POPULATION-BASED TRENDS IN PEDIATRIC CARDIAC SURGERY AND INTERVENTIONAL CARDIOLOGY PROCEDURES FROM 1997 THROUGH 2009 IN THE UNITED STATES

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Background: The growth and success of treatment for pediatric heart disease highlight the increasing importance of tracking patterns of this care.

Methods: Retrospective cross-sectional/cohort study of all-payer inpatient discharges of 0-17 year-olds with ICD-9-CM principal procedure codes for surgery or interventional catheterizations of the heart or great vessels. Data for 1997-2009 came from the Healthcare Cost and Utilization Project (HCUP)'s triennial Kids' Inpatient Database (KID). The KID uses 10% of uncomplicated inpatient births and 80% of all other pediatric discharges from ~4,000 US sampling frame hospitals to produce robust national estimates. We queried HCUPnet (HCUP's on-line system) to estimate national procedure volume and outcomes.

Results: Inpatient procedure volumes were 30,721 cases (43.3/100,000) in 1997, vs. 29,691 cases (41.0) in 2000, 30,961 cases (42.3) in 2003, 34,434 cases (46.5) in 2006 and 32,127 cases (43.1) in 2009. Mortality fell from 4.6% in 1997 to 3.0% in 2009. Mean length of stay (MLOS) rose from 12.8 to 23.4 days. Total hospital charges (in 2009 dollars) rose from $3.1 to $7.1 billion; estimated hospital costs rose from $1.4 to $2.2 billion. In 1997, private insurance covered 56.5% of discharges, Medicaid covered 33.2%, and 3.1% were uninsured. In 2009, private insurance covered 46.8%. Medicaid cases (45.2%) generated more costs (49.6%); 1.8% were uninsured. Mirroring prior data, the 2009 KID identified 17,972 discharges (421.7/100,000) of <1 year-olds. Mortality=4.7%, MLOS=35.7 days, mean costs/case=$93,128. For 14,155 discharges of 1-17 year-olds (20.1/100,000), mortality=0.8%, MLOS=7.8 days and mean costs/case=$38,017.

Conclusions: Inpatient pediatric cardiac procedure volumes are considerable. Procedure rates for 1997-2009 were fairly stable; unadjusted mortality fell. As markers of resource use intensity, MLOS and inflation-adjusted costs and charges roughly doubled. Medicaid's relative involvement increased. Uninsured patients (>10% of US children) may have been under-represented. Infants had notably higher procedure rates, mortality, MLOS, costs and charges than did 1-17 year-olds. Our findings merit encounter-level study.