

## The changing shape of English General Practice: A retrospective longitudinal study using national datasets describing trends in organisational structure, workforce and recorded appointments

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Appendix: Table 1 (Methods)

Time trend variables	Source (practice / national level)	Time trend period (total time period and frequency of data used)	Percentage range (mean) of observations reported after removal of missing data and exclusions
<b>Organisational Structure</b>			
<b>Total registered population; Total number of practices; Practice list size; Practice postcode</b>	<a href="#">NHS Digital -Patients Registered at a GP Practice</a> <sup>23</sup> (Practice)	Apr 2013-Apr 2023 <b>(10 years, annual)</b>  Postcode Jul 2013-Apr 2023 <b>(9.75 years, annual)</b>	Registered patients 99.2%-100% (99.9%)  Postcode 99.9%-100% (99.99%)
<b>Proportion of registered patients &gt;65 years old</b>	<a href="#">OHID -'Fingertips Public Health Data'(2013-2022)</a> <sup>24</sup> & <a href="#">NHS Digital-Patients Registered at a GP Practice (2023)</a> <sup>23</sup> (Practice)	Apr 2013-Apr 2023 <b>(10 years, annual)</b>	100%
<b>Ownership of practice and provider</b>	<a href="#">CQC -</a> Archive of 'HSCA Active Locations with 'Primary Inspection Location' filtered to 'GP practice' <sup>25</sup> (Practice)	Apr 2018-Apr 2023 <b>(5 years, annual)</b>	100%
<b>Multisite providers</b>	<a href="#">CQC -</a> Archive of 'HSCA Active Locations' with 'Primary Inspection Location' filtered to 'GP practice' <sup>25</sup> (Practice)	Apr 2017-Apr 2023 <b>(6 years, annual)</b>	100%
<b>Mega-provider list size</b>	<a href="#">CQC -</a> Archive of 'HSCA Active Locations' with 'Primary Inspection Location' filtered to 'GP practice'. <sup>25</sup> CQC's 'Location ID' mapped to ODS code using CQC's 'GP Practice Locations for providers registered or previously registered under the Health and Social Care Act' dated 28.7.23. ODS code merged with <a href="#">NHS Digital Patients Registered at a GP Practice</a> <sup>23</sup> (Practice)	Apr 2017-Apr 2023 <b>(6 years, annual)</b>	Mega-providers' associated practices' registered patient list sizes 90%-96% (93%)
<b>Workforce &amp; Appointments</b>			
<b>General Practice Workforce at practice level (FTE/1000 patients)</b>	<a href="#">NHS Digital – General Practice Workforce</a> <sup>26</sup> ('Practice-Level CSV) Data included practice list size for the corresponding month to calculate FTE/1000 patient figures.	Sep 2015-Sep 2022 <b>(7 years, annual)</b>  Trainee GPs	GPs: 94%-99% (97%) Nurses: 96%-98% (97%) Other DPC roles: 94%-98% (95%) Administrative roles: 97%-99% (98%)

	Where data about a member of staff was submitted by a practice, but FTE figures were not, 'Estimated FTE' figures provided by NHS Digital are included. <b>(Practice)</b>	Sep 2018-Sep 2022 <b>(4 years, annual)</b>	GP trainees: 100%  NB: September 2015 88.1% of practices submitted data, by July 2022 99.6% of practices submitted data.
<b>General Practice Workforce at national level (total HC; total FTE; total FTE by age, sex and qualified GP by country of qualification)</b>	<a href="#">NHS Digital – General Practice Workforce<sup>26</sup> ('Individual-Level CSV)</a> Where data about a member of staff was submitted by a practice, but FTE figures were not, 'Estimated FTE' figures provided by NHS Digital are included. Where no data was submitted by a practice for a staff group (i.e. GP, nurses, DPC, Admin), 'Estimated' figures provided by NHS Digital are excluded. <b>(National)</b>	Sep 2015-Sep 2022 <b>(7 years, annual)</b>	GPs: 94%-99% (97%) Nurses: 96%-98% (97%) Other DPC roles: 94%-98% (95%) Administrative roles: 97%-99% (98%) GP trainees: 100%  NB: September 2015 88.1% of practices submitted data, by July 2022 99.6% of practices submitted data.
<b>Primary Care Network (PCN) Workforce mean FTE per 1000 patients</b>	<a href="#">NHS Digital – Primary Care Network Workforce<sup>27</sup></a> with mean FTE / 1000 patients calculated by dividing national FTE totals with the total number of registered patients in England in the corresponding month from <a href="#">NHS Digital –Patients Registered at a GP Practice<sup>23</sup></a> (This will have resulted in an underestimate as not all PCNs submitted data) <b>(National)</b>	Sep 2020- Sep 2022 <b>(2.5 years, annual, combined with General Practice Workforce data to provide 7 years of data)</b>	Percentage of PCNs that submitted data September 2020: 50.3% September 2021: 78.4% September 2022: 87.5%
<b>Appointments by role per week per 1000 patients</b>	<a href="#">NHS Digital- Appointment in General Practice<sup>28</sup> (used most recent data from May '23, Jan '21 &amp; Oct '18 'GP enhanced appointment' excel publications)</a> with appointments per week per 1000 patients calculated using 'Registered patients at included practices' figures from the same dataset. Monthly figures were multiplied by 12 and divided by 52.1429 to estimate weekly values (NB: Cross-check by NHS England using the exact days in the month to calculate weekly values did not make a significant change to values and trends). <b>(National)</b>	Apr 2018- Apr 2023 <b>(5 years, monthly)</b> In August 2021 recording of role type delivering an appointment changed from that set by practice staff when creating the appointment to that captured through the smart card ID (Spine Directory Service 'SDS') of the person delivering the appointment.	Practice coverage: 88.5%-98.9%  Total patients in included practices coverage: 89.9%-99.9%

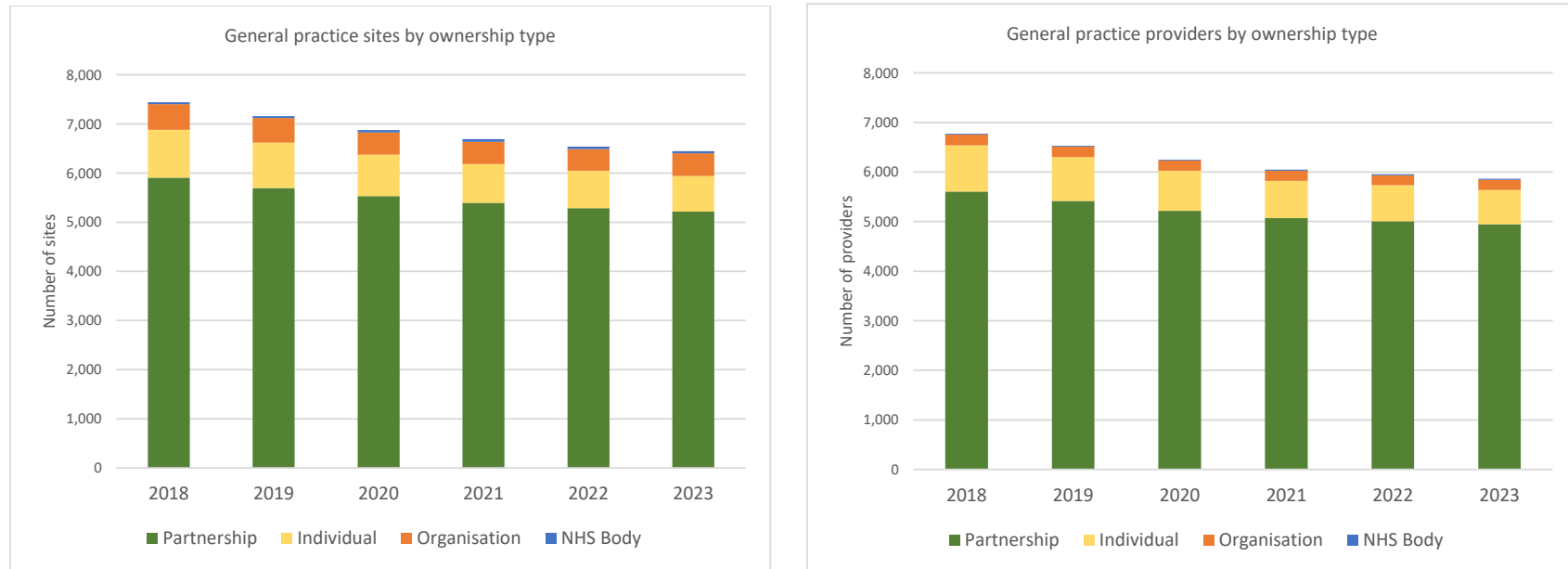
Appendix Table 1: Organisational structure, workforce and reported appointment variables: source, level of data, frequency used, time period used, percentage of original data reported after removal of missing observations and exclusions<sup>23-28</sup>. NB: NHS Digital became NHS England in February 2023.

Appendix: Table 2 (Methods)

Year	Original total number of practices	Practices with ≤1000 patients removed	Qualified GP roles missing	Total remaining practices for Qualified GP analysis	Proportion of practices remaining for Qualified GP analysis	Trainee GP roles missing	Total remaining practices for Trainee GP analysis	Proportion of practices remaining for Trainee GP analysis	Nurse roles missing	Total remaining practices for Nurse analysis	Proportion of practices remaining for Nurse analysis	DPC roles missing	Total remaining practices for DPC analysis	Proportion of practices remaining for DPC analysis	Admin roles missing	Total remaining practices for Admin analysis	Percentage of practices remaining for Admin analysis	Overall Average
2015	7,623	29	430	7170	0.94	N/A	N/A	N/A	113	7481	0.98	136	7458	0.98	54	7540	0.99	<b>0.97</b>
2016	7,558	104	170	7304	0.97	N/A	N/A	N/A	136	7323	0.97	213	7244	0.96	39	7419	0.98	<b>0.97</b>
2017	7,354	122	96	7151	0.97	N/A	N/A	N/A	162	7074	0.96	336	6902	0.94	35	7198	0.98	<b>0.96</b>
2018	7,137	179	73	6899	0.97	0	6958	0.97	134	6839	0.96	277	6691	0.94	20	6942	0.97	<b>0.96</b>
2019	6,867	97	62	6715	0.98	0	6770	0.99	160	6620	0.96	312	6464	0.94	10	6763	0.98	<b>0.97</b>
2020	6,650	54	55	6547	0.98	0	6596	0.99	178	6423	0.97	354	6248	0.94	11	6588	0.99	<b>0.97</b>
2021	6,564	88	14	6464	0.98	0	6476	0.99	37	6440	0.98	57	6419	0.98	0	6476	0.99	<b>0.98</b>
2022	6,456	63	31	6364	0.99	0	6393	0.99	134	6263	0.97	166	6229	0.96	4	6391	0.99	<b>0.98</b>
<b>Average</b>					<b>0.97</b>			<b>0.99</b>			<b>0.97</b>			<b>0.95</b>			<b>0.98</b>	<b>0.97</b>

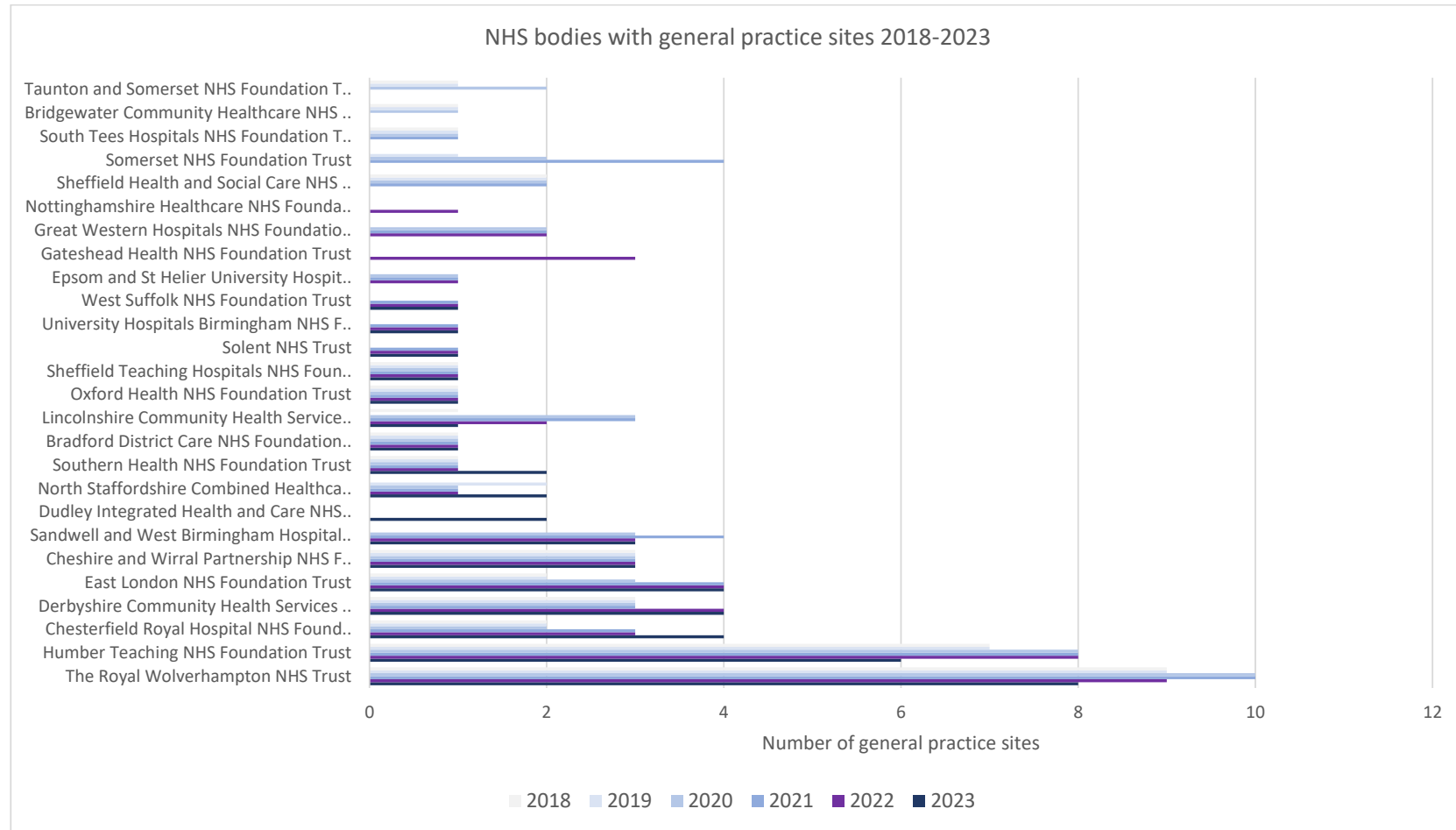
Appendix Table 2: Number and proportion of practices that had missing workforce data and those that were excluded from workforce analysis of FTE/1000 patients as had ≤1000 registered patients. Every September 2015–2022. (Source: NHS England)<sup>26</sup>

## Appendix: Figures 1a&amp;b (Results)



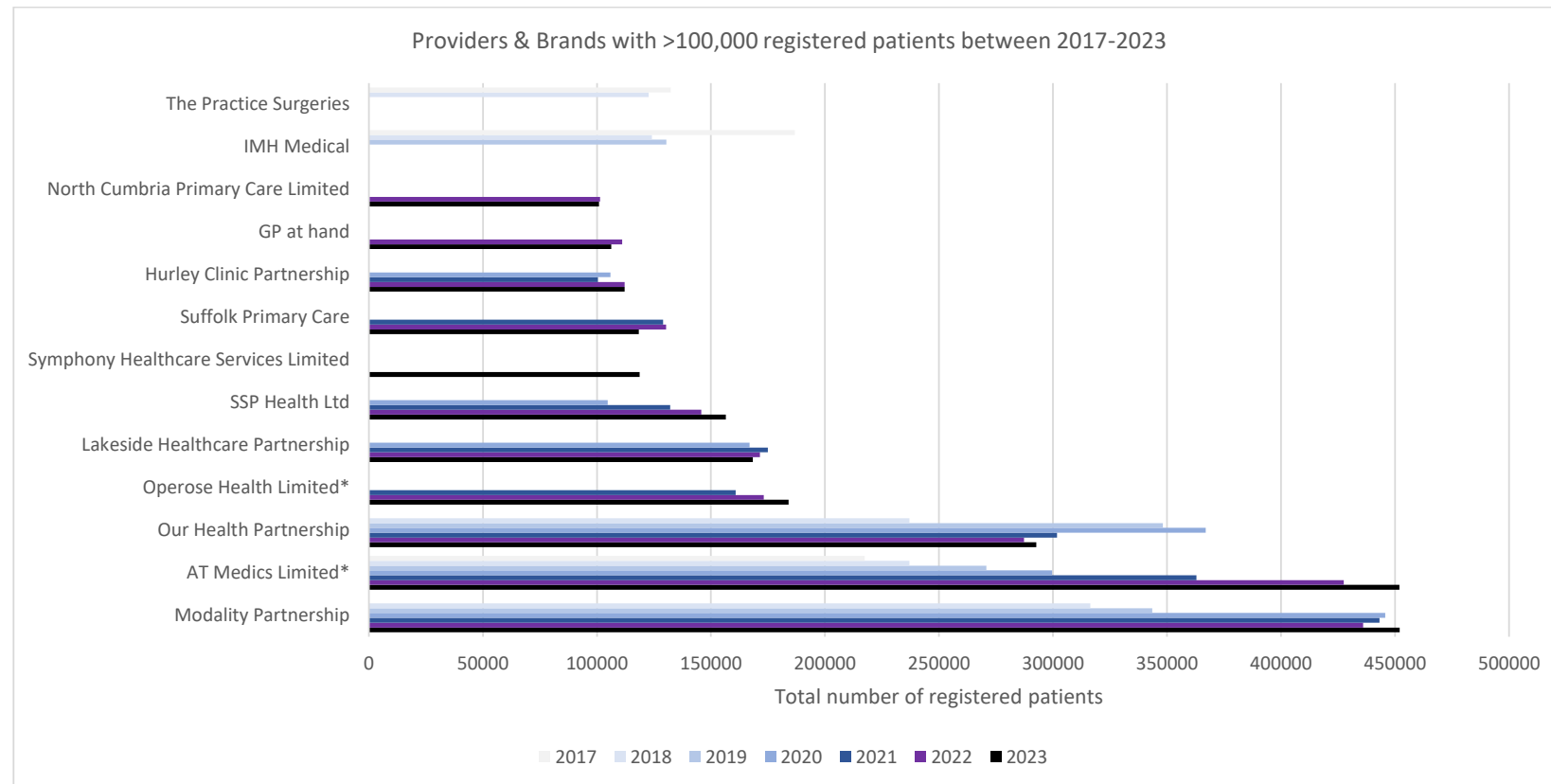
Appendix Figures 1a&b: General practice 'site' and 'provider' ownership by (a) Practice sites (b) Providers. Every April 2018-2023. (Source: CQC)<sup>25</sup>. NB: The Care Quality Commission (CQC) classifies ownership type in four categories: 'Partnership', 'Individual' (i.e. single-handed ownership), 'Organisation' (i.e. incorporated limited or community interest company), or 'NHS body' (i.e. NHS Trust). Providers may have more than one site.

Appendix: Figure 2 (Results)



Appendix Figure 2: NHS bodies running general practice sites, with number of sites. Every April 2018-2023. (Source: CQC) <sup>25</sup>

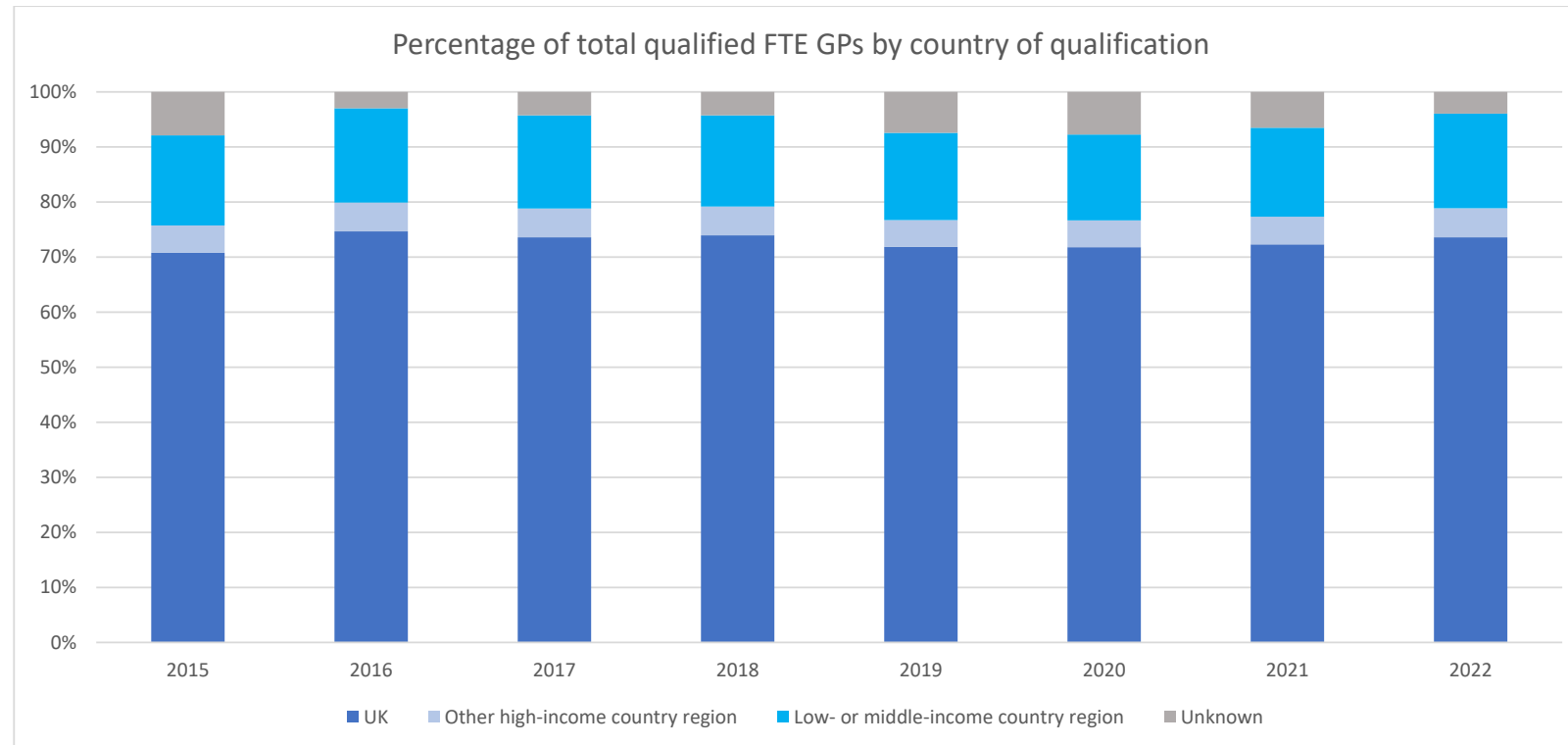
## Appendix: Figure 3 (Results)



Appendix Figure 3: 'Mega-providers' - Providers and Brands with >100,000 registered patients across all practice sites. Every April 2017-2023. NB: Likely underestimate of total list size as 7% of NHS England's associated practices' patient list size data did not merge with the CQC datasets. (Sources: NHS England & CQC) <sup>23, 25</sup>.

\*Operose Health Limited and AT Medics Limited became part of the same organisation in 2021<sup>34</sup>.

## Appendix: Figure 4 (Results)



Appendix Figure 4: Percentage of qualified total full time equivalent (FTE) GPs in England by country of qualification region grouping. Every September 2015-2022. (Source: NHS England) <sup>26</sup>



## Appendix: Tables 3a&amp;b (Results)

Table 3a

Year	GP Partner	GP Salaried	GP Locum	GP Retainer	GP Trainee	Nurse	Other DPC	Admin
2015	89%	67%	42%	44%	NA	65%	63%	68%
2016	90%	67%	42%	43%	NA	66%	64%	69%
2017	89%	67%	40%	41%	NA	67%	65%	69%
2018	88%	66%	39%	38%	96%	67%	66%	69%
2019	88%	65%	41%	38%	96%	68%	67%	70%
2020	87%	64%	41%	49%	97%	69%	68%	71%
2021	86%	64%	40%	40%	98%	69%	68%	71%
2022	86%	64%	41%	41%	97%	69%	71%	72%
Direction of change	↓	↓	↔	↔	↔	↑	↑	↑
Linear reg of total FTE / HC % by year P value	0.001*	0.000*	0.413	0.820	0.139	0.000*	0.000*	0.000*

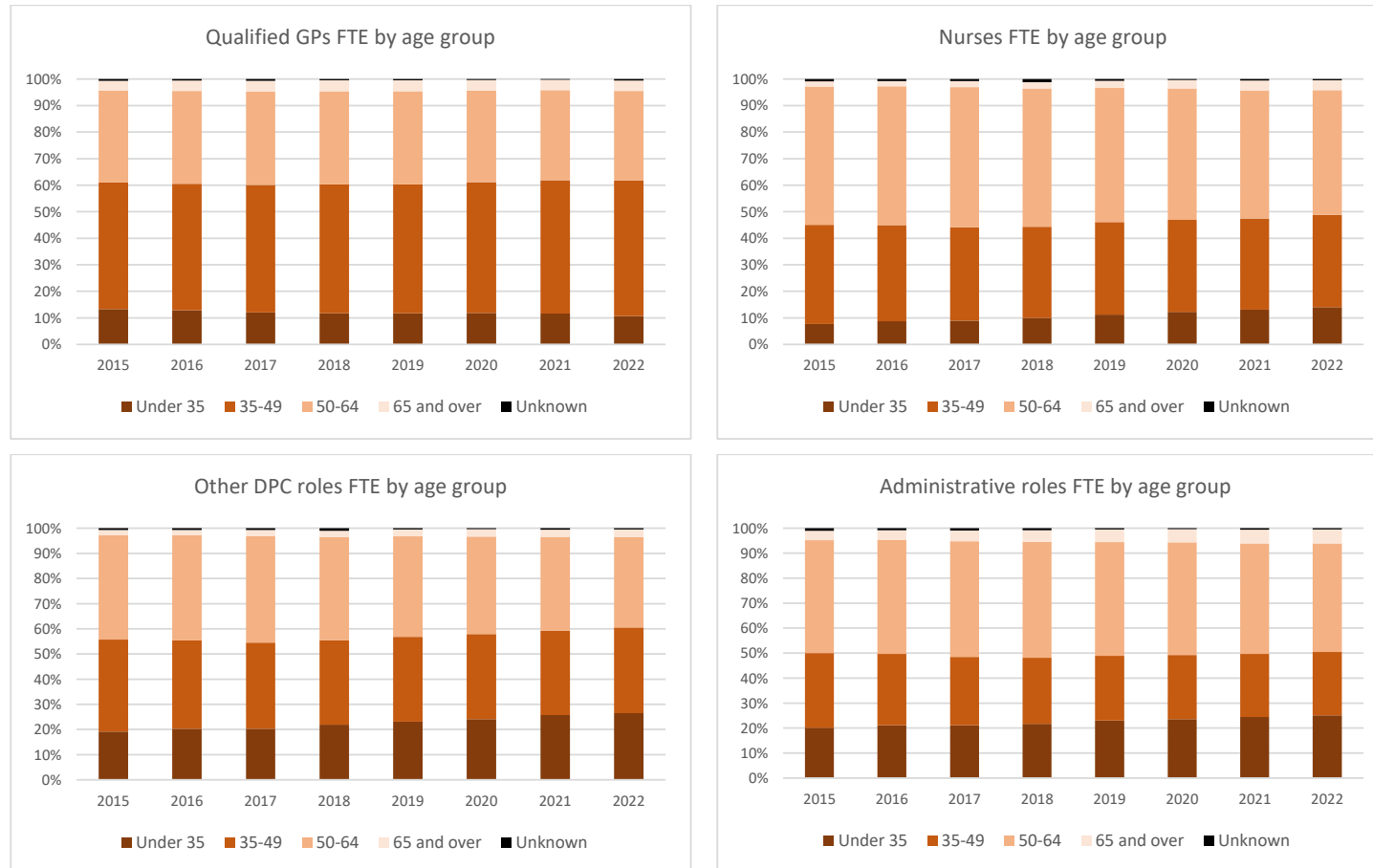
Appendix Table 3a: Total full time equivalent (FTE) out of total headcount (HC) percentage for each general practice workforce role and associated P value for linear regression of FTE/HC%. \*Change statistically significant as P<0.05. Every September 2015-2022. (Source: NHS England) <sup>26</sup>

Table 3b

Year	GP Partner Female	GP Partner Male	Salaried GP Female	Salaried GP Male	Locum GP Female	Locum GP Male	Retainer GP Female	Retainer GP Male	Trainee GP Female	Trainee GP Male
<b>2015</b>	0.79	0.96	0.64	0.75	0.40	0.44	0.44	0.46	NA	NA
<b>2016</b>	0.80	0.97	0.64	0.75	0.40	0.45	0.43	0.44	NA	NA
<b>2017</b>	0.79	0.96	0.64	0.75	0.38	0.43	0.42	0.37	NA	NA
<b>2018</b>	0.79	0.96	0.63	0.74	0.36	0.42	0.38	0.40	0.93	1.04
<b>2019</b>	0.78	0.95	0.62	0.72	0.38	0.44	0.39	0.37	0.92	1.03
<b>2020</b>	0.78	0.94	0.61	0.71	0.39	0.43	0.39	0.40	0.93	1.03
<b>2021</b>	0.77	0.93	0.61	0.70	0.37	0.43	0.39	0.42	0.94	1.03
<b>2022</b>	0.78	0.93	0.62	0.70	0.39	0.44	0.39	0.49	0.93	1.03
<b>Direction of change</b>	↓	↓	↓	↓	↔	↔	↓	↔	↔	↔
<b>Linear reg of total FTE / HC % by year P value</b>	0.001*	0.002*	0.001*	0.000*	0.443	0.429	0.023*	0.815	0.141	0.087

Appendix Table 3b: Total full time equivalent (FTE) out of total headcount (HC) proportion by gender for each GP role and associated P value for linear regression of FTE/HC. \*Change statistically significant as P<0.05. Every September 2015-2022. (Source: NHS England) <sup>26</sup>

## Appendix: Figures 5a-d (Results)



Appendix Figures 5a-d: Total full time equivalent (FTE) general practice workforce roles by age group: (a) Qualified GPs; (b) Nurses; (c) Other Direct Patient Care roles; (d) Administrative roles. Every September 2015-2022. (Source: NHS England)<sup>26</sup>