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## Volume 6 - Issue 2, 2006 - Country Focus

### Department of Diagnostic Radiology Copenhagen University Hospital

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**In this article, I will present one of Copenhagen's largest and busiest diagnostic radiology departments, and discuss the problematic situation regarding financial administration of healthcare in Denmark as it affects diagnostic radiology. Firstly, the University Hospital at Herlev itself is one of the major hospitals in the Copenhagen area, with approximately 800 beds. It offers oncologic treatment to more than 1.2million inhabitants. All abdominal specialties (Surgical and Medical Gastroenterology, Urology, Nephrology and Gynaecology) are facilitated. As well as orthopaedic surgery, rheumatology, endocrinology and plastic surgery, the hospital provides services within cardiology, pulmonology, infectious diseases and geriatrics as part of internal medicine services.**

The Department of Diagnostic Radiology is the third largest department in Denmark with regards to number of examinations, with the majority of the workload consisting of scanning. Over the last three to four years, the number of CT scans performed has almost tripled; the department has three scanners (one 4-slice, two 16-slice) and in 2006 two 64- slice scanners will be installed. MR in particular has seen an exponential increase in number of exams performed. A new MR centre (the largest in Denmark) was built in 2001. A total of 5 MR scanners, including one dedicated extremity (0.2T) MR scanner, two open MR scanners (0.23T and 0.6T) and two closed MR scanners (1.5T), were installed and a 3T scanner is expected to be installed by the end of 2006. These installations have led to an almost five times increase in the number of examinations performed since 2001. However, despite this increase, waiting times have not been reduced.

The Department has thirty-one examination rooms. As a result of late modernisation, the department has jumped directly to Digital Radiology (DR) from analogue films. A total of eight DR rooms are available for conventional radiography and a further four fluoroscopy rooms. The breast imaging team, with three double rooms with a mammography and an ultrasound unit respectively are the only analog part of the department, being built in 2000, when digital mammography was not yet considered adequate and with a budget that was a political compromise. At the University Hospital the PET/CTscanner is run as a joint venture with the department of Clinical Physiology and Nuclear Medicine, which are independent specialties in Denmark.

In Denmark, the government has issued a guarantee to all patients with signs of or confirmed life-threatening disease that they have the right to be examined with two weeks of their referral. Other patients must be examined within eight weeks. Otherwise the patient can choose any private clinic or hospital, which has a contract with the union of counties who must fund the examination. The end result is that guarantees have been unfulfilled in most areas, made worse by The Department of Diagnostic Radiology is the third largest the fact that oncologic patients are obliged to have their disease controlled by a particular scanner according to recommendations from the World Health Organisation (WHO).

#### Medical Training in Denmark

Both teaching and research are taken very seriously. In Denmark, universities are only responsible for pre-graduate training. Postgraduate or specialist training is taken care of by the Ministry of Health and National Health Authorities. The University of Copenhagen has one of the biggest medical faculties in Europe regarding training of medical doctors. Yearly, 700 to 800 students are immatriculated. Access is not free, with uptake based on grades in high school. After six years training, two mandatory clinical years (psychiatry, general practitioner, surgery and medicine) are followed. In Copenhagen the first two years are allocated to theoretical teaching (anatomy, physiology, biochemistry etc.) whereas the following three years are mainly clinical. Postgraduate training in radiology takes five years. Two applications must be submitted: one for the first year and one for the last four years. There are no board examinations, but a checkbook for skills/competences has recently been introduced.

#### Imaging in Denmark

The population of Denmark is approximately 5.5m inhabitants. Denmark has a low level of imaging procedures per inhabitant, independent of age, with only 0.7 examinations per year. The number of examinations is presently increasing by approximately 5%. However, within the field of oncologic imaging the growth rate is approximately double this. 98% of the hospital service in Denmark is socialised, paid through high taxes. All citizens have the right to access to treatment. General practitioners working in private clinics are reimbursed for patient service by the public sector. An increasing number of Danes take out health insurance policies or are covered by their employers. With regards to radiology, general practitioners refer their patients to the radiology department at the local hospital. However, there are two exceptions:

- 1) In central Århus there is a single private clinic with a contract with the county
- 2) In the central communes of Copenhagen all radiology exams done for general practitioners are provided by twelve to fourteen private clinics, consisting mainly of conventional radiology and ultrasonography.

Recently an agreement between the commune and private clinics has been reached regarding reimbursement for MRI and CT. No commune or county outside central Copenhagen has an agreement with these clinics. Some independent imaging centres have appeared during the last few years, taking care of patients with health care insurance and those who the public radiology department are obliged to facilitate within the guaranteed eight week period. There are approximately eight private MR units and two CT scanners. In the public sector there were eleven MR scanners and thirteen CT scanners per one million inhabitants. The current government has allowed public hospital owners to invest a total figure of 40million Euro both in 2005 and 2006 in new CT, MR and PET/CT scanners. The money has been used to replace outdated scanners, but also installation of more capacity has taken place.

## Reforming Healthcare

For decades now, Denmark has operated within three political levels. The Counties (second level) have been largely responsible for healthcare since 1970. In 2005 the parliament decided to reform the structure, meaning that communes will be divided into larger segments of more or less 30,000 inhabitants and will be involved in a minor portion of healthcare and can issue taxes. Instead of the fourteen counties and central Copenhagen (the current hospital owners) there will be five regions on January 1st 2007, who are not entitled to issue taxes. 80-90% of their income will come from the government with the rest made up by the communes. This is a clear confirmation of the tendency of the government and the parliament to intervene more and more in healthcare issues. Regulations regarding hospital law thirty to forty years ago were very limited: the county took care of hospital care. To date it is more detailed and through financial control from the government the new regions have limited freedom to prioritise. Only time will show whether the reform results in an improvement in healthcare.

The current situation has not been adequate. Too many decisions were taken due to local interests rather than to the benefit of patients. The horizon for planning has only been four years (the election period). Major reforms (e.g. closing a small hospital or merger of departments) were generally decided upon right after elections. During the recent years it has been obvious that the close connection between voters and politicians in small counties did not result in much-needed decisions for example, cancer surgery was allowed in too small units, and CT-scanners were installed in small hospitals, but not used daily.

## Conclusion

In conclusion, it is my opinion that the larger regions should limit the influence of local interests and concentrate on the bigger picture. In 2000 the government gave all counties an extra 26million Euro to invest in scanning capacity for oncologic patients, despite the fact that only six of the fourteen counties and central Copenhagen have oncologic centres for treatment of cancers (radiation therapy and chemotherapy). No money was invested in scanners for oncologic patients, but rather in particular for MR scanners at small local hospitals. A close watch should be kept to ensure that new healthcare reforms allow for the increase in the number of radiologic scans and examinations performed, particularly in oncology, to be met by public healthcare facilities, and to ensure that decisions benefit not just smaller areas but the nation as a whole.

Published on : Thu, 29 Jun 2006