



Addressing health equality in the National Clinical Audit and Patient Outcome Programme audits

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Introduction

There are differences in health outcomes between different population groups and many of these are unjust and warrant action. This report assesses the inclusion of healthcare inequality data in National Clinical Audits in the National Clinical Audit and Patient Outcomes Programme (NCAPOP). It begins by discussing the definitions of inequality and inequity and some of the methodological challenges in investigating them. It then reviews a selection of NCAPOP audits for the inclusion of healthcare inequality data: based on patient data collection, reporting and analysis.

Background

Defining inequality and inequity

'Health equity', 'inequality' and 'disparity' have been interpreted, and used, differently in different countries, by different organisations and academics (Braveman, 2006). Health inequalities can be described as differences in health outcomes between different individuals and population groups: for example old and young, or men and women (Kawachi et al., 2002). Health inequity refers to inequalities that are socially unjust (Dahlgren & Whitehead, 2006). Dahlgren and Whitehead (2006) suggest in addition, that only avoidable situations should be categorised as inequities and this should be included in the definition. However, Braveman and Gruskin (Braveman & Gruskin, 2003) argue unjust outcomes are inherently avoidable, and therefore this addition is not needed.

The philosophical perspective from which the moral component of the definition is made may not be universal. For example, one with an egalitarian perspective may see something as unjust whereas one with a utilitarian perspective may not.

Health equity can be considered different to healthcare equity. Equity in health means everyone has the 'opportunity to attain their full health potential' (Whitehead, 1992). Equity in healthcare means everyone has 'equal access to available care for equal need; equal utilisation for equal need [and] equal quality of care for all' (Whitehead, 1992).

Whitehead (Whitehead, 1992) describes seven causes of differences in health between populations:

1. 'Natural, biological variation

2. Health-damaging behaviour if freely chosen, such as participation in certain sports and pastimes.
3. The transient health advantage of one group over another when that group is first to adopt a health-promoting behaviour (as long as other groups have the means to catch up fairly soon).
4. Health-damaging behaviour where the degree of choice of lifestyles is severely restricted.
5. Exposure to unhealthy, stressful living and working conditions.
6. Inadequate access to essential health and other public services.
7. Natural selection or health-related social mobility involving the tendency for sick people to move down the social scale.'

Whitehead suggests that health differences arising from primary causes in 1-3 would not be considered inequities because they are not avoidable and are not generally seen as unjust. Health outcomes arising from causes in categories 4-6 would be considered avoidable and unjust. Category 7 includes causes of ill health which may not be avoidable or unjust (i.e. biological variation); however, the effect on socioeconomic status would be unjust and avoidable.

It is also useful to consider both horizontal and vertical equity. Horizontal equity requires people to be treated equally irrespective of their circumstances, i.e. equal resources for equal need (Bambas & Casas, 2001). However, vertical equity requires people to be treated differently if it is judged to be fair, i.e. different resources for different levels of need (Bambas & Casas, 2001).

This report adopts the definition of inequity used by Dahlgren and Whitehead (2006). It will describe differences in health outcomes and access to health between population groups as inequalities.

Causes of inequalities in health

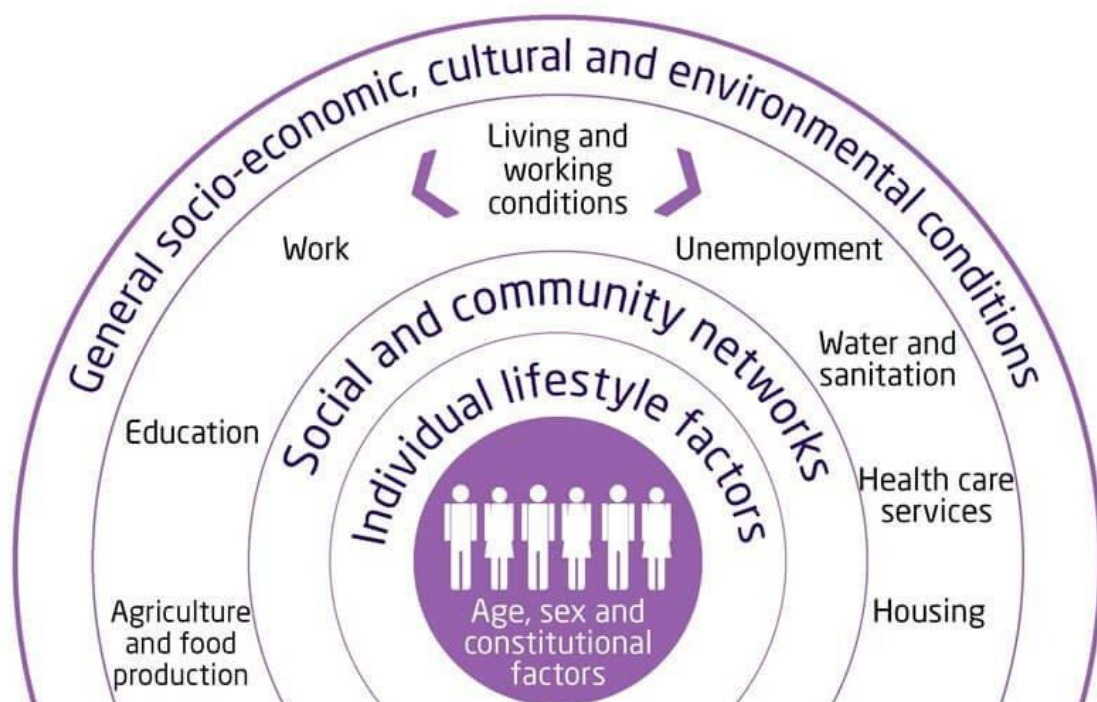
There are many reasons why health outcomes differ between individuals and populations. An individual's genetics, their lifestyle, living and working environment, access to healthcare, income and social networks all contribute (The King's Fund, n.d.) (see Figure 1). Bias and prejudice may also affect someone's access to healthcare and health outcomes (Nelson, 2002).

Studies have attempted to estimate the impact of the individual determinants of health. Healthcare has been estimated to account for between 10 and 43% of the contribution to health outcomes (The King's Fund, n.d.). Understanding the causes of ill health, from a social determinants perspective, is important for the development of strategies to improve health and this will often require multi sector working (The Health Foundation., 2017).

Figure 1

The Wider Determinant of Health

Source: (The King's Fund, n.d. adapted from Dahlgren & Whitehead, 1993)



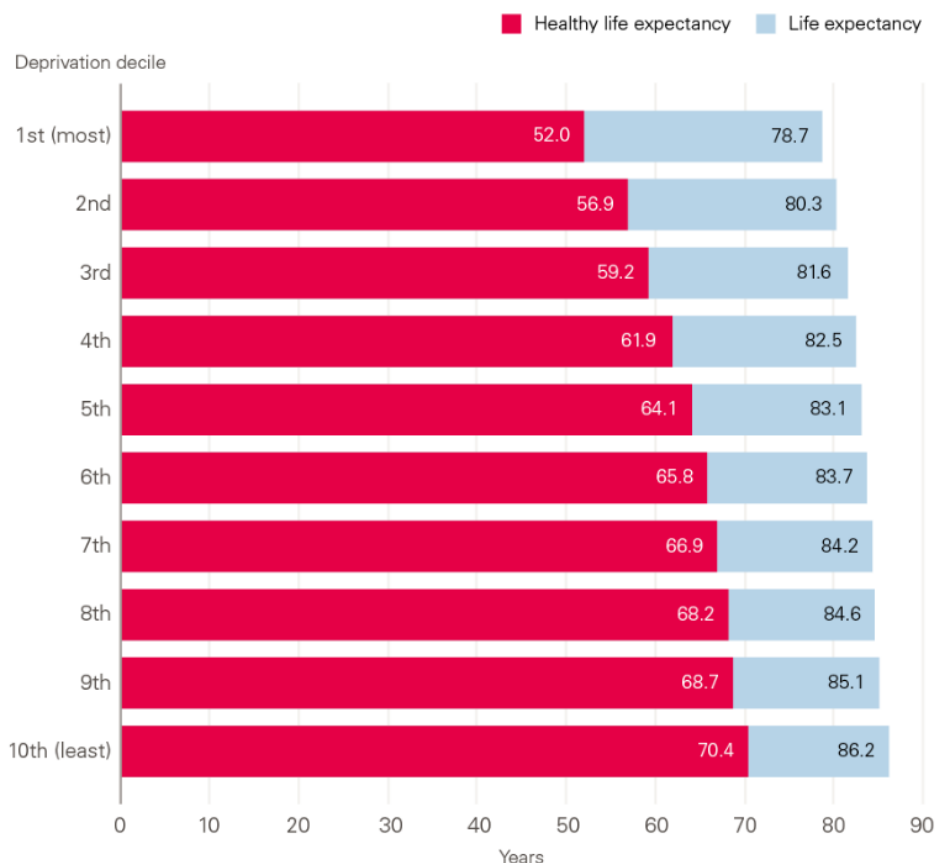
The significance of healthcare inequality

People from less deprived areas live longer than those from deprived areas (as shown in Figure 2). In England men from the most deprived areas have a life expectancy at birth 9.5 years shorter than men from the least deprived areas (Marmot et al., 2020). In the London Borough of Croydon the difference in male life expectancy changes by 10 years over a 3 mile distance (Croydon Council, 2017). These differences are inextricably linked to other inequalities – such as those listed above. Inequalities can indirectly affect the whole of society and interventions to reduce them equally have potential to positively affect everyone (Woodward & Kawachi, 2000).

Figure 2

Female life expectancy in England 2015-17

Source:(The Health Foundation, 2019)



There are many arguments for reducing health inequalities including economical, societal and moral (Michael Marmot et al., 2010; Woodward & Kawachi, 2000). The primary argument is one of social justice (Whitehead, 1992). The Marmot Review (Michael Marmot et al., 2010) sets social justice and fairness as the cornerstone for their argument for action against inequality.

Inequality causes costs to the economy from lost productivity, lost taxes and increased government expenditure in the form of benefits (Michael Marmot et al., 2010). In addition, the cost to the NHS from inequality is estimated at over £5.5 billion per year (ibid).

Reducing inequalities is a priority listed in the NHS Long Term Plan (NHS England, 2019 chapter 2). In addition, in a letter sent on July 31st by Simon Stevens and Amanda Pritchard (2020) they ask NHS organisations to:

‘Restore NHS services inclusively, so that they are used by those in greatest need. This will be guided by new, core performance monitoring of service use and outcomes among those from the most deprived neighbourhoods and from Black and Asian communities, by 31 October.’

Furthermore, in May 2020 NHS England created the NHS Health and Race Observatory to investigate, and suggest interventions to reduce, the health inequalities of people from Black, Asian and minority ethnic backgrounds (NHS England, 2020). This suggests NHS England are committed to tackling health inequalities and there is financial resource dedicated to this.

Measuring inequality and inequity in health – audit or research?

Cross-sectional, cohort and ecological studies are examples of observational methodologies which allow the comparison of health outcomes between populations. Identifying causal factors can be challenging as often differences in health between populations are due to multiple variables. Statistical analysis such as logistic regression and matching can help reduce confounding (Jeffries et al., 2019). In longitudinal studies marginal structural models and fixed-effect models can be employed (Jeffries et al., 2019).

To establish something as inequitable one must first define equity and understand the moral perspective from which their work is arising. As stated above inequities in health can be defined as differences between populations that are considered unjust and preventable.

Clinical audit can be defined as ‘a quality improvement cycle that involves measurement of the effectiveness of healthcare against agreed and proven standards for high quality, and taking action to bring practice in line with these standards so as to improve the quality of care and health outcomes’ (HQIP, 2020). The differences between audit and research are explained by the Health Research Authority (HRA, 2017). Audits should ‘inform the delivery of best care’ by measuring care against pre-determined standards. It would seem sensible to assume that standards of care should be consistent

across different population groups (i.e. to ensure equality of care). Clinical targets may differ between different population groups (e.g. depending on age); however, a standard of care should be the same.

A rapid literature review (methodology in Appendix 1) showed no peer-reviewed papers addressing the role of clinical audit in investigating health and healthcare inequalities. Three studies were identified for which the authors used national audit data to investigate health inequalities. Gale et al., (2012) found differences in myocardial infarction management between different age groups. Rich et al., (2011) showed there is geographical variation in rates of surgical resection for lung cancer patients. Perry et al., (2016) found that patients with lower socioeconomic status were less likely to receive a total hip replacement following a hip fracture. In addition, although not included in the results of the review, a study was published in 2019 using data from the National Emergency Laparotomy Audit highlighting differences in mortality between socioeconomic groups (Poulton et al., 2020).

Information requested at tender

During the tender process bidders are requested by HQIP to state how they will address healthcare equity. They are asked: 'How will data be used to audit the equity of care? Which factors will be considered for example socioeconomic status, gender, age, and ethnicity?'

Methodology

The project methodology has been developed at pace following a temporary suspension of the project due to the COVID-19 pandemic.

A sample of NCAPOP published clinical audits were reviewed (October 2019 to January 2020). Audit reports were accessed via the HQIP website.

Audits were reviewed for evidence of:

- 1) Patient characteristic data collection by reviewing the audit report and dataset, if available on the audit provider's website.
- 2) Reporting of patient characteristic data within the audit report (defined as the presentation of aggregate patient characteristic data e.g. median age of patient population; percentage of patients per deprivation quintile).
- 3) Analysis of the effect of patient characteristics on audit measures.

The protected characteristics as described in the Equality Act 2010 (Equality Act 2010, 2010) were used as the patient characteristics for this project. In addition, socioeconomic status and NHS region in which the patients were treated were also included. A patient's sex is defined as their biological sex assigned at birth and their gender identity as the gender with which the patient identifies.

Results

19 reports were reviewed and are listed in Table 1.

Table 1 – National Clinical Audit Reports Reviewed

No.	Audit Name	Report Title	Publication Date
1	National Maternity and Perinatal Audit	Annual Report	Sept 2019
2	National Ophthalmology Database (NOD) Audit	Annual Report	Sept 2019
3	National Paediatric Diabetes Audit (NPDA)	Spotlight Report: Technology	Sept 2019
4	National Paediatric Diabetes Audit (NPDA)	Spotlight Report: Workforce	Sept 2019
5	National Institute for Cardiovascular Outcomes Research (NICOR) Adult Cardiac Surgery	Annual Report	Sept 2019
6	NICOR Heart Failure	Annual Report	Sept 2019
7	NICOR Adult Percutaneous Interventions (Angioplasty Audit)	Annual Report	Sept 2019
8	NICOR Myocardial Ischaemia and Heart Attack Audit Project (MINAP)	Annual Report	Sept 2019
9	NICOR Congenital Heart Disease in Children and Adults	Annual Report	Sept 2019
10	National Clinical Audit of Anxiety & Depression (NCAAD)	Annual Report	Oct 2019
11	National Early Inflammatory Arthritis Audit (NEIAA)	Annual Report	Oct 2019
12	National Pregnancy in Diabetes Audit (NPID)	Annual Report	Oct 2019
13	National Lung Cancer Audit (NLCA)	Spotlight Audit - molecular testing	Jan 2020

14	NNAP - National Neonatal Audit Programme	Annual Report	Jan 2020
15	Paediatric Intensive Care Audit (PICANet)	Annual Report	Jan 2020
16	National Vascular Registry (NVR)	Annual Report	Jan 2020
17	National Oesophago-gastric Cancer Audit (NOGCA)	Annual Report	Jan 2020
18	National Prostate Cancer Audit (NPCA)	Short Report: Prostate biopsy method	Jan 2020
19	National Diabetes Audit (NDA)	Core report 2: complications and mortality	Jan 2020

1. Data collected

The patient characteristics collected by the national audits are shown in Table 2. Patient age was collected in 100% of audits, patient sex in 100% of audits (excluding PCA, NMPA and NPID), and ethnicity in 84% of audits and postcode in 95% of audits. Patient religion, sexuality, gender identity and pregnancy status (excluding NMPA, NPID, NPCA, NNAP and PICANet) were not collected in any of the audits. The NHS institution patients were treated in was known in all audits and, therefore, NHS region could have been identified in all audits.

Table 2 - Patient characteristics collected

Audit	Age	Sex	Ethnicity	Postcode	Gender (as identified)	Sexuality	Marital Status	Religion	Disability	Region	Pregnancy
National Maternity and Perinatal Audit Annual Report	✓	N/A	✓	✓	N/A	x	x	x	x	✓	N/A
National Ophthalmology Database (NOD) Audit Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
National Paediatric Diabetes Audit (NPDA) Spotlight Report: Technology	✓	✓	✓	✓	x	x	x	x	x	✓	x
National Paediatric Diabetes Audit (NPDA) Spotlight Report: Workforce	✓	✓	✓	✓	x	x	x	x	x	✓	x
Adult Cardiac Surgery Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
Heart Failure	✓	✓	✓	✓	x	x	x	x	x	✓	x
Adult Percutaneous Interventions (Angioplasty Audit) Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x

Myocardial Ischaemia and Heart Attack Audit Project (MINAP) Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
Congenital Heart Disease in Children and Adults Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
Cardiac Rhythm Management Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
National Clinical Audit of Anxiety & Depression (NCAAD) Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
National Early Inflammatory Arthritis Audit (NEIAA) Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓	x
National Pregnancy in Diabetes Audit (NPID) Annual Report	✓	N/A	✓	✓	N/A	x	x	x	x	✓	N/A
National Lung Cancer Audit (NLCA) Spotlight Audit - molecular testing	✓	✓	✓	✓	x	x	x	x	x	✓	x
NNAP - National Neonatal Audit Programme Annual Report *	✓	✓	✓	✓	x	x	x	x	x	✓	N/A

Paediatric Intensive Care Audit (PICANet) Annual Report	✓	✓	✓	✓	N/A	N/A	N/A	x	x	✓	N/A
National Vascular Registry (NVR) Annual Report	✓	✓	✓	x	x	x	x	x	x	✓	x
National Oesophago-gastric Cancer Audit (NOGCA) Annual Report	✓	✓	✓	x	x	x	x	x	x	✓	x
National Prostate Cancer Audit (NPCA) Short Report: Prostate biopsy method	✓	N/A	✓	✓	x	x	x	x	x	✓	N/A
National Diabetes Audit (NDA) Core report 2: complications and mortality	✓	✓	✓	✓	x	x	x	x	✓	✓	x

*Some characteristics are maternal characteristics

2. Patient characteristic reporting

The patient characteristics reported by each audit is shown in Table 3.

75% (12/16 – excluding NPDA Workforce, NNAP and PICANet) of audits presented the age of the patients in their report. Patient sex, ethnicity and socioeconomic status (patients' postcodes are used as a surrogate for socioeconomic status by using the Index of Multiple Deprivation) were reported less frequently (60% (9/15), 33% (6/18) and 39% (7/18) respectively).

Only one audit report commented on disability status: the NDA complications and mortality report included the number of patients with diabetes and learning disability.

Table 3 – Patient Characteristics Reported

Audit	Age	Sex	Ethnicity	Socioeconomic Status	Gender (as identified)	Sexuality	Marital Status	Religion	Disability	Region	Pregnancy
National Maternity and Perinatal Audit Annual Report	✓	N/A	✓	✓	N/A	x	x	x	x	x	N/A
National Ophthalmology Database (NOD) Audit Annual Report	✓	✓	x	✓	x	x	x	x	x	x	x
National Paediatric Diabetes Audit (NPDA) Spotlight Report: Technology	x	x	x	x	x	x	x	x	x	x	x
National Paediatric Diabetes Audit (NPDA) Spotlight Report: Workforce	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	x	N/A
Adult Cardiac Surgery Annual Report	x	x	x	x	x	x	x	x	x	x	x
Heart Failure	x	x	x	x	x	x	x	x	x	x	x
Adult Percutaneous Interventions (Angioplasty Audit) Annual Report	x	x	x	x	x	x	x	x	x	x	x
Myocardial Ischaemia and Heart Attack Audit	✓	✓	x	x	x	x	x	x	x	x	x

Project (MINAP) Annual Report												
Congenital Heart Disease in Children and Adults Annual Report	x	x	x	x	x	x	x	x	x	x	x	x
Cardiac Rhythm Management Annual Report	✓	✓	x	x	x	x	x	x	x	x	x	x
National Clinical Audit of Anxiety & Depression (NCAAD) Annual Report	✓	✓	✓	✓	x	x	x	x	x	x	x	x
National Early Inflammatory Arthritis Audit (NEIAA) Annual Report	✓	✓	✓	✓	x	x	x	x	x	✓		x
National Pregnancy in Diabetes Audit (NPID) Annual Report	✓	N/A	✓	✓	N/A	x	x	x	x	✓		N/A
National Lung Cancer Audit (NLCA) Spotlight Audit - molecular testing	✓	✓	x	x	x	x	x	x	x	x	x	x
NNAP - National Neonatal Audit Programme Annual Report	N/A	✓	x	x	x	x	x	x	x	x	x	N/A

Paediatric Intensive Care Audit (PICANet) Annual Report	N/A	✓	x	x	N/A	N/A	N/A	x	x	✓	N/A
National Vascular Registry (NVR) Annual Report	✓	✓	x	x	x	x	x	x	x	x	x
National Oesophago-gastric Cancer Audit (NOGCA) Annual Report	✓	✓	x	x	x	x	x	x	x	✓	x
National Prostate Cancer Audit (NPCA) Short Report: Prostate biopsy method	✓	N/A	✓	✓	x	x	x	x	x	x	N/A
National Diabetes Audit (NDA) Core report 2: complications and mortality	✓	✓	✓	✓	x	x	x	x	✓	x	x

3. Analysis of the effect of patient characteristics on audit measures

The inclusion of patient characteristics for analysis in the audits is shown in Table 4.

Age

38% (6/17 – excluding NPDA Workforce, NNAP and PICANet) audits analysed the effect of age on at least one measure. NPDA Technology included age in their regression analysis of mean HbA_{1c} change and found an increase in HbA_{1c} with age. The Heart Failure Audit reviewed the relationship between the percentage of patients discharged from hospital on certain medications and the patient's age. They show that as a patient's age increases, they are less likely to receive some medications on discharge from hospital. NPID investigated the influence age on several measures. For example, they found that women with Type 1 Diabetes Mellitus (T1DM) aged 15-24 were less likely to have an optimal HbA_{1c} than older women, and Women aged 15-24 were more likely to have a preterm delivery. The NLCA spotlight on molecular testing investigated patient characteristics related to the risk of requiring a second lung biopsy: patients older than 85 were less likely to require a second biopsy than patients aged 65 or less. NOGCA showed the percentage of patients who received active surveillance or no treatment by age group. A greater percentage of patients over age 80 were managed by surveillance or no treatment when compared to younger patients. No statistical analysis or adjustment for confounding was carried out. With similar caveats they found the percentage of patients diagnosed on an emergency admission, rather than GP referral, was higher in older patients. NDA showed age to be the most important characteristic associated with hospital admissions due to cardiovascular complications of diabetes in patients with both T1DM and Type 2 Diabetes Mellitus (T2DM).

Sex

27% (4/14 – excluding NMPA, NPDA Workforce, NPID and NPCA) of audits analysed the effect of sex on at least one measure. NPDA Technology included patient sex in their regression analysis and found a lower HbA_{1c} with males compared with females. NLCA found no difference between men and women requiring a second biopsy to confirm lung cancer.

Ethnicity

17% (3/18 – excluding NPDA Workforce) audits analysed the effect of ethnicity on at least one measure. NPDA Technology included patient ethnicity in their regression analysis and found an association with increased HbA_{1c} for Black and Asian patients compared with white patients. NPID found that Black and Asian women with T2DM were less likely to achieve a target first trimester HbA_{1c} and were more likely to have preterm deliveries when compared to white women. The NDA report showed that in T1DM Asian ethnicity was associated with higher rates of hospital admissions

secondary to heart failure and angina than other ethnic groups; however, in T2DM white ethnicity was associated with higher hospital admission rates for those conditions.

Socio-economic status

39% (7/18 – excluding NPDA Workforce) audits analysed the effect of socio-economic status on at least one measure. NPDA Technology included deprivation as a variable in their regression analysis of mean HbA_{1c} change and found higher reductions in HbA_{1c} in patients from the least deprived areas compared to those in the most deprived. NPID found that patients with T1DM from all deprivation quintiles were less likely to have a target HbA_{1c} when compared with the least deprived quintile. In addition, they found women with T2DM from the most deprived quintile were less likely to achieve the target than women from the least deprived quintile. Women with T1DM from more deprived areas were more likely to have preterm deliveries. NOGCA commented that the risk of diagnosis by emergency admission, rather than GP referral, was related to deprivation; however, did not show any statistical analysis for this. NDA showed that deprivation is associated with increased hospital admissions for angina in patients with T1DM, i.e. as deprivation increases hospital admissions increase. NEIAA reported the relationship between socioeconomic status and one audit measure. They found that higher deprivation was associated with a lower chance of being reviewed by a consultant rheumatologist within three weeks of GP referral.

Disability

One audit analysed the effect of disability on at least one measure. NDA showed patients with learning disability (LD) and T1DM or T2DM have higher rates of diabetic ketoacidosis (DKA)/hyperosmolar hyperglycaemic state (HHS) than those patients without LD.

Region

Whilst most audits present data for individual Trusts, 37% (7/19) of audits analysed the effect of geographical region (NHS region) on at least one measure. NOGCA investigated the association of many of their measures with geographical region; however, did not always state that statistical analysis had been used to address confounding. The NEIAA report included regional variation analysis for all quality standards measured.

Cardiac Rhythm Management Annual Report	x	x	x	x	x	x	x	x	x	x	x	x
National Clinical Audit of Anxiety & Depression (NCAAD) Annual Report	x	x	x	✓	x	x	x	x	x	x	✓	x
National Early Inflammatory Arthritis Audit (NEIAA) Annual Report	x	x	x	✓	x	x	x	x	x	x	x	N/A
National Pregnancy in Diabetes Audit (NPID) Annual Report	✓	N/A	✓	✓	x	x	x	x	x	x	x	x
National Lung Cancer Audit (NLCA) Spotlight Audit - molecular testing	✓	✓	x	x	x	x	x	x	x	x	✓	N/A
NNAP - National Neonatal Audit Programme Annual Report	N/A	x	x	x	x	x	N/A	x	x	x	x	N/A
Paediatric Intensive Care Audit (PICANet) Annual Report	N/A	x	x	x	x	x	x	x	x	x	x	x
National Vascular Registry (NVR) Annual Report	x	x	x	x	x	x	x	x	x	x	✓	x
National Oesophago-gastric Cancer Audit (NOGCA) Annual Report	✓	x	x	✓	x	x	x	x	x	x	x	N/A
National Prostate Cancer Audit (NPCA) Short Report: Prostate biopsy method	x	N/A	x	x	x	x	x	x	x	✓	x	x
National Diabetes Audit (NDA) Core report 2: complications and mortality	✓	✓	✓	✓	x	x	x	x	x	✓	x	x

Discussion

This report shows that patient characteristic data are collected by all audits, and health, and healthcare, inequalities are addressed by some audits.

Every audit collected patient age, sex and institution name (therefore able to determine geographical region). Whilst almost all audits collected the patients' postcode only 84% collected details on patient ethnicity. NOGCA did not collect patient ethnicity data. There are differences between ethnic groups in the number of GP consultations they are likely to have prior to a cancer referral to secondary care (Lyrtzopoulos et al., 2012). Therefore, the likelihood of a diagnosis following emergency admission may differ between different ethnic groups. The NOGCA report notes that patients diagnosed with stomach cancer following an emergency presentation are more likely to have a later stage cancer and have worse outcomes. It would be useful, therefore, to understand if there is a relationship between ethnicity and diagnosis route in the NOGCA population.

The recent COVID-19 pandemic has illustrated stark health inequalities, and differences in mortality between ethnic groups have been identified (Public Health England, 2020). Furthermore, issues with data and reporting have been suggested for example, in early May only 7% of the publications relating to COVID-19 (presenting patient level data) reported ethnicity disaggregated data (Pareek et al., 2020). One issue in the UK is ethnicity is not mandated on a death certificate. There are many possible reasons for the mortality differences, however it is imperative healthcare organisations try to understand them and identify what action they can take. The American Institute of Medicine published a report in 2002 which showed that health inequalities existed between different ethnic groups and bias and prejudice may play a part in causing them (Nelson, 2002). Identifying bias and prejudice may be difficult; however, by investigating differences in health and healthcare between ethnic groups underlying causes may be easier to recognise.

In many cases patient characteristic data was collected but was not reported or used when analysing audit measures. For example, 16 audits collected patient ethnicity data, however only 3 compared outcomes and audit measures between ethnic groups. Similarly, 18 audits collected patients postcode, however only 7 compared outcomes and audit measures between different levels of

deprivation. The NICOR audits collected patient ethnicity and postcode; however, did not report any investigation of analysis between these characteristics and audit measures. The NEIAA report showed that patients from more deprived areas were less likely to be seen by a consultant rheumatologist within 3 weeks of GP referral. The relationship between increasing deprivation and worse outcomes in rheumatoid arthritis have been suggested previously (Maiden et al., 1999; McEntegart et al., 1997), however, differences in waiting times to see a consultant rheumatologist between indices of deprivation has not previously been identified. NEIAA did not report on analysis investigating the link between socioeconomic status and other audit measures, for example patients being offered education and self-management activities or patients having an annual review. It is not clear from the report why this is the case and understanding the audit provider's barriers to data collection and reporting is important to developing a strategy for inequality data in national audit.

Some characteristics were not collected at all (gender identity, sexuality, marital status and religion) and disability status was only collected in one audit. The NDA Complications and Mortality report noted patients with LD and severe mental illness (SMI) have higher relative risks of DKA/HHS than patients without. The NDA Core Process and Treatment Targets report, published in June 2019, found that patients with SMI and LD were just as likely as those without to achieve their treatment targets. Therefore, the reasons for this difference are not clear. This highlights how national audit can add to the literature on health and healthcare inequalities.

Sexuality and gender identity were not collected by any audit. Lesbian, gay and bisexual adults have been shown to suffer worse health outcomes compared with heterosexuals (Fredriksen-Goldsen et al., 2013); although more research is needed to fully understand the issues. Some lesbian, gay, bisexual and transgender patients fear they will be discriminated against in healthcare settings (Stinchcombe et al., 2017). In part this may be due to them being 'presented with heteronormative¹ and cisnormative assumptions when interfacing with healthcare and social service providers' (Stinchcombe et al., 2017 pg. 6). Given the large datasets National Clinical Audit has the potential to

¹ The Cambridge Dictionary defines heteronormative as 'suggesting or believing that only heterosexual relationships are normal or right and that men and women have naturally different roles'. Cisnormative refers to the assumption that individuals identify their gender as assigned at birth.

improve the understanding in this space, however this would rely on a patient's sexuality and gender identity being collected at the point of care.

Considerations

It is important to understand what audit providers currently perceive the barriers are to collecting, analysing and including information in reports about healthcare inequalities. During informal discussions with some audit providers the following were cited as reasons for not conducting analysis relating to health and healthcare inequalities:

- Resource limitations
- Maintaining report brevity.

As mentioned above terminology regarding differences in health and healthcare outcomes between people and population groups is inconsistent.

Limitations

This report used protected characteristics, socioeconomic status and geographical region to assess the inclusion of healthcare equality data in national clinical audits. Determining the relevance of these in some of the audits was challenging and where they do not relate, they have been excluded (for example patient sex and NMPA, NPID and NPCA). For example, NHS region may not be as relevant in audits with a small number of participating centres, e.g. congenital heart surgery; and sex may not be as relevant for NNAP when compared with other audits. In addition, some measures of inequality may be difficult to assess in some audits due to the methodology used. Consideration should be given to the characteristics included and expertise in population health research may be needed.

Recommendations

Number	Recommendation
1	<p>Ensure that patient characteristic data is collected, analysed and reported. As a basic minimum consideration should be given to including the following routinely collected data:</p> <ul style="list-style-type: none"> • Age • Sex • Patient postcode / geographical region • Ethnic origin.
2	<p>Consider different modes of reporting this information. For example, in order to keep reports brief, use report web-links to the provider website where this full information can be reported in a separate annex document.</p>
3	<p>Include targeted health equality report recommendations:</p> <ul style="list-style-type: none"> • When the data analysis demonstrates there are health inequalities. • Link the recommendation back to the audit trail of evidence cited on the Provider web portal.
4	<p>Consider the role of metrics that are not overtly unreported.</p>
<p>Target audience: NCAPOP audit providers</p>	

Summary

This report highlights the significance of healthcare inequalities and some of the challenges in investigating inequalities within the NCAPOP. It shows that whilst some patient characteristics are widely collected in national audits some are not collected at all. Furthermore, where data is collected, the utilisation of data for meaningful analysis is variable.

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Appendix 1

Rapid literature review

Google scholar and Medline searches performed.

Google Scholar

The following terms were used in four separate searches:

'clinical audit healthcare inequality'; 'clinical audit healthcare inequity'; 'clinical audit health inequality'; 'clinical audit health inequity'

The top 50 results were reviewed (title and where required the abstract) for relevance.

Medline search

Medline was searched using OVID with the following strategy:

[(Health equality OR Health equity OR Health inequity OR Health inequality OR Healthcare equality OR Healthcare equity OR Healthcare inequity OR Healthcare inequality OR Healthcare disparities) AND Clinical audit]

This yielded 52 results. The titles and abstracts were reviewed for relevance.

Two further searches were carried out; however, the results were not reviewed.

- 1) [ethnic groups AND clinical audit] yielded 115 results
- 2) [(social class OR socioeconomic status) AND clinical audit] yielded 51 results



Dawson House, 5 Jewry Street, London EC3N 2EX
T 020 3857 5030
E communications@hqip.org.uk
www.hqip.org.uk

Registered Office: 70 Wimpole Street, London W1G 8AX
Registration No. 6498947
Registered Charity Number: 1127049

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