

All-Island Congenital Heart Disease Network referrals to tertiary centres

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Abstract

Aim

To understand the impact on referral rates to tertiary centres following the establishment of five Paediatrician with expertise in cardiology (PEC) services on the Island of Ireland.

Methods

A retrospective data analysis of referral numbers to the cardiology departments in both tertiary centres were completed between January 2017 to December 2024.

Results

Cumulative data displayed how regional centre referral numbers reduced from 1,348 to 466 (65%) by 2024. Statistical testing (Anova test) found $p < 0.05$ significant difference in mean referral rates across all locations.

Discussion

Referral numbers to paediatric cardiology services have increased exponentially. Once a PEC service is established, there is a dramatic decrease in the number of referrals to the affiliated tertiary centre. The PEC model has demonstrated the benefits of providing expert clinical assessment and non-invasive cardiac diagnostics as close to home as possible for patients.

Introduction

Congenital Heart Disease (CHD) is the most commonly occurring congenital abnormality in neonates¹. Early detection has been shown to reduce overall mortality and improve quality of life in these children². The All-Island Congenital Heart Disease Network (AICHDN) was established in 2015 and aims to provide world class care as close to home as possible for paediatric patients who require cardiology assessment. This is a unique cross border service and the first of its kind on the island of Ireland. Consultant Paediatrician with expertise in cardiology (PEC) who are trained in paediatric cardiology including echocardiography skills are now established in five regional paediatric centres across the island. Each PEC Consultant has a strong working relationship with tertiary centers, providing diagnostic and non-interventional care closer to patients home³.

Children and young people with diagnoses of CHD now have access to shared care between tertiary centres and PEC centres offering more options for patients with acute disease to remain at home. Literature demonstrates the ability of PEC consultants to accurately diagnose CHD, ensuring onward referrals to tertiary centers are appropriate, making the best use of limited resources of paediatric consultants in tertiary centers and contribute to education in education for other healthcare professionals^{4,5}. The aim of this study is to comprehend the impact PEC consultants have on tertiary level referral numbers.

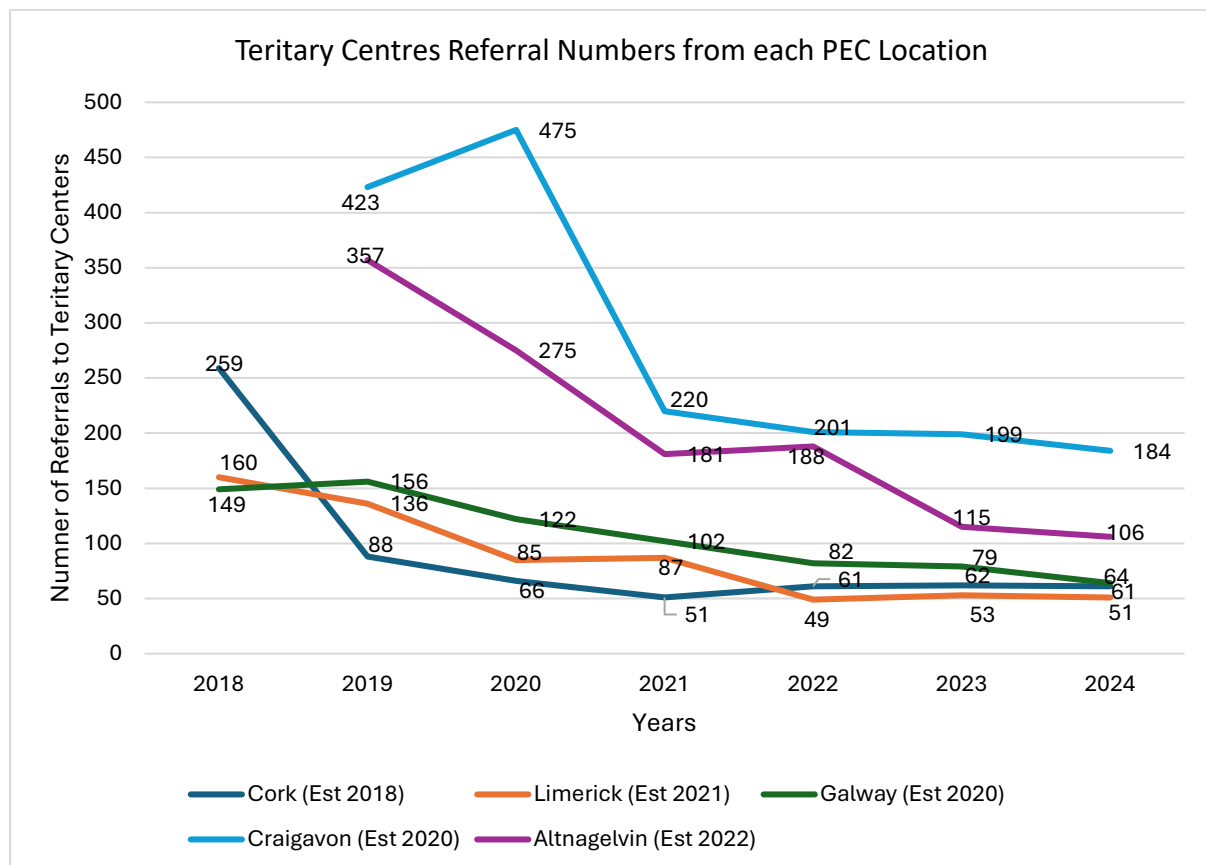
Methods

A retrospective data analysis was conducted in Children's Health Ireland (CHI) and Belfast Health and Social Care Trust (BHSCT), which reviewed referral numbers to cardiology between January 2017 to December 2024. Referral rates from each PEC centre catchment area to their tertiary center in the Republic of Ireland (IE) and Northern Ireland (NI) were analysed. There are no conflicts of interest from any author of this report at the time of submission.

Results

Cumulative data displays how regional centers referred 1,348 children to tertiary services in the year prior to the establishment of PEC service. Referrals have reduced to 466 by 2024 (65% reduction). There is a dramatic decrease in the number of referrals from that county/healthcare trust to the affiliated tertiary center once a PEC service is established. Statistical testing (Anova test) found $p < 0.05$ significant difference in mean referral rates across all locations. Linear regression tests demonstrate a clear temporal trend, with statistically significant differences between centres, indicating that location influences referral volumes, independent of year.

Graph A



Discussion

Referrals to paediatric cardiology services have increased exponentially over time⁶. IE and NI populations are both projected to steadily rise year on year^{7,8}. As population numbers rise, so will the demand on tertiary centres and associated referral rates. The high levels of referrals to OPD clinics in Ireland mirrors what has happened in the UK following established of multiple PEC services in local regions⁵. PECs are ideally placed to deliver a cardiology services locally alongside support from tertiary centres paediatric cardiologists⁵. The PEC model has

demonstrated the benefits of providing expert clinical assessment and non-invasive cardiac diagnostics in regional paediatric centres. This review illustrates that established PEC centres significantly reduces referral rates from regional units to tertiary centres. Highlighting the success of the AICHDN in providing cardiology services as close to home as possible.

This study emphasises the role of PEC services in filtering appropriate referrals to the tertiary centres. Ensuring only appropriate referrals for advanced cardiac investigations—such as MRI, interventional or surgical procedures are referred. Referral rates are currently higher in the North compared to the South of the Island. Further analysis is required to determine whether these referrals were appropriate for tertiary care, whether some could have been managed locally in PEC centres, and whether systemic differences contribute to the higher referral rates in NI. This model may have external validity for other specialist paediatric services. Further investigations should focus on referral numbers to cardiology services across the island both secondary & tertiary services and if education of referring healthcare professionals would reduce referrals to any cardiology services.

Declaration of Conflicts of Interest:

None declared.

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