Date last modification documentation sheet: 18-04-2012

Compared to previous version documentation sheet (16-04-2010) the following issues were adapted:
- New section on relevant policy areas added to the documentation sheet
- Issue added to work-to-do section: elaboration of detailed algorithm for this indicator

ECHIM Indicator name	**B) Health status** 25. Stroke
Relevant policy areas	- Health system performance assessment, quality of care, efficiency of care, patient safety - Non-communicable diseases (NCDs), chronic diseases - (Preventable) Burden of Disease (BoD) - Mental health - (Planning of) health care services
Definition	Attack rate of stroke (non-fatal and fatal) per 100,000 population.
Calculation	Age-standardized attack rate by sex in age group 35-84 in the population in a given calendar year, based on combined hospital discharge and mortality data (ICD-10 codes I60-I64) (EUROCISS project recommendation). Attack rate counts the first and recurrent events, whenever there is at least 28 days between the onsets of the events. Age standardization should be done for men and women separately, according to the direct method, using the 1976 WHO European population as standard population (this is the method applied for the Eurostat diagnosis-specific morbidity statistics; see references (document principles and guidelines in CIRCA)).
Relevant dimensions and subgroups	- Calendar year - Country - Region (according to ISARE recommendations) - Sex - Age group: ➢ for age standardization data must be collected by 5 year age groups for ages 35-84 ➢ for data presentations it is required to present the following age groups; 35-64, 65-84 - Socio-economic status (see data availability)
Preferred data type and data source	Preferred data type: - Hospital discharge registries combined with causes of death registries - Alternatively: population-based stroke registers Preferred source: national data sources (no data available in international data sources according to preferred definition)
Data availability	No regular data collection for this indicator yet exists. Stroke population-based regional registers are available in Denmark, Finland, France, Germany, Italy, Norway and Sweden. In general these registers do not produce data on stroke by SES. The ISARE project has not collected regional data on stroke.
Data periodicity	See data availability.
Rationale	High-burden disease and cause of death. These diseases are preventable.
Remarks	- Between 3 and 13% of strokes are fatal and patients die before reaching the hospital. As a consequence, only a combination of mortality data and hospital discharge records can provide a complete picture of the disease in the population. The calculation of this indicator therefore requires linkage of different data sources at subject level. Possibilities for this kind of linkage differ between countries due to a disharmonized legal framework regarding the possibilities to use personal health data for data protection purposes. - People may die from the effects of stroke long after the event took place. Therefore in stroke it is difficult to establish a time frame for distinguishing between first and recurrent events. 28 days is a commonly applied time frame. One has to realize though that this definition may result in double counting of events; one for the stroke, and one for death as a consequence of the stroke when death occurs later than 28 days after the stroke. - EUROCISS project recommends to report separately: a) haemorrhagic stroke (ICD-10 codes

	I61, I62), b) ischaemic stroke (ICD-10 codes I63, I64) and c) subarachnoid stroke (ICD-10 codes I60), because of the different disease entities (and hence different risk factors) underlying these diagnoses. ECHIM endorses this point of view, but feels that, given the current lack of data, it seems too early to ask the Member States to implement this indicator at such a detailed level now. ECHIM does nevertheless envisage refining the indicator definition in future. - Incidence from a primary prevention point of view is more interesting than attack rate, although both bring very similar information. Incidence refers to person's first event. Ideally the denominator should be those who have not had a stroke before, but in practise this is not possible. The total population in the denominator gives a good approximation. Data for attack rate however are more widely available. - The preferred age range is limited because the disease is rare in people younger than 35. People older than 84 are excluded as co-morbidity and identification of the cause of death in this group would complicate the interpretation of the results.
References	- EUROCISS project: http://www.cuore.iss.it/eurociss/en/project/project.asp - EUROCISS project, manual for operating population based stroke register: http://www.cuore.iss.it/eurociss/reg_ictus/pdf/stroke_manual.pdf - Diagnosis specific morbidity statistics, Eurostat, public part of CIRCA: http://circa.europa.eu/Public/irc/dsis/health/library?l=/methodologiessandsdatasc/diagnosis-specific&vm=detailed&sb=Title - Health Indicators in the European Regions (ISARE) project: http://www.isare.org
Work to do	- Discuss with European Commission possibilities for adding this indicator to regular data collection processes - P.M.: refine indicator definition according to EUROCISS recommendations (report separately for a) haemorrhagic stroke (ICD-10 codes I61, I62), b) ischaemic stroke (ICD-10 codes I63, I64) and c) subarachnoid stroke (ICD-10 codes I60)) - During the ECHIM data collection pilot, which was conducted during the Joint Action for ECHIM, it became clear that there was a need in the Member States for a detailed algorithm for computing this indicator → elaborate algorithm and add to indicator documentation