# APPENDIX 19: HEALTH ECONOMIC EVIDENCE-EVIDENCE TABLES OF PUBLISHED STUDIES

## Preventing psychosis

References to included studies

1. McCrone P, Singh SP, Knapp M, Smith J, Clark M, Shiers D, et al. The economic impact of early intervention in psychosis services for children and adolescents. Early Interv Psychiatry. 2013;7:368-73.
2. Phillips LJ, Cotton S, Mihalopoulos C, Shih S, Yung AR, Carter R, et al. Cost implications of specific and non-specific treatment for young persons at ultra high risk of developing a first episode of psychosis. Early Intervention in Psychiatry. 2009;3:28-34.
3. Valmaggia LR, McCrone P, Knapp M, Woolley JB, Broome MR, Tabraham P, et al. Economic impact of early intervention in people at high risk of psychosis. Psychol Med. 2009;39:1617-26.

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| McCrone et al, 2013<br><br>UK<br><br>Cost analysis | Early intervention service<br><br>Standard care (SC) (care by Child and Adolescent Mental Health Services) | Population: young people who either have psychotic illness, are in an 'at risk' mental health state or have another mental health problem<br><br>Study design: decision analytic model<br><br>Source of effectiveness data: published sources and authors' assumptions<br><br>Source of resource use estimates: published sources, data provided by mental health trust, authors' assumptions<br><br>Source of unit costs: national sources | Costs: medication costs, psychiatrist and psychologist contacts, nurse/care coordinator contacts, and inpatient care<br><br>Cost per person at 6 months:<br>• Intervention £13,186<br>• SC £18,000<br>• Difference: -£4,814 | Cost effectivenesss: NA<br><br>Sensitivity analysis:<br><br>EIS more expensive if:<br>• Probability of admission following psychosis for EIS increased from 0.58 to 0.86<br>• Probability of SC service users with psychosis being admitted reduced from 0.58 to 0.29-0.4<br>• Length of stay for EIS service users in excess of 97% that of SC<br>• In excess of 67% of service users referred to EIS have psychosis<br>• Less than 36% of those referred to SC have psychosis<br><br>Changing other parameters by 50% did not reverse the findings | Perspective: mental health services<br>Currency: UK£<br>Cost year: 2009-10<br>Time horizon: 6 months<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Phillips et al, 2009<br><br>Australia<br><br>Cost minimisation analysis | Specific preventive intervention; consisting of a combination of risperidone and cognitive-oriented psychotherapy in addition to 'needs-based' intervention<br><br>Standard care (SC) (needs-based intervention) | Population: young people at ultra high risk of developing first episode of psychosis<br><br>Study design: RCT<br><br>Source of effectiveness data: RCT and follow-up study of young people attending the Personal Assessment and Crisis Evaluation (PACE) Clinic<br><br>Source of resource use estimates: RCT and follow-up study of young people attending the Personal Assessment and Crisis Evaluation (PACE) Clinic<br><br>Source of unit costs: local and national sources | Costs: intervention, outpatient, inpatient, pharmacology, needs-based treatment (supportive counselling, case management)<br><br>Cost per person 0-6 months:<br>• Intervention $AUS 3,078<br>• SC $AUS 2,488<br>• Difference: $AUS 590, p=ns<br><br>Cost per person 6-12 months:<br>• Intervention $AUS 1,800<br>• SC $AUS 1,429<br>• Difference: $AUS 371, p=ns<br><br>Cost per person 12-36 months:<br>• Intervention $AUS 5,668<br>• SC $AUS 11,614<br>• Difference: -$AUS 5,946, p=ns<br><br>Primary outcome: Transition probability to psychosis (Global Assessment of Functioning – GAF], Hamilton Anxiety Rating Scale [HAM-A], Hamilton Depression Rating Scale [HAM-D], Quality of Life Scale [QLS], Scale for the Assessment of Negative Symptoms [SANS], Young Mania Rating Scale [YMRS]) | Cost effectivenesss:<br>Transition probability to psychosis (GAF, Brief Psychiatric Rating Scale for Psychosis, HAM-A, HAM-D, QLS, SANS, YMRS):<br>No significant difference | Perspective: health sector<br>Currency: AUS$<br>Cost year: 1997<br>Time horizon: 36 months<br>Discounting: 3%<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Valmaggia et al, 2009<br><br>UK<br><br>Cost effectiveness analysis | Early intervention consisting of information about the symptoms, practical and social support, and the offer of cognitive behavioural therapy (CBT) and medication (a low-dose antipsychotic or an antidepressant)<br><br>Standard care (SC) | Population: people at high risk of developing psychosis; mean age 24 years; 59% male<br><br>Study design: decision analytic model<br><br>Source of effectiveness data: Outreach and Support in south London clinical service (n=114); Lambeth Early Onset (LEO), an early intervention team for people with first episode psychosis in the same geographical area of south London<br><br>Source of resource use estimates: Outreach and Support in south London clinical service (n=114); Lambeth Early Onset (LEO), an early intervention team for people with first episode psychosis in the same geographical area of south London; authors' assumptions<br><br>Source of unit costs: national sources | Costs: intervention, GP, outpatient care (including community mental health teams contacts), informal inpatient stay, formal inpatient stay, costs incurred during duration of untreated psychosis, sectioning, psychologist, community psychiatric nurse, social worker, CBT session, medication, productivity losses<br><br>Cost per person 24 months:<br>• Intervention £4,313<br>• SC £3,285<br>• Difference: £1,028<br><br>Primary outcome: probability of transition to psychosis<br>• Intervention 0.20<br>• SC 0.35<br>• Difference: -0.15 | Cost effectivenesss: Incremental cost per person avoiding psychosis at 24 months is £6,853 | Perspective: NHS and societal<br>Currency: UK£<br>Cost year: 2004<br>Time horizon: 2 years<br>Discounting: none<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

## Interventions to promote physical health in adults

References to included studies

1. Winterbourne S, Knapp M, McCrone P, Bell N, Campion J, Clark M, et al. Preventing future physical morbidity and premature mortality in people with first-episode psychosis: an economic evaluation of the possible benefits of weight management interventions. In publication.
2. Winterbourne S, Knapp M, McCrone P, Bell N, Campion J, Clark M, et al. Quitting smoking for young people with schizophrenia – is it worth it? Economic evaluation of smoking cessation interventions. In publication.

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Winterbourne et al, in publication.<br><br>UK<br><br>Cost-utility analysis | 3-month intervention: psychoeducation, nutritional and/or exercise counselling<br><br>Standard care (SC) (basic advice on weight and exercise, on the risk of developing cardiovascular event and/or type 2 diabetes mellitus and life expectancy) | Population: cohort of 1,000 30-year old service users with first episode psychosis<br><br>Study design: markov model<br><br>Source of effectiveness data: RCT review, authors' assumptions, published sources, Qdiabetes and QRISK2-2012 risk calculators<br><br>Source of resource use estimates: authors' assumptions, RCT review<br><br>Source of unit costs: national sources | Costs: medication, nutrition education sessions with detician, nutrition information booklet, clinical psychologist, mental health nurse, cognitive nehavioural therapist, training, management of co-morbidities, death (hospital care)<br><br>Mean lifetime costs per person:<br>• Intervention £6,893<br>• SC £6,293<br>• Difference: £560<br><br>Primary outcome: QALYs<br><br>Mean lifetime QALYs:<br>• Intervention 14.0<br>• SC 13.4<br>• Difference: 0.6 | Cost effectivenesss: Cost/QALY=£960<br><br>If WTP=£20,000-30,000 probability intervention cost effective 0.95<br><br>Sensitivity analysis: Deterministic: results sensitive to intervention effect, intervention costs, utility values<br><br>Using 12-month follow up data from Alvarez-Jimenaz et al, 2010 RCT: intervention was dominated by SC<br><br>Sub-group analysis: Changing gender, smoking status, baseline BMI, diagnosis cost/QALY £705-1,034 | Perspective: NHS<br>Currency: UK£<br>Cost year: 2010-11<br>Time horizon: lifetime<br>Discounting: 3.5% cost and outcomes<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Winterbourne et al, in publication.<br><br>UK<br><br>Cost-utility analysis | Bupropion in combination with CBT and nicotine replacement therapy (NRT)<br><br>Standard care (SC) (CBT and NRT) | Population: cohort of 1,000 27-year old male service users with schizophrenia<br><br>Study design: markov model<br><br>Source of effectiveness data: RCT meta-analysis, authors' assumptions, other published sources<br><br>Source of resource use estimates: authors' assumptions, published literature<br><br>Source of unit costs: national sources | Costs: direct health care costs including intervention costs, co-morbidity management, death (hospital care)<br><br>Mean lifetime costs per person:<br>• Intervention £12,730<br>• SC £12,713<br>• Difference: £16<br><br>Primary outcome: QALYs<br><br>Mean lifetime QALYs:<br>• Intervention 19.7<br>• SC 19.6<br>• Difference: 0.07 | Cost effectivenesss: Cost/QALY=£244<br><br>If WTP=£20,000-30,000 probability intervention cost effective 0.93-0.94<br><br>Sensitivity analysis: Deterministic: model robust to estimates of co-morbidities, utilities, cost of death, intervention costs<br><br>Lower estimate of intervention effect cost/QALY=£150,609; upper estimate of intervention effect intervention dominant<br><br>10-year time frame: cost/QALY=£54,446<br><br>Sub-group analysis: Female cohort: intervention cost saving | Perspective: NHS<br>Currency: UK£<br>Cost year: 2010-11<br>Time horizon: lifetime<br>Discounting: 3.5% cost and outcomes<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

## Peer support & self management

References to included studies

1. Lawn S. Mental health peer support for hospital avoidance and early discharge: An Australian example of consumer driven and operated service. Journal of Mental Health. 2008;17:498-508.

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Lawn et al, 2008<br><br>Australia<br><br>Cost analysis | Peer support (PS)<br><br>Standard care (SC) (psychiatric inpatient care, care by community-based emergency team, care by multidisciplinary community mental health team) | Population: people with bipolar affective disorder, schizophrenia, schizoaffcetive disorder, first episode psychosis; mean age 36 years; 26.5% male<br><br>Study design: pre-, post-observational study<br><br>Source of effectiveness data: pre-, post-observational study [n=49]<br><br>Source of resource use estimates: pre-, post-observational study [n=49]<br><br>Source of unit costs: unclear | Costs: admissions, community emergency contacts, programme provision<br><br>PS over 3 months (per participant):<br>• Saved $2,308<br>• Cost $405<br>• Net savings $1,901 | Cost effectiveness: N/A | Perspective: healthcare payer<br>Currency: Australian$<br>Cost year: unclear<br>Time horizon: 3 months<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: very serious limitations |

## Team and service level interventions I- community based

### Early intervention services

References to included studies

1. Cocchi A, Mapelli V, Meneghelli A, Preti A. Cost-effectiveness of treating first-episode psychosis: five-year follow-up results from an Italian early intervention programme. Early Interv Psychiatry. 2011;5:203-11.
2. Hastrup LH, Kronborg C, Bertelsen M, Jeppesen P, Jorgensen P, Petersen L, et al. Cost-effectiveness of early intervention in first-episode psychosis: economic evaluation of a randomised controlled trial (the OPUS study). Br J Psychiatry. 2013;202:35-41.
3. McCrone P, Craig TK, Power P, Garety PA. Cost-effectiveness of an early intervention service for people with psychosis. Br J Psychiatry. 2010;196:377-82.
4. McCrone P, Knapp M, Dhanasiri S. Economic impact of services for first-episode psychosis: a decision model approach. Early Interv Psychiatry. 2009;3:266-73.
5. Mihalopoulos C, Harris M, Henry L, Harrigan S, McGorry P. Is early intervention in psychosis cost-effective over the long term? Schizophr Bull. 2009;35:909-18.
6. Serretti A, Mandelli L, Bajo E, Cevenini N, Papili P, Mori E, et al. The socio-economical burden of schizophrenia: a simulation of cost-offset of early intervention program in Italy. Eur Psychiatry. 2009;24:11-6.

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Cocchi et al, 2011<br><br>Italy<br><br>Cost effectiveness analysis | Early intervention services (EIS)<br><br>Standard care (SC) (any specialized mental health provision not offering interventions specifically aimed at treating the first-episode of psychosis) | Population: people with schizophrenia and related disorders, aged 17-30 years<br><br>Study design: prospective cohort study<br><br>Source of effectiveness data: prospective cohort study [n=46]<br><br>Source of resource use estimates: prospective cohort study [n=46] and Department of Health records<br><br>Source of unit costs: previous studies, local sources | Costs: outpatient, admissions, community residential and semi-residential facilities<br><br>Mean costs per person:<br>• EIS €39,671<br>• SC €42,810<br><br>Primary outcome: improvement on the Health of the Nation Outcome Scales (HoNOS)<br><br>Change in HoNOS score from entry to 5-year follow-up:<br>• EIS decrease of 37.5%<br>• SC decrease of 19.3%, p=ns | Cost effectiveness:<br>EIS dominant<br><br>EIS favourable irrespective of cost discount rate | Perspective:<br>Italian NHS<br>Currency: Euro€<br>Cost year: 2006<br>Time horizon: 5 years<br>Discounting: sensitivity analysis costs discounted at 3% and 5%<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Hastrup et al, 2013<br><br>Denmark<br><br>Cost effectiveness analysis | Early intervention services (EIS)<br><br>Standard care (SC) (community mental health centres) | Population: people with schizophrenia spectrum disorders, aged 18-45 years<br><br>Study design: RCT<br><br>Source of effectiveness data: RCT [n=547]<br><br>Source of resource use estimates: RCT [n=547], national registers<br><br>Source of unit costs: national sources | Costs: admissions, outpatient, accident and emergency, GPs, psychiatrists, psychologists, medications, supported housing<br><br>5-year discounted costs per person:<br>• EIS €111,924<br>• SC €137,638, p=ns<br><br>Primary outcome: difference in Global Assessment of Functioning (GAF) scores<br><br>Mean GAF score per person year 2:<br>• EIS 55.16<br>• SC 51.13, p<0.05<br><br>Mean GAF score per person year 5:<br>• EIS 55.35<br>• SC 54.16, p=ns | Cost effectiveness:<br>EIS dominant<br><br>Probability EIS cost effective at WTP=€0 for extra point increase on GAF scale 0.953; at WTP=€2,000 probability EIS cost effective 0.965<br><br>Results robust to changes in: staff costs, case-load, unit of supported housing | Perspective: public sector payer<br>Currency: Euro€<br>Cost year: 2009<br>Time horizon: 5 years<br>Discounting: costs 3%<br>Applicability: partially applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| McCrone et al, 2010<br><br>UK<br><br>Cost effectiveness analysis | Early intervention services (EIS)<br><br>Standard care (SC) (community mental health teams) | Population: people with psychosis (67-72% schizophrenia), mean age 26 years, male 55-74%<br><br>Study design: RCT CRAIG2004B<br><br>Source of effectiveness data: RCT [N=144]<br><br>Source of resource use estimates: RCT [n=129], hospital administrative system, prison service annual report and accounts, other published sources<br><br>Source of unit costs: national sources | Costs: GPs, psychiatrists, other doctors, psychologists, healthcare assistants, counsellors/therapists, social workers, community mental health nurses, occupational therapists/vocational workers, day care, admissions, residential care, drug and alcohol advisors, police, police cell/prison, medications<br><br>Mean costs per person excluding criminal justice sector costs:<br>• EIS £11,682<br>• SC £14,034<br>• Difference: -£2,352<br><br>Mean difference in costs (including criminal justice sector) adjusted for baseline characteristics: -£1,756, p=ns<br><br>Primary outcomes: improvement in Manchester Short Assessment of quality of Life (MANSA) score and vocational recovery<br><br>MANSA:<br>• EIS 59.3<br>• SC 53.3, p=0.025<br><br>Vocational recovery:<br>• EIS 32.8%<br>• SC 21%, p=ns | Cost effectiveness:<br>EIS dominant<br><br>If WTP=£0 for someone making vocational recovery probability EIS cost effective 0.760<br><br>If WTP=£0 for unit difference in MANSA score probability EIS cost effective 0.920 | Perspective:<br>NHS/PSS and criminal justice sector<br>Currency: UK£<br>Cost year: 2003-4<br>Time horizon: 18 months<br>Discounting: not needed<br>Applicability: directly applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| McCrone et al, 2009<br><br>UK<br><br>Cost analysis | Early intervention services (EIS)<br><br>Standard care (SC) (specialised mental health provision which does not offer any intervention specifically intended to treat first episode psychosis) | Population: people with first episode psychosis<br><br>Study design: modelling study<br><br>Source of effectiveness data: review of RCT, audit data, DoH, expert judgement, other published sources<br><br>Source of resource use estimates: review of RCT, other published sources<br><br>Source of unit costs: national sources | Costs: admissions, psychiatrists, social workers, community mental health nurses<br><br>Expected costs per person at year 1:<br>• EIS £9,422<br>• SC £14,394<br>• Difference: -£4,972<br><br>Expected costs per person at year 3:<br>• EIS £26,568<br>• SC £40,816<br>• Difference: -£14,248 | Cost effectiveness: NA<br><br>Sensitivity analyses:<br>Sensitive to readmission rates:<br>• Increasing readmission probabilities in EIS by 50% never results in EIS exceeding base-case SC cost<br>• Reducing readmission probabilities in SC by 50% costs break even | Perspective: NHS and PSS<br>Currency: UK£<br>Cost year: 2006-7<br>Time horizon: 1 year and 3 years<br>Discounting: none<br>Applicability: directly applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Mihalopoulos et al, 2009<br><br>Australia<br><br>Cost effectiveness analysis | Early intervention services (EIS)<br><br>Standard care (SC) (inpatient treatment with a community based follow-up care) | Population: people with schizophrenia 45%, schizophrenia form disorder 12%, schizoaffective disorder 10%, bipolar disorder 13%, depression (with psychotic features) 12%, delusional disorder 2%, psychosis 6%<br><br>Study design: prospective cohort study, historical controls<br><br>Source of effectiveness data: prospective cohort study, historical controls [n=65]<br><br>Source of resource use estimates: registration system, clinical records, prospective cohort study, various nationwide databases<br><br>Source of unit costs: national sources | Costs: inpatient, outpatient care, medications<br><br>Expected annual costs per person:<br>• EIS $3,445<br>• SC $9,503, p<0.01<br><br>Primary outcome: reduction in Brief Psychiatric Rating Scale (BPRS) positive symptom scale<br><br>BPRS positive symptoms score at follow up:<br>• EIS 1.8<br>• SC 4.6, p=0.007 | Cost effectivenesss:<br>EIS dominant<br><br>EIS less costly and more favourable in 100% of cases<br><br>Sensitivity analysis:<br>Results robust to unit costs | Perspective: public mental health service sector<br>Currency: Australian$<br>Cost year: 2000-1<br>Time horizon: 1 year up to 7.2 years<br>Discounting: 3% on costs; benefits none<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Serretti et al, 2009<br><br>Italy<br><br>Cost analysis | Early intervention services (EIS)<br><br>Standard care (SC) (care by local community mental health centres) | Population: people with schizophrenia<br><br>Study design: modelling study<br><br>Source of effectiveness data: retrospective prevalence-based multi-centre study [n=100], other published sources<br><br>Source of resource use estimates: published sources, assumptions<br><br>Source of unit costs: unclear | Costs: specialist visits, psychotherapy, prescriptions, socialising, interventions regarding occupation, supportive/other interventions, inpatient care, laboratory tests and procedures<br><br>Expecetd mean costs:<br>• EIS €8,329<br>• SC €8,861<br>• Difference: -€601 | Cost effectiveness: NA<br><br>Sensitivity analyses: Bootstrapping of costs showed that EIS was less costly in 75% of cases | Perspective: Italian NHS<br>Currency: Euro€<br>Cost year: 2006<br>Time horizon: 1 year<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

## Team and service level interventions I- community based

Community mental health teams.

References to included studies

**1.** McCrone P, Craig TK, Power P, Garety PA. Cost-effectiveness of an early intervention service for people with psychosis. Br J Psychiatry. 2010;196:377-82. **[For the evidence table see: Team and service level interventions I- community based (Early intervention services)].**

## Team and service level interventions I- community based

### Intensive case management

References to included studies

1. Harrison-Read P, Lucas B, Tyrer P, Ray J, Shipley K, Simmonds S, et al. Heavy users of acute psychiatric beds: randomized controlled trial of enhanced community management in an outer London borough. Psychol Med. 2002;32:403-16.
2. Karow A, Reimer J, Konig HH, Heider D, Bock T, Huber C, et al. Cost-effectiveness of 12-month therapeutic assertive community treatment as part of integrated care versus standard care in patients with schizophrenia treated with quetiapine immediate release (ACCESS trial). J Clin Psychiatry. 2012;73:e402-8.
3. McCrone P, Killaspy H, Bebbington P, Johnson S, Nolan F, Pilling S, et al. The REACT study: cost-effectiveness analysis of assertive community treatment in north London. Psychiatr Serv. 2009;60(7):908-13.
4. Slade EP, McCarthy JF, Valenstein M, Visnic S, Dixon LB. Cost savings from assertive community treatment services in an era of declining psychiatric inpatient use. Health Services Research. 2012;48(1):195-217.
5. Udechuku A, Olver J, Hallam K, Blyth F, Leslie M, Nasso M, et al. Assertive community treatment of the mentally ill: service model and effectiveness. Australasian Psychiatry. 2005;13:129-134.

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Harrison-Read et al, 2002<br><br>UK<br><br>Cost minimisation analysis | Intensive case management (ICM) (defined as asserive community management)<br><br>Standard care (SC) (local psychiatric services) | Population: people with schizophrenia and related diagnoses, aged 16-64 years<br><br>Study design: RCT Harrison-Read-UK<br><br>Source of effectiveness data: RCT [n=193]<br><br>Source of resource use estimates: RCT [n=193]<br><br>Source of unit costs: local and national sources | Costs: inpatient, outpatient, day hospital, community mental health teams<br><br>Mean costs per person year 1:<br>• ICM £8,310<br>• SC £7,868<br>• Difference: £441, p=ns<br><br>Mean costs per person year 2:<br>• ICM £6,968<br>• SC £7,316<br>• Difference: -£347, p=ns<br><br>Total costs per person over 2 years:<br>• ICM £15,278<br>• SC £15,184<br>• Difference: £94 | Cost effectiveness: interventions are simillar in terms of costs and clinical outcomes | Perspective: NHS and PSS<br>Currency: UK£<br>Cost year: 1995-6<br>Time horizon: 1 and 2 years<br>Discounting: not needed<br>Applicability: directly applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Karow et al, 2012<br><br>Germany<br><br>Cost-utility | Intensive case management (ICM) (defined as assertive community treatment)<br><br>Standard care (SC) (inpatient wards, day clinics, an outpatient centre, private psychiatrists) | Population: people with schizophrenia spectrum disorders, mean age 31-37 years, male 56-57%<br><br>Study design: prospective cohort study<br><br>Source of effectiveness data: prospective cohort study [n=120]<br><br>Source of resource use estimates: prospective cohort study [n=120]<br><br>Source of unit costs: national sources | Costs: admissions, outpatient, medications, ACT team, psychiatrists<br><br>Mean costs per person:<br>• ICM €12,995<br>• SC €15,497<br>• Difference: -€2,502, p=ns<br><br>Primary outcome: QALYs (EQ-5D, UK valuations)<br><br>Mean QALYs per person:<br>• ICM 0.76<br>• SC 0.66<br>• Difference: 0.1, p<0.01 | Cost effectiveness: ICM dominant<br><br>Probability ICM cost effective at €50,000/QALY 0.995 | Perspective: public sector payer<br>Currency: Euro€<br>Cost year: 2007<br>Time horizon: 1 year<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| McCrone et al, 2009<br><br>UK<br><br>Cost effectiveness analysis | Intensive case management (ICM) (defined as assertive community treatment)<br><br>Standard care (SC) (care from community mental hospital teams) | Population: people with schizophrenia, schizoaffective disorder, bipolar disorder, or other psychotic illness; mean age 39- 40 years; male 55-62%<br><br>Study design: RCT KILLASPY2006<br><br>Source of effectiveness data: RCT [n=251]<br><br>Source of resource use estimates: RCT [n=166]<br><br>Source of unit costs: national sources | Costs: mental health workers, inpatient care, residential care, emergency care, psychiatric and other outpatient, day treatments, GP, lawyer, court, probation, police, incarceration, informal care<br><br>Mean costs per person excluding criminal justice sector costs and informal care:<br>• ICM £33,272<br>• SC £29,449<br>• Difference: £3,823<br><br>Primary outcome: satisfaction with services on Gerber and Prince's scale<br><br>Mean satisfaction scores:<br>• ICM 79.4<br>• SC 71.7<br>• Difference: 7.6, $p<0.05$ | Cost effectiveness:<br>ICER £503/extra unit of satisfaction produced by ICM (based on costs excluding criminal justice sector costs and informal care)<br><br>Probability ICM cost effective at WTP=£0 for one unit of improvement in satisfaction score 0.21; at WTP=£1,000 probability ICM cost effective 0.78; at WTP=£2,500 probability ICM cost effective 0.95 | Perspective: societal<br>Currency: UK£ and US$<br>Cost year: 2003-4<br>Time horizon: 18 months<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Slade et al, 2013<br><br>US<br><br>Cost analysis | Intensive case management (ICM) (defined as assertive community treatment)<br><br>Standard care (SC) (service without ICM component) | Population: people with schizophrenia or bipolar disorder; mean age ~50 years; 90% male<br><br>Study design: observational study<br><br>Source of effectiveness data: observational study [n=6,030]<br><br>Source of resource use estimates: observational study [n=6,030]<br><br>Source of unit costs: national sources | Costs: intervention, inpatient (acute), residential rehabilitation, other outpatient, partial hospital, outpatient specialty clinic<br><br>Mean costs per patient:<br>• ICM $28,881<br>• SC $27,520<br>• Difference: $1,361 (p=0.038) | Cost effectiveness: NA<br><br>Sensitivity analysis:<br>Living near hospital with ACT programme had no siggnificant effect on health care utilisation and costs<br><br>Varying year of entry into ACT programme had no siggnificant effect on costs | Perspective: mental health service payer<br>Currency: US$<br>Cost year: unclear<br>Time horizon: 1 year<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Udechuku et al, 2005<br><br>Australia<br><br>Cost analysis | Intensive case management (ICM)<br><br>Standard care (SC) (service without ICM component) | Population: people with schizophrenia, schizoaffcetive disorder, bipolar affcetive disorder; mean age 38 years; 56% male<br><br>Study design: pre-, post-observational study<br><br>Source of effectiveness data: pre-, post-observational study [n=31]<br><br>Source of resource use estimates: pre-, post-observational study [n=31]<br><br>Source of unit costs: local sources | Costs: ICM programme provision, inpatient and outpatient care<br><br>Mean costs per patient:<br>• 12-months prior ICM $38,060<br>• 12-months during study $24,221<br>• Difference: -$13,838 | Cost effectiveness: NA | Perspective: mental health service payer<br>Currency: Australian$<br>Cost year: unclear<br>Time horizon: 1 year<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: potentially serious limitations |

## Team and service level interventions II– alternatives to acute admission

### Crisis resolution and home treatment teams

References to included studies

1. McCrone P, Johnson S, Nolan F, Pilling S, Sandor A, Hoult J, et al. Economic evaluation of a crisis resolution service: a randomised controlled trial. Epidemiol Psichiatr Soc. 2009;18:54-8. (Study A)
2. McCrone P, Johnson S, Nolan F, Pilling S, Sandor A, Hoult J, et al. Impact of a crisis resolution team on service costs in the UK. Psychiatric Bulletin. 2009;33:17-19. (Study B)

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| McCrone et al, 2009 (Study A)<br><br>UK<br><br>Cost effectiveness analysis | Crisis resolution and home treatment teams (CRHTTs)<br><br>Standard care (SC) (community mental health teams, inpatient care, crisis houses) | Population: people with schizophrenia/schizoaffective disorder 25%, bipolar affective disorder 10%, other psychosis 7%, unipolar depression 30%, personality disorder 13%, other nonpsychotic disorder 4%, substance misuse 5%; mean age 38 years<br><br>Study design: RCT JOHNSON2005<br><br>Source of effectiveness data: RCT [n=260]<br><br>Source of resource use estimates: RCT [n=260]<br><br>Source of unit costs: national sources | Costs: crisis team, psychiatrists, inpatient, residential care, crisis house, drug/alcohol rehabilitation, GPs, other doctors, psychologists, drug/alcohol advisors, councellors, duty team, case managers, day care, accident and emergency, prison, police cell, other mental health<br><br>Costs with inpatients costs per person:<br>• CRHTTs £6,204<br>• SC £8,893<br>• Difference adjusted for baseline costs: -£2,438, p<0.01<br><br>Costs without inpatients costs per person:<br>• CRHTTs £3,439<br>• SC £2,869<br>• Difference adjusted for baseline costs: £768, p<0.01<br><br>Primary outcome: number of days not on psychiatric ward<br><br>Days not on psychiatric ward per person:<br>• CRHTTs 126.8 days<br>• SC 129.9 | Cost effectiveness: £246/avoided inpatient day<br><br>Probability CRHTTs cost effective at WTP=£0 for avoided inpatient day is <0.10; at WTP=£25 probability CRHTTs cost effective 0.41; at WTP=£100 probability CRHTTs cost effective 1.00 | Perspective: NHS/PSS and criminal justice<br>Currency: UK£<br>Cost year: 2003-4<br>Time horizon: 6 months<br>Discounting: not needed<br>Applicability: directly applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| McCrone et al, 2009 (Study B)<br><br>UK<br><br>Cost analysis | Crisis resolution and home treatment teams (CRHTTs)<br><br>Standard care (SC) (acute wards, crises houses, community mental health teams, liaison team based in the local casualty department) | Population: schizophrenia/ schizoaffective disorder 33-36%, bipolar affective disorder 16-25%, other psychotic illness 4-11%, unipolar depressive illness 21-24%, personality disorder 8-12%, other non-psychotic illness 2-8%; aged 18-65 years; male 46-50%<br><br>Study design: pre-, post-observational study<br><br>Source of effectiveness data: pre-, post-observational study [n=200]<br><br>Source of resource use estimates: pre-, post-observational study [n=181]<br><br>Source of unit costs: local and national sources, published literature | Costs: CRHTTs, GPs, psychiatrists, other clinicians, accident and emergency care, day care, community mental health nurses, inpatient, social workers, arrest, solicitor, court, police, probation, police cell/prison, crisis house, residential care, psychologists, practice nurses<br><br>Mean cost per person baseline:<br>• CRHTTs £2,854<br>• SC £8,094<br><br>Mean cost per person follow-up:<br>• CRHTTs £4,769<br>• SC £9,746<br><br>Adjusting for baseline differences, cost difference: - £1,681, p=ns | Cost effectiveness: NA<br><br>Sensitivity analyses:<br>If CRHTTs contact unit cost was £40, cost difference - £1,807, p<0.1<br><br>Sub-goup analysis:<br>If groups defined according to whether any CRHTTs contact has taken cost savings £2,189 (p<0.1) | Perspective: NHS/PSS and criminal justice<br>Currency: UK£<br>Cost year: 2001<br>Time horizon: 6 months<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: minor limitations |

## Vocational rehabilitation

References to included studies

1. Dixon L, Hoch JS, Clark R, Bebout R, Drake R, McHugo G, et al. Cost-effectiveness of two vocational rehabilitation programs for persons with severe mental illness. Psychiatr Serv. 2002;53:1118-24.
2. Howard LM, Heslin M, Leese M, McCrone P, Rice C, Jarrett M, et al. Supported employment: randomised controlled trial. Br J Psychiatry. 2010;196:404-11.
3. Heslin M, Howard L, Leese M, McCrone P, Rice C, Jarrett M, et al. Randomized controlled trial of supported employment in England: 2 year follow-up of the Supported Work and Needs (SWAN) study. World Psychiatry. 2011;10:132-7.
4. Knapp M, Patel A, Curran C, Latimer E, Catty J, Becker T, et al. Supported employment: cost-effectiveness across six European sites. World Psychiatry 2013;12:60-68.

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Dixon et al, 2002<br><br>US<br><br>Cost effectiveness analysis | Individual placement and support (IPS) programme<br><br>Standard care (SC) (enhanced vocational rehabilitation programme) | Population: people with schizophrenia, schizoaffective disorder, bipolar disorder, recurrent major depression or borderline personality disorder<br><br>Study design: RCT<br><br>Source of effectiveness data: RCT [n=152]<br><br>Source of resource use estimates: RCT [n=149], service logs<br><br>Source of unit costs: local and national sources | Costs: inpatient care, family therapy, medications, case management, group therapy, vocational rehabilitation<br><br>Mean costs per person:<br>• IPS $29,087<br>• SC $25,119<br>• Difference: $3,968, p=ns<br><br>Primary outcomes: number hours/weeks of competitive work; combined earnings<br><br>Number hours/weeks of competitive work:<br>• IPS 326/15<br>• SC 28/1, p<0.001<br><br>Combined earnings:<br>• IPS $1,997<br>• SC $2,005, p<0.001 | Cost effectivenesss:<br>IPS cost $13/$283 per additional hour/week of competitive work<br><br>IPS costs more and provides more competitive work in 91% cases<br><br>IPS dominated by SC when combined earnings are used as an outcome | Perspective: public sector<br>Currency: US$<br>Cost year: 1995<br>Time horizon: 18 months<br>Discounting: not needed<br>Applicability: partially applicable<br>Quality: minor limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Howard et al, 2010<br>Heslin et al, 2011<br><br>UK<br><br>Cost effectiveness analysis | Individual placement and support (IPS) programme<br><br>Standard care (SC) (psychosocial rehabilitation and day care programmes) | Population: people with psychotic disorder 72-78%; mood disorder 22-28%; aged 18-65 years<br><br>Study design: RCT HOWARD2010<br><br>Source of effectiveness data: RCT [n=219]<br><br>Source of resource use estimates: RCT [n=188]<br><br>Source of unit costs: national sources | Costs: employment experts, psychiatrists, doctors, district and community mental health nurses, occupational therapists, psychologists, admissions, day care/education, social care, GPs, medications<br><br>Mean costs per person year 1:<br>• IPS £3,525<br>• SC £5,701<br>• Difference: -£2,176, p<0.05<br><br>Mean costs per person year 2:<br>• IPS £9,571<br>• SC £11,932<br>• Difference: - £2,361, p=ns<br><br>Primary outcome: % in competitive employment year 1 and 2<br><br>% competitive employment year 1:<br>• IPS 13%<br>• SC 7%<br>• Difference: 6%, p=ns<br><br>% competitive employment year 2:<br>• IPS 22%<br>• SC 11%<br>• Difference: 11%, p=ns | Cost effectivenesss:<br>IPS dominant<br><br>If WTP=£0 for extra person gaining employment, probability IPS cost effective 0.90 at year 2 | Perspective: NHS and PSS<br>Currency: UK£<br>Cost year: 2006-7<br>Time horizon: 1 and 2 years<br>Discounting: not needed<br>Applicability: directly applicable<br>Quality: potentially serious limitations |

| **Study ID**<br>**Country**<br>**Study type** | **Intervention details** | **Study population**<br>**Study design**<br>**Data sources** | **Costs: description and values**<br>**Outcomes: description and values** | **Results: Cost effectivenesss** | **Comments** |
|---|---|---|---|---|---|
| Knapp et al, 2013<br><br>UK<br><br>Cost effectivenes; partial cost benefit analysis | Individual placement and support (IPS) programme<br><br>Standard care (SC) (day care or residential care) | Population: people with schizophrenia, schizophrenia-like disroder, bipolar disorder, depression with psychotic features<br><br>Study design: international RCT BURNS2007 (London, Ulm, Rimini, Zurich, Groningen, Sofia)<br><br>Source of effectiveness data: RCT [n=312]<br><br>Source of resource use estimates: RCT [n=229]; site specific unclear<br><br>Source of unit costs: national sources | Costs: intervention, accomodation, inpatient and outpatient care, community based services, community-based professions, medication<br><br>Mean total costs per person at 18 months (London centre)<br>• IPS £7,414<br>• SC £10,985;<br>• Difference: -£3,769, p<0.05<br><br>Primary outcomes: number of days worked in competitive settings; percentage of sample members who worked at least 1 day<br><br>Worked at least 1 day:<br>• IPS 55%<br>• SC 28% | Cost effectiveness:<br>London cost perspective**:** IPS dominant using both outcomes<br><br>Probability IPS cost effective at WTP=£0-1,000 for additional 1% of clients working for at least 1 day or for additional day of work is ~1.00<br><br>IPS dominant in Ulm, Rimini, Zurich and Sofia<br><br>Groningen cost perspective: ICER £30 per additional 1% of people working at least 1 day; £10 per additional day worked<br><br>Partial cost benefit:<br>Difference in NB between IPS and SC of £17,005 in favor of IPS | Perspective:<br>health and social care<br>Currency: UK£<br>Cost year: 2003<br>Time horizon: 18 months<br>Discounting: not needed<br>Applicability: directly applicable<br>Quality: minor limitations |