eSupplement

The Danish Healthcare System

The Danish healthcare system has three administrative levels: (1) the state, which is responsible for legislation, national guidelines, surveillance, and health financing through the Ministry of Health and Prevention; (2) the five regions, which are responsible for the delivery of primary and secondary care; and (3) the 98 municipalities, which are responsible for school health, child dental care, home nursing, public health, prevention, and rehabilitation.

Danish Data Sources

Primary Care and Specialist Care Files [1]

In the Danish National Health Service more than 98% of patients (Group 1) are registered with a general practitioner (GP) of their choice. The patients have the right to free treatment from their GP. Treatment by a specialist is available after referral from a GP. The GPs or specialists are paid for each consultation and supplementary diagnostic and therapeutic procedures, recorded according to patients' Civil Registration Number. The Health Service records the number of patients on the doctor's list, and the number of doctors in practice. Patients in Group 2 can select a specialist as well as a GP, but must pay a part of the GP's and specialist's fee.

The National Health Service Prescription Database [2]

Pharmacists in Denmark are equipped with an electronic accounting system primary used to secure reimbursement from the National Health Service. The database includes all prescriptions redeemed since 2004. For each redeemed prescription, information on patients' Civil Registration Number, the amount and type of drug prescribed according to the Anatomical Therapeutic Chemical (ATC) Classification System, and the day the drug was dispensed is transferred electronically from all pharmacies in Denmark to the database.

The Danish National Patient Registry [3]

The Danish National Patient Registry, covering all Danish hospitals, contains data on admissions and discharge dates and discharge diagnoses from all Danish non-psychiatric hospitals since 1977 and on emergency room and outpatient clinic visits since 1995.

Each hospital discharge is assigned one primary diagnosis and up to 19 secondary diagnoses, classified according to the *International Classification of Diseases*, 8th edition, from 1977 to the end of 1993, and 10th edition thereafter.

The Danish Civil Registration System [4]

The Danish Civil Registration System (CRS), established in April 1968, records all changes in vital status and emigration in the entire Danish population, with daily electronic updates. Upon registration in the CRS, each resident receives a unique Civil Registration Number, which is used in all Danish registries.
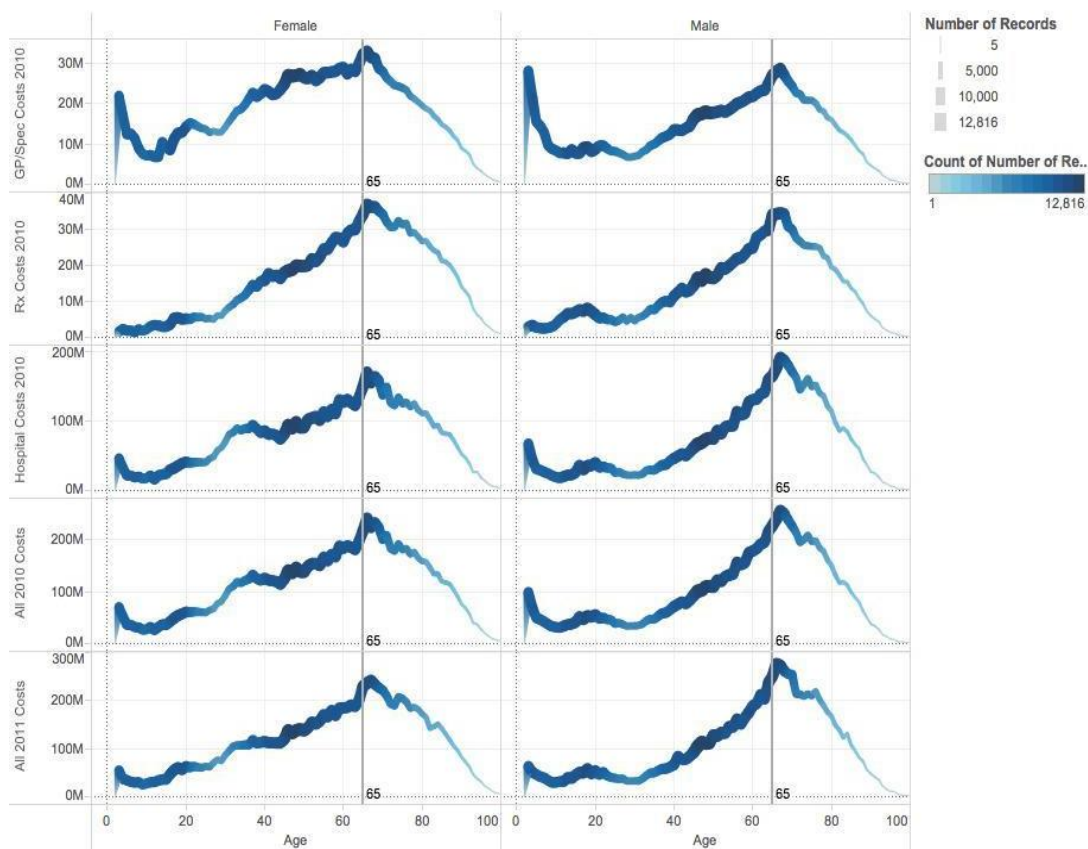
Figure e1. Healthcare costs in 2010 and total cost in 2011 by patient.
Primary care and specialist (GP/Spec), medication (Rx), hospital and hospital clinic (Hospital), and total (All) costs in 2010; total costs in 2011. Residents are shown by gender and age; color and thickness of the lines indicate the number of records; drop lines mark individuals who are 65 years old.
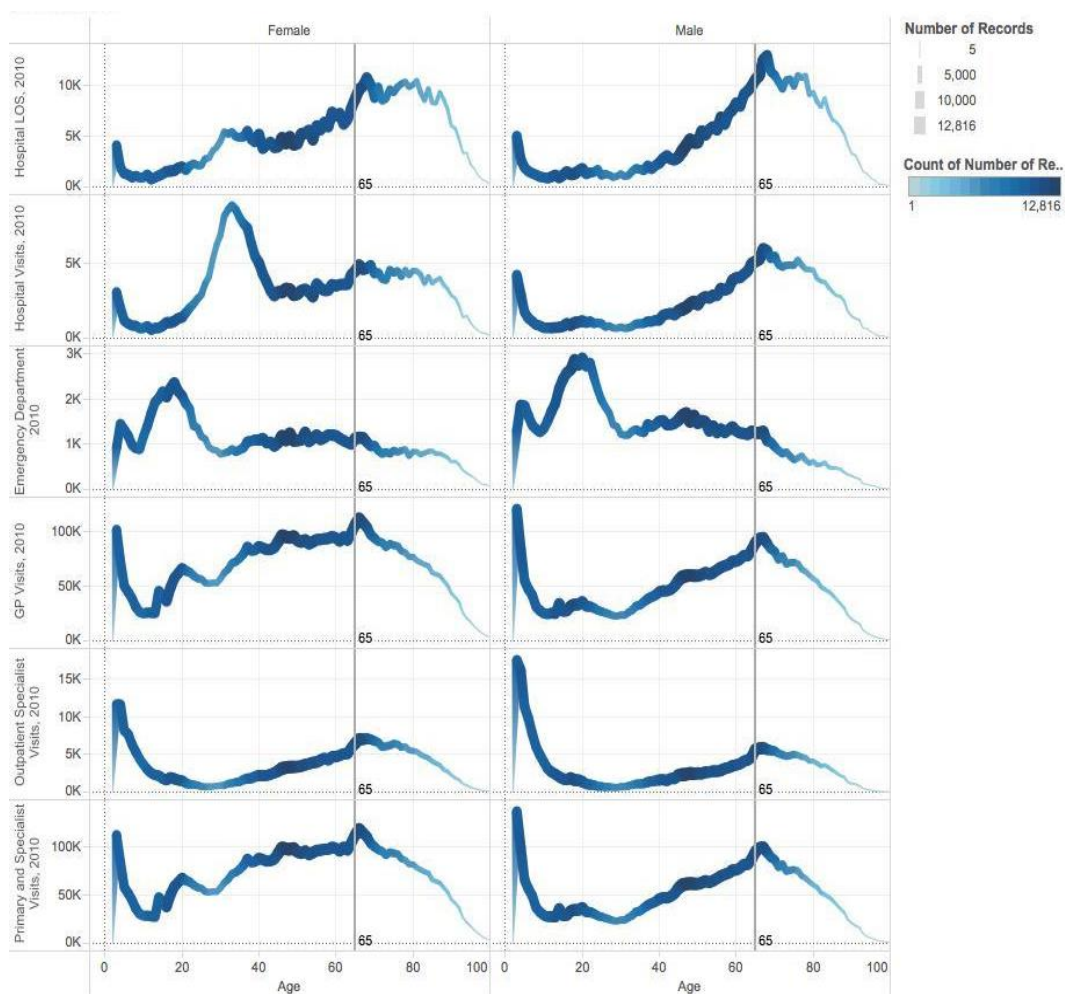
Figure e2. Total healthcare utilization in 2010 by patient.
Inpatient hospital days (LOS), hospital and hospital clinic (Hospital) visits, emergency visits, primary care (GP) visits, outpatient specialist visits, and combined primary care and specialist (Primary and Specialist) visits in 2010. Residents shown by gender and age; color and thickness of the line indicate the number of records; drop line marks individuals who are 65 years old.
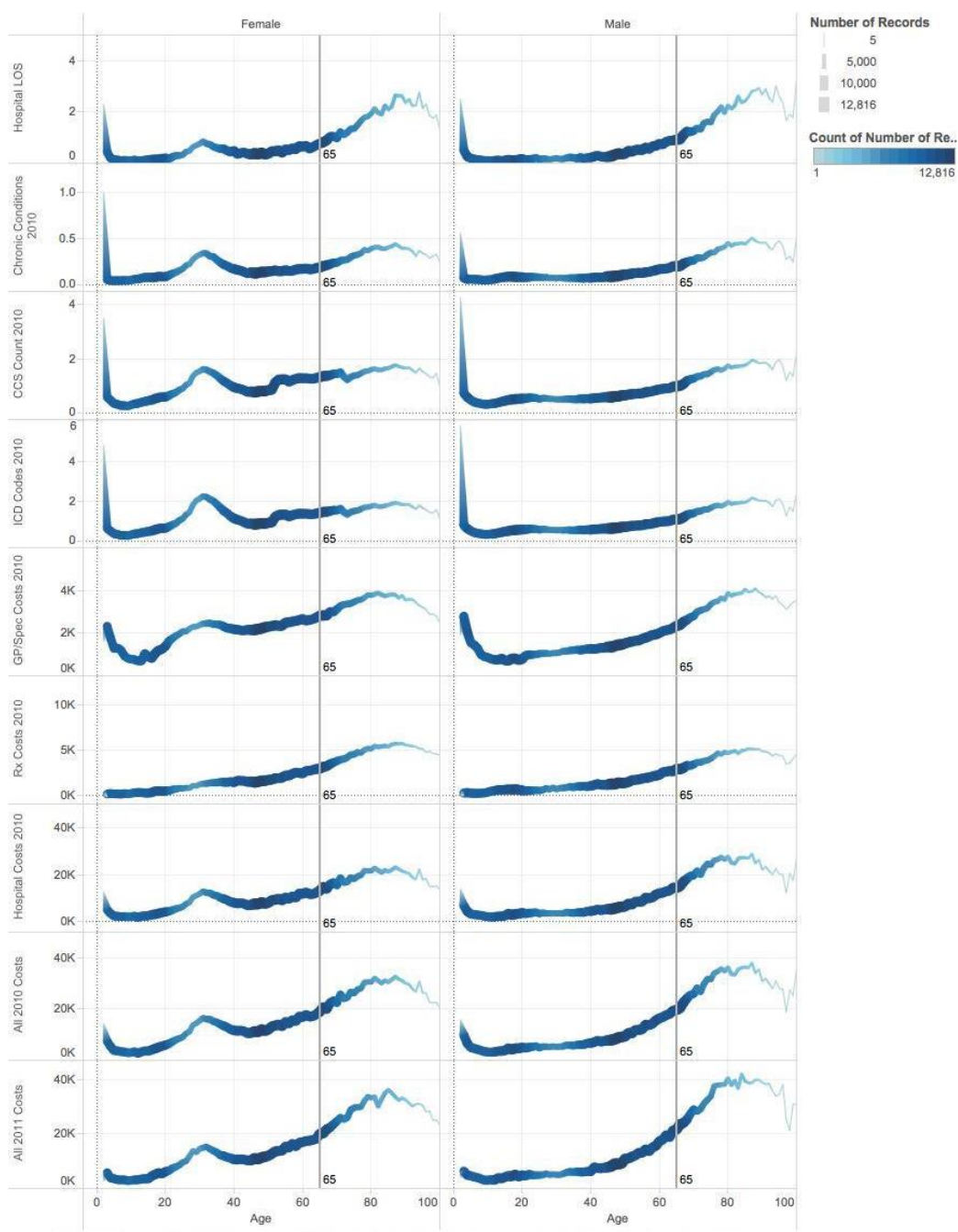
Figure e3. Average healthcare utilization in 2010 and average cost in 2011 by patient.
Hospital days (LOS), chronic conditions (CCI), clinically significant diseases (CCS), ICD codes, primary care and specialist visits (GP/Spec), medications filled (Rx), hospital visits, and total (All) costs in 2010; average total costs in 2011. Residents are shown by gender and age; color and thickness of the line indicate the number of records; drop line marks individuals who are 65 years old.
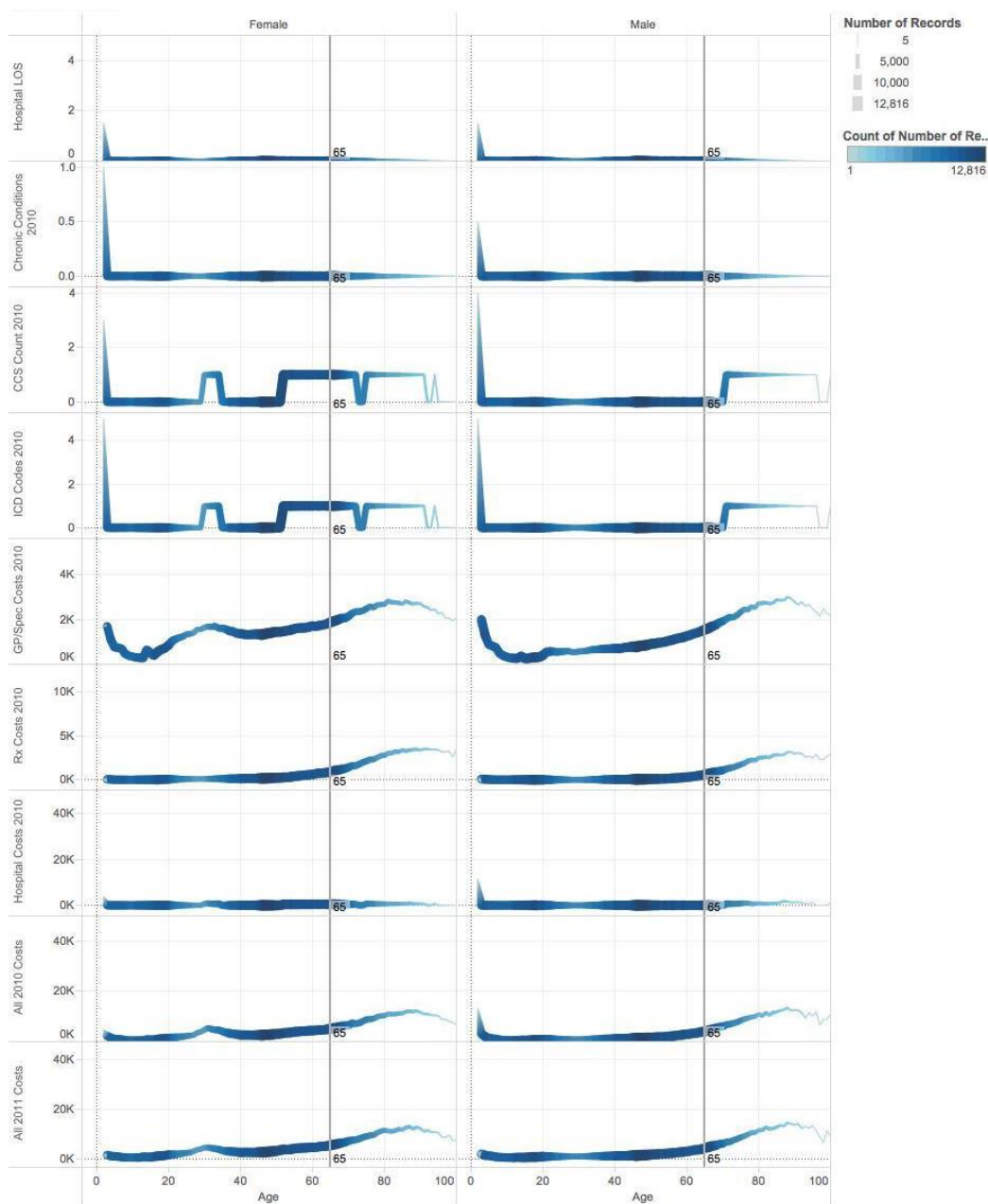
Figure e4. Median healthcare utilization in 2010 and median cost in 2011 by patient.

Hospital days (LOS), chronic conditions (CCI), clinically significant diseases (CCS), ICD codes, primary care and specialist visits (GP/Spec), medications filled (Rx), hospital visits, and total (All) costs in 2010; median total costs in 2011. Residents are shown by gender and age; color and thickness of the line indicate the number of records; drop line marks individuals who are 65 years old.

1.   Hansen, R.P., et al., *Socioeconomic patient characteristics predict delay in cancer diagnosis: a Danish cohort study.* BMC Health Serv Res, 2008. **8**: p. 49.
2.   Johannesdottir, S.A., et al., *Existing data sources for clinical epidemiology: The Danish National Database of Reimbursed Prescriptions.* Clin Epidemiol, 2012. **4**: p. 303-13.
3.   Lynge, E., J.L. Sandegaard, and M. Rebolj, *The Danish National Patient Register.* Scand J Public Health, 2011. **39**(7 Suppl): p. 30-3.
4.   Schmidt, M., L. Pedersen, and H.T. Sørensen, *The Danish Civil Registration System as a tool in epidemiology.* European Journal of Epidemiology, 2014. **29**(8): p. 541-549.