TECHNICAL COMMENTARY

Crisis intervention

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Introduction

People with severe mental illnesses such as schizophrenia may be in need of emergency care at some stage in their illness, particularly early in illness onset. Crisis interventions are a treatment model designed to offer intensive crisis-focused treatment to people living within the community, usually in the context of home-based care. Crisis intervention programs usually comprise a team of specialist staff and provide 24-hour availability of support. This may be a mobile treatment, dedicated unit within a hospital or day centre, or residential program and usually comprises a team of psychiatrists, psychologists, nurses, occupational therapists and social workers.

Method

We have included only systematic reviews (systematic literature search, detailed methodology with inclusion/exclusion criteria) published in full text, in English, from the year 2000 that report results separately for people with a diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder or first episode schizophrenia. Reviews were identified by searching the databases MEDLINE, EMBASE, CINAHL, Current Contents, PsycINFO and the Cochrane library. Hand searching reference lists of identified reviews was also conducted. When multiple copies of reviews were found, only the most recent version was included. Reviews with pooled data are given priority for inclusion.

Review reporting assessment was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist that describes a preferred way to present a meta-analysis[1]. Reviews rated as having less than 50% of items checked have been excluded from the library. The PRISMA flow diagram is a suggested way of providing information about studies included and excluded with reasons for exclusion. Where no flow diagram has been presented by individual reviews, but identified studies have been described in the text, reviews have been checked for this item. Note that early reviews may have been guided by less stringent reporting checklists than the PRISMA, and that some reviews may have been limited by journal guidelines.

Evidence was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach where high quality evidence such as that gained from randomised controlled trials (RCTs) may be downgraded to moderate or low if review and study quality is limited, if there is inconsistency in results, indirect comparisons, imprecise or sparse data and high probability of reporting bias. It may also be downgraded if risks associated with the intervention or other matter under review are high. Conversely, low quality evidence such as that gained from observational studies may be upgraded if effect sizes are large or if there is a dose dependent response. We have also taken into account sample size and whether results are consistent, precise and direct with low associated risks (see end of table for an explanation of these terms)[2]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found one systematic review that met our inclusion criteria[3].

- Moderate to high quality evidence suggests a small effect for retaining people in the study in the medium term (6-12 months), but not the short term (< 3 months) or the long term (20 months).

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- Moderate to low quality evidence suggests improved overall symptoms and social adjustment by 20 months (but not 12 months), reduced unsociable behaviour, agitation, and disorientation by 4-6 months, reduced family burden and disruption by 3 months (but not 6 months), and greater patient and relative satisfaction.

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Crisis intervention

Murphy S, Irving CB, Adams CE, Driver R

Crisis intervention for people with severe mental illnesses

Cochrane Database of Systematic Reviews 2012; 5: CD001087

View review abstract online

Comparison	**Home-based care plus crisis intervention (24-hour emergency care) vs. standard care (hospitalisation), treatment duration 1-2 years.** **This review includes samples of people with severe mental illness, of which patients with schizophrenia make up around 50%. The sample also includes patients with other psychotic disorders, neuroses, and depression. This review includes both patients and their families.**
Summary of evidence	**Moderate to high quality evidence (consistent, some imprecision, direct, large samples) suggests a small effect for retaining people in the study in the medium term (6-12 months), but not the short (< 3 months) or long (20 months) term.** **Moderate to low quality evidence (mostly imprecise, small to medium-sized samples) suggests improved overall symptoms and social adjustment by 20 months (but not 12 months), reduced unsociable behaviour, agitation, and disorientation by 4-6 months, reduced family burden and disruption by 3 months (but not 6 months), and greater patient and relative satisfaction.**

Study retention

There was a small effect of fewer people leaving the home-based crisis intervention group in the medium term (6-12 months), with no significant differences between groups for study retention in the short term (3 month), or the long term (20 months);

3 months: 3 RCTs, N = 463, RR = 0.80, 95%CI 0.55 to 1.15, $p = 0.23$, $I^2 = 0\%$, $p = 0.85$

6 months: 5 RCTs, N = 718, RR = 0.73, 95%CI 0.55 to 0.97, $p = 0.031$, $I^2 = 0\%$, $p = 0.71$

12 months: 4 RCTs, N = 594, RR = 0.74, 95%CI 0.56 to 0.98, $p = 0.036$, $I^2 = 0\%$, $p = 0.91$

20 months: 3 RCTs, N = 475, RR = 0.78, 95%CI 0.57 to 1.06, $p = 0.11$, $I^2 = 0\%$, $p = 0.70$

Functioning

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There were no significant differences between groups in Global Assessment of Functioning Scale endpoint or change from baseline scores; Endpoint, 3 months: 1 RCT, N = 27, WMD = 0.0, 95%CI -12.82 to 12.82, *p* = 1.0 Endpoint, 6 months: 1 RCT, N = 129, WMD = 5.10, 95%CI -0.86 to 11.06, *p* = 0.094 Endpoint, 12 months: 1 RCT, N = 131, WMD = 3.50, 95%CI -3.15 to 10.15, *p* = 0.30 Endpoint, 20 months: 1 RCT, N = 142, WMD = 5.70, 95%CI -0.26 to 11.66, *p* = 0.061 Change from baseline: 2 RCTs, N = 156, WMD = 4.17, 95%CI -1.56 to 9.89, *p* = 0.15, I^2 = 0%, *p* = 0.48
Quality of life
There were no significant differences between groups in quality of life ratings at the end of treatment; MANSA scale: 1 RCT, N = 226, WMD = -1.50, 95%CI -5.15 to 2.15, *p* = 0.42 EQ-5D scale: 1 RCT, N = 26, WMD = 0.01, 95%CI -0.32 to 0.34, *p* = 0.95
Social functioning
There was a benefit of home-based crisis intervention for improved social adjustment endpoint scores by 20 months, with no differences reported in the medium term (6-12 months), or on change from baseline scores; Endpoint, 6 months: 1 RCT, N = 130, WMD = -0.20, 95%CI -0.75 to 0.35, *p* = 0.48 Endpoint, 12 months: 1 RCT, N = 120, WMD = -0.30, 95%CI -0.85 to 0.25, *p* = 0.29 Endpoint, 20 months: 1 RCT, N = 139, WMD = -0.60, 95%CI -1.15 to -0.05, *p* = 0.032 Change from baseline: 1 RCT, N = 127, WMD = -0.09, 95%CI -0.31 to 0.13, *p* = 0.42 *Significant, medium effects of less unsociable behaviour by 6 months (with no difference by 3 months), and less agitation and disorientation by 4 months;* Unsociable behaviour, 3 months: 1 RCT, N = 120, RR = 0.86, 95%CI 0.66 to 1.12, *p* = 0.25 Unsociable behaviour, 6 months: 1 RCT, N = 120, RR = 0.43, 95%CI 0.30 to 0.64, *p* = 0.000021 Agitation, 4 months: 1 RCT, N = 120, RR = 0.59, 95%CI 0.36 to 0.95, *p* = 0.029 Disorientation, 4 months: 1 RCT, N = 120, RR = 0.47, 95%CI 0.28 to 0.79, *p* = 0.0043 *There were no significant differences in;* Aggression, 3 months: 1 RCT, N = 120, RR = 0.97, 95%CI 0.72 to 1.31, *p* = 0.85 Aggression, 6 months: 1 RCT, N = 120, RR = 0.70, 95%CI 0.39 to 1.25, *p* = 0.23

Depression: 1 RCT, N = 120, RR = 0.80, 95%CI 0.57 to 1.13, *p* = 0.20 Psychotic behaviour: 1 RCT, N = 120, RR = 0.58, 95%CI 0.30 to 1.11, *p* = 0.10 Substance abuse: 1 RCT, N = 120, RR = 0.67, 95%CI 0.33 to 1.36, *p* = 0.27 Withdrawal: 1 RCT, N = 120, RR = 0.72, 95%CI 0.48 to 1.07, *p* = 0.10 Social problems: 1 RCT, N = 255, WMD = -0.60, 95%CI -2.07 to 0.87, *p* = 0.42
Mental state
There was a significant benefit of home-based crisis intervention for improving symptoms (endpoint scores) by 20 months, though no significant difference were reported in the short or medium term; 3 months: 2 RCTs, N = 248, WMD = -4.03, 95%CI -8.18 to 0.12, *p* = 0.057, I^2 = 31%, *p* = 0.23 6 months: 1 RCT, N = 129, WMD = -2.10, 95%CI -6.40 to 2.20, *p* = 0.34 12 months: 1 RCT, N = 131, WMD = -2.00, 95%CI -6.03 to 2.03, *p* = 0.33 20 months: 1 RCT, N = 142, WMD = -4.50, 95%CI -8.68 to -0.32, *p* = 0.035 *There were no significant differences between groups in Psychiatric Evaluation Form endpoint scores;* 3 months: 1 RCT, N = 118, WMD = 0.20, 95%CI -0.22 to 0.62, *p* = 0.35 6 months: 1 RCT, N = 111, WMD = 0.10, 95%CI -0.42 to 0.62, *p* = 0.71 12 months: 1 RCT, N = 97, WMD = -0.40, 95%CI -0.84 to 0.04, *p* = 0.074 20 months: 1 RCT, N = 100, WMD = 0.10, 95%CI -0.47 to 0.67, *p* = 0.73 *There were no significant differences between groups for repeat hospital admissions (including and excluding the index admission) or for involuntary hospital admissions;* Including index, 12 months: 3 RCTs, N = 465, RR = 0.71, 95%CI 0.31 to 1.61, *p* = 0.41, I^2 = 0%, *p* = 0.85 Including index, 20 months: 1 RCT, N = 188, RR = 1.10, 95%CI 0.75 to 1.60, *p* = 0.63 Excluding index, 3 months: 1 RCT, N = 260, RR = 0.53, 95%CI 0.41 to 0.68, *p* < 0.001 Excluding index, 6 months: 2 RCTs, N = 369, RR = 0.75, 95%CI 0.50 to 1.13, *p* = 0.17, I^2 = 80%, *p* = 0.03 Involuntary, 3 months: 1 RCT, N = 260, RR = 0.62, 95%CI 0.34 to 1.11, *p* = 0.11 Involuntary, 6 months: 1 RCT, N = 258, RR = 0.69, 95%CI 0.43 to 1.11, *p* = 0.13
Family impact

Significantly fewer families of patients receiving home-based crisis intervention reported that the overall family burden was substantial compared to families receiving standard care;

3 months: 1 RCT, N = 120, RR = 0.57, 95%CI 0.41 to 0.80, *p* = 0.00098

6 months: 1 RCT, N = 120, RR = 0.34, 95%CI 0.20 to 0.59, *p* = 0.00013

Families of patients receiving home-based crisis intervention reported significantly less disruption to daily routine and social lives by 3 months, but not by 6 months;

Daily routine, 3 months: 2 RCTs, N = 220, RR = 0.76, 95%CI 0.59 to 0.97, *p* = 0.031, I^2 = 0%, *p* = 0.38

Daily routine, 6 months: 2 RCTs, N = 220, RR = 0.67, 95%CI 0.37 to 1.21, *p* = 0.19, I^2 = 69%, *p* = 0.07

Social lives, 3 months: 2 RCTs, N = 220, RR = 0.69, 95%CI 0.53 to 0.91, *p* = 0.0083, I^2 = 10%, *p* = 0.29

Social lives, 6 months: 2 RCTs, N = 220, RR = 0.72, 95%CI 0.43 to 1.22, *p* = 0.23, I^2 = 74%, *p* = 0.05

Families of patients receiving home-based crisis intervention reported significantly fewer instances of physical illness due to the patient's illness;

3 months: 1 RCT, N = 100, RR = 0.78, 95%CI 0.65 to 0.95, *p* = 0.012

6 months: 1 RCT, N = 100, RR = 0.71, 95%CI 0.55 to 0.92, *p* = 0.010

There was no difference between groups in family reports of financial strain;

3 months: 1 RCT, N = 120, RR = 0.76, 95%CI 0.52 to 1.10, *p* = 0.15

6 months: 1 RCT, N = 120, RR = 0.84, 95%CI 0.53 to 1.33, *p* = 0.45

There was no difference between groups in community burden;

Employment rates by 20 months: 1 RCT, N = 189, RR = 0.97, 95%CI 0.85 to 1.12, *p* = 0.72

Homelessness: 1 RCT, N = 113, RR = 1,23, 95%CI 0.59 to 2.57, *p* = 0.58

Rates of at least one arrest by 6 months: 1 RCT, N = 111, RR = 5.36, 95%CI 0.28 to 101.35, *p* = 0.26

Rates of at least one arrest by 12 months: 1 RCT, N = 120, RR = 0.71, 95%CI 0.46 to 1.12, *p* = 0.14

Rates of at least one usage of emergency services by 12 months: 1 RCT, N = 120, RR = 0.81, 95%CI 0.43 to 1.54, *p* = 0.52

Satisfaction with treatment

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Home-based crisis intervention was associated with significantly higher levels of patient satisfaction; Perceived improvement: 1 RCT, N = 119, RR = 0.48, 95%CI 0.31 to 0.74, *p* = 0.00086 Treatment satisfaction: 1 RCT, N = 119, RR = 0.66, 95%CI 0.50 to 0.88, *p* = 0.0040 Treatment preference: 1 RCT, N = 119, RR = 0.46, 95%CI 0.27 to 0.77, *p* = 0.0035 Perceived ability to cope: 1 RCT, N = 119, RR = 0.36, 95%CI 0.21 to 0.62, *p* = 0.00028 Satisfaction Scale, 3 months: 1 RCT, N = 226, WMD = 1.60, 95%CI -0.22 to 3.42, *p* = 0.085 Satisfaction Scale, 6 months: 1 RCT, N = 115, WMD = 5.10, 95%CI 3.16 to 7.04, *p* < 0.00001 Satisfaction Scale, 12 months: 1 RCT, N = 121, WMD = 4.80, 95%CI 3.11 to 6.49, *p* < 0.00001 Satisfaction Scale, 20 months: 1 RCT, N = 137, WMD = 5.40, 95%CI 3.91 to 6.89, *p* < 0.00001 *Relatives of patients receiving home-based crisis intervention showed significantly more treatment satisfaction;* 3 months: 1 RCT, N = 120, RR = 0.63, 95%CI 0.44 to 0.89, *p* = 0.0083 6 months: 1 RCT, N = 120, RR = 0.57, 95%CI 0.42 to 0.78, *p* = 0.00045 12 months: 1 RCT, N = 120, RR = 0.46, 95%CI 0.29 to 0.72, *p* = 0.00069 *There was no difference in perceived need for out-of-hours assistance in the future;* 1 RCT, N = 119, RR = 1.48, 95%CI 0.88 to 2.48, *p* = 0.14
Risk of death
There was no significant difference between groups in risk of death or homicide; Any cause: 6 RCTs, N = 980, RR = 0.88, 95%CI 0.37 to 2.07, *p* = 0.76, I^2 = 0% Natural cause: 6 RCTs, N = 980, RR = 0.63, 95%CI 0.18 to 2.24, *p* = 0.48, I^2 = 0% Suicide/suspicious death: 6 RCTs, N = 980, RR = 1.06, 95%CI 0.36 to 3.11, *p* = 0.92, I^2 = 0% Attempted suicide: 3 RCTs, N = 369, RR = 2.62, 95%CI 0.21 to 32.02, *p* = 0.45, I^2 = 70%%, *p* = 0.07 Homicide: 3 RCTs, N = 568, RR = 2.96, 95%CI 0.31 to 28.28, *p* = 0.35, I^2 = 0%%, *p* = 0.96

Consistency in results	Consistent where applicable (> 1 RCT).
Precision in results	Precise for unsociable behaviour, family burden and treatment satisfaction; all other outcomes imprecise or not applicable (WMD).
Directness of results	Direct

Explanation of acronyms

BPRS = Brief Psychiatric Rating Scale, CI = Confidence Interval, *d* = Cohen's *d* and *g* = Hedges' *g* = standardised mean differences (see below for interpretation of effect size), I^2 = the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance), N = number of participants, *p* = statistical probability of obtaining that result ($p < 0.05$ generally regarded as significant), Q = Q statistic for the test of heterogeneity, RCT = randomised controlled trial, RR = relative risk, vs = versus, WMD = weighted mean difference

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Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[4].

† Different effect measures are reported by different reviews.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) that allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. Less than 0.4 represents a small effect, around 0.5 a medium effect, and over 0.8 represents a large effect[4].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[5]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios

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measure the effect of an explanatory variable on the hazard or risk of an event.

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They can provide an indirect indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[4];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[6].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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References

1. Moher D, Liberati A, Tetzlaff J, Altman DG, PRISMAGroup. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *British Medical Journal*. 2009; **151**(4): 264-9.
2. GRADEWorkingGroup. Grading quality of evidence and strength of recommendations. *British Medical Journal*. 2004; **328**: 1490.
3. Murphy S, Irving CB, Adams CE, Driver R. Crisis intervention for people with severe mental illnesses. *Cochrane Database of Systematic Reviews*. 2012; (5).
4. CochraneCollaboration. Cochrane Handbook for Systematic Reviews of Interventions. 2008: Accessed 24/06/2011.
5. Rosenthal JA. Qualitative Descriptors of Strength of Association and Effect Size. *Journal of Social Service Research*. 1996; **21**(4): 37-59.
6. GRADEpro. [Computer program]. Jan Brozek, Andrew Oxman, Holger Schünemann. *Version 32 for Windows*. 2008.