The Bradford Inequalities Research Unit: Final Report

BRADFORD INSTITUTE FOR HEALTH RESEARCH
MAKING RESEARCH REAL

NIHR | Applied Research Collaboration Yorkshire and Humber

Key findings from the evaluation of the Reducing Inequalities in Communities programme 2019-2024 (Version 2.0.)

J Dickerson, R Moss, B Hou, B Kelly, S Reece, M Mohammed, J Hussain, T Sheldon & J Wright

The Bradford Inequalities Research Unit (BIRU) team:

Directors:
Dr Josie Dickerson, Prof John Wright

Academic Lead:
Prof Trevor Sheldon

Academic Advisors:
Prof Kate Pickett, Prof Richard Cookson, Prof Robbie Foy, Prof Neil Small, Dr Jamilla Hussain, Mr. Shahid Islam

Researchers:
Drs Brian Kelly, Bo Hou & Rachael Moss

Data Analyst:
Mr. Mohammed Hammad

Intern:
Ms. Zahrah Tanveer

PhD Student:
Dr Sian Reece

Acknowledgements:
We would like to send our thanks and acknowledgements to the following people: the Connected Bradford team, the Born in Bradford data team, participants in both our community readiness and welfare benefits studies and the RIC leadership team (Sohail Abbas, Polly Masson, and Damian Reynolds). We also thank all our service delivery partners for their continued support and patience.

Executive Summary

The Bradford Inequalities Research Unit (BIRU) was commissioned by Reducing Inequalities in Communities (RIC) to support the design, delivery, and evaluation of the RIC programme in Bradford, UK. The aim was to integrate research across RIC to enhance the evidence base for interventions designed to reduce health inequalities.

The partnership of RIC and BIRU demonstrates the benefits of integrating rigorous research within innovative public health programmes with numerous key successes emerging from this work including:

- In-depth learning about the local population and the stark health inequalities (Section 1)
- Identifying the causes of unplanned hospital admissions for cardiovascular disease, and recommendations on how to reduce this health inequality (Section 2)
- The value of exploring the readiness of socially disadvantaged communities to engage in interventions, using the example of South Asian community readiness for palliative care intervention (Section 3)
- Enhancing the evidence base of all RIC interventions aimed at reducing inequalities (Section 4)
- In-depth evaluations of three interventions showing positive impacts:
  - **Welfare Benefits Advice** provided within primary care **increases financial awards** to patients and may **improve their health and wellbeing** (Section 5)
  - **The integrated Central Locality Integrated Care Services (CLICS) pathway** (combining social prescribing and general practice) **reduced unplanned hospital admissions** (Section 6)
  - **The Bradford Proactive Care Team (PaCT) reduced unplanned hospital admissions and A&E attendance** in people with complex health and social needs (Section 7)

Lessons Learnt & Recommendations for future programmes

- Planning evaluation into large public health programmes will provide rigorous learning about the population, ensure good implementation of interventions (and/or learning about why a project did not work), and evidence of their impact.
- Prior to selection and implementation of interventions, an in-depth understanding of the population will ensure that the right interventions, that target the most pressing needs in the right populations, are selected.
- Assessing the readiness of the community to engage in key issues will enable interventions to be designed appropriately and ensure successful implementation and good engagement.
- Evaluation that is integrated into the design of interventions, with the development of a good logic model, will enable robust evidence of the implementation and impact of projects to be achieved.
- Big datasets like Connected Bradford enable effectiveness evaluations of interventions to be achieved in a cost effective and efficient way.
- There is evidence of stark inequalities in the RIC population, but well implemented interventions can significantly reduce these inequalities.

Introduction

The population of inner-city Bradford is ethnically diverse and deprived and has some of the worst health inequalities in England including high rates of infant mortality, early mortality, and long-term conditions. In 2019, NHS England changed its funding formula to provide an uplift to areas facing greater inequalities, and additional funding was allocated to central Bradford. At the time, this was known as NHS Bradford City CCG area. At the time of writing, it is defined as the population registered in Primary Care Networks 4, 5 and 6.

This funding was used to establish the Reducing Inequalities in Communities (RIC) programme, within which three themes of work were established: 1) preconception, pregnancy, and early years; 2) premature mortality; and 3) ageing and dying well.

Although evaluation was not a core component of the funding allocation, RIC committed to prioritising research and evidence as a part of their programme. Bradford is a city of research, meaning that access to applied research and big data was already in place. This enabled RIC to commission the Bradford Inequalities Research Unit (BIRU) to support the design, delivery, and evaluation of the programme.

The RIC-BIRU partnership has resulted in enhanced data within Connected Bradford which in turn has enabled in-depth understanding about the needs of the population. It has also strengthened the integration of research into practice and has enabled high impact evaluations to be completed within the RIC programme.

This report provides an overview of the aims of the BIRU and a summary of the findings and learning from each of the projects undertaken by BIRU.

The Bradford Inequalities Research Unit

The BIRU is a collaboration between Born in Bradford (BiB), the University of York and Queen Mary's University London. The academic expertise in epidemiology, applied health research, health inequalities and economic modelling, alongside access to big data through the Connected Bradford programme brings a unique element to the RIC programme: the ability to take a data driven and evidence-informed approach to reduce health inequalities in the Bradford central locality, placing a spotlight on good practice in Bradford.

Working alongside RIC, the overall aim of BIRU was to integrate research across the RIC programme to enhance the evidence base of interventions designed to reduce inequalities.

Definition of Health Inequalities in RIC

Health inequalities are broadly defined as differences in the health and wellbeing of individuals based on their socioeconomic status, ethnicity, gender, and age. The area of RIC has some of the worst health inequalities in the whole of England, with high rates of infant mortality, early mortality, and long-term conditions.

The area covered by RIC is ethnically diverse and deprived with all areas in the highest decile of deprivation in England (IMD). Within RIC and BIRU there was a particular focus on reducing inequalities based on socioeconomic status and ethnicity. The aim is to reduce inequalities in the RIC population compared to Bradford District and England.

The objectives of the BIRU were to:

1. *Identify Needs & Implications for RIC*
2. *Identify Relevant Evidence Based Interventions*
3. *Enhance the Evidence Base of Interventions to Reduce Health Inequalities*

1. The Demographics of the RIC Population, and Implications for Intervention Delivery

Intervening early can have lifelong effects on the health, wellbeing, and social outcomes of children.

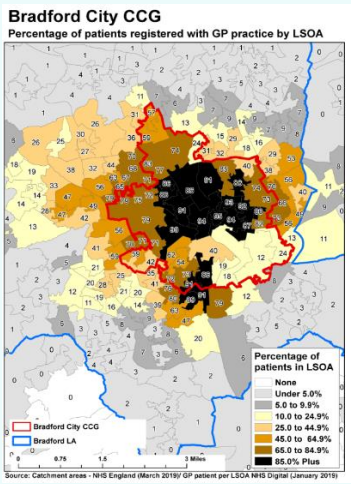


Figure 1: Map showing the proportion of Lower Layer Super Output Area (LSOA) residents that are registered with a GP practice affiliated with Bradford City CCG.

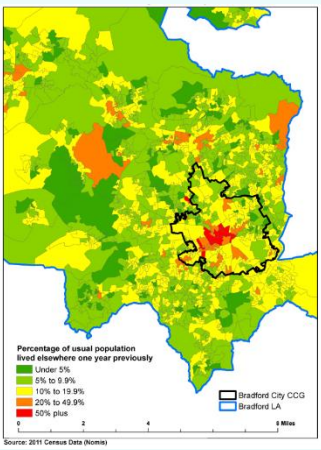


Figure 2: Map showing the percentage of usual population that had lived elsewhere one year previously (internal migration inflow).

More than 75% of the City CCG population are from an ethnic minority. The largest ethnic group are of South Asian heritage.

City CCG has a relatively young population with a high birth rate. RIC should focus significant attention on early preventative intervention (in coordination with other agencies that affect upstream determinants).

Older people who live in the RIC area are more likely to live alone, almost 80% of those aged 65 or more live in single person households, indicating that ways to address isolation and engagement with health services are likely to yield benefits.

Many patients registered with GPs in the RIC area live outside the Central locality border (Figure 1). More impact will be made by focussing place-based interventions in areas of high registrations.

There is high mobility of the RIC population (high movement in and out, and a high number of migrants) which should be considered in the design of service delivery (Figure 2).

The Health of the RIC Population and Prioritisation of Interventions

Pregnancy, Babies & Children

Infant and child mortality is high in City CCG (6.6 per 1,000 compared to 3.9 in England; 24 per 1,000, compared to 11 respectively). Interventions focused on reducing the risks of infant and child mortality should be prioritised and evaluated carefully for impact.

Almost 50% of White British and White Other women report smoking in pregnancy. Interventions to reduce smoking in pregnancy should target these populations.

Over 50% of pregnant women are overweight or obese which increases risk of poor pregnancy outcome and child obesity. A focus on reducing BMI in girls and young women preconception and on mothers postpartum will be important.

Child mortality rates due to genetic conditions are very high (accounting for 43% of child deaths compared to 25% nationally). Though falling, in the Pakistani heritage population, rates of consanguinity are high (29%) and are a contributing factor to genetic conditions. Raising awareness of the risks of consanguinity should be a focus for RIC.

Childhood overweight/obesity is high with 28% of Year 6 children in RIC being overweight / obese compared to 20% nationally. As well as targeted interventions, early preventative interventions should be implemented to tackle poor diet and oral health.
There is a higher rate of asthma (14.5% in RIC compared to 10% nationally) and a high rate of emergency admissions for respiratory problems (4.7 per 1,000 compared to 3.9 nationally). There is relatively poor usage of corticosteroid medication (especially in South Asian heritage children who have an increased risk of A&E visits).

Effective targeted interventions to improve the management of childhood asthma are needed.

The Adult Population

Mortality from in the under 75s is higher than the national average (though respiratory disease is improving). The mortality rate for respiratory and cardiovascular diseases in those the RIC population aged 65 to 74 years is 75% higher in RIC than in England.

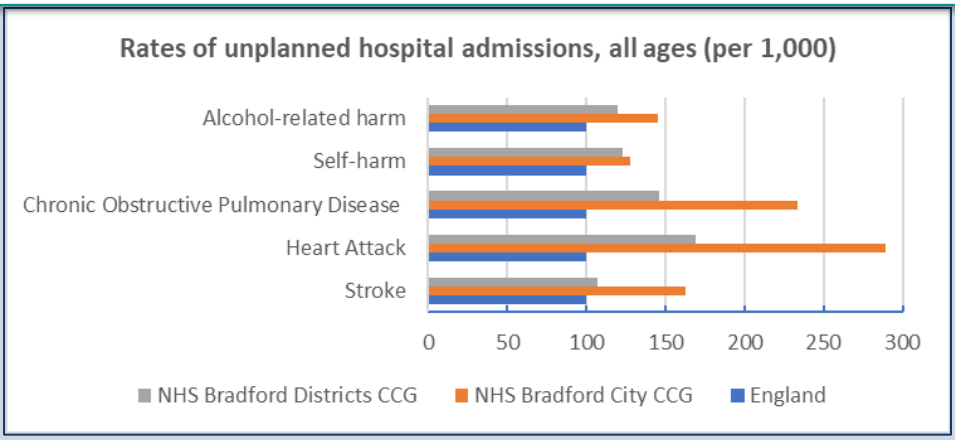
Life expectancy is 6 years lower for men and 4 years lower for women than the England average. Rates of avoidable mortality are 70% higher in RIC compared to England as a whole.

Women under 65 in the RIC population are particularly at risk of type 2 diabetes. Interventions to identify and actively manage those at risk (such as hypertension detection and follow up, and control of diabetes) should be prioritised.

The full report can be found here.

2. Tackling High Levels of Unplanned Hospital Admissions for Cardiovascular Disease

The rates of unplanned hospital admissions in City CCG are significantly higher than in the rest of Bradford District and England for some conditions. They are especially high for cardiovascular disease (CVD).



We used Connected Bradford (N=508,997) to explore what patients and GP performance related Quality and Outcomes Framework (QOF) variables predict unplanned admissions for CVD for all admissions in the Bradford District.

The odds of an unplanned admission were significantly higher for those who were:

Men
From a Pakistani heritage
Living in more deprived areas
Had a diagnosis of hypertension, diabetes, chronic heart disease or stroke.

Patients registered to GPs who had greater achievement on QOF indicators relating to CVD had reduced odds of unplanned hospital admissions.

Supporting general practices to improve their achievement against key CVD related QOF indicators will likely reduce the number of unplanned hospital admissions.

For further details see: Hou et al., (in press). Quality and Outcomes Framework achievement and unplanned admissions for cardiovascular diseases. *British Journal of General Practice.*

3. Exploring Community Readiness to Engage in Interventions: Palliative Care Support

There is evidence that individuals from South Asian ethnic backgrounds are less likely to have documented Advance Care Plans and are more likely to be admitted to hospital in the end-of-life care period, subsequently increasing the likelihood that they will die in hospital.

This study found that the South Asian community only have a vague awareness of end-of-life care options and of services provided by RIC.

Within the community, there seems to be a focus on after death concerns, as opposed to concerns within the end-of-life care period. This may reflect a wider societal reluctance to discuss dying, but also may reflect that many discussions that take place currently about end-of-life focus on what happens around the death (e.g., do not resuscitate; place of death) and not on the care that is available before death.

The Community Readiness Model (CRM) is a tool that measures the level of readiness amongst a particular community to engage in interventions.

This tool was used to measure the readiness of the south Asian community in RIC to engage in palliative care support interventions.

For further details see the full report here and the published paper here.

To improve community readiness, services need a better understanding of the South Asian community's views on the end-of-life period.

It is only by improving understanding that initiatives can be planned and delivered in a way that maximises the chances of successful uptake.

4. Enhancing the Evidence Base of Interventions

At the beginning of the programme, BIRU completed a Delphi consensus exercise with academic experts and RIC partners to select interventions for implementation. Potential interventions were RAG (Red = low priority; Amber= medium priority; Green = high priority) based on their: a) ability to meet the outcomes of the RIC programme; b) level of evidence; c) likelihood of reducing inequalities; d) cost efficacy.

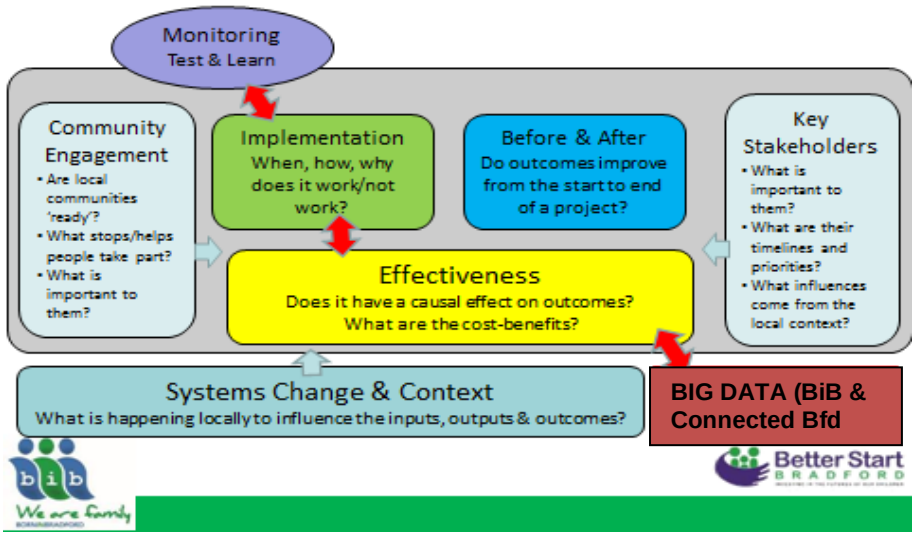
In addition, BIRU worked with the Yorkshire Health Economics Consortium to produce rapid literature reviews of the programmes with the largest financial commitment. This report RAG rated each intervention based on: the estimated population uptake, clinical efficacy, the impact of the intervention on health inequalities, and costs.

The above exercises, and reviews of the literature highlighted that majority of interventions selected had limited evidence of effectiveness. To enhance the evidence base of all RIC interventions, the BIRU used the **Born in Bradford applied evaluation framework**. This framework highlights need to take small steps towards evaluation by:
1) demonstrating the ability of the intervention to be delivered with fidelity and engage those it is designed to reach (Implementation evaluation).
2) to demonstrate evidence of promise using validated measures (Before & After evaluations) and
3) only at that point can an effectiveness evaluation be considered.

To be effective, an intervention needs evidence of:

1. ***Being delivered with fidelity***
2. ***Engaging the right population***
3. ***Impacting on outcomes***

The Born in Bradford Evaluation Framework



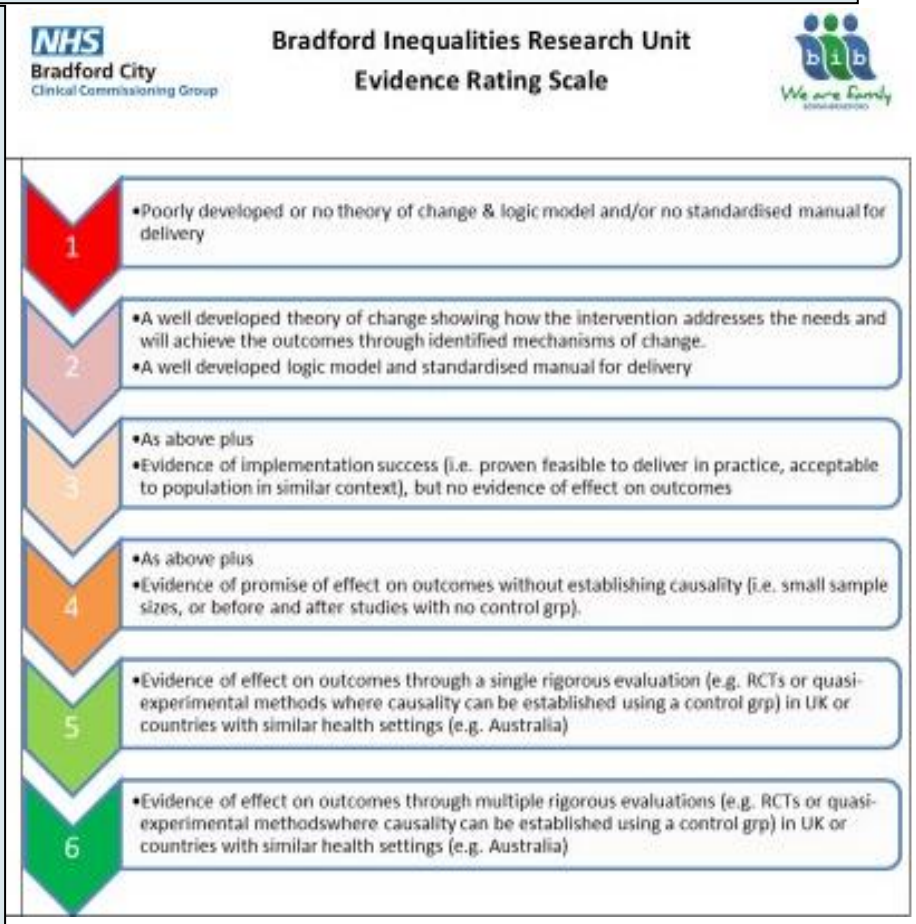
Enhancing the Evidence Base of Interventions

To support the evaluation process, the '**BIRU evidence rating scale'** was developed (adapted from the Early Intervention Foundation (EIF) evidence rating scale).

This scale allowed each intervention to identify their existing evidence rating, and what the next steps are to "nudge" up the evidence base.

At the start of RIC, the BIRU provided a series of workshops to delivery teams to help them create a **logic model** and **implementation evaluation plan**. In the final two years of RIC, BIRU hosted **'evaluation drop-ins'** for the delivery teams to support interventions that had successfully demonstrated implementation to move on to provide evidence of impact of their interventions.

These workshops and drop-ins were well attended and enabled all interventions to move up the evidence scale during the programme.



At the beginning of RIC, most interventions were at Level 1 of the evidence scale (i.e., with no theory of change or logic model). By 2023, all projects had attained level 3 (i.e., a logic model and evidence of implementation), or had been decommissioned due to a failure to implement successfully. With input from the BIRU, some interventions have reached Level 4 (evidence of promise from a before and after study), and PaCT and CLICS have reached Level 5 (causal evidence of effectiveness). See Table 1, next page.

Working in partnership, RIC and BIRU have improved the evidence base of multiple interventions. This demonstrates the impact of integrating evaluation into practice.

Table 1: The evaluation status of RIC projects at the beginning and end of the programme (correct as of 29th January 2024).

	Evaluation Level 2019	Evaluation level 2023	Potential future evaluation level	Was it implemented as planned?	Is the target cohort/ population using the intervention? -	Is there evidence of promise?	Is there evidence of effectiveness?
RIC01A. CLICS Integrated pathway element	1	5	6	✓	✓	✓	✓
RIC01B. Community resilience element	1	3	2	✓	✓	n/a	N/A?
RIC02. Health messaging	1	3	3	✓	✓	n/a	N/A
RIC04. Genetics (risk associated with close relative)	1	3	4	Partial	In progress	n/a	N/A
RIC05. Enhance current smoking cessation approaches	1	2		x	n/a	n/a	N/A
RIC07. Advanced midwifery support	3	3	5	✓	✓	n/a	Planned-2025
RIC09. Expand the doula service	3	3	4	✓	✓	n/a	N/A?
RIC11. Living Well schools	1	3	4	Partial	✓	In progress (some reported)	N/A
RIC12. Tier 3 weight management service	1	3	4	✓	?	n/a	N/A
RIC15. Young people's social prescribing pilot	1	4	5	✓	✓	✓	n/a
RIC19. BEEP exercise referral	1	3	4	✓	✓	n/a	n/a
RIC20. Culturally Appropriate Bowel Screening (CABS) messaging	1	3	3	✓	✓	n/a	n/a
RIC23. Improving Health for Homeless People in Bradford City	1	3	3	✓	✓	n/a	n/a
RIC24. Primary care workforce development	1	2	3	Partial	✓	n/a	n/a
RIC25. Proactive care team (PaCT)	1	5	6	✓	✓	✓	✓
RIC26. Holistic approach to dying well	1	2		x	n/a	n/a	n/a
RIC27. Dementia specialist nurses	1	3	4	✓	✓	In progress	n/a
RIC28. Welfare Benefits Advice	1	4	5	✓	✓	✓	n/a
RIC35A. Little Minds Matter	2	3	4	✓	✓	n/a	n/a

5. An evaluation of the Welfare Benefits Advice Service

An evaluation of Welfare Benefits Advice Co-Located in Healthcare Settings

https://borninbradford.nhs.uk/wp-content/uploads/BIRU_WBA-Evaluation_v2.0_11.09.23.pdf

Offering co-located welfare benefits advice in healthcare setting can:

- **Improve access and uptake by those in most need**
- **Improve the financial benefits of those who use the service**
- **Improve the physical health and wellbeing of those who use the service.**

What is the intervention and why is it needed?

Welfare advice services co-located in health settings are collaborations between organisations specialising in welfare advice and health services. This co-location and Integration of welfare advice services can help to improve access to advice particularly for ethnic minority groups, and also ensures timely and targeted support in a time and place of need. There is evidence that welfare benefits advice delivered in healthcare settings results in financial gains, but there is limited evidence for the wider impact of such services on health and wellbeing [review 2006, 2020].
In Bradford, the Voluntary and Community Sector (VCS) Alliance co-ordinate a welfare benefits advice programme co-located within the primary care network. The service covers inner city areas within which the majority of the community are from an ethnic minority, and live in areas of high deprivation. This service was commissioned by the Bradford City CCG (now Bradford District and Craven Health and Care Partnership) Reducing Inequalities in Communities programme between 2019 and 2024.

What did we do?

This evaluation explored whether the Welfare benefits advice programme in Bradford improved the financial security, mental and physical health of clients accessing their services. We undertook an uncontrolled before-after study (a study without a matched control group) within which welfare advisors asked clients to complete financial, health and wellbeing measures at the start and at the end of their involvement in the intervention. Ethical approval was received from the University of York, and explicit consent was given by participants before completing these measures.

What did we find?

- There was a significant improvement in wellbeing from the start to the end of the intervention
- There was a significant improvement in health-related quality of life from the start to the end of the intervention
- There was no significant change in financial insecurity or mental health symptoms over this time

This study offers evidence of promise that welfare advice services co-located in health settings improves individuals' wellbeing and health-related quality of life. However, this study did not have a control group, so we cannot be confident that these changes were caused by the intervention.

Recommendations for policy makers

1. Providing welfare benefits advice in areas of high need is an important service with well evidenced financial benefits to clients who receive the service.
2. The co-location in healthcare settings can reduce inequalities in access and uptake.
3. This service may also improve the wellbeing and health-related quality of life of service users
4. Further evaluation of welfare benefits advice is needed to understand the medium to longer-term impacts. However, such an evaluation would be complex to undertake and would need funding for an evaluation partner.

The full report can be viewed here, and the academic paper here.

6. Findings from the effectiveness evaluation of the Bradford Central Locality Integrated Care Services (CLICS) intervention

Bradford Inequalities Research Unit:
CLICS effectiveness evaluation

Executive Summary

Project overview

The Central Locality Integrated Care Services (CLICS) is an intervention that integrates social prescribing and general practice. The intervention is commissioned by Bradford City CCG (now Bradford District and Craven Health and Care Partnership) as part of the Reducing Inequalities in Communities (RIC) programme, from October 2020 to March 2024.

CLICS is being delivered in central Bradford where there are large health inequalities. By integrating clinical and non-clinical services to help provide personalised care for individuals it aims to reduce unplanned hospital admissions.

CLICS is based on the Frome model which reported a reduction in unplanned hospital admissions of 14% over a period of 44 months (3 years 8 months)[1].

Evaluation overview

This report shares the findings of an effectiveness evaluation which looked at the impact of CLICS on unplanned hospital admissions 12 months after discharge from the service.

A *Difference in Differences* approach was used to compare changes in the intervention and matched control groups from before to after the CLICS intervention.

The evaluation utilised Connected Bradford data to identify patients who had received CLICS (n= 917) and create a matched control group (n= 3,668) based on age, gender, ethnicity and comorbid health conditions.

Changes in health-related quality of life (EQ-5D) and wellbeing (Short Warwick-Edinburgh Mental Wellbeing Scale, SWEMWBS) were collected from CLICS patients at the start and the end of their involvement with the intervention. These measures were only collected for CLICS patients with no similar data available for the matched control group.

Findings

The CLICS intervention engaged with an ethnically diverse and deprived population: The average age was 59.8 years, 63% were female, and the main ethnic groups were Pakistani heritage (44%) and White British (27%). The majority of patients (72%) lived in the lowest quintile of deprivation. The CLICS intervention and matched control groups were closely aligned on each of these key criteria, however, the rates of unplanned hospital admissions were higher in the control group.

Bradford Inequalities Research Unit
CLICS effectiveness evaluation
July 2023

Executive Summary

Findings

In the effectiveness evaluation the odds of an unplanned hospital admission was 17% lower in the CLICS group compared to the matched control group (Odds Ratio = 0.83; 95% Confidence Intervals: 0.62-1.12). However, the confidence interval was wide (showing large variation) meaning that we cannot be certain that this finding is accurate.

A sub-analyses looking at the impact on ethnicity found that the odds of an unplanned hospital admission in White British patients was 49% lower in the CLICS group compared to the matched control group (OR= 0.51; 95% CI: 0.28-0.95). There was no reduction in unplanned admissions for Pakistani heritage patients (OR = 1.03 (95% CI: 0.66-1.64).

There was a statistically significant improvement in both health related quality of life (EQ-5D) (0.09; 95%CI: 0.05-0.12) and wellbeing (SWEMWBS) (3.59; 95% CI: 3.05, 4.13) in patients receiving the intervention. However, with no matched control group data we cannot be sure that this change was caused by the CLICS intervention.

Recommendations

This evaluation provides evidence of promise that the CLICS intervention may reduce unplanned hospital admissions. However, there is a risk that this intervention is having an unequal impact on the community by improving outcomes for White British patients but not for Pakistani heritage patients.

We would recommend that this intervention continue to be commissioned, but that this includes plans for a follow-up evaluation to improve confidence in these findings and to understand the longer term impacts on unplanned hospital admissions.

We would also recommend that the potential ethnic disparities in outcomes are explored further, starting with consultation with Pakistani patients, and including further in-depth analysis of these patients once there is a larger sample size. Depending on these findings it might be necessary to co-produce adaptations to the intervention to make it more beneficial to this group.

There was a higher rate of unplanned admissions at all time points in the matched control group. This suggests that CLICS may not be reaching those patients at the highest risk of admission.

A review of recruitment and referral processes is advised.

The full report can be found here.

7. Findings of the effectiveness evaluation of the Bradford Pro-Active Care Team (PaCT) intervention

Bradford Inequalities Research Unit
PaCT effectiveness evaluation
July 2023

Executive Summary

Project overview

The Pro-Active Care team (PaCT) is an intervention which provides proactive, holistic short-term care and support for vulnerable individuals aged >18 to help them avoid unplanned hospital care. The intervention offers a multi-disciplinary team of integrated services within three areas of central Bradford and began delivery in October 2020. The intervention was commissioned by Bradford City CCG (now Bradford District and Craven Health and Care Partnership) as part of the Reducing Inequalities in Communities (RIC) programme. The current evidence base for such integrated care models is mixed, with some studies reporting an impact on unplanned hospital admissions and accident and emergency (A&E) attendance and others finding no impact.

Evaluation overview

The main aim of this evaluation is to explore whether the PaCT intervention reduces unplanned hospital admissions and A&E attendances in an ethnically diverse and socio-economically deprived population.

The evaluation used linked routine data in the Connected Bradford database to identify patients who had received PaCT (n= 390) and to create a matched control group (n= 1,560) based on age, gender, ethnicity and comorbid health conditions. A Difference-in-Differences approach was used to compare changes in unplanned hospital admissions and A&E attendances between the intervention and matched control groups from before the intervention to 12 months after discharge from it.

Changes in health-related quality of life (EQ-5D) were collected from PaCT patients (but not matched controls) at the start and the end of their involvement with the intervention.

Findings

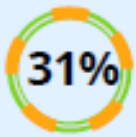
The average age for the PaCT intervention patients was 74.3 years (SD = 13.5), 220 (56.4%) were female, and the main ethnic groups were Pakistani heritage (n = 179, 45.9%) and White British (n= 94, 24.1%). The majority of patients (n = 262, 67.2%) lived in the lowest quartile of deprivation. The matched control group was similar on these key characteristics.

Bradford Inequalities Research Unit
PaCT effectiveness evaluation
July 2023

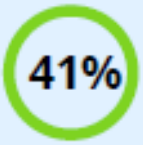
Executive Summary

Findings continued

The Difference in Difference analysis found:



1. an odds of unplanned hospital admission 31% lower in the PaCT group than in the matched control group (odds ratio = 0.69; 95% CI: 0.43 to 1.09). However, the confidence interval was wide, meaning we cannot be certain of the effect that the PaCT intervention has on unplanned hospital admissions.



2. an odds of A&E attendances 41% lower in the PaCT group compared to the matched control group (OR= 0.59; 95% CI:0.37 to 0.94 to 1.20). This finding was statistically significant and so is unlikely to be a chance finding.

There was no difference in the impact on unplanned hospital admissions and A&E attendances by ethnicity.

There was an improvement in health-related quality of life (EQ-5D) in patients receiving the intervention of 0.11 (95% CI: 0.06-0.15). However, with no matched control group data we cannot assess whether this change was caused by the PaCT intervention.

Recommendations

Given the significant impact that PaCT has had on A&E attendances, we would recommend that this intervention should continue to be commissioned. Wider roll out across the district could be considered by commissioners, however, to ensure that the service continues to reduce inequalities in health outcomes, the reach of a wider service would need to be carefully monitored.

The longer term impact of PaCT should be revisited in 12 and 24 months' time.

The full report can be found here.

Links to all BIRU Reports and outputs

POPULATION NEEDS:

An overview of the evidence available to reduce health inequalities in three key areas: pre-conception, maternity, and children; premature mortality; and ageing and dying well. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Evidence-to-reduce-ineq_Jul2019.pdf

Overview of data on the Bradford City CCG population and implications for intervening to reduce inequalities report. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/City-CCG-Population-reduce-ineq_Aug2020.pdf

Hou et al., (in press). Quality and Outcomes Framework achievement and unplanned admissions for cardiovascular diseases. *British Journal of General Practice.*

SELECTING INTERVENTIONS:

Reducing inequalities in Bradford City CCG: A Delphi consensus study of health inequalities interventions in Bradford. Retrieved from https://borninbradford.nhs.uk/what-we-do/our-programmes/bradford-inequalities-research-unit/

Bradford CCG inequalities reduction programme: Critique of funding proposals. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/YHEC-for-BIHR_Sept2019.pdf

COMMUNITY READINESS:

How do people from the South Asian community view, use and understand advance care plans? How ready are they to use these advance care plans alongside other palliative care support? Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/CRM-EndOfLife_Oct2021.pdf

Moss, R. H., Hussain, J., Islam, S., Small, N., & Dickerson, J. (2023). Applying the community readiness model to identify and address inequity in end-of-life care in South Asian communities. *Palliative Medicine*, *37*(4), 567-574. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10074746/

IN-DEPTH EVALUATION REPORTS:

Findings of a before and after evaluation of the VCS Alliance Welfare Benefits Advice intervention. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/BIRU_WBA-Evaluation_v2.0_11.09.23.pdf

Reece, S., Moss, R.H., Tanveer, Z. *et al.* Exploring the feasibility of evaluating a community alliance welfare advice programme co-located in primary care in Bradford: an uncontrolled before and after study. *BMC Public Health* **24**, 300 (2024). https://doi.org/10.1186/s12889-024-17773-x

Findings of the effectiveness evaluation of the Bradford Central Locality Integrated Care Services (CLICS) intervention (which integrates social prescribing and general practice). Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/BIRU_CLICS-Evaluation_v3.0_260723.pdf

Findings of the effectiveness evaluation of the Bradford Pro-Active Care Team (PaCT) intervention. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/BIRU_PaCT-Evaluation_v1.0_28.7.23.pdf

OTHER RESEARCH REPORTS PRODUCED BY BIRU

PERINATAL MENTAL HEALTH RESEARCH:

Executive summary: Reducing inequalities in perinatal mental health care. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Inequalities-in-PMH-Executive-Summary-V1-April-22.pdf

Report 1. Reducing inequalities in perinatal mental health care. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Report-1-Review-of-the-evidence-of-inequalities-in-PMH-V1-April-22.pdf

Report 2. Reducing inequalities in perinatal mental health care. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Report-2-Care-pathways-similarities-and-differences-V1-April-22.pdf

Report 3. Reducing inequalities in perinatal mental health care. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Report-3-Data-Report-V1-April-22.pdf

Report 4. Reducing inequalities in perinatal mental health care. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Report-4-PMH-inequalities-views-and-experiences-V1-April-22.pdf

Report 5. Reducing inequalities in perinatal mental health care. Retrieved from https://borninbradford.nhs.uk/wp-content/uploads/Report-5-Recommendations-from-Expert-Panels-V1-April-22.pdf

THE IMPACT OF COVID-19 ON BRADFORD FAMILIES:

https://www.bradfordresearch.nhs.uk/c-sag/