

AEPC-YIA Session

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[AEPCYIA] AEPC-YIA Session (II-AEPCYIA)

Chair: Jan Janoušek (Children's Heart Centre, Motol and Homolka University Hospital, Prague, Czech Republic)
Chair: Mikiko Ishido (Department of Pediatric and Adult Cardiology, Tokyo Women's Medical University)

[II-AEPCYIA-3] Nationwide Observed Prevalence, Trends, and Future Projections of Congenital Heart Disease in Japan: An 8-Year Registry-Based Population Analysis in a Declining-Birth Society

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Background and Aim:

Congenital heart disease (CHD) occurs in approximately 7–10 per 1,000 live births worldwide, but contemporary nationwide data from Japan—where rapid population decline is underway—have been limited. This study aimed to describe national CHD birth prevalence and temporal trends from 2017–2024, and to project case numbers through 2050.

Methods:

Nationwide registry data from certified institutions of the Japanese Society of Pediatric Cardiology and Cardiac Surgery were analyzed, encompassing 6,566,350 live births. Birth prevalence was calculated using the Wilson method, and temporal trends were evaluated with negative binomial regression. Future cases were projected by applying multiple prevalence scenarios derived from 2017–2024 data to national birth forecasts from the 2023 population projections.

Results:

A total of 92,551 CHD cases were identified (14.1 per 1,000 live births), including 2.80 per 1,000 for critical CHD (CCHD). Although national births and CHD counts declined during the study period, birth prevalence increased significantly (+2.4% per year for all CHD; +1.0% per year for CCHD; both $p < 0.01$). Significant increases in birth prevalence were observed in 12 non-critical subtypes and one critical subtype (coarctation of the aorta). Decomposition analysis showed that five mild lesions—ventricular septal defect, atrial septal defect, patent ductus arteriosus, pulmonary stenosis, and peripheral pulmonary stenosis—accounted for more than 70% of the overall increase, indicating improved detection of mild defects as the primary driver. Based on projected national births, estimated CHD cases in 2050 ranged from 7,649 to 12,432, corresponding to a +14% to –30% change relative to 2024. CCHD cases were projected to range from 1,361 to 1,702, a 20–35% decrease relative to 2024.

Conclusions:

In Japan, CHD birth prevalence has continued to rise modestly despite substantial declines in national births, suggesting stable future demand for pediatric cardiology services. In contrast, CCHD incidence is expected to decline gradually. This nationwide dataset provides the first comprehensive assessment of contemporary CHD prevalence in Japan and quantitatively characterizes future trends that had not been previously evaluated. These

findings provide a reference model for countries with similar demographic trajectories, including those in Europe, as they plan long-term healthcare systems for congenital heart disease.