The Health Foundation

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Methods appendix

General practice data dashboard

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About this appendix

This document provides additional information about our general practice data dashboard. It contains details on how our dashboard domains and indicators were selected, important contextual information on the data they contain and explains the methods we used for analysis. We also provide a list of general practice data sources we explored when selecting our indicators.

Selection of domains and indicators

Selection of domains

This dashboard takes inspiration from the Health of US Primary Care: 2024 Scorecard Data Dashboard produced by the Milbank Memorial Fund. The Health Foundation identified the need for a similar resource for England to bring together key data on the health of general practice.

Milbank's choice of data was informed by the findings of the 2021 US National Academies of Sciences, Engineering, and Medicine report on high quality primary care. A similar analysis setting out a national plan to improve primary care with actionable objectives and how progress might be tracked does not exist for general practice in England. We instead explored other possible frameworks for selecting our dashboard data 'indicators'. Considered options included adapting Milbank's framework; using Starfield's 4Cs of primary care; adapting the principles and enablers of good primary care from WHO's 2018 Declaration of Astana; using public priorities for primary care based on Health Foundation and Ipsos polling; using political priorities based on 2019 manifestos and subsequent government policies and opposition proposals; engaging with general practice experts.

We decided on a pragmatic approach that synthesised different elements of these options, resulting in eight domains: access, activity, continuity of care, coordination, patient and public experience; funding; workforce; and quality and outcomes. Other important domains – including research, which forms of part of the Milbank scorecard – were considered but ultimately omitted due to lack of available data.

Selection of indicators

In deciding what data to include, we aimed to follow similar accountability and transparency principles to Milbank as much as possible. These are:

- Indicators should be previously developed, as opposed to proposed new measures.
- Indicators should be few, easily understood by the public and consistent over time.
- Indicators must be collected regularly, comprehensively and reliably at relevant scope or geography; preferably, data will be publicly available and non-proprietary.

To understand the full range of possible indicators, we reviewed available sources of data on general practice in England and generated a 'catalogue' of datasets. For each of these datasets, we documented

the general practice indicators available, their time series, geographical coverage, release schedule, degree of granularity (practice level, sub-integrated care board, integrated care board, regional or national) and possible cross-tabulations. We also grouped these into our eight domains. It is important to note that some areas, like primary care research funding and activity, have very little available data. This highlights key limitations on the general practice data currently available.

Applying our domain framework and the Milbank principles, three Health Foundation colleagues sifted through the full range of possible indicators to a form a longlist through consensus. A wider of group of six colleagues then sifted this further into a shortlist through a similar approach. Three external general practice experts reviewed our shortlist to ensure the indicators were useful, appropriate, informative and coherent. These experts also reviewed our full list of data sources and were asked to identify anything they thought was missing. This process resulted in the final set of 23 indicators included in the dashboard.

More information on our selection process and our review of data sources is available upon request.

Indicator methodology

A number of our indicators are drawn directly from published datasets without further processing. However, further analysis is needed to create several others. The following tables set out our approach for each indicator. These should be read alongside the sources for each chart in the dashboard, which provide other important information. Indicators are grouped below based on their primary data source except for our analyses on deprivation, which are grouped together.

Further information on the underlying methodology for compiling the datasets themselves can be found through the sources.

Appointments in General Practice, NHS England Digital

Domain	Indicator	Approach
Activity	Number of appointments in general practice over time	Combines the 'estimated England total count of appointments' (with and without COVID-19 vaccinations) recorded in practice appointment systems with the 'total count of appointments' recorded in primary care network appointment systems.
Access	Appointments by staff type	Combines the counts of appointments by 'SDS (Spine Directory Service) role group' recorded in practice appointment systems with the counts of appointments by 'SDS role group' recorded in

		primary care network appointment systems. Individual role group totals are converted into a percentage of the combined total.
Access	Appointments with a GP by mode of consultation	Combines the counts of GP appointments recorded in practice appointment systems (taken from regional .csv files) and the counts of appointments recorded in primary care network appointment systems (taken from Annex 2, sub-integrated care board level .csv files), stratified by 'appointment mode'. Total appointments by each appointment mode are converted into a percentage of the combined total.

Source: NHS England Digital – Appointments in General Practice.

Monthly Outpatient Referrals Data, NHS England

Domain	Indicator	Approach
Activity	Number of outpatient referrals made over time	Reproduces data within the 'GP Referrals Made (all)' category from the outpatient referrals time-series without further processing.

Source: NHS England – Monthly Outpatient Referrals Return data.

GP Patient Survey (GPPS), NHS England and Ipsos

Domain	Indicator	Approach
Access	Patient experience of making an appointment	Reproduces data from the GPPS national results and trends tables (2023) for question 21 without further processing.
Continuity of care	Patient ability to see their preferred GP	Reproduces data from the GPPS national results and trends tables (2023) for question 8 without further processing.

Patient and public experience	Overall patient experience of their general practice	Reproduces data from the GPPS national results and trends tables (2023) for question 32 without further processing.
Patient and public experience	Patient experience of being listened to, given enough time and treated with care	Reproduces data from the GPPS national results and trends tables (2023) for questions 27a, 27b and 27c without further processing.
Patient and public experience	Patient experience of involvement in their care, and trust and confidence in staff	Reproduces data from the GPPS national results and trends tables (2023) for questions 29 and 30 without further processing.

Source: NHS England and Ipsos – GP Patient Survey 2023.

International Health Policy (IHP) Survey of Primary Care Physicians in 10 Countries, The Commonwealth Fund

Domain	**Indicator**	**Approach**
Coordination	Consistency and speed of communication between GPs and specialists	Reproduces data from survey tables provided to the Health Foundation (as the UK IHP survey partner) for questions 17B and 17C. Results for England are provided to the Health Foundation as separate percentages for 'England excluding London' and 'London'. 'All England' percentages are calculated as the weighted mean of the 'London' and 'England excluding London' percentages, weighted using the (survey-weighted) bases for the two groups. The weighted mean is then rounded to the nearest whole number.
Coordination	Speed of hospital discharge information reaching GPs	Reproduces data from survey tables provided to the Health Foundation (as the UK IHP survey partner) for question 19. 'All England' weighted mean is calculated as above.

Workforce	GP satisfaction with areas of their working life	Reproduces data from survey tables provided to the Health Foundation (as the UK IHP survey partner) for questions 29a, 29b, 29c, 29d and 29e. 'All England' weighted mean is calculated as above.
Quality and outcomes	GPs' views on the quality of care they can provide	Reproduces data from survey tables provided to the Health Foundation (as the UK IHP survey partner) for question 35. 'All England' weighted mean is calculated as above.

Source: The Health Foundation – Stressed and overworked: What the Commonwealth Fund's 2022 International Health Policy Survey of Primary Care Physicians in 10 Countries means for the UK (full data tables for survey questions used in this dashboard are available on request).

International Health Policy Survey of Adults in 10 Countries, The Commonwealth Fund

Domain	Indicator	Approach
Coordination	Patient experience of coordination between primary and secondary care	Reproduces data from survey tables provided to the Health Foundation (as the UK IHP 2023 survey partner) for questions Q1226A1 and Q1226A2 without further processing.

Sources: The Commonwealth Fund – The Cost of Not Getting Care: Income Disparities in the Affordability of Health Services Across High-Income Countries; The Health Foundation – Upcoming analysis of the International Health Policy 2023 Survey of Adults in 10 Countries (full data tables for survey questions used in this dashboard are available on request).

Public Perceptions of Health and Social Care, The Health Foundation and Ipsos

Domain	Indicator	Approach
Patient and public experience	Public perceptions of access to general practice and standard of care	Reproduces data from Health Foundation and Ipsos 'Public perceptions of health and social care' polling for question 203 without further processing.

Source: The Health Foundation and Ipsos – Public perceptions of health and social care (May 2023).

Investment in General Practice, NHS England

Domain	Indicator	Approach
Funding	Real-terms spend on general practice over time	Uses cash terms spend from the 'Investment in general practice' publications. We use 'total investment excluding reimbursement of drugs' as our specific measure of spend. A minority of practices provide drug dispensing services, typically in areas without good access to community pharmacy (eg rural areas). These practices are reimbursed for the cost of the drugs they dispense. Most of the reimbursement these practices receive will be used to cover the cost of purchasing drugs from wholesalers. While practices may make some profit from this (which represents 'real' income for the practice), the percentage of the overall drug reimbursement funding this represents is difficult to estimate. Therefore, drug reimbursement spend is omitted from our analysis. Other dispensing-related payments (eg dispensing fees) are still included. Figures for 2020/21 and 2021/22 are presented with and without the exceptional 'COVID-19-related costs' set out in table 3a of the '2017/18 to 2021/22' investment publication. Real-terms spend for each financial year is calculated by inflating cash terms spend using HM Treasury deflators (version listed in chart source) as set out in the deflator user guide. NHS England Digital general practice investment data are provided through publications with a 5-year rolling time series. Because data for previous financial years are sometimes revised, we use the most recent data for any given financial year (eg

		data for 2011/12 are taken from the 2011/12 to 2015/16 publication).

Sources: NHS England – Investment in General Practice in England, 2017/18 to 2021/22; NHS England Digital - Investment in General Practice, England, Wales, Northern Ireland and Scotland: 2014/15 to 2018/19, 2013/14 to 2017/18, 2012/13 to 2016/17, 2011/12 to 2015/16, 2010/11 to 2014/15, 2009/10 to 2013/14, 2008/09 to 2012/13, HM Treasury – GDP deflators at market prices, and money GDP March 2024 (Quarterly National Accounts).

UIN 2419 Parliamentary question for the Department of Health and Social Care on NHS Expenditure, UK Parliament

Domain	Indicator	Approach
Funding	Percentage of total NHS commissioning budget spent on general practice	Reproduces data from the response to parliamentary question UIN 2419, tabled on 17 November 2023. For each financial year, the spend in each service category is converted into a percentage of the combined spend across all service categories.

Source: Question for the Department of Health and Social Care on NHS Expenditure – UIN 2419, tabled on 17 November 2023.

General practice workforce and primary care network workforce datasets, NHS England Digital

Domain	Indicator	Approach
Workforce	Number of staff in general practice by role	For all staff groups prior to March 2020, we reproduce the full-time equivalent (FTE) figures from the 'general practice workforce' dataset without further processing. For all staff groups between March 2020 and June 2021, we combine FTE figures from the 'general practice workforce' dataset with the 'primary care network workforce' dataset (which starts at this date). This helps account for staff now working as part of primary care networks (which launched in

		2019). We do not include primary care network clinical director FTEs in our workforce figures because this role is primarily management rather than clinical time for a GP and is often work done on top of a GP's 'day job'. After June 2021, most staff groups continue to use the same combined dataset method. For the 'direct patient care' group, we switch to using the collated figures from the 'primary care workforce quarterly update' publication. These take into account additional management information now available from the Additional Roles Reimbursement Scheme, giving a more complete estimate of staff in post for this group. While the 'quarterly update' also contains combined 'primary care network workforce' and 'general practice workforce' figures, the separate datasets are released more frequently. We use these instead to provide more recent data.
Workforce	Percentage of GPs in partner, salaried and locum roles	Reproduces data on the number of partner, salaried and regular locum GPs from the 'general practice workforce' dataset. Headcount of GPs in each role is converted into a percentage of the total combined headcount. GP retainers are considered salaried GPs for this indicator. We do not include additional headcount GPs from the 'primary care network workforce' dataset. This is due to both the small numbers involved and uncertainty around the employment arrangements of these staff (eg some GPs are likely to be doing additional salaried clinical work for their primary care network, but their substantive role is as a practice partner).

Source: NHS England Digital – General Practice Workforce; NHS England Digital – Primary Care Network Workforce; NHS England Digital – Primary Care Workforce Quarterly Update.

National care directory inspection ratings, Care Quality Commission (CQC)

Domain	Indicator	Approach
Quality and outcomes	Summary of national general practice CQC inspection ratings	Summarises inspection ratings listed in the national CQC care directory. The CQC directory contains a complete list of the places in England where care is regulated. We extract the locations from the directory with a 'primary inspection category' of 'GP practices'. We then count the number of locations receiving each rating ('outstanding', 'good', 'requires improvement' and 'inadequate') within each inspection domain ('safe', 'effective', 'caring', 'responsive', 'well led'). We do this for ratings within the 'overall' group in the 'service/population group' category only. Counts are then converted to a percentage of all practices with a rating in that domain.

Sources: CQC – care directory.

Deprivation analyses

Three of our indicators present variables broken down by socioeconomic deprivation gradient:

- Number of GPs per 100,000 patients by deprivation quintile
- Net NHS payments to general practice by deprivation quintile
- Percentage of total QOF points practices achieve by deprivation quintile

These analyses are based on methods set out in our 2022 report *Level or not?* with summary versions provided below. Our approach to QOF differs slightly for this dashboard because we were able to identify a superior analytical approach – this is also described below. R code for these analyses can also be found here.

Number of GPs per 100,000 patients by deprivation quintile

This indicator is constructed at the neighbourhood level. First, we create a needs-adjusted population for every neighbourhood in England. For this we use the Lower Super Output Area (LSOA) geographical footprint. We take the total of number of people in each LSOA from ONS datasets and group the population of the LSOAs by age and sex. We then apply the age and sex needs weightings and the index of multiple deprivation (IMD) health domain adjustments as recommended in the 2007 review of the Global Sum Allocation ('Carr-Hill') formula.[1] These can be found in the appendix of *Level or Not?* After renormalising the adjusted total population so it is equal to the pre-adjusted total population, this provides a population for each LSOA that is inflated or deflated in size based on an estimation of practice workload.

Using NHS England Digital's LSOA to general practice attribution datasets, we then allocate a proportion of the GPs at each practice in England to the LSOAs they serve. For example, if we had a practice with five GPs serving equal numbers of patients from 50 LSOAs, we allocate 0.1 GPs from this practice to each LSOA. We then covert the IMD score decile (as provided in the ONS LSOA dataset) into quintiles of increasing socioeconomic deprivation.

For each quintile, we sum the total number of needs-adjusted patients in its LSOAs and the total number of GPs allocated to these LSOAs. Dividing the overall number of GPs by the number of needs-adjusted patients within each quintile (and converting to a per 100,000 rate) gives us the number of GPs per 100,000 patients by deprivation quintile. We repeat this process for each year, using the relevant LSOAs, attribution datasets and GP numbers to give us trends over time.

Net NHS payments to general practice by deprivation quintile

This indicator is constructed at the practice level. Using the LSOA to general practice attribution datasets, we find the proportion of each LSOA's population that each general practice serves. We then allocate a share of the LSOA's overall IMD score to every practice based on this proportion and weight the resulting score by the size of the LSOA. Repeating this for all the LSOAs a practice serves

[1] We use the 2007 review version of the Global Sum Allocation ('Carr-Hill') formula because this includes deprivation in its weighting and should therefore more accurately reflect practice workload. This formula is not the version currently used for national GP practice payments.

gives a composite IMD score for the practice. All practices in England are then ranked according to their composite score and split into five equal quintiles of increasing deprivation.

Within each quintile, the net payments to each practice are summed together and then divided by their collective Global Sum Allocation ('Carr-Hill') formula weighted patient population.[2] This provides the net NHS payments to general practice by deprivation quintile. We repeat this process for each financial year, using the relevant LSOAs, attribution datasets and net payments to give us trends over time.

Percentage of total QOF points practices achieve by deprivation quintile

This indicator is constructed at the practice level. Using the same method above, we create a composite IMD score for each practice and rank them to create equal quintiles of increasing deprivation. We then sum the total QOF points achieved by all practices within each quintile and divide by the number of practices. This gives an average QOF achievement score for each quintile. We then convert this into a percentage of the maximum QOF points available for that year. We repeat this process for each financial year, using the relevant LSOAs, attribution datasets and QOF scores to give us trends over time.

Further information on the data used for deprivation analyses

Domain	Indicator	Approach
Funding	Net NHS payments to general practice by deprivation quintile	Uses 'total NHS payments to general practice minus deductions' from the 'NHS payments to general practice' publications.

[2] The needs-adjustment used in our payments analysis is the currently implemented version of the Global Sum Allocation ('Carr-Hill') formula. This is done to maintain consistency with current national funding arrangements. While this formula does account for need associated with factors such as sex and age, it is known to underestimate need associated with socioeconomic deprivation.

		We use the 'total NHS payments to general practice minus deductions' category for several reasons. First, it excludes the exceptional COVID-19-related payments, ensuring comparability over time. Second, it excludes primary care network (PCN) payments. PCNs bring together general practices into local groups to provide additional services to patients, backed by additional funding. Because PCN payments are generally paid to one nominated practice and then shared among the network, PCN payments in this dataset are usually only attributed to one practice. The share other practices eventually receive is not available. We therefore remove PCN payments to avoid distorting our analysis. The only exception is the 'PCN participation payment', which is paid directly to each practice and which we include. Third, we include deductions for pensions, local medical committee levies and prescription charge incomes (which are often paid by NHS commissioners to third parties on a practice's behalf). Doing this gives a better idea of a practice's 'effective' income.
Workforce	Number of GPs per 100,000 patients by deprivation quintile	Uses full-time equivalent, fully qualified, permanent GPs from the 'general practice workforce' publication. This is the best measure of substantive GP workforce capacity as it excludes GPs in training (who need supervision from a more senior GP) and locum GPs (who are fully qualified but cover for others on sick or maternity leave). We use annual September workforce figures as they capture the mid-point of the financial year.
Quality and outcomes	Percentage of total QOF points practices achieve by deprivation quintile	Uses 'achievement score' from the 'overall domain achievement' section of the 'achievement at practice level, all domains' tables from the

		'Quality and Outcomes Framework' publication each financial year. As maintaining a register is a form of quality measure in its own right, we use practice achievement against the total maximum number of QOF points available rather than the alternative 'total points for indicators where a register exists'. The maximum number of QOF points available each year is: 2017/18 559 points 2018/19 559 points 2019/20 559 points 2020/21 567 points 2021/22 635 points 2022/23 635 points Further information on the pandemic disruption to QOF in 2020/21 and 2021/22 can be found here: • NHS England - 2020/21 General Medical Services (GMS) contract Quality and Outcomes Framework (QOF): Guidance for GMS contract 2020/21 in England. • NHS England - Letter to practices 2021/22: Temporary GP contract changes to support COVID-19 vaccination programme.

Source: NHS England Digital – NHS Payments to General Practice: 2022/23, 2021/22, 2020/21, 2019/20, 2018/19, 2017/18; NHS England Digital – General Practice Workforce; NHS England Digital – Quality and Outcomes Framework: 2022/23, 2021/22, 2020/21 (no performance data

available), 2019/20, 2018/19, 2017/18; MHCLG – English indices of deprivation 2019; NHS England Digital – Patients Registered at a GP Practice: 2022/23, 2021/22, 2020/21, 2019/20, 2018/19, 2017/18; Office for National Statistics – Lower layer Super Output Area population estimates.

Limitations

This dashboard does not provide a comprehensive picture of general practice. The lack of data places important limitations on what we can know. In the absence of good empirical data (for example, on coordination between primary and secondary care), we have also had to rely on subjective measures for some indicators. There is also a range of other measures we could not include in this dashboard either due to space constraints or because we could not secure access within the timeframe of this project. However, the data we present still provide important perspectives on general practice.

Choice of data matters. In this appendix, we set out our rationale when selecting indicators and what data to include. These choices involve some judgement and are not definitive.

Our deprivation analyses make use of needs adjustments. Our approaches are consistent with current national policy or previous government-commissioned reviews. However, these are not the only ways of estimating need, and different approaches may yield different results.

Limitations associated with the individual datasets used in this dashboard can be found their source.

List of data sources explored

- askmyGP, proprietary dataset
- Bennett Institute for Applied Data Science, OpenSafely
- CQC, Care directory
- DHSC, Annual accounts
- GMC, National training surveys
- MHRA, Clinical Practice Research Datalink
- NatCen, British Social Attitudes
- NHS Business Services Authority, English prescribing data
- NHS England, Annual accounts
- NHS England, Financial allocations
- NHS England, GP recruitment data
- NHS England, Cancer waiting times
- NHS England, Monthly outpatient referrals
- NHS England Digital, Appointments in general practice
- NHS England Digital, Cervical screening programme coverage
- NHS England Digital, Data on Written Complaints in the NHS
- NHS England Digital, Fit Notes Issued by GP Practices
- NHS England Digital, General Practice Workforce
- NHS England Digital, GP Earnings and Expenses Estimates
- NHS England Digital, Health and Care of People with Learning Disabilities
- NHS England Digital, Hospital Episode Statistics
- NHS England Digital, Investment in general practice
- NHS England Digital, National advice and guidance data and case reports

- NHS England Digital, NHS Payments to General Practice
- NHS England Digital, Patient Online Management Information
- NHS England Digital, Patients Registered at a GP Practice
- NHS England Digital, Primary Care Dementia Data
- NHS England Digital, Primary Care Network Workforce
- NHS England Digital, Primary Care Workforce Quarterly Update
- NHS England Digital, Quality and Outcomes Framework
- NHS England Digital, Ratings and reviews
- NHS England Digital, Submissions via Online Consultation Systems in General Practice
- NHS England and Ipsos, GP patient survey
- OHID, General practice profiles
- ONS, Winter pressures survey (GP Access)
- Oxford-RCGP Research and Surveillance Centre, ORCHID
- PRUComm, National GP worklife surveys
- The Commonwealth Fund, International Health Policy surveys
- UK Parliament, UIN 2419 Response to Parliamentary question for the Department of Health and Social Care on NHS Expenditure