume using Medtronic Autolog who meet inclusion criteria
- Treatment arm: pediatric patients who underwent cardiac surgery with CPB between 2015-present, since initiation of Fresenius CATS cell saver, who meet inclusion criteria
- Primary outcome: allogeneic transfusions of all blood products intraoperatively and postoperatively among the treatment group and controls
- Secondary outcomes: ICU LOS, hospital LOS, ventilator time, postoperative infections, maximum vasoactive inotropic score at 24 and 48 hours postoperative, chest tube drainage, crystallloid and colloid boluses, use of aminocaproic acid postoperatively, stroke, and survival

INCLUSION CRITERIA
- Patients ≤ 18 years, ≤ 38 Kg, undergoing cardiac surgery with CPB at UCLA with 2/3 Cardiothoracic surgeons who operate using similar CPB techniques pre and post initiation of Fresenius CATS cell saver

EXCLUSION CRITERIA
- Patients with pre-existing coagulopathies, ECMO, VAD, OHT with previous VAD implantation, ABOi OHT with exchange transfusions, or HIT+ undergoing CPB with Argatroban

RESULTS
- We hypothesized that in the ≤ 10 Kg subgroup we are more likely to see significant transfusion differences post-operatively given this subgroup all receive a blood pump prime, whereas in the 10-38 Kg subgroup we are more likely to see significant transfusion difference in intra-operatively given this subgroup did not receive blood pump prime
- Based on a similar study done by Golab et al, it was calculated that a sample size of 40 patients for each arm will be needed for a power of 80% with an alpha value of 0.05
- We currently have 40 patients in the ≤ 10 Kg subgroup of the treatment arm and 80 matched controls. Data analysis is currently ongoing for this subgroup but not yet available
- We currently have 15/40 patients in the 10-38 Kg subgroup of the treatment arm. Patients are still currently being enrolled

DISCUSSION
- Evidence in adult patients undergoing CPB for cardiac surgery suggests use of cell saver decreases need for allogenic blood products
- Now that Fresenius CATS is available for pediatric patients undergoing cardiac surgery with CPB, it may significantly reduce allogenic transfusion requirements as well and reduce adverse outcomes from allogenic transfusions
- If the findings are favorable, the next step is to expand the use of Fresenius CATS to other pediatric surgical procedures that have significant EBL to decrease allogeneic transfusion at our institution

REFERENCES