

A pacemaker is an electronic device that emits electrical impulses to the heart muscle and makes the heart beat faster if the heart rate is too slow. The pacemaker only emits impulses when necessary. Temporary pacemakers can be fitted in an emergency, but only permanent pacemakers are discussed in the atlas. A pacemaker contains a battery and electrodes, and it is implanted under the skin at the front of the chest.

Background

According to the Norwegian Pacemaker and ICD Registry, approx. 32,000 new pacemakers were implanted in 2015.

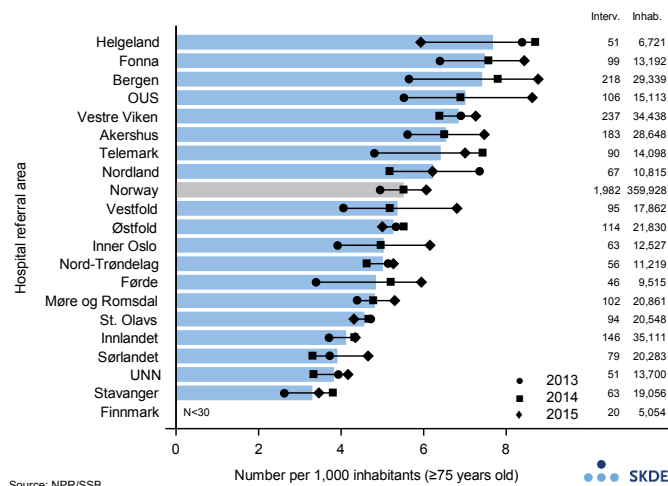
Low pulse, dizziness, fainting and near-fainting are the most common symptoms experienced by patients prior to having a pacemaker implanted. The underlying cause of such symptoms is often unknown, but arrhythmia due to age-related changes in the heart and impaired or blocked blood supply to part of the heart muscle are among the known causes.

Pacemakers are also an option in cases of heart failure where the contractions of the heart muscle are out of sync. This form of treatment is called cardiac resynchronisation therapy (CRT).

Results

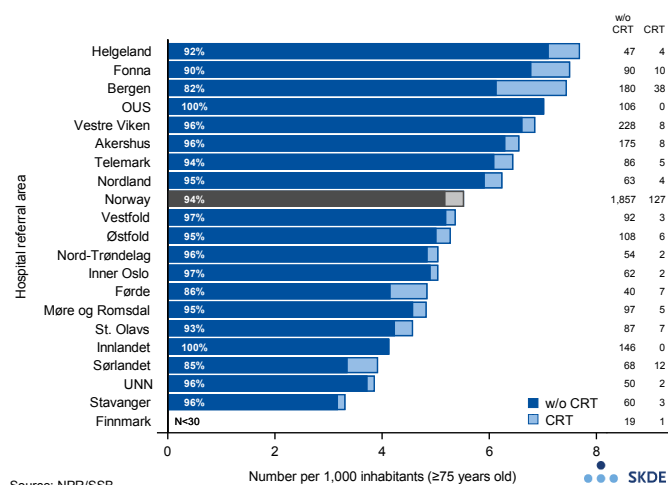
Nearly 2,000 permanent pacemakers are implanted into elderly patients each year, which is more than 60% of all pacemakers fitted. The number increased during the period 2013–2015. Residents of Helgeland hospital referral areas have pacemakers implanted more than twice as often as residents in the Stavanger area.

Elderly patients are in a clear majority among patients fitted with pacemakers to correct arrhythmia. About 130 new pacemakers a year have an additional function to treat heart failure (CRT). Residents of Bergen, Førde and Fonna are given pacemakers with this additional function slightly more often than residents in other hospital referral areas.



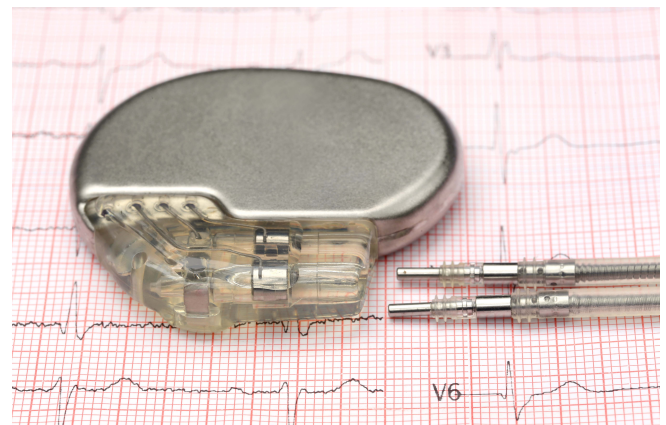
Source: NPR/SSB

Number of procedures per 1,000 population, adjusted for gender and age. Av. number of procedures and population per year.



Source: NPR/SSB

Number of procedures per 1,000 population, adjusted for gender and age, broken down by pacemakers with and without CRT. Av. number without and with CRT per year.



Comments

Permanent pacemakers are a form of treatment that largely concerns elderly patients, and there is reason to expect the need for such treatment to increase as the number of elderly in the population grows.

There is considerable variation in pacemaker implantation between hospital referral areas. However, this variation must be interpreted with caution given that the number of pacemakers is low and that there was large variation between the three years in the period.

It is relatively clear which conditions and symptoms make pacemaker implantation a necessary and beneficial treatment measure. It is possible, but unlikely, that some of the variation can be explained by differences in morbidity in the population. In addition to an element of random variation, it is likely that differences in culture, practice and the behaviour of patients and healthcare professionals contribute to the variation described. It is possible that there is both over- and underuse, and the variation between hospital referral areas should therefore be seen as giving grounds for debate in the specialist community, for example relating to more precise indications for assessment and permanent pacemaker implantation.