Title: Development and cohort study of an audit approach to evaluate patient management in family practice in the UK; the 7S tool.

Running title: Auditing patient management in family practice.

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Authors: Stacey J Fisher, Lawrence N Margerison, Leon Jonker

Dr Stacey Jayne Fisher, MBBS, MRCGP; Out-of-Hours GP, Cumbria Health On-Call, Carlisle, CA1 2NS, UK, e-mail Stacey.fisher@cumbria.nhs.uk

Dr Lawrence Neil Margerison, MBBS, MRCGP; Medical Director, Cumbria Health On-Call, Carlisle, CA1 2NS, UK, e-mail neilmargerison@choc.org.uk

Dr Leon Jonker, PhD; Science & Innovation Manager, Cumbria Partnership NHS Foundation Trust, Carlisle, CA1 3SX, UK, e-mail leon.jonker@cumbria.nhs.uk [ORCID number 0000-0001-5867-4663]

Author for correspondence: Dr S J Fisher, MBBS, MRCGP; Out-of-Hours GP, Cumbria Health On-Call, Carlisle, CA1 2NS, UK, Tel 0176824 5975, e-mail Stacey.fisher@cumbria.nhs.uk

Key messages

- There is an ever-increasing pressure on general practitioners' time.

- Patient care should be consistent, appropriate and timely.

- The '7S' audit tool was developed to measure appropriateness of practice.

- In the test practice, circa one-third of consultations were inappropriate.

- Chronic disease cases carried a higher risk of being managed inappropriately.

- The '7S' tool pinpoints which patients can be managed more efficiently.

Abstract

Background

In the UK there is increased pressure on general practitioners' time due to an increase in (elderly) population and a shortage of general practitioners. This means that time has to be used efficiently, whilst optimising adherence to consistent, appropriate and timely provision of care.

Objective(s)

Create an audit tool that assists general practitioners and family practice staff to evaluate if patients are managed as effectively as possible, and to test the usefulness of this tool in a family practice.

Methods

The '7S' audit tool has seven outcome elements; these broadly stand for what the actual and desired patient contact outcome was, or should have been. Terms include 'surgery', 'speak' and 'specific other' for an appointment at the practice, by telephone or with a dedicated specialist such as a practice nurse or phlebotomist, respectively.

Results

A very small, rural, general practice in the UK was audited using the 7S tool. Five hundred patient contacts were reviewed by an independent general practitioner and the decision made if the mode of contact was appropriate or not for each case; in one of three cases, the choice of care provision was inappropriate and chronic disease cases contributed most to this. General practitioners instigated the majority of poor patient management choices, and chronic disease patients were frequently seen in suboptimal settings.

Conclusion

Inefficiencies in the management of patients in family practice can be identified with the 7S audit tool, thereby producing evidence for staff education and service reconfiguration.

Background

The demands on General Practitioners (GPs) and family practices is increasing year-on-year. In the UK, research from the King's Fund shows that between 2010/11 and 2014/15, the number of consultations grew by 15% whereas the funding for primary care fell by circa half a percent to 7.9%.[1] At the same time, partly due to increased non-clinical workload affecting time spent performing patient-centred care and relative lower wages compared to those earned in other specialties in some countries, GPs are leaving their profession early or are not choosing to enter the profession.[2,3] When one considers that job stress contributes to a reduction in performance in primary care, it is crucial to optimise capacity and correct allocation of different patient requests.[4] Telephone triage is one method by which capacity has been increased without increasing costs.[5] The use of different healthcare professionals in addition to GPs, such as physician associates and nurse practitioners, may be beneficial too, albeit that discordance exists between professions whether variation in practice limits overall success.[6]

Although the quality of a consultation in primary care can play a positive role in patients' health outcomes[7], first and foremost patients need to be seen in the right place, at the right time and by the right person. As Bodenheimer and colleagues[8] have outlined, efficient primary care is based on four pillars of efficiency: engaged leadership, data driven improvement, empanelment (timely allocation of patients to relevant staff and place), and team-based care. In 2015, NHS England commissioned the Primary Care Foundation and NHS Alliance to develop an audit tool to measure if a patient consultation could be avoidable.[8,9] The tool focuses on a broad spectrum of family practice: demands on GP practices from other organisations, options on how a patient could be managed or asked to self-manage, and the identification of gaps in processes and health and social care management. In parallel, an initiative developed by another NHS organisation, NHS Improvement, concerns a triage / audit tool called 6A aids clinicians in deciding where an emergency admission patient should be treated next.[11]

The objectives of this current study were to, in a similar vein to the 6A tool approach, a) develop an audit tool that allows GPs and other staff within family practices to be informed about how appropriate the chosen mode of patient contact is, and b) to test said audit tool on a cohort of patients from one GP practice, to support performance based on one of the aforementioned four pillars of efficiency, empanelment.

Methods

In order to assess the appropriateness of a family practice patient encounter, the 7S audit tool was developed. The rationale was to develop a tool that allowed the identification of trends in terms of consultation inappropriateness, particularly from a point of where the patient should be seen and by what type of staff member. As in emergency care, the main different available scenarios for how patients could be managed and by whom were considered and included as an option.

Table 1 shows which seven 'S' options were created for managing a patient in a family practice. In terms of auditing patient cases, telephone consultations, encounters with nurses and other allied health professionals as well as regular just face-to-face consultations in the practice itself were included. Each case was categorised regarding what actually happened and what would have been the ideal category for the case – meaning a case could be appropriate ('S' options of what happened and should have happened matched) or inappropriate (if what actually happened, i.e. one 'S' option, did not match with what should have happened, i.e. a different 'S' option).

The 7S tool was tested in a very small 750-patient rural family practice in the UK. To allow for a consistent and objective approach to the audit, one GP who does not work in the family practice conducted the audit. Appropriate contracts were in place to allow this setup; the auditor obtained a honorary contract to operate in the GP practice and the Caldicott principles to minimise the use of personal confidential data were applied.[12] For the population in question, an audit sample – or cohort - of 255 would achieve a confidence interval of 95% and margin of error of 5%. However, 500 cases were audited to ensure that sufficient different cases (different disease areas and types of

consultations) were included and stratified analysis could be undertaken. To take into account any seasonal variation and minimise bias, consultations from 12 consecutive months were analysed (July 2016 – June 2017). Furthermore, a sequential approach to sampling two consultations per day was taken; each next day, the next two time slots were audited. This was to ensure a mixture of book before the day, book on the day (emergency) and telephone appointments were included; in other words, there were no defined inclusion or exclusion criteria in terms of evaluated consultations. Furthermore, in this small practice, three GPs run the practice by one GP covering one or two days per week. Therefore, and because on Tuesdays, Wednesdays and Thursdays the practice is not open for appointments in the afternoon, it was essential not to audit only one certain day of the week. Due to the very small numbers involved, home visits not included in the audit and therefore that kind of consultation was an exclusion criterion. General demographic information was collected including sex, age and postcode. Furthermore, a diagnostic/subject code (meaning the sole or dominant disease specialty subject of a consultation) was applied and also whether the consultation was for a new problem, the second or third visit of a new problem (i.e. an extension of a new presentation), a chronic problem or a medication related problem. Finally, the person making the appointment was also recorded – i.e. the patient or the GP. The evidence base source for judging on the optimal or recommended patient management choice for each case audited was based on national guidelines where possible, such as NICE guidelines. Only information related to each case that was recorded in the electronic patient management system (EMIS) was utilised as a data source for auditing. Data was extracted from EMIS Web and analysed using Microsoft Excel. Statistical tests were conducted using SPSS v20.

Results

The patient demographics for the cases audited was as follows: the mean patient age was 56 years, range 1 – 93, and 246 male (49%) and 254 female (51%) cases were audited. In the sample of 500

cases, test results were the most common (n = 46, closely followed by musculoskeletal problems (n = 45), dermatology (n=43) and gastrointestinal issues (n= 41). This is representative of what patients visit GPs for in most family practices.[13,14] Table 2 summarises the overall degree of appropriate consultations and the levels when consultations are stratified by type of issue (from new presentation to chronic issue). Unlike for new presentations, for more long-standing issues the degree of appropriateness slipped. When the inappropriate patient contacts are interpreted further, as shown in Figure 1, it transpires that the majority of these patients could have been seen by a nurse, pharmacist or other allied healthcare professional rather than by a GP. When only chronic disease cases are taken into account, this already translates into a potential reduction of 17% in GP consultations (87 out of 500 patient contacts).

In Table 3 the audit cases are stratified by type of issue. Acute cases are managed highly appropriately, whereas - as for type of presentation in Table 2 – the degree of inappropriateness increases as issues become more chronic or are more likely to be related. The degree of appropriateness was also measured for each day of the week and there was a significant difference in degree of appropriateness of cases: Monday 65% appropriate, Tuesday 56%, Wednesday 76%, Thursday 72%, and Friday 72% (p-value 0.02, Chi-squared test). There was no statistical difference in distribution of appropriate cases between mornings and afternoons (68% versus 70% respectively, p-value 0.76, Chi-squared test). The audit also covered information on who instigated the family practice appointment, the GP or the patient. In 51 out of 148 cases where the GP requested the appointment, this was the appropriate decision (40%); patients significantly more often requested an appropriate type of consultation, with 290 out of 352 cases being appropriate (85%; p-value <0.001, Chi-squared test).

Discussion

The study objective was to introduce a straightforward audit tool that can identify inefficiencies in the management of patients in family practice; in other words, are patients seen, if indicated, by the right member of staff and in the correct setting? The core outcome measure applied in this audit is the appropriateness of consultations; at face value,– the rate of inappropriate consultations was nearly one-third of all consultations (Table 2). However, there is a caveat that is worth taking into account when appraising all the results: there may have been instances where it would not have been appropriate for a GP to manage a patient in a certain manner, but the optimal alternative may not have been available. Particularly in a smaller family practice, an example would be where a phlebotomist and/or practice nurse is only available for part of the day. This then effectively forces the GP to e.g. conduct phlebotomy or undertake an annual health check on a patient if the patient's appointment falls outside the hours worked by the support staff. Since this concerns a very small practice, it is worth noting that in the past these types of practices have underperformed compared to larger practices even though they were deemed to provide better accessibility of care by patients.[15] Nonetheless, the findings in this audit highlight that the current setup in terms of staffing in the family practice in question is likely sub-optimal. In comparison, results from 2015 for the Primary Care Foundation/NHS Alliance audit showed that 27% of patient contacts were avoidable[10]; in a follow-up report in 2018 the figure was circa 20%.[16] In 2015, the results were based on 5,128 appointments involving 56 GPs.[10] The Primary Care Foundation/NHS Alliance audit tool also recorded cases as avoidable when it concerned requests from outside agencies, including sick notes, social benefit-related requests and referrals from hospital-based staff, the main predominant contributor to the number of avoidable patient contacts – 16% of all GP appointments - concerned situations where a different member of staff within the family practice could have dealt with the patient issue. This would suggest that the 7S tool homes in on the greatest source of patient consultation inefficiencies.

The 7S tool, which looks at contact/consultation appropriateness, differs slightly from the primary care audit tool developed by Primary Care Foundation and NHS Alliance since their focus is on

whether a patient contact is <u>avoidable</u>. They also include a small section on empanelment, but the four options included there are 'Could have been directed to others in practice', 'Could have been directed to other services', 'Patient could self-care without clinical advice', 'Patient could have gone to Pharmacy', where our 7S tool focuses on the setting of a consultation such as telephone or face-to-face consultation.

One significant finding is that management of patients is not consistent across the days of the week; different GPs manage the practice on different set days of the week. On the other hand, there is no difference in management of patients between mornings and afternoons. This may indicate that a standardized or protocol-driven approach to patient management is lacking or not adhered to by all members of staff; an important aspect, since adherence to clinical guidelines by healthcare professionals has been shown to significantly improve the process and structure of care, in addition to health outcomes.[17] GPs made more inappropriate consultations than patients. The use of the 7S tool has not only helped to identify that a large proportion of consultations are inappropriate, it has also shown in which situations this is the most prevalent. In the case of the family practice audited here, improvements can potentially be made to the management of chronic disease patients; in the sample, these were ~~are~~ often seen by GPs when this was not necessarily indicated. At specialty level the audit data could identify that endocrine and cardiovascular disease were not managed optimally. Conversely, the 7S tool-based audit suggests that management of acute medical problems are conducted appropriately when setting and involved personnel are considered.

There are a number of limitations to consider, both in terms of the 7S tool itself and the results of the case audit. Related to the latter, although an effort was made to sample patient consultations as randomly as possible, there is still a risk of bias when not all cases in a given year are audited. Using one auditor may increase consistency but may also mean that any bias may be attenuated in the audit results. Related to this, the audit was not repeated with a different auditor or in a different family practice to determine the validity and transferability of the tool. Incidentally, for neither the

6A emergency care audit tool nor the Primary Care Foundation/NHS Alliance audit tool could any evidence of validation be found in the available literature.

~~Furthermore,~~ The actual quality of clinical care is not audited explicitly with the 7S tool, since the focus is on appropriate access to care. To incorporate quality assessment, the 7S tool could therefore be supplemented with specific clinical audits, such as with tools developed by the Royal College of General Practitioners or the National Institute for Health and Care Excellence.[18], or by using audit packages from patient administration systems. An example would be the diagnosis and management of inflammatory bowel disease.[19] The RCGP audit tool should monitor if a faecal calprotectin is indicated; the 7S tool can help to monitor if a phlebotomist rather than a GP took the blood sample. Some of these may or may not be less time-consuming than the 7S tool, since for the latter each case needs to be interrogated manually, and a decision should be taken at a local level whether the focus of an audit should be on capacity, care quality or both.

Conclusions

The 7S tool may offer a method for family practices to determine the appropriateness of patient contacts, and potentially identify gaps in patient management or opportunities to reconfigure processes or staff capacity within the practice; effectively becoming more productive through data-driven improvement in line with recommendations.[8] In the cohort covered in this study, use of the 7S audit tool facilitated the identification of various elements of inefficiency. The baseline data can be used in future to benchmark against once the targeted process and staff reconfiguration of the family practice is re-evaluated. Further validation and evaluation of the 7S tool in different GP practices of different sizes and settings (urban, rural) would be required to determine if the tool can serve a purpose in any GP practice.

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Table 1, Description of each outcome item for 7S tool for patient management auditing in Primary Care.

'S' item	Description
SURGERY	Surgery base appointment with a GP ~~was indicated~~
SPEAK	Telephone appointment with a GP ~~was indicated~~
SPECIFIC OTHER	~~When c~~Consultation by a different health care professional ~~was~~ould have ~~been more appropriate~~ – e.g. practice nurse, chronic disease nurse, phlebotomist, health care assistant, pharmacist, dentist
SECRETARY	~~When the~~ Secretary or receptionist or another member of the administrative team could ~~have~~ dealt with issue in question
SEEK	~~When it would have been more appropriate to~~ Recommend for the patient to seek healthcare (e.g. the patient was specifically instructed to contact the surgery in 2 days for the result of a blood test).
STOP	When no further action was required (e.g. the appropriate safety netting had been given and the patient had been generally advised how and when to seek help if symptoms progressed or did not improve)
STAY AT HOME	When a home visit by a GP would be indicated ~~have been more appropriate and indicated~~

Table 2, Type of presentation and consultation appropriateness in case GP practice, when assessed

with 7S tool

Type of consultation	Appropriate % (n)	Inappropriate (%)
Total number of consultations (n = 500)	68% (341)	32% (159)
New problem	94% (212)	6% (14)
2nd or 3rd Visit for a new problem	66% (81)	34% (42)
Chronic Problem	30% (38)	70% (87)
Medication related problem	45% (10)	55% (12)
Data distribution for types of problems: p-value < 0.001, Chi-squared test		

Table 3, Type of issue or specialty with ten or more cases audited, and its 7S-determined

consultation appropriateness in case GP practice

Issue/Specialty (n)	% Appropriate cases
acute dermatology (12)	100%
acute gastroenterology (10)	100%
acute infection (14)	100%
acute musculoskeletal (10)	100%
acute respiratory (18)	100%
mental health (13)	100%
respiratory (25)	96%
gastrointestinal (41)	95%
genitourinary (13)	92%
musculoskeletal (45)	91%
dermatology (43)	84%
obs&gynae (16)	81%
neurology (11)	72%
ENT (21)	71%
endocrine (13)	46%
medication (22)	27%
test results (46)	24%
hypertension (27)	7%
diabetes (10)	0%
phlebotomy (12)	0%

Figure 1, Optimal alternative management options for patients who presented multiple times with same issue, based on 7S audit assessment.

Caption: Recommended 7S management options for chronic disease ~~, multiple visits for same issue,~~ patients instead of suboptimal type of management that they did receive (n = 87). The actual management option that the patients received was either 'surgery' (GP appointment in the practice, for 79% of inappropriate chronic disease cases) or 'speak' (telephone appointment with GP, in 21% of these cases). See Table 1 for description of 7S elements. CD = chronic disease; HP = healthcare professional.