National Institute for Health and Care Excellence

Draft for consultation

Rehabilitation in adults with complex psychosis and related severe mental health conditions

[F] Required components of an effective rehabilitation pathway

NICE guideline TBC

Evidence review

January 2020

Draft for Consultation

This evidence review was developed by the National Guideline Alliance which is part of the Royal College of Obstetricians and Gynaecologists

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Contents

Contents **4**

Required components of an effective rehabilitation pathway **6**

Review question 2.3 What are the required components of an effective rehabilitation pathway? 6

Introduction 6

Summary of the protocol 6

Clinical evidence 7

Summary of clinical studies included in the evidence review 7

Quality assessment of clinical outcomes included in the evidence review 8

Economic evidence 9

Summary of studies included in the economic evidence review 9

Economic model 9

Evidence statements 9

The committee's discussion of the evidence 11

References 14

Appendices **16**

Appendix A – Review protocols 16

Review protocol for review question 2.3: What are the required components of an effective rehabilitation pathway? 16

Appendix B – Literature search strategies 21

Literature search strategies for review question 2.3: What are the required components of an effective rehabilitation pathway? 21

Databases: Embase/Medline/PsycInfo 21

Database: Cochrane Library 23

Database: CRD 24

Appendix C – Clinical evidence study selection 26

Clinical study selection for review question 2.3: What are the required components of an effective rehabilitation pathway? 26

Appendix D – Clinical evidence tables 27

Clinical evidence tables for review question 2.3: What are the required components of an effective rehabilitation pathway? 27

Appendix E – Forest plots 39

Appendix F – GRADE tables 48

GRADE tables for review question 2.3: What are the required components of an effective rehabilitation pathway? 48

Appendix G – Economic evidence study selection 70

Economic evidence study selection for review question 2.3: What are the required components of an effective rehabilitation pathway? 70

Appendix H – Economic evidence tables 71

Economic evidence tables for review question 2.3: What are the required components of an effective rehabilitation pathway? 71
Appendix I – Economic evidence profiles 72
Economic evidence profiles for review question 2.3: What are the required components of an effective rehabilitation pathway? 72
Appendix J – Economic analysis 73
Economic evidence analysis for review question 2.3: What are the required components of an effective rehabilitation pathway? 73
Appendix K – Excluded studies 74
Excluded clinical and economic studies for review question 2.3: What are the required components of an effective rehabilitation pathway? 74
Clinical studies 74
Economic studies 75
Appendix L – Research recommendations 80
Research recommendations for review question 2.3: What are the required components of an effective rehabilitation pathway? 80

Required components of an effective rehabilitation pathway

Review question 2.3 What are the required components of an effective rehabilitation pathway?

Introduction

People with complex psychosis and related severe mental health conditions often have a high level of need with multifaceted problems complicating their rehabilitation and recovery. It has been assumed that better quality rehabilitation services as indicated by the availability of effective interventions and good service user experience should lead to better outcomes for service users. This review aimed to investigate whether service user outcomes were related to the characteristics and quality of their rehabilitation service. An additional aim was to identify characteristics of rehabilitation services which predict service quality.

Summary of the protocol

Please see Table 1 for a summary of the population, predictive factors and outcome characteristics (PFO) of this review.

Table 1: Summary of the protocol (PFO table)

Population	Adults (aged 18 years and older) with complex psychosis and related severe mental health conditions who have received inpatient or community rehabilitation services, and their families and carers.

Predictive factors	Rehabilitation pathway step, processes or intervention, for example:
	• Inpatient rehab units and community based rehab services.
	  ○ High Dependency
	  ○ Longer Term High Dependency and Complex Care
	  ○ Highly Specialist High Dependency
	  ○ Community rehabilitation units
	  ○ Low Secure units
	• Access to primary care and dental health.
	• Care coordinator
	• Needs assessment
	• Recovery based practice
	• Expected length of stay
	• Human rights
	• Housing/supported tenancies
	• Medicine management/optimisation

Outcomes	**Critical outcomes** **Service-user outcomes:** • Successful discharge from rehabilitation services • Rates of readmission/relapse **Important outcomes** **Service outcomes**: • Staff retention/satisfaction • 'Goodness' of rehabilitation pathway: ○ Number of providers

	○ Service quality **Service-user outcomes:** • Service-user quality of life • Service-user autonomy • Service-user experiences of care • Service-user satisfaction with service • Being local/near family • Social functioning • Accountability for improved physical healthcare ○ For example availability of a healthcare professional to provide continuity of physical healthcare across settings

For further details see the review protocol in appendix A.

Clinical evidence

Included studies

Six studies were identified for this review, 3 cross-sectional studies (Cardoso 2016, Killaspy 2013, Killaspy 2016b) 2 prospective cohort studies (Killaspy 2016a, Killaspy 2019) and 1 systematic review of RCTs (Dieterich 2017).

Most of the studies used the Quality Indicator for Rehabilitative Care (QuIRC) measure, or its modified version for supported accommodation the QuIRC-SA.

The included studies are summarised in Table 2.

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review with reasons for their exclusions are provided in appendix K.

Summary of clinical studies included in the evidence review

A summary of the studies that were included in this review are presented in Table 2.

Table 2: Summary of included studies

Study	Population	Predictive factors	Outcomes
Cardoso 2016 Cross sectional study Portugal	Inpatient units (N=42) for people with longer term mental health problems with high or medium support levels (N=278).	QuIRC seven domain scores: • Living Environment • Therapeutic Environment • Treatments and Interventions • Self-Management and Autonomy • Social Inclusion • Human Rights • Recovery-Based Practice	• Service-user quality of life • Service-user autonomy • Service-user experiences of care • Service-user satisfaction with service
Dieterich 2017 Systematic review	People with severe mental illness treated in the community with ICM or non-ICM.	• Adherence to ICM model – IFACT organisational subscore	• Rates of readmission/relapse (inpatient days per month)

Study	Population	Predictive factors	Outcomes
	N=2220		
Killaspy 2013 Cross sectional study UK	Inpatient rehabilitation units (N=133). N=739 service users; 81% had schizophrenia or schizoaffective disorder	QuIRC seven domain scores: • Living Environment • Therapeutic Environment • Treatments and Interventions • Self-Management and Autonomy • Social Inclusion • Human Rights • Recovery-Based Practice	• Service-user quality of life • Service-user autonomy • Service-user experiences of care • Service-user satisfaction with service
Killaspy 2016a Cohort study UK	Inpatient units (N=50) for people with longer term mental health problems (N=362) (typically those with psychotic illnesses)	QuIRC seven domain scores: • Living Environment • Therapeutic Environment • Treatments and Interventions • Self-Management and Autonomy • Social Inclusion • Human Rights • Recovery-Based Practice	• Successful discharge from rehabilitation services • Social functioning
Killaspy 2016b Cross sectional study Europe	Units providing longer term residential care (N=213) typically for service users with a diagnosis of psychotic illnesses.	• Unit type (hospital or community based) • Location (urban, suburban, rural) • Size (total number of beds) • Whether there was a maximum length of stay; • Whether the unit was single or mixed gender • The proportion of patients generally able to do very little without assistance • The proportion of patients detained involuntarily • Staffing intensity • Staff turnover	• Service quality - QuIRC domain scores
Killaspy 2019 Cohort study UK	People living in mental health supported accommodation (N=619). 68% had schizophrenia, schizoaffective disorder or bipolar disorder.	QuIRC-SA domain scores: • Treatments and Interventions • Self-Management and Autonomy • Social Inclusion • Human Rights • Recovery-Based Practice	• Successful discharge from rehabilitation services (moving on to less supported accommodation)

ICM: intensive case management; IFACT: Index of Fidelity to Assertive Community Treatment; QuIRC: Quality Indicator for Rehabilitative Care; QuIRC-SA: Quality Indicator for Rehabilitative Care – Supported Accommodation

See the full evidence tables in appendix D and the forest plots in appendix E.

Quality assessment of clinical outcomes included in the evidence review

See the evidence profiles in appendix F.

Economic evidence

Included studies

A systematic review of the economic literature was conducted but no economic studies were identified which were applicable to this review question.

Excluded studies

Studies not included in this review with reasons for their exclusions are provided in appendix K.

Summary of studies included in the economic evidence review

No economic evidence was identified for this review (and so there are no economic evidence tables).

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation.

Evidence statements

Clinical evidence statements

Service outcomes

Critical outcomes

No critical service outcomes were specified for this question.

Important outcomes

Staff satisfaction or retention

No evidence was identified to inform this outcome.

Number of service providers

No evidence was identified to inform this outcome.

Service quality: (measured by QuIRC domains: Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Social Inclusion; Human Rights; Recovery-Based Practice)

Community based units versus hospital based units

- High to low quality evidence from 1 cross sectional study (N=213 units) showed that community units scored 11% higher than hospital units for the living environment domain but 3% lower for therapeutic environment and 8% lower for social interface domains. There was no difference for the other QuIRC domains.

Size of unit (bed number)

- High quality evidence from 1 cross sectional study (N=213 units) showed that each additional bed in a unit was associated with a small decrease (0.1 to 0.2%) in the living environment, therapeutic environment, self-management and autonomy and social interface domains. There was no difference for the other QuIRC domains.

Maximum length of stay

- High to low quality evidence from 1 cross sectional study (N=213 units) showed that units with an expected maximum length of stay scored 9% higher for the therapeutic environment domain, 6% higher for the treatments and intervention domain, 7% higher for social interface and 6% higher for recovery based practice domains than those without a maximum length of stay. There was no difference for the other QuIRC domains.

Staff intensity

- Low quality evidence from 1 cross sectional study (N=213 units) showed that staff intensity was not associated with QuIRC domain scores.

Staff turnover

- Moderate to low quality evidence from 1 cross sectional study (N=213 units) showed that staff turnover was not associated with QuIRC domain scores.

Single sex versus mixed sex units

- Moderate to low quality evidence from 1 cross sectional study (N=213 units) showed that single sex units scored 9% lower on the self-management and autonomy domain, 8% lower on the human rights and 5% lower on the recovery based practice domains than mixed sex units. There was no difference for the other QuIRC domains.

Service user outcomes

Critical outcomes

- Moderate quality evidence from 1 prospective cohort study (N=362) showed the Recovery Based Practice domain of the Quality Indicator for Rehabilitative Care (QuIRC) was positively associated with successful discharge from inpatient rehabilitation units. The other QuIRC domains (Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Social Inclusion; Human Rights) were not associated with successful discharge.
- Moderate quality evidence from 1 prospective cohort study (N=619) showed the QuIRC-SA domains for Recovery Based practice and Human Rights were positively associated with successfully moving on from supported accommodation. The Social Interface domain was negatively associated with successfully moving on. The other QuIRC-SA domains (Treatments and Interventions; Self-Management and Autonomy) were not associated with successfully moving on.

Rates of readmission or relapse

- Moderate quality evidence from 1 systematic review of RCTs (N=2220) showed that an Intensive Case Management service's Index of Fidelity to Assertive Community Treatment (IFACT) organisational subscore was associated with the number of inpatient days. Services users treated in units more adherent to the ICM model spent fewer days as inpatients: each 1-point increase on the IFACT organisational subscore meant one third of a day per month less spent as an inpatient.

Important outcomes

Successful discharge from rehabilitation

Service user quality of life

- High quality evidence from 2 cross-sectional studies (N=1017) showed the 7 QuIRC domains (Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Human Rights; Recovery-Based Practice; Social Inclusion) were not associated with quality of life as measured using the MANSA scale.

Service user autonomy

- High quality evidence from 2 cross-sectional studies (N=1017) showed all 7 QuIRC domains (Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Human Rights; Recovery-Based Practice; Social Inclusion) were positively associated with service user autonomy as measured using the Resident Choice scale. A 10% increase on each subdomain score was positively associated with a clinically significant increase in the Resident Choice scale.

Service user experience of care

- Moderate quality evidence from 2 cross-sectional studies (N=1017) showed all 7 QuIRC domains (Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Human Rights; Recovery-Based Practice; Social Inclusion) were positively associated with service user experience of care as measured using the Your treatment and Care scale. A 10% increase on each subdomain score was positively associated with a clinically significant increase in their Your treatment and Care score.

Service user satisfaction with care

- Moderate to high quality evidence from 2 cross-sectional studies (N=1017) showed all 7 QuIRC domains (Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Human Rights; Recovery-Based Practice; Social Inclusion) were positively associated with service user satisfaction with care as measured using the General Milieu Index. A 10% increase on each subdomain score was positively associated with a clinically significant increase in the General Milieu Index.

Being near home or family

No evidence was identified to inform this outcome.

Social functioning

- High quality evidence from 1 prospective cohort study (N=362) showed none of the QuIRC domain scores (Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Human Rights; Recovery-Based Practice; Social Inclusion) was associated with social function (measured using the Life Skills Profile).

Accountability for improved physical healthcare

No evidence was identified to inform this outcome.

Economic evidence statements

No economic evidence was identified which was applicable to this review question.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

The critical outcomes for decision making were successful discharge from rehabilitation services and the rates of readmission or relapse because an effective rehabilitation pathway would enable many service users to be discharged for a sustained period without readmission or relapse.

Other service and service user outcomes and considered important for decision making. The service outcomes were staff retention and satisfaction and 'goodness' of the rehabilitation pathway as defined by the number of providers within the rehabilitation pathway and their quality. Staff retention / satisfaction is an indicator of workload and working environment within rehabilitation services, the number of providers involved is related to the efficiency of the rehabilitation pathway and quality indicates whether the service provides good care.

The other service-user outcomes chosen as important indicators of the effectiveness of the rehabilitation pathway were: service-user quality of life, service-user autonomy, service-user experiences of care, service-user satisfaction with service, social functioning and accountability for improved physical healthcare. The unit being local or near family was also an important outcome as this is key to the maintenance of contact with friends and family while in rehabilitation.

The quality of the evidence

The quality of the evidence for predictors of service quality ranged from high to low, as assessed using modified GRADE. The quality of this evidence was downgraded for imprecision. Evidence was available for community based units versus hospital based units, size of units, maximum length of stay, staff intensity, staff turnover and single versus mixed sex units as predictors of service quality. There was no evidence found for predictors of staff satisfaction or the number of service providers involved in the rehabilitation pathway.

The quality of the evidence for predictors of service user outcomes ranged from moderate to high as assessed using modified GRADE. The quality of this evidence was downgraded for imprecision and for risk of bias. Evidence was available for the domains of the QuIRC and QuIRC-SA measures as predictors of successful discharge, service user quality of life, service user autonomy, service user experience of care, service user satisfaction with care and social functioning. Evidence was also available for degree of adherence to the Intensive Case Management model as a predictor of the effectiveness of Intensive Case Management in terms of readmission to hospital. There was no evidence about predictors of being near home/family or of accountability for improved physical healthcare.

There was a lack of evidence about the characteristics of effective highly specialist or long-term high dependency services. Patients with particularly complex comorbid conditions that cannot manage in less specialised settings often spend very long periods of time (sometimes many years) in highly specialist or longer term inpatient rehabilitation services. Concerns have been raised by the CQC about the quality of life of this group. Given the importance of knowing what patient and service characteristics can support people to progress successfully in their rehabilitation, the committee made a research recommendation about service and service user characteristics of highly specialist and longer-term high-dependency rehabilitation units that are associated with better outcomes.

Benefits and harms

The committee discussed the required components of an effective rehabilitation pathway and also drew on evidence from other reviews about the effectiveness of inpatient rehabilitation and supported accommodation.

The committee considered it essential, based on their experience, that health care, social care and local authorities work together to commission and oversee rehabilitation services, given the overlapping health and social care needs (including accommodation) of people in rehabilitation services. Presently, inconsistent approaches to commissioning have led to some areas not having appropriate provision, and a lack of clarity about who should be funding and commissioning services.

The committee noted that as well as integration within the rehabilitation pathway, the rehabilitation pathway itself should be embedded within the local mental health and social

care system to facilitate smooth transitions of people with complex psychosis and related conditions to the appropriate rehabilitation service. The committee indicated that inappropriate care – for example being 'stuck' in an acute inpatient unit or out-of-area placement – is not uncommon for people with complex psychosis and related severe mental illnesses. The committee agreed that the rehabilitation pathway should be arranged at the local level (i.e. the local authority area level). This would allow greater integration between health and social care as supported accommodation and housing are arranged at local authority level, and would minimise the number of people needing to be sent out of area for care.

The committee acknowledged that different levels of support are needed by people in rehabilitation: as people become more independent they need less support, and therefore a range of provision is required to meet people's needs. The committee agreed that both inpatient (high-dependency units and community units), and community rehabilitation services (supported accommodation services and community mental health rehabilitation teams that provide clinical support to supported accommodation residents) should be provided in the pathway. The committee agreed that to provide a full range of inpatient rehabilitation services, independent sector providers as well as those in the NHS may need to be involved. This is likely to be the case for regional level highly specialist rehabilitation units and longer term rehabilitation units.

The committee were aware that commissioning all services at the local level might not be feasible. For example, there may not be sufficient people with very complex needs to warrant a dedicated unit to address these needs within the locality. In these cases, the committee recommended that local areas could work together to commission these services at a regional level.

There was evidence that the quality of rehabilitative care (as measured using QuIRC for inpatient units and QuIRC-SA for supported accommodation) was associated with better outcomes of rehabilitation, autonomy, experience of care and satisfaction for service users. This evidence came from hospital and community based inpatient units and supported accommodation. The committee agreed that measuring the quality of rehabilitative care using currently available tools would help rehabilitation units to identify areas for improvement and ultimately lead to better rehabilitation services.

The committee noted that the Recovery Based Practice domain of the QuIRC measure was associated with successful discharge from rehabilitation and this supported an overarching principle in this guideline that rehabilitation services should provide a recovery-orientated approach.

There was evidence that certain characteristics of inpatient rehabilitation units were associated with better quality rehabilitative care (as measured using QuIRC): these included smaller unit size, mixed sex accommodation and an expected maximum length of stay. The committee discussed the finding that single sex units scored lower than mixed sex units on several QuIRC domains. They noted that this finding was likely to be due to some male only units becoming full over time of more difficult to treat and challenging patients (for example those with very treatment resistant symptoms, aggression and comorbid substance misuse). Consequently they agreed that single sex units were likely to be equivalent to mixed sex units.

The committee recommended providers should be aware of the benefits of rehabilitation in smaller facilities, which include promoting self-management, autonomy and social integration.

The committee agreed that having an expected maximum length of stay could help prevent people being stuck when ready to move on through the rehabilitation pathway, but that the expected length of stay should not be absolute; services need to be flexible in this regard to provide appropriate treatment and support tailored to each individual's needs.

There was a lack of evidence about outcomes in out of area placements compared to local units. The committee were aware of studies comparing the characteristics of service users in out of area placements with those in local services. These indicated that many of those in out of area placements could be appropriately rehabilitated in local units. The committee recommended minimisation of out of area placements to maintain contacts between service users and their families and communities.

Cost effectiveness and resource use

A systematic review of the economic literature was conducted but no relevant studies were identified which were applicable to this review question.

At present there is regional variation with regards to quality of rehabilitative care (as measured using QuIRC). In areas where there are few units or supported accommodation that have a higher quality of care, there may be some additional costs in setting up smaller units. In community living, care is commissioned by Local Authorities rather than provided by them. Therefore, these recommendations may set a standard for commissioning, rather than necessarily requiring extra resources. Where extra costs are incurred, this would be on commissioning units that promote better quality of care (as measured by QuIRC) such as smaller unit size and mixed sex accommodation.

It was the committee's view that that an effective rehabilitation pathway consists of NHS Trusts and Local Authorities working together to commission and oversee rehabilitation services. The committee felt that whilst the principle of collaboration is current practice, there is a lack of clarity about who would be funding and commissioning services. The step-down approach of the pathway encompasses different public bodies, with differing statutory obligations and budgets. Generally, NHS trusts are responsible for the care of people in inpatient settings and Local Authorities are responsible for the provision of the majority of housing needs once a person is discharged from an inpatient unit, with local clinical commissioning groups providing rehabilitation services within community rehabilitation mental health teams. The committee was conscious that separate budgets may be a cause for competing alternatives. Informing the context of the committee's discussion of the evidence, the committee referred to guidance in a report from the Joint Commissioning panel for Mental Health: Guidance of commissioners of rehabilitation services for people with complex mental health needs.

The committee noted there was a lack of evidence on out-of-area placements compared to local units and referred to other studies which suggested that many in out-of-area placements could be appropriately rehabilitated in local units or discharged to supported accommodation. An integrated pathway, which facilitates smooth transitions of people with complex psychosis and related conditions, may entail more people being discharged to supported accommodation. This could require extra costs for Local Authorities, particular in areas which have a higher proportion of people for whom they have a statutory obligation to provide care for. Economic analysis conducted in review question B2 suggests that, overall, there may be large cost savings from a wider NHS and Personal Social Services perspective from reducing out-of-area placements, and reducing length of stay in inpatient units.

Whilst discussing the evidence, the committee referred to a report from NHS England: The Five Year Forward View for Mental Health, that says:

> "*The NHS should expand proven community-based services for people of all ages with severe mental health problems who need support to live safely as close to home as possible*." (NHS England 2016).

Other considerations

The committee discussed the evidence about mixed sex accommodation and their own experience that women are a disadvantaged group with regard to access, as many services

are tailored towards men. Services such as single-sex accommodation or group meetings should be available if this helps people to feel safer and more secure.

References

Cardoso 2016

Cardoso, G., Papoila, A., Tome, G., Killaspy, H., King, M., Caldas-de-Almeida, J. M., Living conditions and quality of care in residential units for people with long-term mental illness in Portugal - a cross-sectional study, BMC Psychiatry, 16 (1) (no pagination), 2016

Dieterich 2017

Dieterich, M., Irving, C. B., Bergman, H., Khokhar, M. A., Park, B., Marshall, M., Intensive case management for severe mental illness, Cochrane Database of Systematic Reviews, 2017 (1) (no pagination), 2017

Killaspy 2013

Killaspy, H., Marston, L., Omar, R. Z., Green, N., Harrison, I., Lean, M., Holloway, F., Craig, T., Leavey, G., King, M., Service quality and clinical outcomes: An example from mental health rehabilitation services in England, British Journal of Psychiatry, 202, 28-34, 2013

Killaspy 2016a

Killaspy, H., Marston, L., Green, N., Harrison, I., Lean, M., Holloway, F., Craig, T., Leavey, G., Arbuthnott, M., Koeser, L., McCrone, P., Omar, R. Z., King, M., Clinical outcomes and costs for people with complex psychosis; a naturalistic prospective cohort study of mental health rehabilitation service users in England, BMC Psychiatry, 16 (1) (no pagination), 2016

Killaspy 2016b

Killaspy, H., Cardoso, G., White, S., Wright, C., Caldas de Almeida, J. M., Turton, P., Taylor, T. L., Schutzwohl, M., Schuster, M., Cervilla, J. A., Brangier, P., Raboch, J., Kalisova, L., Onchev, G., Alexiev, S., Mezzina, R., Ridente, P., Wiersma, D., Visser, E., Kiejna, A., Adamowski, T., Ploumpidis, D., Gonidakis, F., King, M., Quality of care and its determinants in longer term mental health facilities across Europe; a cross-sectional analysis, BMC Psychiatry, 16, 31, 2016

Killaspy 2019

Killaspy, H., Priebe, S., P, McPherson, Z, Zenasni., L, Greenberg., P, McCrone.,, S, Dowling., I, Harrison., J, Krotofil., C, Dalton-Locke., R, McGranahan.,, M, Arbuthnott., S, Curtis., G, Leavey., G, Shepherd., S, Eldridge and M, King., Predictors of moving on from mental health supported accommodation in England: national cohort study., The British Journal of Psychiatry, 1-7, 2019

Appendices

Appendix A – Review protocols

Review protocol for review question 2.3: What are the required components of an effective rehabilitation pathway?

Table 3: Review protocol for review question 2.3: What are the required components of an effective rehabilitation pathway?

Field (based on PRISMA-P	Content
Review question	What are the required components of an effective rehabilitation pathway?
Type of review question	Predictive factors review
Objective of the review	To establish which service-level factors are associated successful discharge from rehabilitation services. It is intended to form a pathway which recommendations can be made to support.
Eligibility criteria – population/disease/condition/issue/domain	Adults (aged 18 years and older) with complex psychosis and related severe mental health conditions who have received inpatient or community rehabilitation services, and their families and carers. Studies will be included if more than 66% of those studied were from these populations.

Eligibility criteria – predictive factor	Rehabilitation pathway step, processes or intervention, for example:
	• Inpatient rehab units and community based rehab services.
	  ○ High Dependency
	  ○ Longer Term High Dependency and Complex Care
	  ○ Highly Specialist High Dependency
	  ○ Community rehabilitation units
	  ○ Low Secure units
	• Access to primary care and dental health.
	• Care coordinator.
	• Needs assessment.
	• Recovery based practice.
	• Expected length of stay.
	• Human rights.

Field (based on PRISMA-P	Content
	• Housing/supported tenancies • Medicine management/optimisation
Eligibility criteria – comparator	N/A
Outcomes and prioritisation	**Critical outcomes** • Service-user outcomes: o Successful discharge from rehabilitation services o Rates of readmission/relapse **Important outcomes** • Service outcomes: o Staff retention/satisfaction o 'Goodness' of rehab pathway: - Number of providers - Service quality • Service-user outcomes: o Service-user quality of life o Service-user autonomy o Service-user experiences of care o Service-user satisfaction with service o Being local/near family o Social functioning o Accountability for improved physical healthcare - For example availability of a healthcare professional to provide continuity of physical healthcare across settings Published MIDS: Killaspy (2012) reported a 10% increase for an individual QuIRC domain score has a meaningful effect on service user outcomes. We considered that since there are 7 domains the effect may be additive across the domains, so we used a lower MID threshold of 2% in any of the 7 individual QuIRC subdomains (rounding up 10% ÷ 7).

Field (based on PRISMA-P	Content
	Killaspy et al (2012) Quality of longer term mental health facilities in Europe: validation of the quality indicator for rehabilitative care against service users' views. PLoS One.7(6) MIDs for other outcomes: use GRADE defaults.
Eligibility criteria – study design	• Predictive models. • Prospective/retrospective multi centre cohort studies. • Multi centre Case-control studies. • Systematic reviews/meta-analyses of the above study types.
Other inclusion exclusion criteria	Other inclusion criteria: Date limit: 1990 The date limit for studies after 1990 was suggested by the GC considering the change in provision of mental health services from institutionalized care in the 1970s to deinstitutionalise and community based care from 1990s onwards. Country limit: UK, USA, Australasia, Europe, Canada. The GC limited to these countries because they have similar cultures to the UK, given the importance of the cultural setting in which mental health rehabilitation takes place.
Proposed sensitivity/sub-group analysis, or meta-regression	Predictive models should include the following (in addition to service related factors): • Age • Gender • Duration/Measure of clinical severity
Selection process – duplicate screening/selection/analysis	A random sample of the references identified in the search will be sifted by a second reviewer. This sample size of this pilot round will be 10% of the total, (with a minimum of 100 studies and maximum of 200). All disagreements in study inclusion will be discussed and resolved between the two reviewers. The senior systematic reviewer or guideline lead will be involved if discrepancies cannot be resolved between the two reviewers.
Data management (software)	NGA STAR software will be used for study sifting, data extraction, recording quality assessment using checklists and generating bibliographies/citations. RevMan will be used to generate plots and for any meta-analysis.

Field (based on PRISMA-P	Content
	'GRADEpro' will be used to assess the quality of evidence for each outcome.
Information sources – databases and dates	Sources to be searched: Embase, Medline, PsycINFO, Cochrane library (CDSR and CENTRAL), DARE and HTA (via CRD) Limits (e.g. date, study design): Human studies /English language
Identify if an update	Not an update
Author contacts	For details please see https://www.nice.org.uk/guidance/indevelopment/gid-ng10092
Highlight if amendment to previous protocol	For details please see section 4.5 of Developing NICE guidelines: the manual 2014
Search strategy – for one database	For details please see appendix B.
Data collection process – forms/duplicate	A standardised evidence table format will be used, and published as appendix D (clinical evidence tables) or H (economic evidence tables).
Data items – define all variables to be collected	For details please see evidence tables in appendix D (clinical evidence tables) or H (economic evidence tables).
Methods for assessing bias at outcome/study level	Standard study checklists were used to critically appraise individual studies. For details please see section 6.2 of Developing NICE guidelines: the manual 2014. The risk of bias across all available evidence was evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group http://www.gradeworkinggroup.org/.
Criteria for quantitative synthesis	For details please see section 6.4 of Developing NICE guidelines: the manual 2014
Methods for quantitative analysis – combining studies and exploring (in)consistency	For details please see the methods supplementary document.
Meta-bias assessment – publication bias, selective reporting bias	For details please see section 6.2 of Developing NICE guidelines: the manual 2014.
Confidence in cumulative evidence	For details please see sections 6.4 and 9.1 of Developing NICE guidelines: the manual 2014
Rationale/context – what is known	For details please see the introduction to the evidence review.
Describe contributions of authors and guarantor	A multidisciplinary committee developed the evidence review. The committee was convened by the National Guideline Alliance (NGA) and chaired by Dr Gillian Baird in line with section 3 of Developing NICE guidelines: the manual 2014.

Field (based on PRISMA-P	Content
	Staff from the NGA undertook systematic literature searches, appraised the evidence, conducted meta-analysis and cost effectiveness analysis where appropriate, and drafted the guideline in collaboration with the committee. For details please see the methods see supplementary document C.
Sources of funding/support	The NGA is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists.
Name of sponsor	The NGA is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists.
Roles of sponsor	NICE funds NGA to develop guidelines for those working in the NHS, public health and social care in England
PROSPERO registration number	Not applicable

GC: guideline committee; N/A: not applicable; NGA: National Guideline Alliance; NHS: National health service; NICE: National Institute for Health and Care Excellence; RCT: randomised controlled trial; RoB: risk of bias; SD: standard deviation

1 Appendix B – Literature search strategies

2 Literature search strategies for review question 2.3: What are the required 3 components of an effective rehabilitation pathway?

4 Databases: Embase/Medline/PsycInfo

5 Date searched: 21/02/2019

#	Searches
1	exp psychosis/ use emczd
2	Psychotic disorders/ use ppez
3	exp psychosis/ use psyh
4	(psychos?s or psychotic).tw.
5	exp schizophrenia/ use emczd
6	exp schizophrenia/ or exp "schizophrenia spectrum and other psychotic disorders"/ use ppez
7	(exp schizophrenia/ or "fragmentation (schizophrenia)"/) use psyh
8	schizoaffective psychosis/ use emczd
9	schizoaffective disorder/ use psyh
10	(schizophren* or schizoaffective*).tw.
11	exp bipolar disorder/ use emczd
12	exp "Bipolar and Related Disorders"/ use ppez
13	exp bipolar disorder/ use psyh
14	((bipolar or bipolar type) adj2 (disorder* or disease or spectrum)).tw.
15	Depressive psychosis/ use emczd
16	Delusional disorder/ use emczd
17	delusions/ use psyh
18	(delusion* adj3 (disorder* or disease)).tw.
19	mental disease/ use emczd
20	mental disorders/ use ppez
21	mental disorders/ use psyh
22	(psychiatric adj2 (illness* or disease* or disorder* or disabilit* or problem*)).tw.
23	((severe or serious) adj3 (mental adj2 (illness* or disease* or disorder* or disabilit* or problem*))).tw.
24	(complex adj2 (mental adj2 (illness* or disease* or disorder* or disabilit* or problem*))).tw.
25	or/1-24
26	(Rehabilitation/ or cognitive rehabilitation/ or community based rehabilitation/ or psychosocial rehabilitation/ or rehabilitation care/ or rehabilitation center/) use emczd
27	(exp rehabilitation/ or exp rehabilitation centers/) use ppez
28	(Rehabilitation/ or cognitive rehabilitation/ or neuropsychological rehabilitation/ or psychosocial rehabilitation/ or independent living programs/ or rehabilitation centers/ or rehabilitation counselling/) use psyh
29	residential care/ use emczd
30	(residential facilities/ or assisted living facilities/ or halfway houses/) use ppez
31	(residential care institutions/ or halfway houses/ or assisted living/) use psyh
32	(resident* adj (care or centre or center)).tw.
33	(halfway house* or assist* living).tw.
34	((inpatient or in-patient or long-stay) adj3 (psychiatric or mental health)).tw.
35	(Support* adj (hous* or accommodat* or living)).tw.
36	(rehabilitation or rehabilitative or rehabilitate).tw.
37	rehabilitation.fs.
38	or/26-37
39	High dependency unit/ use emczd
40	high dependency.tw.
41	(complex adj2 care).tw.

#	Searches
42	community based rehabilitation/ use emczd
43	rehabilitation centers/ use ppez
44	rehabilitation centers/ use psyh
45	(communit* adj3 rehabilitation).tw.
46	(community-based and rehabilitation).tw.
47	(Community-based adj3 (inpatient or in-patient)).tw.
48	((inpatient or in-patient or long-stay) adj2 (rehabilitation or rehabilitative)).tw.
49	((effective or success*) adj2 rehab*).tw.
50	(rehab* adj3 (approach* or aspect* or characteristic* or component* or element* or feature* or trait* or pathway*)).tw.
51	(Low adj2 secure).tw.
52	or/39-51
53	25 and 38 and 52
54	(rehab* and (access* adj3 (primary care or dental* or oral))).tw.
55	(care adj (coordinat* or co*ordinat*)).tw.
56	*needs assessment/
57	needs assessment*.tw.
58	(recover* adj2 based).tw.
59	(expect* adj2 length* adj2 stay*).tw.
60	*human rights/
61	human right*.tw.
62	(Support* adj2 (hous* or accommodat* or living)).tw.
63	*Medication therapy management/ use emczd
64	Medication therapy management/ use ppez
65	((medication* or medicine*) adj2 (manage* or optimis* or optimiz*)).tw.
66	or/54-65
67	52 or 66
68	25 and 38 and 67
69	limit 68 to (yr="1990 - current" and english language)
70	limit 69 to yr="1990-2010"
71	limit 69 to yr="2011-current"
72	remove duplicates from 70
73	remove duplicates from 71
74	72 or 73
75	Letter/ use ppez
76	letter.pt. or letter/ use emczd
77	note.pt.
78	editorial.pt.
79	Editorial/ use ppez
80	News/ use ppez
81	news media/ use psyh
82	exp Historical Article/ use ppez
83	Anecdotes as Topic/ use ppez
84	Comment/ use ppez
85	Case Report/ use ppez
86	case report/ or case study/ use emczd
87	Case report/ use psyh
88	(letter or comment*).ti.
89	or/75-88
90	randomized controlled trial/ use ppez
91	randomized controlled trial/ use emczd
92	random*.ti,ab.
93	cohort studies/ use ppez

#	Searches
94	cohort analysis/ use emczd
95	cohort analysis/ use psyh
96	case-control studies/ use ppez
97	case control study/ use emczd
98	or/90-97
99	89 not 98
100	animals/ not humans/ use ppez
101	animal/ not human/ use emczd
102	nonhuman/ use emczd
103	"primates (nonhuman)"/
104	exp Animals, Laboratory/ use ppez
105	exp Animal Experimentation/ use ppez
106	exp Animal Experiment/ use emczd
107	exp Experimental Animal/ use emczd
108	animal research/ use psyh
109	exp Models, Animal/ use ppez
110	animal model/ use emczd
111	animal models/ use psyh
112	exp Rodentia/ use ppez
113	exp Rodent/ use emczd
114	rodents/ use psyh
115	(rat or rats or mouse or mice).ti.
116	or/99-115
117	74 not 116

1 Database: Cochrane Library

2 Date searched: 21/02/2019

#	Searches
1	MeSH descriptor: [Psychotic Disorders] explode all trees
2	(psychos?s or psychotic):ti,ab,kw
3	MeSH descriptor: [Schizophrenia] explode all trees
4	(schizophren* or schizoaffective*):ti,ab,kw
5	MeSH descriptor: [Bipolar Disorder] explode all trees
6	(((bipolar or bipolar type) near/2 (disorder* or disease or spectrum))):ti,ab,kw
7	MeSH descriptor: [Delusions] this term only
8	((delusion* near/3 (disorder* or disease))):ti,ab,kw
9	MeSH descriptor: [Mental Disorders] this term only
10	((psychiatric near/2 (illness* or disease* or disorder* or disabilit* or problem*))):ti,ab,kw
11	(((severe or serious) near/3 (mental adj2 (illness* or disease* or disorder* or disabilit* or problem*)))):ti,ab,kw
12	((complex near/2 (mental adj2 (illness* or disease* or disorder* or disabilit* or problem*)))):ti,ab,kw
13	(#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12)
14	MeSH descriptor: [Rehabilitation] this term only
15	MeSH descriptor: [Rehabilitation, Vocational] this term only
16	MeSH descriptor: [Residential Facilities] this term only
17	MeSH descriptor: [Assisted Living Facilities] this term only
18	MeSH descriptor: [Halfway Houses] this term only
19	((resident* near (care or centre or center))):ti,ab,kw
20	(((inpatient or in-patient or long-stay) near/3 (psychiatric or mental health))):ti,ab,kw
21	(((Support*) near (hous* or accommodat* or living))):ti,ab,kw
22	((halfway house* or assist* living)):ti,ab,kw
23	(rehabilitation or rehabilitative or rehabilitate):ti,ab,kw

#	Searches
24	(#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23)
25	(high dependency):ti,ab,kw
26	(complex near/2 care):ti,ab,kw
27	MeSH descriptor: [Rehabilitation Centers] this term only
28	(communit* near/3 rehabilitation):ti,ab,kw
29	(community-based and rehabilitation):ti,ab,kw
30	(community-based near/3 (inpatient or in-patient)):ti,ab,kw
31	((inpatient or in-patient or long-stay) near/2 (rehabilitation or rehabilitative)):ti,ab,kw
32	((effective or success*) near/2 rehab*):ti,ab,kw
33	(rehab* near/3 (approach* or aspect* or characteristic* or component* or element* or feature* or trait* or pathway*)):ti,ab,kw
34	(low near/2 secure):ti,ab,kw
35	(rehab* and (access* near/3 (primary care or dental* or oral))):ti,ab,kw
36	(care near (coordinat* or co*ordinat*)):ti,ab,kw
37	MeSH descriptor: [Needs Assessment] this term only
38	(needs assessment*):ti,ab,kw
39	(recover* near/2 based):ti,ab,kw
40	(expect* near/2 length* near/2 stay*):ti,ab,kw
41	MeSH descriptor: [Human Rights] this term only
42	(human right*):ti,ab,kw
43	(Support* near/2 (hous* or accommodat* or living or tenanc*)):ti,ab,kw
44	MeSH descriptor: [Medication Therapy Management] this term only
45	((medication* or medicine*) near/2 (manage* or optimis* or optimiz*)):ti,ab,kw
46	#25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45
47	#13 and #24 and #46 with Cochrane Library publication date Between Jan 1990 and Feb 2019

1

2 **Database: CRD**

3 Date searched: 21/02/2019

#	Searches
1	MeSH DESCRIPTOR Psychotic Disorders EXPLODE ALL TREES IN DARE,HTA
2	(psychos*s or psychotic) IN DARE, HTA
3	MeSH DESCRIPTOR Schizophrenia EXPLODE ALL TREES IN DARE,HTA
4	(schizophren* or schizoaffective*) IN DARE, HTA
5	MeSH DESCRIPTOR Bipolar Disorder EXPLODE ALL TREES IN DARE,HTA
6	(((bipolar or bipolar type) NEAR2 (disorder* or disease or spectrum))) IN DARE, HTA
7	MeSH DESCRIPTOR Delusions IN DARE,HTA
8	(delusion* NEAR3 (disorder* or disease)) IN DARE, HTA
9	MeSH DESCRIPTOR Mental Disorders IN DARE,HTA
10	(psychiatric NEAR2 (illness* or disease* or disorder* or disabilit* or problem*)) IN DARE, HTA
11	((severe or serious) NEAR3 (mental NEAR2 (illness* or disease* or disorder* or disabilit* or problem*))) IN DARE, HTA
12	(complex NEAR2 (mental NEAR2 (illness* or disease* or disorder* or disabilit* or problem*))) IN DARE, HTA
13	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12
14	MeSH DESCRIPTOR Rehabilitation IN DARE,HTA
15	MeSH DESCRIPTOR Rehabilitation, Vocational IN DARE,HTA
16	MeSH DESCRIPTOR Residential Facilities IN DARE,HTA
17	MeSH DESCRIPTOR Assisted Living Facilities IN DARE,HTA
18	MeSH DESCRIPTOR Halfway Houses IN DARE,HTA
19	(resident* NEAR (care or centre or center)) IN DARE, HTA
20	((inpatient or in-patient or long-stay) NEAR3 (psychiatric or mental health)) IN DARE, HTA

#	Searches
21	((Support*) NEAR (hous* or accommodat* or living)) IN DARE, HTA
22	(halfway house* or assist* living) IN DARE, HTA
23	(rehabilitation or rehabilitative or rehabilitate) IN DARE, HTA
24	#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23
25	#13 AND #24

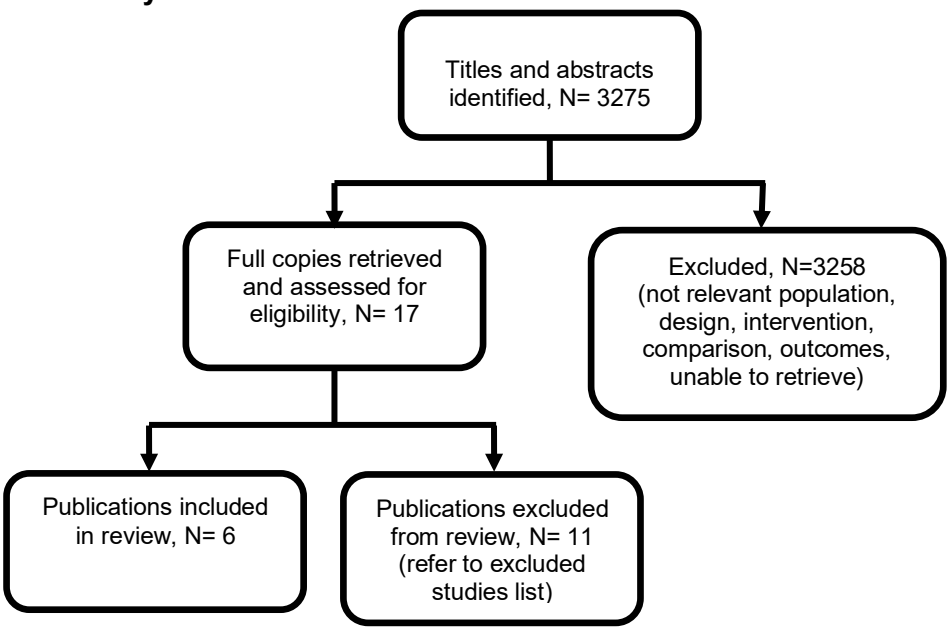
1

2

Appendix C – Clinical evidence study selection

Clinical study selection for review question 2.3: What are the required components of an effective rehabilitation pathway?

Figure 1: Study selection flow chart



1 Appendix D – Clinical evidence tables

2 Clinical evidence tables for review question 2.3: What are the required components of an effective rehabilitation pathway?

3 **Table 4: Clinical evidence tables**

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Full citation Cardoso, G., Papoila, A., Tome, G., Killaspy, H., King, M., Caldas-de-Almeida, J. M., Living conditions and quality of care in residential units for people with long-term mental illness in Portugal - a cross-sectional study, BMC Psychiatry, 16 (1) (no pagination), 2016 **Ref Id** 906269 **Country/ies where the study was carried out** Portugal **Study type** Cross sectional observational study	**Sample size** 42 units and 278 service users. **Characteristics** Most were male (66.2 %) with a mean age of 50.5 years (SD = 11), living in the unit for a median of 4 years (IQR 1–10). The majority (73.7%) had a diagnosis of schizophrenia, and no regular occupation (92.8 %). **Inclusion criteria** All the Portuguese residential units for people with longer term mental health problems with high or medium support levels (i.e., at least 12 hours on-site staff support per day)	**Factors** Quality Indicator for Rehabilitative Care (QuIRC) seven domain scores: Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Social Inclusion; Human Rights; Recovery-Based Practice	**Details** Univariable and multivariable linear regression models were used to investigate which covariates were associated with unit quality (QuIRC domain scores) . Covariates considered a priori were: location of unit (hospital or community); percentage of male service users; mean age of service users; and service users' mean GAF score. The association between unit quality and patient outcome was examined using mixed effects models - which accounted for correlation between patients in the same units.	**Results** Service user outcomes were: Autonomy was assessed using the Resident Choice Scale (RCS, maximum score 88, higher better) Quality of life was assessed using the Manchester Short Assessment of Quality of Life (MANSA, 1 - 7 higher better) Their Experiences of Care were assessed using the Your Treatment and Care (YTC) questionnaire (maximum score 25, higher better) Service users' views on the unit's therapeutic milieu were assessed using the General	**Limitations** Assessment of risk of bias using Quality in prognostic studies(QUIPS) risk of bias assessment tool: 1) Study participation: The study sample represents the population of interest on key characteristics. The baseline study sample is adequately described for key characteristics. Inclusion and exclusion criteria are adequately described. There is adequate participation in the study by eligible individuals. 2) Study attrition: No attrition. 3) Prognostic factor measurement: A clear description of prognostic factors is provided. Only those prognostic factors which could be reliably measured are included. The method and setting of measurement of prognostic factor is the same for all study participants. Adequate proportion of the study sample has complete

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Aim of the study To determine: a) the characteristics of users of mental health residential facilities in Portugal; b) the quality of care provided comparing community and hospital units; and c) to investigate associations between quality of care, service and service users' characteristics and experiences of care. **Study dates** March to July 2012 **Source of funding** General Health Directorate of the Portuguese Ministry of Health.	were invited to participate in the study. **Exclusion criteria** Units that provided specialist care (for example only for people with dementia, severe cognitive impairment or learning disability) and units with fewer than six residents were excluded.			Milieu Index (GMI, 1 - 5 higher better) See Forest plots for results.	data for prognostic factor variable. 4) Outcome measurement: Outcomes are clearly defined. The method and setting of outcome measurement is the same for all study participants. 5) Study confounding: Confounders are accounted for in the study design. 6) Statistical analysis and reporting: Multivariate analysis was used Overall high quality. **Other information**
Full citation Dieterich, M., Irving, C. B., Bergman, H., Khokhar, M. A., Park, B., Marshall, M., Intensive case management for severe mental illness,	**Sample size** 40 trials with 7524 participants were included. **Characteristics**	**Factors** Adherence to the intensive case management model – as measured using the IFACT: Index of Fidelity to Assertive Community Treatment scale.	**Details** 29 trials compared intensive case management (ICM) with standard care. 12	**Results** Primary outcome was service use (days in hospital and not remaining in contact with	**Limitations** ROBIS summary: Does the question addressed by the review match the question you are trying to answer? Yes - IFACT

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Cochrane Database of Systematic Reviews, 2017 (1) (no pagination), 2017 **Ref Id** 894151 **Country/ies where the study was carried out** International: included trials from Australia, Canada, USA, Europe; and one trial from China. **Study type** Systematic review **Aim of the study** 1) To compare the effectiveness of intensive case management versus standard care in people with severe mental illnesses 2) To compare the effectiveness of intensive case management	20/40 trials included patients with "severe mental illness" - the definition of this varied across studies from schizophrenic disorder alone to wider diagnostic groups including schizophrenic, affective, and personality disorder. 18/40 trials involved patients with various diagnoses but the majority had a psychotic disorder. In two trials it was unclear what diagnostic criteria were used. The overall mean age (reported in 32/40 trials) was 38 years. All trials were in the community setting. **Inclusion criteria** Studies with:		trials compared ICM with non-ICM. Intensive case management was defined as: where the majority of people received a package of care based on the: Assertive Community Treatment model, Assertive Outreach model or Case Management model. With a caseload of 20 people or less. Non-intensive case management was defined as: where the majority of people received a package of care based on the: Assertive Community Treatment model, Assertive Outreach model or Case Management model. With a caseload of more than 20 people. Standard care was defined as: where the majority of people received a community or outpatient model of care not specifically	psychiatric services). Secondary outcomes were: service use (readmission, use of emergency services, adverse effects, global state, Social functioning, Mental state, Behaviour, Quality of life, Satisfaction and costs. Follow-up was group as follows: short term (up to 6 months), medium term (6 to 12 months) and long term (over 12 months) See Forest plots for results.	measures staff mix & staffing levels etc. Concerns regarding specification of study eligibility criteria: low concern Concerns regarding methods used to identify and/or select studies: low concern Concerns regarding methods used to collect data and appraise studies: low concern Concerns regarding methods used to synthesize results: unclear concern: meta-regression used to estimate impact adherence to IFACT on effect sizes. Some potential confounders are accounted for in the study design by matching. Other potential confounders are not accounted for in the analysis. Multivariate analysis is not reported. Data from univariate analysis was utilized. Risk of bias : unclear risk of bias **Other information**

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
versus non intensive case management in people with severe mental illnesses **Study dates** Literature search date was 2015. Source of funding The study was carried out by the Cochrane Schizophrenia Group. The National Institute for Health Research (NIHR) is the largest single funder of this group.	1) Study design: Randomised controlled trials, quasi randomised controlled trials and economic evaluations accompanying RCTs 2) Population: Age between 18 and 65 years and a diagnosis of severe mental illness or schizophrenia, schizophrenia-like disorders, bipolar disorder, depression with psychotic features or/ and personality disorder; and not having acute illness and being treated in a community setting 3) Intervention: Intensive case management including assertive community treatment, assertive outreach model and case management model, with a case load of up to 20 people for intensive and more than 20 for non intensive case management.		shaped on either the model of Assertive Community Treatment and Case Management, and not working within a designated named package or approach to care. Standard care was variable across trials in different countries at different time periods. Presence of further specialised services, such as rehabilitation or psychotherapist services, were variable within standard care services. In some studies, both ICM and standard care incorporated services for substance abuse treatment and homelessness care.		

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
	4) Outcomes: Service use, adverse effects, global state, social functioning, mental state, behaviour, quality of life, satisfaction, cost **Exclusion criteria** 1) Studies with observational study design 2) Studies with participants having substance abuse disorder alone				
Full citation Killaspy, H., Marston, L., Omar, R. Z., Green, N., Harrison, I., Lean, M., Holloway, F., Craig, T., Leavey, G., King, M., Service quality and clinical outcomes: An example from mental health rehabilitation services in England, British Journal of	**Sample size** 52/60 (87%) National Health Service trusts participated, comprising 133 units and 739 service users **Characteristics** Rehab unit type: 15% hospital ward, 79% community based, 39% in hospital grounds.	**Factors** Quality Indicator for Rehabilitative Care (QuIRC) seven domain scores: Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Social Inclusion; Human	**Details** Multiple linear regression was used to investigate which covariates were associated with unit quality (QuIRC domain scores). 24 Covariates selected a priori were: location of unit (hospital or community) – units within hospital grounds were recategorised as	**Results** Service user outcomes were: Autonomy was assessed using the Resident Choice Scale (RCS, maximum score 88, higher better) Quality of life was assessed using the Manchester Short Assessment of Quality of Life	**Limitations** Assessment of risk of bias using Quality in prognostic studies(QUIPS) risk of bias assessment tool: 1) Study participation: The study sample represents the population of interest on key characteristics. The baseline study sample is adequately described for key characteristics. Inclusion and exclusion criteria are adequately described. There is

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Psychiatry, 202, 28-34, 2013 **Ref Id** 894906 **Country/ies where the study was carried out** UK **Study type** Cross-sectional observational study **Aim of the study** To investigate the relationship between quality of mental health rehabilitation services in England, local deprivation, service user characteristics and clinical outcomes. **Study dates** 2009-2011 **Source of funding** National Institute of Health Research though a Programme Grants for Applied	Service users: most were White males, mean age 40 years, a median 13-year history of contact with mental health services, and four previous admissions. 81% had a diagnosis of schizophrenia or schizoaffective disorder. The median length of the current admission was 18 months and 33% were currently detained involuntarily. Almost half had a history of self-neglect or self-harm and over half had a history of assault on others. **Inclusion criteria** In-patient or community mental health rehabilitation units that accepted patients referred from acute admission wards. **Exclusion criteria** Units designated as 'continuing care', 'forensic' or 'secure	Rights; Recovery-Based Practice	community as they have been previously found to be more similar in profile to community-based units than hospital wards; 6 psychiatric morbidity of the area local to the unit; percentage of male service users; mean age of service users; service users' mean GAF score; and percentage of service users detained involuntarily. The study also investigated whether unit quality (QuIRC domain scores) was associated with service user outcomes: autonomy (RCS), quality of life (MANSA), experiences of care (YTC) and therapeutic milieu (GMI).	(MANSA, 1 - 7 higher better) Their Experiences of Care were assessed using the Your Treatment and Care (YTC) questionnaire (maximum score 25, higher better) Service users' views on the unit's therapeutic milieu were assessed using the General Milieu Index (GMI, 1 - 5 higher better) See Forest plots for results.	adequate participation in the study by eligible individuals. 2) Study attrition: No attrition. 3) Prognostic factor measurement: A clear description of prognostic factors is provided. Only those prognostic factors which could be reliably measured are included. The method and setting of measurement of prognostic factor is the same for all study participants. Adequate proportion of the study sample has complete data for prognostic factor variable. 4) Outcome measurement: Outcomes are clearly defined. The method and setting of outcome measurement is the same for all study participants. 5) Study confounding: Confounders are accounted for in the study design. 6) Statistical analysis and reporting: Multivariate analysis was used Overall high quality. **Other information**

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Research (RP-PG-0707-10093)	rehabilitation' were excluded.				
Full citation Killaspy, H., Cardoso, G., White, S., Wright, C., Caldas de Almeida, J. M., Turton, P., Taylor, T. L., Schutzwohl, M., Schuster, M., Cervilla, J. A., Brangier, P., Raboch, J., Kalisova, L., Onchev, G., Alexiev, S., Mezzina, R., Ridente, P., Wiersma, D., Visser, E., Kiejna, A., Adamowski, T., Ploumpidis, D., Gonidakis, F., King, M., Quality of care and its determinants in longer term mental health facilities across Europe; a cross-sectional analysis, BMC Psychiatry, 16, 31, 2016 **Ref Id** 996736 **Country/ies where the study was carried out**	**Sample size** 213 units **Characteristics** Around half of the units were in the inner city, and two-thirds were community based facilities. The size of units varied widely (IQR from 12 to 35 patients). Most units (n = 172, 81 %) did not have a maximum length of stay, but where present this was usually 2 years. One quarter of units were single sex. Most units (59 %) had no detained patients, but in a small number (n = 14, 7 %) more than 50 % of patients were detained. The functional impairment of patients varied, with about one quarter of units having no patients who were able to do very little without assistance, but in 23 (8 %) units the majority of patients required assistance with most things.	**Factors** The following unit characteristics were investigated for their association with QuIRC domain scores: unit type (hospital or community based); location (urban, suburban, rural); size (total number of beds); whether there was a maximum length of stay; whether the unit was single or mixed gender; the proportion of patients generally able to do very little without assistance; the proportion of patients detained involuntarily; staffing intensity (ratio of the number of full-time staff to beds); and staff turnover (the proportion of staff who had left, retired, died or been dismissed in the previous two years).	**Details** Quality Indicator for Rehabilitative Care (QuIRC) domain scores were analysed as dependent variables for associations with the unit characteristics listed, using multiple linear regression adjusted for clustering within units and countries.	**Results** Quality Indicator for Rehabilitative Care (QuIRC) seven domain scores: Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Social Inclusion; Human Rights; Recovery-Based Practice. See Forest plots for results.	**Limitations** Assessment of risk of bias using Quality in prognostic studies(QUIPS) risk of bias assessment tool: 1) Study participation:The study sample represents the population of interest on key characteristics. The baseline study sample is adequately described for key characteristics. Inclusion and exclusion criteria are adequately described. There is adequate participation in the study by eligible individuals. 2) Study attrition: No attrition. 3) Prognostic factor measurement: A clear description of prognostic factors is provided. Only those prognostic factors which could be reliably measured are included. The method and setting of measurement of prognostic factor is the same for all study participants. Adequate proportion of the study sample has complete data for prognostic factor variable. 4) Outcome measurement: Outcomes are clearly defined.The method and

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Bulgaria, Czech Republic, Germany, Greece, Italy, Netherlands, Poland, Portugal, Spain and the UK **Study type** Cross sectional observational study. **Aim of the study** To investigate associations between characteristics of longer term mental health facilities across Europe and the quality of care they delivered to patients. **Study dates** Not reported **Source of funding** European Commission	**Inclusion criteria** Units providing longer term care (length of stay at least 6 months), for at least six service users living in a communal setting, with staff on-site, usually 24 hours a day. Most service users in these units were male, with a diagnosis of psychotic illnesses and a mean length of stay of 9 months. **Exclusion criteria** Units that only served specialist groups such as those with learning disability, degenerative brain disease or head injuries, substance misuse or dementia were excluded.				setting of outcome measurement is the same for all study participants. 5) Study confounding: Potential confounders are accounted for in the analysis. 6) Statistical analysis and reporting: Multivariate analysis was utilized - adjusted for clustering within units & countries Overall high quality **Other information**
Full citation Killaspy, H., Marston, L., Green, N., Harrison, I., Lean, M., Holloway,	**Sample size** 133 inpatient rehabilitation units in England were assessed. The top 67	**Factors** Quality Indicator for Rehabilitative Care (QuIRC) seven domain scores:	**Details** Multivariate analyses of QuIRC domains and service user outcomes were adjusted for: age;	**Results** Outcomes measured at 12 months follow up:	**Limitations** Assessment of risk of bias using Quality in prognostic studies(QUIPS) risk of bias assessment tool:

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
F., Craig, T., Leavey, G., Arbuthnott, M., Koeser, L., McCrone, P., Omar, R. Z., King, M., Clinical outcomes and costs for people with complex psychosis; a naturalistic prospective cohort study of mental health rehabilitation service users in England, BMC Psychiatry, 16 (1) (no pagination), 2016 **Ref Id** 894905 **Country/ies where the study was carried out** UK **Study type** Naturalistic prospective cohort study **Aim of the study** UK **Study dates** 2009-2012	units (by QuIRC quality assessment) were eligible for the study and 50 units participated. 540 patients in the 50 rehab units were eligible and 362 participated. **Characteristics** Unit type: 12% hospital ward, 88% community based; Unit location: 10% inner city, 86% suburbs and 4% rural. Service users were: 65% male, 90% white. Diagnosis was 68% schizophrenia, 10% schizoaffective disorder, 7% bipolar disorder. Median 12 years since first contact with mental health services, median 4 previous admissions, median length of current admission 18 months. **Inclusion criteria** Inpatient rehabilitation units in England, scoring above the sample median QuIRC	Living Environment; Therapeutic Environment; Treatments and Interventions; Self-Management and Autonomy; Social Inclusion; Human Rights; Recovery-Based Practice	sex; length of illness; Mental Illness Needs Index (MINI) score; baseline measure of the outcome, risk history (assault on others in the past two years), percentage of service users on the unit detained (unit level variable) p Special Problems Rating Scale (SPRS) score; Clinician Alcohol and Drug Scale (CADS) score.	Social function as measured by the Life Skills Profile Length of admission in the rehabilitation unit Successful community discharge i.e. without readmission or community placement breakdown. See Forest plots for results.	1) Study participation: The study sample represents the population of interest on key characteristics. The baseline study sample is adequately described for key characteristics. Inclusion and exclusion criteria are adequately described. There is adequate participation in the study by eligible individuals. 2) Study attrition: 27% of patients declined to participate in the study. Of those included only 6% were lost to follow-up at 12 months. 3) Prognostic factor measurement: A clear description of prognostic factors is provided. Only those prognostic factors which could be reliably measured are included. The method and setting of measurement of prognostic factor is the same for all study participants. Adequate proportion of the study sample has complete data for prognostic factor variable. 4) Outcome measurement: Outcomes are clearly defined. The method and setting of outcome measurement is the same for all study participants.

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Source of funding National Institute of Health Research though a Programme Grant for Applied Research (RP-PG-0707-10093).	quality score. Patients from these units were also included. **Exclusion criteria** Inpatient rehabilitation scoring below the sample median QuIRC quality score (and patients from these units). Patients who were on leave (or had absconded) from the unit at the time of recruitment, those who lacked adequate English to give informed consent and those who were occupying a respite bed rather than a rehabilitation bed in the unit.				5) Study confounding: Potential confounders are accounted for in the analysis. 6) Statistical analysis and reporting: Multivariate analysis is reported High quality. **Other information**
Full citation H, Killaspy., S, Priebe., P, McPherson., Z, Zenasni., L, Greenberg., P, McCrone.,, S, Dowling., I, Harrison., J, Krotofil., C, Dalton-Locke., R, McGranahan.,, M, Arbuthnott., S, Curtis., G, Leavey., G,	**Sample size** N=619 services users. Services were residential care (N=22), supported housing (N=35) or floating outreach (N=30). **Characteristics**	**Factors** A multivariable analysis of factors predicting successfully moving on included: QuIRC-SA domains (social interface, human rights, recovery-based practice), participant age, whether the	**Details** The outcome of having 'successfully moved on' was defined as the proportion of participants who moved to more independent accommodation without placement breakdown over the 30-month follow-up	**Results** 243/586 (41.5%) participants successfully moved on to less supported accommodation (residential care 15/146 [10.3%], supported housing 96/244 [39.3%],	**Limitations** Assessment of risk of bias using Quality in prognostic studies(QUIPS) risk of bias assessment tool: 1) Study participation: The study sample represents the population of interest on key characteristics. The baseline study sample is adequately described for key

Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
Shepherd., S, Eldridge and M, King., Predictors of moving on from mental health supported accommodation in England: national cohort study., The British journal of psychiatry, 1-7, 2019 Ref Id 1013731 **Country/ies where the study was carried out** UK **Study type** Prospective cohort study **Aim of the study** To investigating service user and service factors which predict outcomes for users of mental health supported accommodation. **Study dates**	Location of supported accommodation was: residential care (N=159 service users), supported housing (N=251) or floating outreach (N=209). 66% were male, 81% were white, 3% were in paid employment. Diagnosis was 53% schizophrenia, 9% schizoaffective disorder, 6% bipolar disorder, 21% depression or anxiety, 11% other. **Inclusion criteria** Service users participating in the national survey component of the QuEST programme were eligible. In 2013 - 2014 the QuEST programme recruited 619 users of mental health supported accommodation across England (159 residential care, 251 supported housing, 209 floating outreach), randomly sampled from	participant had psychosis, length of stay with service in months, LSP total at baseline, CANSAS unmet needs at baseline, SPRS total at baseline, drug use assessed by CADs at baseline, self-neglect and/or vulnerability to exploitation.	period. Since floating outreach is provided to people living in a permanent tenancy, the primary outcome for this group was defined as managing with fewer hours of support per week rather than moving home. The analysis used a logistic mixed-effects model which was fitted in Stata, using xtmelogit, with a random intercept for service and a fixed effect for area as this was used in the sampling frame as a design variable.	floating outreach 132/196 [67.3%]) Association of service variables and primary outcome: QuIRC-SA social interface domain score, OR 0.95 (95% CI 0.91, 0.98) QuIRC-SA human rights domain score, OR 1.09 (1.02, 1.16) QuIRC-SA recovery-based practice domain score, OR 1.04 (1.00, 1.08)	characteristics.Inclusion and exclusion criteria are adequately described.There is adequate participation in the study by eligible individuals. 2) Study attrition: those included only 5% were lost to follow-up over 30 months. 3) Prognostic factor measurement: A clear description of prognostic factors is provided. Only those prognostic factors which could be reliably measured are included. The method and setting of measurement of prognostic factor is the same for all study participants.Adequate proportion of the study sample has complete data for prognostic factor variable. 4) Outcome measurement: Outcomes are clearly defined.The method and setting of outcome measurement is the same for all study participants. 5) Study confounding: Potential confounders are accounted for in the analysis.

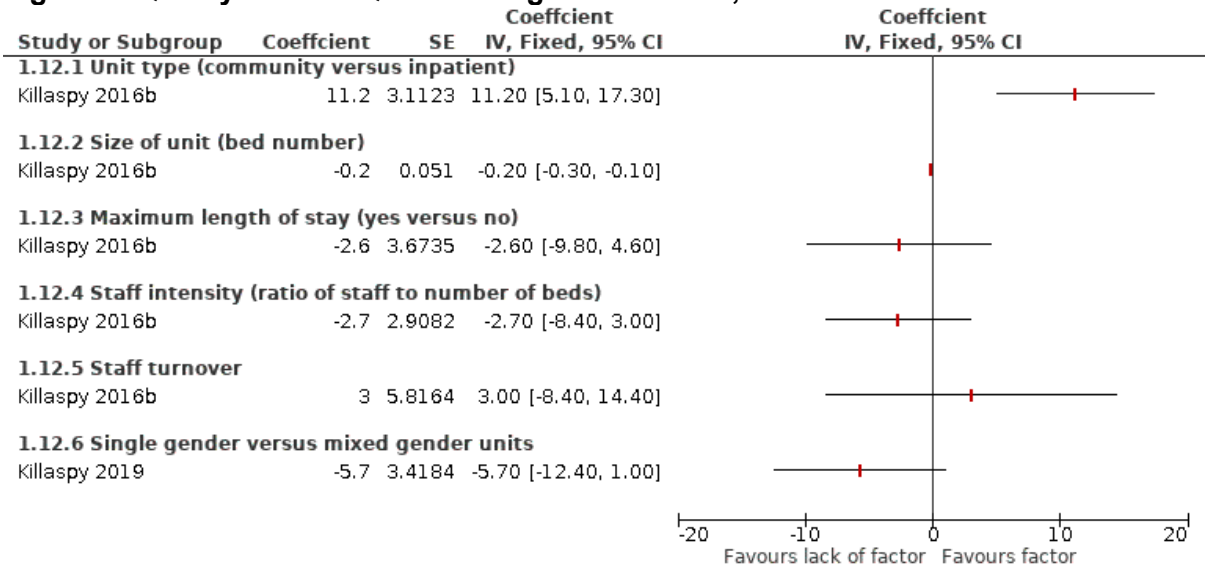
Study details	Participants	Prognostic factors	Methods	Outcomes and results	Comments
2013-2014 recruitment (then 30 month follow-up) **Source of funding** National Institute of Health Research (RP-PG-0610-10097)	87 services (22 residential care, 24 supported housing, 25 floating outreach). These services were randomly sampled from 14 nationally representative local authority areas, using an index developed by. A mean of seven service users were recruited per service. **Exclusion criteria** None reported.				6) Statistical analysis and reporting: Multivariate analysis is reported High quality. **Other information**

CADS: Clinician Alcohol and Drug Scale; CANSAS Camberwell Assessment of Needs Short Assessment Scale; GAF: global assessment of function; GMI: general milieu index; ICM: intensive case management; IFACT: Index of Fidelity to Assertive Community Treatment; LSP: life skills profile; MANSA: Manchester Short Assessment of Quality of Life; QuIRC: Quality Indicator for Rehabilitative Care; QuIRC-SA: Quality Indicator for Rehabilitative Care –Supported Accommodation; QUIPS: quality in prognostic studies; RCS: resident choice scale; YTC: your treatment and care

Appendix E – Forest plots

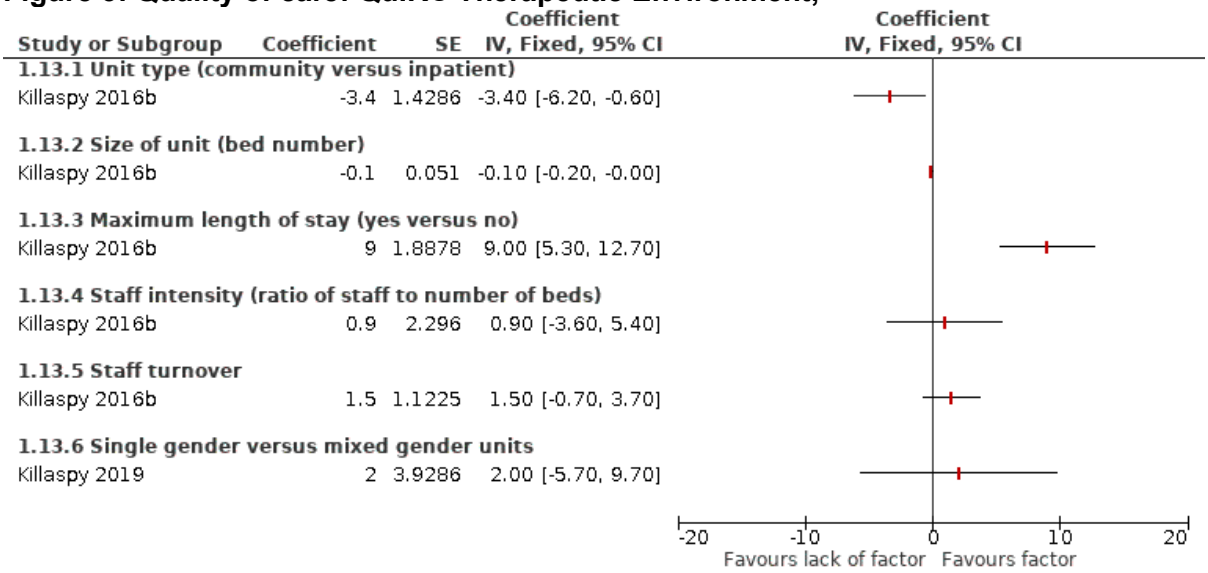
Forest plots for review question 2.3: What are the required components of an effective rehabilitation pathway?

Figure 2: Quality of care: QuIRC Living Environment;



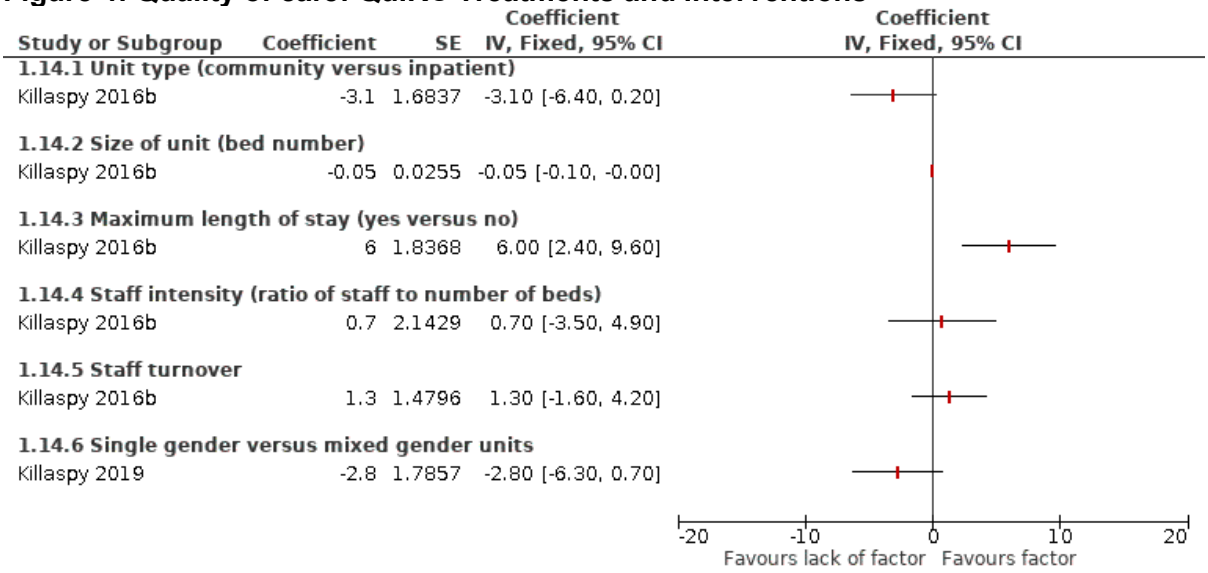
CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care;

Figure 3: Quality of care: QuIRC Therapeutic Environment;



CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care

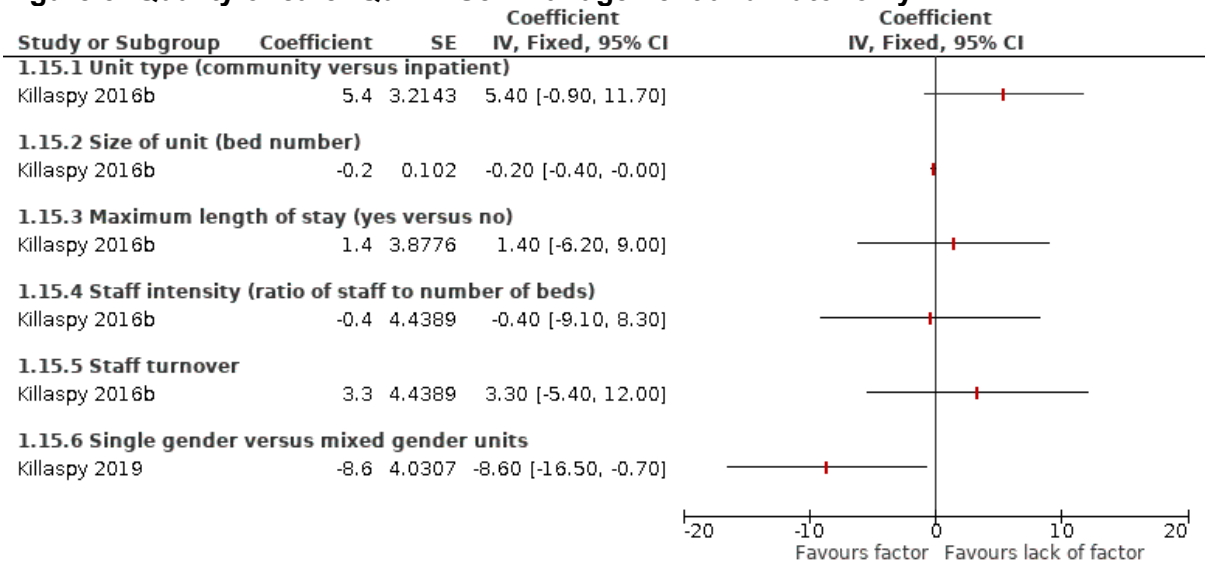
Figure 4: Quality of care: QuIRC Treatments and Interventions



CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care

1

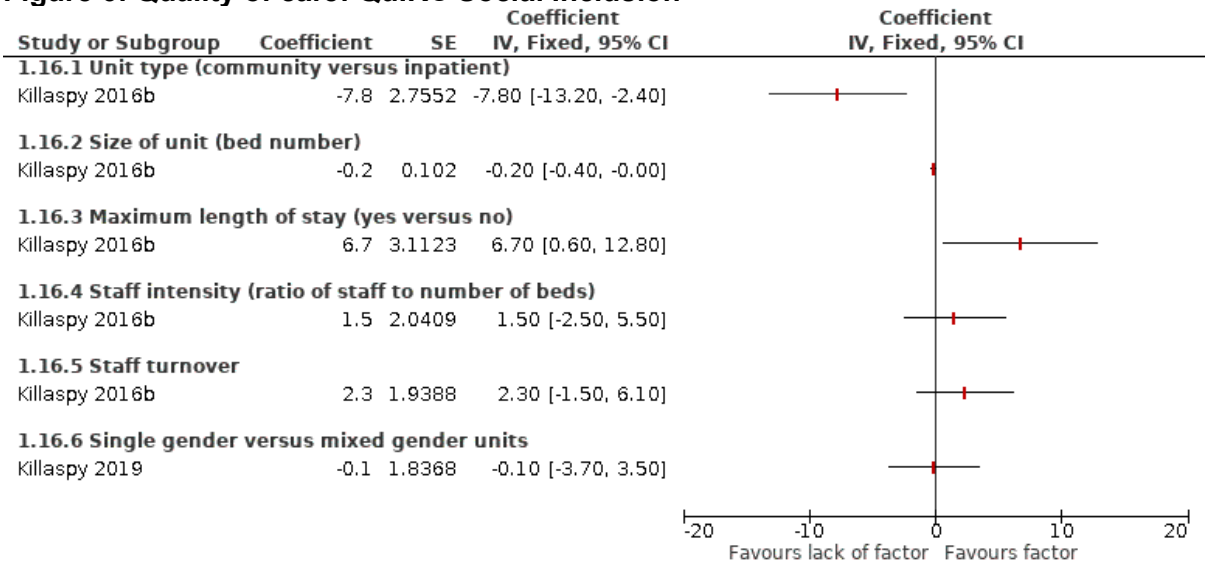
Figure 5: Quality of care: QuIRC Self-Management and Autonomy



CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care

2

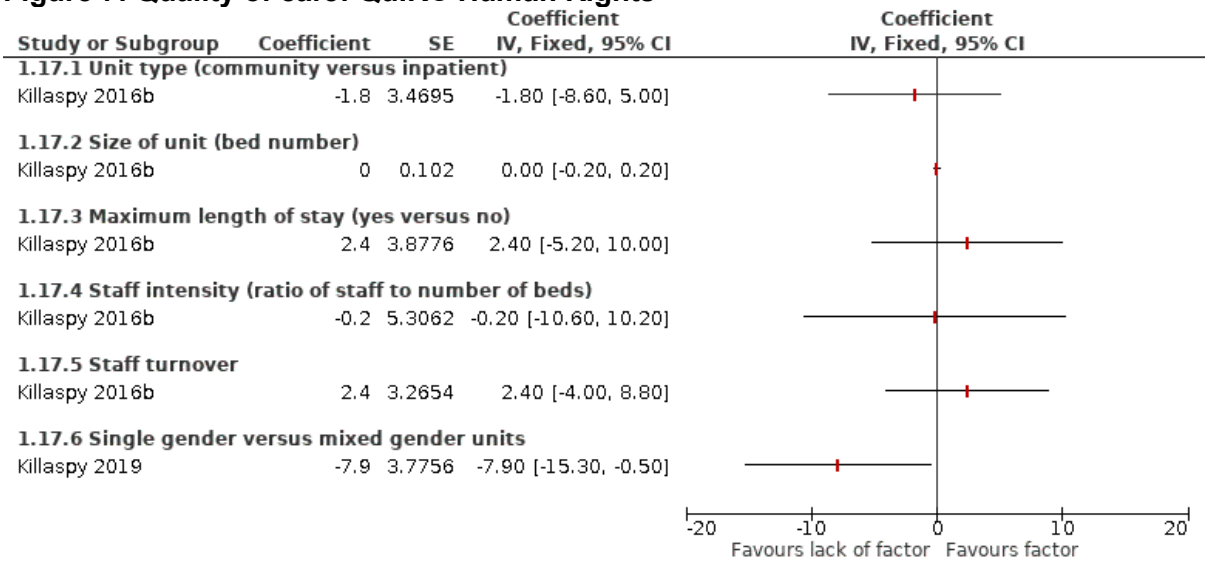
Figure 6: Quality of care: QuIRC Social Inclusion



CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care

1

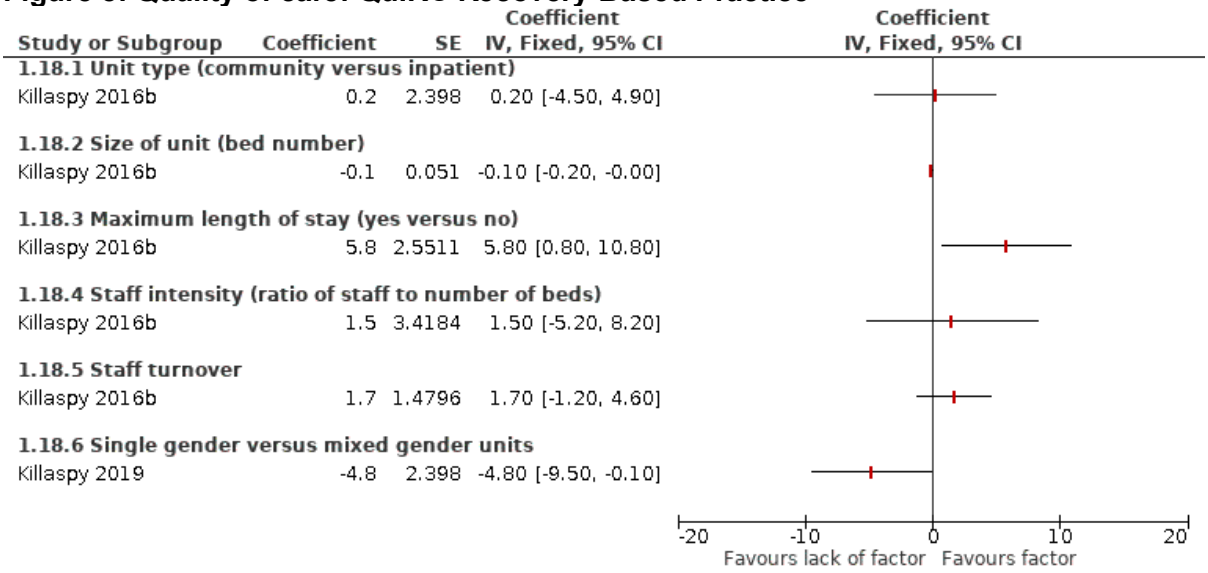
Figure 7: Quality of care: QuIRC Human Rights



CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care

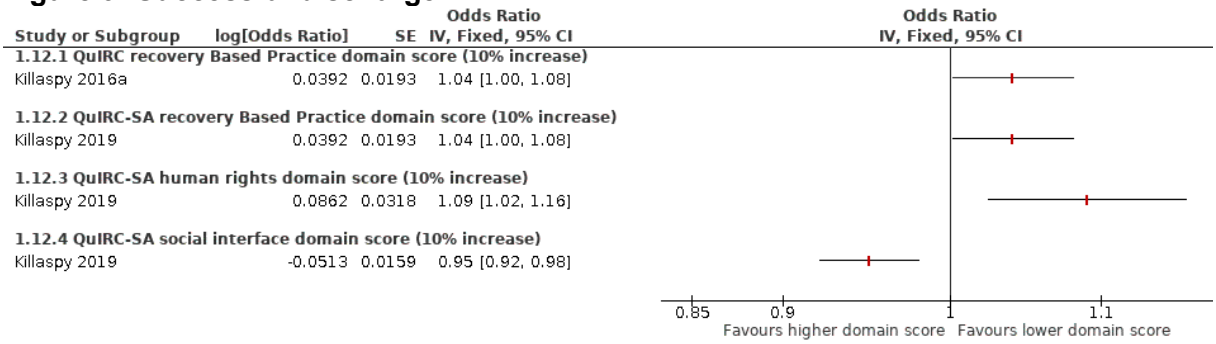
2

Figure 8: Quality of care: QuIRC Recovery-Based Practice



CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care

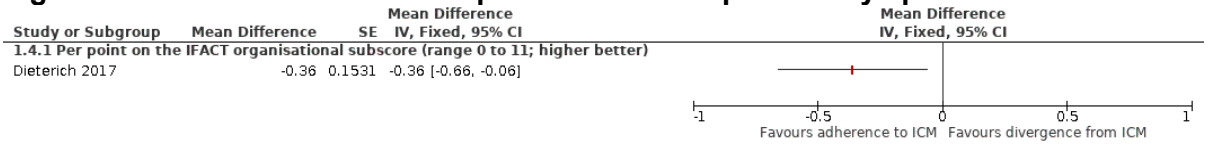
Figure 9: Successful discharge.



CI: confidence interval; IV: inverse variance; QuIRC (SA) : Quality Indicator for Rehabilitative Care (Supported Accommodation); SE: standard error;

1

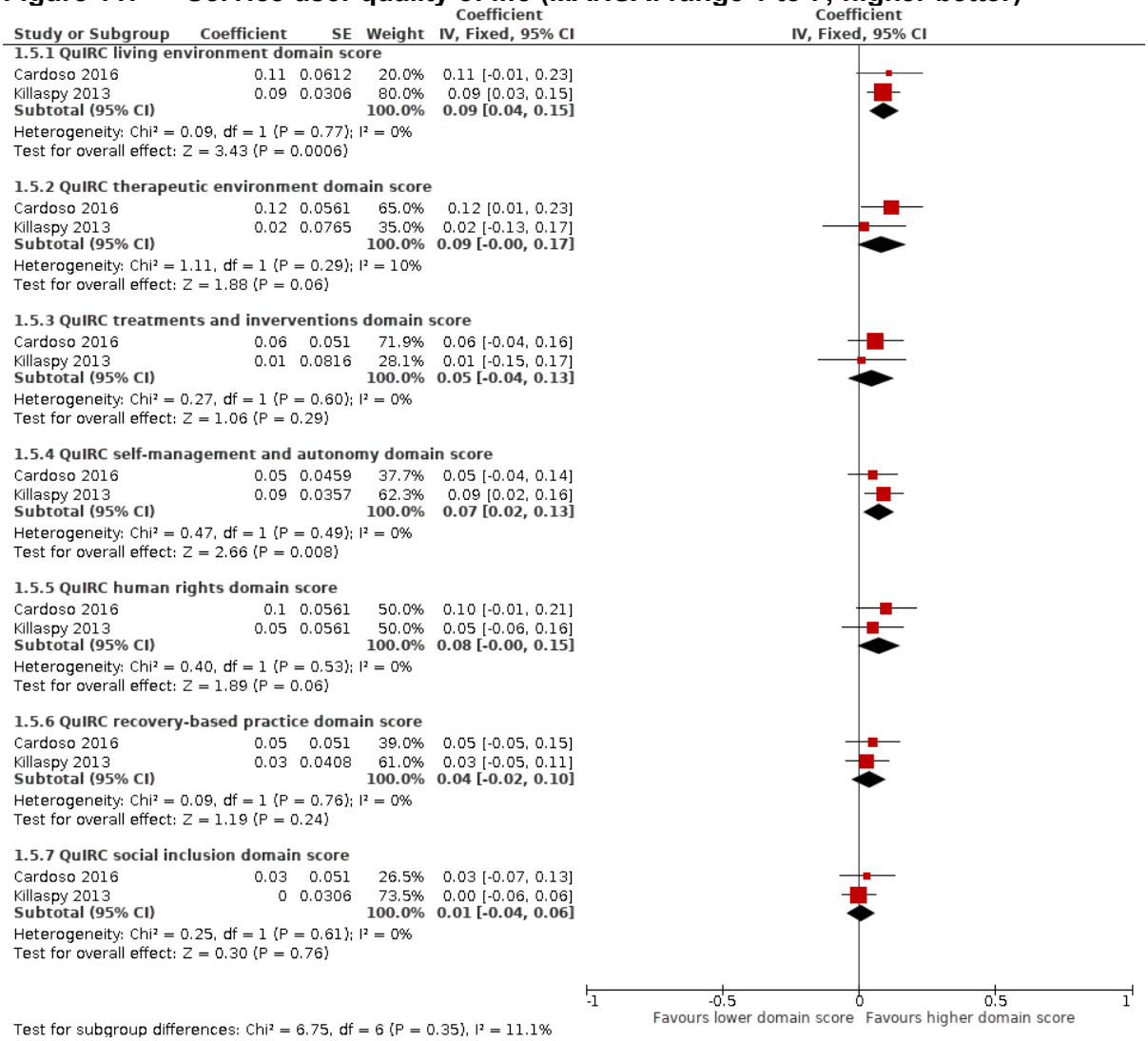
Figure 10: Readmission or relapse: number of inpatient days per month



CI: confidence interval; IFACT: Index of Fidelity to Assertive Community Treatment

2

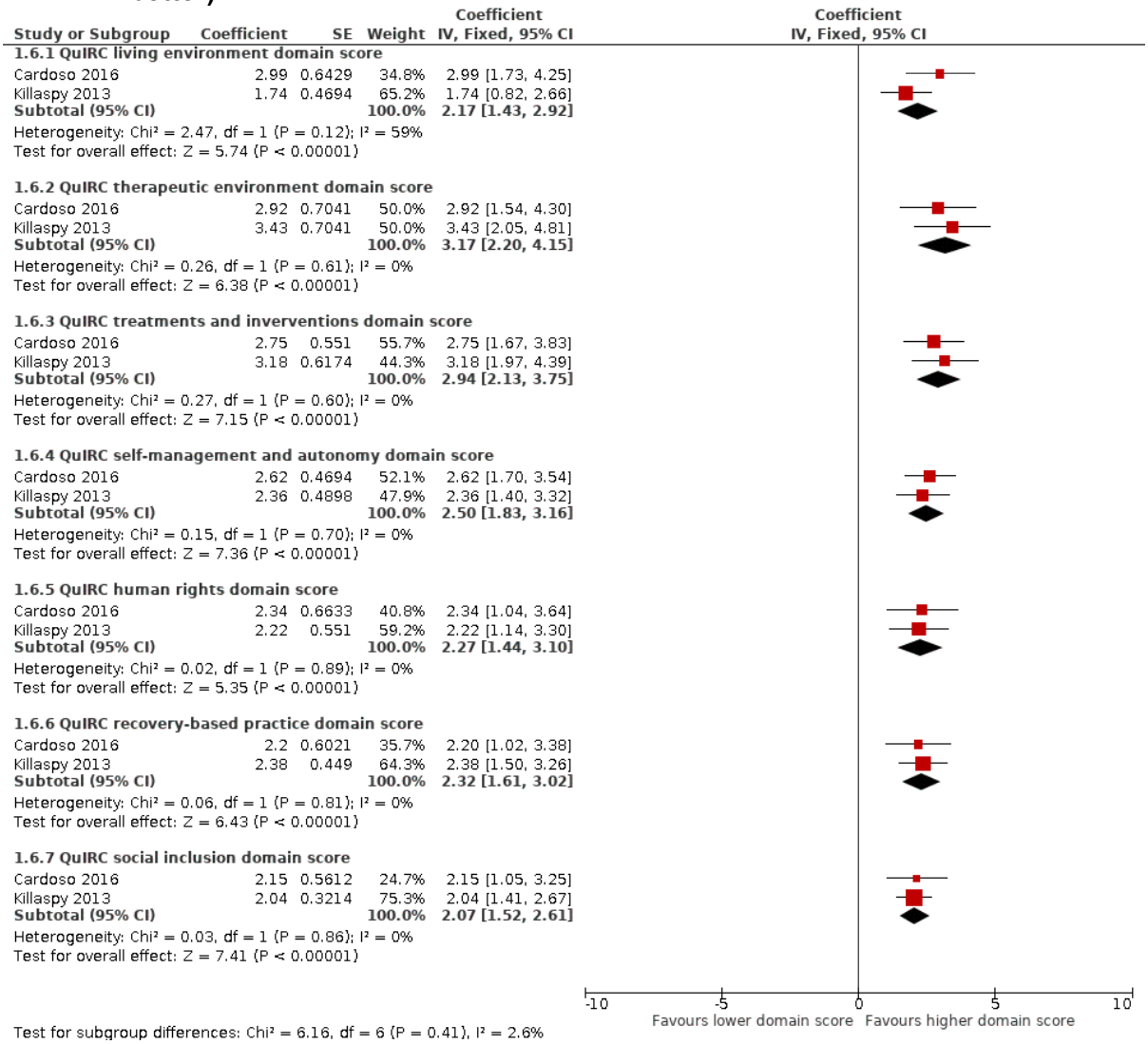
Figure 11: Service user quality of life (MANSA: range 1 to 7; higher better)



CI: confidence interval; QuIRC : IV: inverse variance; Quality Indicator for Rehabilitative Care; SE: standard error;

1

Figure 12: Service user autonomy (Resident Choice scale; range 0 to 88; higher better)

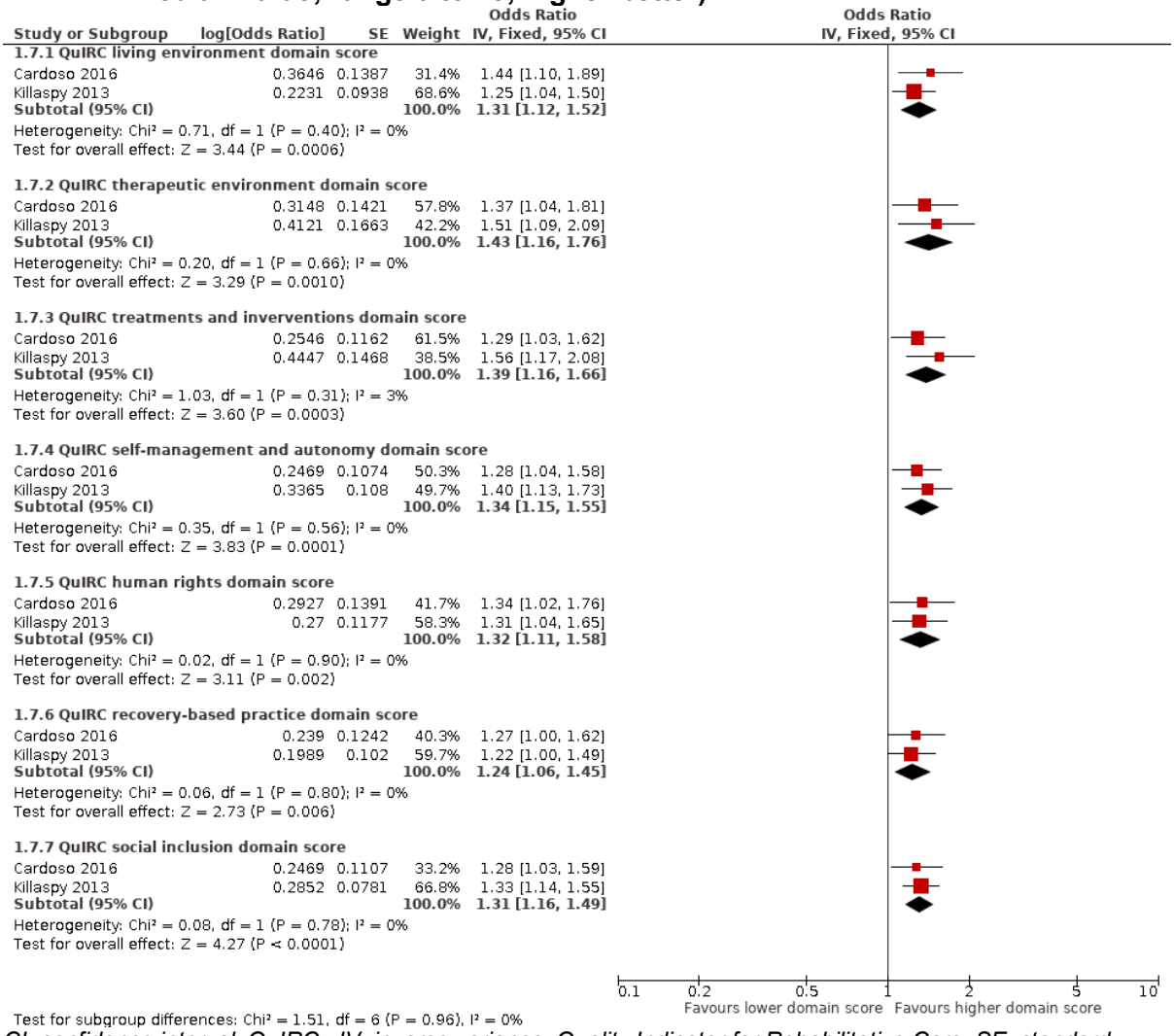


CI: confidence interval; QuIRC : IV: inverse variance; Quality Indicator for Rehabilitative Care; SE: standard error;

Due to heterogeneity a random-effects model was used for QuIRC living environment domain score, this gave pooled coefficient of 2.29 [1.07, 3.50]

1

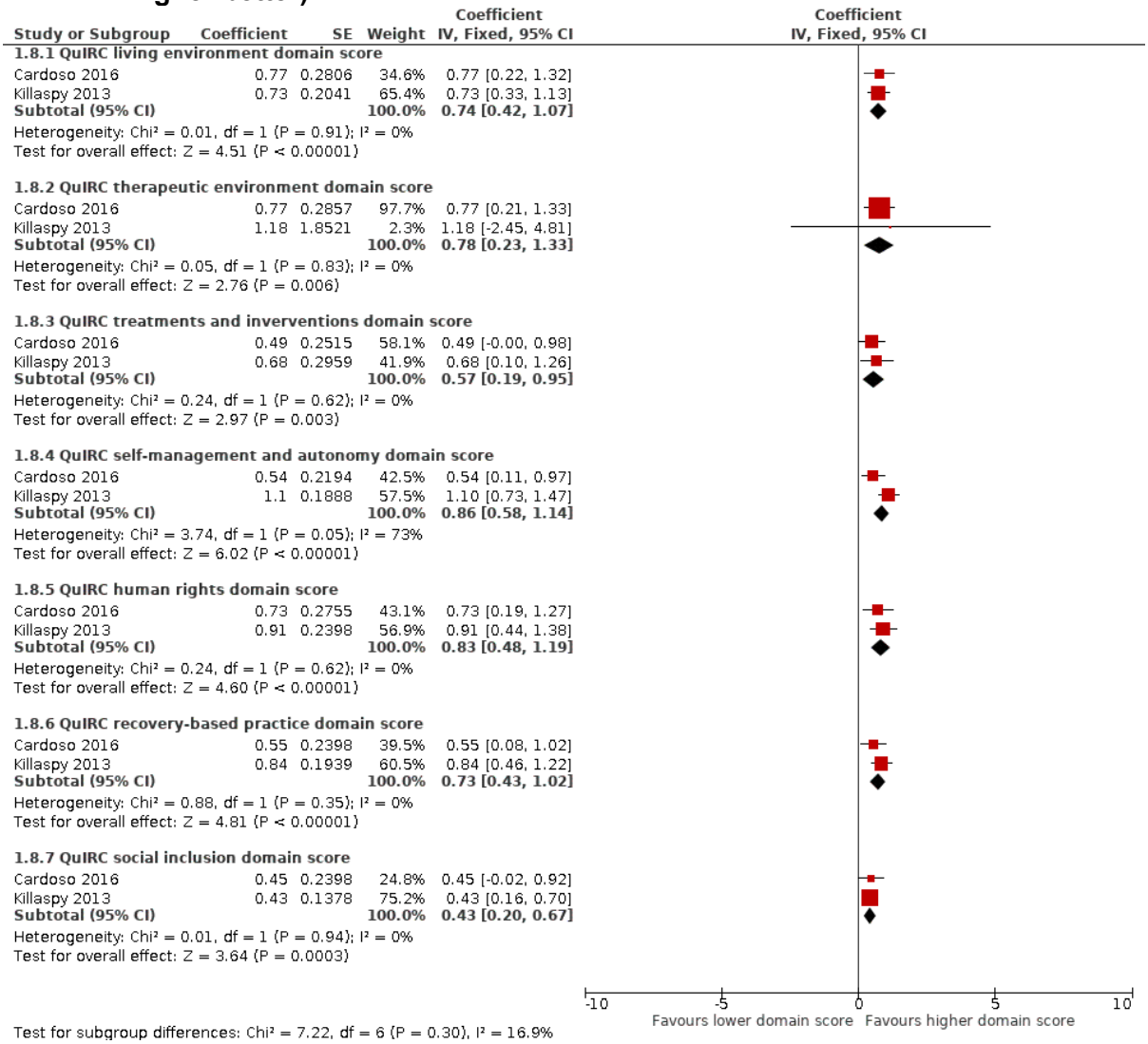
Figure 13: Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better)



CI: confidence interval; QuIRC : IV: inverse variance; Quality Indicator for Rehabilitative Care; SE: standard error;

1

Figure 14: Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better)

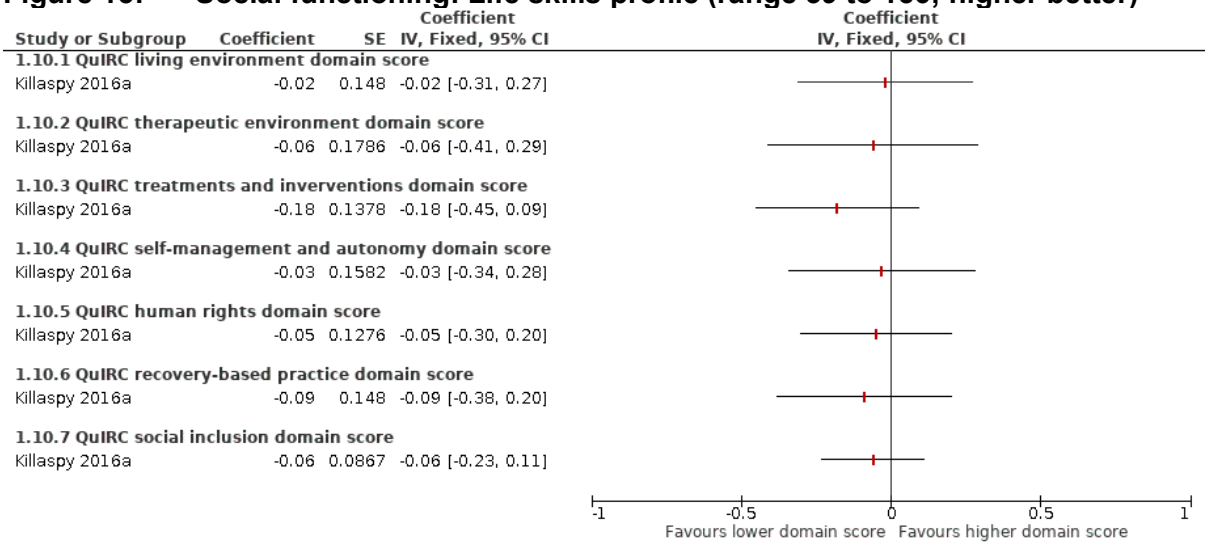


CI: confidence interval; QuIRC : IV: inverse variance; Quality Indicator for Rehabilitative Care; SE: standard error;

Due to heterogeneity a random-effects model was used for QuIRC self-management and autonomy domain score, this gave pooled coefficient of 0.83 [0.28, 1.38]

1

Figure 15: Social functioning: Life skills profile (range 39 to 156; higher better)



CI: confidence interval; QuIRC : IV: inverse variance; Quality Indicator for Rehabilitative Care; SE: standard error;

1

2

1 Appendix F – GRADE tables

2 GRADE tables for review question 2.3: What are the required components of an effective rehabilitation pathway?

3 **Table 5: Clinical evidence profile for predictors of service quality: QuIRC domain: living environment**

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of rehab units**	**Relative**	**Absolute [95% CI]**	**Quality**	**Importance**
QuIRC domain: living environment - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b= 11.20 [5.10, 17.30]	High	Important
QuIRC domain: living environment - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b= -0.20 [-0.30, -0.10]	High	Important
QuIRC domain: living environment - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= -2.60 [-9.80, 4.60]	Low	Important
QuIRC domain: living environment - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= -2.70 [-8.40, 3.00]	Low	Important
QuIRC domain: living environment - Staff turnover (proportion who left in the previous two years) (range 0 to 100%; better indicated by higher values)											

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of rehab units**	**Relative**	**Absolute [95% CI]**	**Quality**	**Importance**
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= 3.00 [-8.40, 14.40]	Low	Important
QuIRC domain: living environment - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b= -5.70 [-12.40, 1.00]	Moderate	Important

b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care
1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%)
2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)

Table 6: Clinical evidence profile for predictors of service quality: QuIRC domain: therapeutic environment

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of rehab units**	**Relative**	**Absolute [95% CI]**	**Quality**	**Importance**
QuIRC domain: therapeutic environment - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=-3.40 [-6.20, -0.60]	Moderate	Important
QuIRC domain: therapeutic environment - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b=-0.10 [-0.20, -0.00]	High	Important

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of rehab units**	**Relative**	**Absolute [95% CI]**	**Quality**	**Importance**
QuIRC domain: therapeutic environment - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b=9.00 [5.30, 12.70]	High	Important
QuIRC domain: therapeutic environment - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b=0.90 [-3.60, 5.40]	Low	Important
QuIRC domain: therapeutic environment - Staff turnover (proportion who left in the previous two years) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=1.50 [-0.70, 3.70]	Moderate	Important
QuIRC domain: therapeutic environment - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b=2.00 [-5.70, 9.70]	Low	Important

b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care
1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%)
2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)

Table 7: Clinical evidence profile for predictors of service quality: QuIRC domain: treatments and interventions

Quality assessment							No of rehab units	Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**		**Relative**	**Absolute [95% CI]**		
QuIRC domain: treatments and interventions - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=-3.10 [-6.40, 0.20]	Moderate	Important
QuIRC domain: treatments and interventions - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b=-0.05 [-0.10, -0.00]	High	Important
QuIRC domain: treatments and interventions - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b=6.00 [2.40, 9.60]	High	Important
QuIRC domain: treatments and interventions - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b=0.70 [-3.50, 4.90]	Low	Important
QuIRC domain: treatments and interventions - Staff turnover (proportion who left in the previous two years) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=1.30 [-1.60, 4.20]	Moderate	Important
QuIRC domain: treatments and interventions - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											

Quality assessment							No of rehab units	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative	Absolute [95% CI]		
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=-2.80 [-6.30, 0.70]	Moderate	Important

b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care
1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%)
2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)

Table 8: Clinical evidence profile for predictors of service quality: QuIRC domain: self-management and autonomy

Quality assessment							No of rehab units	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative	Absolute [95% CI]		
QuIRC domain: self-management and autonomy - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	5.40 [-0.90, 11.70]	Moderate	Important
QuIRC domain: self-management and autonomy - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	-0.20 [-0.40, -0.00]	High	Important
QuIRC domain: self-management and autonomy - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	1.40 [-6.20, 9.00]	Low	Important

Quality assessment							No of rehab units	Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**		**Relative**	**Absolute [95% CI]**		
QuIRC domain: self-management and autonomy - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	-0.40 [-9.10, 8.30]	Low	Important
QuIRC domain: self-management and autonomy - Staff turnover (proportion who left in the previous two years) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	3.30 [-5.40, 12.00]	Low	Important
QuIRC domain: self-management and autonomy - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	-8.60 [-16.50, -0.70]	Moderate	Important

1 *b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care*
2 *1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%) %)*
3 *2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)*

4 **Table 9: Clinical evidence profile for predictors of service quality: QuIRC domain: social interface**

Quality assessment							No of rehab units	Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**		**Relative**	**Absolute [95% CI]**		
QuIRC domain: social interface - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											

Quality assessment							No of rehab units	Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**		**Relative**	**Absolute [95% CI]**		
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	-7.80 [-13.20, -2.40]	High	Important
QuIRC domain: social interface - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	-0.20 [-0.40, -0.00]	High	Important
QuIRC domain: social interface - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	6.70 [0.60, 12.80]	Moderate	Important
QuIRC domain: social interface - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	1.50 [-2.50, 5.50]	Low	Important
QuIRC domain: social interface - Staff turnover (proportion who left in the previous two years) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	2.30 [-1.50, 6.10]	Low	Important
QuIRC domain: social interface - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	-0.10 [-3.70, 3.50]	Low	Important

b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care
1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%)
2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)

Table 10: Clinical evidence profile for predictors of service quality: QuIRC domain: human rights

Quality assessment							No of units	Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**		**Relative**	**Absolute [95% CI]**		
QuIRC domain: human rights - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= -1.80 [-8.60, 5.00]	Low	Important
QuIRC domain: human rights - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b= 0.00 [-0.20, 0.20]	High	Important
QuIRC domain: human rights - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= 2.40 [-5.20, 10.00]	Low	Important
QuIRC domain: human rights - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= -0.20 [-10.60, 10.20]	Low	Important
QuIRC domain: human rights - Staff turnover (proportion who left in the previous two years) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b= 2.40 [-4.00, 8.80]	Low	Important

Quality assessment							No of units	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative	Absolute [95% CI]		
QuIRC domain: human rights - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											
0	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=-7.90 [-15.30, -0.50]	Moderate	Important

1 *b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care*
2 *1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%)*
3 *2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)*

4 **Table 11: Clinical evidence profile for predictors of service quality: QuIRC domain: recovery based practice**

Quality assessment							No of units	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative	Absolute [95% CI]		
QuIRC domain: recovery based practice - Unit type (community versus hospital) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b=0.20 [-4.50, 4.90]	Low	Important
QuIRC domain: recovery based practice - Size of unit (bed number) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	213	-	b=-0.10 [-0.20,-0.00]	High	Important
QuIRC domain: recovery based practice - Maximum length of stay (yes versus no) (range 0 to 100%; better indicated by higher values)											

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of units**	**Relative**	**Absolute [95% CI]**	**Quality**	**Importance**
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=5.80 [0.80, 10.80]	Moderate	Important
QuIRC domain: recovery based practice - Staff intensity (ratio of staff to number of beds) (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	213	-	b=1.50 [-5.20, 8.20]	Low	Important
QuIRC domain: recovery based practice - Staff turnover (proportion who left in the previous two years). (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=1.70 [-1.20,4.60]	Moderate	Important
QuIRC domain: recovery based practice - Single gender versus mixed gender units (range 0 to 100%; better indicated by higher values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	213	-	b=-4.80 [-9.50, -0.10]	Moderate	Important

1 *b: unstandardized regression coefficient; CI: confidence interval; QuIRC: Quality Indicator for Rehabilitative Care*
2 *1 downgraded 1 level as the confidence interval includes either the upper or lower MID threshold (±2%)*
3 *2 downgraded 2 levels as the confidence interval includes both upper and lower MID thresholds (±2%)*

4

Table 12: Clinical evidence profile for predictors of successful discharge from rehabilitation

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Successful discharge from rehab - QuIRC Recovery Based Practice domain score (per 10% increase)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	362	OR 1.04 [1.00, 1.08]	-	Moderate	Critical
Successful discharge from rehab – QuIRC-SA Recovery Based Practice domain score (per 10% increase)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	619	OR 1.04 [1.00, 1.08]	-	Moderate	Critical
Successful discharge from rehab – QuIRC-SA Human Rights domain score (per 10% increase)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	619	OR 1.09 [1.02, 1.16]	-	Moderate	Critical
Successful discharge from rehab - QuIRC Social Interface domain score (per 10% increase)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	619	OR 0.95 [0.92, 0.98]	-	Moderate	Critical

CI: confidence interval; OR: odds ratio; QuIRC(-SA): Quality Indicator for Rehabilitative Care (Supported Accommodation)

1 downgraded 1 level as imprecision could not be assessed

Table 13: Clinical evidence profile for predictors of readmission or relapse

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Readmission or relapse: (inpatient days per month) - Per point on the IFACT organisational subscore (range 0 to 11; higher better) (Better indicated by lower values)											
21	RCTs	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	2220	-	MD -0.36 (-0.66 to -0.06)	Moderate	Critical

CI: confidence interval; IFACT: Index of Fidelity to Assertive Community Treatment; MD: mean difference
1 downgraded one level as potential confounders were not accounted for in the analysis

Table 14: Clinical evidence profile for predictors of service user quality of life

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Service user quality of life (MANSA: range 1 to 7; higher better) – per 10% increase in QuIRC living environment domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.09 higher (0.04 to 0.15 higher)	High	Important
Service user quality of life (MANSA: range 1 to 7; higher better) - per 10% increase in QuIRC therapeutic environment domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.09 higher (0 to 0.17 higher)	High	Important

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Service user quality of life (MANSA: range 1 to 7; higher better) - per 10% increase in QuIRC treatments and interventions domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.05 higher (0.04 lower to 0.13 higher)	High	Important
Service user quality of life (MANSA: range 1 to 7; higher better) - per 10% increase in QuIRC self-management and autonomy domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.07 higher (0.02 to 0.13 higher)	High	Important
Service user quality of life (MANSA: range 1 to 7; higher better) - per 10% increase in QuIRC human rights domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.08 higher (0 to 0.15 higher)	High	Important
Service user quality of life (MANSA: range 1 to 7; higher better) - per 10% increase in QuIRC recovery-based practice domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.04 higher (0.02 lower to 0.1 higher)	High	Important
Service user quality of life (MANSA: range 1 to 7; higher better) - QuIRC social inclusion domain score (Better indicated by lower values)											

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.01 higher (0.04 lower to 0.06 higher)	High	Important

CI: confidence interval; MANSA: Manchester Short Assessment of Quality of Life; QuIRC: Quality Indicator for Rehabilitative Care;

Table 15: Clinical evidence profile for predictors of service user autonomy

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC living environment domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	2.29 higher (1.07 to 3.50 higher)	High	Important
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC therapeutic environment domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	3.17 higher (2.2 to	High	Important

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
									4.15 higher)		
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC treatments and interventions domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	2.94 higher (2.13 to 3.75 higher)	High	Important
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC self-management and autonomy domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	2.5 higher (1.83 to 3.16 higher)	High	Important
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC human rights domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	2.27 higher (1.44 to 3.1 higher)	High	Important
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC recovery-based practice domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	2.32 higher (1.61 to 3.02 higher)	High	Important
Service user autonomy (Resident Choice scale; range 0 to 88; higher better) - per 10% increase in QuIRC social inclusion domain score											

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	2.07 higher (1.52 to 2.61 higher)	High	Important

CI: confidence interval; OR: odds ratio; QuIRC: Quality Indicator for Rehabilitative Care

Table 16: Clinical evidence profile for predictors of service user experience of care

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC living environment domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.31 (1.12 to 1.52)	-	Moderate	Important
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC therapeutic environment domain score											

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.43 (1.16 to 1.76)	-	Moderate	Important
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC treatments and interventions domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.39 (1.16 to 1.66)	-	Moderate	Important
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC self-management and autonomy domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.34 (1.15 to 1.55)	-	Moderate	Important
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC human rights domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.32 (1.11 to 1.58)	-	Moderate	Important
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC recovery-based practice domain score											

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.24 (1.06 to 1.45)	-	Moderate	Important
Service user experience of care (Your Treatment and Care score above median value; range 0 to 25; higher better) - QuIRC social inclusion domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	OR 1.31 (1.16 to 1.49)	-	Moderate	Important

CI: confidence interval; OR: odds ratio; QuIRC: Quality Indicator for Rehabilitative Care
1 Downgraded 1 level as imprecision could not be assessed.

Table 17: Clinical evidence profile for predictors of service user satisfaction with care

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC living environment domain score											

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	-	0.74 higher (0.42 to 1.07 higher)	Moderate	Important
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC therapeutic environment domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	-	0.78 higher (0.23 to 1.33 higher)	Moderate	Important
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC treatments and interventions domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.57 higher (0.19 to 0.95 higher)	High	Important
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC self-management and autonomy domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	-	0.83 higher (0.28 to 1.38 higher)	Moderate	Important
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC human rights domain score											
2	observational studies	no serious	no serious	no serious indirectness	serious[1]	none	1017	-	0.83 higher	Moderate	Important

Quality assessment							No of patients	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (95% CI)	Absolute		
		risk of bias	inconsistency						(0.48 to 1.19 higher)		
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC recovery-based practice domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	1017	-	0.73 higher (0.43 to 1.02 higher)	Moderate	Important
Service user satisfaction with care (General Milieu Index; range 1 to 5; higher better) - per 10% increase in QuIRC social inclusion domain score											
2	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	1017	-	0.43 higher (0.2 to 0.67 higher)	High	Important

1 *CI: confidence interval; OR: odds ratio; QuIRC: Quality Indicator for Rehabilitative Care*
2 *1 Downgraded as effect includes 1 MID (assumed 1 point on the General Milieu Index scale)*

3

Table 18: Clinical evidence profile for predictors of social functioning

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of patients**	**Relative (95% CI)**	**Absolute**	**Quality**	**Importance**
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC living environment domain score											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.02 lower (0.31 lower to 0.27 higher)	High	Important
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC therapeutic environment domain score											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.06 lower (0.41 lower to 0.29 higher)	High	Important
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC treatments and interventions domain score											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.18 lower (0.45 lower to 0.09 higher)	High	Important
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC self-management and autonomy domain score											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.03 lower (0.34 lower to	High	Important

Quality assessment								Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**No of patients**	**Relative (95% CI)**	**Absolute**	**Quality**	**Importance**
									0.28 higher)		
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC human rights domain score (Better indicated by lower values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.05 lower (0.30 lower to 0.20 higher)	High	Important
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC recovery-based practice domain score (Better indicated by lower values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.09 lower (0.38 lower to 0.20 higher)	High	Important
Social functioning (Life skills profile; range 39 to 156; higher better) - QuIRC social inclusion domain score (Better indicated by lower values)											
1	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	362	-	0.06 lower (0.23 lower to 0.11 higher)	High	Important

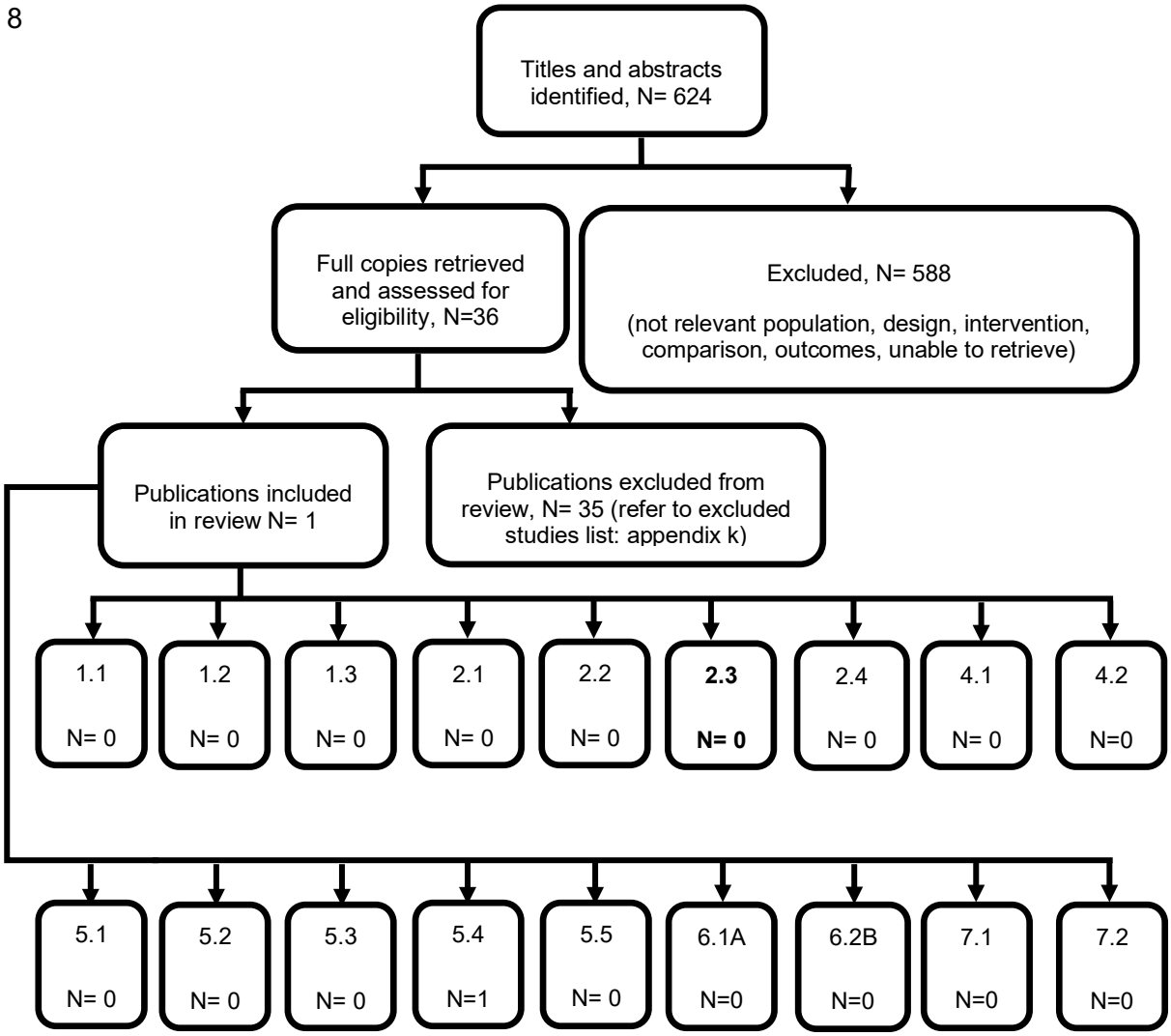
CI: confidence interval; OR: odds ratio; QuIRC: Quality Indicator for Rehabilitative Care

Appendix G – Economic evidence study selection

Economic evidence study selection for review question 2.3: What are the required components of an effective rehabilitation pathway?

A global health economic literature search was undertaken, covering all review questions in this guideline. However, as shown in Figure 16, no evidence was identified which was applicable for review question 2.3.

Figure 16: Health economic study selection flow chart



Appendix H – Economic evidence tables

Economic evidence tables for review question 2.3: What are the required components of an effective rehabilitation pathway?

No evidence was identified which was applicable to this review question.

Appendix I – Economic evidence profiles

Economic evidence profiles for review question 2.3: What are the required components of an effective rehabilitation pathway?

No evidence was identified which was applicable to this review question.

Appendix J – Economic analysis

Economic evidence analysis for review question 2.3: What are the required components of an effective rehabilitation pathway?

No economic analysis was conducted for this review question.

1 Appendix K – Excluded studies

2 Excluded clinical and economic studies for review question 2.3: What are the 3 required components of an effective rehabilitation pathway?

4 Clinical studies

5 **Table 19: Excluded studies and reasons for their exclusion**

Study	Reason for Exclusion
Bredski, J., Watson, A., Mountain, D. A., Clunie, F., Lawrie, S. M., The prediction of discharge from in-patient psychiatric rehabilitation: A case-control study, BMC Psychiatry, 11 (no pagination), 2011	Does not analyse characteristics of rehabilitation service.
Gee, M., Bhanbhro, S., Cook, S., Killaspy, H., Rapid realist review of the evidence: achieving lasting change when mental health rehabilitation staff undertake recovery-oriented training, Journal of advanced nursing, 73, 1775-1791, 2017	Systematic review of factors which moderate the success of recovery-based training.
Killaspy, H., Marston, L., Green, N., Harrison, I., Lean, M., Cook, S., Mundy, T., Craig, T., Holloway, F., Leavey, G., Koeser, L., McCrone, P., Arbuthnott, M., Omar, R. Z., King, M., Clinical effectiveness of a staff training intervention in mental health inpatient rehabilitation units designed to increase patients' engagement in activities (the Rehabilitation Effectiveness for Activities for Life [REAL] study): Single-blind, cluster-randomised controlled trial, The lancet psychiatry, 2, 38-48, 2015	Exclude - RCT of staff training intervention.
Killaspy, H., Priebe, S., Bremner, S., McCrone, P., Dowling, S., Harrison, I., Krotofil, J., McPherson, P., Sandhu, S., Arbuthnott, M., Curtis, S., Leavey, G., Shepherd, G., Eldridge, S., King, M., Quality of life, autonomy, satisfaction, and costs associated with mental health supported accommodation services in England: a national survey, The lancet. Psychiatry, 3, 1129-1137, 2016	Compares supported accommodation services (residential care, supported housing, and floating outreach).
Killaspy, H., White, S., Wright, C., Taylor, T. L., Turton, P., Schutzwohl, M., Schuster, M., Cervilla, J. A., Brangier, P., Raboch, J., Kalisova, L., Onchev, G., Alexiev, S., Mezzina, R., Ridente, P., Wiersma, D., Visser, E., Kiejna, A., Adamowski, T., Ploumpidis, D., Gonidakis, F., Caldas-de-Almeida, J., Cardoso, G., King, M. B., The development of the Quality Indicator for Rehabilitative Care (QuIRC): A measure of best practice for facilities for people with longer term mental health problems, BMC Psychiatry, 11 (no pagination), 2011	Development of the Quality Indicator for Rehabilitative Care measure - patient or service outcomes not reported.
Lim, Caroline, Barrio, Concepcion, Hernandez, Mercedes, Barragan, Armando, Brekke, John S., Recovery from schizophrenia in community-based psychosocial rehabilitation settings: Rates and predictors, Research on Social Work Practice, 27, 538-551, 2017	Patient characteristics only - service characteristics not analysed.
Lucca, A. M., Allen, G. J., A statewide assessment of psychosocial rehabilitation programs: General characteristics and services, Psychiatric rehabilitation journal, 24, 205-213, 2001	Patient or service outcomes not reported.
Meaden, A., Commander, M., Cowan, C., Edwards, T., Patient engagement and problematic behaviours in nurse-staffed residential rehabilitation units, Psychiatrist, 38, 260-264, 2014	Does not report predictive factors for patient or service outcomes.
Nolting, Jeffrey R., Serious mental illness: Characteristics of state hospital organizational structures supportive of rehabilitation and recovery, Dissertation Abstracts International: Section B: The Sciences and Engineering, 72, 1171, 2011	PhD thesis - case study of a single rehab unit.

Study	Reason for Exclusion
Parker, S., Hopkins, G., Siskind, D., Harris, M., McKeon, G., Dark, F., Whiteford, H., A systematic review of service models and evidence relating to the clinically operated community-based residential mental health rehabilitation for adults with severe and persisting mental illness in Australia, BMC Psychiatry, 19, 55, 2019	Qualitative systematic review.
Taylor, T. L., Killaspy, H., Wright, C., Turton, P., White, S., Kallert, T. W., Schuster, M., Cervilla, J. A., Brangier, P., Raboch, J., Kalisova, L., Onchev, G., Dimitrov, H., Mezzina, R., Wolf, K., Wiersma, D., Visser, E., Kiejna, A., Piotrowski, P., Ploumpidis, D., Gonidakis, F., Caldas-de-Almeida, J., Cardoso, G., King, M. B., A systematic review of the international published literature relating to quality of institutional care for people with longer term mental health problems, BMC Psychiatry, 9, 55, 2009	Broad systematic review of evidence underpinning QuIRC measure for institutional care quality. Checked for relevant studies.

1 *QuIRC: Quality Indicator for Rehabilitative Care*

2 Economic studies

3 A global economic literature search was undertaken for this guideline, covering all 18 review
4 questions. The table below is a list of excluded studies across the entire guideline and
5 studies listed were not necessarily identified for this review question.

6 **Table 20: Excluded studies from the economic component of the review**

Study	Reason for Exclusion
Aitchison, K J, Kerwin, R W, Cost-effectiveness of clozapine: a UK clinic-based study (Structured abstract), British Journal of PsychiatryBr J Psychiatry, 171, 125-130, 1997	Available as abstract only.
Barnes, T. R., Leeson, V. C., Paton, C., Costelloe, C., Simon, J., Kiss, N., Osborn, D., Killaspy, H., Craig, T. K., Lewis, S., Keown, P., Ismail, S., Crawford, M., Baldwin, D., Lewis, G., Geddes, J., Kumar, M., Pathak, R., Taylor, S., Antidepressant Controlled Trial For Negative Symptoms In Schizophrenia (ACTIONS): a double-blind, placebo-controlled, randomised clinical trial, Health Technology Assessment (Winchester, England)Health Technol Assess, 20, 1-46, 2016	Does not match any review questions considered in the guideline.
Barton, Gr, Hodgekins, J, Mugford, M, Jones, Pb, Croudace, T, Fowler, D, Cognitive behaviour therapy for improving social recovery in psychosis: cost-effectiveness analysis (Structured abstract), Schizophrenia ResearchSchizophr Res, 112, 158-163, 2009	Available as abstract only.
Becker, T., Kilian, R., Psychiatric services for people with severe mental illness across western Europe: what can be generalized from current knowledge about differences in provision, costs and outcomes of mental health care?, Acta Psychiatrica Scandinavica, SupplementumActa Psychiatr Scand Suppl, 9-16, 2006	Not an economic evaluation.
Beecham, J, Knapp, M, McGilloway, S, Kavanagh, S, Fenyo, A, Donnelly, M, Mays, N,	Available as abstract only.

Study	Reason for Exclusion
Leaving hospital II: the cost-effectiveness of community care for former long-stay psychiatric hospital patients (Structured abstract), Journal of Mental HealthJ Ment Health, 5, 379-94, 1996	
Beecham, J., Knapp, M., Fenyo, A., Costs, needs, and outcomes, Schizophrenia BulletinSchizophr Bull, 17, 427-39, 1991	Costing analysis prior to year 2000
Burns, T., Raftery, J., Cost of schizophrenia in a randomized trial of home-based treatment, Schizophrenia BulletinSchizophr Bull, 17, 407-10, 1991	Not an economic evaluation. Date is prior to 2000
Bush, P. W., Drake, R. E., Xie, H., McHugo, G. J., Haslett, W. R., The long-term impact of employment on mental health service use and costs for persons with severe mental illness, Psychiatric ServicesPsychiatr Serv, 60, 1024-31, 2009	A United States costing analysis. Outcomes which relate to the Welfare system differs in substantial ways to a UK context.
Chalamat, M., Mihalopoulos, C., Carter, R., Vos, T., Assessing cost-effectiveness in mental health: vocational rehabilitation for schizophrenia and related conditions, Australian & New Zealand Journal of PsychiatryAust N Z J Psychiatry, 39, 693-700, 2005	Australian cost-benefit analysis - welfare system differs from UK context.
Chan, S., Mackenzie, A., Jacobs, P., Cost-effectiveness analysis of case management versus a routine community care organization for patients with chronic schizophrenia, Archives of Psychiatric NursingArch Psychiatr Nurs, 14, 98-104, 2000	Study conducted in Hong Kong. A costing analysis.
Clark, R. E., Teague, G. B., Ricketts, S. K., Bush, P. W., Xie, H., McGuire, T. G., Drake, R. E., McHugo, G. J., Keller, A. M., Zubkoff, M., Cost-effectiveness of assertive community treatment versus standard case management for persons with co-occurring severe mental illness and substance use disorders, Health Services ResearchHealth Serv Res, 33, 1285-308, 1998	Not cost-utility analysis. Cost-effectiveness analysis but does not consider UK setting. Date of study is prior to year 2000.
Crawford, M. J., Killaspy, H., Barnes, T. R., Barrett, B., Byford, S., Clayton, K., Dinsmore, J., Floyd, S., Hoadley, A., Johnson, T., Kalaitzaki, E., King, M., Leurent, B., Maratos, A., O'Neill, F. A., Osborn, D., Patterson, S., Soteriou, T., Tyrer, P., Waller, D., Matisse project team, Group art therapy as an adjunctive treatment for people with schizophrenia: a randomised controlled trial (MATISSE), Health Technology Assessment (Winchester, England)Health Technol Assess, 16, iii-iv, 1-76, 2012	Study not an economic evaluation.
Dauwalder, J. P., Ciompi, L., Cost-effectiveness over 10 years. A study of community-based social psychiatric care in the 1980s, Social Psychiatry & Psychiatric EpidemiologySoc Psychiatry Psychiatr Epidemiol, 30, 171-84, 1995	Practice has changed somewhat since 1980s - not a cost effectiveness study.

Study	Reason for Exclusion
Garrido, G., Penades, R., Barrios, M., Aragay, N., Ramos, I., Valles, V., Faixa, C., Vendrell, J. M., Computer-assisted cognitive remediation therapy in schizophrenia: Durability of the effects and cost-utility analysis, Psychiatry ResearchPsychiatry Res, 254, 198-204, 2017	Cost effectiveness study, but population of interest is not focussed on rehabilitation for people with complex psychosis.
Hallam, A., Beecham, J., Knapp, M., Fenyo, A., The costs of accommodation and care. Community provision for former long-stay psychiatric hospital patients, European Archives of Psychiatry & Clinical NeuroscienceEur Arch Psychiatry Clin Neurosci, 243, 304-10, 1994	Economic evaluation predates 2000. Organisation and provision of care may have changed by some degree.
Hu, T. W., Jerrell, J., Cost-effectiveness of alternative approaches in treating severely mentally ill in California, Schizophrenia BulletinSchizophr Bull, 17, 461-8, 1991	A United States costing analysis. Outcomes which relate to the Welfare system differs in substantial ways to a UK context.
Jaeger, J., Berns, S., Douglas, E., Creech, B., Glick, B., Kane, J., Community-based vocational rehabilitation: effectiveness and cost impact of a proposed program model.[Erratum appears in Aust N Z J Psychiatry. 2006 Jun-Jul;40(6-7):611], Australian & New Zealand Journal of PsychiatryAust N Z J Psychiatry, 40, 452-61, 2006	Study is a New Zealand based costing analysis of limited applicability to the UK.
Jonsson, D., Walinder, J., Cost-effectiveness of clozapine treatment in therapy-refractory schizophrenia, Acta Psychiatrica ScandinavicaActa Psychiatr Scand, 92, 199-201, 1995	Costing analysis which predates year 2000.
Knapp, M, Patel, A, Curran, C, Latimer, E, Catty, J, Becker, T, Drake, Re, Fioritti, A, Kilian, R, Lauber, C, Rossler, W, Tomov, T, Busschbach, J, Comas-Herrera, A, White, S, Wiersma, D, Burns, T, Supported employment: cost-effectiveness across six European sites (Structured abstract), World Psychiatry, 12, 60-68, 2013	Available as abstract only.
Lazar, S. G., The cost-effectiveness of psychotherapy for the major psychiatric diagnoses, Psychodynamic psychiatry, 42, 2014	Review of clinical and cost studies on psychotherapy. Studies cited do not match population for relevant review question.
Leff, J, Sharpley, M, Chisholm, D, Bell, R, Gamble, C, Training community psychiatric nurses in schizophrenia family work: a study of clinical and economic outcomes for patients and relatives (Structured abstract), Journal of Mental HealthJ Ment Health, 10, 189-197, 2001	Structured abstract. Not a cost effectiveness study.
Liffick, E., Mehdiyoun, N. F., Vohs, J. L., Francis, M. M., Breier, A., Utilization and Cost of Health Care Services During the First Episode of Psychosis, Psychiatric ServicesPsychiatr Serv, 68, 131-136, 2017	A United States costing analysis. Outcomes which relate to the Welfare system differs in substantial ways to a UK context.
Mihalopoulos, C., Harris, M., Henry, L., Harrigan, S., McGorry, P., Is early intervention in psychosis cost-effective over the long term?,	Not a cost utility analysis. Australian costing analysis.

Study	Reason for Exclusion
Schizophrenia BulletinSchizophr Bull, 35, 909-18, 2009	
Perlis, R H, Ganz, D A, Avorn, J, Schneeweiss, S, Glynn, R J, Smoller, J W, Wang, P S, Pharmacogenetic testing in the clinical management of schizophrenia: a decision-analytic model (Structured abstract), Journal of Clinical Psychopharmacology, 25, 427-434, 2005	Structured abstract. Does not match any review question considered in this guideline.
Quinlivan, R., Hough, R., Crowell, A., Beach, C., Hofstetter, R., Kenworthy, K., Service utilization and costs of care for severely mentally ill clients in an intensive case management program, Psychiatric ServicesPsychiatr Serv, 46, 365-71, 1995	A United States costing analysis. Outcomes which relate to the Welfare system differs in substantial ways to a UK context.
Roine, E., Roine, R. P., Rasanen, P., Vuori, I., Sintonen, H., Saarto, T., Cost-effectiveness of interventions based on physical exercise in the treatment of various diseases: a systematic literature review, International Journal of Technology Assessment in Health CareInt J Technol Assess Health Care, 25, 427-54, 2009	Literature review on cost effectiveness studies based on physical exercise for various diseases and population groups - none of which are for complex psychosis.
Rosenheck, R A, Evaluating the cost-effectiveness of reduced tardive dyskinesia with second-generation antipsychotics (Structured abstract), British Journal of PsychiatryBr J Psychiatry, 191, 238-245, 2007	Structured abstract. Does not match any review question considered in this guideline.
Rund, B. R., Moe, L., Sollien, T., Fjell, A., Borchgrevink, T., Hallert, M., Naess, P. O., The Psychosis Project: outcome and cost-effectiveness of a psychoeducational treatment programme for schizophrenic adolescents, Acta Psychiatrica ScandinavicaActa Psychiatr Scand, 89, 211-8, 1994	Not an economic evaluation. Cost effectiveness discussed in narrative only, with a few short sentences.
Sacristan, J A, Gomez, J C, Salvador-Carulla, L, Cost effectiveness analysis of olanzapine versus haloperidol in the treatment of schizophrenia in Spain (Structured abstract), Actas Luso-espanolas de Neurologia, Psiquiatria y Ciencias Afines, 25, 225-234, 1997	Available as abstract only.
Torres-Carbajo, A, Olivares, J M, Merino, H, Vazquez, H, Diaz, A, Cruz, E, Efficacy and effectiveness of an exercise program as community support for schizophrenic patients (Structured abstract), American Journal of Recreation Therapy, 4, 41-47, 2005	Available as abstract only
Wang, P S, Ganz, D A, Benner, J S, Glynn, R J, Avorn, J, Should clozapine continue to be restricted to third-line status for schizophrenia: a decision-analytic model (Structured abstract), Journal of Mental Health Policy and Economics, 7, 77-85, 2004	Available as abstract only.
Yang, Y K, Tarn, Y H, Wang, T Y, Liu, C Y, Laio, Y C, Chou, Y H, Lee, S M, Chen, C C, Pharmacoeconomic evaluation of schizophrenia in Taiwan: model comparison of long-acting	Taiwan is not an OECD country.

Study	Reason for Exclusion
risperidone versus olanzapine versus depot haloperidol based on estimated costs (Structured abstract), Psychiatry and Clinical Neurosciences, 59, 385-394, 2005	
Zhu, B., Ascher-Svanum, H., Faries, D. E., Peng, X., Salkever, D., Slade, E. P., Costs of treating patients with schizophrenia who have illness-related crisis events, BMC Psychiatry, 8, 2008	USA costing analysis. The structure of the US health system means that costs do not translate well into a UK context.

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Appendix L – Research recommendations

Research recommendations for review question 2.3: What are the required components of an effective rehabilitation pathway?

Research question

What are the service and service user characteristics of highly specialist and longer-term high-dependency rehabilitation units that are associated with better outcomes?

Why this is important

Highly specialised inpatient rehabilitation units and longer term high dependency inpatient rehabilitation units exist for a small number of people with complex psychosis who have problems that are not currently accommodated within local inpatient rehabilitation settings (such as those with co-morbid conditions including acquired brain injury or developmental disorders such as autistic spectrum disorders), or who require longer to benefit from the treatment and support provided by standard inpatient high dependency rehabilitation services. It is not known what service user characteristics or service provision is associated with better outcomes for these groups, including step-down to less specialist inpatient care and successful discharge to supported accommodation in the community.

Table 21: Research recommendation rationale

Research question	What are the service and service user characteristics of highly specialist rehabilitation units and longer-term high-dependency rehabilitation units that are associated with better outcomes?
Why is this needed	
Importance to 'patients' or the population	Patients with particularly complex comorbid conditions that cannot manage in less specialised settings often spend very long periods of time (sometimes many years) in highly specialist or longer term inpatient rehabilitation services. Concerns have been raised by the CQC about the quality of life of this group. It is important to know what patient and service characteristics can support them to progress successfully in their rehabilitation and achieve sustained community discharge and better quality of life.
Relevance to NICE guidance	There is currently no evidence available to inform NICE guidance.
Relevance to the NHS	Although these specialist services should only be needed by a relatively small number of patients, the CQC have raised concerns that people are being placed in them unnecessarily and for too long, with associated high costs of care to the NHS. Greater knowledge of the characteristics of these services and of those who can benefit from them is needed
National priorities	Fits with NHSI's 'Getting It Right First Time' initiative for mental health rehabilitation
Current evidence base	Accepted practice but no informative research
Equality	All patients 18+ years of age resident in one of these services
Feasibility	Good: these services are straightforward to identify. Service characteristics can be described and quality assessed by existing measures. Patient characteristics can be obtained from anonymised clinical records with appropriate safeguards. Some may have capacity to permit more detailed assessment.

Research question	What are the service and service user characteristics of highly specialist rehabilitation units and longer-term high-dependency rehabilitation units that are associated with better outcomes?
Other comments	None

CQC: Care Quality Commission; NHS: National Health Service; NHSI: National Health Service Improvement; NICE: National Institute for Health and Care Excellence

Table 22: Research recommendation modified PICO table

Criterion	Explanation
Population	Adults aged 18+ living in highly specialised, high dependency residential care.
Intervention	None
Comparator	none

Outcomes	• Service outcomes:
	  ○ Staff retention/satisfaction
	  ○ Service quality
	• Service-user outcomes:
	  ○ Successful discharge from rehabilitation services
	  ○ Rates of readmission/relapse
	  ○ Service-user quality of life
	  ○ Service-user autonomy
	  ○ Service-user experiences of care
	  ○ Service-user satisfaction with service
	  ○ Being local/near family
	  ○ Social functioning

Study design	Observational study
Timeframe	3 years
Additional information	None

PICO: population intervention comparator outcome