National Consistency: Denmark

Class 1 – Demography and socio-economic situation

- **Population Status:** The population structure stratified by age and gender for Denmark are updated by Statistic Denmark based on census data and interpolated for each year taking into account rates of birth, death, and migration. Data are provided down to sub-national level for counties. All Danish citizens can be traced due to a unique 10-digit personal number (provided at birth by the Central Personal Register).

- **Socio-Economic factors:** Socio-Economic data in Denmark are based on regularly performed representative surveys. Obtained information is cross-checked with other data sources like unemployment statistics, reports from public social services etc.
  Information on social class, standard definitions, is available from public registers. Ethnicity is not well defined. GDP and a poverty index is available.

Class 2 – Health Status

- **Cause specific mortality:** Death certificates include primary, secondary, and underlying cause of death as well as additional severe diseases and abuse problems, incl. alcohol abuse. Copies of death certificates can be obtained from the National Board of Health. Standardised death rates and age-specific death rates are available. PYLL are not routinely collected for any disease in Denmark.

- **Cause Specific morbidity:** Hospital admissions, incl. home address, hospital admission and discharge date, and diagnoses according to ICD10, are registered by Statistic Denmark, and the same data are available for visits at out-patient clinics. Central registered data can also be obtained with regard to GP visits, incl. treatment. Furthermore, data on respiratory morbidity have been obtained in several representative population studies of both children and adults. More detailed data on severity of COPD, incl. GOLD-classification, can be obtained from at least one large-scale, prospective epidemiological study, (the random population sample comprises more than 20.000 individuals). Data on airway hyperresponsiveness, level of lung function, and atopy are available from a number of epidemiological studies in both children and adults. Routine check-ups of pregnant women, incl. smoking habits, newborn babies and toddlers have total coverage in Denmark, and the data are registered by the Danish National Board of Health. Routine check-ups of schoolchildren of several grades are performed by medical doctors and health visitors who are appointed by the counties to this task, but the data are not collected routinely by the central authorities. Military muster is mandatory for all male adolescents in Denmark at the age pf approximately 18 yrs, and the medical examination includes symptoms and signs of respiratory disease.

Class 3 – Determinants of Health

- **Biological risk factors:** Existing Danish data on COPD and asthma incidence, prevalence, morbidity and mortality include age and gender information. Childhood infections are not registered centrally, but the possible association with subsequent respiratory morbidity has been investigated in recent population studies. All children in Denmark are offered free vaccinations (routine programme), and the coverage is > 95%. With regard to sensitisation to aeroallergens there are a number of representative population studies available, and most of these studies – together with a number of clinical studies - have also measured airway responsiveness and IgE antibodies. Most – if not all – of the recent and ongoing epidemiological studies have measured body weight and height, so the BMI can be calculated and linked to health outcomes. The BODE index, (combines BMI, airflow obstruction, dyspnoea, and exercise capacity), has so far not been used in Denmark, and it will probably not be implemented. Information on birth weight can be obtained from the central authorities. And there is at least two ongoing birth cohort studies looking at several aspects related to the interplay between family history of respiratory disease and health outcome.

- **Health behaviours:** There are valid data on smoking habits, including daily tobacco consumption, in the Danish population. Data on nutrition is to some extent available from repeated representative surveys, and data on physical activity is available from at least one large epidemiological study (the Copenhagen City Heart Study).

- **Living and Working Conditions:** Air pollution is monitored in Denmark. The Workers Compensation Board, a number of health insurance companies, and several epidemiological studies have data concerning occupation and respiratory health.

Class 4 – Health Systems

- **Health promotion:** Medical doctors, public health authorities, a huge number of patients' support groups, including the Danish Lung Association, consumer groups, and non-governmental organisations work in the field of health promotion and encourage health-enhancing life-style changes, but reliable data on these activities may be difficult to obtain.

- **Health protection**: All Danish citizens > 65 yrs and individuals at risk, including COPD patients, are offered free influenza vaccination every year, but data on coverage rate among COPD patients is not available, although the general coverage rate among elderly Danes can probably be calculated based on data from the Danish Serum Institute. Programs to protect the general population, as well as various risk groups, from environmental tobacco smoke and air pollution have been implemented, but no consistent documentation exists.

- **Health care resources**: Data on the availability of health care resources, including number of specialists in pulmonary medicine and allergology, at country, county, and district level is available in Denmark.

- **Health care utilisation:** There is only very few private hospitals in Denmark, and treatment is often at least partly funded by public resources. Most data on health care utilisation can therefore be retrieved for statistical analysis. Furthermore, apart from medication, also at least partly paid by public financial resources, health care is free in Denmark, including visits to GPs, emergency rooms, and admissions to hospitals.

- **Health care expenditure**: As most health care is paid by the state or the counties, it should be possible to retrieve these data relatively easy.

- **Health outcomes**: Sick leave is registered centrally. Data on symptom frequency etc. can be obtained from a number of clinical and epidemiological studies.

Further information/Discussion

The Danish National Board of Health will publish national guidelines for 'Early detection and rehabilitation of patients with COPD' by the end of 2004. The Danish Respiratory Society will publish the revised consensus statement on COPD in 2005, which will include concentrates in diagnostic standards, indicators of severity, and treatment. Furthermore, the revised version of the national asthma guidelines (published in 2002), will be published in the beginning of 2006.

Although data on asthma incidence and prevalence is available from a number of epidemiological studies, more detailed information, including phenotype, will often not be available, and efforts to obtain these data may prove to be very important for monitoring asthma-related costs (in its broadest sense).

Conclusion

A European set of indicators for monitoring asthma and COPD is important for the purposes of benchmarking and quality control. Data on most of the indicators put forward so far is available, at least to some extent, in Denmark, although a number of them still lack standardisation. However, fortunately protection of personal data no longer forbids cross linking of data if an *ad personam* attribution is intended.