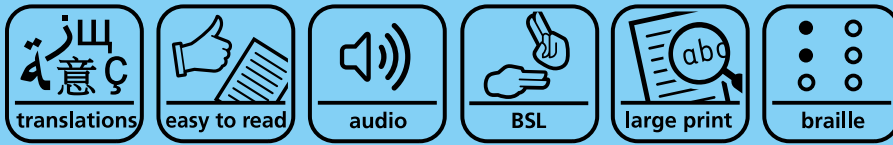



Development of health and social care inequality indicators for Scotland

National overview report

This resource may also be made available on request in the following formats:



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For further information or to comment on this indicator set please contact:

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Key messages

- We developed a set of indicators that measure inequalities in access to health and social care services (NHS Boards and Health and Social Care Partnerships), the quality of care and treatment received, and health and social care service outcomes by area-based deprivation category. Trends for these indicators are presented as three-year rolling averages at Scotland level for 2002/03 to 2014/15. This shows how these indicators changed in the lead up to the integration of health and social care services in Scotland.
- Changes to overall population health are not necessarily mirrored by changes in health inequalities. Similarly, health inequalities can be measured in absolute and relative terms, which do not always share the same trajectory over a given time period.
- Access to a GP, in terms of its overall trend, absolute inequalities and relative inequalities, got worse between 2003/04 and 2006/07. Although the overall trend and absolute inequalities stayed quite similar for the rest of the study period, relative inequalities continued to rise.
- Our two indicators about emergency hospital admission showed different overall trends over the study period. Preventable emergency hospitalisations for a chronic condition decreased, while repeat emergency hospitalisation in the same year increased. For both indicators there was little change in health inequalities: relative inequalities widened slightly for preventable emergency hospitalisations, while absolute inequalities widened slightly for repeat emergency hospitalisations.
- End-of-life care was measured by the percentage of deaths that occurred in hospital in a given year. Inequalities were narrower for this indicator than for others presented in this report. Although both absolute and relative inequalities narrowed during the first half of the study period, this appears to have been driven by an increase in the percentage of deaths occurring in hospital over the same period. By 2013/14, all three measures had returned to a similar level observed for 2003/04.
- Our two indicators relating to mortality showed similar overall trends. Both mortality amenable to health care and all-cause premature mortality reduced across the study period. However, the rate of improvement has not been equal across deprivation categories. This is reflected in narrowing of absolute inequalities but widening of relative health inequalities over the study period.
- Relative health inequalities can be compared across different indicators. The widest relative health inequalities were seen for the two mortality indicators, and the narrowest for dying in hospital and patients per general practitioner (GP).
- We were unable to produce indicator data for two of the measures that we considered: primary care quality and inpatient hospital waiting times.

Recommendations/call to action

- These indicators can be used within needs assessment and strategic planning activities, and to monitor trends in health inequalities that are affected by intervention from health and social care systems.
- In addition, we hope that they will help generate discussion and further local investigations into how NHS Boards and Health and Social Care Partnerships can contribute to the reduction of health inequalities. Ultimately we hope that they will inform decision-making in this area. These indicators can be used alongside NHS Health Scotland guidance on maximising the role of **NHSScotland** and **Health and Social Care Partnerships** in reducing health inequalities.
- Local data (NHS Board and council area) for these indicators can be accessed from the health inequalities section of the **Scottish Public Health Observatory (ScotPHO) Health and wellbeing profiles online platform**.
- These indicators have been developed as a proof of concept to explore if the indicator set used in England would be feasible and useful in a Scottish context. We would welcome further feedback on current indicator set and other indicators that could usefully be added in the future.

What was the need for this project?

Reducing health inequalities is a priority for the Scottish Government, as well as for NHS Boards and Health and Social Care Partnerships. This is shown in the **National Health and Wellbeing Outcomes** report and the **Health and Social Care Integration** report. However, there is little detail on how health and social care services can do this or how their contribution could be measured.

Scotland's Chief Medical Officer has championed the **Realistic Medicine** approach to the delivery of health and social care, which includes a focus on reducing unnecessary variation. Some levels of variation will always be expected to occur naturally within and between NHS Boards or Health and Social Care Partnership areas due to chance, and also for legitimate reasons such as differences in strategic priorities, budget setting, clinical practice. However, there are opportunities through the Realistic Medicine approach to reduce unnecessary variation and improve patient experience and outcome. As part of the Realistic Medicine approach, the **Scottish Atlas of Variation** was developed by the Information Services Division (ISD) of NHS National Services Scotland, which highlights geographical variation in the provision of health services with a view to promoting quality improvement.

Health inequalities are a special type of variation in people's health across social groups and between different population groups, which are unfair and avoidable within and between NHS Boards or Health and Social Care Partnership areas. Inequalities in health and social care can happen at various stages within the patient journey, from access to services through to the quality of treatment and care received and observed outcomes. While inequalities in health outcomes are well documented, health and social care services are generally developed and delivered with an assumption that everyone will get the same level and quality of care. Access to public services and facilities has been **acknowledged** as a determinant of health, which suggests that ineffective distribution of health and social care service provision can increase health inequalities.

Analyses of the NHS in England found mixed trends in health and social care-related inequality. While inequalities in primary care access and quality had reduced between 2004/05 and 2011/12, similar results were not seen for inequalities in healthcare outcomes across the same period. This highlights the need for inequalities analyses across the patient journey, because just focusing on one aspect may result in trends relating to another part of the patient journey being missed.

How will these indicators contribute to improving health in Scotland?

The aim of this study was to develop public health intelligence systems for measuring inequalities relating to health and social care service access, quality and outcomes for NHS Boards and Health and Social Care Partnerships across Scotland.

A range of Scottish health and social care indicators on access, quality and outcomes are already published; however, it is rare for these indicators to include inequalities analyses at NHS Board or Health and Social Care Partnership level. Furthermore, while public health intelligence often illustrates health inequalities, it less often provides a summary measure of them. This project seeks to provide NHS Boards and Health and Social Care Partnerships with nationally comparable measures of health inequalities relating to health and social care service provision to allow comparison within areas over time. It does this by estimating absolute and relative inequality gradients, alongside overall trends, for key system-wide measures of access, quality and outcome.

Describing inequalities in health and social care will not be sufficient to improve health in itself. It is therefore important that these inequalities are understood and framed within NHS Health Scotland's guidance on practical actions that **NHSScotland** and **Health and Social Care Partnerships** can take to reduce health inequalities.

Selecting indicators

These indicators were developed as a proof of concept to see whether **similar indicators developed in England** could be adapted as a first step to routinely producing health and social care inequalities indicators for Scotland as part of the ScotPHO health and wellbeing indicators. This section provides an overview of how the indicators have been developed. Further detail can be found in the **indicator specification document** that accompanies this report.

The following criteria for selecting indicators were adapted from **Cookson et al (2016)**:

- **Sensitive to health and social care service intervention:** We intentionally did not include indicators that would be influenced substantially by factors that are not within the provision of health and social care services (for example, life expectancy).
- **Useful to stakeholders:** There are already many indicators available relating to the health of the Scottish population. We aimed to present indicators that would provide something new and useful to potential users.
- **Likely impact on population health:** These indicators should reflect the impact of health and social care services at a whole-population level. We have therefore not included indicators that focus on small subpopulations or would be considered of limited impact on overall population health.
- **Whole-systems approach:** Similarly, these indicators aim to provide information on health and social care services at a systems level, rather than to measure the performance of specific services.
- **Small area data available over 10-year period:** To provide a sufficient time period to analyse trends in health inequalities over time, we needed information for Scottish small area geographies (data zones) over approximately 10 years.
- **Robust estimates publishable for deprivation categories down to council level:** As NHS Boards and Health and Social Care Partnerships are the main intended audience for these indicators, the events they measure should be common enough that they can be published down to deprivation quintile for council areas.
- **Mix of access, quality and outcome measures across the patient pathway:** The overall indicator set should reflect these three domains of interest.

Eight indicators were selected for consideration as part of this phase of indicator development (**Table 1**). These were **based on the eight indicators reported for England**. Metadata for each indicator is reported in the **accompanying indicator specification document**. Two indicators have been excluded from the indicator set: primary care quality and inpatient hospital waiting times. The reasons for their exclusion are outlined in the results section of this report.

Table 1: Initial list of indicators considered

Indicator	Domain	Included
Patients per GP	Access	Yes
Primary care quality	Quality	No
Inpatient hospital waiting time	Access	No
Preventable emergency hospitalisation for a chronic condition	Access, quality	Yes
Repeat emergency hospitalisation in the same year	Quality	Yes
Dying in hospital	Quality	Yes
Mortality amenable to health care	Outcome	Yes
All-cause premature mortality	Outcome	Yes

Geographies

This report presents findings for Scotland as a whole. NHS Board and council area information can be accessed via the [ScotPHO health and wellbeing profiles' online platform](#). Health and Social Care Partnerships have not been presented at this stage as the study period pre-dates their existence. However, it will be possible to present information for these geographies if these indicators are updated in the future.

Deprivation categories

These indicators are focused on socio-economic inequalities rather than other inequalities, as Information Services Division (**ISD**) has carried out separate analyses of protected characteristics as defined by the **Equality Act 2010 (Scotland)**.

The **Scottish Index of Multiple Deprivation (SIMD)** was used to assign information on area-based deprivation for these indicators. The SIMD is updated by the Scottish Government approximately every three years. The 2004 version of SIMD was used to assign deprivation category as this allowed us to follow deprivation status at the beginning of our study period over 11 years. Small area geographies (2001 data zones) were categorised using SIMD 2004 into population-weighted quintiles for the geography of interest (i.e. Scotland, NHS Board or council area). In the case of this report quintiles are weighted according to the fifths of the Scottish population.

It was not possible to get NHS Board or council area population-weighted SIMD quintile for the 'patients per GP' indicator. For this indicator we used the Scottish population-weighted SIMD 2004 quintile for all geographies. This has no impact on the findings presented in this report but means that we do not have complete time trends for all NHS Boards and council areas for this indicator.

Study period

We used indicator data for financial years 2002/03 to 2014/15 (with the exception of patients per GP, which is based on an annual workforce snapshot). Three-year rolling averages were calculated for all reported indicators to reduce variation between years and make time trends easier to interpret. Years are presented in the report as the midpoint of the three-year rolling average (for example, 2012/13–2014/15 is presented as 2013/14).

The range of years that we were able to report was partly constrained by the availability of robust data for 2001 data zones and SIMD2004. We were also conscious that our selected range of years took our analysis up to the point of health and social care integration in Scotland. We felt that presenting data for the early years of Health and Social Care Partnerships' existence may provide information about their impact on health inequalities that would not be robust to scrutiny.

Measuring overall trends

The overall trends for the majority of indicators included in this report are presented as directly age–sex standardised rates per 100,000 population. This is done to adjust for potential confounding by differences in the distribution of age and sex across different populations (e.g. between council areas, SIMD quintiles or across time for a specific area).

The patients per GP indicator is presented as a ratio, with practice population estimates weighted by age, sex and deprivation category to reflect the likely demand on general practice.

While it is generally good practice to adjust for common confounders such as age and sex to allow fair comparison, this is not always the case. In the present set of indicators it was not felt appropriate to adjust the percentage of people dying in hospital in a given year as it was assumed that individuals would typically prefer to avoid dying in hospital irrespective of age or sex.

Measuring inequality

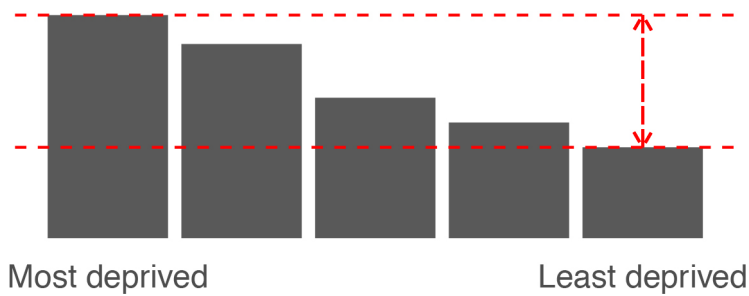
In public health we often present health inequalities in tables or illustrate them in charts. However, it is rare that we measure them, which can make assessing change in health inequalities over time challenging to interpret.

In this report we will focus on two summary measures of inequality: the slope index of inequality (SII) and the relative index of inequality (RII). These take into account differences across the whole gradient of inequality, not just the gap in health outcome between the most and least deprived (**Figure 1**). It is helpful to measure both absolute and relative inequality as they can show different trends over time. For example, if a health outcome is improving over time, the absolute level of inequality (SII) may also reduce. However, if improvement is slower in areas of greater deprivation then relative inequalities (RII) can increase over the same time period. It is helpful to measure the gradient rather than the gap between most and least deprived, as inequalities typically occur between each deprivation category. If, for example, only the gap between the most and least deprived fifths of the population is looked at then the inequalities experienced by the other three fifths of the population are effectively being ignored. For both measures, a value of zero would indicate no inequality, while a positive value indicates inequalities that disadvantage people living in more deprived areas. A higher number indicates a steeper gradient of inequality. RII has a natural maximum value of around two.

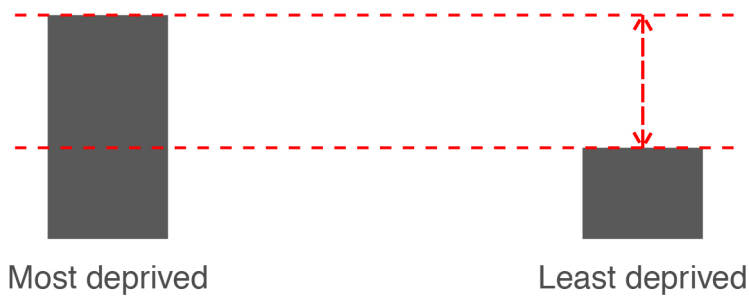
Figure 1: Measuring inequalities



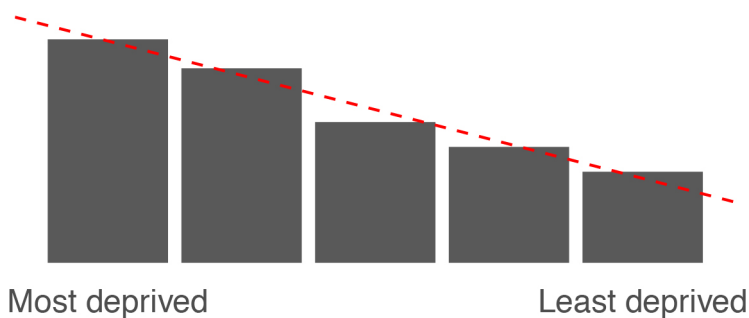
We often see patterns of inequality across deprivation categories like in this chart. But how should we measure this inequality?



A simple way of measuring inequality is to compare the gap between the most and least deprived.



However, inequality is apparent between each deprivation category and just measuring the gap effectively ignores the inequalities experience by three fifths of the population.



An alternative approach is to measure the gradient of inequality across all deprivation categories. This can be thought of like a hill – the steeper the gradient or slope, the greater the inequality.

Results: What did we find?

Indicator 1 – Patients per GP

Definition

The number of patients per GP headcount, excluding registrars and retainers. It is adjusted for age, sex and deprivation quintile using the **General Medical Services workload adjustment model** developed by Deloitte for the Scottish Government's Scottish Allocation Formula Review.

Rationale

Increased primary care supply is a key measure of **access** to health and social care systems. Full-time equivalent GP count would have been preferable to headcount, but is not currently available in Scotland. This limits the accuracy of this indicator, and we would advise that caution is taken when interpreting its findings.

Overall trend

The number of patients per GP rose from 1,131 in 2003/04 to a high of 1,177 in 2006/07, before reducing steadily to 1,100 in 2013/14 (**Figure 2a**).

Absolute inequalities

The SII for the number of patients per GP rose from 121 in 2003/04 to a high of 175 in 2006/07, and remained at a similar level at the end of the study period (175 in 2013/14) (**Figure 2b**).

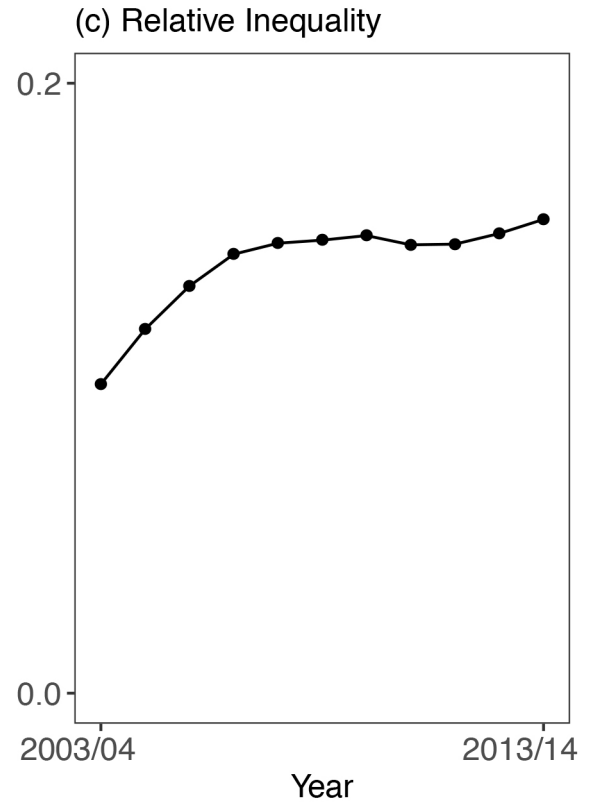
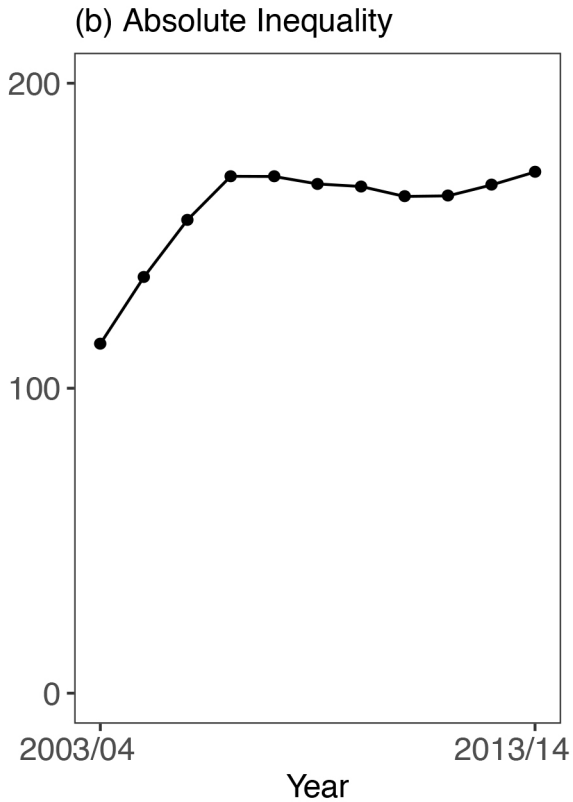
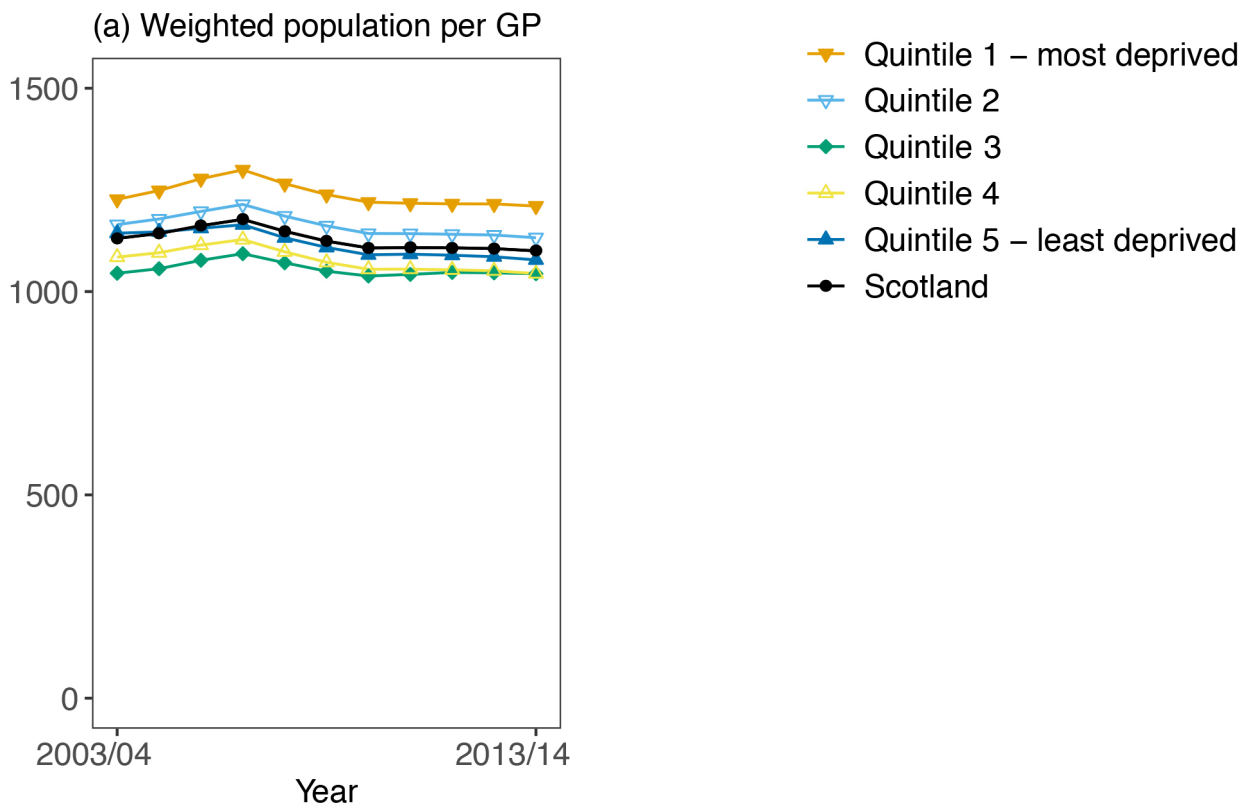
Relative inequalities

The RII for the number of patients per GP rose from 0.11 in 2003/04 to 0.16 in 2013/14 (**Figure 2c**).

Interpretation

Access to a GP reduced between 2003/04 and 2006/07, before returning to 2003/04 levels by 2013/14. Absolute inequalities followed a similar trend, widening between 2003/04 and 2006/07 before levelling off. However, relative inequalities widened across the study period.

Figure 2: Patients per GP



Indicator 2 – Primary care quality

Definition

A weighted average quality score in terms of population achievement for 16 indicators in the national Quality Outcomes Framework (QOF).

Rationale

Primary care services are a key setting for treating and managing conditions for which hospitalisation and death are amenable to health and social care intervention. Increasing primary care **quality** is therefore central to health and social care systems adopting a more preventative and equitable approach.

Reason for exclusion

Scottish QOF data (now discontinued) could not be stratified by deprivation category.

Indicator 3 – Inpatient hospital waiting time

Definition

The mean number of days waited from a patient agreeing treatment with the hospital to treatment for inpatient or day-case treatment.

Rationale

Inpatient hospital waiting time is a key performance measure for most health and social care systems. This is an **access** measure for health and social care systems.

Reason for exclusion

Inpatient hospital waiting time data collection is driven by national target setting to a greater extent than other indicators. As a result, consistent data were only available from 2013/14, meaning that sufficient time trend data could not be produced for this indicator.

Indicator 4 – Preventable emergency hospitalisation for a chronic condition

Definition

The number of patients having one or more emergency hospitalisations for a chronic ambulatory care-sensitive condition (directly age–sex standardised rate per 100,000 population).

Rationale

Chronic ambulatory care-sensitive conditions are conditions for which emergency hospital admission might be prevented by timely and effective provision of other health and social care services. Reducing this type of hospital admission is an indicator of both **access** and **quality** for health and social care systems.

Overall trend

The rate of preventable emergency hospitalisation for a chronic condition in Scotland reduced from 1,035 per 100,000 population in 2003/04 to 834 per 100,000 population in 2013/14 (**Figure 3a**).

Absolute inequalities

The SII for preventable emergency hospitalisation for a chronic condition in Scotland reduced from 1,033 in 2003/04 to 976 in 2013/14 (**Figure 3b**).

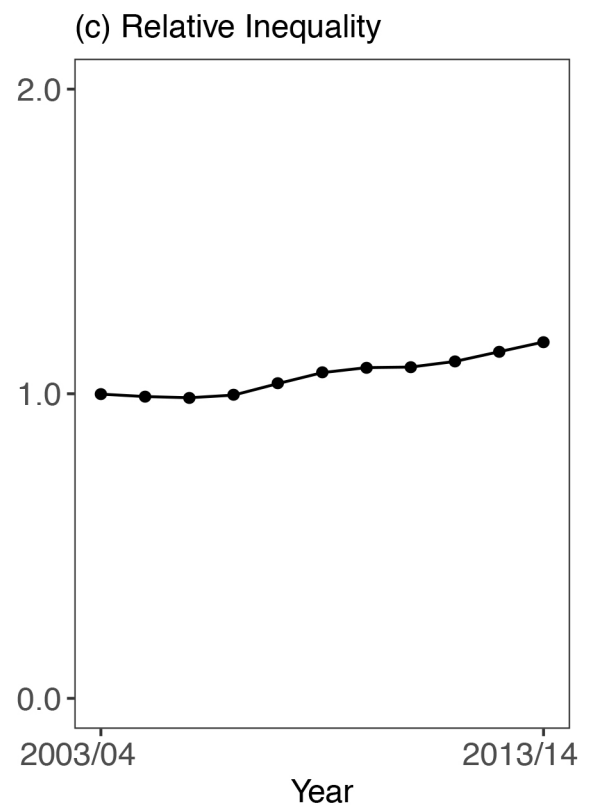
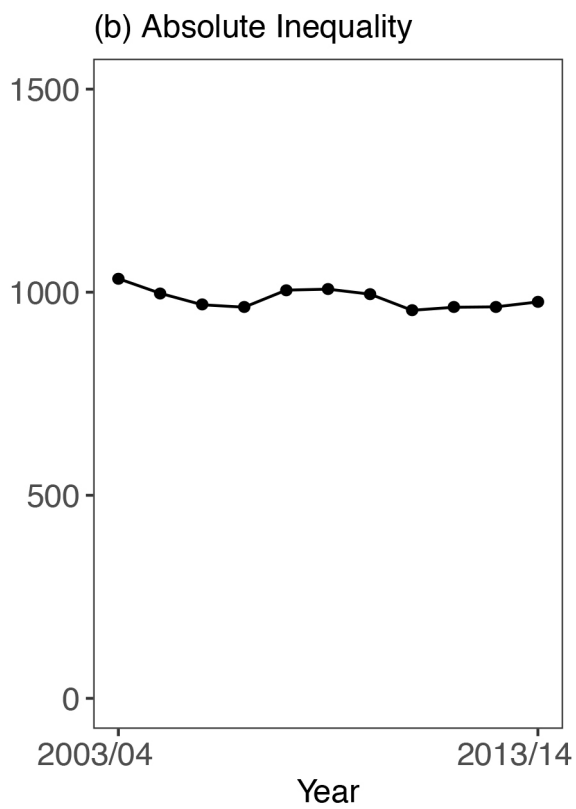
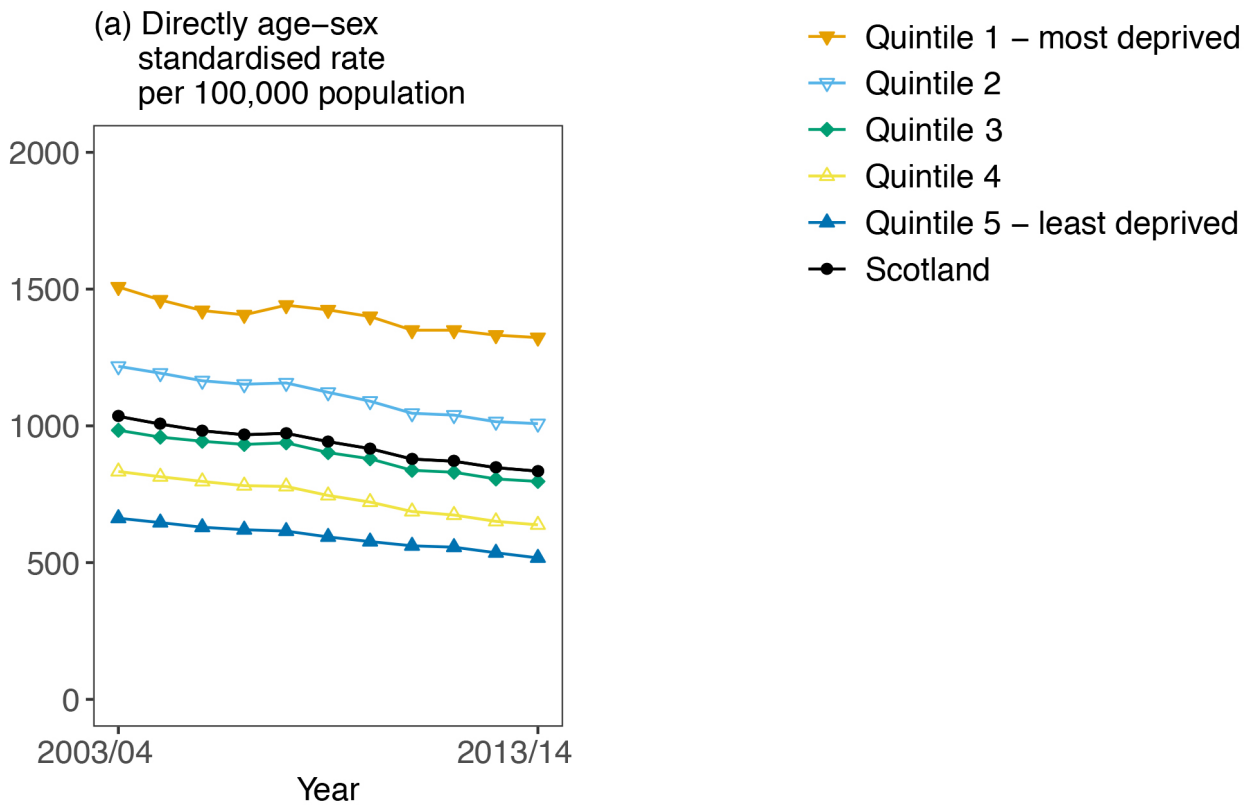
Relative inequalities

The RII for preventable emergency hospitalisation for a chronic condition in Scotland increased from 1.0 in 2003/04 to 1.17 in 2013/14 (**Figure 3c**).

Interpretation

This indicates that while there has been an overall improvement in Scotland for this indicator, the rate of improvement has not been equal across deprivation categories, leading to a widening of relative health inequalities.

Figure 3: Preventable emergency hospitalisation for a chronic condition



Indicator 5 – Repeat emergency hospitalisation in the same year

Definition

The number of patients having one or more acute inpatient hospital admission in a given year with one or more subsequent any-cause emergency readmission in the same year (directly age–sex standardised rate per 100,000 population).

Rationale

Reducing repeat emergency hospitalisation of patients is an indicator of **quality** for health and social care systems.

Overall trend

The rate of repeat emergency hospitalisation in the same year in Scotland rose from 1,989 per 100,000 population in 2003/04 to 2,200 per 100,000 population in 2013/14 (**Figure 4a**).

Absolute inequalities

The SII for repeat emergency hospitalisation in the same year in Scotland rose from 1,880 in 2003/04 to 2,101 in 2013/14 (**Figure 4b**).

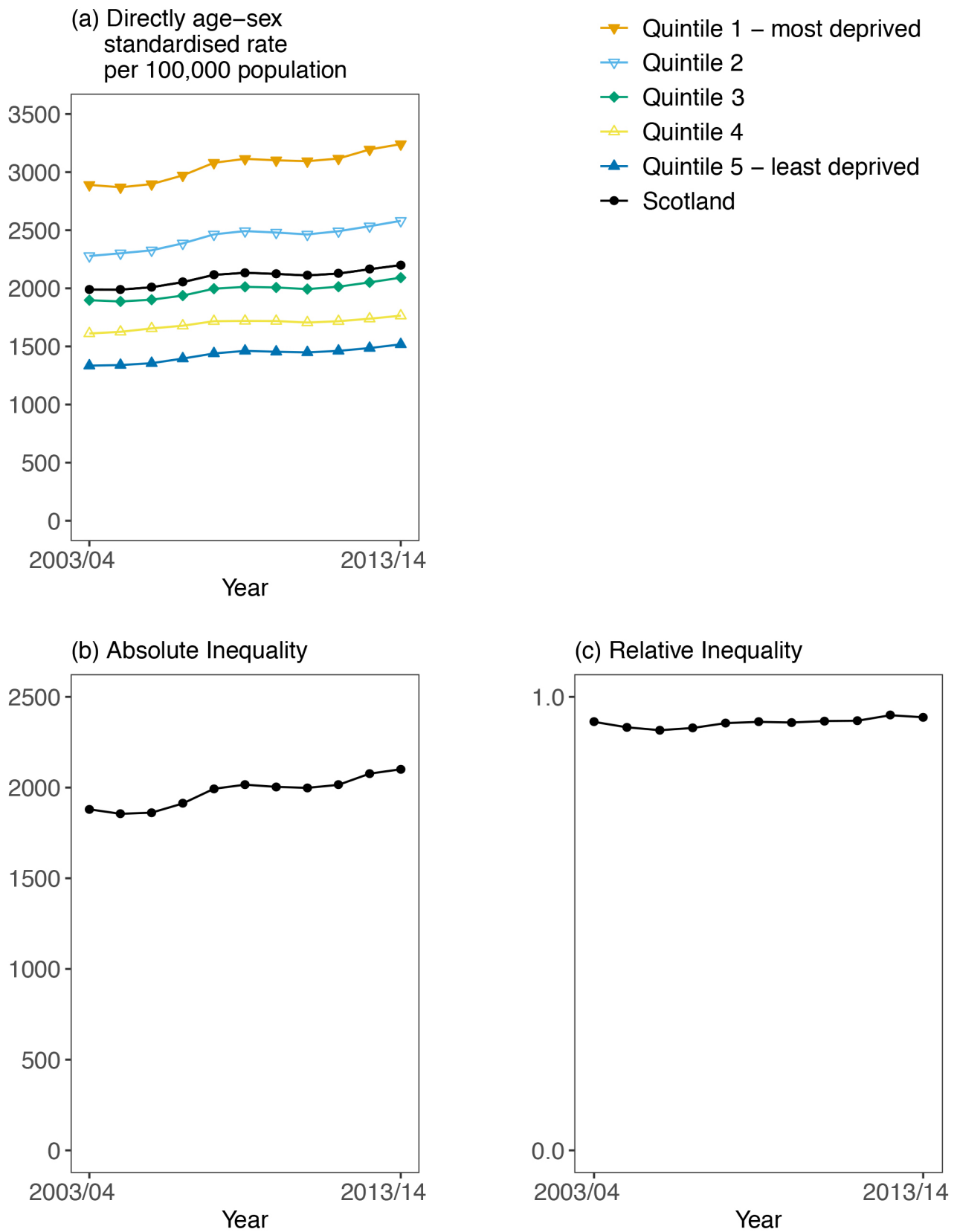
Relative inequalities

There was little change in RII for repeat emergency hospitalisation in the same year in Scotland between 2003/04 and 2013/14 (0.95 for both years) (**Figure 4c**).

Interpretation

The rate of repeat emergency hospitalisation in the same year in Scotland increased over the study period across deprivation groups. Absolute inequalities have widened on this measure, while relative inequalities have remained fairly constant.

Figure 4: Repeat emergency hospitalisation in the same year



Indicator 6 – Dying in hospital

Definition

The percentage of all deaths that occurred in hospital in a given year. No adjustment is made to this indicator.

Rationale

The proportion of people who die in hospital is intended to act as a measure of end-of-life planning. An assumption is made that other places of death (e.g. at one's own home) would be preferred locations for end-of-life planning. A lower percentage of deaths occurring in hospital in a given year is an indicator of **quality** for health and social care systems.

Overall trend

The percentage of deaths from all causes that occurred in hospital in Scotland during a given year increased from 49% in 2003/04 to a high point of 51% in 2009/10, before reducing to 47% in 2013/14 (**Figure 5a**).

Absolute inequalities

The SII for the percentage of deaths from all causes that occurred in hospital in Scotland during a given year reduced from 4.3 in 2003/04 to 2.2 in 2007/08, before increasing again to 4.0 in 2013/14 (**Figure 5b**).

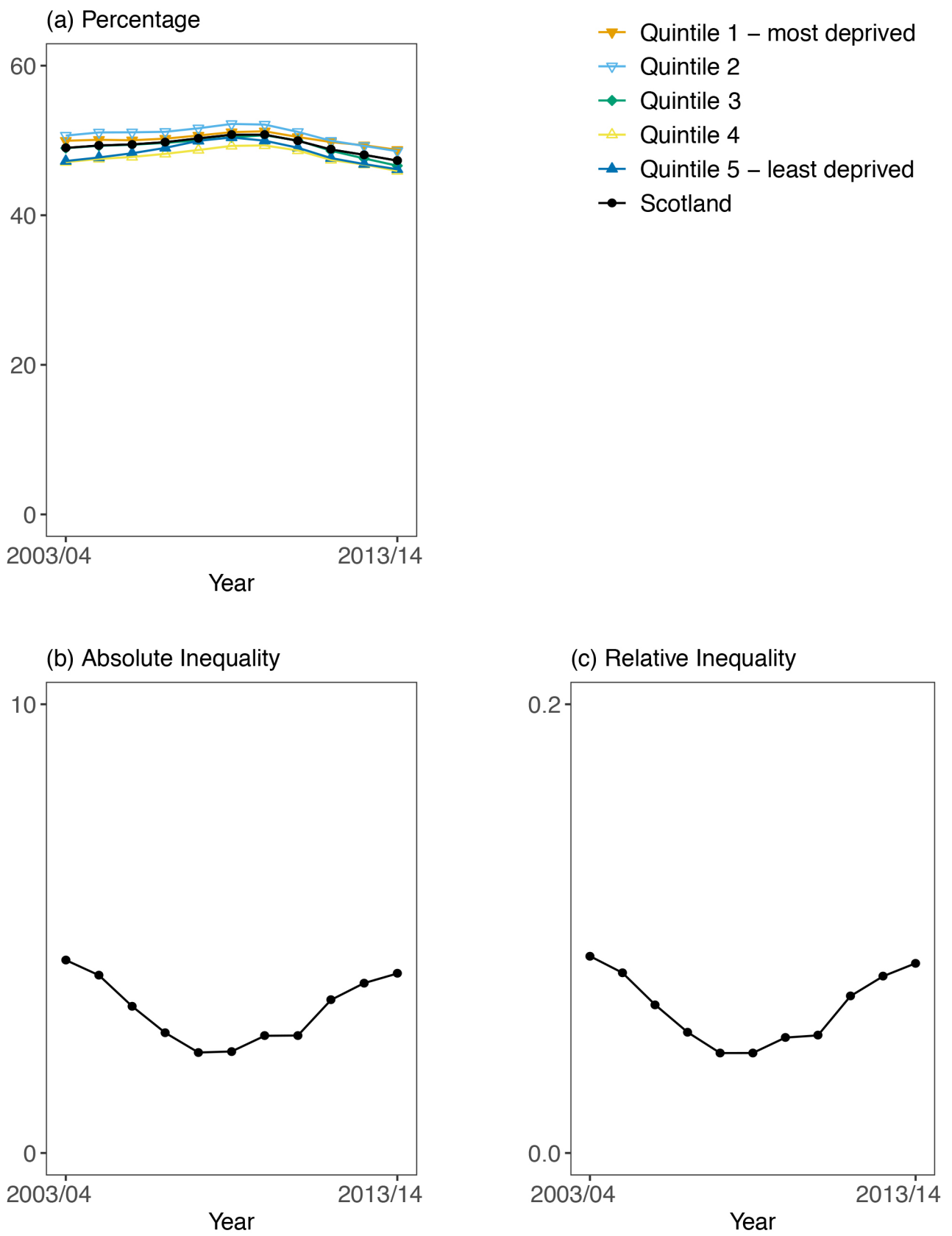
Relative inequalities

The RII for the percentage of deaths from all causes that occurred in hospital in Scotland during a given year also reduced from 0.09 in 2003/04 to 0.05 in 2007/08, before increasing again to 0.09 in 2013/14 (**Figure 5c**).

Interpretation

Although both absolute and relative inequalities narrowed during the first half of the study period, this appears to have been driven by an increase in the percentage of deaths occurring in hospital over the same period. By 2013/14, all three measures had returned to a similar level observed for 2003/04.

Figure 5: Dying in hospital



Indicator 7 – Mortality amenable to health care

Definition

The number of deaths (aged < 75 years) from causes considered amenable to health care (directly age–sex standardised rate per 100,000 population).

Rationale

Amenable deaths are part of a wider classification of ‘avoidable deaths’, which also include ‘preventable deaths’. **The Office for National Statistics (ONS)** defines amenable mortality as deaths that ‘could be avoided through good quality healthcare’. This classification therefore does not include ‘preventable deaths’, which are defined as those that could be avoided by non-health care public health interventions. Reduced health care amenable deaths are an indicator of improved **outcomes** for health and social care services.

Overall trend

The rate of deaths amenable to health care in Scotland reduced from 229 per 100,000 population in 2003/04 to 153 per 100,000 population in 2013/14 (**Figure 6a**).

Absolute inequalities

The SII for deaths amenable to health care in Scotland also reduced over the study period from 285 in 2003/04 to 209 in 2013/14 (**Figure 6b**).

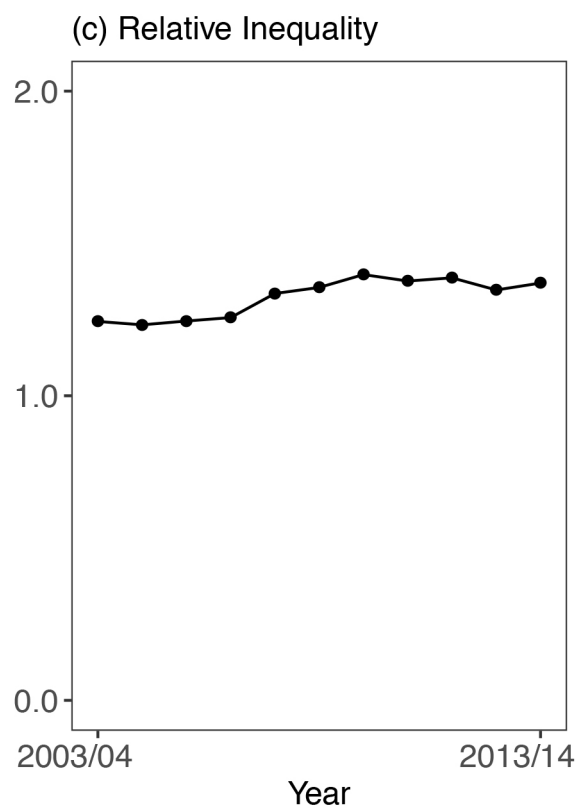
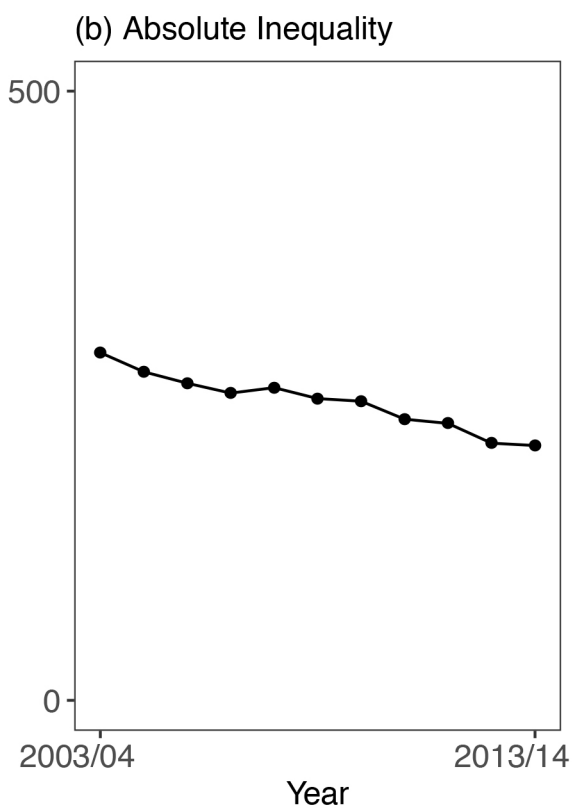
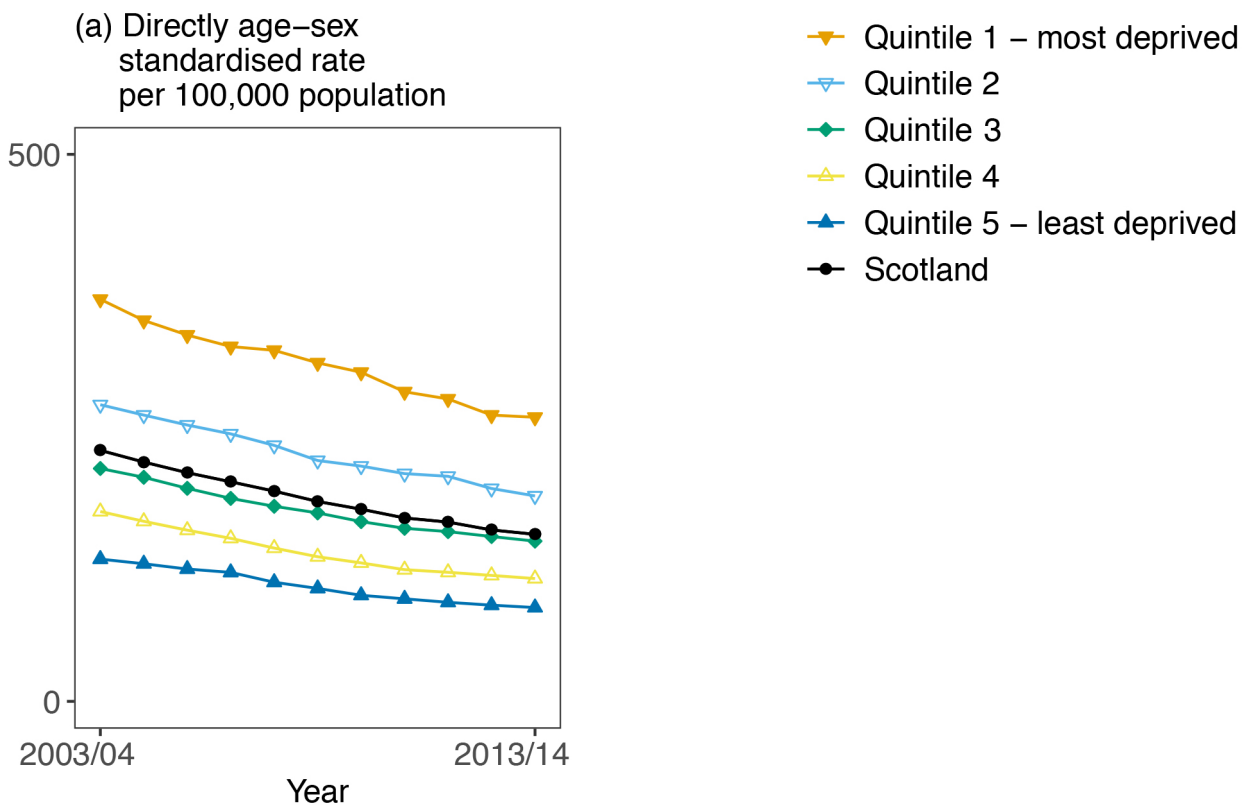
Relative inequalities

The RII for deaths amenable to health care in Scotland increased from 1.24 in 2003/04 to 1.37 in 2013/14 (**Figure 6c**).

Interpretation

This indicates that while there has been an overall improvement in Scotland for this indicator, the rate of improvement has not been equal across deprivation categories, leading to a widening of relative health inequalities.

Figure 6: Mortality amenable to health care



Indicator 8 – All-cause premature mortality

Definition

The number of deaths (all cause, aged < 75 years), directly age–sex standardised rate per 100,000 population.

Rationale

Reducing premature mortality is a national outcome for Health and Social Care Partnerships in Scotland. Change in this indicator over time may partly reflect change in health and social care delivery, but will also reflect change in the wider determinants of health. This is an **outcome** indicator in the **national core indicator set** for Health and Social Care Partnerships.

Overall trend

The rate of all-cause premature deaths in Scotland reduced from 577 per 100,000 population in 2003/04 to 442 per 100,000 population in 2013/14 (**Figure 7a**).

Absolute inequalities

The SII for all-cause premature deaths in Scotland also reduced over the study period, from 683 in 2003/04 to 563 in 2013/14 (**Figure 7b**).

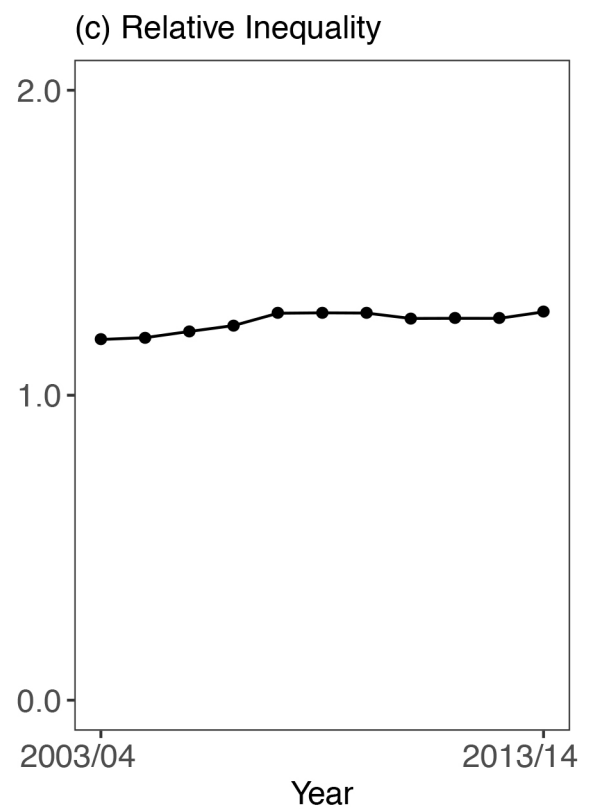
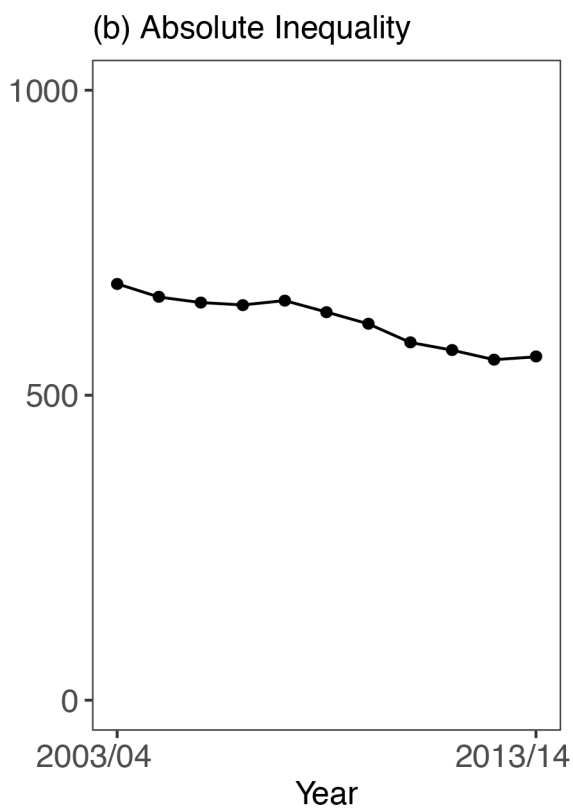
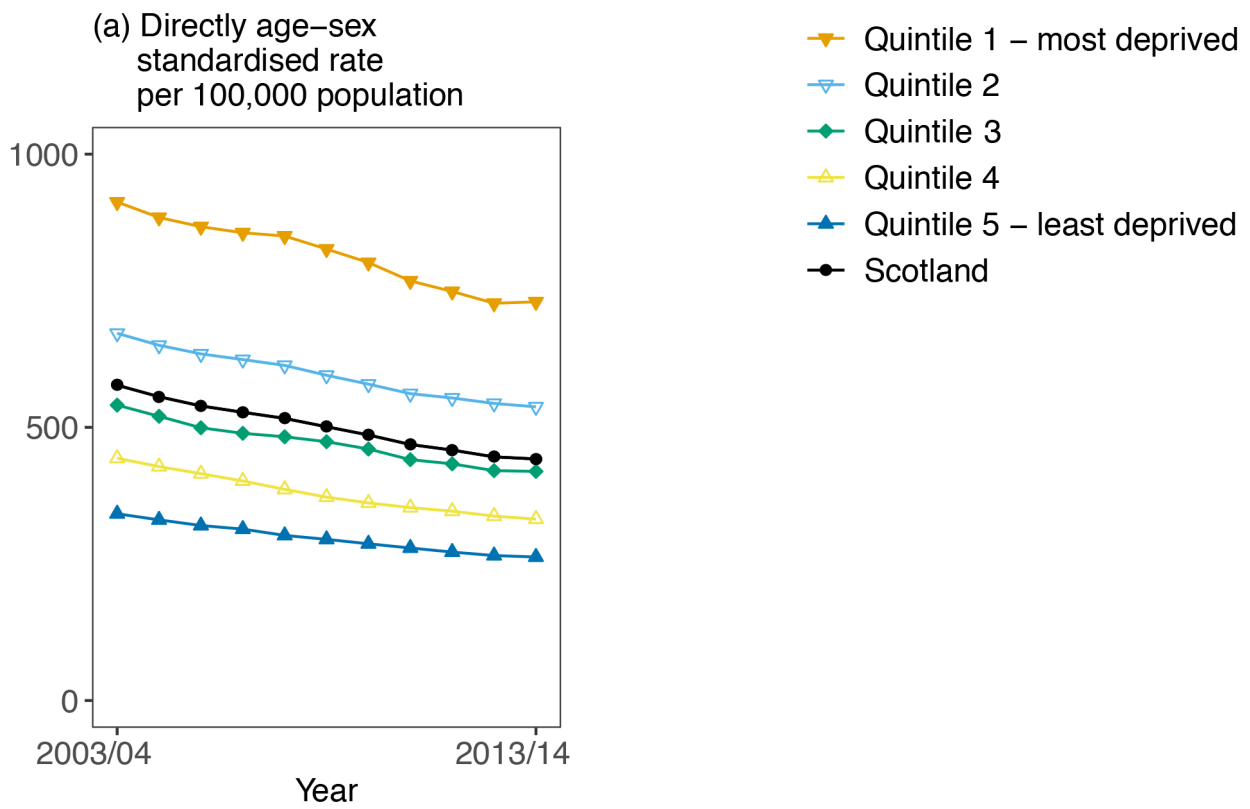
Relative inequalities

The RII for all-cause premature deaths in Scotland increased from 1.18 in 2003/04 to 1.27 in 2013/14 (**Figure 7c**).

Interpretation

This indicates that while there has been an overall improvement in Scotland for this indicator, the rate of improvement has not been equal across deprivation categories, leading to a widening of relative health inequalities.

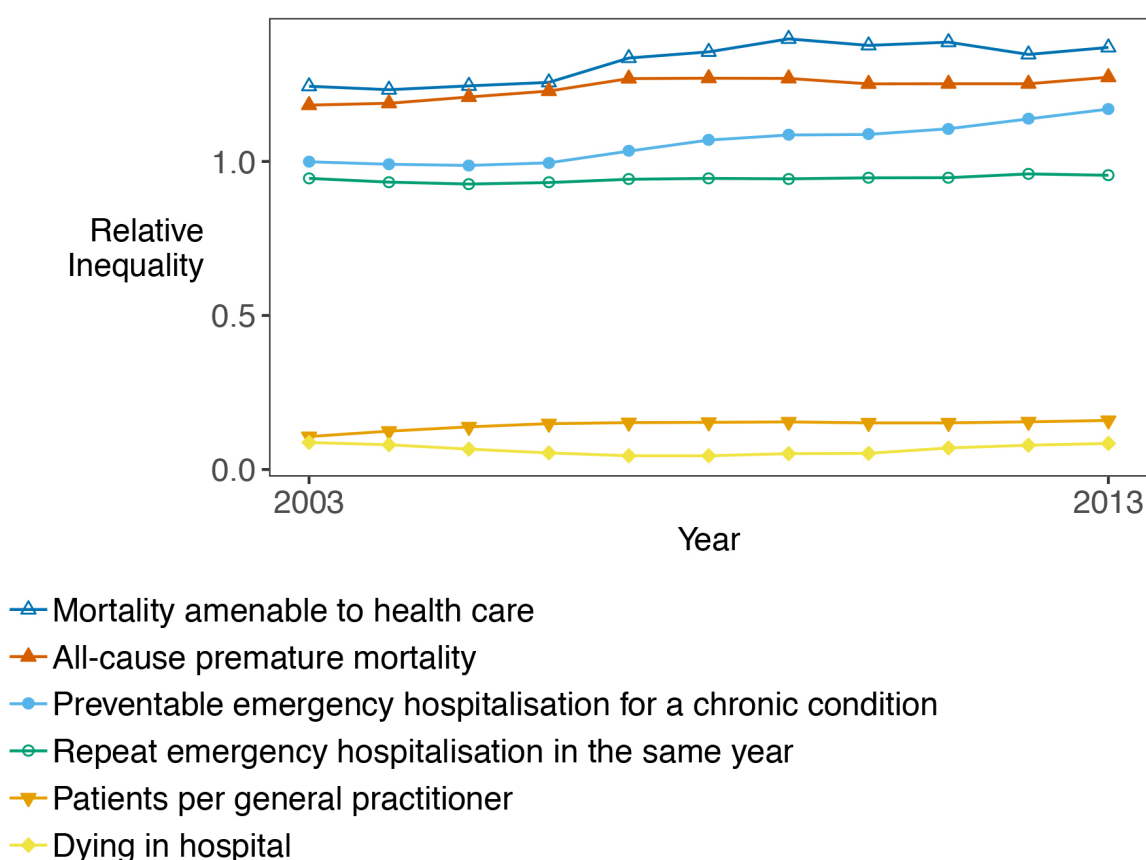
Figure 7: All-cause premature mortality



Comparing relative inequalities

One advantage of the RII is that it uses a common scale which allows comparison of different indicators that cannot be achieved using the SII (**Figure 8**). The highest relative inequalities were observed for the two mortality indicators: mortality amenable to health care and all-cause premature mortality. Lower relative inequalities were observed for the two emergency hospitalisation indicators: preventable emergency hospitalisation for a chronic condition and repeat emergency hospitalisation in the same year. The lowest relative inequalities were observed for dying in hospital and number of patients per GP.

Figure 8: Comparison of relative indices of inequality trends



What did stakeholders tell us about these indicators?

We met with a number of colleagues in Scottish Government, national and territorial NHS Boards, and Health and Social Care Partnerships to get feedback on the draft indicators.

The stakeholders we spoke to generally felt that these indicators would be useful for inclusion in needs assessments and strategic plans, both for reporting trends and initiating discussions about the extent to which planned work will tackle inequalities. It was also noted that it may be helpful information for locality planning groups to have when looking at specific issues. More up-to-date information would be preferred generally but stakeholders viewed this information primarily for monitoring longer-term trends rather than for performance reporting. It was also felt that presentation of a pre-integration baseline was helpful in the first instance. However, it was noted that the current approach to assigning SIMD quintiles limited the ability to compare partnerships within an NHS Board or Health and Social Care Partnership area.

Stakeholders provided constructive criticism of some specific indicators. In particular, queries were raised about how well the 'population per GP' and 'dying in hospital' indicators measured the issue that they intended to report on. For population per GP, the main issues were around workforce statistics. Full-time equivalent (FTE) GPs would have been preferable to headcount had they been available. In addition, it was noted that general practice in Scotland is likely to become increasingly structured around multi-disciplinary teams, which would make either counting either FTE or headcount of GPs a less useful measure of primary care supply. Dying in hospital was viewed by some stakeholders as a blunt measure of end-of-life planning and there was some challenge to our assumptions around this indicator not being confounded by age or sex. In addition, it was clear from our discussions that local knowledge would be important in the interpretation and use of these indicators.

Child health and immunisation were suggested as possible additional indicator topics for consideration in the future. The lack of indicators based on social care data was identified by stakeholders as a gap in the indicator set.

Useful suggestions were provided on what is required to support use of the indicators, what they could be used for and how the analysis is best interpreted. Specific issues for which support may be required were the interpretation of indicators (in particular SII/RII) and attribution of operational activities to these population-level measures.

Strengths and limitations

Strengths

This indicator set makes use of Scotland's high-quality population health data to provide previously unreported quantitative measures of health inequalities relating to the provision of health and social care services in Scotland. Measures relating to the three domains of access, quality and outcome have been included in the initial indicator set.

We have developed indicators that are based on **validated indicators already used in England** and use consistent definitions for Scotland's demographic and geographic units. We have also undertaken extensive stakeholder engagement during the development phase of this indicator set to get feedback on how these indicators could be made most useful to their intended audience.

Limitations

We were not able to report all the indicators that we initially set out to produce. In particular, the gap in indicators relating to inequalities in primary care quality and inpatient waiting times in Scotland are noted as a limitation of this indicator set. Similarly, while the provision of social care services will impact on the indicators presented in this report, they are drawn from health service and death register data rather than social care data. This is also noted as a gap in the indicator set that will hopefully be addressed as Scottish social care data continues to develop.

The use of consistent definitions across our study period means that there is a longer time lag than might be preferable for ongoing monitoring activities. If these indicators were to be updated on a rolling basis it is likely that the more pragmatic approach of matching data for each year to the closest version of SIMD would be adopted.

This indicator set measures health inequalities in relation to area-based deprivation. Other dimensions of equality may provide further information on health inequalities relating to the provision of health and social care services. Information on health inequalities between groups defined by protected characteristics as defined by the **Equality Act 2010 (Scotland)** has been published by the **Information Services Division of NHS National Services Scotland (ISD)**.

We used SIMD quintiles weighted to the geography of analysis to allow inequality indices to be calculated for all areas in Scotland. However, this limits the comparability between geographies, as quintiles will be defined differently between different areas. For example, inequalities at Scotland level typically appear higher than average compared to council areas. This is because Scotland includes the full range of deprivation rankings, while a council area only has the range within that area. On balance we felt that providing complete time trends for all NHS Boards and council areas was preferable to allowing comparison between areas.

Indicator-specific issues

Several indicator-specific issues will be considered if this indicator set is to be updated on a rolling basis as part of the ScotPHO profiles. First, FTE GPs would have been preferable to headcount for the population per GP indicator had they been available. In addition, general practice in Scotland is becoming increasingly structured around multi-disciplinary teams, which would make either counting either FTE or head count of GPs a less useful measure of primary care supply. Second, the preventable hospitalisation definition that we have used is in line with the **English indicators that we have based our set on**, but differs from the definition of 'potentially preventable admission' data, which is published by ISD on the National Services Scotland (NSS) Discovery dashboard. This dashboard currently requires password log-in and is not publicly available. Future consideration would be needed as to whether our indicator should be harmonised with the ISD version. Third, we have also used the health care amenable mortality definition adopted for English indicator set, which is based on the **avoidable mortality definition used by the Office of National Statistics (ONS) until 2013**. This definition is therefore consistent with data published by ONS corresponding to our study period but differs from the current ONS definition of avoidable mortality. The current ONS definition of avoidable mortality would be adopted if this indicator is to be updated on a regular basis.

How might these indicators be used to inform decision-making?

This indicator set provides information on inequalities relating to the provision of health and social care systems that can inform local needs assessment and strategic planning activities. In addition to reporting trends these indicators can be used to initiate discussions about the extent to which planned work will tackle inequalities or for locality planning groups to have when looking at specific issues. These indicators will be most useful when combined with other forms of evidence. In particular, local knowledge of populations, services and data issues will be vital for the effective use of these indicators.

Relatively high-level indicators were selected to provide information on how health and social care services are operating at a system-wide level. One issue that came up from our meetings with stakeholders was attribution: how can monitoring activities make the link between operational measures of service delivery through to population-level indicators such as the ones included in this indicator set? Providing definitive evidence on attribution is always challenging. However, local monitoring and evaluation frameworks can help develop a theory of change linking these types of evidence.

Ultimately, we hope that these indicators support decision-making to maximise the contribution of health and social care systems to reducing health inequalities across Scotland.

Conclusions

Mixed overall trends for the six indicators presented in this report were observed across the study period. Three showed overall improvement (preventable emergency hospitalisation for a chronic condition, mortality amenable to health care and all-cause premature mortality); two showed no change (patients per GP and dying in hospital); and one indicator got worse (repeat emergency hospitalisation in the same year). However, only the two mortality indicators showed a narrowing in absolute health inequalities over the same period. Absolute inequalities tend to reduce in situations where an overall rate is reducing. However, this is not always the case for relative inequalities, and this appears to be reflected in the persistence of relative inequalities for these two indicators. This is of particular concern in the light of a **2019 report showing stalling of mortality trends in recent years for Scotland**, with more adverse trends observed among the most socio-economically deprived.

Relative health inequalities appeared to be particularly persistent among this indicator set, with relative inequalities widening for one indicator (patients per GP) and showing no change for the other five indicators. They also varied by indicator, with the widest relative inequalities being observed for the two mortality indicators and the lowest for dying in hospital and patients per general GP.

These findings highlight that changes to overall population health are not necessarily mirrored by changes in health inequalities and, similarly, trends in absolute and relative inequalities do not always share the same trajectory over a given time period. The lack of clear change to absolute and relative inequalities for most of the indicators in this set in the decade prior to health and social care integration in Scotland suggest that ongoing monitoring of these measures would be beneficial.

This report provides an overview for Scotland across the study period but NHS Board- and Health and Social Care Partnership-level information is likely to be of more practical use to decision-makers in health and social care systems across Scotland. To facilitate this we have made these indicators available at NHS Board and council area level on the **ScotPHO health and wellbeing profiles' online platform**. In addition, these indicators can be used alongside NHS Health Scotland guidance on maximising the role of **NHSScotland** and **Health & Social Care Partnerships** in reducing health inequalities and other health and social care data platforms such as the **ISD Scottish Atlas of Variation**.

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