CADET: Clinical & Cost Effectiveness of Collaborative Care for Depression in UK Primary Care: A Cluster Randomized Controlled Trial

David Richards, PhD

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Collaborators and funding

- Trial registration number ISRCTN32829227
- Funded by the UK Medical Research Council (MRC; reference G0701013); managed by the National Institute for Health Research (NIHR) on behalf of the MRC-NIHR partnership.
“During the early part of the 21st century, to be anxious or depressed was to stare across an abyss, empty of assistance.”

Richards, D.A
Br. J. Wellbeing, 2010
The Layard Report

- Worldwide the economic burden of this untreated anxiety and depression to economies runs to hundreds of billions of dollars, (estimated to be £19 billion in the UK alone)
Figure 1. Family tree of terms in use in the field of collaborative care
ES = 0.24 (95% CI 0.17 to 0.32)

The International Literature
The possibilities…

- Collaborative care emphasizes the recognition and care of mental health problems in primary care settings and the effective collaboration of primary care and mental health clinicians.

- “Improvements in the coordination between mental health and primary care offer a prominent example of an area of healthcare reorganization that can contribute to both better quality and lower costs.” (p5)

US Agency for Healthcare Research and Quality (AHRQ) 2011
US vs. UK System Differences

- Taxation funded
- Universal coverage
- Specialist services available to all
- Integrated primary care sector
- Very little private healthcare or insurance
- No co-payments
- But...similar problems of access, availability, fidelity and quality?
Research Question

- Is collaborative care more clinically and cost effective than usual care in the management of patients with moderate to severe depression in UK primary care?
- Design: Cluster RCT
  - 3 sites – Manchester, London, Bristol
Collaborative Care Intervention

- Usual care from their GP plus:
  - 6-12 case manager contacts with participants over 14 weeks
  - 30-40 minutes for an initial face to face appointment followed by 15-20 minute telephone contacts thereafter
- Contacts included:
  - education about depression; medication management; behavioural activation; and relapse prevention advice
- Communication with primary care
  - case managers provided GPs with regular updates and patient management advice at least four weekly and more often if clinically indicated

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Case Managers

- Para-professional primary care mental health workers with post-graduate education in mental health care
- Additionally trained for five days in collaborative care
- Received weekly supervision
  - from specialist mental health professionals including clinical psychologists, psychiatrists, academic general practitioners with special interest in mental health or a senior nurse psychotherapist
Outcome Measures

**Primary Outcome**
Depression at 4 months, PHQ-9

**Secondary Outcome**
Depression at 12 months, PHQ-9

**Other Secondary Outcomes at 4 & 12m**
- Anxiety, GAD7
- Quality of Life, SF36
- Health Care Utilisation Questionnaire
- Health State Utilities, EQ5D
- Satisfaction with Care, CSQ-8
- Process of implementation Clinical records

Sample size: 581
Follow up 4m: 505 (87%)
Follow up 12m: 498 (86%)
Participants

- Depression:
  - 29.9% severe, 55.6% moderately severe, 14.3% mild
  - 72.6% past history of depression

- Anxiety:
  - 98% had a secondary diagnosis of an anxiety disorder, the most common being generalised anxiety disorder

- Physical health
  - 63.7% longstanding physical illness (for example, diabetes, asthma, heart disease)

- 72% women

- mean age 44.8 years (SD 13.3)

- 43.5% in full or part-time paid employment
### Population Morbidity

#### PHQ9 Baseline

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<th>Count</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
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<tr>
<td>Total</td>
<td>581</td>
<td>17.8</td>
<td>5.1</td>
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#### GAD7 Baseline

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Results: Depression

- Collaborative Care
- Treatment as Usual
Depression outcomes (PHQ-9)

- **Four months:**
  - Collaborative care participants were 1.33 PHQ-9 points lower (95% CI 0.35 to 2.31, p = 0.009) after adjustment for baseline depression.
  - Standardised effect size = 0.26 (95% CI 0.07 to 0.46)

- **12 months:**
  - Collaborative care participants were 1.36 points lower (95% CI 0.07 to 2.64, p = 0.04) after adjustment for baseline depression.
  - Standardised effect size = 0.28 (95% CI 0.01 to 0.52)
Clinical Recovery and Response Rates

Recovery rates: % PHQ-9 ≤ 9 at follow up

Response rates: ≥ 50% PHQ-9 reduction from baseline

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Clinical Recovery and Response Rates

**Recovery rates: % PHQ-9 \leq 9 at follow up**

- **Collaborative Care**
- **Treatment as Usual**

**Response rates: \geq 50\% PHQ-9 reduction from baseline**

- **Collaborative Care**
- **Treatment as Usual**

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Depression Recovery and Response: odds ratios and numbers needed to treat

- Four months:
  - Recovery: 47.0% vs. 34.9%; OR 1.67 (95% CI 1.22 to 2.29); NNT = 8.4
  - Response: 43.0% vs. 30.2%; OR 1.77 (95% CI 1.22 to 2.58); NNT = 7.8

- 12 months:
  - Recovery: 55.7% vs. 40.3%; OR 1.88 (95% CI 1.28 to 2.75); NNT = 6.5
  - Response: 48.9% vs. 35.4%; OR 1.73 (95% CI 1.22 to 2.44); NNT = 7.3
Secondary Outcomes

- Collaborative care:
  - produced better outcomes than treatment as usual on the mental component scale of the SF-36 at four but not 12 months,
  - had little additional effect on anxiety and the physical component scale of the SF-36 compared to treatment as usual
  - participants receiving collaborative care were more satisfied with their treatment than those receiving treatment as usual
Economics at 12mfu

- No significant difference in NHS and social care costs: £271 higher for collaborative care, 95% CI: (£202.98, £886.04)
- EQ5D: modest but not significant QALY difference of 0.019 (95% CI -0.019 to 0.06) in favour of collaborative care
- SF-6D: significant QALY difference of 0.017 (95% CI: 0.001 to 0.032) in favour of collaborative care
Cost Effectiveness

- Incremental cost per QALY = £14,248, with an expectation of being cost-effective in 58% of cases at a payer willingness to pay threshold of £20,000 per QALY and 65% at £30,000 per QALY.

- Sensitivity analyses:
  - Outlier with costs more than three times greater than the nearest other participant removed: incremental cost per QALY = £3,334 with a 0.76 and 0.79 probability of being cost-effective at a willingness to pay of £20,000 and £30,000 per QALY respectively.
  - Broader analytical perspective, including estimated costs for informal care and participant out-of-pocket expenses: mean cost saving of -£313 (95% CI -2,339.93, 2,035.27) with collaborative care dominant (lower expected costs, with greater expected QALY gain).
Next steps – 36m follow up

Letter sent out
n = 581 (100%)

Attempt to contact by phone
n = 533 (91.7%)

Able to contact by phone
n = 438 (75.4%)

Opt out slip returned
n=48 (8.3%)

Not contactable
n = 71 (12.2%)

Withdrew over the phone
n=84 (14.5%)

Complete assessment: n = 354 (60.9%)

Contact details changed, follow up in progress
n = 24 (4.1%)
Summary

- We found that collaborative care in the UK
  - has persistent positive effects,
  - is cost effective against commonly applied decision-maker willingness to pay thresholds
  - patients are more satisfied compared to treatment as usual
- Exactly in line with international literature
Cochrane (2012) meta-analysis of 79 RCTs

- Overall SMD = 0.29 (95% CI 0.25 to 0.33)
- CADET SMD = 0.26 (0.07 to 0.46) no different from:
  - US SMD = 0.29 (0.24 to 0.33)
  - non-US ex-the UK SMD = 0.33 (0.23 to 0.43)
  - UK SMD = 0.25 (0.13 to 0.37)

- Collaborative care in the UK is as effective as US trials, therefore, for an example of a taxation-funded, integrated health system with a well-developed primary care sector

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Thank you


Green C et al. Cost-effectiveness of collaborative care for depression in UK primary care: economic evaluation of a randomised controlled trial (CADET). *submitted*

*d.a.richards@exeter.ac.uk*

[http://medicine.exeter.ac.uk/research/healthserv/complexinterventions/](http://medicine.exeter.ac.uk/research/healthserv/complexinterventions/)