Commissioning organised stroke care in Coventry

Geographical Area covered: Coventry
Focus: Case studies focusing on the use of national indicators

Contributors:
Authors:
Kishor Padki, Senior Registrar in Public Health Medicine
Peter Barker, Consultant in Public Health Medicine
Keith Williams, Director of Public Health

Address for correspondence: Coventry Health Authority, Christchurch House, Greyfriars Lane, Coventry CV1 2GQ

Editorial comments on how case study is linked to improving health outcomes: (also published in Volume 1)

Padki, Barker and Williams describe how nationally based health outcome indicators highlighted increased standardised mortality rates for stroke in Coventry when compared to other districts in the West Midlands and other similar districts. Further information showed variation in stroke mortality within the district. Population based health outcome indicators helped to prioritise a review of the management of stroke and a subsequent increase in funding. They set up targeted interventions aimed at the primary and secondary prevention of stroke. A review of stroke services and an examination of the effectiveness evidence led to a strategy focusing on a comprehensive, co-ordinated hospital and community rehabilitation service with clear guidelines for management.

Abstract (also published in Volume 1)

Problem: Coventry has a higher burden of premature deaths from stroke and a significantly higher SMR for stroke compared to the West Midlands region. This has prompted us to adopt strategies towards prevention and organised care for stroke.

Action: Stroke was made a priority area in Coventry's 1994/1995 Purchasing Plan. We organised a workshop in June 1994 to get participation and agreement of key professionals in stroke care for future developments. Research evidence pointed towards organised stroke care i.e. a stroke unit being significantly beneficial than routine care in medical wards. We initiated service developments towards a stroke unit with pump priming monies of £110k. Steps are now being taken towards coordinating hospital and community rehabilitation services.

We have funded a pilot stroke prevention project in the elderly to facilitate early detection and management of risk factors in primary care. Specialist health promotion strategies are targeted towards deprived areas of the City.

Conclusion: Population based health outcome indicators have focused the Coventry purchasers' minds into taking concerted action towards optimum medical care and rehabilitation of persons with stroke.

Introduction:

Why this clinical area was chosen:

Coventry Health District

Coventry health district has a population of 306,300 (1991 census) and its boundaries are co-terminous with Coventry City Council. Coventry ranks as the 23rd most socio-economically deprived district in England and Wales with a Jarman 8 score of 16.74. Ethnic minority persons constitute 11.9% of the population. The district is served by 165 general practitioners within 64 practices.
Coventry is virtually self sufficient for secondary health care needs with the Walsgrave Hospital NHS Trust providing almost all necessary services. Acute stroke care as well as rehabilitation is currently provided at Walsgrave Hospital.

**Health of the Nation key area**

Stroke is the largest single cause of serious disability in the community. Stroke has consequences for individuals, families, carers and the Health Service. In Coventry 401 persons died from stroke in 1992, accounting for 12% of all deaths with over two thirds of these deaths in elderly persons (>75 years).

Stroke is an important avoidable cause of premature death and disability and is a key area within the "Health of the Nation" strategy for England. There is considerable scope for improvement in this health area for which it is possible to set standards and targets (Secretary of State for Health 1992).

There is no routinely available data on incidence and prevalence of stroke in the community. However, it is possible to obtain estimates based on research studies on stroke (Wade 1992; DoH 1993). Within Coventry the estimates are likely to be:

- 700 first time strokes per year;
- 1800 survivors from stroke at any one time.

Stroke care consumes considerable NHS resources. A conservative estimate suggests that about £6 million will be spent on stroke care to include inpatients, long stay and GP visits, every year, in Coventry (Raftery and others 1995).

**Stroke outcome indicators**

Coventry has higher mortality rate and premature burden of deaths from stroke compared to national and regional average (table 1).

<table>
<thead>
<tr>
<th>SMR (95% C.I.)</th>
<th>Years of life lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>England &amp; Wales</td>
<td>100</td>
</tr>
<tr>
<td>West Midlands</td>
<td>108 (107-109)</td>
</tr>
<tr>
<td>Coventry</td>
<td>118 (113-123)</td>
</tr>
</tbody>
</table>

Source: Public Health Common Data Set 1993

Hypertension is a major risk factor for stroke. Death from stroke under the age of 65 years is considered particularly avoidable, as the main risk factor is hypertension which is readily identified and effectively treated (McColl and Gulliford 1993). Standardised mortality ratios from hypertensive and cerebrovascular disease in the age group 35-65 years are significantly higher in Coventry compared to the national average (table 2).

<table>
<thead>
<tr>
<th>Observed deaths</th>
<th>SMR (95% C.I.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>England and Wales</td>
<td>27609</td>
</tr>
<tr>
<td>West Midlands</td>
<td>3204</td>
</tr>
<tr>
<td>Coventry</td>
<td>195</td>
</tr>
</tbody>
</table>

Source: Population Health Outcome Indicators for NHS 1993

Although social and environmental factors are believed to have a strong influence on the distribution of stroke mortality in England and Wales, variations in risk factors provide a strong argument for strengthening local health services in areas of high stroke incidence (DoH 1993a). Within Coventry electoral wards with high deprivation scores have higher SMRs for stroke. This variation in stroke
mortality within Coventry also influenced our choice of this clinical area.

**Further information that was required:**

We conducted a review of Coventry residents admitted with stroke to Walsgrave Hospital in August 1993. The data was obtained from contract minimum data set (CMDS) of inpatient episodes over a 2 year period (1991-1993). This data set had 1531 finished consultant episodes (FCEs) with a diagnosis of cerebro vascular disease. (ICD9 430 - 438). The majority of these episodes occurred in persons above 75 years of age (table 3).

**Table 3: Stroke: 2 year inpatient episodes**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;65</td>
<td>111</td>
<td>191</td>
</tr>
<tr>
<td>65 - 74</td>
<td>186</td>
<td>249</td>
</tr>
<tr>
<td>75+</td>
<td>467</td>
<td>327</td>
</tr>
<tr>
<td>All</td>
<td>764</td>
<td>767</td>
</tr>
</tbody>
</table>

Source: CMDS: Walsgrave Hospital Episodes Data 1991 - 1993

The mean length of stay in hospital following stroke was 20 days (table 4). The mean length of stay is influenced by small number of patients staying for long periods of time. Twenty five patients stayed for more than 100 days. The median length of stay in our review was 11 days.

**Table 4: Mean length of stay (in days) following stroke**

<table>
<thead>
<tr>
<th>Age</th>
<th>Female</th>
<th>Male</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 64</td>
<td>14.19</td>
<td>17.21</td>
<td>16.09</td>
</tr>
<tr>
<td>65 - 74</td>
<td>18.77</td>
<td>18.31</td>
<td>18.51</td>
</tr>
<tr>
<td>75 - 84</td>
<td>26.33</td>
<td>20.46</td>
<td>23.81</td>
</tr>
<tr>
<td>85 - 94</td>
<td>20.51</td>
<td>16.29</td>
<td>18.88</td>
</tr>
<tr>
<td>All</td>
<td>21.54</td>
<td>18.47</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Source: CMDS: Walsgrave Hospital Episodes Data 1991 - 1993

Informal consultation with clinicians and rehabilitation staff revealed areas for improvement in management of stroke. Patients were regularly admitted on to any of the medical wards (four or more) with no uniform policy for management. Rehabilitation service with multidisciplinary team assessment was inadequate to cope with the number of stroke patients. There was a variable waiting time for admission to the rehabilitation ward with patients sometimes remaining in expensive acute beds longer than necessary. No qualitative survey of patients was undertaken, so it is not possible to describe the experiences of patients in hospital following stroke.

We organised a half day workshop in June 1994 to elicit the views of key persons involved in stroke care. The 22 participants included consultants, GPs, nurses, rehabilitation therapists and managers, reflecting the multidisciplinary nature of stroke care in hospital and community. Problems of coordination between hospital and community rehabilitation services were discussed. The need for a clear strategy towards future developments in stroke care was highlighted at the workshop.
Data validity studies:

There is no readily available information on prevalence and incidence of stroke in our district. A properly maintained district stroke register would help not only in obtaining incidence and prevalence data, but also in planning services. We are currently conducting a survey of GPs on their views towards stroke services in Coventry.

Since 1994 we have established a computerised database of death notifications from the Registry Office. This database is based in our department and managed by an audit manager. We could not validate the deaths data from national statistics against our local database for the period under study.

There are problems associated with Hospital Episodes Statistics (HES) data. These relate to miscoding, misclassification, re-admissions and transfers between consultants. Any analysis of HES data could be biased by the above problems. HES data lacks information on important aspects of stroke management such as rehabilitation, assessment and discharge planning. FCE inflation was not examined in our review. Resource use and the costs in stroke are driven by inpatient bed days, and not by FCEs (Raftery and others 1995).

Summary findings from initial work:

Changes which were made:

We identified stroke care as a priority for development with additional funding in the 1994-95 Purchasing Plan. We held discussion with consultant physicians and directorate managers to specifically discuss acute stroke care and rehabilitation.

Research Evidence on organised stroke care

The following research has influenced us to commission organised stroke care:

- Formal rehabilitation after a stroke is effective and that it is best provided by well organised multidisciplinary teams (Effective Health Care 1992);
- An overview concluded that management of stroke patients in a Stroke Unit is associated with a 21% reduction in mortality at the end of one year compared to routine care in medical wards (Langhorne et al. 1993).

The main benefit from a stroke unit seems to derive from improved organisation and teamwork rather than expensive facilities. Current guidance suggests that stroke unit development should be tailored to local
conditions, that is, location, people and resources (Dennis and Langhorne 1994). We felt that service developments initially may cost more money but in the long term will save money by getting patients quickly off expensive acute beds and offering optimum rehabilitation. We felt that future configuration of stroke service could be arrived at by reorganising and strengthening existing hospital services and achieving coordination with community services. We already have acute medical wards, rehabilitation ward and a rehabilitation day unit on the Walsgrave site. We decided to initiate service developments to achieve a stroke unit with the staff doing outreach work in the community. Our commissioning objectives followed from the research evidence (Dennis and Langhorne 1994).

**Commissioning objectives**

- to purchase a single coordinated district wide stroke service;
- an evolutionary approach towards developing a stroke unit within three years;
- all acute strokes to be admitted to a dedicated ward;
- services delivered by expert committed staff with standardised guidelines.

**Funding for dedicated stroke service**

An initial sum of £110k was identified towards Medical Directorate contracts for funding improvements in multidisciplinary stroke service. The following new personnel have been recruited:

- Stroke Assessment Coordinator 1 WTE;
- Physiotherapist 1 WTE;
- Occupational Therapist 1 WTE;
- Speech and Language Therapist 1 WTE;
- Stroke Audit Nurse 0.5 WTE.

The Consultant in Rehabilitation Medicine (who is already in post) has provided the lead for the District Stroke Service. The appointment of a Consultant in Acute Stroke Medicine is in the Walsgrave Hospital business plan for 1996/97. All acute strokes will then be admitted to a dedicated 8 to 12 bedded unit under the care of the new Consultant. The Medical Directorate contract underlines the consultant lead for acute care and rehabilitation. Guidelines for management of stroke are currently being developed under the lead of the Consultant in Rehabilitation Medicine. We want to assimilate good practice guidance in different areas of stroke management to be produced by Scottish Royal Colleges.

**Proposed Configuration of Stroke Service**

![Coventry District Stroke Service Diagram](attachment:Coventry_District_Stroke_Service.png)

**Patient pathways**

Admitted to hospital → Acute stroke ward → Rehabilitation ward → Assessment, planning, discharge → Day unit

Patient not admitted → Assessment, rehabilitation at home/Nursing home → Day unit

**Stroke assessment coordinator**
This is a key post within the Coventry stroke service with the remit to achieve effective and organised rehabilitation of patients following stroke. The main responsibilities of the person are:

- Coordination of stroke management across hospital and community;
- All stroke patients to have an outline careplan drawn up on the first visit to the acute ward or on an initial visit to the patient’s home;
- To establish links with GPs, Social Services and Stroke Association.

Since her appointment the Stroke Assessment Coordinator has established standards for the Multidisciplinary Stroke Team.

**Stroke assessment team standards**

- The team will respond to referral from the ward within 24 hours and a coordinated assessment of appropriate therapy would be completed within 7 days;
- Each patient referred to the team will be reviewed weekly;
- The Team will provide information and support for patients, relatives and carers within one week of referral.

**Research**

We are participating in European stroke database (ESDB) which provides a structured framework for studies in all aspects of stroke. We are planning to conduct a study into quality of life of patients following stroke.

**Possible future developments**

- A dedicated Social Worker to be attached to the Stroke Team to aid discharge planning;
- Assignment of a key worker from amongst the professional staff to explain the rehabilitation plan to patients and family. This will be written into the service contract;
- A family support worker from the Stroke Association.

**Primary prevention**

Strokes are preventable. The two most important risk factors for stroke; smoking and hypertension are both modifiable. 30% to 50% of the population attributable risk is related to hypertension (DoH 1995). We have adopted two complementary strategies for primary prevention of strokes in Coventry.

- Population approach: Specialist health promotion initiatives such as smoking cessation, sensible drinking have been targeted at deprived localities of the City.
- High risk "targeted approach": Here general practitioners identify persons with a high risk of developing stroke (e.g. persons with high BP, smokers, hyperlipidaemia, etc.) A statistical overview suggests 42% reduction in the risk of stroke following the treatment of raised B.P. (Collins et al. 1990). In Coventry five practices undertook an audit of treatment of hypertension looking specifically at diet, exercise, alcohol, smoking, ECG, blood tests and chest X-rays. A standard of 75% was set for each of the above criteria and in most cases this was not achieved. The five practices have agreed to discuss the findings of the audit with their partners with a view to amending the management of hypertension (Coventry MAAG 1995/6).

**Stroke prevention project**

Over two thirds of the burden of illness from stroke as expressed by mortality rates in Coventry occur in people over 75 years. Stroke prevention has been aimed at elderly persons in a pilot project commissioned in Coventry. The stroke prevention nurse post has received funding of £19k by primary care development in 1995. The project is aimed at stroke risk factors identification and modification in elderly persons. At present the work covers two general practices.

**Secondary prevention**

A systematic review by antiplatelet trialists collaboration has documented the benefits of aspirin, 75 - 325 mg per day in preventing death and non fatal strokes in patients with a history of stroke or TIA (Antiplatelet Trialists’
Collaboration 1994). In Coventry seven practices have participated in the audit of aspirin use in patients with CVA/TIA. The standard of 75% was achieved by four out of seven practices.

**How changes will be monitored:**

- We established a stroke strategy planning group to coordinate service developments. The group is chaired by the Director of Purchasing and includes representatives of all professions with interest in stroke (currently 15 members). We propose to conduct a survey of patients and carers regarding satisfaction with stroke services. We are also planning an audit of mortality and survival following stroke using the computerised database of death notifications. In the absence of uniformly accepted measures of outcome, process measures in the delivery of services will be used to monitor changes (e.g. length of stay).

**Resource Implication:**

- It was not our intention to have an entirely new stroke service with new capital developments. The initial £110K was agreed by the Health Authority in 1995 to fund integrated stroke services. New appointments (mentioned earlier) have been made. An additional £140K has now been built into medical directorate contracts to fund acute stroke care (acute ward and Consultant). The funding for stroke prevention nurse post (£19K per annum) came out of primary care development monies.

**Practical lessons learnt:**

The necessity for organised stroke care in Coventry arose from assessment of outcome indicators and research evidence. We as purchasers had to start the ball rolling to achieve changes in organisation and delivery of stroke services. Close working relationships with consultants and rehabilitation professionals was critical for us in initiating changes. An important lesson for us has been, not only the need to maintain this communication network, but also strengthen it by the formation of a stroke strategy planning group.

Stroke services span a number of organisations and agencies. Our main problem areas have been the lack of coordination between services delivered by different professionals and agencies. This is a difficult task for the DHAs to achieve given the best of goodwill from all sides. Our attitude has been to contain and manage professional resistance rather than suppress it. We had to invest new resources to achieve a level of service sufficient to meet the needs of all stroke patients.

Commitments from Health Authority managers and key professionals was essential in opting for service developments towards a stroke unit. The Stroke Association has a wealth of experience both nationally and locally on the organisation of stroke care. It is important that purchasers intending to set up district stroke services should consult the Stroke Association in the early stages of planning.

**Conclusion:**

Coventry has higher than expected burden of death and disability from stroke. Our attempt to implement research evidence on organised stroke care, has resulted in collaborative planning and working with all professionals involved in stroke care. Initial steps towards a stroke unit in Coventry have been taken, with purchasers investing new resources. Much work still needs to be done in the area of prevention of strokes. Our main problem area has been the coordination between hospital and community rehabilitation services.

**References:**

A) Commissioning organised stroke care in Coventry


Department of Health (1993). Key area handbook: CHD and stroke. HMSO.


McColl J, and Gulliford MC. (1993). Population Heath Outcome Indicators for the NHS. Faculty of Public Health Medicine and the Department of Public Health Medicine, United Medical and Dental Schools of Guy's and St Thomas' Hospitals.


Organisational Context:

Population health outcome measures for stroke and peptic ulcer deaths were first highlighted in the annual report of the Director of Public Health for Coventry in 1994. Recommendations for organised stroke care and an audit of peptic ulcer deaths were made to the Coventry Health Authority.

A Senior Registrar in Public Health Medicine (Kishor Padki) together with the Director of Purchasing led the work on stroke. The workshop on stroke services and the research evidence facilitated our strategy towards a Stroke Unit. Collaborative working with GPs, Consultants and multidisciplinary professionals has resulted in a smooth transition towards organised care. We couldn't have achieved changes in stroke care without spending additional resources. The decision to make stroke care as a priority in the business plan for 1994/1995 and the extra funding for stroke services were critical organisational factors to secure changes. The success of stroke care in Coventry depends on the coordination between multidisciplinary professionals both within the Health Service and outside with other agencies.