Full Length Research Paper

Quality of general practitioner referral letters to a South African tertiary hospital: Determinants of quality content and good practice

Mabuza Langalibalele[1]*, Maduna Patrick M. H[2], Mhlongo Samuel W. P[1], Ndimande John V[1] and Longo-Mbenza Benjamin[3]

[1]Department of Family Medicine and Primary Health Care, University of Limpopo (Medunsa Campus), South Africa.
[2]Gauteng Department of Health, South Africa.
[3]Faculty of Health Sciences, Walter Sisulu University, Mthatha, South Africa.

The aim of this paper is to describe the essential elements of information, to assess the quality of content, to audit the referral practice and to identify the determinants of both good referral and practice from the general practitioners' referral letters received at a tertiary hospital. A cross-sectional descriptive and evaluative study was conducted at the Outpatient Department of the Dr. George Mukhari Hospital in Pretoria. A sample of 303 general practitioner (GP) referral letters was collected from 25 May to 25 June 2004. Univariate (chi-square test) and multivariate (logistic regression model) identified potential and independent determinants of Good referral and Good practice, respectively. The reason for the referral was reflected in 267 (88%) of the letters. 186 (61.3%) of the referral letters were entirely legible. Proportions of optimal referral letter and good practice were 24.9 (n=77) and 6.5% (n=20), respectively. Presence of past medical history (OR=4.2 95% CI 1.9 – 9.2; P<0.001), systemic examination (OR=13 95% CI 5.8-29.2; P<0.0001), involved system (OR=7 95% CI 3.2- 15.3; P<0.0001) and differential diagnosis (OR=11.7 95% CI 3.6 – 38.5; P<0.001) were the independent determinants of Good referral. Systemic examination (OR=4.8 95% CI 1.9 – 12.3; P<0.001) and side-room tests (OR=4.1 95% CI 1.2 – 14.6; P= 0.008) were the independent determinants of Good practice. There is an urgent need for improvement in the deficient areas to optimise patient care in Pretoria Region.

Key words: General practitioners. Dr George Mukhari Hospital, referral letters, quality, legibility.

INTRODUCTION

In the Western world, the use of referral letters by general practitioners (GPs) dates back to the late 19th Century (Loudon, 2008). The GP serves as the health care gate-keeper in any given society (McWhinney, 1997). In health care management, often, a patient's condition necessitates referral to a better resourced health care institution for further management. Under these circumstances,

these circumstances, communication with the receiving institution becomes imperative. The method commonly used for such communication is the referral letter (Loudon, 2008).

GPs on the one hand usually raise concern that hospital-based specialists do not give feedback on patients referred to the hospital, while on the other, the specialists complain about the poor quality of referral letters they receive from the GPs. This communication problem has a negative effect on patient care (Dickinson, 1998). It has long been observed that poor outpatient referral communication is an important quality and safety

---
*Corresponding author. E-mail: honey@nst.dorea.co.za. Tel: +27 12 521 4528, +27 83 325 0580.

issue, hence improving communication leads to improved clinical quality and patient care experiences. In some centres, the process has been improved by using electronic referral systems (Gandhi, 2000).

Ideally, all referred patients presenting to hospital with a referral letter should return to the referring health care worker with a hospital report (Lachman, 1991). A study conducted in KwaZulu-Natal, South Africa (Couper and Henbest, 1996), investigated the effect of a pro forma letter in enhancing referral letters. It was discovered that the quality of referral letters improved after the intro-duction of the pro forma letter, but the quality of replies from the hospital-based doctors did not. An enquiry into the reasons given by hospital doctors for not replying to referral letters revealed that the problem centred on the hospital doctors' perception that it was futile to reply to the referral letters. Again, a pro forma letter was recommended to improve the reply rate from the hospital doctors (Smith and Khutoane, 2009). Therefore, in terms of continuity of patient care, the quality of referral letters presents a challenge to both the referring and recipient health care workers.

The Dr. George Mukhari Hospital (DGMH) with 1700 beds is a tertiary hospital of Pretoria Region (Gauteng Province), South Africa. It is a referral centre for about 160 GPs. At the time of the study, the multidisciplinary hospital received an average of 600 outpatients per day, mainly from the peri-urban areas. About 75% (450) of the patients came with referral letters, and the rest were self-referred. About 89% (400) of the referral letters were from the neighbouring clinic nursing sisters and other health care sciences professionals. The balance of about 50 referral letters came specifically from GPs (DGMH outpatient register, 2004). Therefore, on average, the total number of referral letters per month received from the GPs at the hospital was 1500. A patient with a referral letter was triaged to the relevant department by the Family Medicine Department. Patients coming to the hospital were expected to pay a consultation fee deter-mined by their income bracket. According to Berta et al. (2008), a comprehensive referral letter should contain essential basic variables. To our knowledge, there was no document that served as a South African guideline on variables of a referral letter, at the time of the study.

In the South African situation, a GP (unlike a family physician who has undergone vocational training in Family Medicine) is the medical doctor who has not undergone any vocational training after graduating at a medical school. Since a sub-optimal referral letter can be a source of poor continuity of care (delayed diagnosis, polymedication, multidrug resistance, high litigation risk, unnecessary testing and extra-medical costs), this study aimed at describing the essential elements of information, quality of optimal content, audit of good practice, identification of the determinants of good referral and practice from the general practitioners' referral letters received at a tertiary hospital.

METHODS

A cross-sectional descriptive study was conducted, using a struc-tured data collection instrument. The setting was the Outpatient Department of the Dr. George Mukhari Hospital in Pretoria Region (Gauteng Province), South Africa. The study population comprised of all the GP referral letters received at the Outpatient reception of the Dr. George Mukhari Hospital during the period from 25th May, to 25th June, 2004. The total number of referral letters received was 1500. Ethical approval for the study was granted by the then Research, Ethics and Publications Committee (REPC) of the Medical University of Southern Africa (MEDUNSA) (now the Medunsa Research Ethics Committee (MREC) of the University of Limpopo (Medunsa Campus) in Pretoria, South Africa.

At 95% confidence level, the sample size computed was 306 referral letters. The sample was randomly selected by means of the Table of Random Numbers, so that each referral letter had an equal chance of being included in the study. Each referral letter was photocopied on site by the receiving clerk then handed back to the patient to proceed to the referral destination. Physically damaged referral letters for whatever reason (for example, with torn sections resulting in information loss), referral letters of emergency patients (for example, patients in acute asthmatic attack), and referral letters from non-GP healthcare professionals (for example, specialists, nurses, physiotherapists, etc.) were excluded from the study.

The content of the referral letters was assessed according to the specified variables in the structured data collection instrument: practice letterheads, date of referral, referral discipline, patient demographic details, history, examination, special investigations, assessment, management offered at the general practitioner's surgery, and legibility of the referral letters. Each referral letter was independently evaluated by each of the four investigators and scored on legibility and the final result was reached by consensus. Given that a referral letter, as a communication medium should be legible in its entirety, a referral letter was regarded as not entirely legible if it contained a word that could not be read by any of the four investigators, rendering the phrase or sentence in which it was contained meaningless.

The quality of each referral letter was based on the extent to which each variable was addressed in a referral letter. Good versus bad referral letter and clinical practice were defined in, including the statement of the problem, explicit purpose of the referral, current medication, socio-psychological factors, follow-up plan, and reason for referral. Data from each referral letter were entered in the structured data collection instrument. In accordance with systematic review of experts (Schouten, 2008), the quality of each referral letter was based on the scale 0 to 1 (mark 0 for absence and mark 1 for presence) and the sum of marks to which each essential variable was addressed. Optimal and good referral letter was defined by a score >75th percentile of total of marks for 29 compo-nents enabling improved communication between general practi-tioners and specialists. Good practice was defined by a score >50th percentile of a total of marks of 3 components enabling decision-making at primary care level.

Statistical analysis

The Microsoft Excel computer programme was used to organize the database. Univariate (chi-square test) and multivariate (logistic

Table 1. Details of practitioners, destination department and patients associated with good referral letter.

Variable of interest	Good referral n (%)	Bad referral n (%)	P
Qualifications	77 (100)	218 (94)	0.0027
Postal address	77 (100)	216 (93.1)	0.018
Destination department	57 (74)	116 (50)	< 0.0001
DOB (age)	43 (55.8)	63 (27.2)	< 0.009
Contact details	8 (10.4)	7 (3)	< 0.009
Presenting complaints	77 (100)	171 (73.7)	< 0.001
Past medical history	42 (54.5)	43 (18.5)	< 0.0001
Family history	3 (3.9)	0 (0)	0.003

regression model) identified potential and independent determinants of good referral and good practice, respectively. Odds ratios (OR) and their 95% confidence intervals (CI) were calculated to determine any association between dependent variables (Good referral letter and Good practice, was used for all statistical analyses) and potential (univariate analysis) or independent (multivariate analysis) determinants. A p-value < 0.05 was considered statistically significant. The Statistical Package for Social Sciences (SPSS Inc, Chicago, IL, USA) for Windows Version 13.0 was used for all statistical analyses.

RESULTS

Out of 306 eligible letters, 303 (99%) were systematically assessed in this study (three referral letters were excluded since their content was too illegible for entry into the data collection instrument). The doctors' demographic details were represented in 293 (96.8%) of the referral letters: each GP's practice name, qualifications, practice number, postal and physical addresses, and telephone numbers were reflected in over 94% of cases. However, only 50 (16.5%) of the referral letters reflected an e-mail address.

The name of the patient featured in almost every referral letter (98%, n=297). Although almost every patient had their names reflected on the referral letter, one in three had their ages reflected, with one in ten bearing the patient's contact details. 243 (80%) of the referral letters indicated the patient's main complaint. A quarter of the referral letters reflected the patient's past medical history. The family history, social factors (smoking, alcohol use and hobbies) and history of allergies were reflected in less than 2% of the referral letters. Eight out of ten of the referral letters bore the date on which the referral letter was written. Slightly more than half (55%, n= 167) of the referral letters indicated the recipient department to which the patient was being referred.

Side-room tests were recorded in 25 (8.3%) of the letters, while special investigations (including laboratory investigations and imaging reports) appeared in less than

4% (average) of the letters. The working diagnosis appeared in 212 (70%) of the letters, whereas only 24 (8%) indicated a differential diagnosis. Pre-referral treatment (pharmacological and non-pharmacological) appeared in 19 (6.3%) and 10 (3.3%) of the referral letters, respectively. Almost nine out of ten of the referral letters stated the reason for the referral. About 40% of the referral letters were not entirely legible. However, since handwritten referral letters formed 71% (282), while the typed constituted the remaining 29% (21), excluding the typed referral letters, the percentage of the entirely legible referral letters was 65% (186/282).

Proportions of Optimal referral letter and Good practice were 24.9 (n=77) and 6.5% (n=20), respectively. Tables 1 and 2 present the potential determinants of Good referral letter. Presence of past medical history determinants of Good referral letter (OR=4.2 95% CI 1.9 – 9.2; P<0.0001), systemic examination (OR=13 95% CI 5.8-29.2; P<0.0001), involved system (OR=7 95% CI 3.2-15.3; P<0.0001) and differential diagnosis (OR =11.7 95% CI 3.6 – 38.5; P<0.001) were the independent determinants of Good referral (Table 3). In Tables 4 and 5, variables in the referral letters are depicted in terms of good and bad medical practice, and statistical significance is demonstrated in each case (p < 0.05).

DISCUSSION

Our study demonstrated that while referral letters form an important link between the GPs and the hospital, there is generally lack of essential information required for continuity of care. The high representivity of the GPs demographic data (97%) can be ascribed to the fact that almost all referral letters came with printed letterheads bearing the GP's details. However, at the time of the study, only a fifth (17%) of the referral letters reflected an e-mail address. Globally, in recent years, electronic communication has become the quickest and the most

Table 2. Content associated with good referral letter good referral letter.

Variable of interest	Good referral n (%)	Bad referral n (%)	P
Vital signs	41 (53.2)	25 (10.8)	<0.001
Systematic examination	49 (63.6)	19 (8.2)	<0.0001
Involved system	53 (68.8)	33 (14.5)	< 0.001
Side-room tests	9 (11.7)	10 (4.3)	0.020
Diagnosis	67 (87)	146 (62.9)	< 0.0001
Differential diagnosis	20 (26)	7 (3)	< 0.0001
Legibility	57 (74)	146 (62.9)	0.049

Table 3. Independent and Significant determinants of good referral letter.

Independent variable	Coefficient beta	Standard error	OR (95% CI)	P value
Past medical history	1.439	0.398	4.2 (1.9– 9.2)	<0.001
Systematic examination	2.563	0.414	13 (5.8 29.2)	<0.0001
Involved system	1.943	0.399	7 (3.2 – 15.3)	<0.0001
Differential diagnosis	2.459	0.608	7 (3.2 – 15.3)	<0.001
Constant	- 3.420	0.363	11.7 (3.6– 38.5)	<0.001

Table 4. Content associated with good clinical practice.

Variables of interest	Good practice of medicine n (%)	Bad practice of medicine n (%)	P
Contact details	3 (15)	12 (4.2)	0.029
Systematic examination	11 (55)	57 (19.7)	< 0.001
Involved system	10 (50)	76 (26.7)	0.025
Side-room tests	4 (20)	15 (5.2)	0.008
Differential diagnosis	12 (63.2)	15 (5.2)	< 0.001
Non-pharmacological treatment	2 (10)	0 (0)	< 0.0001
Legibility	19 (95)	184 (63.7)	0.004

Table 5. Independent and significant determinants of good practice of medicine.

Independent variable	Coefficient beta	Standard error	OR (95% CI)	P value
System examination	1.571	0.480	4.8(1.9 – 12.3)	<0.001
Side-room tests	1.409	0.649	4.1 (1.2 – 14.6)	0.030
Constant	- 3.3.80	0.358		<0.0001

convenient way of communication. The authors are of the opinion that the low percentage of electronic addresses on the GPs' referral letters was as a result of the existence of referral letters (as backlog) that had been produced in bulk before the GPs received electronic connection. Over the years, the Pretoria region has since been well connected electronically. Unlike the study by Jenkins, our study did not evaluate the appropriateness of the referral letters in terms of whether there was actually a clear indication for the referral (Jenkins, 1993). We focused on the content and the determinants of quality of the letters once the decision had been taken by the GP to write the referral letter.

On the information relating to the patient's demographic

details, virtually every referral letter contained the patient's name and surname. Nevertheless, the remaining 2% is still a cause for concern because on a referral letter, there should be the link between the patient's identity and the ensuing details.

The date and time of a referral letter is a useful indicator of the time duration from the referring to the receiving colleague, enabling proper monitoring of the patient's clinical condition. Failure to reflect the date on which the referral was written could make it difficult for the receiving colleague to monitor the patient's condition at the time the referral letter was written (Berwick and Winickoff, 1996). In our study, almost one out of every five (16%) of the referral letters did not indicate the date the referral letter was written.

There was paucity of information on the referral destination department. This is an indication of the reality of the undifferentiated nature of the patients the GP is mostly faced with. In such cases, the best the referring GP can do is to offer a working assessment, even if it consists of symptoms or signs only, e.g. 'headache for investigation'. Guided by the working assessment the referring GP is able to channel a patient to a particular destination department. This is useful information for the receiving colleague since it guides him/her as to the idea of the referring colleague. This working assessment, based on history, examination and appropriate investigations, informs triaging, underscoring its importance on a referral letter, as confirmed by the study by Graydon and Thomson (2008).

In our study, the lack of information regarding patients' current medication (7.6%) and allergies (0.7%) could compromise patient care. Patients may not know details of management given to them prior the referral. They rely on the referring doctor to record it for the receiving doctor at the hospital. Lack of records in this regard could lead to a patient receiving an over-dosage as a result of re-medication at the receiving healthcare institution, or even being exposed to a fatal allergic reaction. This record of past medical history includes medication that the referring GP may have tried without success in the management of a patient's condition. Unless the receiving colleague is informed she may need to "re-invent the wheel" through trial and error, incurring cost and losing time. In this regard, quality improvement collaboratives have been found to be cost-effective in the provision of health care (Schouten et al., 2008).

Since every patient needs physical examination (vital signs, systemic examination and the main system involved) which forms the vital part of patient consultation, it is noteworthy that it was reflected in about 70% of the patient referral letters. A referral letter without physical examination deprives the recipient colleague of the patient's prior-referral clinical picture.

Our finding of 267 (88%) of referral letters stating the reason for the referral was slightly lower than that found by Leonard. whose focus was on general practitioners' referral letters to hospital psychiatrists. The latter found that almost 100% of the referral letters stated the reason for referral, although 20% were lacking in precision. Stating the purpose of the referral creates an expectation on the referring colleague, for example, "I have put the patient on the maximum dose of the anti-hypertensive therapy, but the blood pressure remains uncontrolled. Kindly advise on further management". Although there is evidence that better referral letters by GPs only partly result in better reply letters from hospital specialists, a challenge is extended to the receiving colleague to respond when sending back the patient (Grol et al., 2003).

Our finding of 38.7% illegibility rate was almost ten times higher than the 4% of Winslow et al. (1997) in their study of legibility and completeness of physicians' hand-written medication orders. The possible explanation was that the latter had a category of "legible with difficulty", accounting for 16% of the analyzed letters which we did not have. In our study, a referral letter was regarded not entirely legible if it contained an illegible word rendering meaningless the phrase or sentence in which it is contained. On the other hand, Berwick and Winickoff (1996) found that doctors have handwriting no worse than that of a comparison group of other healthcare personnel, and much better than that of healthcare executives (Harris, 2002). We think that the high illegibility rate in our study was due to our stringent definition of legibility. The photocopy machine produced reasonably good quality copies, which minimized the bias it could have introduced had the quality been poor, hence contributing to the illegibility.

Except for the GP's demographic details which were fairly uniform, the referral letters varied in the style the content of each was presented. Lack of structure in a referral letter has been identified by Jawal, et al as a contributing factor to deficient information (Rawal et al., 1993). Structure, as in a pro-forma letter, forces the writer to attend to all identified and listed items (even if the report is "nil to report on"). Interestingly, in quoted study, when GPs were interviewed on their preference of structured versus unstructured letters from hospital specialists, they preferred a structured letter containing a clear problem list and a clear list of management proposal (Newton et al., 1992). Given this preference by the GPs, and their (the GPs') recommendation of a structured pro forma letter, it would not be unreasonable to infer that the GPs themselves would prefer to produce a structured referral letter in reciprocation.

While it has been shown that it is difficult for GPs (and specialists) to agree on the contents of a standard format referral letter, an "optimum" rather than an "ideal" standard can be reached (Newton et al., 1992). In a study on the correlation between the quality of GPs referral letters

letters and the reply they elicited from specialists in a hospital, it was found that the correlation was weak (Newton et al., 1992). Therefore, sufficient information in a referral letter from a GP did not necessarily mean that the reply would be equally sufficient on clinical issues raised in the GP's referral letter. This was confirmed by a study conducted in KwaZulu-Natal by Couper and Henbest. Our study also confirmed insufficient information, particularly on patient's history (family, social and allergy) and the medication the patient was currently taking. To this end, the GPs awareness needs to be accordingly raised.

Transferring patient information accurately on the referral letter is essential for high quality of care. Inadequate information in a referral letter may affect continuity of care. Improving the content quality of referral letters offers the opportunity to improve information continuity, conservation of resource (by eliminating service duplication), and prevents the communication and coordination problems between the referring GPs and the hospital practitioners (Berta et al., 2008). This calls for communication between the GPs and hospital practitioners with regard to referral systems so as to improve continuity of patient care. The GPs may also need to give feedback on the hospital doctors' response letters. Kripalani et al., in their study of deficits in communication and information transfer between hospital-based and primary care physicians demonstrated the outcome disparities associated with poor quality referral letters. In their study the quality of patient care was affected in approximately 25% of follow-up visits - contributing to primary care physician dissatisfaction (Kripalani et al., 2007).

CLINICAL IMPLICATIONS

The present study will help to develop guidelines of communication between GP and specialists within Pretoria Region. The presence of past medical history, systemic examination, involved system and differential diagnosis has higher probability to be associated with a Good referral letter. A referral letter containing both systemic examination and side-room tests suggests that the referral Agent is probably characterized by Good Practice.

The Department of Health should provide modern infrastructures and technologies such as internet and laboratories.

Conclusion

Assessed according to specified variables, GP referral letters received at the DGMH contain insufficient information as regards patient history, prior examination,

special investigations and management that would facilitate patient care by the receiving department. There is need for improvement in the deficient areas (lack of good referral and practice) to optimise patient care. The authors believe that introduction of a national pro-forma referral letter in the South African health system has the potential to improve the quality and efficiency of patient care.

Limitations

The present study may be limited because of its design and period. Many determinants of Good referral and Good clinical care were unknown for both Good referral letter (R^2 = 62.1%) and Good Practice (R^2 = 13%). For instance, gender, year of graduating, experience and continuing medical education of practitioners were not available.

ACKNOWLEDGEMENTS

REFERENCES

Berta W, Barnsley J, Bloom J (2008). Enhancing continuity of information. Essential components of a referral document. Can. Fam. Physician. 54: 1432-3, 1-6.

Couper ID, Henbest RJ (1996). The quality and relationship of referral and reply letters. The effect of introducing a pro forma letter. S Afr. Med. J., 86(12): 1540-2.

Dickinson J (1998). Communication In The Health Care System. Hong Kong Pract., 20(7): 361-2.

Gandhi TK, Keating NL, Ditmore M (2000). Improving Referral Communication Using a Referral Tool within an Electronic Medical Record. J. Gen. Intern. Med., 15: 1-12

Gaydon SL, Thomson AE (2008). Triage of referrals to an outpatient rheumatology clinic: Analysis of referral information and triage. J. Rheumatol., 35(7):1378-83.

Grol R, Rooijackers-Lemmers N, Van Kaathoven L (2003). Communication at the interface: Do better referral letters produce better consultant replies? Br. J. Gen. Pract., 53: 217-19.

Jenkins RM (1993). Quality of general practitioner referrals to outpatient departments: Assessment by specialists and a general practitioner. Br. J. Gen. Pract., 43: 111-13.

Kripalani S, LeFevre F, Phillips CO (2007). Deficits in communication and information transfer between hospital-based and primary care physicians: implications for patient safety and continuity of care. JAMA. 297(8): 831-41.

Lachman PI, Stander IA (1991). The referral letter – a problem of communication. S. Afr. Med. J. 79: 98-100.

Loudon I (2008). The principle of referral: the gate keeping role of the GP. Br. J. Gen. Pract., 58(547): 128–30.

McWhinney IR (1997). A textbook of Family Medicine (2nd Ed). New York: Oxford University Press,p. 9.

Newton J, Eccles M, Hutchinson A (1992). Communication between general practitioners and consultants: what should their letter contain? Br. Med. J. 304: 821-4.

Rawal J, Barnett P, Lloyd BW (1993). Use of structured letters to improve communication between hospital doctors and general practitioners. Br. Med. J., 307: 1044.

Schouten LMT, Hulscher MEJL, Van Everdingen JJE (2008). Evidence for the impact of quality improvement collaboratives: systematic review. BMJ, 336: 1491-4.

Smith S, Khutoane G (2009). Why doctors do not answer referral letters. S. Afr. Fam. Pract., 51(1): 64-67.

Winslow EH, Nestor VA, Davidoff SK (1997). Legibility and completeness of physicians' handwritten medication orders. Heart Lung, 26: 158-64.