Stroke rehabilitation: The best is yet to come

Avril Drummond
• Every two seconds someone in the world will have a stroke for the first time.

• The burden of disease caused by stroke is set to double worldwide by 2030.

By 2035- over 4.5 m stroke survivors.
Numbers of people having and surviving stroke who need assessment and treatment, including those with ‘hidden deficits’ increasing.
What is our plan?

1. Building the evidence base through conducting high quality trials and studies

2. Improving patient and carer outcomes
Progress

- National and international guidance for clinicians
- Robust studies and solid systematic review evidence
Evidence for what works in rehabilitation

- Prevention of contractures through passive movement
- Management of spasticity
- Improved motor function
  - Link between dose and outcome
- Improved functional outcomes
  - through adaptation
  - task training
- Improved communication
- Cardio-respiratory fitness
Still much to do and to achieve......

• In Research

and

• Clinically
1. Appropriateness of questions

Need to stop asking questions which no-one is interested in or which are not relevant for patients, carers and clinicians
Top 10 research priorities relating to life after stroke

- 226 treatment uncertainties generated

1. Cognition
2. Long term consequences
3. Aphasia
4. Arm recovery
5. Visual problems
6. Fatigue
7. Mobility
8. Speech problems
9. Confidence
10. Fitness

(Pollock et al., 2012)
2. Dose

Intensity of Aphasia Therapy, Impact on Recovery

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**Background**—It has been speculated that the conflicting results demonstrated across poststroke aphasia therapy studies might be related to differences in intensity of therapy provided across studies. The aim of this study is to investigate the relationship between intensity of aphasia therapy and aphasia recovery.

**Methods**—A MEDLINE literature search was conducted to retrieve clinical trials investigating aphasia therapy after stroke. Changes in mean scores from each study were recorded. Intensity of therapy was recorded in terms of length of therapy, hours of therapy provided per week, and total hours of therapy provided. Pearson correlation was used to assess the relationship between changes in mean scores of outcome measures and intensity of therapy.

**Results**—Studies that demonstrated a significant treatment effect provided 8.8 hours of therapy per week for 11.2 weeks versus the negative studies that only provided ~2 hours per week for 22.9 weeks. On average, positive studies provided a total of 98.4 hours of therapy, whereas negative studies provided 43.6 hours of therapy. Total length of therapy time was found to be inversely correlated with hours of therapy provided per week ($P=0.003$) and total hours of therapy provided ($P=0.001$). Total length of therapy was significantly inversely correlated with mean change in Porch Index of Communicative Abilities (PICA) scores ($P=0.0001$). The number of hours of therapy provided in a week was significantly correlated to greater improvement on the PICA ($P=0.001$) and the Token Test ($P=0.027$). Total number of hours of therapy was significantly correlated with greater improvement on the PICA ($P<0.001$) and the Token Test ($P<0.001$).

**Conclusions**—Intense therapy over a short amount of time can improve outcomes of speech and language therapy for stroke patients with aphasia. *(Stroke. 2003;34:987-993.)*
3. Methodologies


Everyone is so busy doing research, they don’t have the time to stop and think about how they are doing it.
Huge swing to **qualitative research** in training programmes and by AHPs and nurses

Why? ethics? natural alignment? poor statistics and design expertise? increasing quality of qualitative research?

‘It's really hard to design products by focus groups. A lot of times, people don't know what they want until you show it to them’

*Steve Jobs*
• Low numbers of participants resulting in lack of power
  ❑ Poor initial predictions
  ❑ Not allowing for drop out

• Choice of primary outcomes
  ❑ Would you expect a global quality of life measure to change?

• Poor use of assessments
  ❑ e.g. 5 metre walk test.
Equivocal results

Recent large stroke rehabilitation trials equivocal
- why is this?

• The treatment doesn’t work?
• Poor outcome measures?
• Design issues?
• Science aspects

E.g. control group- effect of patient information sheets?
Survival was significantly greater in the stroke unit group (log rank test: value 6.64, p=0.01).

Drummond et al. 2005
5. Research governance

Ethics and research governance red tape

Accept overarching principles and positive aspects BUT

• Often disproportionate
• ‘Gaming’
• **Timelines** problematic
The EXTRAS study…some interesting figures

- The study had 79 version controlled documents
- 4 substantial amendments were made
- 88 on site monitoring visits were conducted
  - Our monitor travelled ~ 30,000 miles to undertake the visits
  - 4880 data items were verified from source as part of visits
- The Newcastle co-ordinating centre processed about 1500 SAE forms
- The Newcastle co-ordinating centre wrote over 50 ‘progress reports’
Still much to do and to achieve......

• In Research

and

• Clinically
1. Content of therapy
• Telephone or face to face interviews at 1, 3, 6, 12 and 18 months after discharge from ESD by a member of the ESD team

• Developed by multi-disciplinary investigators

• Each review consisted of:
  • Semi-structured interview to identify issues
  • Goal setting
  • Action planning

• 19 study centres in England & Wales
• 573 participants randomised
EXTRAS- Conclusions

- Extended Service did not improve EADL post ESD
- Did not lead to improved mood or health status (OHS)
- But at 24 months, participants reported greater satisfaction with services received
- Intervention was delivered as per protocol but action planning was predominantly advice, self practice and liaising
- Further analyses are ongoing
2. Activity levels

Bernhardt et al, 2004
Inactive and Alone
Physical activity within the first 14 days of acute stroke unit care
Why do some inpatient stroke survivors not receive the recommended frequency and intensity of active therapy?

- **Staffing levels and deployment**
  - Limited use of timetabling

- **Patient factors**
  - Time spent in other non-patient contact activity
  - Time spent in information exchange
  - Influence of national audit

- **Limited knowledge of evidence**
There’s often nothing new to report because nothing’s happened and sometimes that does seem a waste of time to sit there and hear the same thing as the day before.

A lot of the time patients are not ready for the therapy session, so you end up spending half that session getting them out of bed, assisting them, change their pads, nets, pyjamas, by the time you get to do active therapy you’re limited to 15 minutes, so that’s a big factor.
• Organisational (NOT patient-related) factors were main determinants influencing the frequency and intensity of therapy
• Shift in therapists’ thinking and practice towards patient-centred rather than therapist-centred working required
• Few therapists demonstrated understanding of evidence underpinning recommendations for increased therapy (frequency and intensity).
3. Reality check

Guidelines and evidence important- but how do we deliver (implement) in reality?
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The best is yet to come
..it is the duty of the physician to explain to the patient, or to his friends, that the condition is past relief, that medicines and electricity will do no good, and that there is no possible hope of cure.
Potential areas

- Delivery of therapy - tele-rehabilitation, use of VR, robotics, much more use of ‘unskilled staff’

- In research - rethinking of methodologies and commonly excluded groups - emphasis on implementation

- More thought around long term issues after stroke

- Organisation of services
Moved a long way in stroke rehabilitation - but still much to do

➢ Excellent, relevant research is vital
➢ Implementation (delivery) of research needed clinically
➢ Organisation of services needs attention

We have treatments
but we are often not delivering them as effectively as we should.

WE CAN and MUST IMPROVE......

.....for the best is yet to come!