Critical time Intervention for Severely mentally ill Prisoners (CrISP): a randomised controlled trial

Jenny Shaw,[1] Sarah Conover,[2] Dan Herman,[2] Manuela Jarrett,[3] Morven Leese,[3] Paul McCrone,[3] Caroline Murphy,[4] Jane Senior,[1]* Ezra Susser,[5,6] Graham Thornicroft,[3] Nat Wright,[7] Dawn Edge,[8] Richard Emsley,[9] Charlotte Lennox,[1] Alyson Williams,[1] Henry Cust,[3] Gareth Hopkin[3] and Caroline Stevenson[1]

[1]Offender Health Research Network, Division of Psychology and Mental Health, Faculty of Biology, Medicine and Health, University of Manchester, Manchester, UK
[2]Hunter College, Silberman School of Social Work, New York, NY, USA
[3]Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK
[4]King's Clinical Trials Unit, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK
[5]Department of Epidemiology and Psychiatry, Columbia University New York, New York, NY, USA
[6]New York State Psychiatric Institute, New York, NY, USA
[7]Transform Research Alliance, Spectrum Community Interest Company, Wakefield, UK
[8]Division of Psychology and Mental Health, Faculty of Biology, Medicine and Health, University of Manchester, Manchester, UK
[9]Centre for Biostatistics, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK

*Corresponding author

Declared competing interests of authors: Nat Wright is a member of the National Institute for Health Research Health Technology Assessment programme mental, psychological and occupational health panel.

Published February 2017
DOI: 10.3310/hsdr05080

Scientific summary

Critical time Intervention for Severely mentally ill Prisoners (CrISP)

Health Services and Delivery Research 2017; Vol. 5: No. 8
DOI: 10.3310/hsdr05080

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Scientific summary

Background

The prevalence of mental illness among prisoners is significantly higher than in the general population. A series of national surveys that were undertaken in England and Wales reported community prevalence of functional psychosis as 4.5 per 1000; for adult prisoners it was 52 per 1000.

In England, mental health in-reach services deliver specialist mental health care to prisoner patients. However, their effectiveness has been criticised because of inadequate identification and treatment of severe mental illness (SMI) during early custody and flawed discharge planning on release.

For prisoners with SMI, the transition from institution to community is a vulnerable period, associated with increased risk of relapse, reoffending and suicide. Managing transitions for individuals with complex needs is challenging. Robust discharge planning to seamlessly transfer care to holistic community services is vital; finding suitable accommodation, work and financial support and family contact are all important for success.

Developing a model for integrating health and social services for those leaving institutional care has been challenging in the UK since the 1970s, when large psychiatric hospitals closed and care transferred to community settings. Initially, the case management (CM) model was adopted, in which care was assigned to a case manager who organised the meeting of needs by multiple providers. A systematic review of CM concluded that it was effective in helping clients maintain contact with services, but involved higher rates of hospitalisation. No significant differences between the intervention (CM) and control (treatment as usual) group clients on measures of social functioning or quality of life were observed.

A variant of CM, assertive community treatment (ACT), adopted a multidisciplinary team approach with small caseloads of clients. The model has been extensively evaluated with good evidence for its efficacy.

Critical time intervention ('the intervention') was developed in the USA in the 1990s, based on the main principles of CM and ACT. It is a structured time-limited intervention, with the overarching aim of long-term engagement with community services. It was originally designed for the transition from psychiatric hospital to community for homeless people, proving superior to usual treatment in preventing homelessness.

In a pilot study by the current authors, the original intervention model was adapted for implementation with a male prison population. Case managers proactively engaged with prisoners with SMI before release, agreeing a discharge plan, supporting the participant 'through the gate' and liaising with community providers to ensure suitable support from services to meet an individual's needs. The pilot demonstrated that the adapted model was both feasible to implement and acceptable to clients.

In this study, we conducted a full randomised controlled trial (RCT) of the intervention involving the delivery of the intervention by trained case managers who undertook assessment and needs identification of clients pre release, brokered contact with suitable community services and remained in contact with clients for up to 6 weeks post release.

Objectives

The primary objective was:

- to establish whether or not the intervention is clinically effective and cost-effective for released adult male prisoners with SMI in:
  - improving engagement with health- and social-care services
  - reducing mental health hospital admissions
  - reducing reoffending
  - increasing community tenure through reducing time in prison.

The secondary objectives were:

- to establish the cost-effectiveness of the intervention for this population
- to develop service manuals and training materials to support implementation of the intervention with criminal justice agencies, the NHS and relevant third-sector organisations
- to facilitate and promote active service user, criminal justice, third-sector and health staff participation in the research work programme, thus encouraging greater engagement between the academic community of researchers, the practice community of health and justice staff and users of criminal justice, community-based health-care and third-sector services.

Method

A multicentre, parallel-group RCT in which the intervention was compared with the control. The original three-stage intervention model was adapted to become a four-stage intervention to include an intensive phase 1, 'pre release', when detailed needs assessment is undertaken, a release plan is formulated and most of the case manager's groundwork to establish links to community services takes place. There then followed phase 2, 'transition to community', phase 3, 'try-out', and phase 4, 'transfer of care'.

Participants were recruited from eight prisons in England.

The inclusion criteria were:

- clients with SMI of prison in-reach mental health services
- male
- discharge from prison to occur within 6 months of initial recruitment to the study.

Participants were excluded if they:

- did not have SMI
- were to be released outside the agreed geographical discharge area
- posed security/safety issues that compromised safety
- were unable to give informed consent
- had participated in the trial during an earlier period in custody.

Severe mental illness was defined as major depressive disorder, hypomania, bipolar disorder and/or any form of psychosis including schizophrenia, schizoaffective disorder and any other non-affective non-organic psychosis.

Prisoners on the prison in-reach caseload meeting the inclusion criteria were approached and their informed consent was sought for inclusion. Individual randomisation in a ratio of 1 : 1 to intervention or control was carried out by the King's Clinical Trials Unit using an online system. Individual participants were allocated using block randomisation, with randomly varying block sizes of two and four, which were stratified by prison. Data were entered onto the online MACRO® (Elsevier, Amsterdam, the Netherlands) data entry system, which was hosted at the King's Clinical Trials Unit.

Participants randomised to the intervention were assigned to a member of the prison in-reach team who was designated as case manager and undertook the intervention. The case manager worked only with the intervention group throughout the life of the trial to avoid contamination of the control group.

The intervention started up to 6 months before each prisoner's known release date and continued for 6 weeks after. For suitable prisoners on remand, the intervention began immediately following recruitment because of their unpredictable length of stay in custody. During phase 1, prisoners in the intervention arm of the trial underwent a detailed needs assessment by their case manager to identify the services required both while in prison and on discharge to the community. In addition, registration with a local general practitioner was arranged, housing needs were assessed, a key source of income was identified and family and peer group networks were contacted as appropriate. The case manager arranged appointments with community service providers to ensure receipt of services or income were in place as soon after release as possible, and accompanied the prisoner to those appointments to aid engagement.

As the intervention progressed, the case manager reviewed and adjusted service provision in real time to ensure that the 'best fit' of provider to participant need was in place. As the person settled into the community, gained confidence living independently and was more able to advocate for themselves to address changing need, the case manager withdrew gradually. At the end of the intervention period, the case manager, participant and service providers agreed longer-term goals and strategies to achieve those goals, and the person's care was signed over fully to community services.

Participants randomised to the control group were cared for by other members of the prison in-reach health team and underwent the prison's usual discharge planning process and follow-up care.

In addition to formally establishing a diagnosis of SMI, all participants underwent a baseline assessment for evidence of personality disorder and lifetime use of alcohol and/or drugs, and a comprehensive summary of the participant's sociodemographic details and service receipt was obtained.

The primary outcome measure was the proportion of participants still engaged with their community mental health team 6 weeks after release. Secondary outcomes included contact with mental health services at 6 and 12 months. The cost of intervention compared with control was calculated using measures of service use over time. We intended to establish reconviction rates but, because of the externally created delays in the study, these data will be collected and analysed after the report submission.

A subset of 14 prisoners (eight receiving the intervention and six the control), three in-reach case managers delivering the intervention and five other professionals involved in supporting participants took part in a complementary qualitative study of their experiences.

Public and patient involvement

People who had previous contact with criminal justice and mental health services were involved in study design and methods development, were Trial Steering Committee members and formed, alongside professionals, the working group that developed the intervention manual and training resources.

Results

Eight prisons participated. One hundred and fifty male prisoners meeting the study criteria consented to take part: 72 were randomised to the intervention and 78 were randomised to the control group. Seventeen participants in the intervention and control arms of the trial were lost to follow-up at the 6-week stage. A further eight intervention and 10 control participants were lost to follow-up at 6 months, and a further six intervention and seven control participants were lost to follow-up at 12 months. Of the remaining participants, 53% of the intervention group were in contact with their team at 6 weeks, compared with 27% of the control group [95% confidence interval (CI) 0.13% to 0.78%; $p = 0.012$]. At 6 months' follow-up, intervention participants showed a continued increase in engagement with teams compared with the control group (95% CI 0.12% to 0.89%; $p = 0.029$); there were no significant differences at 12 months' follow-up for the primary outcome.

In the 6 weeks after release, the intervention group made more use of care co-ordinators and psychiatrists than the control group. Psychiatrist and care co-ordinator costs were around twice as much for the intervention group (£63.01) as for the control group (£33.80); the use of these two professional groups remained higher for the intervention group at all follow-up points. The overall average contact (excluding inpatient services) was higher for the intervention group. Cost-effectiveness analysis indicated that an extra cost of £15,426 would be incurred for every extra person engaged at 1 year after release. This, coupled with an association between high service use costs in the intervention arm (including the cost of the intervention), provides tentative evidence of increased service use by the intervention group. However, limitations with the cost data, for example a short time horizon and a small number of service use categories collected, mean that we can make only tentative economic conclusions.

Qualitative interviews with participants identified five main themes: uncertainty, support, accommodation, mental health, and medication and stigma. All participants commented on uncertainty about post-release plans and experienced increasing levels of stress and anxiety. Participants reported their reliance on others for practical help, particularly in terms of accommodation and financial support. Financial reliance on families reinforced their perceptions of being seen as 'other' and deviant. Embarrassment at needing financial help increased the risk of reoffending. Both intervention and control participants stated that a lack of suitable accommodation had serious implications for reoffending. Similarly, not having a permanent address restricted access to benefits and services. Both groups of participants reported feeling coerced into taking psychotropic medication and complained about a lack of access to psychological interventions. This, together with stigma, caused some participants not to disclose their mental health problems to professionals.

Members of the intervention group, who had experienced previous incarcerations, reported less uncertainty and a sense that, on this release, care would be more integrated; this was linked to reductions in stress, anxiety and potential for reoffending. The intervention group also reported better continuity of care and improved access to services attributed, at least in part, to case managers advocating on their behalf. From these participants' perspectives, there was a direct correlation between improved discharge planning, increased levels of support, greater continuity of care provided by case managers and a reduction in the likelihood of reoffending.

The qualitative interviews with health and justice professionals identified two main themes: liaison and transition. Professionals reported barriers to effective planning and delivery of services as linked to increasingly limited resources, leading to raised thresholds for access to services and more robust gate-keeping.

Perceptions and experiences of the intervention were positive. However, interviewees raised concerns about the availability of funding to roll out services. Supportive relationships, such as those provided by case managers alongside family and friends, were regarded as vital for effective transition. In common with service users, professionals frequently complained about the lack of suitable accommodation, highlighting the increased risk of reoffending and exacerbation of mental illness within this vulnerable group caused by unsuitable housing.

Conclusions

The intervention was effective in increasing engagement with services at 6 weeks; this is important as, in the days and weeks following release, recently released individuals are at a particularly high risk of death by suicide and drug overdose. Furthermore, the difference between the intervention and control groups was maintained at the 6-month follow-up, but not at the 12-month follow-up. Overall, staff and participants interviewed as part of the qualitative arm of the study were positive about the intervention. Analysis with regard to cost showed that the intervention group had higher levels of service use and costs than the control group.

Limitations

Severe delays outside the research team's control hampered our ability to achieve all of our original objectives. Delays were encountered gaining research and governance permissions for the study, even though all required procedures were rigorously adhered to. During the study, some prisons changed their role, leading to delays or to the end of participant recruitment and the need to find new sites. The delays encountered prevented us from fully examining the intervention's impact on reoffending and the use of NHS services in the longer term.

Implications for health care

The intervention was found to be clinically effective at improving initial engagement with mental health services. Consideration needs to be given to how teams interact with this complex group in the longer term, including an understanding that additional efforts are likely to be required to maintain close contact with clients after the initial intense intervention phase ends. Maintaining contact is likely to reduce reoffending, admissions to hospital and use of out-of-hours health-care services. Health commissioners, providers and policy-makers should consider the role that the intervention can play in better meeting the needs of offenders with SMI.

Recommendations for research

Further research is required to examine the effect of variations in duration of the intervention, for example an increase to a 9-month follow-up period in line with original studies on the critical time intervention model. Further adaptation and trial of the intervention in groups with different needs (e.g. female prisoners and older or younger people) and at other transition points (e.g. following arrest and short-term custody), or at points of transition between different mental health services (e.g. inpatient care to community and adolescent to adult services is indicated).

Trial registration

This trial is registered as ISRCTN98067793.

Funding

Funding for this study was provided by the Health Services and Delivery Research programme of the National Institute for Health Research.

Health Services and Delivery Research

ISSN 2050-4349 (Print)

ISSN 2050-4357 (Online)

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: nihredit@southampton.ac.uk

The full HS&DR archive is freely available to view online at www.journalslibrary.nihr.ac.uk/hsdr. Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: www.journalslibrary.nihr.ac.uk

Criteria for inclusion in the *Health Services and Delivery Research* journal

Reports are published in *Health Services and Delivery Research* (HS&DR) if (1) they have resulted from work for the HS&DR programme or programmes which preceded the HS&DR programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

HS&DR programme

The Health Services and Delivery Research (HS&DR) programme, part of the National Institute for Health Research (NIHR), was established to fund a broad range of research. It combines the strengths and contributions of two previous NIHR research programmes: the Health Services Research (HSR) programme and the Service Delivery and Organisation (SDO) programme, which were merged in January 2012.

The HS&DR programme aims to produce rigorous and relevant evidence on the quality, access and organisation of health services including costs and outcomes, as well as research on implementation. The programme will enhance the strategic focus on research that matters to the NHS and is keen to support ambitious evaluative research to improve health services.

For more information about the HS&DR programme please visit the website: http://www.nets.nihr.ac.uk/programmes/hsdr

This report

The research reported in this issue of the journal was funded by the HS&DR programme or one of its preceding programmes as project number 09/1004/15. The contractual start date was in January 2012. The final report began editorial review in February 2016 and was accepted for publication in July 2016. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HS&DR editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report document. However, they do not accept liability for damages or losses arising from material published in this report.

Published by the NIHR Journals Library (www.journalslibrary.nihr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).