



Liverpool Cancer Inequalities Research Network (LCIRN)

Inaugural Symposium:

*Identifying local priorities in cancer inequalities
research*

12 May 2017



REPORT TITLE:

**Liverpool Cancer Inequalities Research Network (LCIRN) Inaugural Symposium:
Identifying local priorities in cancer inequalities research**

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EXECUTIVE SUMMARY:

The Liverpool Cancer Inequalities Research Network (LCIRN) has formed to foster, support and undertake research into socioeconomic inequalities in cancer outcomes across the cancer pathway. We are concerned with the interplay of socioeconomic factors that lead to differential exposures and vulnerabilities to cancer risk factors, differential access to health and social care services, differential health and social outcomes among people with a cancer diagnosis.

Taking a multi-disciplinary approach, we will focus on Liverpool and the surrounding region, recognising that Liverpool has the highest all cancer incidence in England, better than England average five-year survival for all cancers and some of the most pronounced socioeconomic inequalities in the country (Jones, 2016). If we can understand the complex interactions of factors that lead to cancer inequalities in Liverpool, we will have something important to say about socioeconomic inequalities in cancer wherever they occur.

On Wednesday, 2nd November, 2016, we held our inaugural LCIRN Symposium at the North West Cancer Research Centre in Liverpool with the aims of building a network and informing the LCIRN research strategy. The Symposium was successful in attracting a wide range of speakers and this breadth was reflected in the audience on the day.

Speakers and delegates at the LCIRN Symposium highlighted four priorities for research:

- (1) To understand the interplay and synergy between the political, economic and social conditions and cancer risk factors that lead to inequalities in exposure and vulnerability to cancer risk factors, inequalities in access to and outcomes from treatment, and inequalities in the health and social consequences of having a cancer diagnosis;
- (2) To identify which interventions will reduce inequalities, for whom and in what contexts. Giving consideration to universal/structural and targeted/individual interventions and support needed for people living with and beyond cancer;
- (3) To identify policy and practice entry points and to advocate for change;
- (4) To work collaboratively in research and in the delivery of change.

The LCIRN Executive Group and Core Group are taking these priorities forward in our strategies for research and collaboration.

INTRODUCTION:

We formed the Liverpool Cancer Inequalities Research Network (LCIRN) in April 2015, from an initial concern about the high number of head and neck (H&N) cancer patients in Liverpool, who come from disadvantaged backgrounds. Inequalities in cancer incidence, mortality and survival exist for many cancers (NCIN, 2014). Even for cancers where incidence is higher in more advantaged groups, mortality can be higher in the most disadvantaged groups (NCIN, 2014). There are a multitude of factors that contribute to these inequalities, often interacting in synergistic ways.

We have formed LCIRN to foster, support and undertake research into socioeconomic inequalities in cancer outcomes across the whole cancer pathway from source to outflow, using the river metaphor so often employed in public health. We are concerned, following Diderichsen et al (2001), with the interplay of socioeconomic factors that lead to differential exposures and vulnerabilities to risk factors, differential access to health and social care services, differential health and social outcomes among people with a cancer diagnosis.

We will focus on Liverpool and the surrounding region, recognising that Liverpool has the highest all cancer incidence in England, better than England average five-year survival for all cancers and some of the most pronounced socioeconomic inequalities in the country (Jones, 2016). If we can understand the complex interactions of factors that lead to cancer inequalities in Liverpool, we will have something important to say about socioeconomic inequalities in cancer wherever they occur.

LCIRN is intentionally multi-disciplinary as we are of the opinion that multiple perspectives are needed to elucidate the causes of inequalities in cancer in Liverpool, in order to reveal the complexity of interactions between the socioeconomic conditions in which people live and work and the generation of, treatment of and survival from cancer.

To this end, on Wednesday, 2nd November, 2016, we held our inaugural LCIRN Symposium at the North West Cancer Research Centre in Liverpool with the aims of building a network and informing the LCIRN research strategy. The Symposium was successful in attracting a wide range of speakers and this breadth was reflected in the audience on the day.

This paper is a report of the Symposium. The presentations are summarised first and then we draw together key themes from the presentations and discussions. Finally, we reflect on the whole to offer some conclusions and next steps for LCIRN.

PRESENTATIONS:

Professor Chris Holcombe and Mr Richard Jones ***Cancer Inequality in Liverpool***

Cancer is the largest cause of death in Liverpool, accounting for 31% of all deaths in 2011. Respiratory-, breast-, colorectal- and prostate cancers accounted for 53% of new cancers in Liverpool in 2013.

Whilst generally showing a decreasing trend, age-standardised cancer mortality remains higher in Liverpool when compared to the England average, with the gap between Liverpool and England remaining stable at 34% between 2001 and 2012.

Mortality is a composite measure of incidence, one-year survival and five-year survival rates. One-year survival rates are a surrogate measure for early diagnosis, and five-year survival rates are a surrogate for treatment effect. There has been a significant increase in one-year survival for all cancers combined across England. Although lower in Liverpool, the gap between Liverpool and the English average is narrowing and in 2012 was only 1.6% worse than for England as a whole, suggesting that we are getting better at early diagnosis. The good news is that the five-year cancer survival has increased over time, and is now better in Merseyside than the English average. This reflects improvements in early diagnosis and the quality of hospital and cancer treatment services.

The bad news is that cancer incidence continues to rise across England, the age-standardised incidence rate for all cancers is higher in Liverpool, and the gap between Liverpool and England is growing: from 15% in 2001 to 21% in 2013. Liverpool remains the cancer capital of Europe!

The high mortality rates, therefore, reflect the high incidence rates in Liverpool. We are doing better at diagnosis and treatment but failing in prevention, the realm of Public Health. This needs to be understood in the context of austerity measures, where Liverpool City Council has experienced more cuts in funding than anywhere else: so, how do we do more with less?!

Cancer Research UK has estimated that 40% of cancers can be prevented through lifestyle change. Personalised care creates an opportunity for targeted treatments with better outcomes. In the same way, we could target our prevention activities to where they are most needed. Cancer incidence and mortality differ across Liverpool by socioeconomic group. PCT/CCG segmentation work allows identification of groups for whom targeted prevention programmes would be most beneficial. This has been used effectively in the Liverpool Healthy Lung Programme.

Prevention is everybody's business: national and local government, secondary and tertiary care, football clubs, schools, volunteer and community groups ... The Big Society. The North Karelia Project in Finland demonstrated that collective action to tackle cardiovascular disease also led to a 65% reduction in cancers over 35 years (1969/71 – 2006).

Professor Dame Margaret Whitehead

Known unknowns about socioeconomic inequalities in cancer: A research agenda

Socioeconomic inequalities in cancer are a big problem but there is much that we do not know about the causes of these inequalities.

There are a number of hypotheses about why these inequalities exist and studies have been done on all of them. The picture we see is very complex, it depends very much on context, on country, on the health systems that people have access to. But there are still big gaps in our knowledge about what is really causing these large inequalities in cancer incidence, mortality and survival.

There may be *differential vulnerability* to cancer risk factors. For example, there is very little difference in high alcohol consumption across the different social groups, but there is much higher alcohol related mortality in more disadvantaged groups (Jones et al, 2015). The more disadvantaged groups are more vulnerable to the effects of alcohol. It is not entirely clear

why, but would seem to be the synergistic effects of differences in drinking habits (more binge drinking in more disadvantaged groups), more co-morbidities in poorer groups and disadvantaged living and working conditions. And the *differential consequences* of having an alcohol related illness - the economic and employment consequences of this - can lead to a downward spiral in poorer groups.

There can also be *differential exposure* to the risk factors that influence disease. For example, higher rates of smoking in poorer groups: when we look behind these figures, however, we see that smoking is used as a strategy for coping with the conditions of disadvantage (Graham, 1987; Graham, 1993).

Something very complex is going on that we need to understand. There are many things we need to research to be able to inform policy and interventions to really make a difference to cancer inequalities.

So, we need a research agenda to tackle socioeconomic inequalities in cancer. We need to understand:

- What are the reasons behind differential cancer outcomes, vulnerability and exposure?
- Where are the best policy entry points along the pathways?
- Which interventions work to reduce inequalities in outcomes, vulnerability or exposure, for whom and in what context?
- How methods and perspectives from social science, public health and medicine can add to the knowledge base, so we need to take a multidisciplinary approach.

These are questions that many researchers have been struggling with for many years. And that's why we need this network!

Professor Sally Sheard

Looking back to plan ahead: Liverpool's Cancer Histories

Cancer is often seen as a disease of modernity, and its increasing prominence, both in terms of diagnoses and deaths appears to parallel the National Health Service from its creation in 1948. Before the NHS the causes of cancers were not fully understood and there were limited treatment options such as radiotherapy and radium therapy, which were pioneered in the 1890s. Charities have been very important in funding research and treatment, especially in places such as Liverpool, which have had much higher rates of cancer than the national average. The 'North West Cancer Research Fund' originally started life as the 'Friends of the Liverpool Radium Institute' in 1948, and helped to shape treatment services in the region, including the decision to build a regional Radiotherapy Centre at Clatterbridge on the Wirral in 1958, rather than in the city centre.

Research funding has traditionally favoured clinical research for treating cancers, such as innovations in chemotherapy and immunotherapy, rather than understanding their causes and how to prevent them. In the 1950s smoking was identified as the main cause of lung cancer, and this set the path for health education linked to lifestyle choices, but underplayed other issues, including the impact of cancer on people who suffered from other risk factors, especially poverty and industrial occupations. The history of cancer in Liverpool is marked

by tensions between fundraisers, researchers and treatment providers. Understanding this history will help to plan better integrated and focused research and services for the future.

Dr Ciara Kierans

Reflections on a Political Economy of Cancer

In 1983 *Cancer in Britain: the politics of prevention*, edited by Lesley Doyal was published. It attempted to articulate debates about cancer prevention in the UK at the time and to tease out the complexities of cancer causation. These debates were organised around: an 'establishment position', advocating behavioural or lifestyle factors and a 'radical' approach taking a political economy perspective to expose the role of social structures, in particular industry, in the production of ill-health, including cancer deaths. One of the key messages of this book is that progress on the problem of cancer will not be achieved by individuals acting alone, and that neither industry nor government can or should be left to their own devices on the assumption that they will act in the public interest.

My paper revisits the central arguments of this book to consider its relevance in light of an urgency of interest in understanding social and health inequalities as well as the alarming prevalence and persistence of cancer in the Northwest of England, both raising questions about the full range of causes of cancer particularly for the region's poorest citizens. While there might be broad consensus that health outcomes imply a complex interweaving of individual biography and social history, that behavioural or individualised approaches are persistently employed as explanations for cancer causation is perhaps reason enough to reconsider the core contentions of Doyal's book. Not only do behaviourist approaches take us no closer to challenging the wider social, cultural, economic and political processes which shape our everyday lives and health, they can and do stigmatise those who have the least resources to expend in the interest of their health. They thus leave a substantial gap in our knowledge about how cancer risks are generated.

Mr Hugh Owen

Role of Social Housing

Riverside is a charitable housing association, based in Liverpool.

Around half of Riverside's homes are located in the country's 10% most deprived neighbourhoods, and our own analysis demonstrates a close association between the incidence of cancer, deprivation and the location of high concentrations of social housing.

Why is this relevant?

- Firstly, because housing associations have long-term relationships with vulnerable households with high incidences of illnesses such as cancer. We are in and out of their homes, engaging in sensitive conversations. This means we can be very effective at signposting 'hard to reach' individuals to a range of services, including health services.
- Secondly, because we are one of the City's largest providers of assistive technology, often funded through GP prescription. Simple alarm systems can provide huge benefits to cancer sufferers, particularly those who live alone with weaker support networks.

- In some areas we provide specialist services to meet the health needs of the homeless, including end of life support for cancer sufferers. Homelessness is on the rise, and there is a clear opportunity for extending these types of services.

Social housing providers such as Riverside, recognise the strong linkages between good housing, decent services and good health and wellbeing. Can our services be better harnessed to help you deliver your outcomes?

Professor Martin O’Flaherty and Dr Chris Kypridemos
The Joint prevention of cardiovascular disease and cancer

Worldwide, and in the UK, non-communicable diseases (NCD) are among the greatest public health challenges. However, cancer is eminently preventable through environmental and lifestyle changes. Since cancers share many determinants with other NCDs, particularly cardiovascular disease (CVD), joint prevention is an evolving concept that is becoming a key strategic approach to improve health in the population, both nationally and locally.

However, this task is complex. Cancer and CVD differ in their timescales, competing risks and clinical approaches. Population ageing only compounds this complex disease dynamic at the population level as well. For example CVD prevention results in fast premature mortality reductions, making survival into older age more likely and therefore has the potential to expose more people to cancer risk. Social differences in disease occurrence for both diseases require also to understand how these inequalities are produced and how different policy typologies might impact on those.

Work done with the IMPACT NCD model have provided crucial insights in defining the role of structural, population wide policies and targeted, individual level interventions on reducing disease burden. For example, the current salt reduction reformulation strategy, while reducing cardiovascular disease and gastric cancer burden, need to be substantially strengthened with tighter targets and regulation to more effectively reduce inequalities. In addition, consideration should be given to targeted interventions to specific groups to achieve a more equitable reduction in disease burden. CVD prevention provides a good example that structural policies complemented with targeting preventative interventions to less affluent individual achieves the biggest reduction in aggregate burden and its unequal distribution.

Mr John Halligan
Inequalities in exposure to workplace carcinogens

Low-skilled, living in poor housing, in a deprived neighbourhood, working shifts under a bad, non -union employment contract on pain of benefit sanctions; subject to occupational cancer risk, stressed, self-medicating, with a family history of similar life outcomes.

More, or less likely to become ill, than if comfortably off, middle class, professional in a well organised workplace, living in decent, expensive suburban housing?

More or less likely to survive?

More or less likely to (be able to) do something about it?

I am concerned to challenge researchers to map the range of inequalities, social, health, income and wealth, which might impact upon the incidence and prevalence of cancer among working people. The link between mental ill health and cancer is compelling: causative and consequential. Research already shows how inequalities impact upon mental illness rates in society. We know that people with Mental illnesses are likely to die, on average, 20 years younger than those without. We know the link between stress and occupational ill health and we understand the corrosive effects of premature and extended unemployment on mental health. Might research explore how an anti-cancer strategy should seek to keep people in Good Work (see <https://www.tuc.org.uk/sites/default/files/extras/goodwork.pdf>) as a key preventative or support measure for the 120,000 new cases of working age people who get cancer every year?

Ms Jo McCullagh

Liverpool Cancer Prevention Strategy 2016-2020

Reducing rates of cancer is a key priority in Liverpool as cancer kills more people in the City each year than any condition, accounting for almost three out of every ten deaths. Around 42% of all cancers are attributable to lifestyle factors such as smoking, poor diet, obesity, overexposure to ultraviolet radiation, and excessive alcohol consumption, equating to an estimated 1,300 of all new cancers diagnosed in Liverpool each year.

Cancer screening programmes play a significant role in finding and removing early abnormalities that could lead to cancer if left untreated and in detecting cancer at an early stage, before a person may become symptomatic. However, bowel, breast and cervical cancer screening uptake is significantly lower in Liverpool than nationally and there is wide variation in participation rates across the City.

In response, this strategy has been collectively developed to ensure that all people in Liverpool are supported to lead healthy lifestyles, participate in screening programmes, understand the signs and symptoms of cancer, and able to access their GP if they develop symptoms. It includes interventions undertaken at both the individual level, through campaigns and engagement, training and service provision and at population level through local policy development, adaptation of the physical environment and national legislation.

Mr Taher Qassim, MBE

Inequalities and Bowel Screening in Liverpool

The Inequalities and Bowel Cancer Screening (BCS) Intervention in Liverpool has three phases. Phase one was to identify where uptake of BCS was lowest. Phase two was to explore options to increase BCS in these areas. Phase three has the aim of increasing uptake of BCS. At the time of the Symposium, phases one and two were complete and phase three was just beginning.

In phase one, May 2014 till May 2015, we analysed anonymised BCS data drawn from 2011 till 2014, over 89,000 records, for people between the ages of 60 and 70 years. We identified the neighbourhoods who had the lowest uptake of bowel cancer screening and shared the results with them. These low-uptake neighbourhoods also had the highest proportions of Black, Asian, and Minority Ethnic (BAME) groups in the city.

In phase two, May till December 2015, we formed a Multidisciplinary Team (MT) with help from Collaboration for Leadership in Applied Health Research and Care North West Coast (CLAHRC NWC). The MT looked at the evidence and explored alternative options to improve the rates of BCS as a priority issue for Liverpool and nationally. Through CLAHRC NWC, the MT identified a critical communication triangle: the National Screening Hub, the patient, and the GP practices. The national hub communicates directly with the patient and then inform the GP practices about the results of the screening. The GP involvement was almost nil where they did not feel obliged to do anything about BCS.

Phase three started in January 2016 and is delivering a GP intervention based on one from Tower Hamlets. In this intervention, representatives from the GP practices will follow-up with their patients who have not returned a BCS test with either a telephone or face-to-face conversation. This will run between December 2016 and June 2017 and will be evaluated by a team from LCIRN.

Professor David Taylor-Robinson

Understanding Social Inequalities in Head and Neck Cancer

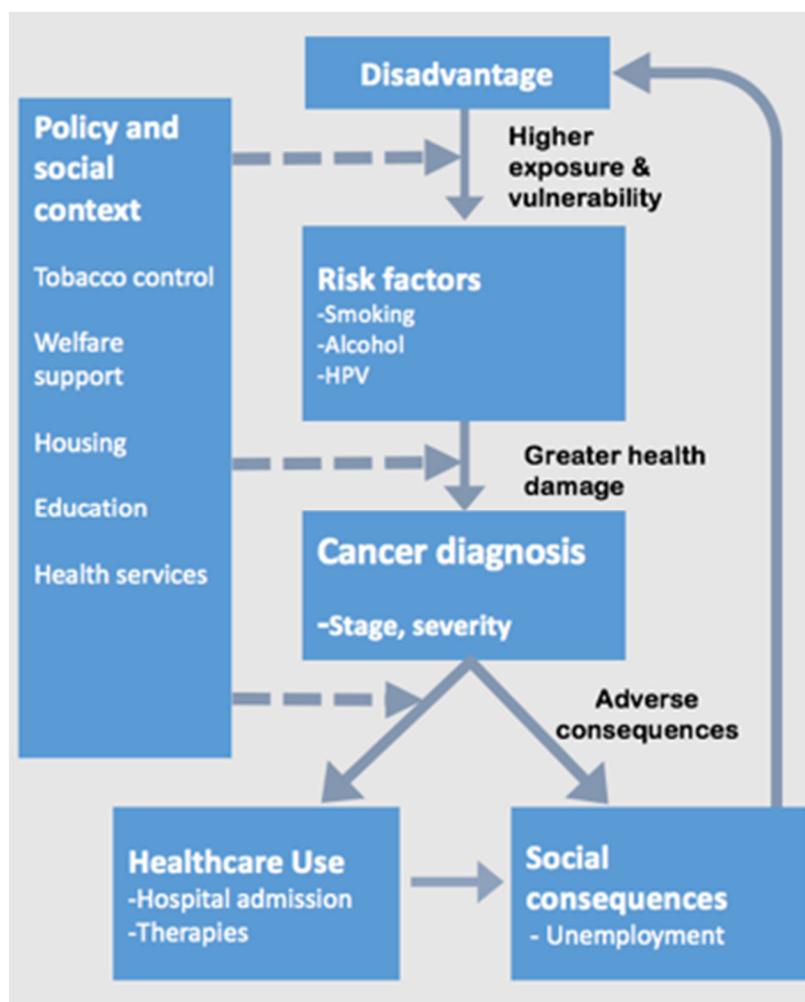
There is rising incidence of several head and neck cancers, with improved survival, but these improvements have not been shared equally. For instance the inequality in survival between rich and poor for cancer of the larynx is now the widest of any common cancer, and it has worsened more rapidly than for any other cancer in men. Furthermore the most affluent groups account for nearly all of the overall increase in survival; and there are stark geographic inequalities.

Figure 1, below, shows the Diderichsen model of pathways to inequalities in health used by the WHO. In the presentation I use this as the theoretical framework to understand how inequalities arise in head and neck cancer, reviewing the current literature and identifying key gaps in the literature.

In terms of higher exposure and vulnerability:

- Differences in exposure to alcohol and tobacco by socio-economic group are important in the generation of inequalities in incidence of head and neck cancer. Studies suggest that two thirds of the increased risk is explained by differences in the distribution of cigarette smoking and alcohol behaviors. However, this leaves a third of the increased risk unexplained by these risk factors; and it remained elevated even among never users of tobacco and nondrinkers. Our recent research has explored risk factors for early initiation of smoking, showing stark inequalities in early initiation, partially explained by early exposure to parental smoking.
- Current research suggests that this is particularly a problem for oropharyngeal cancer, and that there are important social inequalities, with the disadvantaged elderly particularly prone to late diagnosis.
- Our meta-analysis exploring how lower compared to higher SES influences survival in HNSCC suggests a 50% increase in risk of death in more disadvantaged populations.

Figure 1: Head and neck cancer – explaining excess risk and worse consequences in disadvantaged populations



In terms of social consequences:

- There is evidence to suggest significant detrimental impacts on quality of life, role functioning, finances and employment following a diagnosis of head and neck cancer, but few studies have assessed how these impacts differ on the basis of social circumstances.

Finally I review policies that are likely to be effective in reducing inequalities as illustrated in figure 1; and highlight the importance of universal health systems.

Emma Squibb

The trouble with pathways

Sunflowers is a local cancer charity, designed to support people affected by cancer. The charity provides peer support, social events, fundraising, complementary therapies and counselling.

The charity recognises that more work is needed around cancer prevention, especially in Liverpool, and although this is not the charity's main remit, exercise and nutrition classes are provided which have improved fitness levels by up to 88%.

There is currently a lot of research taking place to find new treatments and diagnostics, but relatively little on how a cancer diagnosis can affect the mental health of the patient and their family. Local charities help to educate people about what cancer is, what they can expect from treatment, where to go for support and how to get them back to their normal lives.

Local charities must fit with NHS priorities in order to secure their survival. Charities such as Sunflowers are extremely cost effective costing £3.50/hour on average, which lightens the burden for the NHS and provides support that the NHS is unable to offer.

The importance of local charities cannot be overstated. They address the specific needs of local people from a particular area, and are often already firmly embedded within the community. The support they provide is extremely good value for money and can have huge impacts on mental and physical wellbeing, which the NHS sometimes struggles to provide.

Cancer isn't one disease: it consists of more than 200 different types, which means that there is no one pathway through cancer, but multiple ones. In order to support cancer sufferers we must all come together not just medically but as a society.

Professor Mari Lloyd-Williams ***Inequalities and Palliative Care***

The literature on inequalities in palliative care is limited and the focus is on access to services. The recent CQC Report "A different ending" May 2016, highlighted inequities in care for 10 disadvantaged groups, but lack of provision was highlighted as the main issue. A longitudinal study of 629 patients with advanced cancer attending hospice services in the North West invited patients to complete assessments at baseline and 2, 4 and 6 months. Assessments included patient reported symptom outcome, Global symptom burden score and measurement of Depression with PHQ9. Of the 629 patients recruited, 97% were 'white British', 67% were female and 29% lived in the most deprived 20% of all neighbourhoods. When exploring depression, 31% scored 10 or more on PHQ9 indicative of moderate to severe depression. Patients living in the most deprived areas were significantly more likely to have moderate or severe depression ($p=0.04$) and higher Global symptom burden ($p=0.001$). Patients receiving sufficient information at diagnosis were significantly more likely to reside in less deprived neighbourhoods ($p=0.007$). However socioeconomic deprivation did not impact on survival within the study. This is the first study to explore socioeconomic deprivation within palliative care and our work suggests that greater attention is required to address symptom control needs in relation to socioeconomic deprivation.

Melanie Zeiderman ***Strategic priority: transforming our approach to support people living with and beyond cancer***

More than 2.5 million people are living with or beyond cancer in the UK, this number is predicted to rise to 4 million by 2030. Over half of those living with or beyond cancer have

had the diagnosis for 5 years or more. 39% of people with cancer who completed treatment in 2009/10 say that no health or social care professional talked them through the needs they might have. Costs associated with outpatient appointments affect 71% of people living with cancer.

There is compelling evidence of the benefits of exercise for people living with cancer. Despite this, most cancer centres do not offer exercise advice as a standard part of patient care. A UK survey found that around half of oncologists and surgeons do not routinely discuss physical activity with their patients.

High Level Aims for the Next 5 Years:

- All patients diagnosed with cancer to have a holistic needs assessment and a care plan
- All patients to receive end of treatment summaries detailing their after care
- Access to Health and Wellbeing events with a core curriculum consistent with National Service Specification
- Risk stratified follow up to replace one size fits all for common cancers
- All cancer patients to have remote access to their health records and information to enable them to “self- manage”
- Locally commissioned services for cancer specific rehabilitation and physical activity
- Appropriate advice and support available to all people affected by cancer to reduce the financial burden of cancer and enable them to return to work
- Consistent and equal access to specialist rehabilitation and support services
- Use of existing community based assets to assist in the delivery of LWBC aims (the Glasgow approach)

DISCUSSION:

The stark inequalities in cancer incidence between Liverpool and the rest of England are of great concern, but equally problematic are the inequalities that exist within Liverpool and the surrounding region (Holcombe and Jones). The news is not all bleak, with five-year cancer survival rates greater in Liverpool than the English average (Holcombe and Jones). With more than 50% of people surviving cancer for more than five years (Zeiderman), this may present other challenges for inequalities in quality of life for people living with and beyond cancer. For example, if 71% of people are affected by the costs of outpatient care (Zeiderman), with some experiencing financial distress as a result (Taylor-Robinson) then there are potentially differential social consequences of cancer, although more research is needed to explore this (Taylor-Robinson).

42% of cancers can be prevented through changes in lifestyle, such as smoking, alcohol consumption and sunbed use (Holcombe and Jones; McCullagh; CRUK, 2014). This can lead to a focus on promoting lifestyle change, especially amongst the most disadvantaged. This is an understandable response to the pressures to improve cancer outcomes. But there is debate about the extent to which lifestyle can be separated out from the socioeconomic conditions within which people live and work. Historical analysis shows that tensions between fundraisers, researchers and medicine led to a prioritisation of lifestyle over wider social and environmental causes of cancer (Sheard). Analyses for head and neck cancer

incidence show that social patterns of alcohol and tobacco consumption explain two thirds of the difference in incidence between the lowest and highest social groups, leaving one third of this difference unexplained by lifestyle (Taylor-Robinson). The conditions of deprivation interact with lifestyle 'choice' such that there is differential exposure to risk factors (Taylor-Robinson; Whitehead). For example, the more disadvantaged may smoke to cope with difficult circumstances (Whitehead; Graham 1987, 1993) and have been shown to smoke more for every additional layer of disadvantage experienced across the lifecourse (Whitehead; Graham et al, 2006). Equally the differential consequences of lifestyle 'choice' can be greater amongst disadvantaged groups, even when the rates of uptake of those behaviours is similar across different socioeconomic groups (Whitehead; Jones et al, 2015), leading to differential vulnerabilities (Taylor-Robinson; Whitehead). The focus on lifestyle does not challenge these social and environmental causes of cancer, and can stigmatise the poorest and least powerful groups in society (Kierans).

Several presenters argued for combined actions to tackle cancer inequalities: interventions aimed at those at highest risk of cancer or most vulnerable to the health and social consequences of cancer; population wide or structural changes to reduce exposure to carcinogens (Holcombe and Jones; McCullagh; O'Flaherty and Kypridemos). For example, awareness raising of the carcinogenic effects of sunbed use among young women and regulation of sunbed salons (McCullagh). There are differential rates of uptake of bowel cancer screening, with the lowest rates of screening among the most disadvantaged and Black, Asian and Minority Ethnic groups (Qassim). A project to improve rates in these communities also highlighted structural issues in the communication triangle between Screening Hub, GP Practice and patients (Qassim). The North Karelia project in Finland to reduce cardiovascular disease (CVD) demonstrated beneficial effects for both CVD and cancer incidence (Holcombe and Jones). Statistical modelling by O'Flaherty and Kypridemos has demonstrated the potential for joint prevention of CVD and cancer, although the differing timescales for effect might leave more people vulnerable to developing cancer as fewer people die from CVD (O'Flaherty and Kypridemos).

Finally, our presenters challenged us to explore the relationship between cancer and mental health, both as a risk factor for cancer mortality (Lloyd-Williams) and an outcome of cancer diagnosis (Halligan); to work more collaboratively, recognising the role of social housing (Owen), trades unions (Halligan), charities (Squibb) and existing community based assets (Zeiderman) in providing support and services to people living with and beyond cancer; to explore the associations between the full range of inequalities – social, income, employment, wealth, health – and cancer outcomes.

Following these presentations there were lively and informative discussions. Common themes emerged from the discussions as a whole and these are considered next:

1. Context

We need to understand and be mindful of the context within which inequalities are created and service providers operate. We need to be explicit about the politics that influence policy decisions and national legislation. The ideology of austerity is a challenge to the principles of equity and the social determinants of health. The level of change and cuts to services have

created enormous challenges to local service providers. We need to acknowledge the role of poverty in the generation of cancer inequalities.

Delegates argued that general practitioners don't know what they don't know, that gaps in knowledge about the generation of cancer inequalities hold health professionals back. In addition, cancer patients are disengaged from primary care treatment and some use hospices for their primary care treatment.

2. What is the most effective way of targeting cancer inequality?

Delegates suggested interventions to reduce the development of cancer and to provide equitable treatment should be a priority. Less is known about children's cancers and the links between childhood exposures and cancers in later life (e.g. dental decay, exposure to electromagnetic radiation). Delegates felt that more statistical modelling, similar to that reported by Martin O'Flaherty would be useful to identify policy entry points to address cancer inequality.

Support was also given to a mix of interventions including targeted and universal interventions, following Marmot's *Proportionate Universalism* (Marmot, 2010). Wider determinants of cancer inequalities could be tackled through, for example, a Health in all Policies approach. Focusing only on reducing lifestyle risk factors for cancer will have a limited impact.

Our delegates argued for the need to make services accessible to all. Bring support and services to people. People from poorer backgrounds find it harder to access services of many persuasions.

We need to do better at providing support to cancer patients. Health and social care are not good at providing this support. Most cancer patients do not have someone to talk to post diagnosis. Support could be provided by people who have had cancer either to individuals or by talking to community groups. The latter may help to change attitudes to cancer. It is much better to hear cancer messages from a person who has had that experience than from a book. This could help to reduce fear of cancer.

We need to understand the links between mental illness and cancer, the interplay of mental health and wellbeing with a sense of place, access to green space, exercise and obesity.

3. Collaboration

Delegates identified areas of possible collaborative working. LCIRN were encouraged to work with the Cheshire and Merseyside Sustainability and Transformation Plan, which has a prevention theme to it, and the Cheshire and Merseyside Cancer Alliance. The health and social care system needs to be better connected, for example to encourage links between Public Health England, Social Housing and Trades Unions. Overall, delegates felt that more joint working is needed and that a whole systems approach should be taken to address inequalities in cancer outcomes.

This collaboration extends to providing holistic care for cancer patients and to develop patient pathways from a holistic care perspective. For example, for the NHS to support voluntary sector organisations that provide support to cancer patients. And to offer benefits

support and advice to cancer patients to reduce their vulnerabilities to the financial costs associated with cancer treatment.

Delegates argued that we need to make allies of cancer patients. People who have had cancer should be allies in understanding the causes of cancer in the community.

4. How do we influence decision makers and raise awareness of cancer inequalities?

The delegates had questions about the role of evidence in influencing policy and practice. They suggested research to understand how evidence is or is not used, and what stops evidence being implemented. What needs to be done to translate evidence into contracting and services?

There is a need for national legislation that local policies can hang off. We need to advocate to put health on the national and local policy agenda, reaching out to those that are not sympathetic to the social model of health.

The NHS could use the power of its procurement to make sure something is done to address inequalities city and region wide. We all have a role in improving equity ... public health is everybody's business. Health and Wellbeing is a priority area for the Liverpool City Region's Local Enterprise Partnership (Liverpool LEP, 2014) .

CONCLUSION:

The co-occurrence of high incidence and mortality rates of cancer and high levels of deprivation and inequality in Liverpool presents us with an opportunity to unpick the relationship between deprivation and cancer outcomes to understand what drives inequalities in cancer and what we might do about them.

Inequalities in cancer outcomes feature prominently in the Cancer Strategy for England (Independent Cancer Taskforce, 2015). Like other reports on cancer inequalities (e.g. APPGC (2010), Gordon-Dseagu (2008) and NCEI (2010)), the Strategy focuses on lifestyle 'choice', symptom awareness and late presentation as the main causes of and interventions for inequalities in cancer outcomes. The underlying socioeconomic and political determinants that shape exposures and vulnerabilities to cancer risk factors and health and social consequences of cancer are rarely considered.

Speakers and attendees at the LCIRN Symposium highlighted four priorities:

- (5) To understand the interplay and synergy between the political, economic and social conditions and cancer risk factors that lead to inequalities in exposure and vulnerability to cancer risk factors, inequalities in access to and outcomes from treatment, and inequalities in the health and social consequences of having a cancer diagnosis;
- (6) To identify which interventions will reduce inequalities, for whom and in what contexts. Giving consideration to universal/structural and targeted/individual interventions and support needed for people living with and beyond cancer;
- (7) To identify policy and practice entry points and to advocate for change;

(8) To work collaboratively in research and to deliver change.

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