

Using Colours and Symbols (CAS)

Researching a new low-tech AAC system for people with aphasia

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Background:

Colours and Symbols (CAS) was developed by the researcher in 2014 and has been used with people with communication difficulties at NHS WSFT since 2016. Linda Worrall et al 2011¹ and Sarah Wallace et al 2016² are Speech and Language Therapist Researchers in

Australia. They asked people with aphasia and their families what is important to them. They wanted: to express their opinions; to talk about their ideas, worries and the future not the past; more information about their aphasia, stroke and local services; greater involvement in decision making; and less breakdowns in conversation.



Method:

The researcher asked Speech and Language Therapists (SLTs) to invite people with aphasia who were receiving therapy to participate.

Participants: Nine people with aphasia took part: three in hospital, five at home and one went from hospital to home.

They received 3 hours Supported Communication then 3 hours CAS plus Supported Communication. The 3 hours were divided into sessions, often 6 x 30 minutes, the time between sessions varied from a day to several weeks depending on the Speech and Language Therapy service.

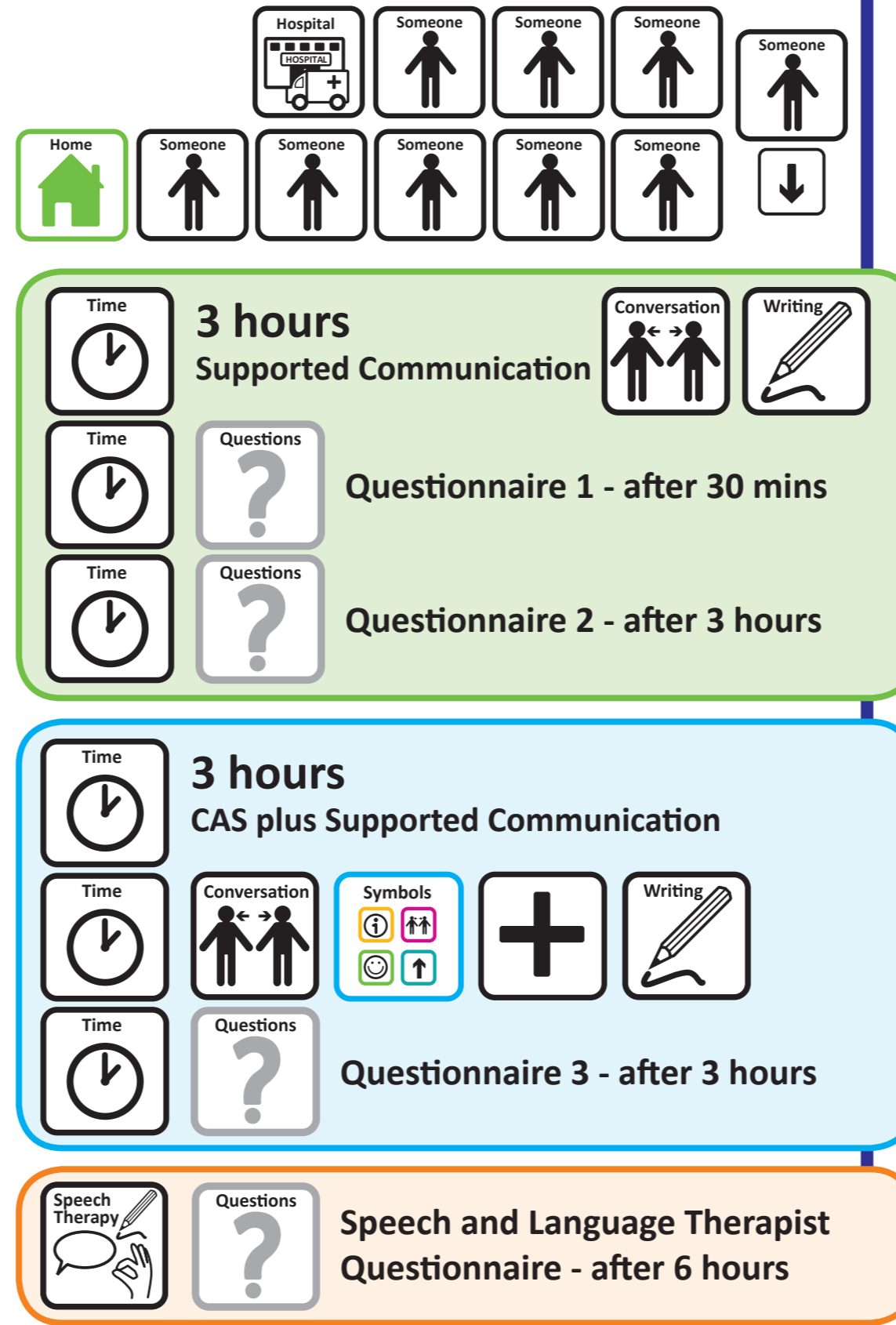
They were asked the same questions 3 times. The questions were scored on a scale: 0 (not good) to 10 (very good).

They were asked to rate if the conversation they'd just had was:

- easy to understand;
- gave them more choice in conversation;
- let them start conversations;
- made them feel equal in conversations;
- let them talk about their ideas and worries;
- gave them confidence in conversations;
- helped them understand information;
- let them ask questions;
- reduced breakdowns in conversation; and
- if they felt positive about the future.

The Speech and Language Therapist teams were also asked questions. NHS WSFT: Sarah Banfield; NHS CPFT: Kay Martin and Rachael Boulton; Sirona CIC: Emma Richards, Julia Parsons & Hannah Austin; NHS NCH&C: Ginni Brinkley, Paige Newton, Elissa Poyner & Kathryn Clark; NHS St Georges: Jess Foulkes & Vicky Lack; NHS CNWL: Katherine Gutteridge, Toria Kilsby, Claire Hunt & Joanna Friedland.

Participants



Results:

Individually people with aphasia had different opinions about what was good about using CAS and what wasn't.

Person with aphasia and family "Thank you, it was fun."

Group analysis: The limited sample size was assumed non-parametric so the Wilcoxon signed rank test was used.

- There was **not** a statistically significant difference between the baselines during the Supported Communication block so scores were averaged. The value of z is -0.5606. The p-value is .57548. The result is not significant at p < .05. The value of W is 22. The critical value for W at N = 10 (p < .05) is 5. The result is not significant at p < .05.
- There was a statistically significant difference between CAS plus Supported Communication vs Supported Communication alone. The value of z is -2.3953. The p-value is .0164. The result is significant at p < .05. The value of W is 4. The critical value for W at N = 10 (p < .05) is 5. The result is significant at p < .05.
- As a group people with aphasia rated CAS higher across all questions except feeling positive about the future.

Person with aphasia "It gives people with aphasia the ability to start a conversation they wouldn't normally know how to start."

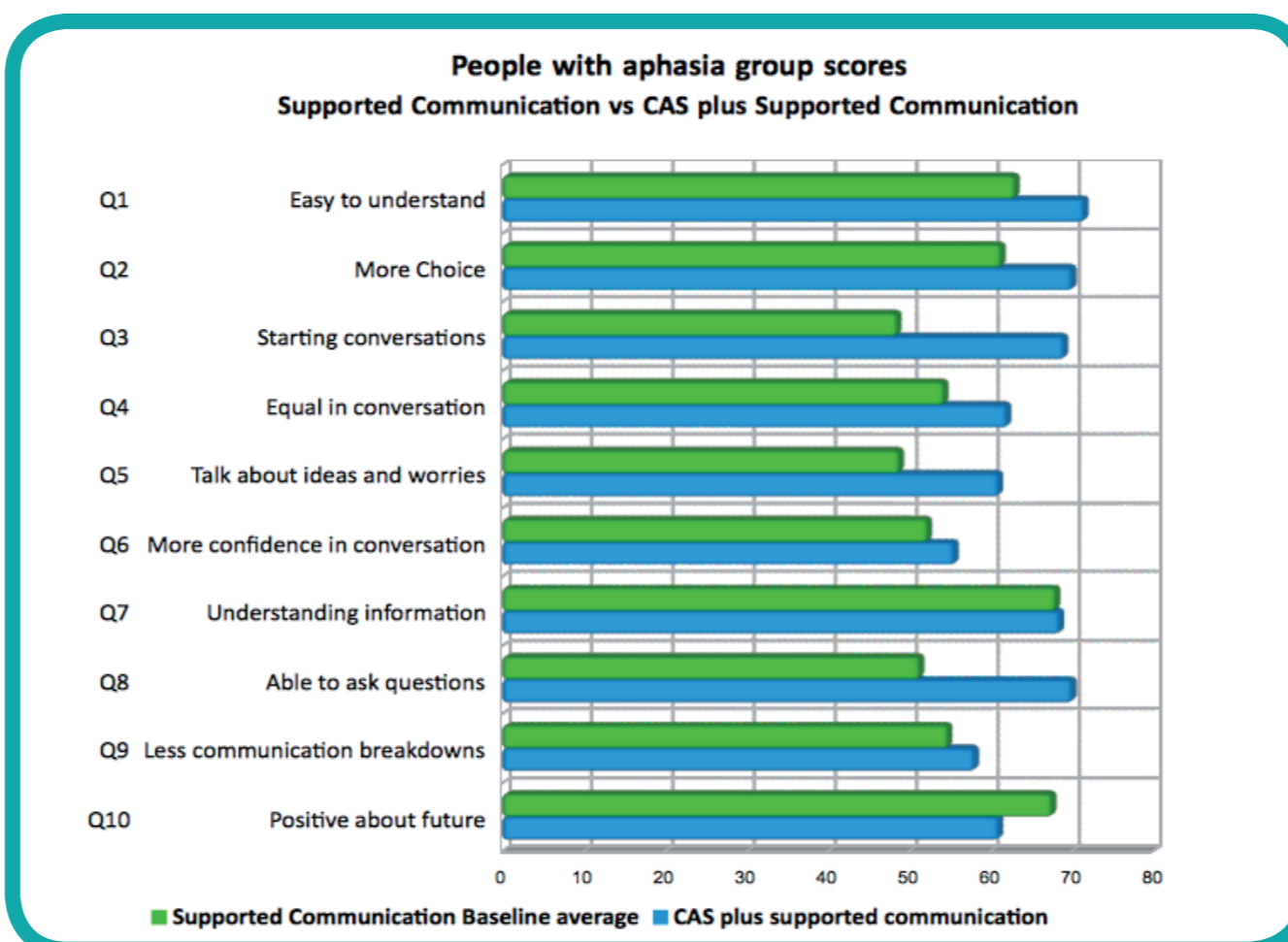
Limitations:

- Small sample size limits statistical analysis both individually and by question and baseline instability for some participants.
- Variability in delivery e.g. duration and length time between sessions limits analysis of optimum delivery.
- Varying support and carryover from family members and carers.

Future directions:

- More compact/portable versions.
- Screening tool to identify suitable candidates.
- Use memoji to personalise and create additional symbols identified in research e.g. more positive emotions, sports, iPad.
- Explore high-tech emoji/sticker version or app.

The symbols can be downloaded free of charge at www.cas-aac.org.uk for more information email sarah.banfield@nhs.net



Speech and Language Therapists reported: "We have really enjoyed using the boards and have made more which we really feel will make a difference to people with aphasia."

"The patient loved using the boards and felt that he had more freedom and choice over what he was able to talk about. He really was very positive about it."

Some SLTs reported less success "The client I trialed it with did not really initiate any topics of conversation, unsure if pre-stroke personality or post-stroke cognitive changes... But it supported conversations about complex topics."

They also suggested that support from family members aids successful implementation and that many participants understood and could combine symbols from the first session using CAS.

Acknowledgments:

To the participants with aphasia, their families and Speech and Language Therapists who gave their time freely to take part, especially Kay Martin at NHS CPFT who provided advice and guidance. To the Committee at the British Aphasiology Society for providing funding to make this happen and Paul Oats, R&D Manager at NHS WSFT for ongoing support during the HRA approvals process and my husband and mother for moral and practical support, Heather Ruff for reviewing the poster and her friendship.

Bibliography:

1. Worrall, L., Sherratt, S., Rogers, P., Howe, T., Hersh, D., Ferguson, A., & Davidson, B. (2011). What people with aphasia want: Their goals according to the ICF. *Aphasiology*, 25(3), 309-322.
2. Wallace, S. J., Worrall, L., Rose, T., Le Dorze, G., Cruice, M., Isaksen, J., Pak Hin Kong A., Simmons-Mackie, N., Scarinci, N., & Alary Gauvreau, C., (2016): Which outcomes are most important to people with aphasia and their families? an international nominal group technique study framed within the ICF. *Disability and Rehabilitation* 1464-5165.



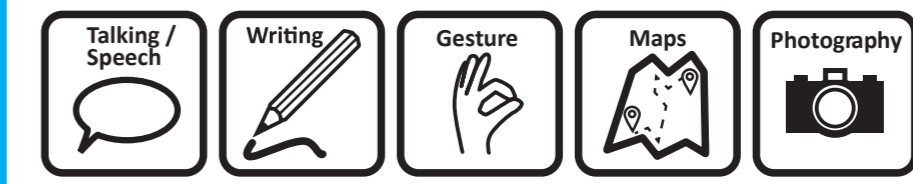
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What is aphasia?

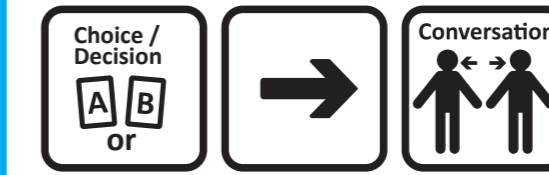
Aphasia is a communication difficulty often as a result of stroke.



What is supported communication?



Using speech, writing and drawing to give choices to people with communication difficulties like aphasia.



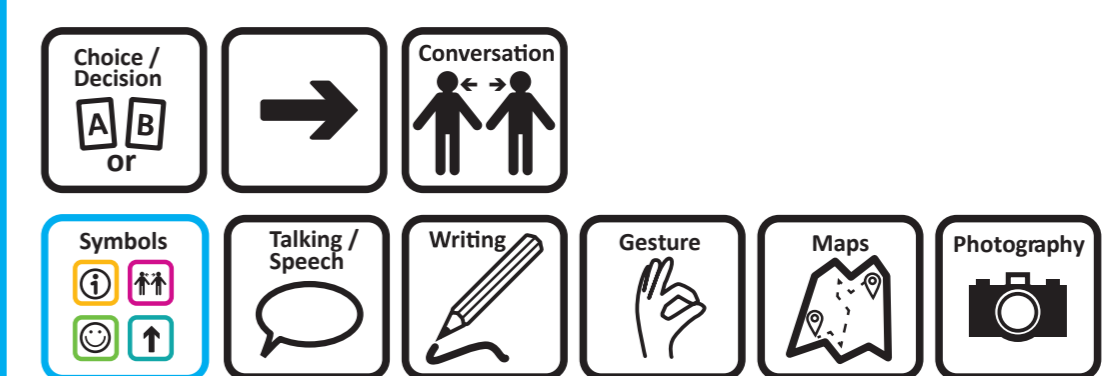
People with aphasia are encouraged to take part however they can. This might be using:

- speech
 - gesture and pointing
 - writing and drawing
 - using pictures, maps, photos
- Often the conversation partner provides the choices.

What is Colours and Symbols?



CAS uses magnetic symbols and whiteboards for supported communication.



The person with aphasia can choose the topic using symbols with:

- speech
- gesture and pointing
- writing and drawing
- using pictures, maps, photos

Topics are coloured to make them easy to find.



There are 13 coloured topics and 131 black and white core symbols. Symbols can be combined to give more information.



Conclusion:

- People with aphasia report that CAS is a useful and usable conversation tool to enhance supported communication.
- People with aphasia expressed that using CAS with Supported Communication is preferable for:
 - starting conversations,
 - giving more choice in conversation
 - asking questions,
 - talking about ideas and worries, and
 - ease of understanding.
- Minimal learning is required to use CAS.
- CAS works best for people who want to communicate and understand the need for AAC.
- Experienced SLTs are key in deciding how best to introduce CAS and adapt to meet individual needs.
- Supportive conversation partners aid success.
- CAS is a flexible, low-tech, low cost communication tool for people with aphasia.