Analysis

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Doing more for less?

A mixed-methods analysis of the experience of primary care networks in socioeconomically deprived areas

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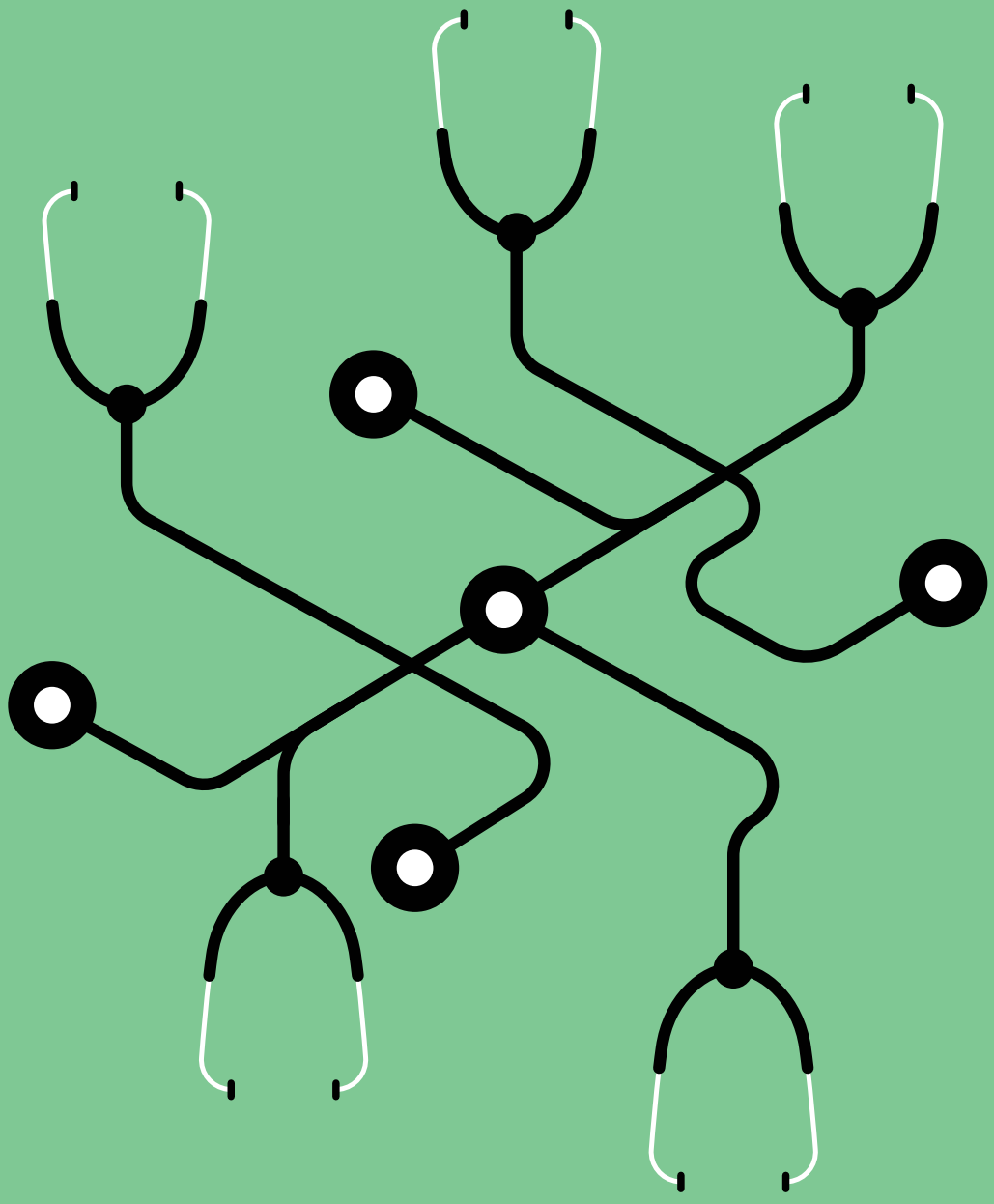

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Key points

- General practice in England is under growing pressure. This is often most acute in more deprived areas, which have fewer doctors and less funding compared with practices in wealthier areas after accounting for health needs.
- Primary care networks (PCNs) were established in England in 2019, bringing together general practices into local groups to provide additional services to patients. Backed by extra funding (reaching £2.4bn a year by 2023/24), PCNs were expected to recruit new staff, deliver additional appointments and new services, and work to improve health and reduce inequalities.
- This report analyses whether PCN policies have widened the underlying gaps between general practices in more and less deprived areas. It explores the impact of national policies on PCNs in more deprived areas, using analysis of workforce and funding data, and interviews with PCN leaders about their experiences.
- When adjusted for the higher needs of local patients, PCNs in the 20% most deprived areas of England employ six fewer full-time equivalent staff per 100,000 patients than those in the 20% least deprived areas. PCNs in the most deprived areas would collectively receive £18.6m more funding per year if all population-based PCN funding streams used in the available allocation formula that best accounts for deprivation.
- PCN leaders broadly welcome additional staffing and report that PCNs have enabled better collaboration between local general practices and links with other local services. But leaders also felt funding does not reflect the additional workload of caring for patients in deprived areas. Many spoke of challenges engaging patients facing multiple social and economic barriers to good health. In some cases, recruiting and retaining PCN staff in deprived areas was difficult.
- With the right long-term resources, stability and organisational support, PCNs could represent an important route for addressing local health inequalities. Ensuring their success will also require greater contractual flexibility in the roles PCNs can recruit, more discretion over spending and reasonable adaptations of PCN service specifications.

- PCNs in deprived areas would also benefit from more targeted support from local commissioning bodies to improve management capacity and capability to design better services. Recent restructuring from clinical commissioning groups to integrated care systems has been destabilising for some PCNs, who report finding it harder to access support, and the loss of commissioners with local experience and knowledge.
- PCNs in areas of high deprivation need funding that meets the greater needs of their populations. In the short term, NHS England should base all PCN funding and workforce allocations on the PCN-adjusted population, which better accounts for need. In the longer term, funding allocations for core general practice services, as well as staffing and resource allocations for PCNs, should be changed to better align with need.

Introduction

Primary care networks (PCNs) were established in 2019, bringing together nearly all general practices in England into local groups to provide additional services to patients. PCNs were designed to support general practice in the face of growing pressures, enable a wider range of services to be provided in the community and improve local population health.[1] The creation of PCNs was supported by a 5-year commitment to significant new investment, to be spent on additional staff and delivering services specified by NHS England.[2]

PCNs are also intended to help general practice address health inequalities. PCNs are asked to appoint a health inequalities lead, deliver a project addressing inequalities locally and consider inequalities in their wider work. People living in more deprived areas are more likely to experience ill health than people in more affluent areas, and generally need more health care.[3,4] But general practices in more deprived areas on average have lower funding and staffing relative to these higher patient needs – a persistent 'inverse care law'.[5] In 2018/19, as PCNs were created, there was evidence of widening gaps in the distribution of funding, workforce and other resources for general practice, resulting in practices in areas of higher socioeconomic deprivation being inadequately resourced to meet greater patient need.[6]

Reducing inequalities in health and health care is now a priority for the NHS[7,8] and general practice and PCNs have a major role to play in this. Given the scale of health inequalities in England and the inequities facing core general practice, it is important to understand the impact of the additional funding, workforce and services provided through the PCN contract. The 5-year national contract agreement for PCNs ends in 2024 – decisions about how PCNs should evolve need to be informed by a better understanding of the experience of PCNs in areas of high deprivation.

About this report

For this research, we aimed to answer the following questions:

1. How might the design of the current PCN contract and associated policies help or hinder PCNs in areas of high deprivation?
2. Is there evidence of inequities in the distribution of PCN payments and successful recruitment of the PCN workforce?
3. What is the experience of operating a PCN in an area of high deprivation?

First we set out the context for the introduction of PCNs and describe the main features of how they are funded and designed to operate. We then outline our methods and approach, before describing what we found from our analysis of financial and workforce data and from our interviews. We conclude with a discussion about the implications of our analysis, as well as some recommendations for national policymakers and local leaders about how PCNs in areas of high deprivation could be better supported to function effectively and address inequalities in health.

Background to our research

Deprivation and the inverse care law

People living in areas of high socioeconomic deprivation are more likely to experience poorer health.[9,10] Data for England show that between 2018 and 2020, women in the 10% most deprived areas could expect to live 19.3 fewer years in good health than in the 10% least deprived. For men, this gap is 18.6 years.[11] These inequalities were exacerbated by the COVID-19 pandemic, which inflicted a greater toll on the lives and livelihoods of people living in poorer areas.[12]

The drivers of poorer health are broad and include factors such as housing, income, employment and the local environment.[13] Addressing health inequalities requires action across different sectors (like housing and employment) but health care still plays an important role. After the pandemic, the NHS promised to do more to improve health in the most deprived 20% of the population, including groups more likely to experience ill health, such as people from minority ethnic backgrounds, disabled people, people experiencing homelessness or with drug and alcohol dependence.[14,15]

General practice plays a central role in managing many of the chronic conditions that are more common in deprived areas,[16] but is often less well-resourced than practices in wealthier areas. Previous work by the Health Foundation and others has highlighted the extent of the inverse care law in general practice.[6,17,18,19] When the increased needs of patients in areas of high deprivation are taken into account, evidence shows GP practices in more deprived areas of England are relatively underfunded, under-doctored and perform less well on a range of quality indicators than in more affluent areas. For example, in 2018/19, practices in more deprived areas received around 7% less funding per needs-adjusted patient than in less deprived areas.[6] Governments over the past 30 years have attempted to address these gaps in funding and staffing, but the intensity of efforts has varied over time. In total, policy efforts to reduce inequities in the provision of GP services have not been sufficient to overcome them.[20]

It is unclear what impact the creation of PCNs has had on the inverse care law. If the additional funding and staffing that come with PCNs have not been distributed according to need, then the inverse care law may have widened.[21] Early analysis suggests that additional staff recruited to PCNs have either worsened or failed to improve longstanding inequities in staffing distribution.[22,23] But other aspects of the PCN policy, such as increased collaboration between practices and funding for new services in primary care, might have helped practices in areas of high deprivation better support their patients.

Primary care networks (PCNs)

PCNs were introduced as part of the *NHS Long Term Plan* (2019).[7] The plan set out how neighbouring general practices would work together and hold a collective contract to employ additional staff, increase appointments and deliver new services, in collaboration with other local bodies. The creation of PCNs was part of a wider drive to boost care outside hospitals and improve population health. In an agreement between the government and the British Medical Association later in 2019, a ringfenced £1.8bn would be available via PCN contracts over the next 5 years.

This funding would pay for at least 20,000 new staff to be shared across PCN practices (later increased to 26,000). The additional staff would include clinical roles such as pharmacists, physiotherapists, and non-clinical roles such as link workers, but not GPs or practice nurses.* The agreement acknowledged the rising workload in general practice amid workforce shortages, and so an aim of PCNs has also been to help support and stabilise core general practice.[1]

The long term plan also kick-started major changes to the local bodies that plan and commission services, including general practice. New integrated care systems (ICSs) were formally established in July 2022, under the Health and Care Act, as part of a broader reorganisation of NHS rules and structures in England.[24] ICSs replaced GP-led clinical commissioning groups (CCGs) for local area-based planning, funding and oversight of health services. Integrated care boards (ICBs), the bodies that commission NHS services for the ICS, now manage the contract with local PCNs and play an important role in supporting them.

PCNs are a new way of working for general practice, with practices holding a collective contract, sharing staff and having joint responsibility for service delivery. Through the contract, PCNs receive significant new funding to spend on defined additional local services.[25] As of 2023/24, the PCN contract commits annual investment of £2.4bn in primary care across England, or £1.91m on average per PCN.[26] PCN membership is optional for a general practice, but few have declined to be involved[27] as it is the only way to access the new investment in local primary care services.

All PCNs have a clinical director – a clinician drawn from one of the constituent practices who leads PCN planning and service delivery. Table 1 outlines other key features of PCNs as set out in the PCN contract.

* Nurses working in advanced clinical practitioner roles are eligible to be recruited by PCNs under the Additional Roles Reimbursement Scheme (ARRS) as of the 2023/24 contract year.

Table 1:[*] The key features of PCNs[25,28,29,30,31]

Contract	PCNs are established under an extension to the core contract that general practices hold with the NHS for GP services. The PCN does not replace the work of core general practice and practices in a PCN do not have to merge. Participating practices agree to undertake additional work together, as defined in the national direct enhanced services (DES) contract.
Accountability	PCNs are commissioned by the local ICB using the national PCN DES contract. The ICB or others (such as local authorities) might also commission additional services or health improvement projects from a PCN.
Size and coverage	Each PCN is intended to cover between 30,000 and 50,000 patients. Most PCNs fall within this range, although some are smaller and a significant number are larger.[32] In total, there are around 1,250 PCNs in England.
Leadership	Each PCN is led by a clinical director drawn from one of the practices. Funding for their time is included in the PCN contract. PCNs must nominate other roles, such as an inequalities lead, to champion different areas of PCN work. These roles are not directly funded. PCNs might also choose to have other leadership positions (eg a senior operations manager), but this is not required.
Funding	PCNs are entitled to funding to support their work through several different income streams. More detail on these is provided in Figure 1 below and in Appendix 1, but includes: • a core payment to maintain the PCN • payment to reimburse approximately 0.25 whole time equivalent of a clinician's time to act as clinical director • payments directly linked to the PCN Enhanced Access (out of hours) and Enhanced Health in Care Homes services • reimbursement for employing new staff under the Additional Roles Reimbursement Scheme (ARRS) and performance payments under the Investment and Impact Fund initiative. Individual practices within a PCN are also entitled to a further payment for taking part in a PCN. Other payments have also been made to PCNs since 2019, usually repurposing existing PCN funding or providing an income guarantee (in response to COVID-19 pressures or access initiatives). In 2022/23 and 2023/24, PCN 'leadership and management' and 'capacity and access' payments were also being paid to PCNs by NHS England.

[*] While this table gives a general overview of PCNs since 2019, we have focused on PCN policy as in 2022/23 (when our interviews and policy analysis were conducted) and 2023/24 (the current arrangements). Where there are meaningful differences in policy in previous years (or between 2022/23 and 2023/24), we have aimed to reflect these. However, more minor variations are not included.

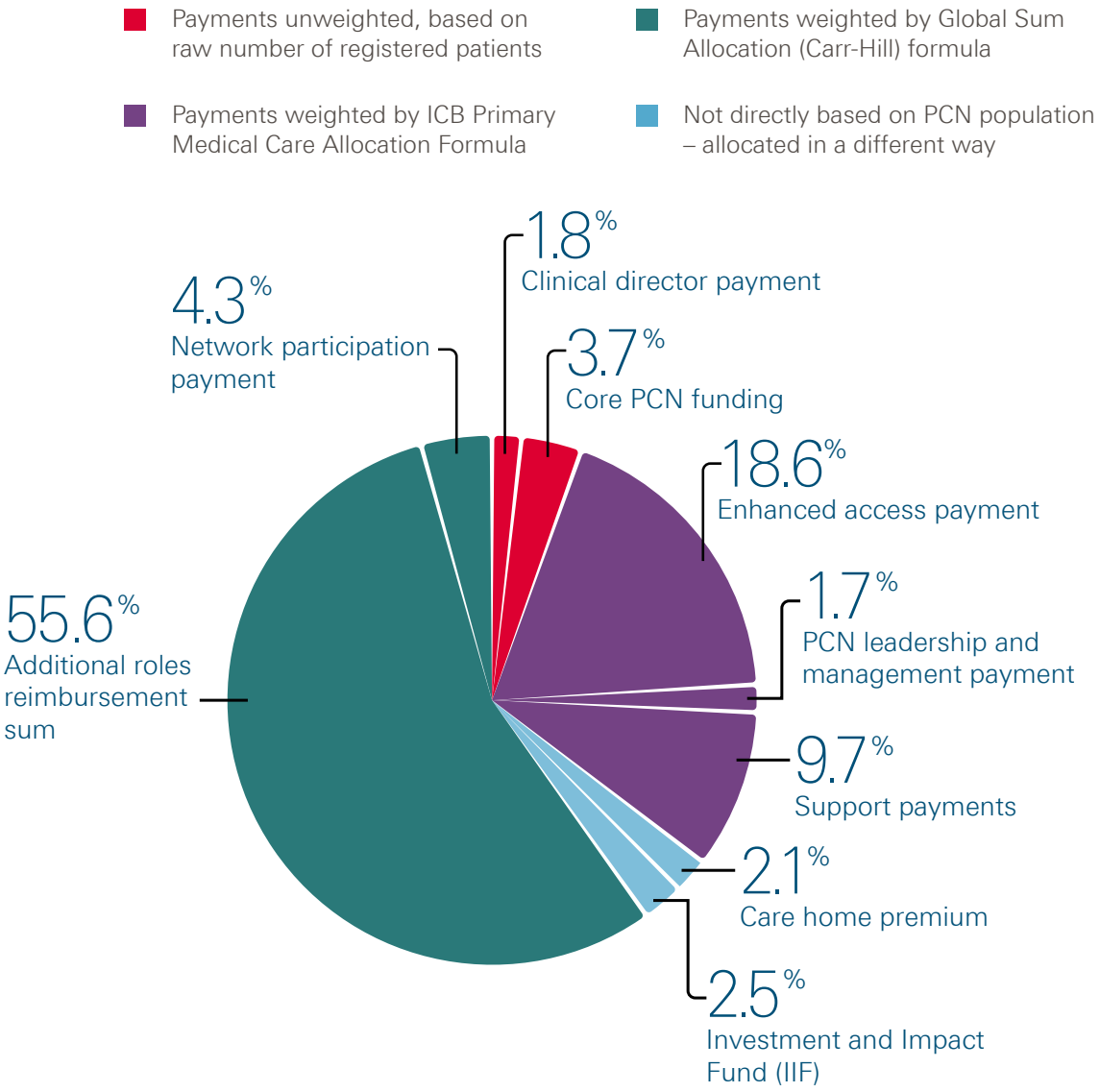
Service specifications	A PCN is required to fulfil service specifications (usually referred to as 'PCN services') set out in the national PCN DES contract. PCN services have been phased in gradually since 2019. In 2022/23 and 2023/24, PCNs had to deliver the following services: • Medication Review and Medicines Optimisation (reviewing patients who need multiple medications, aiming to reduce harm and improve their health) • Enhanced Health in Care Homes (services to improve the health care of people in care homes) • Early Cancer Diagnosis (improved detection and screening for potential cancers) • Personalised Care and Social Prescribing (services to link people to non-medical sources of support in the community) • Cardiovascular Disease (CVD) Prevention and Diagnosis (better detection and management of risk factors for heart disease) • Tackling Neighbourhood Health Inequalities (identifying local health inequalities and designing projects to reduce them) • Enhanced Access (from October 2022) (providing additional appointments outside standard hours across the PCN). Many PCNs also delivered COVID-19 vaccination services. Further information on the delivery requirements for these services can be found in the PCN contract[29] and guidance materials.[33,34,35,36,37,38,39]
Investment and Impact Fund (IIF)	The Investment and Impact Fund (IIF) is a payment for performance scheme, like the Quality and Outcomes Framework (QOF) in core general practice. Payments are made for meeting a range of clinical and operational targets, but pandemic disruptions and the decision to reallocate IIF funding to other PCN objectives mean that the IIF has not been used on the scale originally planned.
Workforce	Under ARRS, PCNs can claim 100% reimbursement for the salary and certain on-costs for employing additional staff in specific direct patient care roles.* A full list of roles is listed in Appendix 2 but they include community paramedics, social prescribing link workers, first-contact physiotherapists and clinical pharmacists. GPs, admin staff and practice nurses are not included in the ARRS. Each PCN is allocated an ARRS budget for the financial year based on their patient population. PCNs are free to employ their choice of roles within their allowance with some exceptions: • Advanced practitioners are capped at a set number per PCN. • Mental health practitioners must be co-funded and co-employed between a PCN and a local NHS trust.† The ARRS budget has seen a phased increase, rising from £110m in 2019/20 to £1.41bn in 2023/24, meaning PCNs have been able to employ more staff over time.

Source: Health Foundation analysis of PCN contract arrangements.

* PCNs could claim for 70% of these costs in the first year of PCNs (2019/20).

† Mental health practitioners per PCN were also capped in 2022/23 but this was removed for 2023/24.

Figure 1: The contribution of each payment stream to the total funding a typical PCN could receive



Source: Health Foundation analysis based on the PCN contract. We assumed that a 'typical PCN' has 50,000 registered patients, 50,000 PCN-adjusted population, 50,000 contractor-weighted population and 366 care home beds. We also assumed that the PCN received the full amount of IIF and ARRS funding.

PCNs played a central role in organising parts of the COVID-19 vaccination programme.[40,41] They have also hit NHS England's targets for employing 26,000 additional staff in direct patient care roles ahead of schedule.[42,43] Research has found PCNs are facing challenges, including difficulty integrating new staff, fragile relationships between new organisational partners, lack of management support, and national expectations exceeding what could realistically be achieved.[44,45] The support received by PCNs from local NHS commissioners, NHS trusts and GP federations* also varies. Some PCNs are also able to tap into other existing economies of scale more than others, for example if their members include large practices or are part of bigger organisations such as GP 'super-partnerships'.[46]

* GP federations are voluntary collaborations set up by groups of GPs to support practices with back-office functions, service delivery and local strategy.

Methods and approach

In this section we describe the mix of methods we used to understand the experience of PCNs in areas of high deprivation in England.

1. Policy analysis of PCN contracting and guidance

We developed a framework to assess the possible impact of socioeconomic deprivation on the development and operation of PCNs. We used this framework to assess PCN policy and contracting guidance issued by NHS England between 2019 and 2023, and included other sources where relevant, such as the BMA's General Practice Committee. A summary of the policy documents we reviewed and our assessment framework is set out in Appendix 3. The findings of the policy analysis shaped the questions we asked of both the quantitative data and the interviewees.

2. Quantitative analysis of PCN payments and workforce

We analysed public data to assess the relationship between overall resources allocated to PCNs through the contract and levels of socioeconomic deprivation in the area of each PCN. We calculated deprivation in fifths using the average IMD 2019 score* of patients registered at GP practices in each PCN. PCNs in the most and least deprived fifths have some different characteristics, summarised in Appendix 4. We adjusted for differences in patients' need using the PCN-adjusted population, calculated using the ICB primary care allocation formula. We used this because although the formula is only used for some PCN funding streams, it attempts to account for additional need arising from deprivation, in contrast to the other two methods that do not take deprivation into account (see Box 1).

We then compared the change in the number of staff employed in ARRS roles since 2019 per needs-adjusted† patient in the 20% most and least deprived PCNs using the Primary Care Workforce Quarterly Update (June 2023). We used linear regression to determine whether differences between the most and least deprived PCNs were statistically significant at the 5% level.

We were unable to compare differences in the actual payments received by the most and least deprived PCNs as the quality of the 'Payments to General Practice' data[47] was too poor, with missing data or negative values. Instead, we conducted synthetic analyses: this compared the payments PCNs are eligible for under the 2023/24 PCN contract with what PCNs might have received if all payments had been made using the ICB formula that

* The English Indices of Multiple Deprivation (IMD) score is a measure of the relative deprivation of small areas across England taking into account deprivation across seven domains (such as crime, income deprivation, and health and disability related deprivation).

† Needs adjustment aims to take into account how different population groups use health and care services. Patients with high needs (eg patients with multiple health conditions) will use health and care services more than those with lower needs. In needs-adjustment measures, high-need patients count for more than those with lower needs when allocating workforce, funding, etc. Box 1 describes needs adjustment in the PCN contract.

best accounts for deprivation. First, we calculated the difference in funding that PCNs in the most and least deprived areas are eligible for per needs-adjusted patient. Second, we estimated the total additional funding PCNs in the most deprived areas would receive if more payments were based on the PCN-adjusted population.

Box 1: Understanding general practice population weighting

Payments are made to PCNs through different funding streams. Most are allocated as a set amount of money per patient. Some funding streams use the raw number of patients to calculate these payments. However, this does not account for the difference in needs between types of patients and how often they use general practice services. Because of this, some PCN funding streams (as with some in core general practice) use formulae to weight patient populations to account for differences in needs and other factors. For example, as older people tend to use GP services more than younger people, a PCN with a high proportion of older people will be considered to have a 'larger' population for the purposes of funding allocations.

The weighting formulae and patient populations used in allocating PCN funding are given below. A full breakdown of PCN payments and their weightings can be found in Appendix 1. Some of these weightings account for additional need associated with deprivation better than others.

PCN-registered patients – the number of patients registered with practices within the PCN. No weighting for additional need is applied (eg the core PCN payment uses this method).

PCN-weighted population – the number of registered patients weighted by the global sum allocation formula, usually called the 'Carr-Hill' formula. This considers factors like patient age and sex to help account for different health care needs and use of general practice by different patient groups.[48] However, this formula has been criticised for not adequately accounting for the impact of deprivation on patient need[6,49] (eg the ARRS is calculated using this method).

PCN-adjusted population – the number of registered patients weighted by the **ICB primary medical care allocation formula**. This weighting takes better account of deprivation. It does so by incorporating a 'health inequalities adjustment' and factoring deprivation into estimates of GP workload when allocating funding[50,51,52] (eg the extended access payment is calculated using this method).

3. Qualitative interviews with primary care network leaders and integrated care system commissioners

We conducted 16 semi-structured interviews with a total of 18 PCN clinical directors and senior managers across 16 PCNs.* We chose to interview clinical directors and senior managers because we wanted perspectives from people with experience of operating PCNs. All interviewees worked in PCNs identified as being in the 20% most deprived areas in England. National NHS bodies have identified various target groups for action on health inequalities, including people living in the 20% most deprived areas of the population.[15] We identified interviewees from a mix of PCNs with diverse characteristics – including rural, urban and coastal areas; PCNs composed of a single practice up to more complex PCNs involving 10+ practices; and patient populations ranging from near 30,000 to over 100,000.

* Two of our interviews were joint interviews with both a clinical director and senior operations manager at their request given the division of responsibilities in their PCNs.

PCN leaders were asked about their experience of operating a PCN in an area of high deprivation. The selection of question topics was informed by the themes that emerged from our policy analysis. We used a semi-structured interview guide, covering questions on recruitment and retention of the PCN workforce, funding, the Investment and Impact Fund (IIF), service delivery and PCN leadership. We also interviewed three staff working in senior primary care roles in three different ICSs to explore perceptions of differences between PCNs in more and less deprived areas.

Interviews took place between July and November 2022. All interviews were recorded, professionally transcribed and analysed using Nvivo software informed by the framework approach – a method of categorising qualitative data in a structured way based on key questions and concepts covered in the interviews.[53] From this, a set of themes was developed and used to structure the presentation of interview findings set out below.

More detail on our methods and interview sampling can be found in Appendix 3.

Limitations

This research has several limitations. First, our quantitative analysis was limited by the quality and availability of data. Our analysis was based on funding streams within the national contract and what we expected PCNs to receive, but we do not know if all PCNs have claimed and received funding exactly as described in the contract. We did not include the Investment and Impact Fund (IIF) pay for performance scheme in our analysis – significant and repeated disruptions to the IIF make it difficult to draw robust conclusions from these data. Similarly, we did not include the care home premium* as the relationship between deprivation, the needs of people in residential care, and distribution of care home beds is complex and outside the scope of this report. The data included in the analysis nevertheless represent over 95% of PCN funding.

Second, in the absence of a formula that comprehensively adjusts for the additional need associated with deprivation, we relied on the best-available formula in use. We used the PCN-adjusted population to account for differences in patient needs between the most and least deprived fifths of PCNs. We chose this as it is the most equitable adjustment from a deprivation perspective that is currently used within the PCN contract and one that can be applied using publicly available data.[2,48,50,51,52]

Third, recruitment of PCN leaders for interviews was challenging. Around a third of PCNs eligible for inclusion in our sample did not have public contact information and we were unable to invite them to participate. Our response rate from leaders we were able to contact was relatively low. Recruitment continued until all eligible PCN leaders for whom contact information was available had been sent two invitations to participate.

* The care home premium is a payment PCNs receive in recognition of delivering the Enhanced Health in Care Homes Service. For 2023/24, it is £120 per CQC-registered care home bed in the PCN's area.

Fourth, our approach of sampling from PCNs in the most deprived 20% of areas means that practices within these PCNs are typically facing similar levels of high deprivation. The experience of PCNs with pockets of high deprivation and heterogeneity are therefore not represented. Finally, we did not interview patients, public representatives and other PCN staff as part of this project.

Findings

Policy analysis

We developed a framework to analyse national PCN policies. This framework was based on evidence about a range of challenges more likely to be faced by patients and practices in more deprived areas. These include living in poor-quality housing, having low levels of employment, income and education, and being surrounded by less healthy environments (eg with little green space or limited access to shops selling healthy foods), all likely to result in higher prevalence of illness.[9,54,55] Patients living in these areas may also face challenges with lack of access to transport, less time off to attend appointments, need for interpreters, lower health literacy and access to digital tools and connections, resulting in barriers to services.[9,56,57,58,59,60,61,62,63] Practices in deprived areas are more likely to struggle to attract and retain staff.[6,23] We used our framework to analyse the PCN contract and supporting materials and we identify areas where current policy may support or hinder PCNs in areas of high deprivation. More information is available in Appendix 3.

How might current PCN policy support areas of high deprivation?

Elements of the PCN contract are likely to be helpful in areas of high deprivation. Additional workforce available through the ARRS may help offset GP shortages. Services targeting cancer and cardiovascular disease diagnosis and prevention may be valuable for patients who are more unwell and have higher risk factors. Other PCN services, such as personalised care which uses social prescribing to link people up with support for a range of non-medical problems such as poor housing or low income, have potential to address the social and economic factors shaping health. The Tackling Neighbourhood Health Inequalities service requires PCNs to nominate a health inequalities lead, responsible for championing health inequalities work within the PCN and coordinating its engagement with national efforts to reduce health inequalities.[37] Several services also have adjustments to recognise higher levels of need. For example, payments for PCN out-of-hours provision is weighted for deprivation and the length of medication review appointments can be varied based on need.

How might current PCN policy hinder attempts to address inequalities?

Some PCN funding streams are weighted to account for increased need in more deprived areas, but over two-thirds of money for PCNs is not – including payments for employing ARRS staff. The contract also lacks ways of ensuring national distribution of ARRS staff is equitable and does not consider recruitment and retention challenges deprived areas may face. As delivery of several PCN services is tied to having new roles in post, patients in more deprived areas may have more limited access if there are problems with recruitment. There are also gaps: unlike the clinical director, the role of the PCN health inequalities lead does not receive dedicated funding. The additional problems experienced by general

practices in deprived areas have not been reflected in the design of incentives. While IIF targets are adjusted for list size and prevalence, they do not account for factors that might affect their achievement, such as language barriers, vaccine hesitancy or higher workload from lower patient engagement. Overall, the current PCN contract focuses on inequalities within PCNs (ie relative need within local areas) but does not place the same emphasis on addressing inequalities between PCNs (ie absolute need at a national level).

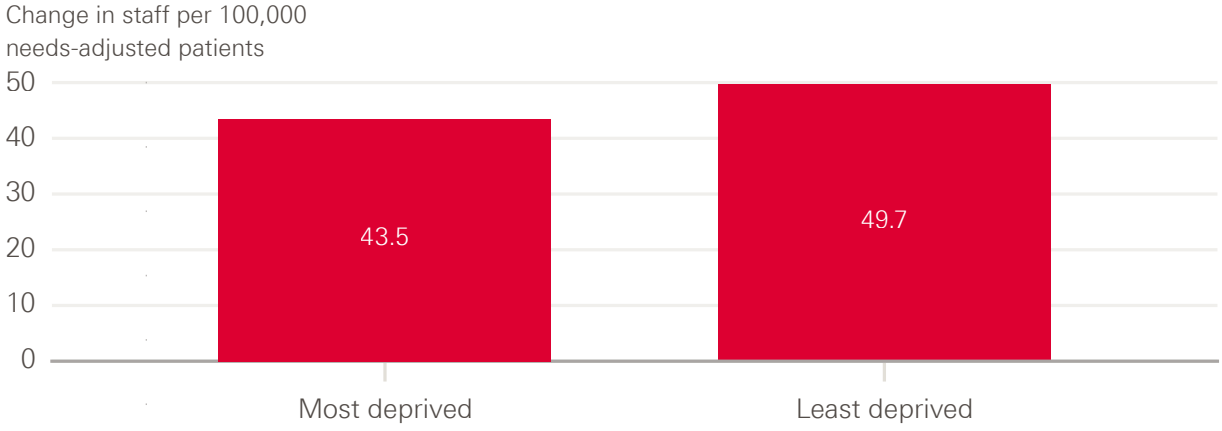
Analysis of PCN workforce and payments data

Our policy analysis identified a risk that PCN funding and workforce might not be equitably allocated in relation to deprivation. In this section, we assess whether there is a difference between the most and the least deprived areas in how PCN resources have been distributed. We explore what the effect would be if resources were allocated using a formula that better adjusted for higher needs in more deprived areas.

Workforce

We found no significant differences between the number of ARRS staff recruited between the most and least deprived PCNs per registered patient. However, when increased need is accounted for using the PCN-adjusted population, we found there were significantly fewer staff working in ARRS roles in the most deprived PCNs compared with the least. The most deprived PCNs had hired six fewer full-time equivalent ARRS staff per 100,000 needs-adjusted patients between March 2019 and June 2023 compared with the least deprived PCNs (Figure 2). Paramedics, care coordinators, pharmacists and pharmacy technicians were the roles with the biggest deficit in the most deprived PCNs compared with the least deprived PCNs (Table 2).

Figure 2: Comparing the number of additional full-time equivalent staff hired in PCNs in the most and least deprived areas, England, 2019–2023
The change in number of full-time equivalent staff working in ARRS roles per 100,000 needs-adjusted patients between March 2019 and June 2023 in the most and least deprived PCN IMD 2019 quintile



Source: Health Foundation analysis of Primary Care Quarterly Update (collated figures).
Note: Needs-adjusted patients based on the PCN-adjusted population.

Table 2: The number of additional full-time equivalent staff hired by PCNs between March 2019 and June 2023 per 100,000 needs-adjusted patients
By job role in the most and least deprived PCNs

Job role	Most deprived	Least deprived
Pharmacists*	10.73	11.97
Care Coordinators*	7.63	9.45
Social Prescribing Link Workers	5.50	5.57
First Contact Physiotherapist*	2.96	3.55
Physician Associates	3.03	2.37
Pharmacy Technicians*	2.93	4.31
Paramedics*	2.44	4.59
Health and Wellbeing Coaches	1.90	1.73
General Practice Assistants	1.50	2.12
Mental Health Practitioners	1.41	1.24
Nursing Associates	1.42	1.13
Trainee Nursing Associates	1.25	1.04
Dieticians*	0.31	0.18
Occupational Therapists	0.29	0.30
Podiatrists	0.20	0.08
Apprentice Physician Associates	0.02	0.01

Source: Health Foundation analysis of NHS Digital, Primary Care Workforce Quarterly Update, June 2023.

Pharmacists, physiotherapists, paramedics, dieticians and occupational therapists include advanced practitioners.

* = statistically significant ($p<0.05$).

Payments

Since PCNs were first introduced, NHS England has changed some of the funding streams, using the PCN-adjusted population rather than the registered or Carr-Hill-weighted population. However, a majority of PCN contract payments are either unweighted or continue to use Carr-Hill, meaning they account less adequately for additional need due to deprivation. This includes the clinical director, core PCN and network participation payments, as well as a PCN's ARRS total allowance.

Our analysis found that PCNs in the most deprived areas are allocated less money than the least deprived PCNs when greater need is accounted for. PCNs in the most deprived fifth were eligible to receive £36.31 per needs-adjusted patient compared with £37.92 in the least deprived PCNs in 2023/24.* If the clinical director, core PCN, ARRS and participation payment streams were allocated based on the PCN-adjusted population, the most deprived PCNs would collectively receive an additional £18.6m in 2023/24.

Overall, we found that PCNs in areas of high deprivation have access to less funding and fewer staff than those in areas of low deprivation, when accounting for the differences in need between the most and least deprived PCNs.

Findings from interviews with PCN leaders and ICS staff

In this section, we set out findings from our interviews organised by theme.

1. The impact of current PCN funding, incentives and contracting

Several interviewees described the funding allocation to PCNs as 'unfair' and indicated it was a significant problem. Both PCN and commissioner interviewees expressed views that PCN funding is insufficient to meet levels of need in more deprived areas. Better weighting, targeting and uplifts were thought to be needed to account for the effects of deprivation.

A number of interviewees welcomed the move away from the Carr-Hill-weighted population (used in core GP funding) towards the PCN-adjusted population for some PCN payment streams. This was considered to better account for deprivation. But the continued use of Carr-Hill for other PCN payment streams and in core general practice payments was reported to be a problem. Several interviewees also felt that the PCN-adjusted population approach still did not go far enough.

* These estimates do not include the IIF or care home premium as these are not allocated based on number of patients.

> ‘We’re pleased to see that some of [the PCN funding] is starting to use the [PCN-adjusted population] calculation, which hopefully will reflect deprivation a little better. But effectively, all PCNs are accessing similar amounts of funding. It’s not really truly reflective of what the need and the workload is.’

ICS01
Primary Care Lead

Interviewees held mixed views about the way the PCN contract as a whole directs how funding is to be used. Some valued the structure it offers to guide PCN investment and organisational development. Others felt strongly that there was not enough flexibility in how to spend PCN funding and spoke about how they were prevented from doing innovative work to address patients’ social and economic barriers to better health.

Targets within the PCN contract were seen by most interviewees as not accounting sufficiently for deprivation. They cited challenges hitting Investment and Impact Fund (IIF) targets and some of the requirements in the main PCN service specifications. Lower patient engagement, vaccine hesitancy, language barriers and higher prevalence of ill health were consistently noted as problems in these areas. This was felt by most to make it particularly difficult for PCNs to meet targets or secure improvements, for example in areas such as cancer screening, hypertension control, vaccinations and medication switching.

> ‘Our patients live chaotic lives. They’re not organised, they don’t have good living situations. Even simple things like picking up post, picking up messages, they’re less likely to do […] effectively. Some of them can’t read, some of them can’t write. A lot of them speak different languages.’

PCN07
Clinical Director

Achieving PCN contract expectations was commonly said to need higher levels of extra, often discretionary work by PCN teams. Several interviewees spoke of the extensive community outreach activity needed to build trust and to meet patients where they are, for example providing services away from general practice in churches, mosques, gurdwaras and other faith and community settings.

Hitting IIF targets was described by some as uneconomical, with effort not commensurate with payment, especially if targets were narrowly missed. Some PCN interviewees reported picking and choosing only those IIF targets they thought they could hit given these challenges. Being unable to meet IIF targets and the wider expectations of PCNs, despite lots of effort, was often seen as demoralising, particularly if local commissioners did not seem to understand what they felt were the challenges of providing primary care in

areas of high deprivation. Several PCN interviewees said they had mostly neglected the IIF aspect of the PCN contract, instead focusing their network's resources on what they saw as more pressing and achievable local issues tied to high needs and deprivation.

PCN performance in deprived and more affluent areas was felt by some interviewees to be like comparing 'apples and oranges', requiring a nuanced approach by ICB primary care commissioning teams that they do not believe they currently receive. Instances were given of nationally set expectations of PCNs – for example, extended opening hours rather than supporting more appointments in working hours – which did not work for patients in more deprived areas and their primary care teams.

> 'So an example from our [PCN] extended access service where I was the clinician: on Friday, a patient was contacted at 18.30, which is within the extended access service. Unfortunately, they had no way to obtain the antibiotics that were prescribed until Monday because they had no personal transport, no ability to get a bus to the pharmacies that would be open over the course of the weekend and a taxi is too expensive.'
>
> **PCN16**
> **Clinical Director**

Interviewees offered several examples of how greater flexibility in the PCN contract could strengthen their ability to deliver improvements for their patients, given the additional challenges faced in areas of high deprivation (Table 3).

Table 3: Examples of contract flexibilities to account for deprivation

Contract area	Flexibilities
Incentives and targets	Greater co-production of targets between PCNs in areas of deprivation, local commissioners, and NHS England to ensure they address inequalities, align with local population need, and are both aspirational and achievable.
	Designing targets better suited to more deprived areas that recognise progress and gains made in the face of population health challenges rather than setting unrealistic 'all or nothing' thresholds.
ARRS	Ability to recruit other staff roles to meet specific needs in the area, for example coordinators for volunteers, drug and alcohol workers, mental health staff specialising in substance misuse or homelessness, phlebotomists for where patients struggle to access centralised blood-taking services due to language barriers or transport issues.
	Ability to recruit GPs and practice nurses as part of ARRS to account for historic under-doctoring in more deprived areas and bring skills current ARRS roles cannot replicate.
	Raising the limit on numbers of mental health practitioners per PCN to account for higher levels of need.*
Funding	Where PCNs have tried but been unable to recruit, ability to use unspent ARRS allowance for local health improvement projects or be able to use it flexibly for staffing in other ways not currently permitted.
	Greater discretion for local commissioners to target and use PCN funds to address challenges of deprivation.
	Ability for PCN to share funding with other partners to act upstream.

* Caps on mental health practitioners for all PCNs were removed as of the 2023/24 PCN contract DES. Interviews took place during the 2022/23 contract year.

2. Building a PCN workforce for an area of high deprivation

There was strong consensus among interviewees that ARRS roles can add real value for PCNs in areas of deprivation. Some interviewees emphasised the contribution of clinical roles, such as pharmacists or physician associates, in helping tackle high primary care workloads. Personalised care roles, such as health and wellbeing coaches and social prescribing link workers, were also welcomed as a way of addressing wider economic and social barriers to health and helping PCNs build stronger relationships with voluntary sector partners. One PCN leader perceived a tension between practices' desire for PCN-funded clinical staff to help with day-to-day pressures of core general practice, and staff aimed at helping patients with broader issues PCNs are tasked with tackling.

> 'There's a tension between what the practices see as valuable and what is possibly valuable in wider terms and that does come to deprivation and health inequality […] the practice's initial focus would be, what can help me get through the day as a practice and hence an emphasis on clinical skills, clinical pharmacists, physiotherapists.'
>
> **PCN14**
> **Clinical Director**

Examples of how ARRS roles were being deployed in PCNs in areas of high deprivation are set out in Box 2.

Box 2: How specific ARRS roles can support patients in areas of high deprivation

First-contact physiotherapists supporting patients with high-strain manual jobs.

Dieticians working to tackle high rates of childhood obesity.

Clinical pharmacists helping review patients prescribed multiple medications to reduce unwanted interactions and side effects given high rates of multimorbidity locally.

Care coordinators building relationships, providing appointment reminders, saving GP time and promoting patient engagement.

Personalised care roles recruited from local communities, offering culturally conscious health advice and services in languages other than English.

Social prescribing link workers supporting patients with keeping warm in winter and with cost-of-living issues.

Home visits by link workers helping to identify issues such as infestation and hoarding.

Source: Interviews with primary care network leaders.

Some interviewees spoke of difficulties recruiting, integrating and retaining PCN staff in their areas. Several described how the pressures of the general practice day job in deprived areas could mean limited time for GPs to recruit, supervise, mentor and embed new staff. A few interviewees also talked about the considerable demands on new staff: reasons

included the high workload and complexity of patients, the possibility of violence and aggression, and the emotional toll of being unable to meet patients' full health and broader social and economic needs.

> 'I suspect [our health and wellbeing coach] is a bit burnt out, although it's only been [1–2 years]. So, I think the emotional toll of […] dealing with very challenging, deprived patients, with a high amount of social and psychological needs, has a profound effect […] And how, as a PCN, do you deal with that?'
>
> **PCN04**
> **Clinical Director**

A small number of interviewees also expressed frustration when staff funded through the ARRS, especially in-demand roles like paramedics and pharmacists, left for better paid or less complex work in more affluent areas.

While some PCNs had struggled to build their workforce, others had been more successful. Indeed, a small number of interviewees reported having exceeded their available ARRS allowance. Interviewees reported a range of factors influencing PCNs' success in recruiting and retaining new staff – these are summarised in Box 3.

Box 3: Success factors for recruitment and retention in areas of high deprivation

Significant local support from GP federations, super-partnerships, third sector organisations and NHS trusts for processes including recruitment and induction.

Benefiting from economies of scale by being a larger PCN or having relatively big constituent practices with more management capacity.

A clear vision and identity for the PCN, sometimes linked to tackling the challenges of deprivation, along with experienced and capable leadership.

A reputation for being a good employer, innovator, award winner or other forms of attractiveness in the recruitment market.

A clear ethos of being willing to 'put in the hard work' and make recruitment and retention a priority.

Proximity to more affluent areas where staff can live and potentially work for part of their time.

Building a pipeline of recruitment and training with the local community, for example working with local colleges or developing community members to become link workers.

Embedding good HR practice into the PCN including training and development resources; career progression opportunities; supervision and mentoring; not spreading staff too thinly across the network; and offering a 'home practice' and team to which new staff can belong.

Source: Interviews with PCN leaders.

A consistent theme from the interviews was the importance of shared values (eg about tackling health inequalities) in building a PCN workforce in areas of high deprivation. Several interviewees spoke about embedding these values in recruitment and other HR activity in the PCN, emphasising both benefits and challenges to working in more deprived areas. They felt this helped select applicants more likely to settle well and stay with the PCN.

> ‘We try and show that it’s one of our main threads and [the] ethos of our PCN to reverse the inverse care law […] We try and make it an opportunity, “Come and work in an area where there is deprivation, you’ll see lots of health problems. Yes, they’re complex, but they can be very rewarding and satisfying.”’
>
> **PCN09**
> **Clinical Director**

Some interviewees also described how working in deprived areas can attract job applicants who want to make a difference and are passionate about inequalities. This was felt to help counteract some of the challenges PCNs face with recruitment and retention in these areas.

3. Leading and managing a PCN in an area of high deprivation

The clinical director

Some interviewees reported that the role of clinical director offers a chance to engage more systematically with communities and use designated funding to do innovative work aimed at reducing health inequalities. Developing leadership and other skills was also seen by several as a positive aspect of being in the role.

However, many spoke about how difficult or unsustainable the role was given the pressures of trying to lead a PCN, with a small number planning to step back from the role in the future. They cited issues likely common to all PCNs, including performance management of struggling colleagues, having to supervise new workforce roles and lacking sufficient management support.[45] These pressures were seen as potentially accentuated in areas of high deprivation by the additional challenges faced in setting up services and addressing complex local needs.

Some interviewees reported tensions, or even conflict, where other voices in the PCN had called for a firm focus on the ‘day job’ of trying to meet high general practice demand rather than investing scarce time and resource in establishing new roles and services. A few clinical directors described a balancing act between progressing the PCN agenda and the need to keep other colleagues on board.

‘It’s that balancing act, isn’t it? Because you’ve got to keep your practices on side. I think you can’t just go on a tangent and leave your practices behind because that’s when everything will fall apart. […] [PCN members say] “Why do you need to go to all these meetings [with voluntary sector, faith and council groups]?” But if you don’t have that network in place, if you don’t have those relationships, how are you supposed to address all these health inequalities?’

PCN08
Clinical Director

Some clinical directors and PCN managers pointed out that working with a range of community partners, such as the voluntary sector, education, police and social care, and building relationships to tackle wider determinants of health, all takes time and discretionary effort. The pressures of lots of external meetings, trying to engage patients and the public, doing the day job in general practice and running PCN operations was reported to feel immensely taxing.

‘As a clinical director I’m in all sorts of meetings to work out [the PCN agenda locally] […] we’re at a conference tomorrow looking at the impact of the ICS on PCNs […] I won’t spend any time looking at social deprivation or anything [this week] because I’m just going through the process of being a CD.’

PCN11
Clinical Director

Management capacity

A consistent theme across almost all the interviews was the lack of management capacity in PCNs. Many interviewees felt the funding available was insufficient to secure the right kind of staff with appropriate skills to manage the work of the PCN, especially in areas of deprivation where the range of challenges is perhaps broader and more specialised.

‘[I] think, generally […] the [local] areas that are most [challenging and high deprivation] tend not to have the dedicated management roles, and I think just the clinical leadership is more difficult, because of just the time pressures […] when everyone’s really struggling, it’s really hard, isn’t it, to bring people together? Everyone’s just head-down in the firefighting of the day job.’

ICS01
Primary Care Lead

Some PCN interviewees reported receiving additional management support funding from their local commissioner, while others had drawn on the resources and staff of their GP federation or benefited from the management expertise available in larger practices. However, for many, this remained a pressing issue, especially for those PCNs comprising smaller practices with less management resource, and not part of a broader support structure such as a GP federation or super-partnership.

Organisational maturity

PCN leaders reported varying experiences with PCN development and maturity. Some had positive experiences, describing new bonds emerging from working with others in a similar situation – a ‘club of deprived practices’ able to share learning and support each other. Trusting relationships, mutual support, effective governance and helpful sharing of staff and resources had often developed, especially where there was skilled leadership and adequate management support.

For others, building and sustaining a PCN was reported as more fraught. Some PCNs are made up of large numbers of small practices, making consensus-building difficult. High emotions, stress and tension from working in areas of high deprivation were felt by a small number to have made the work of building a PCN more difficult but could also push people to recognise the need for a new way of working.

‘In the areas of high deprivation, there is more emotion. There is more stress. There is more passion. People are closer to their wits’ end […] [More deprived PCNs are] at the absolute coalface of it all and they recognise the need to do things maybe a little differently.’

ICS03
PCN Organisational Development Practitioner

4. Working with commissioners and local stakeholders

Local commissioners

Among our PCN interviewees, relationships with local commissioners were complex and varied. The abolition of CCGs had been felt keenly by some, with concerns raised about the loss of expertise, support and relationships from primary care commissioners familiar with the situation on the ground in areas of deprivation. ICBs were often reported to be too distant or not yet mature enough to replace this support. Organisational flux associated with restructuring had created additional uncertainty and challenges for several PCNs.

> ‘You know, when we had the CCG I had people that I could talk to. They knew what was happening on the ground. We knew them. I think what we’ve got now is a massive gap in the middle where we don’t have that communication.’

PCN08
Clinical Director

Both commissioner (ICB) and PCN interviewees spoke about difficulties navigating the latest NHS organisational architecture. Interviewees from both groups said that the sheer number of PCNs per ICB and the ability of other powerful voices locally to command attention meant that the needs of PCNs in deprived areas could easily get lost.

Relationships between the ICB and PCNs were also described as being low trust in some areas. Some PCNs reported that local commissioners seemed to be pushing ‘one-size-fits-all’ models of services onto their PCNs and could be inflexible in tailoring the PCN offer in areas of high deprivation.

> ‘Our health inequalities stuff, we had some really good ideas that we thought worked but we found it difficult to get […] through our commissioners […] [They] wanted a one-size-fits-all for the locality and so unique, tailored stuff we found really difficult to get through.’

PCN13
Clinical Director

Several interviewees explained that some PCNs had become the go-to vehicle for ICBs wanting to deliver programmes on inequalities in areas of deprivation. PCN leaders described being asked to undertake a range of projects from different parts of the local system on top of their contracted work, often without additional resourcing or any co-production. The cumulative expectations and competing demands were felt to be unsustainable without more support for these PCNs.

‘You’ve got local asks, you’ve got systems asks, and you’re just getting stretched in all these different directions without enough time, without enough financial sources as well […] [The ICB says] “We’ve got no funding, but can you do a project [...]” Happy to do the projects, but goodwill only goes so far.’

PCN08
Clinical Director

There were, however, examples of local commissioners providing much-valued support to PCNs in areas of high deprivation. Both commissioner and PCN interviewees gave examples of ICBs supporting differential investment for PCNs in more deprived areas, providing top-up funding for PCN management and supporting PCNs with organisational development.

NHS trusts, voluntary sector and other local partners

Other local services in areas of high deprivation face similar pressures to PCNs that can complicate the potential for partnership working. Across our interviews, PCN leaders reported specific issues – like community health services being unable to spare staff for the shared enhanced health and care homes service or mental health trusts lacking capacity to second or support additional mental health practitioners.

Mental health roles were seen by some as especially important for their areas, but shared employment between PCNs and mental health trusts (as required by the PCN contract) was reported to be regularly hampered by poor communication, disputes about pay and complexities arising from several parties being involved. More general concerns were also raised by a small number of interviewees about NHS trusts being unable or unwilling to be ‘nimble’ and accommodating of the specific needs of PCN patients.

‘The hardest bit of this job is getting people to be pragmatic and make some fairly quick, but reasonable decisions to help patients, and I’m finding that very difficult at the moment […] It’s the relationships with larger organisations, secondary care organisations, that don’t seem to want to change their approach for our patients.’

PCN03
Clinical Director

Many PCN leaders reported relationships with third sector organisations were strengthening, facilitated by new ARRS-funded link workers. PCNs and voluntary sector partners were finding common cause, forging links based on shared commitment to tackle local deprivation challenges, and through social prescribing initiatives. Examples were also given of PCNs directly seeking to build social assets in the community. This included one PCN giving out small grants to local food banks and playing fields to help them sustain their vital local work, and another saving PCN money over multiple financial years to fund larger-scale projects in their community.

5. Overall reflections

Delivering PCN services

Many interviewees felt that challenges associated with deprivation made PCN service specifications hard to deliver. Barriers identified by interviewees included significant pressures in running day-to-day general practice, the clinical director being pulled in too many directions and, for some, difficulties attracting and retaining staff. A major challenge identified across PCNs was relatively poor patient engagement exacerbated by language barriers, high levels of need and lower health literacy.

> ‘So in a deprived area, you might have to call someone three or four times to get them in. Our staff put a lot of energy into recalling for smears […] whereas in a well-off area, one text would get everyone in. And nobody talks about that kind of workload, that’s the unseen, extra workload of working in a deprived area.’
>
> **PCN04**
> **Clinical Director**

Some PCN leaders also spoke about grappling with specific local issues, for example, high rates of substance misuse or providing care to traveller, homeless and asylum seeker communities. Some clinical directors felt that the PCN contract could do more to recognise the additional challenges these brought.

Most interviewees thought that the PCN services were a good idea in theory and likely to benefit patients in more deprived areas. However, difficulties in recruiting to and establishing services, together with high levels of population need, had often impeded progress. Some interviewees reported that they engaged with service development only to the minimum level required by the PCN contract, preferring overall to focus new resources on local patient needs and priorities.

Addressing health inequalities

PCNs were often seen as bringing a boost to capacity and workforce as well as offering new services for some patients. PCNs were also often described as a useful vehicle for planning better management of population health and reducing inequalities, and for practices

sharing learning about what works. The additional resources that come with PCNs were reported to have enabled more stability for practices and PCNs were also a clear point of engagement for local partners, such as the voluntary sector, helping offset what was described as a 'siege mentality' that some practices in deprived areas can experience.

One PCN clinical director summed this up, but also underlined the time and effort required to make progress.

> 'I think the whole concept of getting people to work together and providing funds to do some of the stuff is really, really positive and has made a difference to our patients and practices. It isn't perfect, it has required a lot of work.'

PCN06
Clinical Director

Some PCN leaders in areas of high deprivation did however report a sense of 'starting behind' more affluent counterparts and a feeling of 'building on shaky foundations'. This was echoed in perspectives from ICS leaders. Longstanding difficulties recruiting GPs and practice nurses were said to have knock-on effects for PCNs. Some interviewees spoke about how new staff recruited via the ARRS were being used to plug existing workforce gaps and shore up core general practice. They felt that more affluent areas were able to use these new staff, and the PCN agenda overall, to focus on longer term plans while those in areas of high deprivation spent much of their time 'firefighting'.

> 'I think the successful PCNs in deprived areas will […] enable a delivery of a basic level of service within the deprived area and it is just stopping the situation getting worse. I think that's the aim of my [PCN]. I think in really affluent areas, the PCN DES will make it get better.'

PCN13
Clinical Director

Support in difficult times

Some PCN interviewees reported feeling they were in a vicious cycle. They lacked time to plan and implement the PCN agenda and associated new services, meaning they were unable to realise benefits that might ease pressures in future.

‘So it’s the time and headspace […] We can put more money at it but you can’t if it’s still the same amount of people, and they’re working very long hours as it is.’

ICS02
Primary Care Lead

Being part of a formal local organisation of general practices was viewed positively where the PCN experience has been one of trusting relationships, mutual support, effective governance and helpful sharing of staff and resources.

Lessons from our research

Our findings suggest that for practices in areas of high deprivation, the funding and incentives associated with being a PCN have started to help address some of the pressures faced by primary care. But current PCN policy does not account effectively for many of the complexities and additional pressures facing general practice in areas of high deprivation.

Once additional need in deprived areas is accounted for, PCNs in deprived areas have less funding and employ fewer staff than PCNs in more affluent areas. Our interviews with PCN leaders suggest that many have welcomed the additional staff and have begun to build new services and collaborations with other agencies with the potential to improve health and narrow health inequalities. But we also heard about the major challenges experienced by PCNs in more deprived areas, including how the design of national policy, funding, incentives and support for PCNs do not adequately account for differences in health needs and context.

We set out six lessons from our analysis and suggest recommendations for how PCNs in more deprived areas might be better supported in future.

Inequities in core general practice funding affect PCNs

The experiences of PCNs in areas of high deprivation suggest that longstanding inequities in core general practice funding have a knock-on impact on PCNs. Some PCNs may be starting at a disadvantage compared with peers in more affluent areas because of existing levels of underfunding and fewer GPs.[6] This means that PCN investment and service development in more deprived areas may be being used more to shore up core GP services and less on setting up new additional services. Inequities in core general practice funding need to be addressed to enable PCNs in the most deprived areas to maximise their potential.

PCN policy does not fully account for additional need in areas of high deprivation

Our analysis of PCN funding and workforce data bears out the perceptions of our interviewees – that even though more PCN funding has been adjusted for deprivation since 2019, current PCN funding is not sufficient to cover the additional challenges associated with areas of high deprivation. Our analysis of PCN payments suggests that if the funding formula that accounts for deprivation was applied across all population-based PCN funding streams, PCNs in the most deprived areas would receive an additional £18.6m in 2023/24.

Our analysis of PCN workforce data revealed a similar pattern. Consistent with findings reported by others[22,64] we found that PCNs in the most deprived areas had recruited similar numbers of staff to ARRS roles as counterparts in more affluent areas. However, when the additional needs of patients in areas of high deprivation are taken into account, each PCN in the most deprived areas was found to have the equivalent of six fewer full-time equivalent staff per 100,000 patients in ARRS roles than PCNs in the least deprived localities.

These findings reflect a broader issue in the PCN contract that was identified in our policy analysis and raised by interviewees. Overall, the current PCN contract focuses on inequalities within PCNs (ie relative need within local areas) but does not place the same emphasis on addressing inequalities between PCNs (ie absolute need at a national level). Inequalities need to be considered between PCNs across England, not just for patient groups or practices within a network.

Deprivation can exacerbate the challenges faced by PCNs

PCNs in areas of high deprivation have experienced similar challenges to those facing PCNs more widely. They are grappling with insufficient management and leadership capacity, balancing multiple (and sometimes competing) policy objectives and difficulties integrating new ARRS roles into their teams.[44,65,66] They are also facing the impact of wider pressures and growing workload in general practice,[67,68] which are often more acute in areas of high deprivation.[6,69]

Our research suggests that these challenges can be exacerbated for PCNs in areas of high deprivation. These PCNs serve patients with higher and often more complex needs.[10,70,71,72] This creates difficulties in engaging patients to use new services, while those working in PCNs lack headspace and capacity to fully develop the PCN and its plans. High levels of socioeconomic deprivation can negatively affect PCNs' ability to recruit, retain and integrate new staff into the PCN and local practices. This in turn makes local health priorities more difficult to address, especially in an environment where local voluntary sector, social care and community services are also often struggling.[73,74,75,76] Many interviewees in this study felt that such pressures are largely unrecognised by the PCN contract.

PCNs offer real opportunities to tackle inequalities

Despite these challenges, our interviewees were clear that PCNs can offer opportunities for addressing local health inequalities. Participants were broadly positive about the concept and experience of being part of a PCN, and thoughtful about ways in which its potential could be further realised.

PCNs have supported practices in these areas, providing new staff and skills, fostering greater collaboration with local health and social care services, and creating networks of mutual support and learning. New services aimed at addressing local health inequalities have been set up. Many PCNs have worked hard not only to deliver contracted services but to act more broadly in the spirit of PCN policy, collaborating with local organisations and

communities to find new ways to address local needs. Some have also found alternative ways of using PCN funding and capacity to help address the social and economic barriers to health, while others have explored how ARRS staff could be drawn from, and provide tailored support to, local communities.

It is clear from our research, however, that PCNs in areas of high deprivation could benefit from greater flexibility from national and local commissioners to use new funding to better match services to local need. Several contract amendments were suggested (Table 3, page 21) to help the PCN contract work more effectively for areas of deprivation.

PCNs in deprived areas need tailored support

Other research has identified the challenges facing PCN clinical directors in all areas, including the difficulty of running a PCN alongside the GP 'day job', the volume of administrative work and having limited management support.[45,64] In our research PCN leaders described balancing tensions between colleagues wanting a PCN focused on inequalities and addressing social and economic barriers to health, and others arguing for PCN resource to be spent on helping reduce high workloads in core general practice. Some PCNs in this research were highly reliant on 'heroic' leadership from clinical directors, passionate about addressing health inequalities and prepared to give extra discretionary time to PCN work. While applauded by some, this was noted as unsustainable in the longer term. We also heard that when PCNs comprise many small practices, building consensus and collaboration across the network can be particularly challenging. Our quantitative analysis found that PCNs in deprived areas on average have more constituent practices than PCNs in more affluent areas (Appendix 4).

Given the particular challenges faced, PCNs in areas of deprivation need carefully tailored management and organisational support. While some PCNs are supported by GP federations, local commissioners or large constituent practices, others are not.[64] Recent initiatives like the General Practice Improvement Programme[77] and ARRS funding for digital and transformation leads[78] are welcome sources of extra support. Policymakers must ensure that PCNs are consistently getting the full range of support required, including, for example, funding for the health inequalities lead role.

PCNs need high-quality commissioning

PCNs are highly diverse in their number of practices, patient populations, extent of pre-existing cross-practice relationships and level of support received from GP federations and others.[64,79] Those in areas of high deprivation likewise manage highly diverse patient needs and the effects of deprivation. Our interviews suggest that some PCNs in high-deprivation areas appear to be thriving despite the difficulties faced, but others report struggles in establishing and sustaining new services.

To work effectively and maximise their potential, all PCNs need high-quality commissioning. This requires commissioners to have detailed knowledge of local communities and understand the circumstances of the GP practices serving them.

Understanding local context may also help commissioners to avoid overburdening PCNs with extra asks without additional funding or support. This is likely to be especially important for areas of high deprivation, where resources must often be stretched further.

Many of our interviewees reflected on the disruption brought about by recent NHS reorganisation, as noted in other work.[64] This has not been felt equally across the country, but the extent of variation in commissioning quality at regional and local level is unknown. Ensuring that general practice – and PCNs – have a strong collective voice within ICBs and ICSs will be crucial in rebuilding the trust and commissioning knowledge necessary for PCNs to reach their potential.

Recommendations

PCNs represent an important route for addressing local health inequalities, but there are already inequities in funding and staffing between networks. Policymakers need to ensure PCNs have long-term stability and the right organisational support to realise their potential. Our analysis points to five recommendations for future policy.

1. PCNs in areas of high deprivation need additional funding to meet the greater needs of their populations. In the short term, all population-based PCN funding and workforce allocations should be based on the PCN-adjusted population. In the longer term, funding formulas need to be changed to better match PCN allocations to need.

2. PCNs could benefit from greater flexibility within the national contract to better tailor new services to local needs. This could include flexibility in the roles PCNs can recruit, more discretion over PCN spending and more reasonable adaptations of PCN service specifications to fit local contexts.

3. NHS England and ICBs should ensure that their commissioning approach is suitable for PCNs in different contexts, and can account for and respond to the additional challenges faced by PCNs in areas of high deprivation. This should include targeted support with organisational development, management and data analysis.

4. Policy and planning for PCNs must take better account of the needs of PCNs in more deprived areas. This requires ensuring diverse voices and experiences are taken into consideration in commissioning and policymaking.

5. PCNs cannot be separated from their constituent practices. Policymakers must take steps to address the longstanding inverse care law in core general practice funding and staffing. This should include an independent review of general practice funding allocations, with a commitment to implementation of its recommendations.

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Appendix 1: PCN funding streams and weightings

Payments under the PCN DES contract for 2022/23 (the financial year our interviews took place) and 2023/24 (the financial year at time of writing) are shown below. We also highlight significant changes in these funding streams over time since the introduction of the PCN DES contract in 2019/20.

Payments are the total per financial year unless otherwise stated.

Table A1: Payments under PCN DES for 2022/23 and 2023/24

Payments unweighted, based on raw number of registered patients

Payments weighted by Global Sum Allocation ('Carr-Hill') formula

Payments weighted by ICB Primary Medical Care Allocation formula

Not directly based on PCN population – allocated in a different way

Funding stream	2022/23	2023/24	Major changes over time since 2019/20
Clinical director payment	£0.73668 **multiplied by the PCN registered list size**	£0.72963 **multiplied by the PCN registered list size**	Clinical director payments were increased at points during the COVID-19 pandemic to support PCNs with vaccine rollout
Core PCN funding	£1.50 **multiplied by the PCN registered list size**	£1.50 **multiplied by the PCN registered list size**	No change
Enhanced access payment	£3.764 **multiplied by the PCN's adjusted population** [from 1 October to 31 March]	£7.578 multiplied by the PCN's adjusted population	This payment was introduced in October 2022 following changes to CCG and PCN out-of-hours provision
Extended access payment	£0.720 **multiplied by the PCN registered list size** [from 1 April 2022 to 30 September 2022]	[Replaced by Enhanced access payment]	This payment was abolished in September 2022 following changes to CCG and PCN out-of-hours provision
Care home premium	£120 **per care home bed**	£120 **per care home bed**	The care home premium increased from £60 per bed in 2019/20 and 2020/21 to £120 per bed starting from 2021/22
PCN leadership and management payment	£0.699 **multiplied by the PCN's adjusted population**	£0.684 **multiplied by the PCN's adjusted population**	New payment introduced in October 2021

Funding stream	2022/23	2023/24	Major changes over time since 2019/20
Support payments	£0.602 **multiplied by the PCN's adjusted population** [from October 2022 to March 2023]	£2.765 **multiplied by the PCN's adjusted population**. A further payment of up to **£1.185 multiplied by the PCN's adjusted population** is available, contingent on PCN performance*	Additional support payments have been made to PCNs at different points in response to service pressures during the pandemic and as part of access and capacity initiatives afterwards. These payments are from funds usually reallocated from the IIF scheme. PCNs received support payments in 2020/21 and 2021/22 that were allocated based on the **PCN contractor weighted population**
Investment and Impact Fund (IIF)	989 points achievable per PCN, each worth £200.00.† **Payment contingent on performance**	262 points achievable per PCN, each worth £198.00. **Payment contingent on performance**	The funding available under the IIF has varied significantly both within and between financial years as funding has been reallocated to other priorities (see 'Support payments')
Additional Roles Reimbursement Sum	£16.696 **multiplied by the PCN contractor weighted population**	£22.671 **multiplied by PCN contractor weighted population**	The amount of funding available to PCNs under the ARRS increases each year as set out in the 5-year PCN contract framework
Network participation payment‡	£1.761 **multiplied by the practice's contractor weighted population**	£1.761 **multiplied by the practice's contractor weighted population**	No change over time

* This payment is contingent on local commissioner evaluation of PCN performance in 2023/24 of improving patient experience of contact, ease of access and demand management, and accuracy of recording in appointment books. Further information is available in the Network Contract DES – capacity and access improvement payment for 2023/24 guidance.

† Between April and September 2022, 1,153 IIF points were available for the year. From October 2022 this was reduced to 989, with funding attached to these removed points being reallocated to a non-performance-related PCN support payment.

‡ Payment for practices participating in a PCN, rather than to support the PCN itself.

Appendix 2: List of ARRS roles

The range of staff roles PCNs can receive reimbursement for under the PCN Additional Roles Reimbursement Scheme (ARRS) has increased over time.

In 2022/23 and 2023/24, the roles included in the ARRS are:

- clinical pharmacists
- pharmacy technicians
- social prescribing link workers
- health and wellbeing coaches
- care coordinators
- physician associates and apprentice physician associates
- first-contact physiotherapists
- dietitians
- podiatrists
- occupational therapists
- nursing associates and nurse trainee associates
- community paramedics
- advanced practitioners
- mental health practitioners (including both 'adult' and 'children and young people' practitioners).
- GP assistants (from October 2022 onwards)
- digital and transformation lead (from October 2022 onwards).

Appendix 3: Detailed methods

Rapid literature review of PCNs

We conducted an initial rapid literature search to identify existing research on deprivation and PCNs, covering the period January 2019 to May 2022. This initial search focused on key journals (eg BJGP, BMJ) and literature indexed in Google Scholar to high relevance publications.

A follow-up search was conducted in July 2023. This was to identify subsequent publications but also had an expanded remit, extended to any publications on PCNs in England between 2019 and 2023. Databases searched included Medline, HMIC, ASSIA, the Social Science Citation Index and Proquest.

Policy analysis

Drawing on relevant literature, dimensions included in the English Indices of Multiple Deprivation and researcher experience, we created a concise reference framework for how deprivation impacts people's health and NHS service delivery. A summary of the areas and assumptions in this framework is provided.

Impact of deprivation – framework:

- Patients are more likely to face challenges related to income, education, crime, living environment, and barriers to housing and other wider services.[1]
- Patients in deprived areas are likely to have greater health needs.[2]
- Patients may have lower health literacy.[3]
- Patients may face cultural or language barriers to accessing care.[4,5,6]
- Patients may be more likely to be digitally excluded.[7]
- Patients may have more unmet social needs, including those arising from membership of inclusion health groups (eg asylum seekers, traveller communities, people experiencing homelessness).[8,9,10]
- Patients may face access challenges related to their personal circumstances (eg not having access to reliable transport, or being unable to easily get time off work).[11,12,13]
- Practices and PCNs may find it harder to recruit staff to areas of high deprivation and retaining staff may be more difficult.[14,15]

- Practices in areas of high deprivation may be under greater pressure from their core general practice work. This may affect their capacity to engage in PCN work/ supervise staff.[16]

We collated national PCN policy documentation for the 2022/23 contract from the PCN workspace of the NHS Future Learn platform (as of May 2022), NHS England website and BMA website. We applied our framework to these documents, identifying areas where current policy may support or not support PCNs with issues related to deprivation. We analysed policies based on the following themes: PCN service specification; funding; IIF; ARRS and workforce; the overall PCN model and contractual governance.

We recorded and tabulated our results which were then discussed, interpreted, and collectively agreed between CF, SW, RF and JB.

Significant changes to PCN policy after our initial analysis (in-year variations from 2022/23 or updates as part of the 2023/24 contract) were evaluated on an ongoing basis. Results of this policy analysis and initial literature review generated hypotheses that we used to inform subsequent data analysis and qualitative interviews.

Documentation included in our analysis:

- *NHS Long Term Plan* (2019)
- *Investment and evolution: A five-year framework for GP contract reform to implement The NHS Long Term Plan*
- *Investment and Evolution: Update to the GP contract agreement 2020/22–2023/24*
- *Network Contract DES – contract specification* (2022/23, 2023/24)
- *Network Contract DES – guidance* (2022/23, 2023/24)
- *Network contract directed enhanced service – frequently asked questions* (2022/23, 2023/24)
- Frameworks and guidance for PCN services required under contract (eg Enhanced Health in Care Homes, Medicines Review and Optimisation)
- Cover letters, updates, supplementary guidance (issued in 2022/23 and 2023/24)
- Toolkits, role descriptions, and implementation support resources (as available on NHS Future Learn at May 2022)
- PCN guidance and contracting materials from previous contract years as relevant for comparison and context for current policy.

Analysis of PCN workforce and funding data

Data were obtained from the Primary Care Quarterly Workforce Update, June 2023. General practice and PCN staff manually submit data on their workforce to NHS England via the National Workforce Reporting Service (NWRS). To improve completeness, NHS England has collated the NWRS data with claims data by cross-referencing the datasets and adding in workforce that appear in the claims data but not NWRS.

Our workforce analysis focused on the change in the number of full-time equivalent staff working in ARRS roles between March 2019 and June 2023. We focused on the change in staff to avoid including staff already employed in general practice before introduction of the ARRS. The data include all staff working in roles covered by ARRS but do not distinguish between those paid by ARRS and those paid out of pocket by general practices. We categorised advanced practitioners with their profession (eg advanced dietician practitioners as dieticians, and advanced physiotherapists as physiotherapists).

We used the PCN-adjusted population from January 2023 to account for differences in need among patients in the most and least deprived PCNs. These populations are based on the ICB primary care allocation formula. The formula accounts for differences in how often different types of patients visit their GP in addition to deprivation and health inequalities.

We used the NHS payments to general practice 2021/22 dataset to assess the payments PCNs received. This dataset contains information on payments from the NHS to providers of general practice services between April 2021 and March 2022. Completeness of data was poor and even where data were complete, data were of dubious quality (eg some PCNs had negative values for some payment streams).

Due to the poor completeness and quality of payments data, we estimated the payments available to PCNs in 2023/24 based on the PCN contract. We used the number of registered and needs-adjusted patients (the PCN-adjusted population) and the contractor-adjusted population to calculate how much funding PCNs in the most and least deprived quintile would be eligible for through the following payment streams: clinical director, core, enhanced access, leadership, capacity, participation and ARRS. The clinical director and core funding streams are paid depending on the number of registered patients. The participation and ARRS funding streams are paid depending on the contractor-weighted population. We calculated the total difference and difference per needs-adjusted patient that the most versus the least deprived PCNs receive. We also estimated how much the least deprived PCNs would receive if these funding streams were paid per PCN-adjusted population instead.

IMD scores for PCNs were provided by NHS England. These were calculated using data from the NHS Digital Dataset: Patients Registered at a GP Practice, January 2022. The dataset provides the number of patients registered at each GP practice for each Lower Layer Super Output Area (LSOA). For each LSOA-practice pair, the number of patients was multiplied by the IMD score for the LSOA. This was then summed across PCNs and divided by the total number of patients in each PCN to give an IMD score for each PCN. We used quintiles of the rank of PCN IMD scores in our analysis.

We used linear regression to determine whether PCN workforce per needs-adjusted patients were significantly different for PCNs in the most deprived quintile compared with those in the least deprived quintile. We considered p-values <0.05 to be statistically significant.

Interviews with PCN leaders and local primary care commissioners

We conducted 16 semi-structured interviews with staff in leadership positions at PCNs in the 20% most deprived areas in England. Two PCNs were recruited through personal networks and word of mouth. Approximately 253 PCNs fall within the 20% most deprived areas. Of these, around 177 had contact details (either of a clinical director, lead practice or for the PCN itself) available online through web search. We recruited 14 participants via unsolicited email invitations using this publicly available contact information (a response rate of 8%). The characteristics of the PCNs within our final sample are given in Table A2.

Interviews took place between July and November 2022. 13 interviews were with clinical directors, one was with a senior operations manager and two were joint interviews involving both a clinical director and senior operations manager. Interviews lasted between 45 minutes and 1 hour and followed a pre-prepared topic guide. Interviews covered the following areas: characteristics of the PCN and participant's role; experiences recruiting, retaining, integrating, and employing ARRS staff; the IIF; views on the PCN service specifications and their delivery; perspectives on PCN funding; recommendations for PCN policy improvement for both national policymakers and local commissioners. If time permitted, we also asked about leading a PCN in an area of high deprivation and building stakeholder relationships.

We also conducted further semi-structured interviews with ICS staff. 22 of the 42 ICSs in England have more than one PCN within the 20% most deprived areas. We felt it important that ICS interviewees could speak to the experience of commissioning more than one PCN in areas of high deprivation, so only these 22 ICSs were targeted for recruitment. We contacted ICSs via their websites with an offer for primary care leads to take part in interviews. Three ICS staff at three separate ICSs agreed to be interviewed. Two participants were primary care leads for their ICS. One was a PCN development practitioner working across PCNs in more and less deprived areas within the ICS. Interviews lasted approximately 45 minutes and used an adapted version of the PCN leadership topic guide. This covered similar topic areas but with a greater comparative element between areas of high and low deprivation in the ICS.

All interview participants received an information sheet, consent documentation and a data privacy notice before taking part. Interviews were conducted by JB and SW. Consent to participate was verbal and recorded as part of the interview. Interviews were transcribed using a secure third-party provider. Transcripts were analysed following framework analysis methods,[17] using a combination of NVivo (Version 1.6.1) and Microsoft Excel. Initial coding framework was developed and iterated by SW and JB. Coded data were charted by JB with any issues resolved through agreement between JS and JB.

Table A2: Characteristics of PCNs involved in interviews

Region	5 from the North-west, 3 North-east and Yorkshire, 2 Midlands, 3 South-east, 2 London, 1 East of England.
Rural	2 rural, 14 urban. Of these, 3 also classify as coastal.
Number of participating practices	1: 1 PCN 2–3: 3 PCNs 4–5: 6 PCNs 6–7: 3 PCNs 8–9: 2 PCNs 10+: 1 PCN
Patient population (non-weighted)	<30,000: no PCNs 30,000–39,999: 6 PCNs 40,000–49,999: 2 PCNs 50,000–59,999: 4 PCNs 60,000–69,999: 1 PCN >70,000: 3 PCNs
Federation status	9 PCNs participated in a GP federation at the time of interview, 6 did not and 1 had unknown status.

Appendix 4: Characteristics of PCNs in the most and least deprived areas

	Most deprived PCNs	Least deprived PCNs
Number of PCNs	247	249
Number of practices	1,488	1,006
Registered patients	12,313,384	11,068,790
PCN-adjusted population	13,554,915	10,300,431
Mean practices per PCN	6	4
Mean registered patients per PCN	49,851.76	44,452.97
Mean PCN-adjusted population per PCN	54,878.20	41,367.19
Median registered patients per PCN	47,675	42,898
Median PCN-adjusted population per PCN	51,941	39,627

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