

What general practitioners require of diagnostic imaging departments: a case study.

Introduction

On January 19th 2011, the United Kingdom Government introduced the Health and Social Care Bill to Parliament. The Bill took forward the Government's White Paper "Equity and Excellence: Liberating the NHS"¹. While both the Bill and the White Paper have proved controversial, the Health and Social Care Act 2012 gained Royal Assent on March 27th 2012. One of the consequences of this legislation was that a proportion of the responsibility for the commissioning of health services in the UK passed into the hands of GP consortia. This was not the first time that such a system has been proposed. The NHS and Community Care Act in 1990 introduced a similar, although comparatively reduced GP commissioning role². The 1990 proposal saw a shift in the balance of power within the NHS; from specialists towards GPs². With the increased magnitude of the change in the 2010 White Paper, the balance of power can be assumed to shift yet further.

Such a paradigm shift is likely to have significant implications for the burgeoning field of diagnostic imaging. This field sees consistent expansion of services and rapid advances in technology. Both of these factors can have substantial financial consequences. In 2010 the Royal College of Radiologists (RCR) and the Royal College of General Practitioners (RCGP) published a joint statement³ asserting their belief that open access to imaging and certain aspects of intervention were in the best interests of patients and the NHS. In 2007, a report⁴ by Sir Derek Wanless for the King's Fund concluded that such advances contributed around 2% of the growth rate in the NHS budget and, furthermore, that this rate was likely to accelerate over the course of the next 20 years. With GP groups now set to play a key role in commissioning, it is crucial that diagnostic imaging providers develop an awareness of GPs' service requirements if they are to adequately prepare for this novel financial architecture.

Previously, there has been work undertaken to evaluate GP requirements and satisfaction with a range of services including accident and emergency^{5,6,7,8}, palliative care⁹, gastroenterology¹⁰, mental health¹¹ and an out-of-hours services¹². Methods used to obtain information were postal questionnaires or telephone interviews. Each of these methods has recognised inherent strengths and limitations. One methodological weakness, however, is common to several studies in that some researchers create and implement data collection tools based solely on themes relating to the elements of the service which they believe will matter most to the GPs. Such pieces of research run a significant risk of introducing researcher bias from the outset. Nevertheless, there have been useful topics which have emerged and may contain pointers towards areas which are genuinely relevant to GP satisfaction. Importantly, previous work on GP satisfaction⁵ made a connection between sampling opinions on a service with a view to making improvements to the service quality, noting that a 'postal survey of local GPs can give valuable information about the quality of care provided by a hospital department'.

While the literature provided a selection of clear and recurring themes related to GP satisfaction, only an Australian study by Sounness, Hughes and Winzenberg¹³ focussed on diagnostic imaging. Although parallels may be drawn between services, it was important to ensure that no themes were accepted unconditionally. To this end, our study was considered in the light of the findings by Sounness et al¹³ which addressed directly GPs' satisfaction with radiology services. Although their work comprised of a small study of 10 interviews, six key areas affecting GP satisfaction were identified. These were; access to service; promptness and reliability of service; access to training and skill levels; assistance with x-ray interpretation; equipment and challenges presented in accessing

after hours radiology. The first three of these themes were considered to be pertinent to the current study. The other three themes were discarded as they arose from the particular geographic conditions in which the study by Sounness *et al.* was carried out and which were not shared by the region where our study was undertaken.

This study was prompted by both the existence of a gap in the literature identified by Sounness *et al.*¹³ and the changes taking place within the NHS. The aim of the study was to undertake an analysis of GP service requirements from an imaging department. Accordingly the objectives were to: assess current levels of GP satisfaction with the service; identify any potential areas for improvement; make recommendations for achieving service improvements.

Method

The research was divided into two phases. Phase 1 consisted of semi-structured interviews with five trainee GPs and Phase 2 a questionnaire survey of practising GPs.

Phase 1

Semi-structured interviews were individually undertaken with five trainee GPs based on themes partly informed by the literature and from local knowledge. These were: availability and detail of radiological reports; access to images and access to training and skills. GP trainees were used at this stage of the research since this phase functioned as a pilot study to identify pertinent issues to be included within the final survey which took the form of a census of all practicing GPs within the region. It was not considered desirable to risk corrupting this final data by pre-exposing some GPs to the issues under consideration.

Invitations to participate, including a copy of the participant information sheet were sent electronically to all GP practice managers and practice mailboxes in the catchment area. Five GP trainees, two male and three female were interviewed on local trust premises. Each participant worked in a separate practice. Prior to the interviews the participants were offered an opportunity to ask any questions which they might have and were asked to sign a consent form. Following the interviews participants were asked to review and ratify all notes made.

The outcomes were subjected to thematic analysis in order to identify issues that would be investigated in Phase 2.

Phase 2

This consisted of a questionnaire sent to all 97 GPs identified as practising within the NHS primary care trust's (PCT) catchment area. The questionnaire was undertaken to test themes arising from the semi-structured interviews, and to identify areas for potential improvement. The questionnaire comprised 10 questions. Questions 1-9 were accompanied by Likert response options and free text comment boxes. Question 10 included only a free text response option and asked for any further comments.

Ethical approval for this research was sought and received from the University of Hertfordshire

References: HEPEC/08/11/98 & HEPEC/11/11/15.

Results

Phase 1 Interview responses:

The responses of the interview participants revealed areas of both satisfaction and dissatisfaction with the service which GPs were receiving. For the purpose of reporting the results, the interviewees were identified as A, B, C, D and E.

When asked what they thought about the accessibility of the service all participants responded positively, although with some caveats. Access to x-ray walk-in services was generally thought to be good, it was referred to as 'excellent', 'very good', 'straightforward' (Participant B) and 'very easy to arrange' (Participant C). However, there were some negative comments related to access to other modalities. This was illustrated by comments such as 'depends on what investigation we want done but, overall, it's good' (Participant C), Participant D commented that 'ultrasound examinations were a problem'.

When asked for their thoughts on the quality of the services offered by the department, all participants again responded positively: 'from what I've seen it's good' (Participant D), Participant B stated that: 'I've never had any doubts about the service quality'. The participants were also positive regarding the quality of the radiological reports provided by the department: 'I think the reporting is also excellent' (Participant B); 'overall the quality is quite good' (Participant D). However, participants D and E raised issues: 'sometimes they are a bare minimum: "The heart's there and so are the lungs"' (Participant D), Participant E said that 'it can be difficult when you can't actually see the image'.

In considering the timeliness with which reports were made available on requested examinations, all participants felt that the process could be faster: 'the only area where you could improve is maybe reporting a bit [sic] quicker' (Participant B), while Participant A said that delays do occur in reporting but felt this was not excessive. All participants responded positively to the concept of radiographer reporting of plain radiographic imaging of GP referred patients as a potential solution to slow reporting times.

Additionally, all participants noted that GPs had no access to reports from investigations patients were referred to from other sources. Access to these was stated to be useful: 'we don't have any access to internal reports' (Participant B), 'we never get those reports' (Participant D) and Participant E said 'the more information the better'. Participants A and C went further and stated that they would like access to images as well as reports: Participant A held the view that access to images would help with reassuring patients; Participant C said that 'we would like access to... the films, if we could!' Participants B and E also expressed a desire for access to the images later in the interview when asked whether there were any ways in which the service could be extended: 'we don't have access to images' (Participant B). Further suggestions for service extension included the expression of a desire for further training from the diagnostic imaging service: Participant C said: 'I was just wondering if we need more teaching?' as did Participant D: 'I think there might be a training issue'. When asked if they would consider the freeing up of radiologist time to enable further services by supporting radiographer reporting, all participants signified agreement.

Overall responses to all questions around the service were met with positive feedback by the interview participants however there were concerns raised at some level in a number of areas. These concern areas were utilised to build the survey for phase 2 as detailed below (for survey

questions, please see Appendix 1). Access to certain modalities was a concern raised by participants and hence the survey addressed satisfaction with access to each modality individually in questions 5, 6, 7 and 8. Concerns regarding the level of detail contained in some reports led to the inclusion of question 4. Concerns regarding the timeliness of reporting were addressed in question 3. Desires raised by the participants regarding access to training, images and reports for studies for which their patients were referred by other clinicians were followed up in questions 1, 2 and 9.

Phase 2 Survey responses

Of the 97 GPs identified, 29 responded which gave a response rate of 30%. The results of questions 1-4 and question 9 are presented below. The responses to the remaining questions are not deemed germane to the following discussion and hence are omitted here. The remaining data are available on request from the corresponding author.

I: Availability and detail of radiological reports

How satisfied are you with the detail of the radiological reports which you receive?					
Very Dissatisfied	Quite Dissatisfied	Neither Satisfied nor Dissatisfied	Quite Satisfied	Very Satisfied	N/A
0 (0.0%)	2 (6.9%)	4 (13.8%)	15 (51.7%)	8 (27.6%)	0 (0.0%)

There were 13 comments made including:

‘I have been really helped by these and some of the suggestions for the next investigation.’

‘Most reports are detailed and give us an idea of what is going on thus assisting us in our management of the patient [sic]’

‘[Local radiologist] v. reliable’

‘Very variable. Can be frustrating not to get much detail when you obviously can't see the images.’

How satisfied are you at the speed with which your request for imaging is reported?					
Very Dissatisfied	Quite Dissatisfied	Neither Satisfied nor Dissatisfied	Quite Satisfied	Very Satisfied	N/A
0 (0.0%)	2 (6.9%)	4 (13.8%)	16 (55.2%)	7 (24.1%)	0 (0.0%)

There were 11 comments including:

‘Usually very good.’

‘It has improved a lot lately’

‘Usually very good – occasional delay but always seems within target 10 days’

‘Most of the time - fine, however when there are doctoring staff shortages the delay can be bad and cause investigative problems.’

How helpful would it be for you to be able to access reports of your patients who have been referred for imaging from other sources (e.g. A&E department)?					
Very Unhelpful	Quite Unhelpful	Neither Helpful nor Unhelpful	Somewhat Helpful	Very Helpful	N/A
1 (3.4%)	0 (0.0%)	1 (3.4%)	1 (3.4%)	26 (89.7%)	0 (0.0%)

There were 8 comments including:

‘Extremely helpful to GPs and patients – we will be able to support our patients better, to explain to them better.’

‘It will reduce the risk of duplicating the same test or tell us if we should be doing another test or referring to a certain department.’

‘I am frequently chasing reports/queries/A+E notes. If the report automatically came through it would save a lot of hassle and anxiety for the patient.’

‘Again, useful if A&E report vague or patient not sure what happened in clinic etc, but usually we get this info with letters so less important than seeing our own images.’

II: Access to images

How helpful would it be to be able to access your patients' images as well as their reports?					
Very Unhelpful	Quite Unhelpful	Neither Helpful nor Unhelpful	Somewhat Helpful	Very Helpful	N/A
2 (6.9%)	0 (0.0%)	4 (13.8%)	8 (27.6%)	15 (51.7%)	0 (0.0%)

The majority said it would be very helpful have access to images, 13 made comments including:

‘I think it is an insult that we have no access to images – very deskilling – makes no sense – we are clinicians!’

‘This would be a great improvement’

‘This is helpful not only to help with interpretation of the report and clinical assessment of the patient but also to be able to show the patient the images, aiding in patient understanding and satisfaction.’

‘I would not know what I was looking at.’

III: Access to training and skills

How helpful would you find training on how to make the best use of your diagnostic imaging service?					
Very Unhelpful	Quite Unhelpful	Neither Helpful nor Unhelpful	Somewhat Helpful	Very Helpful	N/A
0 (0.0%)	2 (6.9%)	4 (13.8%)	15 (51.7%)	8 (27.6%)	0 (0.0%)

Responses: 29

8 comments including:

‘Have had some feedback is always helpful’

‘Helps in knowing the dos and don'ts of asking for certain xrays and how best to write some of the requests’

‘Useful to hear from radiologists their views on quality of GP requests and options available.’

‘Have had these talks which appear to be a moan session about how busy they are.’

Discussion

Although GPs were found to be satisfied with many areas of the existing service, such as access to the modalities, there were some issues which emerged. These can be categorised under three broad headings:

- Availability and content of radiological reports
- Access to images
- Access to training and skills

Other areas, such as access to the modalities, where there was apparent satisfaction demonstrated with the service in the survey phase will not be discussed below.

Availability and detail of radiological reports

The acceptability of the speed at which requested imaging is reported was a concern raised by GPs at interview. Two surveyed GPs indicated that they were ‘quite dissatisfied’ in this regard and of the eleven comments given regarding this question only one did not attach some form of negative caveat to their response. There were frequent mentions of delays in receiving reports on requested examinations. This delay was claimed by one respondent to cause ‘investigative problems’ and by another to lead to ‘wasted appointments or phone calls’. Despite this, these concerns were not particularly reflected by the satisfaction levels indicated by the survey responses with over 79% reporting that they were either ‘quite’ or ‘very’ satisfied with the speed of reports. It would seem that although GPs would like reports to be returned as swiftly as possible ‘ideally, within 3-5 working days’ according to one survey respondent, GPs are largely satisfied with the current speed of reports. This apparent satisfaction, however, should not preclude efforts to eliminate the variance in

reporting speed noted by several GPs in the comments section, especially given the emphasis given to speed of diagnosis in the joint statement 'Access to Imaging' from the Royal College of Radiologists (RCR) and the Royal College of General Practitioners (RCGP) published in 2010³. One way in which this issue may be addressed could be the introduction of radiographer reporting programmes which might have the potential to speed up the availability of image interpretation. This solution is one which was supported by all 5 of the GPs interviewed in Phase 1, as noted above. A further point to note when considering reporting speed is that it is not always clear that GPs are aware of when their patients have presented themselves for imaging, and may consequently be judging the speed of the reports on the time from referral to report, rather than the time from study to report. However, this study did not collect these data and this may be an interesting topic for further investigation. It was not solely the speed of the reports which the interviewed GPs highlighted as a concern; they also noted that occasionally the reports received lacked detail. Again, with more than 79% of survey respondents indicating that they were either 'quite' or 'very' satisfied with the detail of the reports, this concern does not seem, initially, to be an issue with registered GPs. However, eleven of the thirteen comments given by GPs regarding this question again contained references to levels of dissatisfaction not necessarily reflected by the Likert scale responses noted above. There were mentions in the comments of variable reporting quality, reports not answering the questions asked in the referral, and two GPs described the frustration of relying on reports which lacked detail when then they have no access to the images. This particular issue is discussed further below.

The trainee GPs also indicated at interview that they would like to have access to reports on imaging which their patient has been referred to from other sources made available to them. Surveyed GPs agreed and 93% indicated that they would find this either 'quite' or 'very' helpful. The comments indicated several reasons for this. Communication failures from A&E, a theme noted during the literature review^{5, 8, 14}, were mentioned by three survey respondents and communication of reports from other referrers such as this is considered important in order to avoid unnecessary duplication of tests, to assist in supporting their patients, and to save time chasing up A&E attendances.

Access to images

All five of the trainees interviewed raised the fact that GPs were not able to see the images resulting from their referrals. The survey results seem to confirm this GP desire for access to the images with 93% of respondents indicating that a system allowing this would be either 'somewhat' or 'very' helpful. Two of the GPs surveyed acknowledged that they no longer had the skills necessary to interpret these images for themselves and, although not explicitly stated, there was a sense that GPs want access to images in order to enhance or support the radiological reports. Although further research would be necessary to confirm this position, other comments appeared to support it: that access to images would help to reassure them if their patients' clinical presentation was at variance with the radiological findings; that being able to see the images helped to enhance both patients' understanding and reassurance as well as improving patients' satisfaction. Some GPs who had doubts regarding the levels of quality or detail of the reports also felt that access to images would help to reassure them in these regards. In contrast to the GPs who acknowledged that they no longer possessed the capability to properly interpret x-rays, one suggested that access to images would allow them to expedite treatment in simple cases.

Access to training and skills

Interview participants also identified a lack of training from the diagnostic imaging service. This was manifested by a lack of guidance on appropriateness of referrals. This sentiment was echoed by the survey respondents over 79% of whom indicated that they would find training on how to make best use of the diagnostic imaging service either 'quite' or 'very helpful'. Four of the comments associated with this question suggested that the respondent was interested in ensuring that their requests were appropriate and would appreciate feedback on the quality of their referrals.

This study highlighted issues identified in the joint statement by the Royal College of Radiologists and Royal College of General Practitioners⁴. Particular emphasis is placed on the speed with which patients can be referred for imaging and the speed at which the results of that imaging can be accessed. The joint statement⁴ notes that 'the availability in the GP consulting room of networked imaging from their radiology department would also improve communication and understanding between radiologists, general practitioners and patients' (p. 2).

Although access to services was not found to be a major concern in this study, there is evidence that GPs would appreciate an increase in the speed of reporting, or at least for the speed of reporting to be more reliable. In considering the reports themselves, GPs also made comments regarding the level of detail provided. The RCR and RCGP³ note that GPs need to feel assured that advice gained from imaging departments is 'suitably expert' (p. 2) and reassuring GPs regarding the quality of the content of the reports is pivotal in this regard. The RCR and RCGP suggest that this may be achieved through enhanced communication³.

Conclusion

There is evidence that GPs would welcome an increase in the speed of reporting, or at least for there to be consistency. GPs also require an increase in the level of detail within the reports provided.

GPs in this case study would like to receive both feedback on the appropriateness and quality of their current referrals and access to guidance to help them ensure that they maintain high quality and appropriate referrals. Furthermore, they would like access to images alongside reports. While it is not clear that GPs want to have access to images from examinations their patients have been referred to from other sources, there does seem to be a desire that the results from such examinations are made available to the GP. A generic radiology related queries e-mail was also suggested to improve lines of communication.

Recommendations

Two approaches to fulfil the service improvement requirements identified are suggested below:

The first of these is electronic communication which would support an open access radiology service. This service could contain information such as the RCR imaging referral guidelines¹⁵ (iRefer). This would serve to reduce the number of inappropriate referrals. Further, to ensure GP confidence in the reports provided to them, imaging should be available to GPs in line with the RCR and RCGP joint statement³. This availability should further encompass access to reports on all their patients' images as required. Finally, the institution of a regular multi-site electronic conference for GPs with a consultant radiologist could compliment the RCR guidance¹⁵, provide GPs with an opportunity to receive feedback, and provide a forum within which a better understanding of the requirements of GPs from radiological reports could be fostered. While it would be difficult to free up consultant time to commit to such an undertaking, the suggested approach to increasing reporting speed below may help in this regard. It is recommended that a generic radiology-related queries e-mail address

be provided to all GP surgeries and queries may be responded to daily by a duty consultant. It should be noted, however, that electronic communications cannot be considered a 'magic bullet' and consideration should be given to the difficulties the NHS has faced in implementing electronic solutions in the past as evidenced by the problems encountered by the National Programme for IT (NPfIT).

The requirement for more people reporting was mentioned by all interviewed and several surveyed GPs. It is suggested that this increase may be achieved in two ways. Firstly, by the employment of additional radiologists. Secondly, through the adoption of a radiographer reporting programme using existing radiographic staff. This author would suggest that, given the satisfaction demonstrated with the notion of plain radiographic examination radiographer reporting by GPs within this case study, the latter approach should be adopted. The assertion of this report is that institution of a radiographer reporting programme has the potential to be both realisable and cost-effective. The adoption of such a programme, widely accepted in the context of A&E trauma images, for GP-referred imaging could result in the acceleration of the reporting process, and free up consultant time to participate in the electronic communication programme recommended above. The question of the appropriateness of radiographers reporting GP referrals which differ fundamentally from A&E referrals in that currently, without GP access to images, no medically trained person would review the images would need to be the focus of further research.

This work represented a case study in an area where there is a paucity of existing research. The findings only apply to this particular case and as such they do not apply generally. While the findings will be useful to the local imaging department further research is required to confirm their applicability elsewhere. In addition further research also needs to address the appropriateness and acceptability of radiographer reporting of GP-referred images and to uncover whether the approaches suggested above would be effective in addressing the issues raised by GPs in this case study.

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Appendix 1:

Questions from phase 2 survey:

1. How helpful would it be to be able to access your patients' images as well as their reports?
2. How helpful would it be for you to be able to access reports of your patients who have been referred for imaging from other sources (e.g. the A&E department)?
3. How satisfied are you with the speed at which your request for imaging is reported?
4. How satisfied are you with the detail of the radiological reports which you receive?
5. How satisfied are you with the speed of access to plain film services (e.g. chest x-rays, knee x-rays)?
6. How satisfied are you with the speed of access to computed tomography (CT) services?
7. How satisfied are you with the speed of access to magnetic resonance imaging (MRI) services?
8. How satisfied are you with the speed of access to ultrasound services?
9. How helpful would you find training on how to make the best use of your diagnostic imaging service?
10. Do you have any further comments or issues which you feel have not been covered by this survey?