

The spatial distribution of referral to cardiosurgical centres in the Netherlands

A. Van Der Veen

National Institute of Public Health and Environment (RIVM)

PO Box 1 - 3720 BA Bilthoven the Netherlands

Phone : 31 30 2742959 - Fax : 31 30 2744450 - E-mail : andre.van.der.veen@rivm.nl

The Dutch Ministry of Health has been facing growing public and political concern with respect to waiting lists and waiting times for surgical cardiac interventions. Bottlenecks especially involve two types of intervention: coronary arterial bypass graft (CABG) and percutaneous coronary angioplasty (PTCA). In order to improve harmonisation of supply and demand, both on national and on a regional level, a clear understanding of the waiting lists and the causes behind it is indispensable.

An inventory was made of production statistics and waiting list figures, recorded during the period between January 1, 1995 and June 30, 1996, originating from existing centre registries. In a geographical information system (GIS), the observed referral regions for CABG and PTCA were mapped for each cardiosurgical centre. These patterns were compared with a hypothetical map containing expected catchment areas, based on the assumption that cardiologists at peripheral hospitals ideally will refer their patients to the nearest cardiosurgical centre.

The mapping of the referral regions for each of the eleven cardiosurgical centres, and subsequently the comparison with the expected catchment areas, roughly confirmed the relative importance of vicinity as a consideration for referral. However, the referral region of one centre showed a divergent pattern, with a majority of patients travelling from distant regions, far outside the expected catchment area. Spatial analysis furthermore shows that in some referral regions rates of observed CABG and PTCA substantially differ from the age-standardised expected rates.

Inefficient spatial distribution of patient referral may obscure the understanding of problems related to waiting lists and waiting time for CABG and PTCA. Further analysis on both supply and demand factors is necessary in order to explain differences in observed-expected ratios of interventions per cardiosurgical centre. One hypothesis points in the direction of supplier-induced demand.