Appendices

Table A1 Activity Capture Minimum Dataset

Utilisation (Requested from CCG):	Received
No. of appointments available	
By day	Yes
Time of appointment	Yes
By discipline	Yes
Planned/pre-booked vs same day/urgent	Yes
Method of appointment (face-to-face/phone)	Yes
No. of appointments booked	
By day	Yes
Time of appointment	Yes
By discipline	Yes
Age	Yes
Gender	Yes
Registered GP practice	Yes (Bolton no)
Postcode (first part)	Yes
Planned/pre-booked vs same day/urgent	Yes
Method of appointment (face-to-face/phone)	Yes
No. of appointments used (Utilisation)	Bolton issue
By day	Yes
Time of appointment	Yes
By discipline	Yes
Age	Yes
Gender	Yes
Registered GP practice	Yes (Bolton no)
Postcode (first part)	Yes
Planned/pre-booked vs same day/urgent	Yes
Method of appointment (face-to-face/phone)	Yes
Practice-level population data (not requested from CCG):	
Practice level population	Yes
Practice codes	Yes
Whether a GP practice or not	Yes
Registered patient age band	Yes
Deprivation of practice population	Yes
Gender breakdown of practice population	Yes

Table A2 Interview schedule

1	Describe the primary care access arrangements in your area outside standard hours prior to this initiative, and describe the 7-day access arrangements in place now.
2	What is your role in delivering this change?
3	What is/was required to establish 7-day access to primary care in your locality?
4	What steps have been taken so far?
5	How have you communicated the changes to patients?
6	What challenges have been encountered (IT, IG, communications and engagement, workforce, finance, infrastructure)?
7	How have you tackled these challenges?
8	What do you expect will be the impact of this change in access (on patients, staff and other parts of the health and social care system)?
9	How would you measure 'success' in this change?
10	How sustainable are the changes made in your area?

Table A3 SUS variable request and grouping

SUS variable code	SUS variable name	Preferred grouping
A&E ATTENDANCES		
AEDEPTTYPE	A&E department type	As provided
PROCODET	Provider code	As provided
ARRIVALDATE	A&E arrival date	2016q4 = 01/10/2016 to 31/12/2016 2016q3 = 01/07/2016 to 31/09/2016 2016q2 = 01/04/2016 to 30/06/2016 2016q1 = 01/01/2016 to 31/03/2016 2015q4 = 01/10/2015 to 31/12/2015 2015q3 = 01/07/2015 to 31/09/2015 2015q2 = 01/04/2015 to 30/06/2015 2015q1 = 01/01/2015 to 31/03/2015 missing = 01/01/1800 or 01/01/1801
AEARRIVALMODE	A&E arrival mode	Ambulance = 1 Other = 2 or 9 or Null
GPPRAC	Code of GP practice	As provided but with: missing = V81997 or V81998 or V81999 or & or Null
SUSNHS	Trust derived HRG value	Minor = VB10Z or VB11Z or VB06Z or VB09Z Standard = VB07Z or VB08Z High = VB01Z or VB02Z or VB03Z or VB04Z or VB05Z Missing = DOA/VB99Z or N/A or U06 or UZ01Z
AEREFSOURCE	Referral mode	Self-referral = 01 GP-referral = 00 Other-referral = 02 or 03 04 or 05 or 06 or 07 or 08 or 92 or 93 Missing-referral = 99 or Null
AEREFSOURCE & SUSHRG, generate SELFREFMINOR	Referral mode, SUS PbR derived healthcare resource group code	Yes = SUSNHS='Minor' and AEREFSOURCE="Self-referral" No = All others
ARRIVALAGE	Age on arrival	0-9 = 7001 or 7002 or 7003 or 7004 or 7005 or 7006 or 7007 or 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 10-19 = 10 to 19 20-29 = 20 to 29 30-39 = 30 to 39 40-49 = 40 to 49 50-59 = 50 to 59 60-69 = 60 to 69 70-79 = 70 to 79 80-89 = 80 to 89 90+ = 90 to 120 Not known = Null
SEX	Sex of patient	Male = 1 Female = 2 Unknown = 9 or 0
AEATTENDISP	Attendance disposal	Admitted = 1 Not admitted = 2 or 3 or 4 or 5 or 6 or 7 or 11

		Other = 12 or 13 or 10 or 14 or 99
DEPDUR	A&E Duration to departure	Upto3half = 0000 to 0329 3halfto4 = 0330 to 0359 over4 = 0400 to 2400 missing = .
ADMISSIONS		
PROCODET	Provider code	As provided
ADMIDATE	Date of admission	2016q4 = 01/10/2016 to 31/12/2016 2016q3 = 01/07/2016 to 31/09/2016 2016q2 = 01/04/2016 to 30/06/2016 2016q1 = 01/01/2016 to 31/03/2016 2015q4 = 01/10/2015 to 31/12/2015 2015q3 = 01/07/2015 to 31/09/2015 2015q2 = 01/04/2015 to 30/06/2015 2015q1 = 01/01/2015 to 31/03/2015 missing = 01/01/1800 or 01/01/1801
GPPRAC	Code of GP practice	As provided but with : missing = V81997 or V81998 or V81999 or &
SUSHRG	Trust derived HRG value	Minor = VB10Z or VB11Z or VB06Z or VB09Z Standard = VB07Z or VB08Z High = VB01Z or VB02Z or VB03Z or VB04Z or VB05Z Missing = DOA or N/A or U06 or UZ01Z
ADMIAGE	Age on arrival	0-9 = 7001 or 7002 or 7003 or 7004 or 7005 or 7006 or 7007 or 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 10-19 = 10 to 19 20-29 = 20 to 29 30-39 = 30 to 39 40-49 = 40 to 49 50-59 = 50 to 59 60-69 = 60 to 69 70-79 = 70 to 79 80-89 = 80 to 89 90+ = 90 to 120 Not known = Null
SEX	Sex of patient	Male = 1 Female = 2 Unknown = 9 or 0
DIAG_01	All Diagnosis codes (primary diagnosis)	ACSC = B18.0 or B18.1 or J45 or J46X or I11.0 or I50 or J81X or I13.0 or E10 or E11 or E12 or E13 or E14 or J20 or J41 or J42X or J43 or J44 or J47X or I20 or I25 or D50.1 or D50.8 or D50.9 or D51 or D52 or I10X or I11.9 or G40 or G41 or F00 or F01 or F02 or F03 or I48X Missing = R96X or R96X6 or R96X8 None ASCS = All others

Ambulatory care-sensitive conditions (ACSC) admissions are for the following ICD:
- Vaccine-preventable: Influenza and pneumonia; Other vaccine-preventable conditions

- Chronic: Asthma; Congestive heart failure; Diabetes complications; Chronic obstructive pulmonary disease (COPD); Angina; Iron-deficiency anaemia; Hypertension; Nutritional deficiencies
- Acute: Dehydration and gastroenteritis; Pyelonephritis; Perforated/bleeding ulcer; Cellulitis; Pelvic inflammatory disease; Ear, nose and throat infections; Dental conditions; Convulsions and epilepsy; Gangrene

Table A4 Appointments available and booked

Provider	Appointments	Blocked appointments	Appointments available	Appointments not booked*	Appointments booked*	% appointments available	Booked DNAs**	% appointments DNAs	Appointments booked and used	% appointments available
Bolton										
Hub 1	3,597	0	3,597	698	2,899	80.59				
Hub 2	3,422	0	3,422	802	2,620	76.56				
Total	7,019	0	7,019	1,500	5,519	78.63				
Total per 1,000	23.23 (P=302,163)									
HMR										
Hub 1	7,971	496	7,475	2,255	5,220	69.83	567	10.86	4,649	62.19
Hub 2	8,414	208	8,206	1,771	6,435	78.42	1,006	15.63	5,429	66.16
Hub 3	8,131	774	7,357	2,128	5,229	71.08	577	11.03	4,650	63.21
Hub 4	8,177	433	7,744	1,283	6,461	83.43	809	12.52	5,652	72.99
Total	32,693	1,911	30,782	7,437	23,345	75.84	2,959	12.68	20,380	66.05
Total per 1,000	143.77 (P=227,391)									
Oldham										
Hub 1	3,053	0	3,053	1,247	1,806	59.15	185	10.24	1,621	53.10
Hub 2	584	0	584	340	244	41.78	17	6.97	227	38.87
Total	3,637	0	3,637	1,587	2,050	56.37	202	9.85	1,848	50.81
Total per 1,000	14.63 (P=248,667)									
Tameside & Glossop										
Hub 1	2,270	0	2,270	392	1,878	82.73	338	18.00	1,538	67.75
Hub 2	1,296	0	1,296	236	1,060	81.79	181	17.08	877	67.67
Hub 3	2,034	0	2,034	509	1,525	74.98	239	15.67	1,284	63.13
Total	5,600	0	5,600	1,137	4,463	79.70	758	16.98	3,699	66.05
Total per 1,000	22.92 (P=244,325)									
Trafford										
Hub 1	1,429	203	1,226	132	1,094	89.23	178	16.27	916	74.71
Hub 2	1,428	201	1,227	138	1,089	88.75	184	16.90	904	73.68
Total	2,857	404	2,453	270	2,183	88.99	362	16.58	1,820	74.19
Total per 1,000	11.96 (P=238,780)									
All Schemes Combined										

		51,806	2,315	49,491	11,931	37,560	75.89	4,281	11.40	33,266	67.22
Total per 1,000	41.07 (P=1,261,326)										

Notes: Trafford blocked are for administrative purposes.

*Booked are appointments that were used (can be either pre-booked or booked same-day).

**Bolton did not record DNAs we assume all attended for the GM % booked and used; Missing data on DNA evident for 6 appointments in HMR, 6 in Tameside & Glossop, and 1 in Trafford.

Table A5 Type of appointments available and booked

Provider		Appointments available	GP*	% GP	Nurse*	% Nurse	Appointments booked	Pre-booked**	% Pre-booked	Same-day**	% Same-day
B											
	Hub 1	3,597	2,955	82.15	642	17.85	2,899	2,899	100.00	0	0.00
	Hub 2	3,422	2,816	82.29	606	17.71	2,620	2,620	100.00	0	0.00
	Total	7,019	5,771	82.22	1,248	17.78	5,519	5,519	100.00	0	0.00
HMR											
	Hub 1	7,475	5,906	79.01	1,569	20.99	5,220	2,080	39.85	3,140	60.15
	Hub 2	8,206	6,466	78.80	1,740	21.20	6,435	3,184	49.48	3,251	50.52
	Hub 3	7,357	6,157	83.69	1,200	16.31	5,229	1,844	35.26	3,385	64.74
	Hub 4	7,744	5,723	73.90	2,021	26.10	6,461	2,697	41.74	3,764	58.26
	Total	30,782	24,252	78.79	6,530	21.21	23,345	9,805	42.00	13,540	58.00
Oldham											
	Hub 1	3,053	3,053	100.00	0	0.00	1,806	446	24.70	1,360	75.30
	Hub 2	584	584	100.00	0	0.00	244	78	31.97	166	68.03
	Total	3,637	3,637	100.00	0	0.00	2,050	524	25.56	1,526	74.44
Tameside & Glossop											
	Hub 1	2,270	2,129	93.79	0	0.00	1,878	1,164	61.98	714	38.02
	Hub 2	1,296	1,213	93.60	0	0.00	1,060	693	65.38	367	34.62
	Hub 3	2,034	1,913	94.05	0	0.00	1,525	603	39.54	922	60.46
	Total	5,600	5,255	93.84	0	0.00	4,463	2,460	55.12	2,003	44.88
Trafford											
	Hub 1	1,226	713	58.16	513	41.84	1,094	1,094	100.00	0	0.00
	Hub 2	1,227	725	59.09	502	40.91	1,089	1,086	99.72	0	0.00
	Total	2,453	1,438	58.62	1,015	41.38	2,183	2,180	99.86	0	0.00
All Schemes Combined											
		49,491	40,353	81.54	8,793	17.77	37,560	20,488	54.55	17,069	45.44

Information on pre-booked or same-day only available for **used** appointments

*GP/Nurse contains missings for Tameside and Glossop (345: 141 at Hub 1; 83 at Hub 2; 121 at Hub 3)

** Trafford have 3 appointments with no data on booked time.

Table A6 Missing patient practice code

CCG		Appointments booked*	Missing patient practice code
HMR		23,345	2,001 (8.57%)
	Hub 1	5,220	439 (8.41%)
	Hub 2	6,435	531 (8.25%)
	Hub 3	5,229	486 (9.29%)
	Hub 4	6,461	545 (8.44%)
Tameside & Glossop		4,463	459 (10.28%)
	Hub 1	1,878	225 (11.98%)
	Hub 2	1,060	106 (10.00%)
	Hub 3	1,525	128 (8.39%)
Trafford		2,183	2 (0.09%)
	Hub 1	1,094	0 (0.00%)
	Hub 2	1,089	2 (0.18%)
Oldham		2,050	31 (1.51%)
	Hub 1	1,806	24 (1.33%)
	Hub 2	244	7 (2.87%)
Bolton		5,519	5,519 (100.00%)
	Hub 1	2,899	2,899 (100.00%)
	Hub 2	2,620	2,620 (100.00%)
Total		37,560	8,012 (21.33%)

*Booked are appointments that were used (can be either pre-booked or booked same-day).

Table A7 Comms and engagement activities in each area

	Comms Activities	To practices/workforce	To patients
Bolton	Led by Bolton GP federation	• Emails • Newsletters • Regular Events • GP Federation CO visits practices regularly on a face-to-face basis	• Social media campaign • Information in GP practices: leaflets, posters, patient feedback forms • Advertised in local paper • Advertised on Bolton GP Federation website (see quotes below)
HMR	Led by GP Care Ltd primary care provider	• Emails	• Social media: Facebook, twitter • Information in GP practices – leaflets, banners, patient feedback forms • Advertised on radio – Key 103 • Adverted on sides of buses • Speaking at local community forums • Advertised on GP Care Services website (see quotes below)
Oldham	Led by IGP GP federation	• Through a clinical council (parent group) that feeds info down to neighbourhood clusters (x8) • Provide script for practices • Through CCG steering group	• No official promotion of the service • Left to practices to inform patients about 24/7 central booking line for self-referral
Salford	N/A	N/A	N/A
Stockport	Led by Viaduct Health GP federation and Mastercall Healthcare	• Newsletters • Emails – weekly, indicating weekend availability • Meetings/Workshops/events – leaflets on chairs • AGMs	• No official promotion of the service • Left to practices to refer patients on to service
Tameside & Glossop	Led by Orbit GP Federation and *gtd healthcare*	• Through meetings and practice manager/practice nurse forums • Information cascaded down through practices via glossy literature (adverts, cards, desk stands etc) • Provide script for practices	• Informed of service through own practice • Information in GP practices: desk stands, posters, leaflets etc. • Patient Participation Group informed • Advertised on *gtd Healthcare* website, as providing "greater flexibility for patients"
Trafford	Led by TPH GP federation	• Through quarterly Learning Event at Life Centre, Sale • Through Counsel of members	• Information in GP practices: desk stands, posters, leaflets etc. • Advertised on TPH website, as "to fit healthcare needs around family life and work commitments"

Table A8 Average activity volumes per practice per quarter

Scheme	A&E attendance	A&E self-referral (minor)	Admissions	Admissions ACSC
All				
2015	92.01	43.32	41.34	4.47
2016	95.18	44.73	40.21	4.01
Bolton				
2015	80.27	39.67	36.09	3.81
2016	81.23	35.74	35.37	3.57
HMR				
2015	114.44	64.84	41.17	4.34
2016	115.28	63.22	38.94	3.74
Oldham				
2015	97.55	46.68	41.91	4.28
2016	100.95	46.88	38.98	3.99
Stockport				
2015	78.71	29.23	45.69	4.84
2016	83.76	33.67	44.20	4.26
Tameside & Glossop				
2015	91.79	33.83	43.31	5.25
2016	95.87	37.20	43.04	4.73
Trafford				
2015	95.81	51.54	40.34	4.37
2016	100.98	59.67	41.74	3.75

Average activity per practice per quarter per 1,000 registered patients

Table A9 Changes in hospital and OOH service activity outcomes

Scheme	A&E attendance	A&E self-referral (minor)	Admissions	Admissions ACSC	OoH
All	3.23 (2.11, 4.36)	3.34 (1.48, 5.23)	-2.39 (-3.82, -0.94)	-10.59 (-13.54, -7.55)	-16.47 (-22.80, -9.62)
Bolton	-1.08 (-2.95, 0.81)	-14.52 (-16.73, -12.25)	-1.82 (-5.05, 1.53)	-9.87 (-19.80, 1.29)	2.30 (-9.56, 15.72)
HMR	0.82 (-1.03, 2.70)	-2.42 (-4.58, -0.22)	-5.08 (-8.60, -1.43)	-13.68 (-20.54, -6.22)	-26.34 (-34.69, -16.92)
Oldham	3.57 (1.68, 5.49)	0.53 (-1.85, 2.96)	-6.9 (-9.52, -4.20)	-7.72 (-14.65, -0.23)	-35.03 (-41.89, -27.35)
Stockport	6.71 (1.94, 11.70)	15.78 (9.73, 22.16)	-2.91 (-7.33, 1.72)	-11.18 (-18.15, -3.61)	-
Tameside & Glossop	4.55 (2.88, 6.25)	10.09 (7.52, 12.73)	-0.54 (-2.92, 1.90)	-10.98 (-16.41, -5.20)	-26.39 (-34.67, -17.06)
Trafford	5.52 (3.42, 7.66)	15.98 (12.56, 19.51)	3.48 (-0.21, 7.32)	-14.1 (-21.02, -6.58)	-

Incidence Rate Ratio, 95% Confidence interval in parenthesis. Each cell represents a different model. Shaded cells indicate no statistically significant effect detected.

Before and after analysis carried out on pooled cross-sectional data on practice-quarter activity (CCG-day activity for OoH). Negative binomial count models with adjustment for number of GP practice registered patients estimated to account for the over-dispersed distribution of activity. For each activity outcome, the volume by practice - quarter was regressed on a 2016 year indicator, a set of dummies for quarter to control for seasonality and a set of dummies for CCGs to control for unobserved time-invariant characteristics. The estimated coefficient on the 2016 dummy provided a statistical test for significant changes in service use relative to 2015. The results presented are incidentcrate ratios and are interpreted as the relative change in average service activity in 2016 compared to average activity in 2015.

Models are estimated for all schemes combined, and each CCG scheme separately. Hospital analysis sample size: 249 practices over 8 quarters for all schemes combined (n=1992), 50 in Bolton (n=400), 37 in HMR (n=296), 44 in Oldham (n=352), 45 in Stockport (n=360), 41 in Tameside & Glossop (n=328), and 32 in Trafford (n=256).

OoH analysis sample size n=2,198 for all schemes combined: 4 CCGs over 550 days (April-December 2015 and April-December 2016), 550 days for Bolton and Tameside & Glossop, 549 for HMR and Oldham.

Table A10 Changes in hospital service activity outcomes for hub and non-hub practices

Scheme	A&E attendance	A&E self-referral (minor)	Admissions	Admissions ACSC
All				
Non-hub practice	3.36 (2.19, 4.54)	3.64 (1.69, 5.63)	-2.29 (-3.78, -0.77)	-10.3 (-13.34, -7.15)
hub practice	1.55 (-1.93, 5.16)	-0.59 (-5.97, 5.09)	-3.76 (-8.82, 1.57)	-14.54 (-25.71, -1.70)
Bolton				
Non-hub practice	-1.16 (-3.11, 0.84)	-14.61 (-16.92, -12.23)	-1.96 (-5.39, 1.60)	-9.27 (-19.52, 2.28)
hub practice	0.07 (-2.29, 2.49)	-13.15 (-18.07, -7.93)	0.56 (-4.75, 6.17)	-17.78 (-44.07, 20.86)
HMR				
Non-hub practice	0.77 (-1.11, 2.69)	-2.61 (-4.50, -0.69)	-5.1 (-9.00, -1.04)	-15.01 (-22.22, -7.12)
hub practice	1.22 (-5.67, 8.61)	-0.85 (-13.00, 13.00)	-4.94 (-9.14, -0.54)	-1.55 (-19.43, 20.30)
Oldham				
Non-hub practice	4.27 (2.52, 6.04)	1.26 (-0.98, 3.55)	-6.16 (-8.79, -3.46)	-5.83 (-13.20, 2.15)
hub practice	-0.49 (-6.96, 6.45)	-3.58 (-11.58, 5.15)	-11.47 (-19.88, -2.18)	-19.37 (-35.16, 0.27)
Tameside & Glossop				
Non-hub practice	4.26 (2.55, 6.00)	10.33 (7.60, 13.13)	-1.27 (-3.52, 1.03)	-12.09 (-17.50, -6.33)
hub practice	9.18 (8.83, 9.53)	6.62 (5.36, 7.89)	14.26 (10.79, 17.84)	12.92 (3.35, 23.37)
Trafford				
Non-hub practice	5.9 (3.92, 7.92)	16.03 (12.58, 19.57)	3.83 (-0.12, 7.93)	-12.36 (-19.32, -4.79)
hub practice	-0.12 (-11.61, 12.87)	15.13 (-2.32, 35.71)	-1.03 (-1.33, -0.73)	-33.3 (-46.79, -16.38)

Incidence Rate Ratio, 95% Confidence interval in parenthesis. Each cell represents a different model. Shaded cells indicate no statistically significant effect detected.

Before and after analysis carried out on pooled cross-sectional data on practice-quarter activity. Negative binomial count models with adjustment for number of GP practice registered patients estimated to account for the over-dispersed distribution of activity. For each activity outcome, the volume by practice - quarter was regressed on a two 2016 year indicators, one for hub and one for non-hub practices, a set of dummies for quarter to control for seasonality, a hub dummy, and a set of dummies for CCGs to control for unobserved time-invariant characteristics. The estimated coefficient on the two 2016 dummies provided a statistical test for significant changes in service use relative to 2015 for hub and non-hub practices. The results presented are incidence rate ratios and are interpreted as the relative change in average service activity in 2016 compared to average activity in 2015.

Models are estimated for all schemes combined, and each CCG scheme separately. Hospital analysis sample size: 249 practices over 8 quarters for all schemes combined (n=1992), 50 in Bolton (n=400), 37 in HMR (n=296), 44 in Oldham (n=352), 45 in Stockport (n=360), 41 in Tameside & Glossop (n=328), and 32 in Trafford (n=256).
 The analysis was not carried out for Stockport separately as no information on hub practices was available and all practices in Stockport are classified as non-hub.

Table A11 Changes in hospital service activity outcomes for gender sub-groups

Activity by gender	All	Bolton	HMR	Oldham	Tameside & Glossop	Trafford
A&E attendance						
Male	1.59 (0.05, 3.16)	-0.31 (-2.36, 1.80)	-0.7 (-2.67, 1.31)	1.3 (-0.95, 3.59)	3.07 (1.26, 4.91)	4.38 (1.69, 7.15)
Female	2.92 (1.19, 4.68)	-2.78 (-5.22, -0.26)	1.24 (-1.16, 3.69)	4.52 (2.18, 6.90)	5.28 (2.94, 7.67)	6.42 (3.83, 9.08)
A&E self-referral (minor)						
Male	1.75 (-0.37, 3.91)	-13.29 (-16.12, -10.37)	-3.41 (-5.75, -1.00)	-1.09 (-3.78, 1.68)	7.81 (4.55, 11.17)	15.37 (11.44, 19.44)
Female	3.17 (0.80, 5.60)	-16.74 (-19.43, -13.96)	-2.51 (-5.19, 0.25)	0.92 (-2.34, 4.30)	11.97 (8.40, 15.65)	16.48 (12.61, 20.49)
Admissions						
Male	-3.46 (-5.53, -1.35)	-2.36 (-7.20, 2.73)	-4.81 (-9.24, -0.16)	-6.1 (-9.94, -2.09)	-3.38 (-6.27, -0.40)	2.92 (-2.41, 8.54)
Female	-3.01 (-5.04, -0.94)	-2 (-5.79, 1.93)	-5.82 (-9.94, -1.52)	-8.68 (-12.40, -4.80)	1.63 (-2.00, 5.39)	3.7 (-0.81, 8.42)
Admissions (ACSC)						
Male	-14.01 (-18.09, -9.74)	-12.61 (-23.98, 0.47)	-17.1 (-25.24, -8.07)	-13.56 (-24.35, -1.24)	-16.73 (-24.28, -8.44)	-15.06 -(25.02, -3.78)
Female	-8.85 (-12.82, -4.70)	-7.97 (-21.16, 7.43)	-10.75 (-20.13, -0.27)	-2.91 (-11.65, 6.68)	-5.75 (-13.62, 2.83)	-13.29 (-22.74, -2.70)

Incidence Rate Ratio, 95% Confidence interval in parenthesis. Each cell represents a different model. Shaded cells indicate no statistically significant effect detected.

Before and after analysis carried out on pooled cross-sectional data on practice-quarter activity. Negative binomial count models with adjustment for number of GP practice registered patients by gender estimated to account for the over-dispersed distribution of activity. For each activity outcome, the volume by gender by practice - quarter was regressed on a 2016 year indicator, a set of dummies for quarter to control for seasonality, a gender dummy, and a set of dummies for CCGs to control for unobserved time-invariant characteristics. The estimated coefficient on the 2016 dummy provided a statistical test for significant changes in service use relative to 2015. The results presented are incidence rate ratios and are interpreted as the relative change in average service activity in 2016 compared to average activity in 2015.

Models are estimated for all schemes combined, and each CCG scheme separately. Hospital analysis sample size: 249 practices over 8 quarters for all schemes combined (n=1992), 50 in Bolton (n=400), 37 in HMR (n=296), 44 in Oldham (n=352), 45 in Stockport (n=360), 41 in Tameside & Glossop (n=328), and 32 in Trafford (n=256). Separate analysis for Stockport was not performed since activity data were not provided.
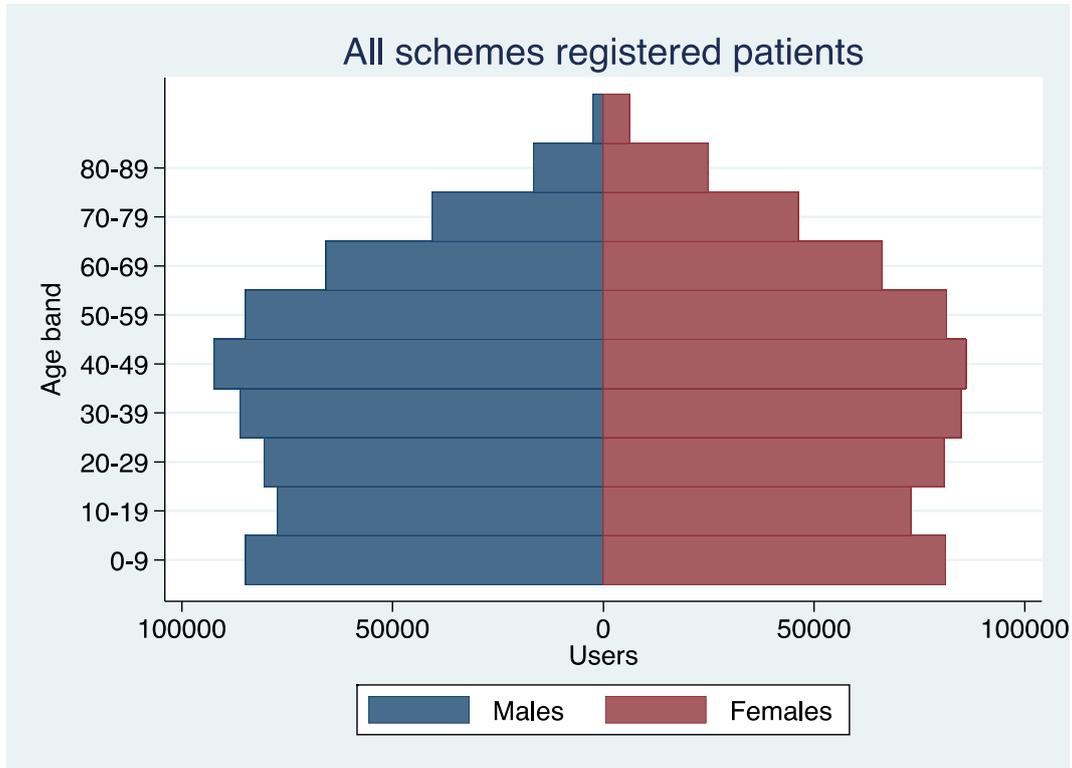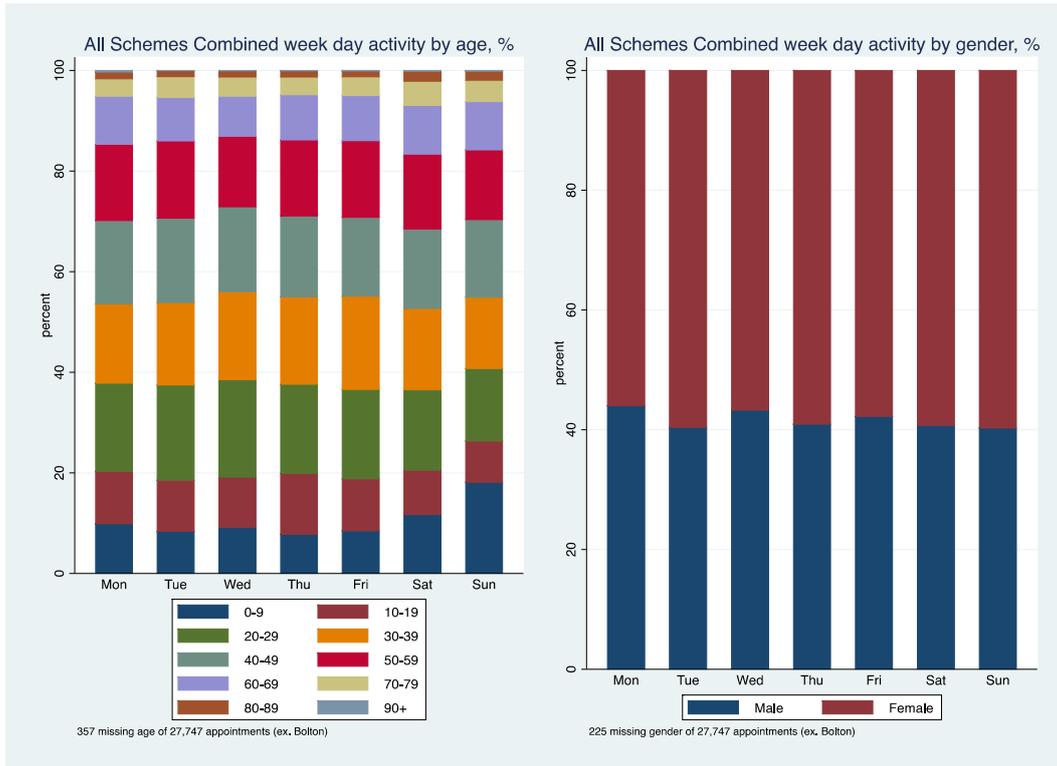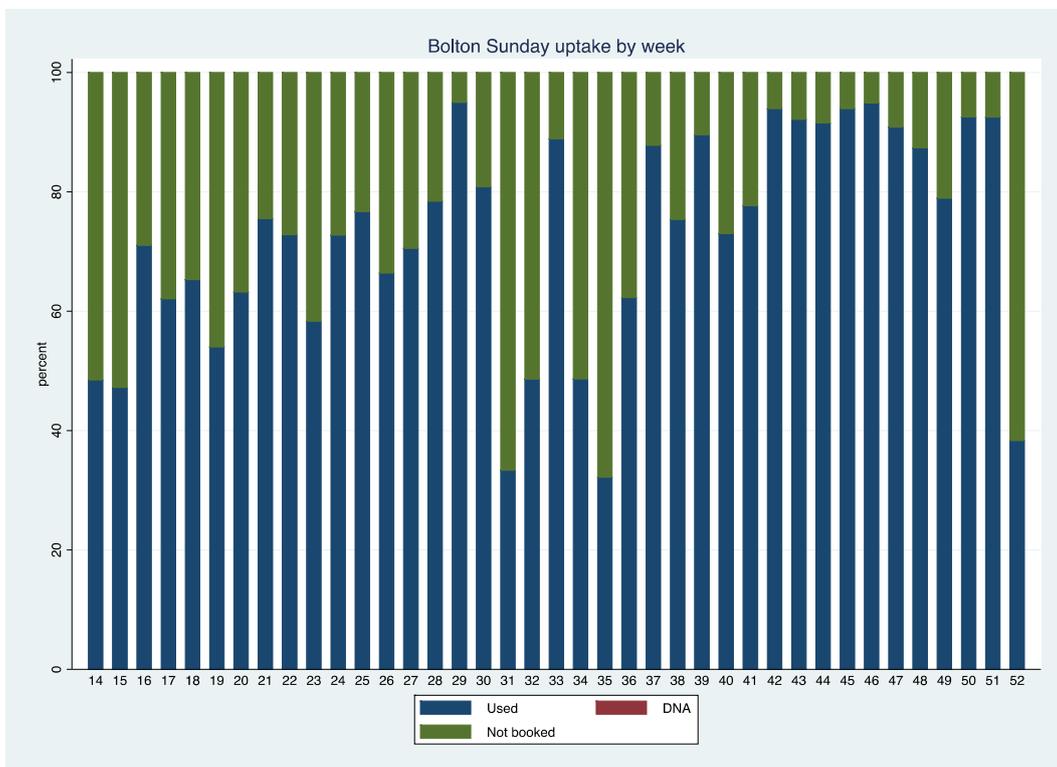
Table A12 Changes in hospital service activity outcomes for age sub-groups

Activity by age group	All	Bolton	HMR	Oldham	Tameside & Glossop	Trafford
A&E attendance						
0-19	3.04 (1.17, 4.93)	-1.83 (-4.91, 1.34)	-0.29 (-2.98, 2.47)	2.99 (-0.13, 6.21)	6.05 (3.03, 9.16)	4.51 (1.59, 7.51)
20-49	1.29 (-0.41, 3.02)	-3.62 (-6.17, -0.99)	-0.8 (-3.19, 1.64)	1.23 (-1.19, 3.72)	2.21 (-0.33, 4.82)	6.63 (3.39, 9.97)
50+	3.26 (1.43, 5.11)	2.72 (0.07, 5.43)	1.31 (-1.86, 4.59)	5.77 (2.91, 8.71)	5.19 (2.48, 7.97)	4.56 (1.64, 7.57)
A&E self-referral (minor)						
0-19	5.21 (2.88, 7.59)	-8.31 (-11.95, -4.52)	-1.73 (-4.44, 1.06)	4.23 (0.28, 8.33)	9.77 (5.56, 14.16)	16.68 (11.95, 21.60)
20-49	0.66 (-1.65, 3.03)	-18.5 (-21.11, -15.80)	-4.22 (-6.98, -1.38)	-2.74 (-6.04, 0.67)	8.74 (4.69, 12.95)	15.56 (11.74, 19.51)
50+	2.53 (-0.20, 5.33)	-15.41 (-19.93, -10.63)	-4.02 (-8.73, 0.95)	-0.67 (-6.03, 5.00)	12.39 (8.53, 16.39)	15.15 (10.27, 20.24)
Admissions						
0-19	1.21 (-1.49, 3.98)	-0.45 (-4.67, 3.95)	-1.18 (-6.86, 4.85)	-0.84 (-6.24, 4.88)	2.56 (-3.20, 8.67)	5.11 (-0.54, 11.10)
20-49	-5.85 (-8.18, -3.45)	-2.15 (-6.90, 2.85)	-9.32 (-14.09, -4.30)	-16.5 (-19.72, -13.16)	-4.38 (-8.63, 0.07)	7.84 (1.60, 14.47)
50+	-3.65 (-5.80, -1.44)	-3.31 (-7.73, 1.32)	-5.28 (-9.76, -0.58)	-4.87 (-8.46, -1.14)	-1.15 (-5.13, 3.00)	1.22 (-3.22, 5.86)
Admissions (ACSC)						
0-19	-2.17 (-9.99, 6.33)	4.43 (-14.30, 27.25)	-5.32 (-17.75, 8.99)	-3.96 (-20.99, 16.72)	1.24 (-24.89, 36.45)	-10.1 (-26.19, 9.50)
20-49	-0.16 (-8.09, 8.45)	-1.59 (-22.83, 25.50)	4.56 (-13.56, 26.48)	-3.79 (-22.81, 19.92)	1.87 (-12.85, 19.07)	-7.59 (-27.20, 17.31)
50+	-14.4 (-18.07, -10.57)	-13.48 (-25.79, 0.88)	-18.15 (-24.86, -10.83)	-8.42 (-17.21, 1.30)	-15.14 (-22.28, -7.35)	-16.25 (-24.02, -7.69)

Analyses do not include separate estimates for activity with missing age.

Incidence Rate Ratio, 95% Confidence interval in parenthesis. Each cell represents a different model. Shaded cells indicate no statistically significant effect detected.

Before and after analysis carried out on pooled cross-sectional data on practice-quarter activity. Negative binomial count models with adjustment for number of GP practice registered patients by age group estimated to account for the over-dispersed distribution of activity. For each activity outcome, the volume by age-group - practice - quarter was regressed on a 2016 year indicator, a set of dummies for quarter to control for seasonality, a set of age group dummies, and a set of dummies for CCGs to control for unobserved time-invariant characteristics. The estimated coefficient on the 2016 dummy provided a statistical test for significant changes in service use relative to 2015. The results presented are incident rate ratios and are interpreted as the relative change in average service activity in 2016 compared to average activity in 2015.

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Figure A1

All schemes registered patients

Figure A2

All Schemes Combined week day activity by age, %

All Schemes Combined week day activity by gender, %

0-9 | 10-19
20-29 | 30-39
40-49 | 50-59
60-69 | 70-79
80-89 | 90+

357 missing age of 27,747 appointments (ex. Bolton)

Male | Female

225 missing gender of 27,747 appointments (ex. Bolton)

Figure A3

Bolton Sunday uptake by week

Used | DNA
Not booked

Figure A4

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Bolton additional appointment users

Age band: 90+, 80-89, 70-79, 60-69, 50-59, 40-49, 30-39, 20-29, 10-19, 0-9

Users axis: 200, 100, 0, 100, 200

Males / Females

3,476 missing age; 3,480 missing gender of 5,519 appointments (3,480 either)

Bolton appointment users GPPS

Age band: 85 or over, 75 to 84, 65 to 74, 55 to 64, 45 to 54, 35 to 44, 25 to 34, 18 to 24, Under 18

Users axis: 300, 0, 300

Males / Females

Patients accessing GP surgery within past 12 months

Figure A5

Bolton registered patients

Age band: 80-89, 70-79, 60-69, 50-59, 40-49, 30-39, 20-29, 10-19, 0-9

Patients axis: 20000, 10000, 0, 10000, 20000

Males / Females

Figure A6

Figure A7

Figure A8
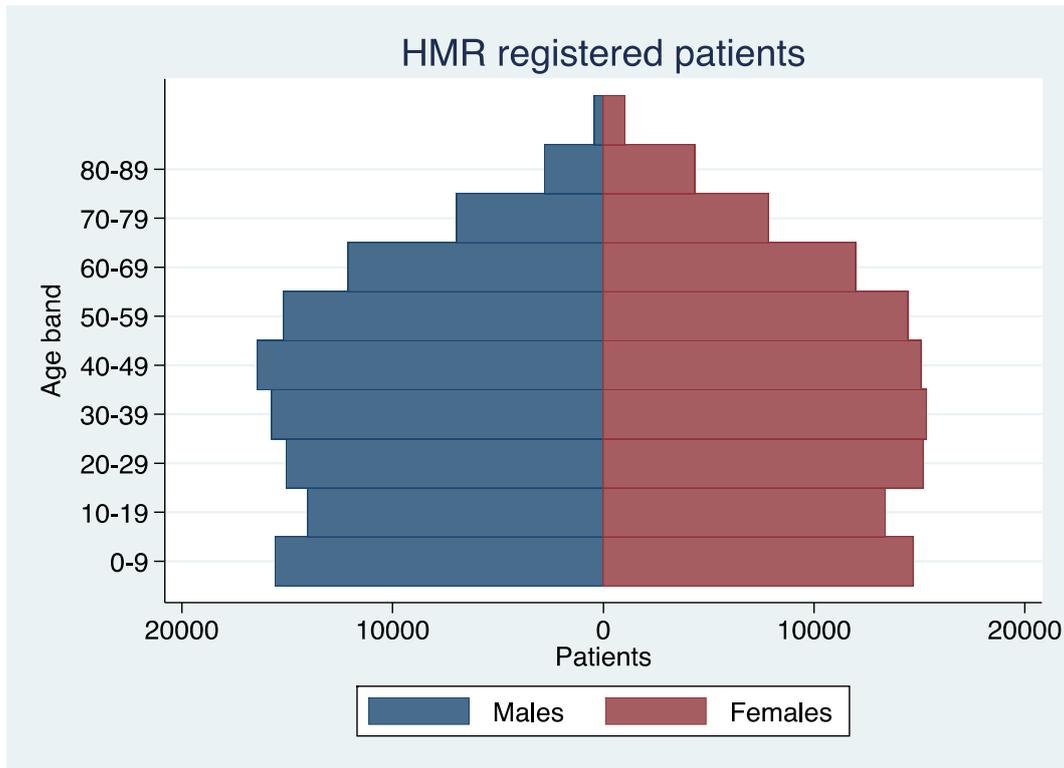
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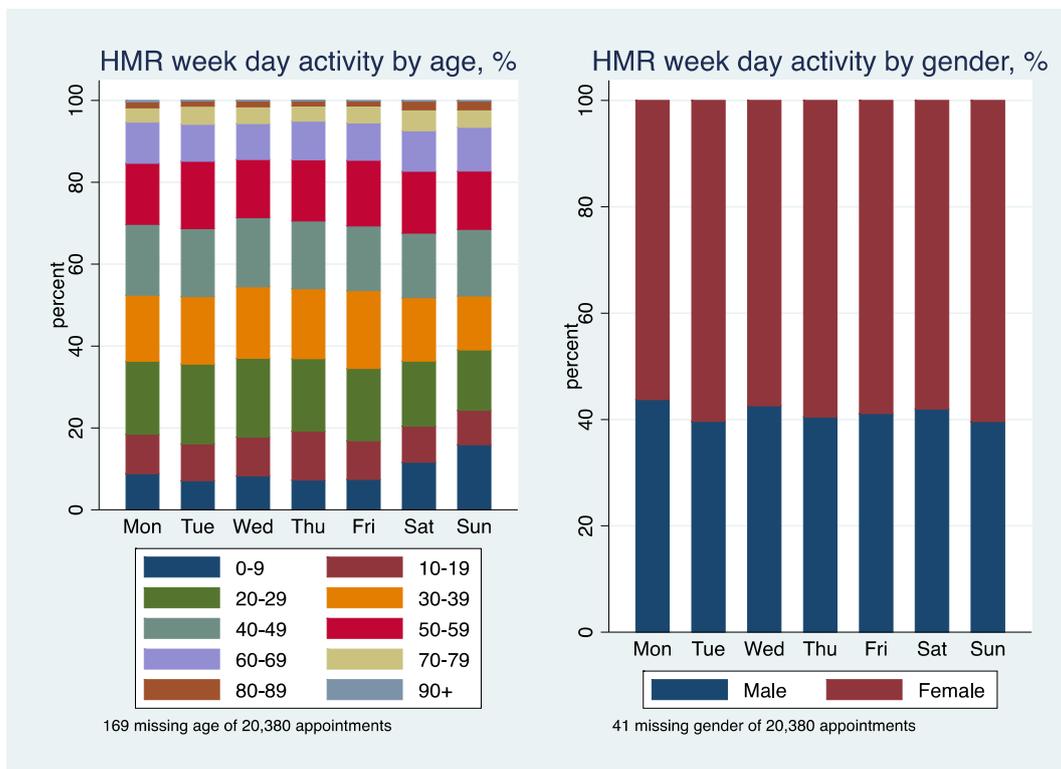
Figure A10

Figure A11

Figure A12

Oldham registered patients

Figure A13

Oldham week day activity by age, %

Oldham week day activity by gender, %

Complete age of 1,848 appointments

Complete gender data of 1,848 appointments
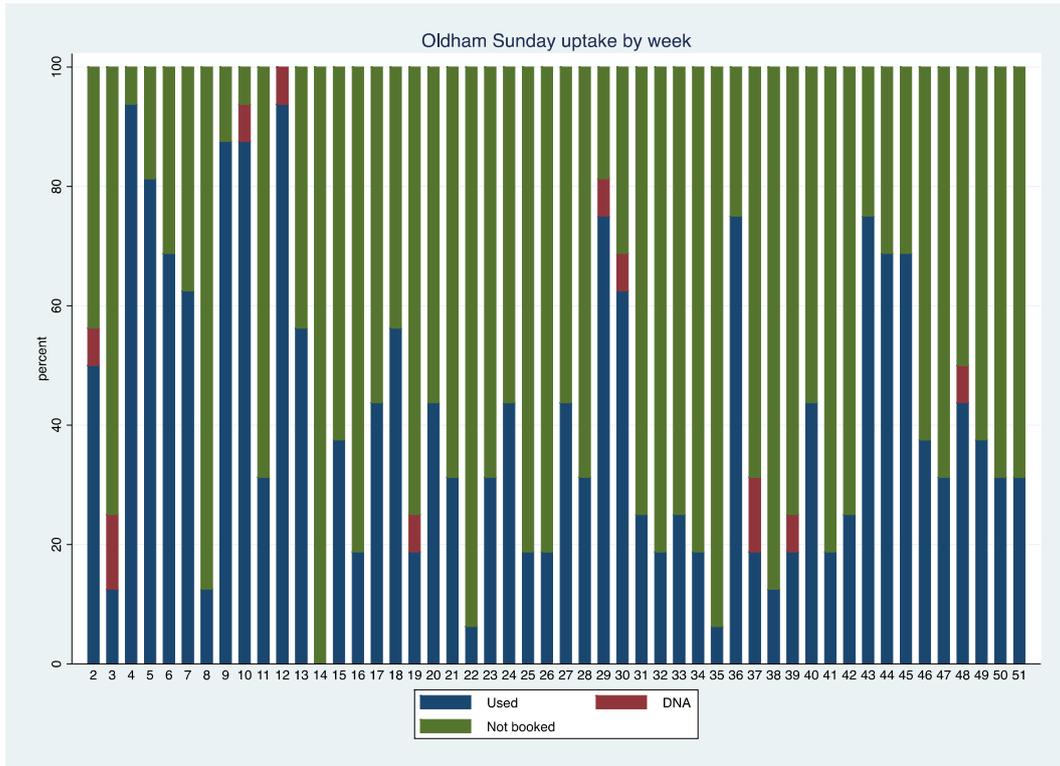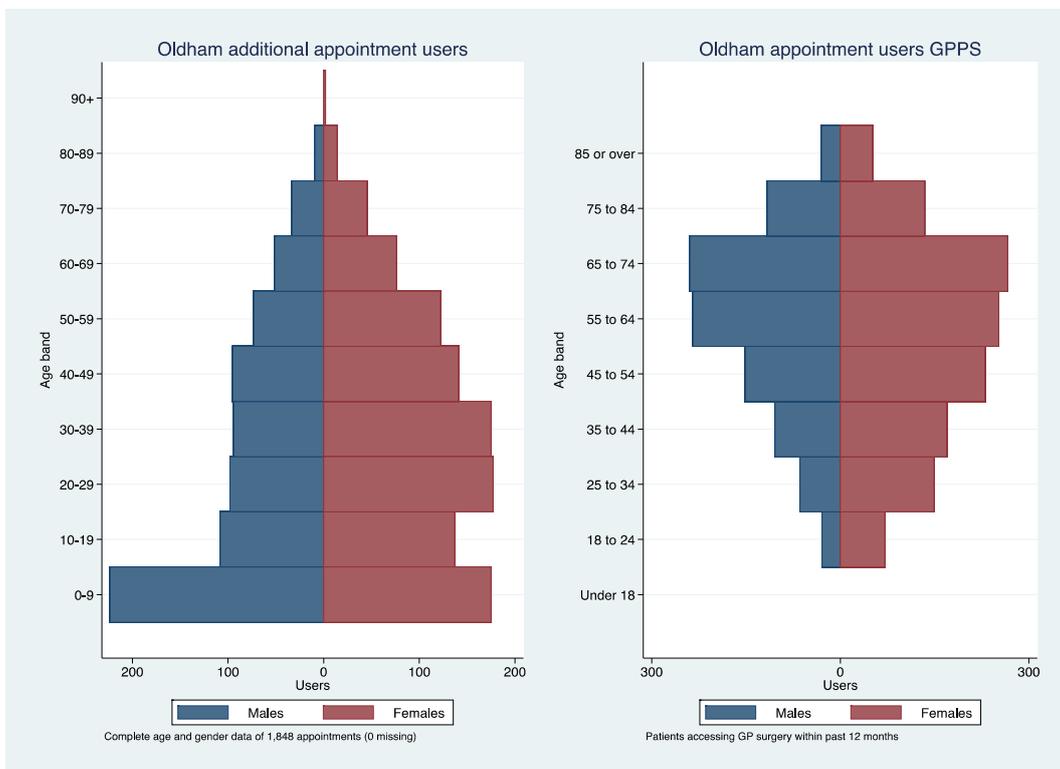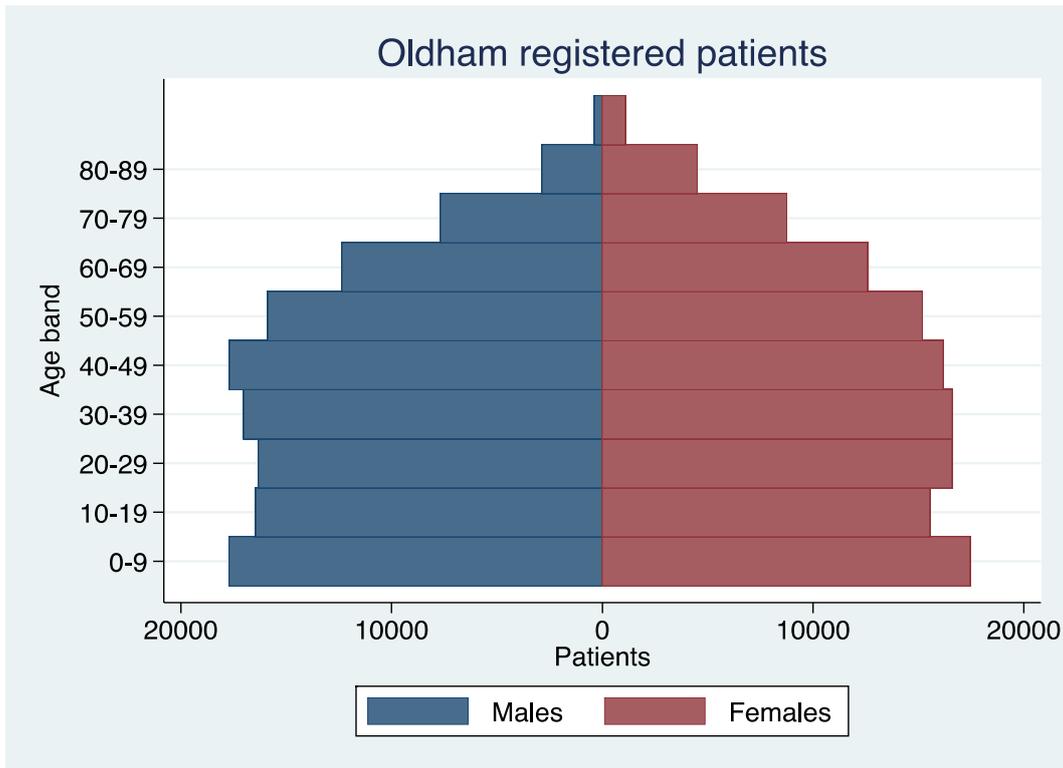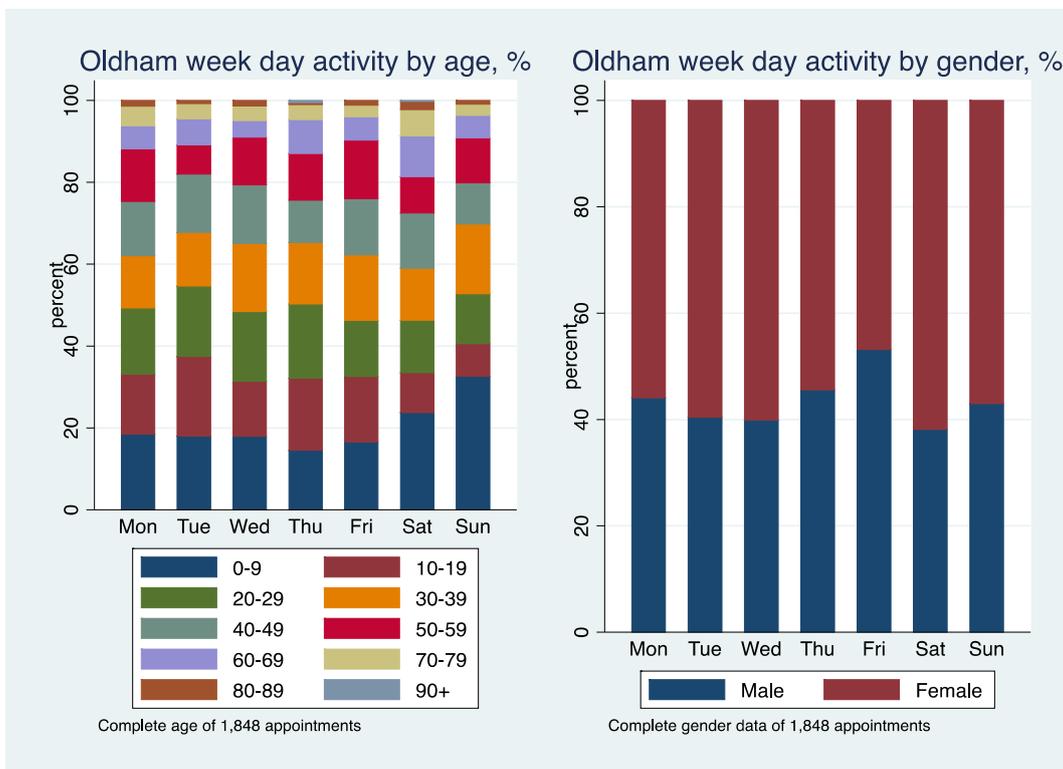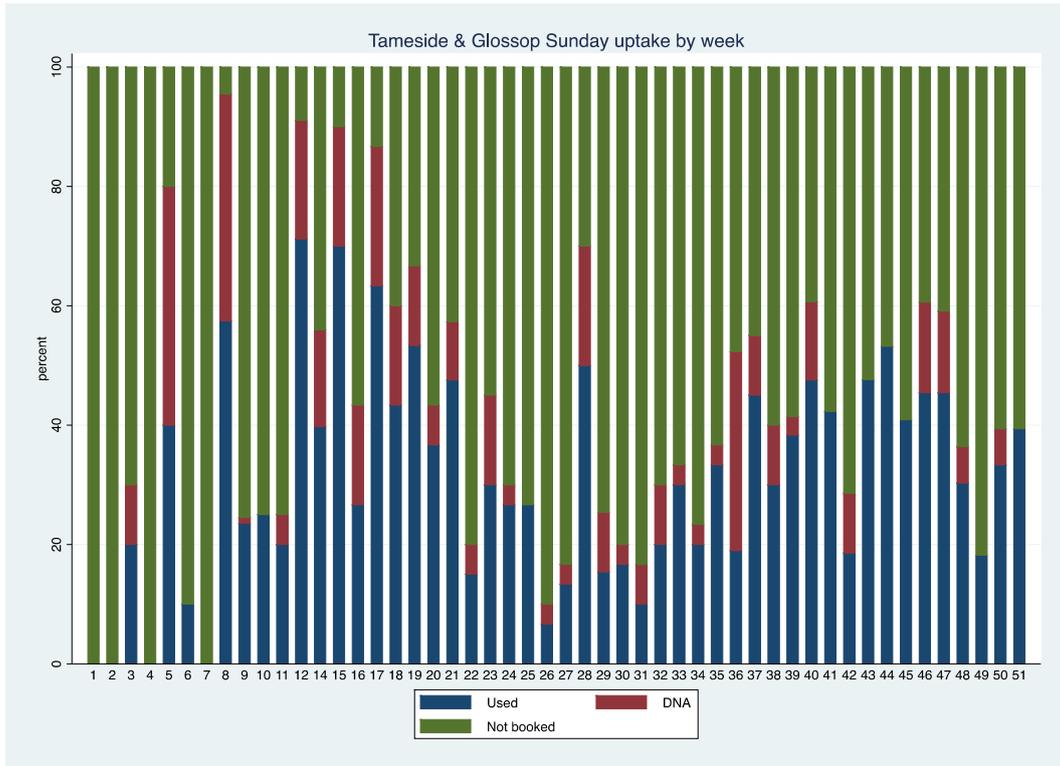
Figure A14

Figure A15

Figure A16

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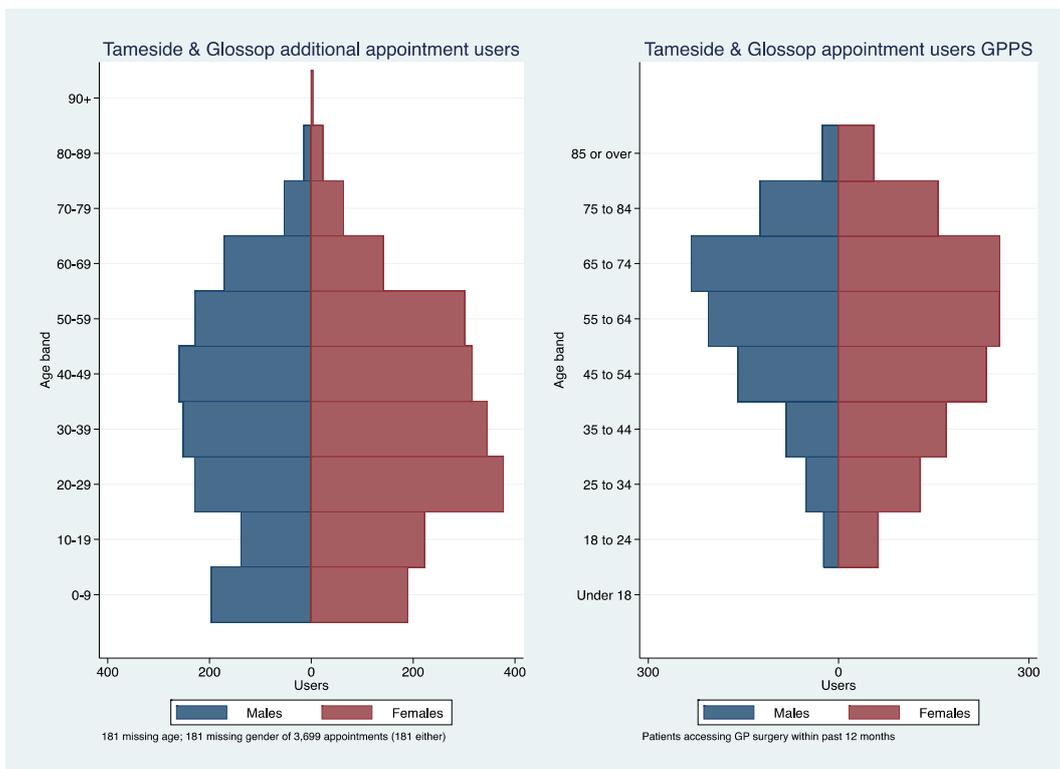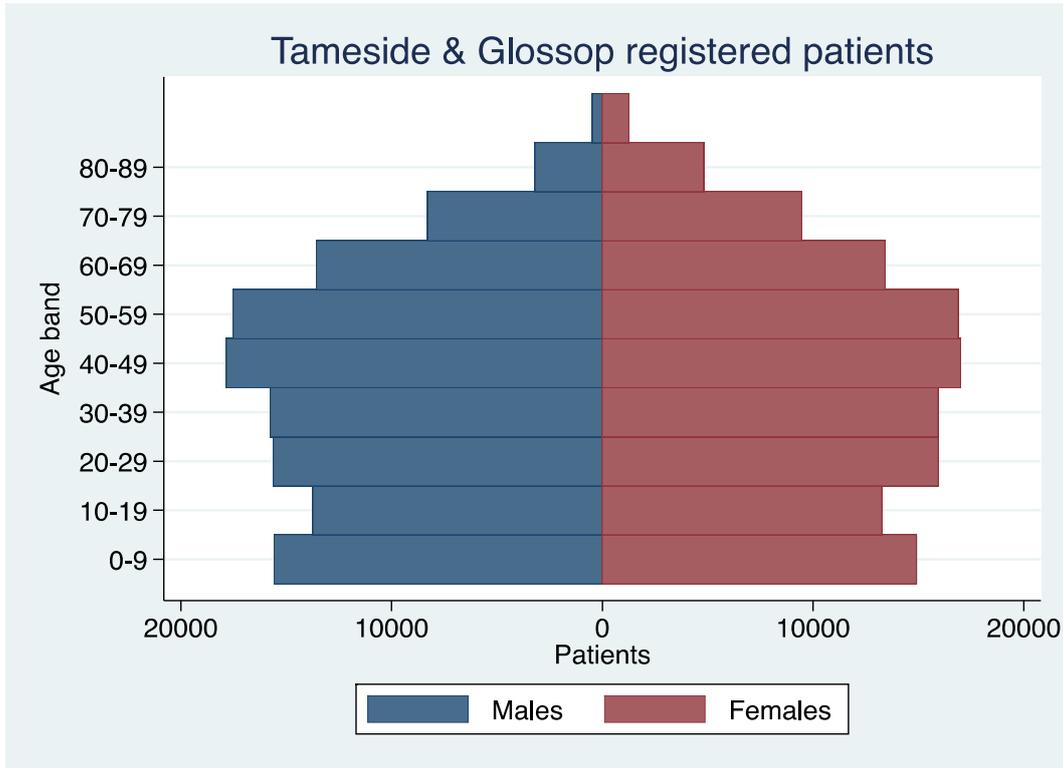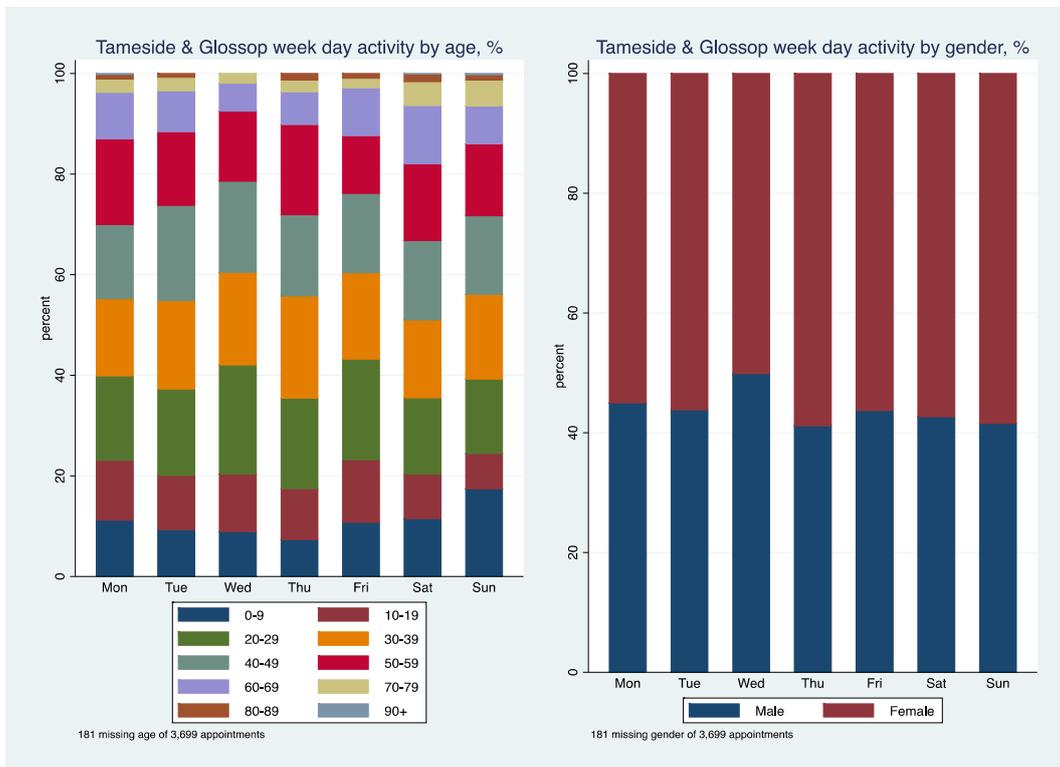
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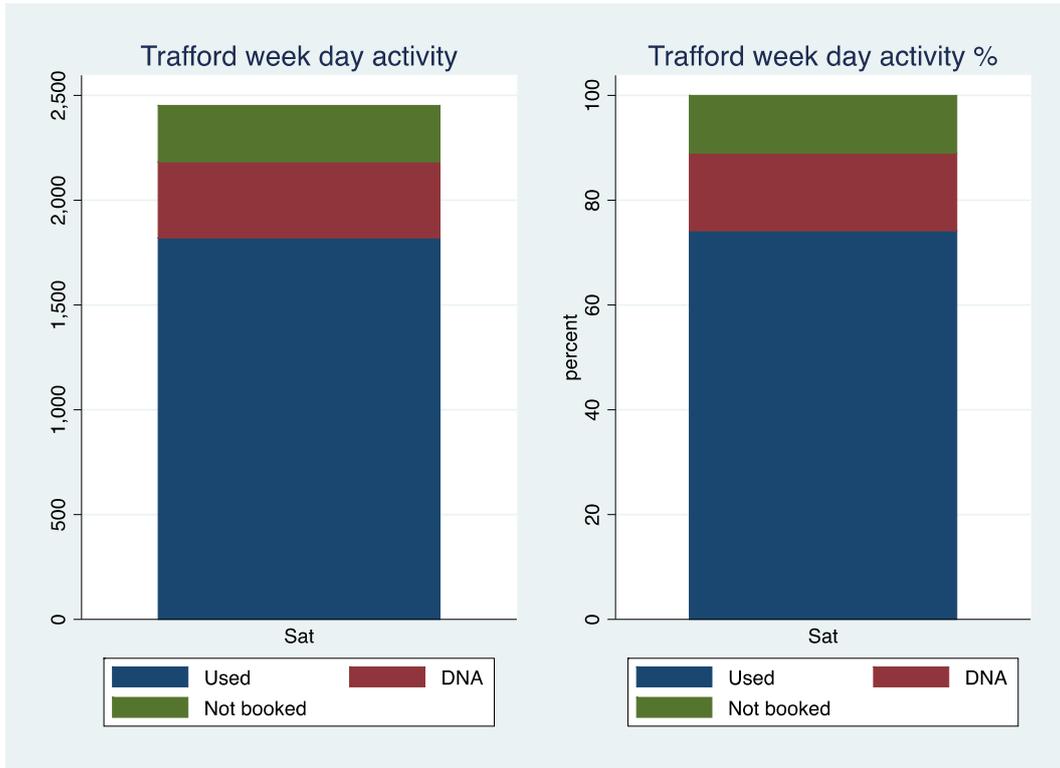
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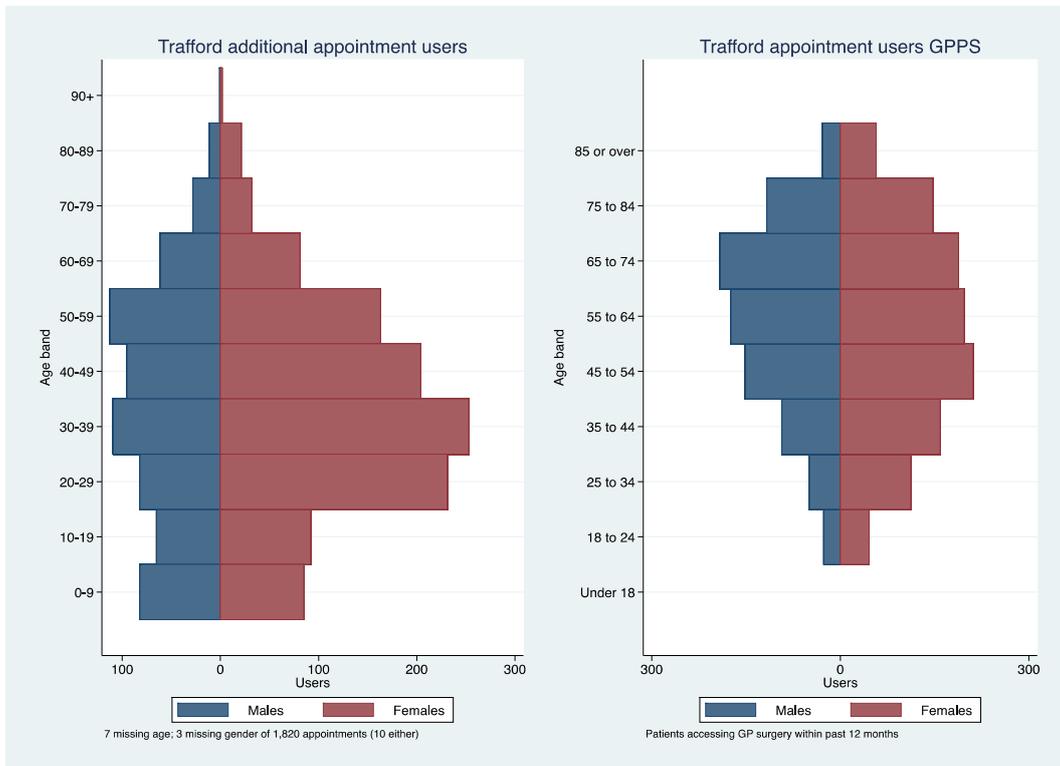
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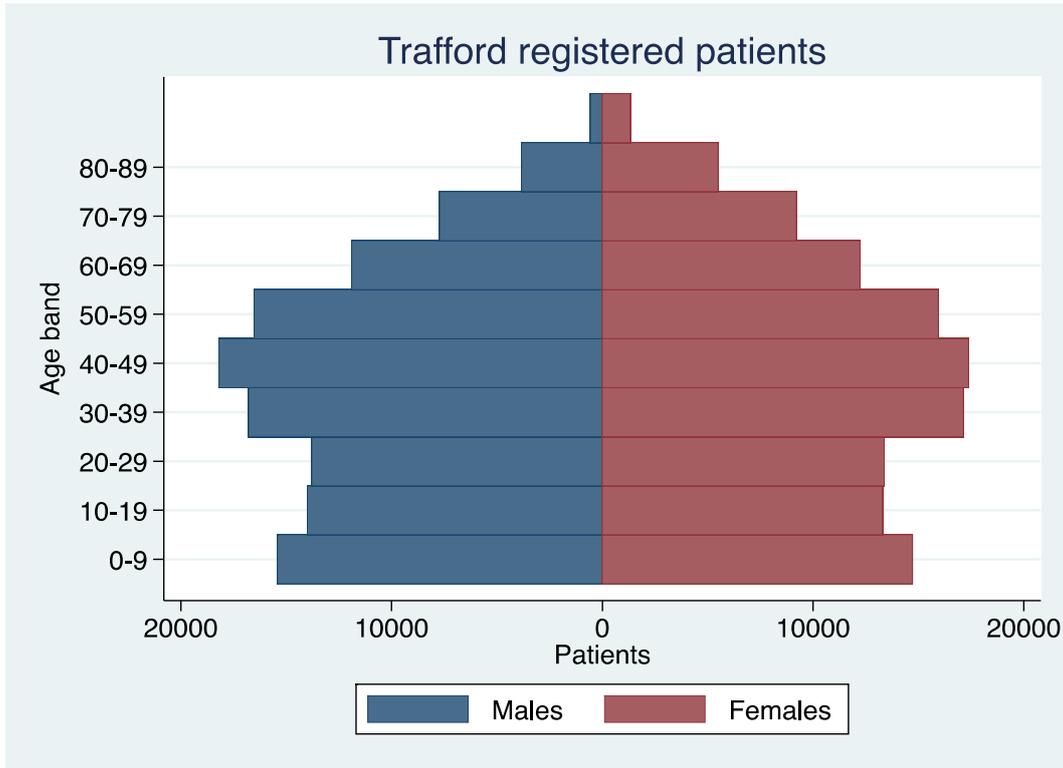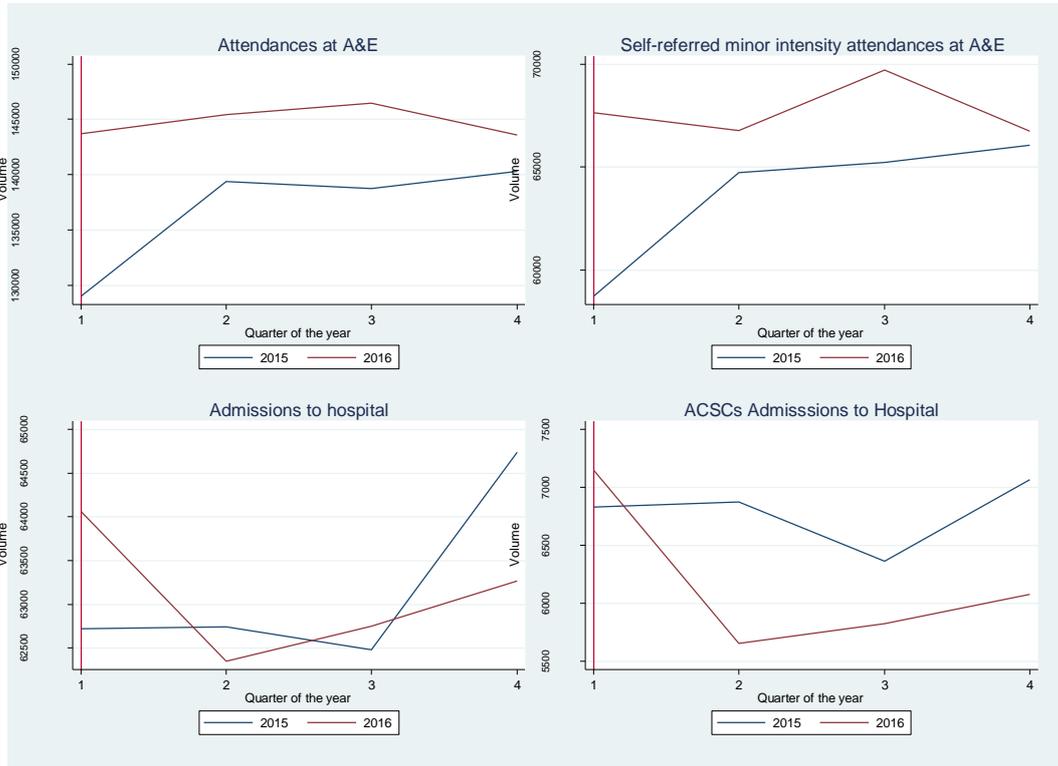
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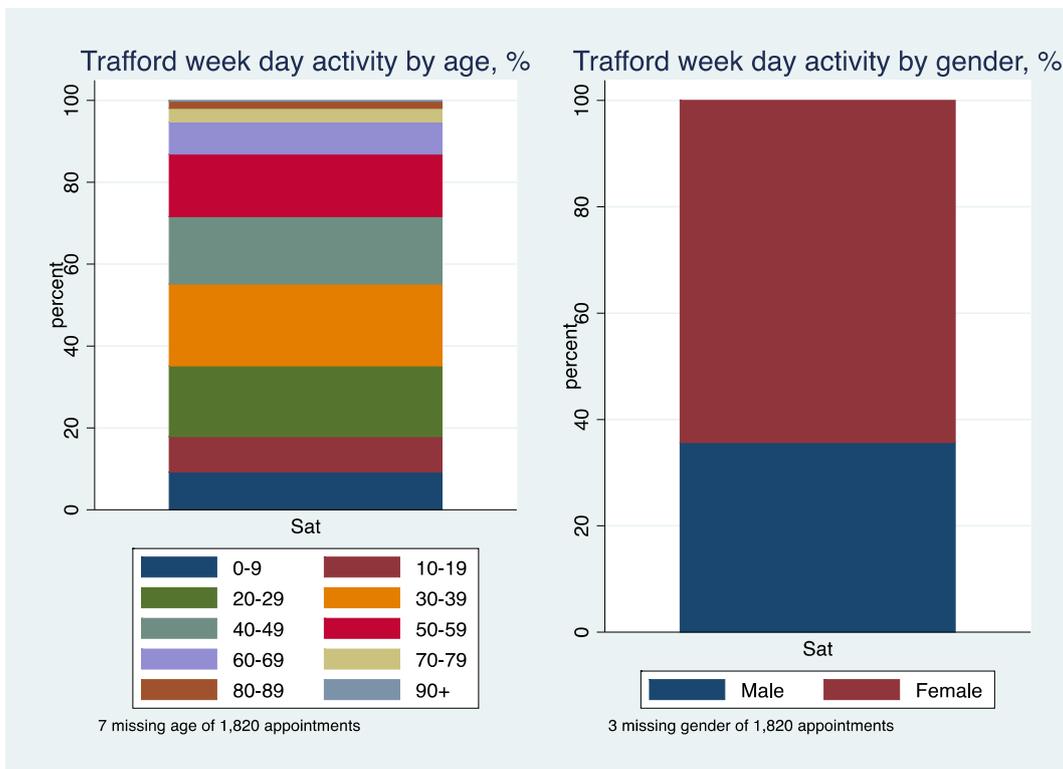
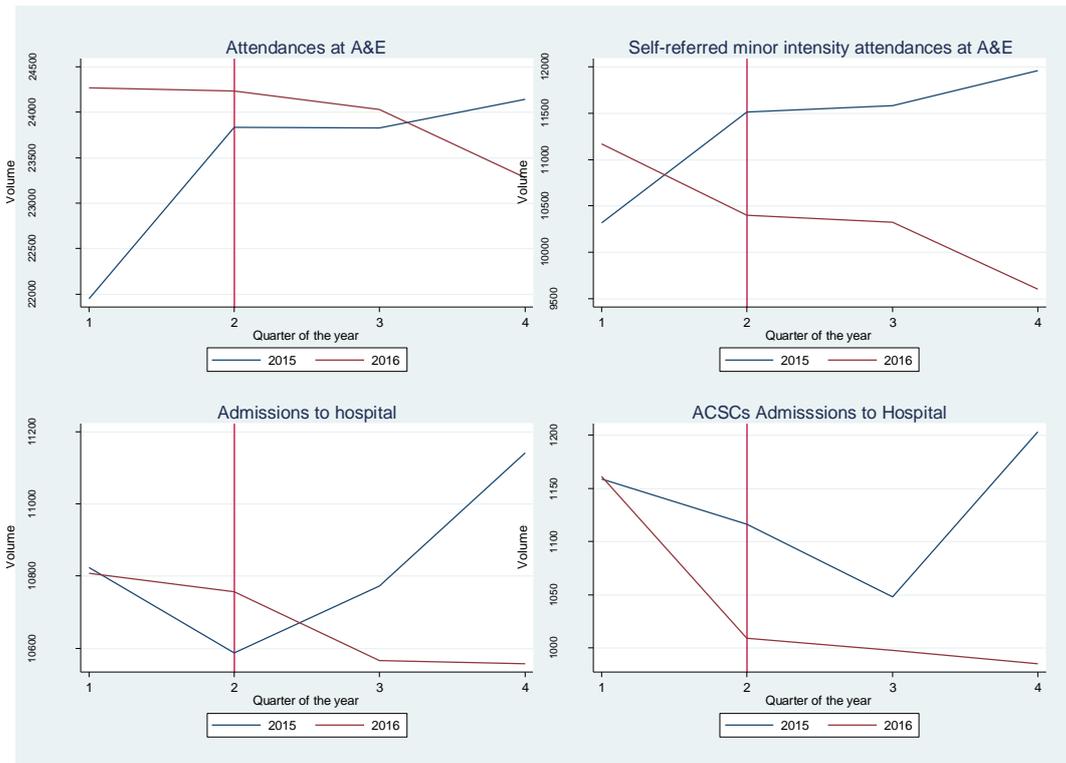Figure A22 All scheme hospital activity

Figure A23 Bolton hospital activity

Figure A24 HMR hospital activity
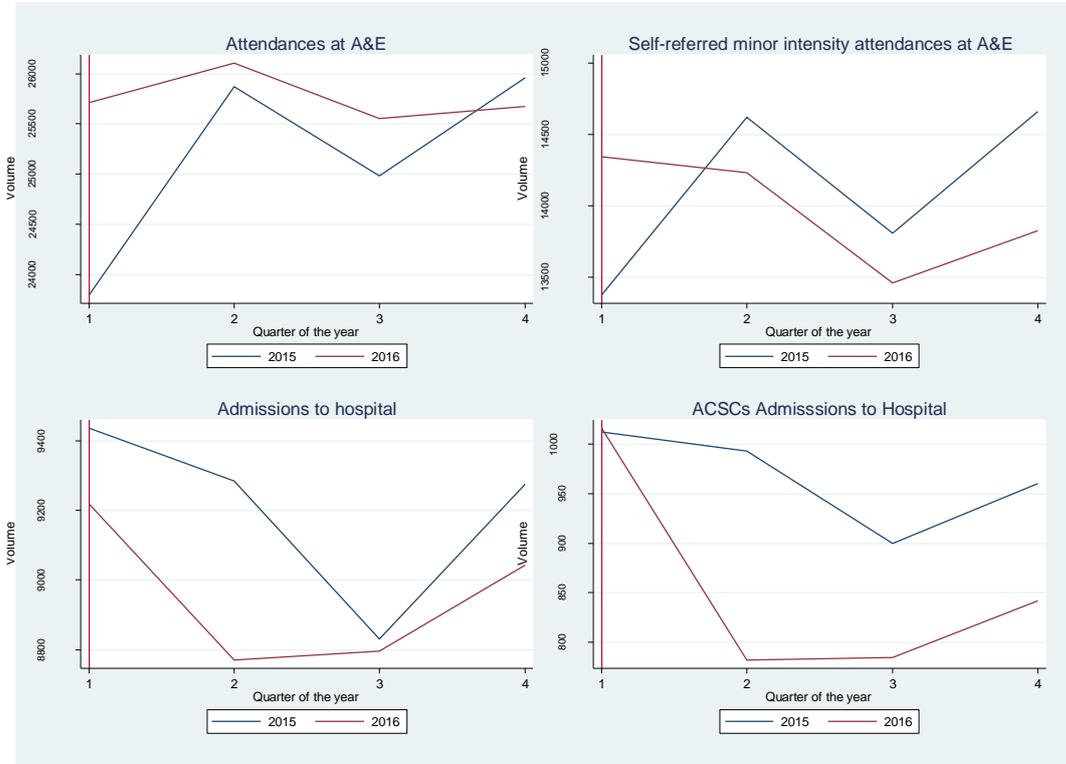
Figure A25 Oldham hospital activity
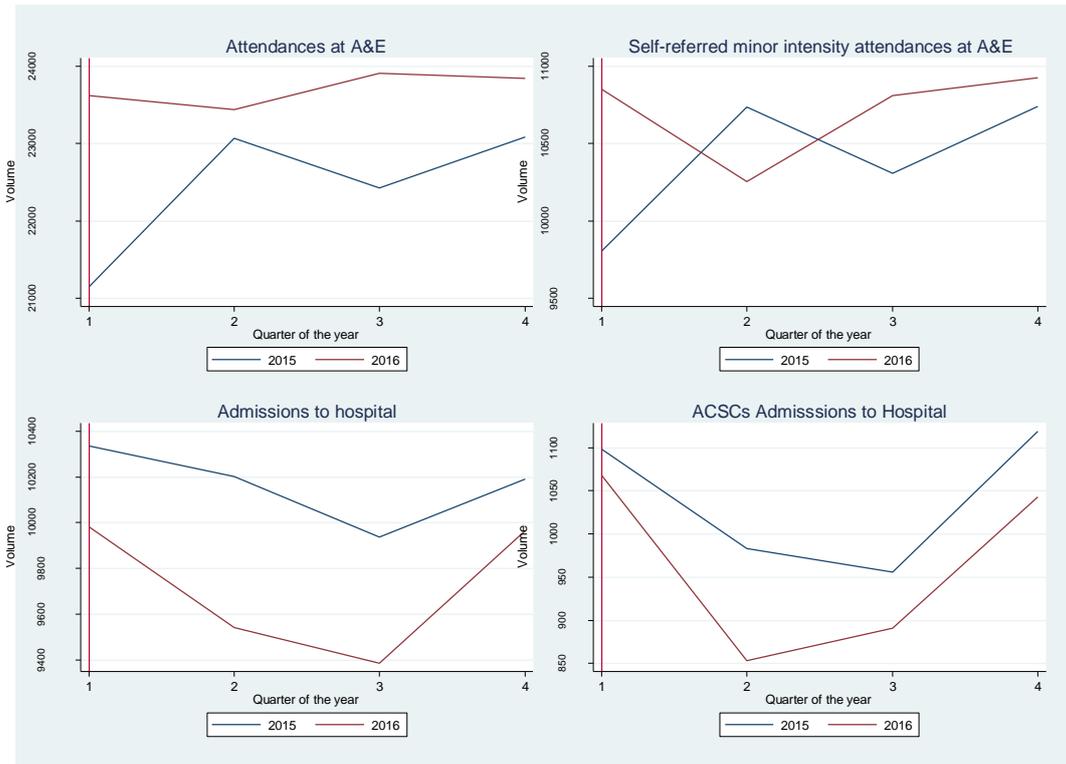
Figure A26 Stockport hospital activity
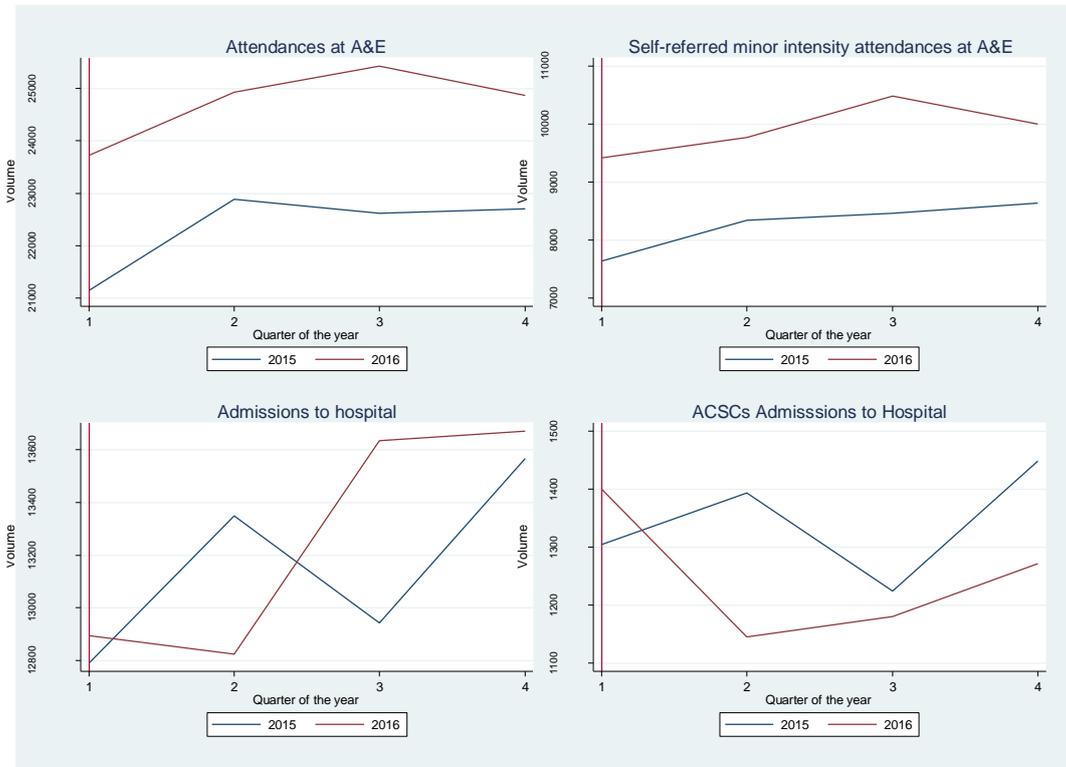
Figure A27 Tameside & Glossop hospital activity
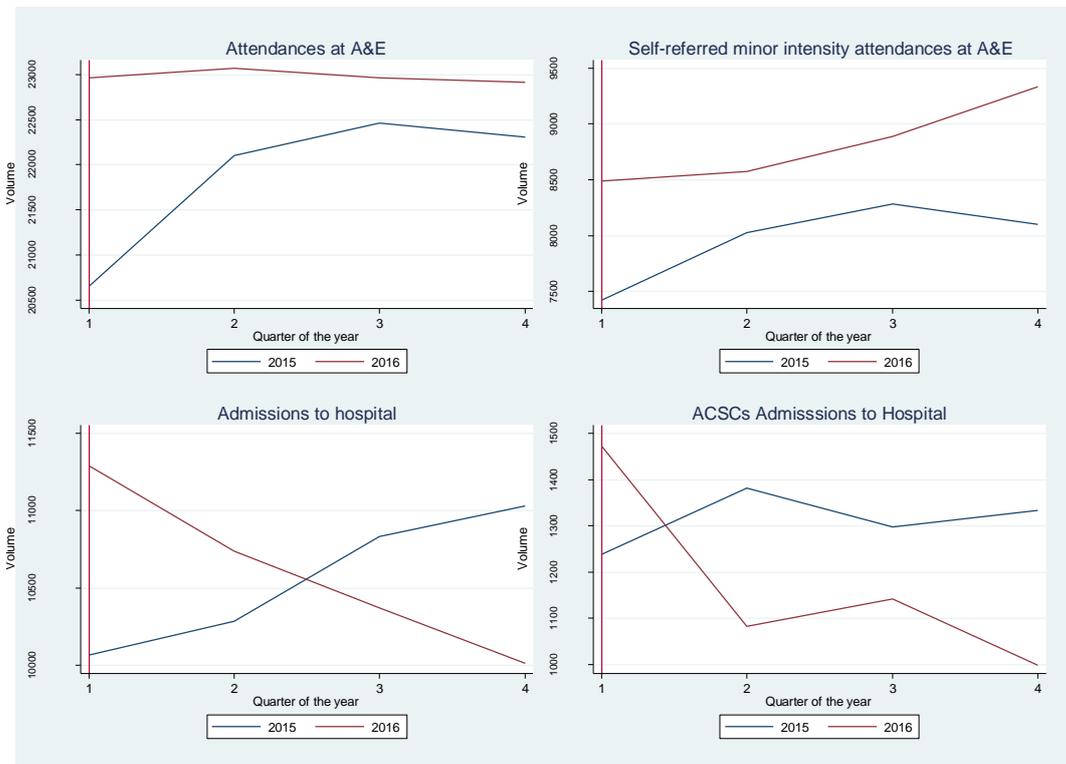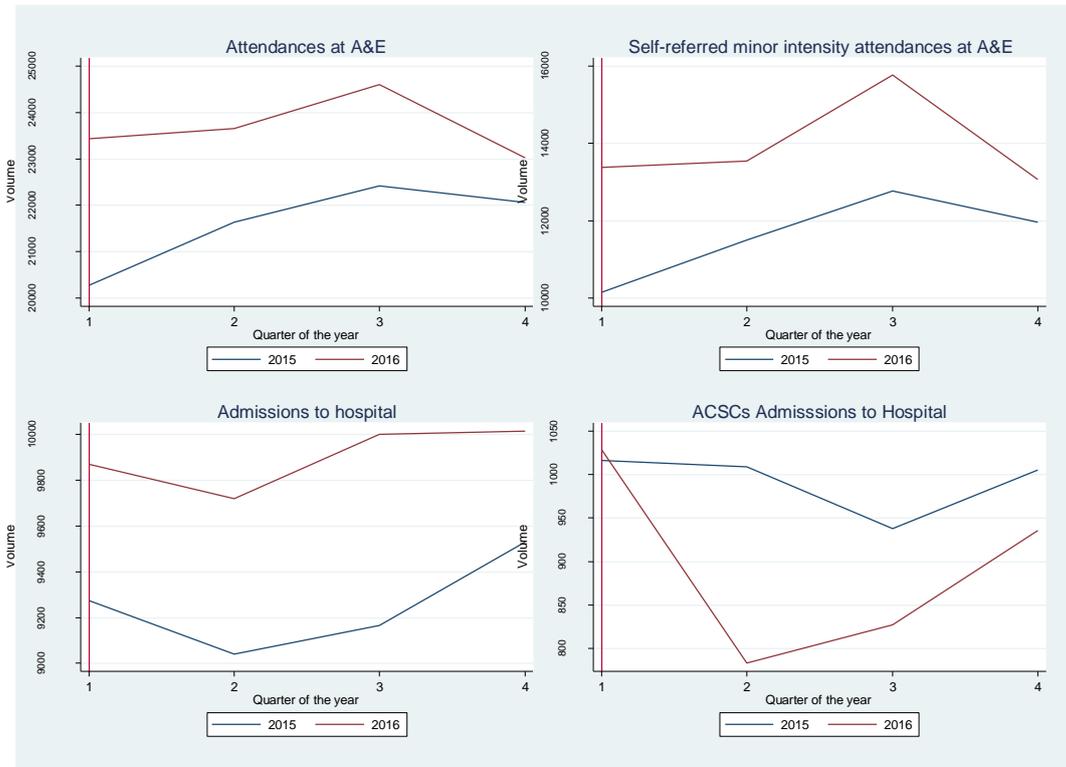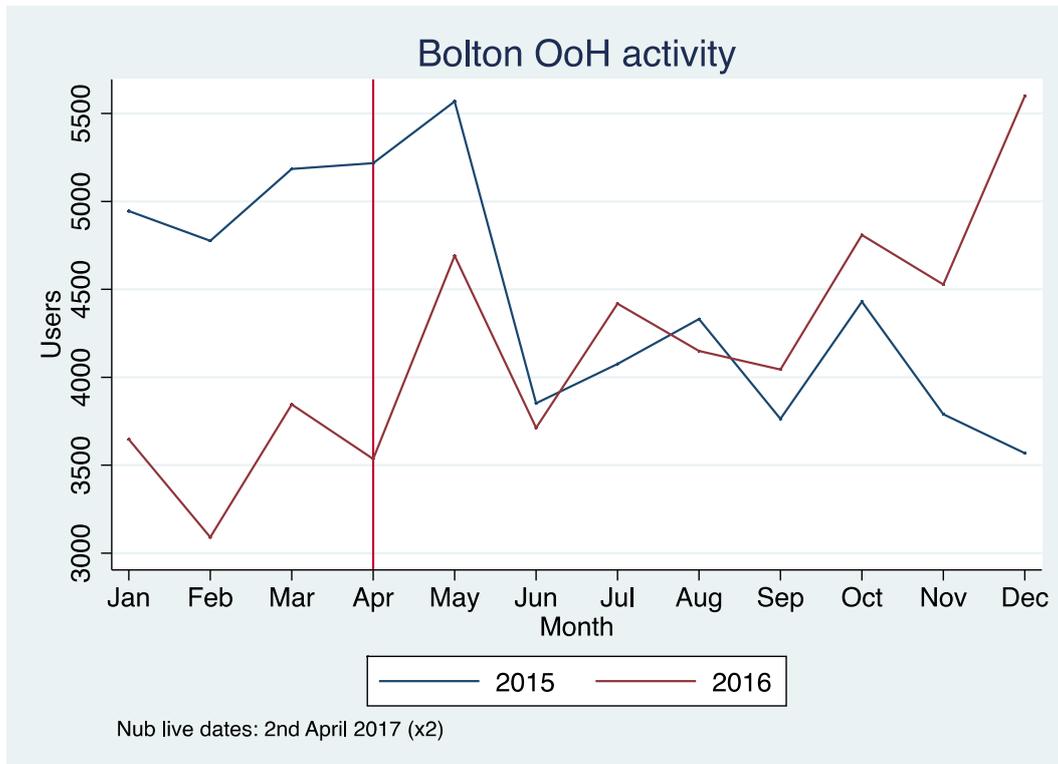
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Figure A28 Trafford hospital activity

Figure A29

HMR OoH activity

Hub live dates: 1st, 2nd (x2), 11th January 2017

Figure A31

Oldham OoH activity

Hub live dates: 5th January, 10th August 2017

Figure A32

Tameside & Glossop OoH activity

Hub live dates: 3rd, 25th, 30th January 2017