Current provision of general practitioner services in or alongside emergency departments in England

Heather Brant, Sarah Voss, Katherine Morton, Alison Cooper, Michelle Edwards, Delyth Price, James Gaughan, Adrian Edwards, Jonathan Benger

ABSTRACT

Background In 2017, general practitioners in or alongside the emergency department (GPED), an approach that employs GPs in or alongside the ED to address increasing ED demand, was advocated by the National Health Service in England and supported by capital funding. However, little is known about the models of GPED that have been implemented.

Methods Data were collected at two time points: September 2017 and December 2019, on the GPED model in use (if any) at 163/177 (92%) type 1 EDs in England. Models were categorised according to a taxonomy as ‘inside/integrated’, ‘inside/parallel’, ‘outside/onsite’ or ‘outside/offsite’. Multiple data sources used included: on-line surveys, interviews, case study data and publicly available information.

Results An increase of EDs using GPED was observed from 81% to 95% over the study period. ‘Inside/parallel’ was the most frequently used model: 30% (44/149) in 2017, rising to 49% (78/159) in 2019. The adoption of ‘inside/integrated’ models fell from 26% (38/149) to 9% (15/159). Capital funding was received by 87% (142/163) of the EDs sampled. We identified no significant difference between the GPED model adopted and observable characteristics of EDs of annual attendance, 4-hour wait, rurality and deprivation within the population served.

Conclusion The majority of EDs in England have now adopted GPED. The availability of capital funding to finance structural changes so that separate GP services can be provided may explain the rise in parallel models and the decrease in integrated models. Further research is required to understand the relative effectiveness of the various models of GPED identified.

INTRODUCTION

During 2019, attendances to emergency departments (EDs) in the National Health Service (NHS) reached record levels. The year 2018–2019 saw an increase of 4.4% compared with 2017–2018, and 21% since 2009–2010.1 It has been estimated that between 15% and 40% of patients attending the ED could be managed by the general practitioners (GPs).2 3 In 2015, The ‘Keogh Review’ of urgent care recommended colocating GPs alongside EDs to filter patients with primary care problems to alternative providers,4 despite a lack of supporting research evidence.2 At that time, a proportion of EDs across England had already implemented a range of new models of care with some form of GP colocation reported in 43%.2

In March 2017, £100 million of capital funding was allocated in the UK Chancellor’s budget to support the introduction of GPs in or alongside the ED (GPED) by October 2017.6 7 However, little is known about the effect of this initiative on the actual provision of GPED services. This paper describes the provision of GPED models at the time of policy change (September 2017, prior to the intended implementation deadline of October 2017) and 2 years later (December 2019) in England. Models were classified according to an iteratively developed taxonomy (figure 1).2

METHODS

Data were collected on the GPED model(s) provided by all 177 type 1 EDs (consultant-led 24-hour services with full resuscitation facilities) in England. Sources included an online survey conducted by Cardiff University,5 and a combined interview study and online survey conducted by the University of the West of England (UWE).10 These data included interviews with clinical leads from the EDs that had
applied for capital funding and information collected during the UWE GPED study from case study sites. This was supplemented by data sourced from public websites and NHS England.

Data were collected at two time points: September 2017 and December 2019, and collated in a single database. Models were classified into one of four types according to an iteratively developed taxonomy: inside/integrated, inside/parallel, outside/onsite, outside/offsite (figure 1).8

We conducted pairwise comparisons of the characteristics of the EDs (number of attendances, proportion treated within 4 hours, deprivation, rurality and capital funding) for each of the models of GP collaboration. Two-sided t-tests were used to compare means with a significance level of 0.05.

Patient and public involvement
A patient and public contributor group was involved in study design, project management and dissemination. Members of this group joined the study steering committee, assisted in the preparation of patient-facing and other study materials and attended a series of workshops to contribute to data interpretation and comment on emerging research findings.

RESULTS
Data were obtained from 163/177 (92%) of all type 1 EDs in England:

- 149/177 (84%) at September 2017.
- 159/177 (90%) at December 2019.
- 139/177 (79%) at both time points.

The GPED models in place in September 2017 and December 2019 are shown in table 1. Capital funding was awarded to 87% (142/163) of the participating EDs.

Between September 2017 and 2019, 23 sites commenced and four sites ceased GPED provision. Three of those who ceased chose to discontinue an Inside/integrated model. The most common service change (20 sites) was from an inside/integrated to an inside/parallel model. Additionally, 11 sites moved from an outside/onsite to an inside/parallel model.

Table 1 shows the differences between group means of observed characteristics by GPED model choice and between each GPED model and no model. The p values from two-way t-tests of differences between group means are also presented. We found no significant (p<0.05) difference between group means by the type of GPED model adopted and the observable characteristics of included EDs (annual number of new attendances, proportion of patients treated within 4 hours deprivation and rurality of the population served and receipt of capital funding). Comparisons with off-site models were not made, due to the small number of observations in this group.

DISCUSSION
Our findings indicate that the vast majority of EDs in England now include a colocated general practice service, most commonly parallel with ED provision. Fully integrated models tended to be replaced by a more complex and distinct general practice service component, possibly as a result of capital funding allocations that allowed structurally separate facilities to be established and attracted the involvement of community care providers. However, we found no significant differences between the GPED model adopted and the observable characteristics of an ED.

Previous research reported that 43% of EDs had a GP service in 2015,2 therefore, the increase in adoption in the 2 years before our study (from 43% to 81% of EDs) exceeded the increase in the 2-year period following the capital funding allocation (from 81% to 95%). Nevertheless, after the NHS policy announcement and associated capital funding, GPED became almost universally established.

Limitations
This is the most complete and detailed mapping of GPED provision across England that has been published to date. However, the reliability of the data sources varied and required some interpretation by the research team. Further, data collection relied on...
Table 2  Pairwise comparisons of observed characteristics by chosen GPs in or alongside the emergency department model and two-sided t-tests

September 2017

<table>
<thead>
<tr>
<th></th>
<th>No of attendances</th>
<th>Proportion of patients treated within 4 hours</th>
<th>Deprivation within the local population</th>
<th>Rurality of the locality</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dif</td>
<td>P value</td>
<td>Dif</td>
<td>P value</td>
<td>Dif</td>
</tr>
<tr>
<td>Integrated versus parallel</td>
<td>−11130</td>
<td>0.360</td>
<td>0.015</td>
<td>0.234</td>
<td>−1.994</td>
</tr>
<tr>
<td>Integrated versus on site</td>
<td>−15330</td>
<td>0.308</td>
<td>0.001</td>
<td>0.937</td>
<td>−3.266</td>
</tr>
<tr>
<td>Integrated versus no GP</td>
<td>19330</td>
<td>0.073</td>
<td>0.015</td>
<td>0.251</td>
<td>1.255</td>
</tr>
<tr>
<td>Parallel versus on site</td>
<td>−4200</td>
<td>0.773</td>
<td>−0.014</td>
<td>0.337</td>
<td>−1.273</td>
</tr>
<tr>
<td>Parallel versus no GP</td>
<td>30460</td>
<td>0.003</td>
<td>0.000</td>
<td>0.997</td>
<td>3.249</td>
</tr>
<tr>
<td>On site versus no GP</td>
<td>34660</td>
<td>0.012</td>
<td>0.014</td>
<td>0.350</td>
<td>4.521</td>
</tr>
</tbody>
</table>

December 2019

<table>
<thead>
<tr>
<th></th>
<th>No of attendances</th>
<th>Proportion of patients treated within 4 hours</th>
<th>Deprivation within the local population</th>
<th>Rurality of the locality</th>
<th>Capital</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Dif</td>
<td>P value</td>
<td>Dif</td>
<td>P value</td>
<td>Dif</td>
</tr>
<tr>
<td>Integrated versus parallel</td>
<td>−17005</td>
<td>0.162</td>
<td>−0.011</td>
<td>0.576</td>
<td>0.870</td>
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<tr>
<td>Integrated versus On site</td>
<td>−26161</td>
<td>0.054</td>
<td>−0.016</td>
<td>0.415</td>
<td>2.549</td>
</tr>
<tr>
<td>Integrated versus No GP</td>
<td>25085</td>
<td>0.111</td>
<td>−0.032</td>
<td>0.148</td>
<td>5.483</td>
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<tr>
<td>Parallel versus on site</td>
<td>−9156</td>
<td>0.395</td>
<td>−0.005</td>
<td>0.615</td>
<td>1.679</td>
</tr>
<tr>
<td>Parallel versus no GP</td>
<td>42090</td>
<td>0.007</td>
<td>−0.022</td>
<td>0.160</td>
<td>4.614</td>
</tr>
<tr>
<td>On site versus no GP</td>
<td>51246</td>
<td>0.002</td>
<td>−0.017</td>
<td>0.287</td>
<td>2.934</td>
</tr>
</tbody>
</table>

GP, general practitioner.

self-report and the ability of respondents to accurately categorise their service provision into the taxonomy.

CONCLUSION
The vast majority of EDs in England now have a GPED model in place. Central direction supported by capital funding may have resulted in an increase in parallel GPED models and a corresponding reduction in integrated approaches. Although it was possible to determine information about the use of GPED across time, the findings do not indicate why these models were chosen, and our analysis found no relationship between the type of model and the receipt of capital funding or other observable characteristics of the ED. Further research is required to understand the reasons for change and the relative clinical and cost effectiveness of different approaches to GPED provision.5

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Contributors JB and AE conceived the paper. Data collection was undertaken by KM, SV, HB, AC, ME and DP. All authors participated in data analysis and interpretation. JG conducted the statistical analysis. HB drafted the paper. All authors critically reviewed, revised and approved the final manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not required.

Ethics approval The study was approved by the University of Newcastle Ethics Committee (Ref: 14348/2016), Cardiff University School of Medicine Ethics Committee (ref: 17/45) and East Midlands - Leicester South NHS Research Ethics Committee (Ref: 17/EM/0312).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. All data requests should be submitted to the corresponding author for consideration. Access to anonymised data may be granted following review.

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REFERENCES
Sialolithiasis occurs following deposition of calcific concretions.1 The next theory proposes calcification which occurs within the major or minor salivary gland parenchymal or ductal system, although predominating in submandibular gland. It has been postulated that sialoliths form on the basis of calcification in submandibular gland ducts.2 Treatment of submandibular sialolithiasis depends on site and size of calculi.

As sialoliths enlarge, they may cause obstruction to the flow of saliva from the gland to the oral cavity through the duct.2 Treatment of submandibular sialolithiasis requires removal of the stone from the duct of the submandibular gland by a sialolith or calculi.3

Intraoral incision was made and stone extracted under local anaesthesia (figure 3). Patient was treated with antibiotics for 7 days. There was no recurrence noted on follow-up.4

The key feature in this case is presence of unilateral raised floor of mouth which may mimic other sinister condition such as Ludwig’s angina. The key persistent and accompanied by raised floor of mouth which may occur is from obstruction at smaller duct in the gland which is not large enough to block Wharton’s duct of the submandibular gland by a sialolith or calculi.5

Cone beam CT revealed radiopaque mass over the right submandibular gland.6 An unusual presentation of sialolithiasis is as a result of impaction in the terminal portion of Stenson’s duct of the submandibular gland by a sialolith or calculi.7

For question see page 764

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Competing interests
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