Equal North: How can we reduce health inequalities in the North of England? A prioritisation exercise with researchers, policymakers and practitioners

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Abstract

Background: The Equal North network was developed to take forward the implications of the Due North report of the Independent Inquiry into Health Equity. A research prioritisation exercise was conducted across the network.

Methods: Qualitative workshops (15 groups) and a Delphi survey (3 rounds, 368 members) were used to consult expert opinion and achieve a consensus. A further 10 workshops were conducted after the Delphi survey to triangulate the data.

Results: Round one, 253 participants (n=190 participants from two sets of workshops; n=63 survey responses) answered open questions around priorities for action. In round two of the survey, 144 participants used a 5 point Likert scale to rate 39 items generated via thematic analysis of round one data. Round three: 76 participants (half of the round two participants) re-rated responses alongside median responses to each item. Poverty/implications of austerity (4.87m, IQR 0) remained the priority issue in all rounds, with long-term unemployment (4.8m, IQR 0) and mental health (4.7m, IQR 1) second and third priorities.

Conclusions: A strong consensus amongst the practitioners and academics was that reducing health inequalities in the North of England requires prioritising research that tackles structural determinants concerning poverty, the implications of austerity measures and unemployment.

Keywords: Health inequality; social policy; engagement; Delphi; equity; social determinants

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Running title: Equal North: Health inequalities – future priorities

Background

The North of England has persistently poorer health than the rest of England and the gap has widened over four decades and under five governments (1, 2). Since 1965, this equates to 1.5 million excess premature deaths in the North compared with the rest of the country (3). In addition to this regional health divide, there are also stark inequalities in health between different socio-economic groups within every region of England (1, 4-6).

The causes of these spatial and socio-economic health inequalities are complicated and contested - both in research and policy terms in England and in other high-income countries. Factors include: (i) unequal social and spatial distribution of behavioural risk factors – including smoking - as a result of adverse responses to the external world, (ii) income and other material factors such as access to goods and services and exposures to physical risk factors (iii) psychosocial factors such as domination/subordination, powerlessness, superiority/inferiority – and the effects of the biological consequences of these feelings on health, (iv) an accumulation of different types of disadvantage over the life course, and (v) political and economic structures such as the welfare state (7).

These varied ways of locating the causes of inequality have distinct implications for what should be done to reduce health inequalities particularly in terms of whether interventions should focus downstream (on individuals and their behaviour or psychosocial resilience, for example), upstream (such as interventions to improve the redistribution of income and life chances), or some combination of action at multiple levels. Much of public health policy in England (8) and elsewhere has favoured downstream, behavioural approaches. However, there is increasing awareness, especially amongst the public health community, that these might actually increase health inequalities (so-called intervention generated inequalities). Upstream approaches focusing on the social determinants of health operating within a complex system might be more effective (9-11).

In 2014, in response to this context and a broader policy and practice context of reductions in service provision as a result of austerity, that Public Health England commissioned the Independent Inquiry into Health Equity for the North of England[1]. The *Due North* report (12) established why the severity of causes of health inequalities is greater in the North.

[Table 1]

Poverty is not spread evenly across the country but is concentrated in particular areas, and the North is disproportionately affected. Whilst the North represents 30% of the population of England, for example, it includes 50% of the poorest neighbourhoods (1), and tends to have worse health than places with similar levels of poverty in the rest of England (1, 2, 4, 13).There is also a steeper social gradient in health within the North than in the rest of England meaning that there is an even greater gap in health between disadvantaged and prosperous socio-economic groups in the North than in the rest of the country (12).

The *Due North* report made four sets of recommendations, to: (1) tackle poverty and economic inequality within the North and between the North and the rest of England; (2) promote healthy development in early

[1] The North of England is defined geographically as the three former Government Office Regions of the North East, North West and Yorkshire and Humberside.

childhood; (3) share power over resources and increase public influence on how resources are used to improve the determinants of health; (4) strengthen the health sector's role in promoting health equity.

In 2016, Public Health England North set up the Equal North network in partnership with Fuse - the Centre for Translational Research in Public Health, LiLaC – Liverpool and Lancaster universities collaboration for Public Health Research, and the University of Sheffield. Equal North is a health equity applied research network of academics, policy and practice members. Its aim is to take up the Due North recommendation to (12) identify areas (see fig 1) of priority for local agencies which can be tackled in a health equity strategy encompassing research, policy and practice. [Fig 1 here]

Currently, the Equal North network has over 500 members: 46% practitioners, 54% academics; 73% female; 38% from the North East, 35% Yorkshire and Humber, 21% from the North West and 6% are not regionally based. Upon joining the network members indicated their area(s) of interest around health inequalities, which as a whole were very heterogeneous. Thus, the underlying question addressed by this prioritisation and consensus building exercise was : 'what are the priorities for action and how can research best address these to reduce health inequalities'?(14).

Methods

Study participants were the 368 registered members of the Equal North Research and Practice Network up to May 2017. Members had an opportunity to contribute (see fig 2) via a mixed methods approach.

[Fig 2 here]

Workshops

Participants comprised 265 researchers, policymakers / practitioners working in public health attending three inequalities events. At each workshop face-to-face interactive groups broadly scoped key issues prior to the Delphi to inform the design of the survey (workshop 1, 8 groups n=100 participants; workshop 2, 7 groups n=90 participants). Workshop 3 comprised 10 groups n=75 participants and took place after the Delphi survey closed, to triangulate the data. Group sizes ranged from 4 to 12 people and were structured around facilitated discussion (conducted by 1 facilitator, 1 scribe) and a short scoping and priority exercise. Specifically, group participants were asked to discuss and generate lists for the following questions:

1. What causes inequality in the North and the North-South divide?
2. What are the key inequalities in the North?
3. What needs to be done locally and regionally to reduce inequalities in the north?

Participants then rated all items in terms of 'urgent and important', 'not urgent but important', 'urgent but not important' and 'not urgent and not important' for research.

Participation was entirely voluntary. Participants were made aware that discussion, whilst not audio-recorded, would inform on-going analysis around research priorities and help inform Round 1 of the Delphi survey. Anonymised notes were taken by an assistant in each group.

Delphi Survey

The on-line Delphi survey sought opinions on how best to tackle health and social inequality across the north of England and to identify future research priorities. The Delphi technique typically consists of three rounds of questions; it is a structured communication technique commonly used for achieving consensus of opinion or stability of results (15-19). This method enables a large group of individuals to address complex problems (17, 20). The main advantages of using a Delphi technique are that it allows a disparate and geographically spread group of experts or stakeholders to generate ideas around focussed themes and arrive at a consensus by considering their own and other respondents' views in the final round (17, 21). It also minimises the impact of socially desirable responses (17, 21).

Round 1 of the Delphi aimed to generate ideas about priorities for tackling health inequalities and consisted of 5 open-ended questions [see table 1 in appendix], taking 10 minutes to complete online. All 368 members of the network were invited by email to complete the survey, and 63 (17%) did so. Responses were combined with data collected from earlier Workshops 1 and 2.

Round 2 was an online survey where all members of the network were again invited to rate the 39 generated items, which emerged from earlier thematic analysis, via Likert scales, and 144 members did so (39% of membership).

In Round 3, the 144 participants from Round 2 were then provided with a summary of the group median responses and invited to re-rate the 39 items (April-May 2017) (see table 3 in appendix). Half of the Round 2 participants did so (representing 21% of the total Network membership).

All non-responders were followed up with two reminder emails in each round.

Analysis: Data generated from Workshops 1 and 2, and Round 1 online Delphi survey, were thematically analysed by the research team; similar issues were grouped together and discrepant ideas were retained, creating 39 unique items (see table 2). Responses to Round 2 and 3 were entered into SPSS and analysed descriptively to produce medians, standard deviation, and an inter-quartile range. These statistics indicated areas of priority, and an inter quartile range of ≤1 highlighted key areas of consensus across the expert group (0 = high consensus).

Ethics approval was granted by Newcastle University Faculty of Medical Sciences Research Ethics Committee (REF: 8347/2016). At every stage of the exercise, participants were advised that their answers would be anonymised and that they could withdraw at any time but their responses would still be included up to that point.

Results

Workshops

The wide-ranging issues that were generated from Workshops 1 and 2, and prior to the Delphi survey, are outlined in table 2. The issues considered most urgent for research, policy and practice were linked to poverty and deprivation in the region and the impact on the more disadvantaged sections of the population. There was some discussion around how to translate evidence into practice in a timely way for more immediate impact on the determinants of health inequalities. It was recognised that this was complicated further due to local government budget constraints and a tendency for organisations across the public and voluntary sector to work in silos. Further, some participants (who were service providers) also reported that it was important to lobby local politicians around key priority issues in order to instigate change.

Overall, key overarching issues in these discussions tended to focus on the structural determinants of health inequality, with some issues like substance use and an absence of aspiration framed in discussions as a result of individual behaviours and choices. The majority of participants felt that research should be focussed on exploring ways to impact on structural inequalities in the different northern regions, and to understand what makes some communities able to withstand the impact of austerity measures. Going forward in this priority exercise, the items generated across Workshops 1 and 2 were combined with findings from the Delphi survey in round 1, and participants were asked to rate these items in round 2 of the Delphi. Insights collected from workshop 3 triangulated with the data we collected from workshops 1 & 2, and the issues arising out of the Delphi, with the exception that Novel Psychoactive Substances and problem gambling were new issues raised by participants.

Delphi survey

In Round one, 253 individuals participated in item generation work (n=190 participants from Workshops 1 and 2; n=63 responses to survey). The response rate to Round 1 of the survey was 17%.

In Round two, 144 participants responded to the survey (39%: out of a possible 368. Of these, 47% were practitioners and 53% researchers. In Round 3, 76 participants from the previous round responded (half of the Round 2 participants, giving a response rate of 21% of the total network membership, and of these half were practitioners. It was clear from some open-ended responses that a number of participants consulted with their respective teams and represented the views of their wider practice organisation, indicating that findings may capture more views than the percentage reported.

The findings from Rounds 2 and 3 (table 4) of the Delphi survey remained consistently focused, showing that the top priority for research, rated extremely important/important (4 or 5) by members, and with high consensus (IQR 0, 0.34 SD), should focus on issues of poverty and the implications of austerity, as well as the challenges presented through financial exclusion and uneven access to services (e.g. GPs, Drug and Alcohol, training). Whilst all academics rated poverty and the impact of austerity as the top priority in Rounds 2 and 3, the majority of practitioners in Round 2 signalled mental health issues to be a greater priority. Whilst mental health was consistently rated as a very important or extremely important priority by everyone, it was overtaken in Round 3 with a strong consensus (IQR 0, 0.528 SD) that members wanted unemployment and worklessness to be visible and developed as a research priority for the North (IQR 0, 0.46 SD). Child specific issues related to poverty, early life and adolescence increased in priority, with 93% of participants in Round 3 rating it as very important or extremely important. This was closely followed by issues related to education, skills and literacy with a median value of 4 ('very important').

When asked which research question should be prioritised by the Equal North network, several options achieved consistently high rankings but members did not reach a strong consensus (IQR <1) in Round 3 (table 4). Further, Round 3 shows that 86% of the sample stated that they either strongly agreed (5) or agreed (4) that examining the social determinants of health inequalities and effective ways to change these should be the priority for research. Both academic and practitioner members were generally in agreement.

The key similarity between workshop and Delphi results was that the majority of participants consistently focused on specific structural disadvantages influencing and determining health inequalities, these included issues around: unemployment and paucity of stable jobs; child specific issues linked to opportunity and 'aspiration'; as well as poor mental health linked to isolation and feelings of stress related to poverty. Some participants within workshop groups steered discussion towards a focus on individual behaviours that were harmful to health, such as substance and alcohol use, and unhealthy food choices, as well as issues around an

absence of aspiration and a perception of worklessness entrenched amongst certain communities in the North. However, these views about health inequality being primarily determined through individual behaviours were not shared by participants in Round 3 of the Delphi survey, where 92% (4.56m) said that the role of researchers in the future should be to shift research and policy focus from the individual to structural causes of health and social inequalities (see table 5).

[Insert table 5]

Discussion

Main finding of this study

Our aim in this exercise was to understand what members of the Equal North research network identify as priorities for action and research in the north (12). There was strong consensus across both practitioners and academics to prioritise tackling embedded health inequalities complexly linked to poverty, the implications of austerity and unemployment. The workshop discussions linked the causes and consequences of health inequalities to low wages, welfare cuts and a growing sub-section identified as the 'working poor'. Concern was raised around how to tackle these issues with increasingly constrained budgets and paucity of resources.

A spread of research priorities were identified by participants, and whilst several research questions were rated highly, none reached a definitive consensus. Despite the causes of health inequalities being a contested issue within workshop discussions, a strong focus on the structural determinants (social, political and economic) of health was important to participants when prioritising areas for further research. This indicated a desired move away from current UK policy agendas (1, 4, 10, 22) - which have focussed on behaviour change interventions administered at the level of the individual, with short-term goals (e.g. CHD, diabetes) - towards upstream factors impacting on long term health inequalities. Working together meant that public health researchers were positioned as advocates for social change. Finally, future research should give due consideration to how the design and implementation of policy may lead to intervention generated inequalities.

What is already known on this topic

We know that inequality impacts on health resulting in reduced years in good health, reduced opportunities for improving life quality, lower life expectancy, and increased poverty (2, 4, 10, 22-24). The Due North Report (12) identified that the main causes of health inequalities between the North and the South of England were differences in: poverty and power; exposure to health-damaging environments; prevalence of chronic disease and disability; and, opportunities to utilise positive and protective conditions for healthy lifestyles. Bambra's (1) in-depth exposition of the social, environmental, economic and political causes of health inequalities directs attention towards a more upstream agenda to shape policy and practice. The findings from this research exercise indicate that participants also advocate this. This presents theoretical and practical challenges (25) tackling health inequalities at both a micro and macro level to account for the complex impact on health.

What this study adds

A breadth and depth of knowledge is contained with the *Due North* report (12), yet our exercise shows it is challenging to prioritise issues, share information, and develop a joined up action plan (26) across geographically disparate services, Clinical Commissioning Groups, Local Government and academic institutions. In particular, our study shows that participants want researchers to disseminate findings widely to policymakers and practitioners around best practice, case studies, and the effectiveness of upstream interventions. It has

provided a strong indication for the direction and priority for research questions, the level of interest amongst members, and the role of public health research that is specifically of concern to a northern cohort of academics, policymakers and practitioners. In particular, this exercise shows the importance of research in the north informing regional and national policy and decision makers about what works.

Limitations of this study

There was a low response to the online Delphi survey across the 3 rounds: 17% of network membership in R1; 39% in R2, and 21% in R3. This exercise was undertaken at a time when the network was expanding – hence we used multiple methods of engagement and re-engagement. Participants were self-selected with particular interests in health inequality. Further, there was a potential ceiling effect leading to high rankings of certain items. However, the IQR suggested consistent agreement and few outliers.

Conclusions

This research exercise highlights a strong consensus amongst practitioners and academics that reducing health inequalities in the North of England requires prioritising and tackling structural issues around poverty, the implications of austerity and unemployment. The Equal North network continues to grow, serving as a platform for information sharing, discussion and a repository of existing research and evidence. It aims to strengthen the links between key research infrastructure such as the National Institute for Health Research (NIHR) School of Public Health research (SPHR), Public Health England North (PHE) and local policy and practice organisations in the North.

Conflict of Interests

There are no conflicts of interest.

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drafted the original manuscript with early input from Professor Bambra (Co - Chief Investigator) and Professor Kaner (Co - Chief Investigator). All co-authors substantively contributed to the manuscript development and approved the final version.

Disclaimer

The views expressed are those of the authors) and not necessarily those of the NIHR SPHR or PHE.

Relationship statement

The NIHR School for Public Health Research is a partnership between the Universities of Sheffield, Bristol, Exeter, Cambridge, UCL; The London School for Hygiene and Tropical Medicine; the LiLaC collaboration between the Universities of Liverpool and Lancaster and Fuse; The Centre for Translational Research in Public Health, a collaboration between Newcastle, Durham, Northumbria, Sunderland and Teesside Universities. The study was led by Fuse investigators at the University of Newcastle upon Tyne, UK.

Appendices

Table 1: Life expectancy and healthy life expectancy for men and women by neighbourhood, England, 2011-13 (1) (reproduced with permission from Policy Press)

	Population (millions)	Life expectancy at birth (LE, years)		CVD deaths (<75 years per 100, 000)	Cancer deaths (<75 years per 100, 000)	Diabetes % (> 17 years)	% Obese or overweight (> 16 years)
		Men	Women				
NORTH[a]	**15**	**78**	**81.9**	**89.6**	**161.4**	**6.5**	**66.5**
North East	2.6	78	81.7	88.8	169.5	6.5	68.0
North West	7.1	78	81.8	92.8	159.8	6.5	66.0
Yorkshire and Humber	5.3	78.5	82.2	87.3	155.0	6.4	65.4
SOUTH[b]	**38**	**79.8**	**83.6**	**74.3**	**138.7**	**6.2**	**63.3**
East Midlands	4.5	79.3	83.0	80.0	143.8	6.6	65.6
West Midlands	5.6	78.8	82.8	82.1	147.8	7.1	65.7
East of England	5.8	80.3	83.8	70.0	136.0	6.0	65.1
South West	5.3	80.1	83.8	80.1	136.5	6.0	57.3
London	8.2	80.0	84.1	66.4	134.0	5.6	63.1
South East	8.6	80.4	83.9	67.1	134.3	5.9	62.7
ENGLAND	**53**	**79.4**	**83.1**	**78.2**	**144.4**	**6.2**	**63.8**

[a] Author calculated mean of NE, NW, YH; [b] Author calculated mean of EE, EM, L, WM, SE. SW.

Fig 1: Map of life expectancy by region for men and women in England 2011 (1) (reproduced with permission from Policy Press)

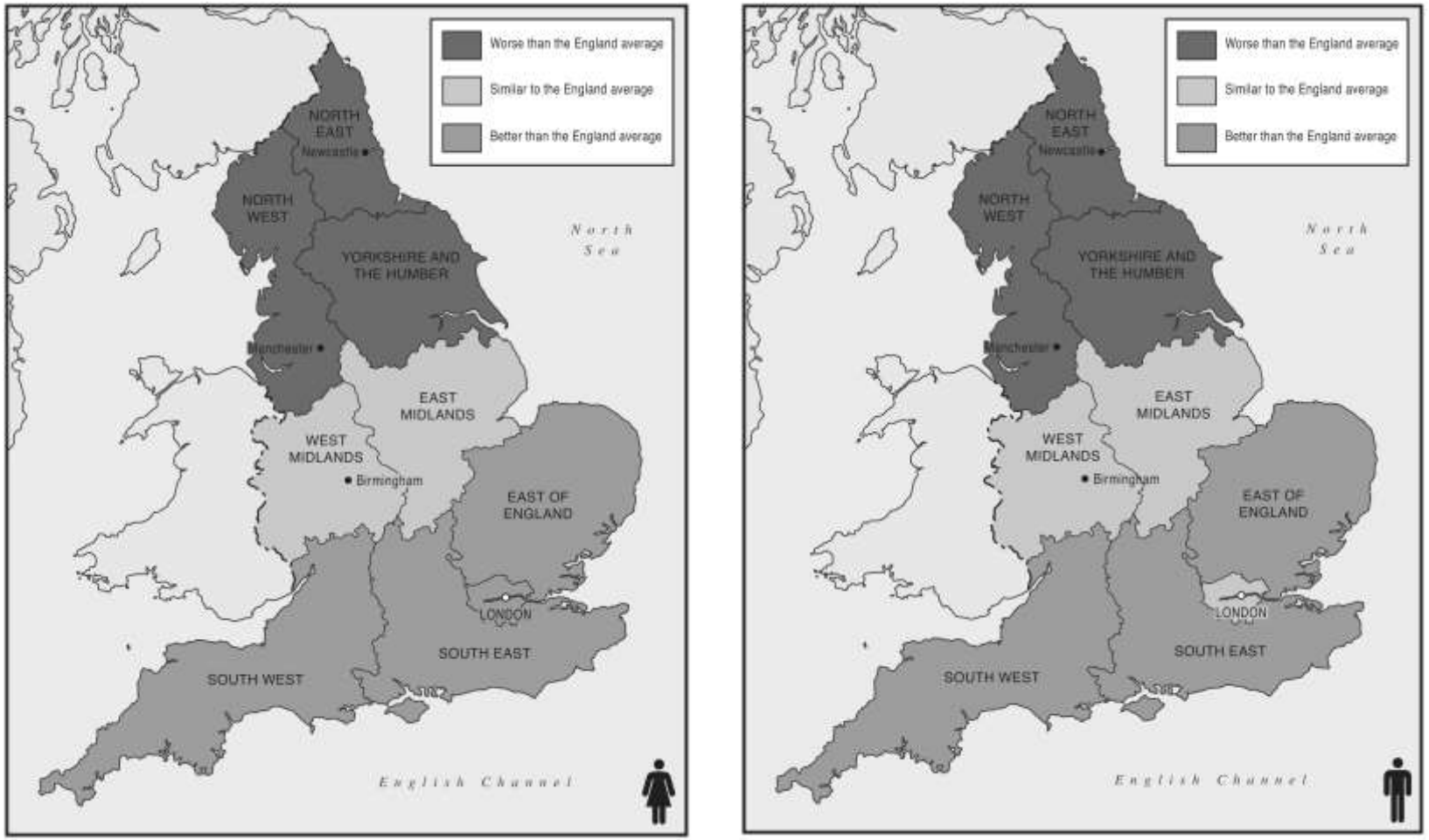

Fig 2. Methods: Process of workshops and Delphi survey

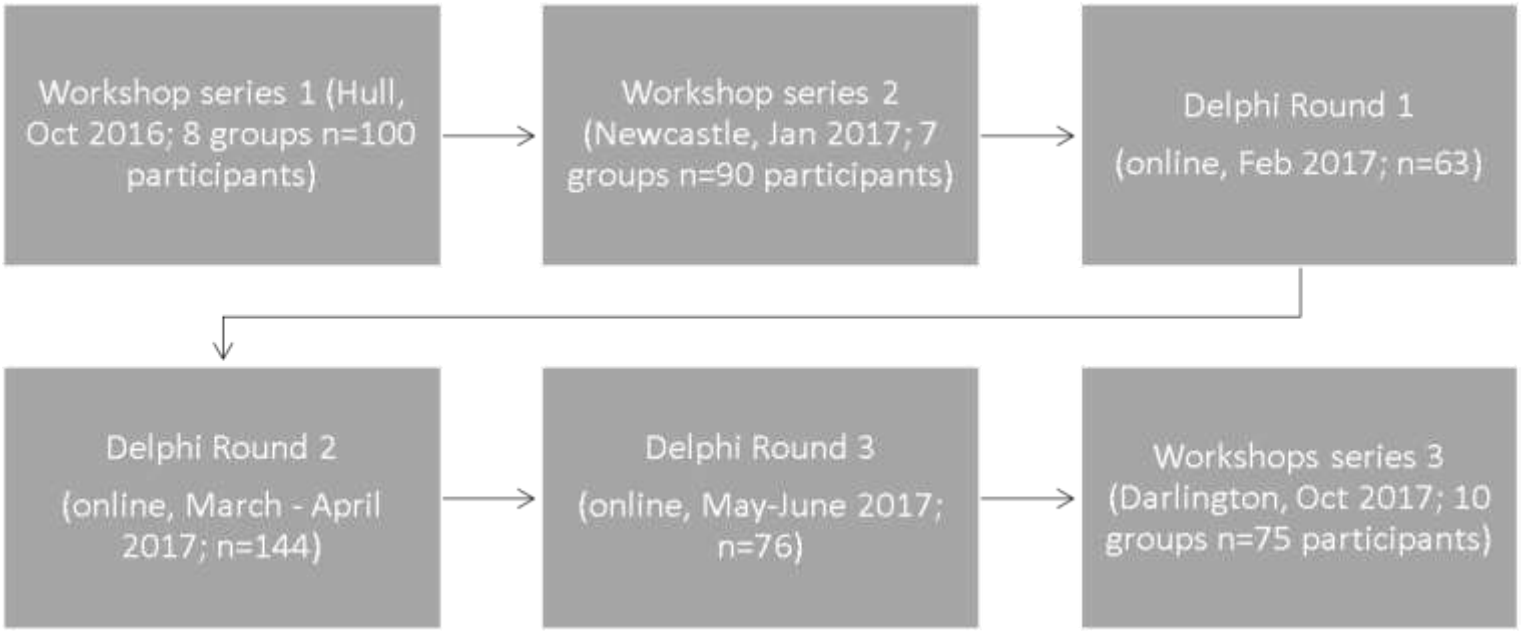

Table 2: Round 1 item generation, thematically analysed and grouped

Key questions: in Round 1 survey 1.What are the top three health inequalities issues in the north? 2. What are the top three health inequalities issues in your local area? 3. What evidence gaps are there that need filling? 4. How can public health researchers help local policy makers to reduce health inequalities in the context of devolution and pressure on services? 5. How best can research to address the issues identified above be delivered?

Overarching Themes	Linked issues		
Infrastructure	Roads	Poor transport links	Access / affordability
Poverty / deprivation	Low wages Food banks	Working poor Shame / stigma	Welfare cuts Gambling and Debt
(Un)Employment	Paucity of jobs	Educational requirements	
Education	Early years	School readiness	Lack of good quality teachers
Housing and planning	Unhealthy / unfit housing Homelessness	Lack of affordable homes	Lack of Accessible homes
Environment	Rural Isolation	Access to green space	'Broken windows'
Substance misuse / smoking	Alcohol	Legal highs and illicit drug use	Smoking
Chronic Illness	Aging population in The North	CVD, Respiratory	Co-morbidity
Obesity / Childhood Obesity	Diet / affordability of and access to (healthy) food	Educational impact on health	Physical activity
Early years	Education Early interventions	Access to healthy foods	Breastfeeding
Mortality / Life expectancy	Higher rates of chronic illness (e.g CVD, respiratory)	Unhealthy behaviours (e.g smoking, substance misuse)	Pockets of high socio-economic deprivation
Mental health	Access to services	Impact of poverty / deprivation	
Social Isolation	From wider society	Within "communities", rural settings	Aging population
Disability	Higher rates in the North	Loss of services / implications of austerity / welfare cuts	Access
Poverty/Absence of aspiration	Learned help/hopelessness Disconnected youth	Lack of opportunities Stigma	Nihilism and apathy Shame
Opportunity	Lack of opportunities	Lack of assistance in accessing opportunities	Resource drain – mass exodus of talent pool
Health lit. (and education)	Low health literacy	Educational impact on health	Low understanding of the healthcare system
(Sub)Culture / embedded behaviours	Unhealthy learned behaviours	Socio-cultural reinforcement of problematic behaviours	Unhealthy/fatalistic coping behaviours

Table 3: Round 2 – Rating 39 listed items
Q.1 Establishing Priority

	Definitely not an important priority (1) and Not a very important priority (2) (%)	Neutral (3) (%)	Very important priority (4) and Extremely important priority (5) (%)	Mean	Median Response	Count
Historical legacy, investment, infrastructure, transport, entrenched health disparities	8.5	14.3	77.1	3.94	4	140
Poverty/austerity, income growth/financial exclusion, access to services	0.7	2.1	97.2	4.61	5	142
Unemployment, jobs, worklessness, fair wages, low pay	0.7	10.6	88.7	4.42	5	142
Education and skills, functional literacy/numeracy, health literacy	2.8	15.4	81.9	4.15	4	143
Communication, insufficient partnerships, current structures, poor systems	11.3	35.9	52.8	3.58	4	142
Democratic deficit, representation, accountability, having a voice	7	27.1	66	3.76	4	144
Environmental, pollution, climate change, air quality, respiratory	8.5	27.7	63.8	3.77	4	141
Long term conditions, mortality/life expectancy, and later life/aging	6.4	17.7	75.9	4	4	141
Homelessness and housing	3.6	15	81.5	4.15	4	140
Child specific issues, child poverty, early life, immunisations, adolescence, breast feeding	4.9	9.1	86	4.29	5	143
Discrimination, minority, key under-served groups	6.4	15	78.6	4.06	4	140
Mental health, hopelessness, limited networks	1.4	5	93.6	4.45	5	141
Obesity/diet and physical activity	9.8	24.5	65.8	3.75	4	143
Smoking and electronic cigarettes/vaping	16.8	34.3	49	3.36	3	143
Substance (mis)use, alcohol, drug use	11.2	23.9	64.8	3.63	4	142
						144

Q. 2. TO WHAT EXTENT DO YOU THINK THE FOLLOWING RESEARCH QUESTIONS SHOULD BE ADDRESSED IN THE NEXT 1-2 YEARS?

	Strongly Disagree (1) and Disagree (2) (%)	Neutral (3) (%)	Agree (4) and Strongly Agree (5) (%)	Mean	Median Response	count
HOW EFFECTIVE ARE FAMILY BASED INTERVENTIONS AT REDUCING HEALTH/SOCIAL INEQUALITIES?	13.7	25.2	61.1	3.6	4	139
HOW EFFECTIVE ARE TARGETED MENTAL HEALTH PREVENTION INTERVENTIONS?	7.2	20.9	71.9	3.91	4	139
HOW CAN EVIDENCE BE EFFECTIVELY PUT INTO PRACTICE (IMPLEMENTATION)?	8	16.7	75.4	4.02	4	138
HOW EFFECTIVE ARE APPROACHES TO ADDRESS/CHANGE SOCIAL DETERMINANTS OF HEALTH/INEQUALITIES?	2.2	10.1	87.7	4.39	5	139
HOW EFFECTIVE ARE NEW FINANCIAL MODELS/POLICIES INCLUDING THE IMPLICATIONS OF DEVOLUTION?	9.5	28.5	62	3.74	4	137
HOW EFFECTIVE ARE LOCAL ACTIONS AND COMMUNITY-LED INITIATIVES, AND WHAT ARE THE BARRIERS AND FACILITATORS TO COMMUNITY ENGAGEMENT AND PARTICIPATION?	6.5	14.6	78.8	4.11	4	138
HOW CAN SPECIFIC AND MARGINALISED GROUPS BEST BE SUPPORTED AND ENABLED?	5	20.3	74.6	3.99	4	138
WHAT IS THE COST EFFECTIVENESS OF INEQUALITY REDUCTION INTERVENTIONS?	8.8	27.7	63.5	3.78	4	138
WHAT IS THE VALUE OF JOINED UP, INTER-SECTORAL APPROACHES?	9.5	35	55.5	3.65	4	137
IS THERE EVIDENCE TO SUPPORT ASSET-BASED, AS OPPOSED TO DEFICIT OR MITIGATION BASED, INTERVENTIONS?	10.8	36.2	52.9	3.52	4	138
HOW CAN WE DEVELOP AND EVALUATE PROPORTIONATE UNIVERSALISM INTERVENTIONS?	10.2	32.8	56.9	3.66	4	137
HOW CAN WE DEVELOP AND EVALUATE INTERVENTIONS TO REDUCE LONELINESS, ISOLATION, SOCIAL EXCLUSION?	4.3	12.3	83.3	4.17	4	138
						140

Q. 3. WHAT IS THE KEY ROLE OF PUBLIC HEALTH RESEARCHERS IN HELPING LOCAL POLICY-MAKERS AND PRACTITIONERS?

	Strongly Disagree (1) and Disagree (2) (%)	Neutral (3)	Agree (4) and Strongly Agree (5) (%)	Mean	Median Response	Count
COLLABORATING ACROSS MULTI-SECTOR TEAMS TO CO-PRODUCE EVIDENCE THAT PROMOTES KNOWLEDGE TRANSLATION, KNOWLEDGE EXCHANGE.	1.40	10.90	87.70	4.32	4.5	139
BECOMING LOCAL COMMUNITY ADVOCATES RATHER THAN BYSTANDERS/OBSERVERS.	10.10	22.50	67.40	3.86	4	138
LOBBYING FOR EFFECTIVE CHANGE.	4.30	20.30	75.40	4.04	4	138
DEVELOPING JOINTLY FUNDED EMBEDDED RESEARCHERS AND PRACTITIONERS (E.G. SECONDMENT) AND PROVIDING TRAINING/LEARNING OPPORTUNITIES FOR POLICY-MAKERS AND RESEARCHERS.	2.90	15.90	81.10	4.17	4	138
DISSEMINATING EVIDENCE ON WHAT WORKS (E.G. INTERVENTION EFFECTIVENESS AND EVIDENCE SYNTHESES).	1.40	10.10	88.40	4.35	4	138
GENERATING HIGH QUALITY EVIDENCE OF EFFECTIVENESS AND IMPLEMENTATION EFFECTIVENESS.	2.20	10.20	87.60	4.34	5	137
WORKING RAPIDLY TO PROVIDE TIMELY EVIDENCE	10.20	20.40	69.40	3.88	4	137
PRODUCING 'HOW TO GUIDES' SO THAT LOCAL PRACTITIONERS CAN GENERATE EVIDENCE THEMSELVES.	9.50	26.30	64.30	3.76	4	137
DEVELOPING A HANDBOOK FOR LOCAL ELECTED MEMBERS ON 'THEIR ROLE' IN TACKLING INEQUALITIES.	13.80	36.20	50.00	3.51	3.5	138
SHIFTING RESEARCH AND POLICY FOCUS FROM THE INDIVIDUAL TO STRUCTURAL CAUSES OF HEALTH/SOCIAL INEQUALITIES.	2.10	10.10	87.60	4.39	5	138
CONDUCTING PRAGMATIC, REAL WORLD RESEARCH WORK E.G. NATURAL EXPERIMENTS – FOCUSED ON THE NORTH.	2.90	7.30	89.80	4.36	5	137
CARRYING OUT MORE HEALTH ECONOMICS RESEARCH (RETURN ON INVESTMENT APPROACH).	9.40	30.40	60.10	3.65	4	138

Table 4: Round 2 and 3 – Top priority issues and questions for research

Issues for Research	Round 2 (n=144):						Round 3 (n=76):					
	Total % Rating either extremely [5] or very important [4] priority	N=Academics (72), Practitioners (62), n=10 missing data. Rating either extremely [5] or very important [4] priority (n=)	mean	IQR	SD	median	% Rating either extremely [5] or very important [4] priority	N= Academics (35), Practitioners (35), n=6 missing data. Rating either extremely [5] or very important [4] priority	mean	IQR	SD	median
Poverty/austerity, income growth/financial exclusion, access to services	96%	72, 58	4.61	1	0.569	5	100%	35, 35	4.87	0	0.34	5
Mental health, hopelessness, limited networks	92%	66, 60	4.45	1	0.659	5	97.3%	34, 33	4.7	1	0.528	5
Unemployment, jobs, worklessness, fair wages, low pay	88%	67, 51	4.42	1	0.708	5	98.7%	34, 35	4.8	0	0.46	5
Child specific issues, child poverty, early life, immunisations, adolescence, breast feeding	85%	61, 55	4.29	1	0.903	5	93.4%	33, 32	4.6	1	0.76	5
Education and skills, functional literacy/numeracy, health literacy	81%	54, 55	4.15	1	0.781	4	92.1%	30, 34	4.3	1	0.749	4
Priority Research Questions	Round 2						Round 3					

	Total (n=144) Rating either strongly agree [5] or agree [4]	N=Academics (72), Practitioners (62), n=10 missing data. Rating either extremely [5] or very important [4] priority (n=)	mean	IQR	SD	median	Total (n=76) Rating either strongly agree [5] or agree [4]	N=Academics (35), Practitioners (35), n=6 missing data. Rating either extremely [5] or very important [4] priority	mean	IQR	SD	median
1. How effective are approaches to address/change social determinants of health/inequalities?	87.7%	59, 55	4.39	1	0.757	5	86.1%	32, 28	4.38	1	1.01	5
2. How can we develop and evaluate interventions to reduce loneliness, isolation, social exclusion?	83.3%	62, 47	4.17	1	0.833	4	81.9%	31, 26	4.01	1	1.01	4
3. How effective are local actions and community-led initiatives, and what are the barriers and facilitators to community?	78.8%	55, 45	4.11	1	0.922	4	80.5%	29, 27	4.04	1	0.971	4

Table 5: Round 2 and Round 3 – Key role of Health Researchers

Key role of Public Health Researchers	Round 2						Round 3					
	Total (n=144) Rating either strongly agree [5] or agree [4]	N=Academics (72), Practitioners (62), n=10 missing data. Rating either extremely [5] or very important [4] priority (n=)	mean	IQR	SD	median	Total (n=76) Rating either strongly agree [5] or agree [4]	N=Academics (35), Practitioners (35), n=6 missing data. Rating either extremely [5] or very important [4] priority	mean	IQR	SD	median
1. Shifting research and policy focus from the individual to structural causes of health/social inequalities	87.6%	66, 49	4.39	1	0.787	5	91.7%	32, 33	4.56	1	0.868	5
2. Conducting pragmatic, real world research work focused on the North	89.4%	64, 52	4.36	1	0.775	5	91.6%	33, 31	4.46	1	0.8	5
3. Disseminating evidence on what works (e.g. intervention effectiveness and evidence syntheses)	88.4%	59, 55	4.35	1	0.78	4	86.1%	28, 32	4.26	1	0.822	4

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