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# Is the Incredible Years programme effective for children with neuro-developmental disorders and for families with Social Services involvement in the “real world” of community CAMHS?

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## Abstract

**Background:** Over the past few years parenting has become the focus for political attention in an attempt to tackle high levels of disruptive and anti-social behaviour. The Incredible Years (IY) programme (Webster-Stratton, 1999) is one of the parenting training packages that has been identified as a treatment of choice. There are, however, few studies available to demonstrate the clinical relevance in real world Child and Adolescent Mental Health Services (CAMHS) and even less knowledge about how children affected by a neuro-developmental disorder and families involved with Social Services can benefit.

**Method:** The BASIC IY videotape parent training programme was used for consecutive groups of parents across two neighbouring CAMH services ( $n = 128$ ). Data were collected before and after intervention using the Eyberg Behaviour Checklist (Eyberg & Ross, 1978) and a number of Visual Analogue Scales. The effectiveness of the group was compared to that of other studies and the outcomes for two sub-groups – children with a neuro-developmental disorder and families with Social Services involvement – were evaluated.

**Results:** Statistically significantly post-intervention scores were found for all groups showing moderate to large effect sizes.

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Conclusions: The results are comparable to other effectiveness studies (e.g., Gardner, Barton, & Klimes, 2006; Scott, 2005). They also show that the IY is equally effective for children diagnosed with a neuro-developmental disorder and for families with multiple and complex needs.

### **Keywords**

complex needs, conduct problems, parenting, neuro-developmental disorders

## **Introduction**

Over the past few years, parenting has become the new focus for political attention. Alongside increasing demands for parenting classes, a variety of seemingly uncoordinated funding streams have appeared across different sectors, often coupled with information of variable quality to guide service development. The definition of good practice and the skills required to deliver effective parenting interventions have also at best been vague. A positive contribution to the field was therefore the publication of the National Institute for Clinical Excellence (NICE) guidance on parenting training/education programmes in the management of children with conduct disorders (NICE, 2006). It provides practitioners with a state of the art overview of the most effective programmes available, existing knowledge gaps and recommendations for future research.

### *Prevalence, stability and risk factors of conduct disorder*

Disruptive, anti-social or aggressive behaviour accounts for 62 per cent of all referrals to CAMHS (Audit Commission, 1999) and it has been estimated that the long-term cost of children with conduct disorder is 10 times that of controls (Scott, Spencer, Doolan, Jacobs, & Aspland, 2001). Conduct disorders are fairly stable over time (Webster-Stratton, 1990) and children with early onset behaviour problems are likely to have ongoing difficulties throughout their development into adulthood (Egeland, Kalkoske, Gottesman, & Erickson, 1990), including drug misuse and criminal and violent behaviour (Kazdin, 1995; Loeber et al., 1993; Mason et al., 2004; Rose, Rose, & Feldman, 1989; Zoccolillo, Pickles, Quinton, & Rutter, 1992).

Studies have consistently identified a range of risk factors associated with increased likelihood of later anti-social and criminal behaviour. Individual risk factors have included ADHD (Farrington, 2007; Hawkins et al., 1998; Rutter, Hagell, & Giller, 1998) and cognitive impairment (Dodge & Schwartz, 1997; Farrington, 2007). Family factors such as parental supervision (Farrington, 2007; Malinosky-Rummell & Hansen, 1993; Mrazek & Haggerty, 1994; Rutter et al., 1998; Widom, 1989) and persistent family conflict (Farrington, 2007; Hetherington, Cox, & Cox, 1982; Mrazek & Haggerty, 1994) have also been shown as important risk factors. Lastly, community risk factors include living in a socially deprived area (Farrington, 1991; Yoshikawa, 1994).

### *The need for “real world” research*

The evidence that parent training is the treatment of choice for developmentally evolving conduct disorder is so compelling that reports worldwide recommend programmes that have been adequately evaluated. Webster-Stratton's Incredible Years (IY) programme is one of the examples of such interventions (Gardner, Barton, & Klimes, 2006; NICE, 2006; Scott, 2005; Scott et al., 2001).

However there is a disappointing discrepancy in the reported therapeutic gains of behavioural parenting programmes between university settings (efficacy studies) and ‘real world’ clinics

(effectiveness studies). The clinical outcomes are far superior in the former category (Scott et al., 2001) and evaluation of the outcomes of services delivered in “real life” clinics show little if any effect (Weisz, Weiss, & Donenberg, 1992)

Reasons for the discrepancy between efficacy studies and “real life” effectiveness studies may include the opportunity to self-refer (which may indicate higher levels of motivation to change) and the offer of more incentives throughout the programme. Incentives have included being paid for research evaluations, group meals, crèches, taxis, and more comfortable facilities. The exclusive focus of staff on the intervention may also enable home visits and regular telephone support. The close proximity of the programme’s founder is another factor.

Recent studies by Scott (2005) and Hutchings et al. (2007) have gone some way to redress the difference in outcomes. Highly significant improvements in conduct problems following attendance at a Webster-Stratton IY programme were demonstrated by both community based NHS and Sure Start services.

However, also in the few clinic-based studies available, more complex presentations (such as ADHD, ASD or LD) are often excluded from trials (e.g., Scott, 2005). This limits the relevance of these studies to community CAMHS where a substantial proportion of programme participants would fall into this category. In fact, what limited evidence exists seems to suggest that it is often the most needy families and young people who are least helped by interventions (Utting, Manfeiro, & Ghate, 2007). NICE (2006) highlights a knowledge gap in relation to the relevance of programmes for children with learning disabilities and for families involved with the social care system. A recent evaluation of an early intervention based on learning theory (Scallywags) reported significantly worse outcomes for children identified as suffering from a neuro-developmental disorder (such as ADHD and ASD) and for children from families with long-term complex needs (such as domestic violence, poor parental mental health or dysfunctional relationships) (Lovering, Frampton, Crowe, & Linn, 2006). There is therefore a continued need to explore how effective parenting programmes can be in real-world settings.

### *This paper*

Over the past eight years two neighbouring CAMH services have developed parenting support clinics using the Basic IY programme. In this real-world setting we have used an identical set of outcome measures. The pooled experience of these clinics lends itself to examine some of the above issues.

The aim of this study was to explore the following questions:

1. Is the intervention effective for children diagnosed with a neuro-developmental disorder (ASD, ADHD, LD)?
2. Is the IY programme effective for children of families with multiple and complex needs?
3. How do our outcome results compare to previous efficacy studies?
4. How do our outcome results compare to published UK effectiveness studies?

### **Method**

The BASIC videotape parent training programme developed by Webster-Stratton (1999) was used. The four main components of the programme are: group discussions of parent–child interactions; videotape and live modelling; experiential exercises; and home practice assignments. Topics covered include: relationship building/play; effective praise and rewards; ignoring; limit setting; disciplinary consequences; and time out procedure. Each group was seen for two hours each week over 10–15 weeks with two (or occasionally three) facilitators.

Other treatments continued in parallel and no effort was made to control for this during the eight-year period of the study. However our impression is that the commencement of another intervention during a group would be atypical and only affected a small number of families.

Group facilitators had varied backgrounds and included clinical psychologists, child psychiatrists, community practitioner nurses, occupational therapists, social workers and trainees from all disciplines. Therapists all held regular non-academic jobs in their local Child and Adolescent Mental Health Services.

This report covers parents who participated in all IY parent support groups running across two neighbouring CAMH services over the period 1999–2007. Eligible children were all those aged 2 to 11 years who were referred for anti-social behaviour to their local multidisciplinary CAMHS. There were no exclusion criteria. Each group consisted of parents of 4–10 children. Altogether 24 groups were run. Both parents were encouraged to attend. Data from 15 of the groups highlighted that in 50 per cent of the cases, the mother alone attended. Mother and father attended together in 32 per cent of the cases, mother and supporter (including grandparents) made up 11 per cent, father alone made up 4 per cent and lastly grandparents or adoptive parents made up 3 per cent of the participants.

Measures were taken from participating parents on entry to the parent support programme and after completion of the programme. Any parents who failed to complete the programme were not pursued for repeat measures but were excluded from this analysis.

Treatment effectiveness was scored using parent-rated primary-outcome measures, usually completed by the child's mother. We used the Eyberg Child Behaviour Checklist (ECBI) (Eyberg and Ross, 1978) and six 10cm visual analogue scales (VASs). These were chosen for their flexibility because they allow parents to precisely specify their priority behavioural concerns in each individual case (Øvretveit, 1998). They have been shown to be effective in highlighting and measuring more problem-specific concerns (McCormack, Horne, & Sheather, 1998). These were called the Parent-Defined Problems (PDPs) questionnaire (Scott et al., 2001), and the RS-1.

The ECBI is designed to assess parental report of conduct behavioural problems in children and adolescents ages 2–16. This lists 36 child behaviours characteristic of behaviourally disruptive children. Parents rate the severity of these behaviours on a 1–7 scale (Never = 1, Always = 7) and whether these individual behaviours are considered a problem for the parent now (Yes/No). This is totalled to an Intensity Score (range 1–252, clinical threshold 127) and a Problem Score (range 0–36, clinical threshold 11) (Robinson, Eyberg, & Ross, 1980). Studies have indicated that the ECBI has good reliability and validity. The instrument takes five minutes to complete and five minutes to score.

The RS-1 has three 10cm lines requesting the parent to rate two key skill areas covered by the BASIC course and also to rate parental perception of warmth between them and their child. The key skill areas parents rated were “How confident are you in managing challenging behaviour from your child?” (Question 1) and “How confident are you in being able to motivate your child to improve one specific behaviour at home that you want to see more often?” (Question 3). These were rated on a 10cm scale between “not at all confident” (0) and “couldn't be more confident” (10). The parent is also asked “How would you rate how warm and positive your relationship is with your child at the moment” (Question 2) between “not at all warm and positive” (0) and “couldn't be more warm and positive” (10).

The PDP asks parents to define three behavioural problems at home that they would most like to change. They then rate their approximate severity on a 10cm visual analogue scale between “not a problem” (0) and “couldn't be worse” (10).

Parents were handed these questionnaires to fill in at the start of the first session and at the end of the last session of the programme. Parents were blind to their pre-treatment scores when filling out the same set of questionnaires in the final session or shortly thereafter. Parents were informed about future use of the data and given the option of not completing questionnaire. Agreement to fill in the questionnaires was treated as consent.

The Social Services (SS) group was defined as having had or currently having involvement of a child social worker or more extensive involvement through statutory procedures in addition to their involvement with CAMHS. The contact with two or more statutory services was identified as constituting a group with multiple and complex needs.

The neuro-developmental (ND) disorder group comprises children identified as having singly or in combination a range of clinically diagnosed neuro-developmental difficulties including: ADHD (Attention Deficit, Hyperactivity Disorder), ASD (Autistic Spectrum Difficulties) or LD (Learning Disability) as recorded in the case notes. Learning Disability was defined as having a Statement of Special Educational Needs – not for behavioural reasons.

### *Statistical analysis*

Means and standard deviations are used throughout as the standard assessment scores were thought to be sufficiently normally distributed. Paired t-tests were used to compare before and after scores to examine the effect of the Webster-Stratton IY course on the total sample. Unpaired t-tests have been used to compare those with and without social services involvement and those with and without neuro-developmental disorder. However statistical testing was not carried out with the individual diagnosis groups such as ADHD or ASD as the numbers within those groups were too small.

Effect sizes were calculated with Cohen's guidelines whereby a figure of 0.3 denotes a small but effective change, 0.5 denotes a moderate effect size, and 0.8 and above denotes a large effect size.

Fifteen consecutive groups were explored in detail to clarify attrition rates. There are no widely agreed criteria for assessing dropout from treatment. Kazdin (1990) defined dropouts as those who attended less than 25 per cent of the possible 25 sessions; 31 per cent of his sample (aged 7–13 years, mean 10.3 years) was in this category and 69 per cent of his sample attended at least 75 per cent of sessions. The non-attendees and dropouts were also compared to completers of the programme in relation to neuro-developmental disorders, Social Services involvement and baseline scores on the ECBI.

In this current study it was decided to use 50 per cent attendance rate as a definition for having received intervention, an accepted cut-off point for having received therapeutic intervention (Harrington et al., 2000).

## **Results**

Data at the start and end of the programme was available for 128 families, however only 101 families had data for the RS-1, as the questionnaire was not part of the original protocol. Mean age at start of the group was 7.3 (SD 1.9), minimum age was 2, maximum age was 11. Gender ratio (male/female) was 91:37. The percentage of the sample that had involvement from Social Services was 46.5 per cent, and 33.6 per cent had at least one neuro-developmental disorder diagnosis (ADHD  $n = 32$ ; LD  $n = 11$ ; ASD  $n = 12$ ). There was no association between having a neuro-developmental disorder and having Social Services involvement ( $p = 0.47$  Fisher's exact test) with 61 per cent of all those with no Social Service contact having a neuro-developmental disorder and 69 per cent of all those who had Social Service contact having a neuro-developmental disorder.

**Table 1.** Attrition rates for a subset of the sample (15 out of 24 groups)

Non-engagers 0, 1, or 2 sessions	Partial engagers > 2 sessions but < 50% of sessions	Full engagers ≥ 50% of sessions
31%	8%	61%

**Table 2.** Presence/absence of neuro-developmental disorder: are the groups different at the start of the programme? (Demographic baseline assessments)

Child behaviour problem before treatment	Mean score in group with no neuro-developmental disorder	Mean score in group with neuro-developmental disorder	<i>p</i> value
Eyberg Intensity (SD)	163.3 (31.9)	178.3 (34.5)	0.014*
Eyberg Problem (SD)	20.8 (8.3)	21.6 (8.7)	0.58
PDP total (SD)	21.9 (4.8)	23.6 (5.1)	0.56
RS-1 Q1 (SD)	67.9 (20.6)	67.8 (19.0)	0.99
RS-1 Q2 (SD)	75.8 (19.5)	76.1 (21.8)	0.95
RS-1 Q3 (SD)	68.7 (18.3)	70.3 (23.3)	0.72

\*  $p < 0.05$ .

To study the attrition rates a subset of 15 out of the 24 groups were examined. The results are presented in Table 1. Table 1 shows that 31% of individuals who had agreed to attend the IY groups either did not show up or failed to engage in the programme (attending none, one or two sessions). Of the remaining sample 61 per cent attended more than 50 per cent of the sessions.

The 15 groups were further analysed to examine possible differences in relation to neuro-developmental disorders, Social Services involvement and base line ECBI. Within the ND group there was no difference in numbers between the ones who initially attended and dropped out and those who completed the whole group, but a significantly lower number never attended at all, indicating that parents with a child diagnosed with neuro-developmental disorder are more likely to start and/or complete the programme ( $p < 0.05$ , using Chi-squared test for trend). For the families who were in contact with Social Services, there was no statistical difference between the numbers who never attended a group, attended initially but dropped out or completed the programme ( $p < 0.92$ , using Chi-squared test for trend). With respect to the ECBI scores, these were higher for both the Intensity score (mean difference was 11.3) and the Problem score (mean difference was 1.20) for those who initially completed the questionnaire but dropped out but these were not statistically significant ( $p < 0.06$  and 0.12).

Group scores prior to commencement of intervention are presented in Tables 2 and 3.

Table 2 shows that the ND group had a mean Eyberg Intensity score 15 points higher than the rest of the sample at the start of the programme. This difference is statistically significant. There were no differences on other scales.

Table 3 shows that the group who had had contact with Social Services had a higher Eyberg problem score at the start of the group. It also shows that those who had had contact with Social Services scored significantly lower on the RS-1 Q2 ("How would you rate how warm and positive your relationship to your child is at the moment?")

Changes in scores from before to after intervention are presented in Tables 4 and 5. Table 4 shows that there were statistically significant post-intervention changes on all measures used in this study. They show moderate to large effect sizes.

**Table 3.** Presence/absence of SS contact: are they different at the start of the programme? (Demographic baseline assessments)

	Mean score Absence of SS contact	Mean score Presence of SS contact	<i>p</i> value
Eyberg Intensity score (SD)	167.5 (29.5)	170.8 (37.1)	0.57
Eyberg Problem score (SD)	19.7 (7.6)	22.9 (8.9)	0.028*
PDP total (SD)	22.5 (5.0)	22.7 (5.0)	0.849
RS-I Q 1 (SD)	44.0 (23.9)	41.4 (26.6)	0.60
RS-I Q 2 (SD)	63.9 (25.6)	49.5 (28.3)	0.008*
RS-I Q 3 (SD)	38.8 (23.1)	39.4 (25.5)	0.90

\* *p* < 0.05**Table 4.** Effectiveness of this parenting group intervention showing the *p* values and effect sizes for the different outcome measures

	Pre scores	Post scores	<i>p</i> value	Effect size
Eyberg Intensity score (SD)	168.0 (33.1)	143.6 (38.5)	< 0.001*	0.765
Eyberg Problem score (SD)	21.2 (8.1)	14.8 (10.3)	< 0.001*	0.741
PDP total (SD)	22.6 (5.0)	13.3 (7.0)	< 0.001*	1.211
RS-I Q1 (SD)	42.8 (24.8)	68.0 (20.3)	< 0.001*	1.00
RS-I Q2 (SD)	57.6 (27.4)	76.2 (20.3)	< 0.001*	0.82
RS-I Q3 (SD)	38.2 (23.8)	68.0 (21.1)	< 0.001*	0.99

\* *p* < 0.05.**Table 5.** A comparison of the effect sizes for the whole sample, for those with and without Social Services involvement, and for those with and without a neuro-developmental disorder

	Whole sample	No Social Service contact	Social Service contact	No neuro- developmental disorder	With neuro- developmental disorder
Eyberg Intensity score	0.77	0.82	0.68	0.98	0.66
Eyberg Problem score	0.74	0.60	0.96	0.61	0.88
PDP total	1.21	1.52	1.03	1.23	1.30
RS-I Q1	1.00	1.09	0.82	0.75	1.11
RS-I Q2	0.82	0.79	0.82	0.48	0.96
RS-I Q3	0.99	1.07	0.83	1.02	0.96

Table 5 shows that the IY programme is effective across all groups and across all outcome measures. It is most effective using the PDP and the RS-1 scores, and less effective using Eyberg. All but one of the effect sizes are moderate or large.

The results for the ND and the SS group, compared to the rest of the sample, are presented in Tables 6 and 7. Table 6 shows that the ND group improves more than the rest of the sample when using the Eyberg intensity score. This difference is not apparent in other measures. Table 7 shows



**Table 6.** Comparison of outcomes for children without and with neuro-developmental disorder

Child behaviour problem	Change in score in the group without neuro-developmental disorder	Change in score in the group with neuro-developmental disorder	<i>p</i> value	Change in score in ADHD group <i>n</i> = 32	Change in score in LD group <i>n</i> = 11	Change in score in ASD group <i>n</i> = 12
Eyberg Intensity (SD)	20.4 (30.9)	32.3 (33.0)	0.05*	31.5 (38.2)	26.1 (24.6)	36.4 (24.5)
Eyberg Problem (SD)	6.70 (7.61)	6.24 (10.21)	0.78	7.08 (8.93)	6.00 (6.04)	5.67 (14.37)
PDP total (SD)	9.08 (7.54)	9.95 (7.86)	0.54	9.92 (8.16)	7.78 (8.28)	12.3 (6.74)
RS-I Q1 (SD)	25.9 (23.4)	22.8 (30.5)	0.58	20.2 (31.9)	31.2 (27.0)	23.1 (33.4)
RS-I Q2 (SD)	20.4 (21.2)	12.0 (24.8)	0.09	13.4 (24.2)	10.2 (25.3)	10.7 (24.1)
RS-I Q3 (SD)	28.0 (29.2)	34.5 (33.7)	0.34	34.0 (38.1)	37.4 (30.0)	40.3 (28.5)

\*  $p < 0.05$ .

**Table 7.** Comparison of outcomes between groups without and with Social Services involvement

	Mean change (SD) in group without contact with Social Services	Mean change (SD) in group with contact with Social Services	<i>p</i> value
Eyberg Intensity score (SD)	25.0 (30.54)	22.5 (33.4)	0.67
Eyberg Problem score (SD)	5.69 (9.53)	7.07 (7.36)	0.38
PDP total score (SD)	10.17 (7.05)	7.82 (8.05)	0.08
RS-I Q1 (SD)	27.0 (24.7)	21.4 (26.0)	0.27
RS-I Q2 (SD)	19.0 (24.0)	17.2 (21.0)	0.69
RS-I Q3 (SD)	32.8 (30.6)	24.4 (29.6)	0.18

that the IY programme was equally effective for the group who had had contact with Social Services as for the rest of the sample.

As expected, the effect sizes for our study were less than those of university clinics. Webster-Stratton (1984) for example, showed an effect size of 1.5 for ECBI-P. However, our effect sizes (0.77 for ECBI-I, 0.74 for ECBI-P and 1.21 for PDP) were comparable to other real-life studies. Gardner et al. (2006) obtained an effect size of 0.48 for ECBI-I and 0.55 for ECBI-P. Scott (2005) obtained an effect size of 1.11 for PDP.

## Discussion

### Introduction

Our study is based on outcomes from clinically referred participants and is original in that a significant proportion (one third) had a clinically defined neuro-developmental disorder. Many were involved with multiple services. The intervention was provided by practising clinicians in an actual service setting. The data therefore offer an important contribution to the small sample of effectiveness studies currently available.

## *Summary of results*

There was a significant change in scores on conduct problems between pre and post measures, indicating that this programme is an effective tool in the real-world setting. As expected the effect sizes for our study were less than those of university clinics, but were comparable with other real-life studies.

More interestingly we found that the neuro-developmental sub-group had a superior outcome on one of the measures compared to the rest of the sample. One explanation for this may be that this group had higher Eyberg Intensity scores at the start of the programme. This could reflect greater opportunity for change.

This finding adds to the limited literature on interventions for children affected by complex neuro-developmental problems as highlighted in the NICE guidance and contradicts the notion that the IY programme is unsuitable for children with ADHD, Autistic Spectrum Disorders and learning difficulties.

There were also significant changes for families identified as having involvement from Social Services. This has been highlighted as another under-researched area by NICE (2006). It also questions the assertion that complex families are least helped by parenting interventions (Utting et al., 2007).

Overall we found more significant changes in the visual analogue scales compared to the Eyberg Behaviour Checklist, which may be linked to the fact that these scales are more flexible and better tailored to the presenting difficulties (Øvretveit, 1998) This in line with previous study findings (e.g., Scott et al., 2001).

## *Strengths and weaknesses of this study*

The main strength of this study lies in its wide inclusion criteria and relevance to real-life clinical practice. Unlike other studies we do not have a control or comparison group for the overall sample. However, given that the IY programme has already been extensively investigated, it could be argued that comparison of outcomes to previous studies is equally meaningful. The main focus of this study was also to explore differences between various sub groups. Outcome data were not collected on those who did not complete the programme. This may over-estimate our effect sizes. This is therefore not an intention to treat analysis but a per-protocol analysis which shows the effect for those who do engage.

## *Implications for services and the need for future research*

Our study suggests that there is a significant benefit of the IY programme in a real-service setting for families who engage in the intervention. Our results contradict the review suggesting that regular service clinics show no significant effects (Weisz et al., 1992). It also highlights that there is no need to exclude clients from participation in the IY programme on the grounds of neuro-developmental disorder, in fact it suggests that behavioural techniques are highly relevant for this group. This research is timely due to the increasing interest by the government in the use of evidence-based parenting programmes in various service settings.

Only short-term changes were however measured and a long-term follow up study needs to examine whether benefits are sustained long term. In this connection, Lovering et al. (2006), in their follow up study of another intervention based on social learning theory (Scallywags), found two distinct groups at longitudinal (2–3 year) follow up – responders who remained at a sub-clinical level and relapsers who returned to above clinical threshold. The relapsers were twice as likely to

have other services involved with them at the time of initial referral and they were four and a half times more likely to have parent reported neuro-developmental disorders.

The authors suggest that families with more complex presentations may benefit from multiple and longer-term help and intervention and likewise it may be that the IY programme could constitute one component of an overall package of care.

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**Philip Shoebridge** is a Consultant Child, Adolescent and Family Psychiatrist within a generic Tier 3 CAMHS team. He has both service and research interests in evidence-based Parent Management Training as part of the core services provided by specialist CAMHS. He is a trainer for the local SpR programme that directly benefits from the high level of therapeutic skills developed in parent training groups.

**Rosemary Greenwood** is a medical statistician with 19 years experience analysing data. She has published extensively in the field of maternal and child health before becoming involved in clinical research. She now works for the NIHR-funded Research Design Service – South West.

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