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Evaluation of Winter Pressures on **General Practice** in Manchester: a cross sectional analysis of nine GP practices

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Abstract

Background

The Nuffield Trust's report on NHS winter pressure highlights a lack of data for primary care, with a consequential focus on secondary care.

Aim

To quantify seasonal variation in workload in primary and secondary care.

Design and Setting

Analysis of data for nine GP practices in Greater Manchester with a patient population of 75,421.

Method

Descriptive and comparative analyses were performed for winter and summer periods in 2018-19. Data were obtained from the North of England Clinical Support Unit (NECSU) via the Rapid Actionable Insight Driving Reform (RAIDR) toolkit, and EMIS Enterprise clinical audit tools.

Results

Accident & Emergency (A&E) attendances increased by 4% ($p=0.035$) during winter with no difference in the number of hospital admissions ($p=0.668$). The number of problems seen in General practice increased by 61% ($p<0.001$), as did the number of GP consultations 61% ($p<0.001$).

Respiratory diagnoses saw the greatest seasonal variation accounting for 10% in winter, 4% in summer ($p<0.001$). Self-referral accounted for 70% of A&E attendance in winter, 63% in summer ($p<0.001$). GP referral accounted for 7% in winter, 6% in summer ($p=0.002$).

Conclusion

General practice observed a greater seasonal increase in presenting patients compared to secondary care.

We recommend any winter pressures strategy target both respiratory illness and patients who self-refer to A&E. Transferring 50% of self-referrals in Manchester to GP appointments would achieve a £2.3 million cost saving. Increasing provision in primary care requires funding and increased appointments, but more importantly improved patient opportunities to easily access timely advice and assistance.

Keywords

Primary health care, general practice, winter pressures, resilience, improving access.

How this fits in

It has previously been shown that the number of Accident and Emergency department (A&E) attendances and hospital admissions do not greatly increase during the winter, but there has been a lack of research regarding seasonal variation in general practice and the contribution made to A&E attendance by general practice (GP) referrals. This study quantifies the difference in seasonal workload, and details the most common diagnoses seen in A&E in winter compared to summer. Our findings can help guide GP practices and commissioning bodies in planning for winter pressures.

Introduction

Each winter the media reports on a lack of hospital beds, overflowing Accident & Emergency (A&E) departments and queues of ambulances. There is an ongoing narrative regarding winter pressures on the NHS with a focus on secondary care and extra funding to assist hospitals and emergency departments during the winter months. The Nuffield Trust's report on NHS winter pressure highlights a lack of data for primary care, with a consequential focus on secondary care¹. The scale of the extra demand has not been well documented and without knowing this, it is difficult to make an argument for winter pressures investment in general practice. Where funding is available it is not clear where best to invest it as there appears to be a lack of evidence as to what works to address additional winter workload in general practice. It is possible that in focussing funding towards secondary care we are missing an opportunity. Directing more towards general practice may reduce winter pressures on both primary and secondary care.

The aims of this study were to identify the presence and scale of seasonal variation in workload on both primary and secondary care. Furthermore, we wanted to characterise the predominant illnesses causing A&E attendance, and whether GP referrals contribute to winter workload in secondary care.

Methods

Nine practices from the Manchester CCG were included in this analysis with a combined list size of 75,421 patients. These practices were selected based on availability, we have not attempted to investigate differences between practices as data were not available to allow adjustment for confounding factors such as workforce ratios and population demographics, for example age and deprivation.

Two periods of three months were chosen for comparison. Summer was defined as June, July and August 2018. Winter was December 2018, January and February 2019. The Winter Resilience Scheme ran for a seventeen week period: 3rd December 2018 to 29th March 2019.

Secondary care data for each practice were obtained from the Manchester hospitals Secondary Uses Service data through the North of England Clinical Support Unit (NECSU), via the Rapid Actionable Insight Driving Reform (RAIDR) toolkit.

Data were captured on total patients seen in A&E, mode of arrival, diagnosis, and outcome after attendance. Mode of arrival specifies how patients are referred to A&E e.g. self-referral, GP referral, or referral by another healthcare professional. Outcome after attendance refers to the plan after patients are discharged from A&E e.g. discharged with GP follow up or admitted to hospital.

Primary care data were obtained using EMIS Enterprise clinical audit tools. Data were captured on the number of problems recorded in a consultation and consultation type e.g. GP surgery consultation, telephone consultation, or home visit.

Unadjusted risk ratios were calculated for the risk of an event occurring in the winter compared to the summer, along with Chi-squared hypothesis tests.

Results

Results are expressed as attendances or consultations per 1000 patients to account for different practice list sizes.

A&E attendance

The total number of A&E attendances were 7,521 in winter and 7,265 in summer or 100 per 1000 patients in winter, compared to 96 per 1000 in summer. (Table 1) There is good evidence for a 4% increase in A&E attendances in winter ($p=0.035$).

There was large variation in A&E attendances between the practices. Practice F had 65 attendances per 1000 patients whilst Practice H had 135 per 1000 patients.

Diagnosis on A&E attendance

The ten most common diagnosis on A&E attendance (Table 2) were:

'No diagnosis' accounting for 9% of all A&E attendance in winter and 11% in summer.

'Nothing abnormal' accounting for 7% in winter and 9% in summer.

'Respiratory' accounting for 10% in winter and 4% in summer.

'Gastrointestinal' accounting for 7% in both winter and summer.

'Diagnosis not classifiable' accounting for 6% in winter and 5% in summer.

'Gynaecological' accounting for 4% in winter and 5% in summer.

'Ophthalmological' accounting for 5% in winter and 3% in summer.

'Dislocation/fracture/joint injury' accounting for 3% in winter and 5% in summer.

'Laceration' accounting for 1% in winter and 4% in summer.

'Sprain' accounting for 3% in winter and 3% in summer.

The biggest seasonal variation was in respiratory diagnoses with 4 per 1000 patients in summer rising to 10 per 1000 patients in winter, RR 2.31 ($p<0.001$).

There is also good evidence that patients are more likely to present to A&E with an ophthalmological problem in the winter, RR 1.41 ($p<0.001$).

Diagnoses less likely to present to A&E in the winter include 'No diagnosis' RR 0.84, ($p<0.001$), 'Nothing Abnormal' RR 0.81 ($p<0.001$), 'Dislocation/fracture/joint injury' RR 0.54 ($p<0.001$) and 'Laceration' RR 0.36 ($p<0.001$).

Modes of arrival to A&E

The most common mode of arrival to A&E, in both winter and summer, was self-referral, with 70 per 1000 patients in winter and 60 per 1000 in summer. (Table 3) There was strong evidence for an increase in self-referral in winter compared to summer, RR 1.16 ($p<0.001$).

Self-referral accounted for 70% of A&E attendance in winter and 63% in summer.

The second most common mode of arrival in both winter and summer, showing no seasonal difference, was referral by another healthcare provider, with 17 per 1000 patients in winter and 16 per 1000 in summer ($p=0.252$). This accounted for 17% of all A&E attendance in both winter and summer.

The third most common mode of arrival were GP referrals with 7 per 1000 patients in winter and 6 per 1000 in summer. There was strong evidence for an increase in GP referral in winter compared to summer, RR 1.22 ($p=0.002$). GP referral accounted for 7% of all A&E attendance in winter and 6% in summer.

There was wide variation in GP referral rate between practices. Practice H had the highest winter referral rate, 13 per 1000 patients, whilst practice C had the lowest, 5 per 1000 patients.

A&E Outcomes

The most common outcome after attendance to A&E was 'did not require follow up' with 65 per 1000 patients in winter and 63 per 1000 in summer (Table 4), showing good evidence for

an increase in winter compared to summer, RR 1.05 ($p=0.029$). Patients that did not require follow up accounted for 66% of all A&E attendances in winter and 65% in summer.

The second most common outcome was 'admitted to hospital bed'. There was no difference in number of hospital admissions between summer and winter ($p=0.668$). 10% of A&E attendances were admitted to a hospital bed in winter, 11% in summer.

The third most common outcome was 'discharged with GP follow up', which accounted for 7% of all A&E attendances in both winter and summer.

There was wide variation between practices in hospital admission rate. In winter Practice H had the highest rate with 34 per 1000 patients, practice F had the lowest with 5 per 1000 patients.

Seasonal variation in general practice patient contact

There were 16,444 more problems seen in general practice in winter compared to summer (Table 5). This is a 61% seasonal increase ($p<0.001$).

There was also a 61% increase in the number of face-to-face GP consultations in winter compared to summer, RR 1.61 ($p <0.001$) (Figure 1). Consultations increased from 318 per 1000 patients in summer to 512 per 1000 in winter.

There is strong evidence that telephone consultations increased in winter from 26 per 1000 patients to 47 per 1000, an 81% increase, RR 1.8 ($p <0.001$).

Home visits also increased in winter from 3 per 1000 patients to 8 per 1000 RR 2.57 ($p<0.001$).

Discussion

Summary

We identified strong evidence for increased workload during the winter months in both primary and secondary care, with the burden of winter attendance appearing to lean more heavily on general practice.

In our study, secondary care experienced a 4% increase in A&E attendances and no difference in the volume of hospital admissions in winter. This finding indicates that the well documented winter increases in A&E waiting times, hospital length of stay and demand for winter pressures wards cannot be explained simply by an increase in attendance. Other contributing factors include sicker patients requiring longer admissions and a lack of social care beds² causing long delays in discharge from hospital, with a resultant impact on patient flow in A&E. Once bed occupancy reaches 92%, hospitals become increasingly unlikely to admit patients within the four hour A&E target.¹

In general practice we have demonstrated a much greater seasonal variation with a 61% increase in both the number of problems seen and the number of GP face-to-face consultations. There was also an 81% increase in telephone consultations and more than double the number of home visits in winter. It has previously been shown that patients with flu-like illnesses preferentially attend their GP; attendance rates for these illnesses are approximately 10 times higher in daytime primary care than A&E or out of hours (OOH) services.¹

The biggest seasonal variation in diagnosis were respiratory problems, accounting for 4% of the overall A&E attendance in summer and 10% in winter; the risk of attending A&E with a respiratory problem more than doubles in winter. Incidence of respiratory viruses increase in cold weather² putting pressure on NHS services and more importantly, causing severe health consequences. For every 1°C drop in temperature below the optimum threshold for different age groups, the risk of death from a respiratory condition increases by approximately 10%.¹ It follows that any winter pressures strategy should include plans to tackle respiratory illness. Evidence based measures include optimising long term condition

management, achieving higher levels of influenza and pneumococcal vaccine uptake, smoking cessation and ensuring patients have warm housing^{3, 4}.

We identified wide variation in A&E attendance, GP referral rate and hospital admission between the practices. It was not the aim of this study to explain variations between individual practices; there may be many reasons for this including workforce ratio's, population age, deprivation and proximity to A&E. **Further research into comparing performances between practices is urgently needed; identifying practices with low rates of A&E attendance, after adjusting for confounding factors, might enable their approaches to be replicated.**

In the entire six months studied, GP referral accounted for only 7% of all A&E attendance. Self-referral accounted for 66% and increased by 16% in winter. 18% of patients were discharged with no diagnosis or nothing abnormal detected, and 65% did not require follow up. It therefore seems logical to expand the role of general practice to manage the bulk of these patients in the community. A 2016 study examining extended access to general practice in Manchester provided evidence that additional primary care appointments, outside of working hours, may reduce attendance at emergency departments⁵.

Strengths and Limitations

This study benefits from a large data set, encompassing a population of more than 75,000 patients. Although selected on availability rather than at random, the practices were from six out of twelve Neighbourhoods of Manchester reflecting a representative sample of practice types and patient populations.

Our data sources are overall of high quality, routinely used for regional analysis.

One limitation is that significant variation is likely to exist between practitioners in how they record problems. Similarly, in some practices, a consultation may be recorded when patient contact does not occur, for example making administrative notes. Seasonal comparisons should not be affected by this but comparisons between practices may be more problematic.

Comparison with existing literature

This study benefits from direct comparison of general practice data to secondary care data for the same practice population. This has allowed us to scrutinise the working relationship between primary and secondary care and to directly compare activity, demonstrating for the first time the clear seasonal difference in workload between primary and secondary care.

Cost Implications

A crude cost analysis was calculated using the weighted average cost of an A&E attendance in 2019/20, based on service level activity monitoring files for Manchester University Foundation Trust, and average GP consultation cost as reported by NHS England⁶. Scaled up to the combined practice population of Manchester, if 50% of the self-referrals to A&E in the winter period of our study were instead managed in general practice, taking into account the 7% GP referral rate to A&E, there would be a cost saving of just over £2.3 million. **There would need to be significant initial investment to support the expansion of general practice to accommodate these extra patients. This is likely to place workforce pressures on an already strained system. However any barriers to expanding the role of general practice are highly likely to be worth overcoming. In addition to cost saving, the benefit of managing these patients in general practice is much more far reaching and important. There is evidence that continuity of care, encouraged in general practice and not possible in A&E, is associated with reduced mortality⁷. A study of patients with type-2 diabetes demonstrated that higher levels of empathy from practitioners reduced all-cause mortality⁸. In addition GP empathy has been shown to have psychosocial benefits⁹. Therefore quite independent of the cost, there are important advantages to any health system for patients to be managed in general practice rather than A&E.**

Implications for research and practice

The NHS Long Term Plan advises Primary Care Networks (PCN) to take a proactive approach to managing population health. To incentivise this a 'shared savings' scheme is proposed, under which networks will benefit financially from reductions in A&E attendances and hospital admissions¹⁰. We suggest that any winter pressures strategy by a PCN or other organisational body, should target both respiratory illness and patients who self-refer to A&E.

Targeting respiratory illness in the community may reduce A&E attendance and prevent or better manage severe respiratory infections and exacerbations, which would normally result in long hospital admissions.

Targeting the large number of patients who self-refer would increase A&E's capacity to overcome other factors which prolong waiting times in winter. Existing research can be used to inform initiatives to reduce A&E self-referrals. A systematic review reported that patients' perceptions of access to and confidence in general practice were key factors in low-urgency A&E attendances¹¹. One study found Migrant populations often had no primary care provider and sought A&E care for non-urgent health problems due to difficulties accessing primary healthcare¹².

Targeting self-referrals by increasing provision in primary care would seem sensible. However, as general practice is already managing the vast majority of the NHS's winter workload, significant new provision is needed.

There could be a combination of approaches. Commissioners could balance winter funding in accordance with the distribution of the workload demonstrated in our study, re-directing more towards general practice. In addition, novel methods enabling general practice to manage more patients with the same resources need to be identified and tested. These are likely to include triage systems and the wider use of allied healthcare practitioners. Successfully improving access to GP services is probably not merely a case of increasing the number of consultations offered to the public; but rather making GP more accessible. This means making it easy to access timely healthcare advice and assistance for patients from all backgrounds, twenty four hours a day, then only if appropriate, face to face assessment.

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Practice	Attendance per 1000 patients		RR	<i>p</i>
	Winter	Summer		
No diagnosis	9	11	0.84	<0.001
Nothing abnormal	7	8	0.81	<0.001
Respiratory	10	4	2.31	<0.001
Gastrointestinal	7	7	0.99	0.874
Diagnosis not classifiable	6	5	1.11	0.135
Gynaecological	4	4	0.84	0.028
Ophthalmological	4	3	1.41	<0.001
Dislocation/fracture/joint injury	3	5	0.54	<0.001
Laceration	1	4	0.36	<0.001
Sprain	3	3	1.05	0.615

Table 2. Most common diagnosis after A&E attendance per 1000 patients. Also shown is the relative risk of diagnosis in winter compared to summer.

compared to summer.

Practice	Self-referral				Referral by another healthcare provider				GP referral			
	Winter	Summer	RR	<i>p</i>	Winter	Summer	RR	<i>p</i>	Winter	Summer	RR	<i>p</i>
A	71	63	1.13	0.027	18	16	1.14	0.247	10	7	1.42	0.028
B	73	56	1.29	<0.001	19	21	0.93	0.537	6	4	1.31	0.222
C	64	54	1.18	<0.001	13	14	0.96	0.696	5	5	0.97	0.870
D	76	67	1.15	0.048	18	19	0.96	0.785	8	7	1.10	0.663
E	90	65	1.39	<0.001	21	16	1.25	0.062	8	6	1.47	0.052
F	47	45	1.06	0.336	8	9	0.91	0.488	6	5	1.34	0.086
G	60	68	0.89	0.176	9	9	1.00	1.000	6	6	1.00	1.000
H	80	75	1.07	0.400	14	13	1.13	0.521	13	10	1.27	0.235
I	87	77	1.13	0.023	26	30	0.88	0.180	6	6	1.08	0.692
Total	70	60	1.16	<0.001	17	16	1.05	0.252	7	6	1.22	0.002

Table 3. Most common modes of arrival in A&E: attendance per 1000 patients. Also shown is the relative risk of referral mode in winter compared to summer.

Practice	Did not require follow up				Admitted to hospital bed					Discharged to GP			
	Winter	Summer	RR	<i>n</i>	Winter	Summer	RR	<i>n</i>	<i>p</i>	Winter	Summer	RR	<i>p</i>
A	70	65			512	318	1.61		<0.001	8	8	1.07	0.686
B	74	68								6	7	0.89	0.560
C	55	53								9	6	1.46	0.003
D	73	72								8	9	0.91	0.622
E	87	71								11	8	1.37	0.071
F	42	43								7	6	1.13	0.443
G	51	53								15	19	0.79	0.190
H	66	67								14	15	0.91	0.599
I	89	89								10	11	0.98	0.879
Total	65	63								9	9	1.07	0.191

Table 4. Most common A&E outcomes per 1000 patients. Also shown is the relative risk of outcome in winter compared to summer.

