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Stroke. 2011;42:1392-1397; originally published online March 24, 2011;

doi: 10.1161/STROKEAHA.110.606285

Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

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Print ISSN: 0039-2499. Online ISSN: 1524-4628

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A Consensus on Stroke Early Supported Discharge

Rebecca J. Fisher, PhD; Catherine Gaynor, MB, FRCP; Micky Kerr, PhD; Peter Langhorne, MD, PhD; Craig Anderson, PhD; Erik Bautz-Holter, MD, PhD; Bent Indredavik, MD, PhD; Nancy E. Mayo, PhD; Michael Power, FRCP; Helen Rodgers, MBChB, FRCP; Ole Morten Rønning, MD; Lotta Widén Holmqvist, RPT, PhD; Charles D.A. Wolfe, MD; Marion F. Walker, PhD

Background and Purpose—Research evidence supporting Early Supported Discharge (ESD) services has been summarized in a Cochrane Systematic Review. Trials have shown that ESD can reduce long-term dependency and admission to institutional care and reduce the length of hospital stay. No adverse impact on the mood or well-being of patients or carers has been reported. With the implementation of many national and international stroke initiatives, we felt it timely to reach consensus about ESD among trialists who contributed to the review.

Methods—We used a modified Delphi approach with 10 ESD trialists. An agreed list of statements about ESD was generated from the Cochrane review and three rounds of consultation completed. ESD trialists rated statements regarding team composition, model of team work, intervention, and success.

Results—Consensus of opinion (>75% agreement) was obtained on 47 of the 56 statements. Multidisciplinary, specialist stroke ESD teams should plan and co-ordinate both discharge from hospital and provide rehabilitation in the community. Specific eligibility criteria (safety, practicality, medical stability, and disability) need to be followed to ensure this service is provided for mild to moderate stroke patients who can benefit from ESD. Length of stay in hospital, patient and carer outcome measures and cost, need to be routinely audited.

Conclusions—We have created a consensus document that can be used by commissioners and service providers in implementing ESD services. Our aim is to promote the use of recommendations derived from research findings to facilitate successful implementation of stroke services nationally and internationally. (*Stroke*. 2011;42:1392-1397.)

Key Words: evaluation ■ health policy ■ health services research ■ patient discharge ■ rehabilitation ■ stroke delivery ■ stroke management

Many stroke services in the United Kingdom are now in the process of implementing early supported discharge (ESD) services designed to accelerate the discharge of stroke patients admitted to hospital and provide rehabilitation at home. It was hypothesized that such schemes could improve stroke patient care by providing a seamless transfer from hospital to home and enable patients to be rehabilitated in their home environment.¹ The evidence in support of ESD has been cumulative. In 2005, an individual patient data meta-analysis (11 trials, n=1597), confirmed in a later review (12 trials, n=1659),

concluded that appropriately resourced ESD services provided for a selected group of stroke patients can reduce long term dependency and admission to institutional care as well as reducing the length of hospital stay.^{2,3} No adverse impact was observed on the mood or subjective health status of patients or carers. The greatest benefits were seen in services providing a coordinated ESD team and with patients who had mild-to-moderate disability.

The Stroke Improvement Programme, funded by the Department of Health to implement the National Stroke Strategy 2007,⁴ has recently launched a national accelerated program

Received October 20, 2010; accepted December 28, 2010.

From the CLAHRC NDL (Nottinghamshire, Derbyshire & Lincolnshire) Stroke Rehabilitation Theme (R.J.F., M.K., M.W.), Community Health Sciences, University of Nottingham, UK; Nottingham University Hospitals NHS Trust (C.G.), Nottingham, UK; Division of Cardiovascular and Medical Sciences (P.L.), University of Glasgow, Glasgow, UK; The George Institute for International Health (C.A.), Royal Prince Alfred Hospital and University of Sydney, Australia; Department of Physical Medicine and Rehabilitation (E.B.), Oslo University Hospital, Ullevål and University of Oslo, Oslo, Norway; Department of Medicine, St Olavs Hospital, and Department of Neuroscience (B.I.), Norwegian University of Science and Technology, Trondheim, Norway; Division of Clinical Epidemiology (N.E.M.), McGill University, Health Center, Montreal, Canada; Queen's University Belfast and the Stroke Unit (M.P.), Ulster Hospital, Ulster, UK; Institute for Ageing and Health (H.R.), Newcastle University, Newcastle, UK; Department of Neurology, Akershus University Hospital (O.R.), Akershus, Norway; Division of Physiotherapy, Department of Neurobiology, Care Sciences and Society, and Division of Neurology, Department of Clinical Neuroscience (L.W.H.), Karolinska Institute, Stockholm, Sweden; Division of Health and Social Care (C.D.A.W.), Kings College London and Guy's and St Thomas' NHS Trust, London, UK.

Bo Norrving, MD, PhD, was the Consulting Editor for this paper.

Correspondence to Rebecca Fisher, PhD, CLAHRC NDL, Stroke Rehabilitation Theme, 9 Triumph Road, Jubilee Campus, University of Nottingham, Nottingham NG7 2GT, UK. E-mail rebecca.fisher@nottingham.ac.uk

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Stroke is available at <http://stroke.ahajournals.org>

DOI: 10.1161/STROKEAHA.110.606285

featuring the implementation of ESD services across the United Kingdom. While there is robust evidence to support the recommendations for ESD services,^{2,3,5} clarity and detail around the model of ESD service commissioners and service providers should implement is still required. Given the Stroke Improvement Programme initiative, we felt it timely to establish what elements of an ESD team trialists believe are most effective.

Methods

Whereas systematic reviews distil down key results on the effectiveness of an intervention (does ESD work?), consensus methods such as a modified Delphi technique can be used to explore differences in scientific opinion on the details of the intervention.^{6,7} Our aim was to reach consensus on key elements of an ESD service and identify issues that remain unresolved.

We chose an international panel of experts on the effectiveness and benefits of ESD as tested in randomized control trials, based on the Cochrane systematic review.² Representatives of each ESD trial team were identified and nine of eleven ESD trialists, in addition to Professor Langhorne himself, responded to an invitation to take part. This group also included a representative from the additional 12th trial featured in the later 2007 ESD review.³ Our research team drafted a list of statements about ESD with the aim to provide a consensus on the findings of the Cochrane Systematic Review and provide a consensus on aspects of ESD that were not explicitly mentioned in the review but that we felt were relevant to clinical practice.

In accordance with a modified Delphi process,^{6,7} ten ESD trialists were asked to indicate whether statements should be included or rejected in future rounds of the consensus process. Since each of the statements in round 1 were picked to be included by at least one of the ESD trialists (with free text submitted by the trialists prompting minor rewording of some of the statements) round 2 featured almost an identical set of statements to round 1. In round 2, panelists were asked to indicate their level of agreement with each statement, with the option to make comments via free text as appropriate. Panelists were asked to complete the form with the Cochrane systematic review in mind, rather than focusing on the particular trial they were involved in. Consensus of agreement was determined by 75% (or above) of panelists giving "strongly agree" or "agree" responses (combined score); similarly consensus was also reached if 75% of panelists gave "disagree" or "strongly disagree" responses.⁶ Statements for which consensus had not been reached were circulated again in round 3 and trialists were given the opportunity to review their level of agreement with each statement, in light of the group response. Final consensus levels for each statement and the median response were calculated.

Free text comments from all three rounds of the modified Delphi process were analyzed qualitatively. Consensus headings (team composition, model of team work, intervention, and success) allowed a degree of top-down structure to be imposed on the data, which complemented the bottom-up thematic approach to the analysis.⁸ This iterative form of content analysis involved coding the free text according to themes, which were then subject to further review and interpretation. A computer aided qualitative data analysis software package, Nvivo8 (QSR International, 2009), was used.

Results

An ESD consensus document was created listing statements that the ESD trialists as a group had reached consensus agreement on, statements that the group had reached consensus and disagreed on, and statements that the group were unable to reach consensus on. Consensus of opinion (>75% agreement) was obtained on 47 of the 56 statements. Clear guidelines are provided by these statements and for brevity's

sake, these will not be discussed further. Statements commented on below are those that were informed by free text from the trialists.

Team Composition and Model of Team Work

ESD trialists agreed that an ESD team (Table 1) should be based in the hospital and disagreed that an ESD team should be based in the community (Table 2). Our interpretation of this, informed by free text supplied by trialists, would be that the effectiveness of the ESD service relies on cooperative and collaborative decision making between ESD and acute services. How the ESD service could play a role in the discharge from an acute setting (eg, a stroke unit), through core stroke-specific rehabilitation activities, and then provide support and have care responsibilities at later stages of the patient journey, was a theme that emerged from the free text analysis.

"ESD teams do much more than just rehabilitation. Signposting to key services, psychological support, and linking closely with other agencies is very important."

Intervention

ESD trialists suggested that some flexibility was required in how patients are admitted to an ESD service; allowing expert decision making and judgment rather than being tied rigidly to scores (Table 3). This is supported by the fact that ESD trialists were unable to reach consensus on whether patients eligible for early supported discharge would have sufficient cognitive function and ability to consent to being referred to an ESD service.

"Eligibility criteria that are too strict are self defeating. I feel the hospital stroke team should liaise with ESD team to reach agreement on who would benefit based on need not disability scores (eg, patient with severe dysphasia) may be suitable but have high Barthel."

Success

Effectiveness of ESD services could be indicated by measureable outcomes: scores derived from standardized tests to measure patient functionality and resource use measures such as length of stay on ward and readmission rates (Table 4). Success could also be judged by subjective feelings (eg, satisfaction of both patient and carer). Unlike randomized controlled trials in which a control group of patients is used as a comparator, ESD teams in practice would be measuring changes in outcome measures at admission to, and discharge from, the ESD service.

Areas for Additional Consideration

The definition of ESD team membership was an emerging theme, with debate over the key knowledge, skills and abilities deemed to be an essential component of the ESD service. Flexibility in how this is organized and the nature of involvement of some staff was suggested. Further qualitative analysis indicated that the skills mix and overall composition of the ESD team should involve access to stroke specific therapists and clinicians, but allow for some flexibility, as illustrated below:

Table 1. Consensus Document on Implementation of Early Supported Discharge Services Regarding Team Composition

Statement	Median Response	Respondents Who Agree* or Disagree† (%)	Respondents (N)
Members of the early supported discharge team should have specialist knowledge in stroke care	Strongly agree	100	10
An early supported discharge team should be multidisciplinary	Strongly agree	90	10
A typical early supported discharge team should comprise			
Physiotherapist	Strongly agree	100	10
Occupational therapist	Strongly agree	100	10
Nurse	Strongly agree	100	9
Speech and language therapist	Agree	100	10
Physician	Agree	100	9
Social worker	Agree	90	10
Secretary	Agree	80	10
Rehabilitation assistant‡	Agree	60	10
A representative guide for the composition of an early supported discharge team (for a 100-patient-per-year caseload) is			
1.0 Physiotherapist	Strongly agree	100	10
1.0 Occupational Therapist	Strongly agree	100	10
0.4 Speech and Language Therapist	Agree	100	10
0–0.5 Social Worker	Agree	100	9
0–1.2 Nurse	Agree	89	9
0.1 Physician	Agree	80	10
0.25 Assistant‡	Agree	70	10

*Combined percentages of “strongly agree” and “agree” responses.

†Combined percentages of “strongly disagree” and “disagree” responses.

‡Consensus was not reached.

“Stroke physician must be available but not necessarily within the team,” and likewise, it was felt to be “important to have access to social worker and speech therapist, but it is not necessary to have them as a part of the team.”

A distinction was also made between roles based on opinion, “advice and guidance” and one focused on providing active intervention and therapy. Consensus was not reached on the role of rehabilitation assistants (support

Table 2. Consensus Document on Implementation of Early Supported Discharge Services Regarding Model of Team Work

Statement	Median Response	Respondents Who Agree* or Disagree† (%)	Respondents (N)
Each patient should be assigned a key worker (specific staff member responsible)	Strongly agree	100	10
An early supported discharge team should be organised by a team coordinator§	Strongly agree	100	10
An early supported discharge team should plan and coordinate both discharge from hospital and provide rehabilitation and support in the community	Strongly agree	90	10
An early supported discharge team should meet on a weekly basis	Strongly agree	90	10
An early supported discharge team should be based in the hospital§	Agree	80	10
An early supported discharge team should plan and coordinate discharge from hospital and then pass on responsibility of rehabilitation and support in the community-to-community-based teams	Disagree	90	10
An early supported discharge team should be based in the community§	Disagree	80	10
An early supported discharge team’s main role is to ensure early discharge from hospital to home‡	Agree	50	10
The recommendations in the Cochrane Systematic Review relate only to early supported discharge teams operating in urban settings‡	Agree	70	10

*Combined percentages of “strongly agree” and “agree” responses.

†Combined percentages of “strongly disagree” and “disagree” responses.

‡Consensus was not reached.

§Not explicitly mentioned in the review but considered relevant to clinical practice.

||Mode is listed because median was not an integer.

Table 3. Consensus Document on Implementation of Early Supported Discharge Services Regarding Intervention

Statement	Median Response	Respondents Who Agree* or Disagree† (%)	Respondents (N)
Eligibility decisions for early supported discharge should be based on whether the patient is able to live safely back at home§	Strongly agree	89	9
Eligibility decisions for early supported discharge should be based, in part on practicality (whether the patient living within the local area)	Strongly agree	80	10
Hospital staff should identify patients for early supported discharge	Strongly agree	80	10
Early supported discharge team staff should identify patients for early supported discharge	Agree	100	10
Specific eligibility criteria for early supported discharge should be followed	Agree	100	10
Eligibility decisions for early supported discharge should be based in part on the patient's level of disability (eg, Barthel score)	Agree	100	10
Eligibility decisions for early supported discharge should be based on the patient's medical stability	Agree	100	10
The length of intervention offered by an early supported discharge team should be based on the existence and type of other community-based stroke services operating in the area§	Agree	80	10
Most patients eligible for early supported discharge would have a Barthel score of between 10/20 and 17/20	Agree	80	10
Patients eligible for early supported discharge would be able to transfer safely from bed to chair (ie, can transfer safely with one with an able carer, or independently if living alone)§	Agree	80	10
Patients eligible for early supported discharge would have sufficient cognitive function and ability to consent to being referred to an ESD service‡§	Agree	70	10
The intervention carried out by an early supported discharge team should take place for as long as required, dictated by the patient's needs‡§	Disagree	70	10
The intervention carried out by an early supported discharge team should take place over a fixed period‡§	Disagree	60	10

*Combined percentages of "strongly agree" and "agree" responses.

†Combined percentages of "strongly disagree" and "disagree" responses.

‡Consensus was not reached.

§Not explicitly mentioned in the review but considered relevant to clinical practice.

||Mode is listed because median was not an integer.

workers) within ESD teams. However, the trialists did identify a clear need for "specific specialist training in aspects of rehabilitation, community care, and stroke" for support staff.

Consensus was not reached on the length of intervention offered by an ESD team. However, ESD trialists agreed that the length of intervention should be "for as long as they need and benefit from it," and based on the existence and type of other community based stroke services operating in the area. This suggests that local issues would need to inform decisions around the time limitation of the ESD intervention. Such adaptation to local contextual service demands and requirements was also raised in free text comments regarding rural ESD services, which will typically deal with fewer patients, dispersed over greater distances. Subsequently, there can be implications for how these services are resourced as illustrated by the following comments:

"Traveling times mean that face-to-face contact with the team will be reduced. This means more staffing either allied health professionals or trained care assistants."

ESD trialists did not reach consensus on whether ESD teams should routinely collect data on carer's subjective health status score/quality of life or general health/mood evaluation. Free text comments from trialists, suggests specific measures of carer's stress, strain, and burden may be more useful.

Discussion

This consensus document on ESD provides core guidelines about the key elements of an effective ESD service and makes research findings, from the Cochrane systematic review on ESD, accessible to service providers and commissioners.² Such an approach has not been previously adopted, and offers an innovative method to inform commissioning.

There were aspects of an ESD service that the ESD trialists could not reach consensus on. One reason for this could be because of limitations of the approach we used. Statements used in this consensus activity were generated either directly from the 2005 Cochrane systematic review on ESD or were statements we felt relevant to clinical practice. Despite reminders, when responding to statements it was apparent that particular trial characteristics were often at the forefront of the ESD trialists' minds, rather than the systematic review. This will have inevitably translated into disagreement about certain statements, resulting in lack of consensus. Although we offered the option of free text, our aim was to focus on transferable and generic key elements of an ESD service, rather than unpick particular features of ESD services the expert panel may be involved in. Another drawback of this approach is that some statements may be interpreted in different ways. For example, the fact that ESD trialists did not reach

Table 4. Consensus Document on Implementation of Early Supported Discharge Services Regarding Success

Statement	Median Response	Respondents Who Agree* or Disagree† (%)	Respondents (N)
An early supported discharge team should routinely record the following standardized outcome measures			
A measure of the degree of dependence/stroke severity, eg Barthel score	Strongly agree	100	10
A measure of activities of daily living (ADL) ability	Strongly agree	100	10
Patient's satisfaction with ESD services	Agree	100	9
Carer's satisfaction with ESD services	Agree	90	10
Patient's subjective health status score/quality of life measure	Agree	80	10
Patient's general health/mood evaluation	Agree	80	10
Carer's subjective health status score/quality of life measure‡	Disagree	60	10
Carer's general health/mood evaluation‡	Disagree	60	10
Success of an early supported discharge service would be indicated by			
The annual cost of the early supported discharge team should be less or equal to the annual savings made by reduction in length of stay in hospital§	Agree	100	10
An average increase in activities of daily living (eg, Nottingham extended ADL)	Agree	100	10
No increase in annual readmission rate to hospital due to stroke related causes	Agree	100	10
A significant and consistent reduction in length of stay in hospital by stroke patients	Agree	100	9
A consistent reduction of 8 days or more in length of stay in hospital by stroke patients	Agree	90	10
No significant reduction in the mood score of carers§	Agree	90	10
An average increase in satisfaction levels shown by carers§	Agree	89	9
No change in institutionalisation rates of stroke patients	Agree	80	10
An average increase in satisfaction levels shown by patients	Agree	78	9

Unlike randomized controlled trials, in practice, ESD teams will be unable to make a comparison between ESD and conventional care to evaluate success. Instead, they are likely to be measuring changes in outcome measures recorded by the hospital or at admission to and discharge from the ESD service.

*Combined percentages of "strongly agree" and "agree" responses.

†Combined percentages of "strongly disagree" and "disagree" responses.

‡Consensus was not reached.

§Not explicitly mentioned in the review but considered relevant to clinical practice.

consensus on the statement "An ESD team's main role is to ensure early discharge from hospital to home" (taken directly from the review) does not mean that early discharge is disputed; rather that although this is, of course, one aspect of the ESD service remit, it is by no means the team's only role.

Despite limitations of the approach, lack of consensus for statements indicates uncertainty around some aspects of an ESD service. A key message is that while there are clear core, evidence based elements of an ESD service, there has to be some flexibility and consideration for local issues in terms of how the service is implemented. The role of ESD services in more dispersed rural communities has still not been adequately addressed.² Similarly, ESD trialists did not reach consensus on the length of intervention that an ESD service should offer, yet there was agreement that consideration of other community based stroke services was required.

Pragmatically, the ESD consensus could not cover every detail relating to ESD. Clear eligibility criteria have been defined yet it remains unclear when it is most optimal to make decisions around referral to ESD. The Consensus is based on trials conducted in a small number of countries, and so its effectiveness in the implementation of ESD in other countries (with contrasting health systems) remains to be evaluated.

This ESD consensus document summarizes key elements of an ESD service and promotes the implementation of evidence based ESD services in local regions. It has been used to inform a collaborative initiative between the Collaboration for Leadership in Applied Health Research and Care, Nottinghamshire, Derbyshire and Lincolnshire and the East Midlands Cardiac and Stroke Network to develop an evidence-based ESD service specification for the East Midlands. We hope to lead the way in developing approaches to facilitate the translation of stroke rehabilitation research into clinical practice and recommend further research into the evaluation of health and cost benefits when ESD services are implemented into local, and in particular rural, areas.

Conclusions

There is a clear message that ESD teams should be stroke specific and multidisciplinary, offering coordinated and planned discharge from hospital and continued rehabilitation when patients are settled at home. The intervention is beneficial for a subset of the patient population; those of mild to moderate stroke severity. Strong links are required between the acute service and the ESD team, with both hospital staff and ESD team members identifying patients. To measure effectiveness, ESD teams should use standardized assess-

ments to monitor stroke severity, dependency, activities of daily living and satisfaction as well as the impact of the ESD service on length of stay and readmission rates.

Sources of Funding

This work has been funded by the National Institute for Health Research. The views represented are the views of the authors alone and do not necessarily represent the views of the Department of Health in England or the National Institute for Health Research.

Disclosures

None.

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