

Nurse-led triage of otolaryngology out-patient referrals: an acceptable alternative?

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Abstract

Objectives: To establish the safety and effectiveness of nurse-led triage of otolaryngology out-patient referrals.

Method: One hundred consecutive general practitioner referrals were reviewed by two consultants, two specialist registrars, two foundation year two senior house officers and two otolaryngology nurses. One of the nurses had received triage training. All referrals were triaged as 'urgent', 'soon' or 'routine' by each rater.

Results: The triage-trained nurse's results demonstrated good agreement with those of the senior consultant (80 per cent). This agreement was similar to that with the other consultant (77 per cent) and the specialist registrars (79 and 82 per cent). Weighted κ statistics (correcting for chance agreement) showed that the triage-trained nurse had the second closest agreement to the senior consultant (0.66). After the actual out-patient appointments, retrospective review of the patients' case notes revealed that none had been triaged inappropriately by the trained nurse, and no urgent cases had been missed.

Conclusions: Triage of out-patient referrals by trained ENT nurses is safe and effective, and is an acceptable alternative to traditional consultant vetting of referrals.

Key words: Primary Health Care; Referral And Consultation; Nurse Practitioners; Otolaryngology

Introduction

A significant proportion of all general practice consultations (about 15 per cent) are due to ENT problems.¹ This results in a large number of out-patient referrals to ENT services. In Scotland, almost 100 000 new ENT out-patients are seen each year.² In the period 2006–2007, a total of around 2.5 million patients were seen in ENT out-patient departments in England alone, with more than 1 million being new, first time attenders.³ The majority of these referrals are received from general practitioners.

The role of ENT nurses is expanding, with many departments utilising nurse-led clinics. This is in line with the recent trend within the National Health Service of extended roles for nurses, including surgery and endoscopy. Nurse-led triage is already established in primary care,⁴ acute medical admissions⁵ and ophthalmology,⁶ but there are no previous studies of its use in ENT.

Triage practice is evolving constantly to increase the efficiency and efficacy of the process. This has resulted in the development of telephone,^{4,6} e-mail⁷ and even computerised triage.⁸ Traditionally,

however, triage of ENT out-patient referrals has been carried out by consultant surgeons, and this can be a time-consuming task. It is proposed that this role could be adopted by nurses, freeing senior medical staff to perform their clinical duties.

We conducted the current study with the objective of establishing the level of agreement between nurse-led triage and that conducted by consultants and other grades of medical staff.

Materials and methods

The study was carried out prospectively in the otolaryngology department of Ninewells Hospital, Dundee. One hundred consecutive general practitioner out-patient referrals were photocopied and reviewed by two consultants (one senior), two specialist registrars, two foundation year two senior house officers (SHOs) and two nurses.

Both nurses were experienced in otolaryngology, but one had received specific training in out-patient referral triage from the senior consultant. This training involved regular, weekly triaging sessions in which the consultant and the nurse reviewed letters

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together and were able to discuss each case and any issues arising. This was continued until the nurse was triaging letters without consultant advice, but still under direct supervision, and no concerns were raised by either party.

The eight raters then triaged all 100 referrals as 'urgent', 'soon' or 'routine'. The waiting time limits for each grading were defined as: urgent appointment, less than two weeks; soon appointment, less than six weeks; and routine appointment, less than 18 weeks.

Following the actual out-patient appointments, the patients' medical notes were reviewed to ascertain whether any referrals had been incorrectly triaged or any urgent cases missed.

Statistical methods

All analyses were performed using Excel for Macintosh version 11 software (Microsoft, Redmond, Washington State, USA). The formulae provided by Altman⁹ and Fleiss¹⁰ were used to calculate weighted κ statistics and their standard errors. Statistical formulae provided within Excel were not applied. For the κ calculations, weight allocation was zero for total disagreement (e.g. routine versus urgent), 0.5 for a one-step disagreement (e.g. urgent versus soon) and one for perfect agreement.

In addition, for each rater, the proportion of referrals considered routine, soon or urgent was determined and standard errors calculated using the formula described by Fleiss.¹⁰ Statistical comparisons were performed using McNemar tests.

Results

Evaluations from all raters were available for all 100 consecutive referrals included in the study.

The senior consultant found 7 per cent of referrals to be urgent, 26 per cent soon and 67 per cent routine. The second consultant, and both SHOs, were found to be more likely to rate referrals as urgent than the senior consultant ($p = 0.046, 0.027$ and 0.0004 , respectively). The proportions rated as routine, soon or urgent for all observers are plotted in Figure 1 along with their standard errors.

The triage-trained nurse demonstrated good agreement with the senior consultant (80 per cent). This agreement was similar to that with the other consultant (77 per cent) and with the specialist registrars (79 and 82 per cent). The agreement of the SHOs and the second nurse (who had not received specific triage training) with the senior consultant was lower (being 73, 60 and 70 per cent, respectively). A correction for chance agreement was made by calculating weighted κ statistics and their standard errors, which are presented in Figure 2. The weighted κ statistics for comparison of all rater pairs are shown in Table I. In comparison to the variation between consultants (weighted $\kappa = 0.62$), only one rater – the second SHO – performed statistically worse (weighted $\kappa = 0.40, p = 0.036$).

A retrospective review of the patients case notes following their actual clinic appointments did not reveal any who had been triaged inappropriately by

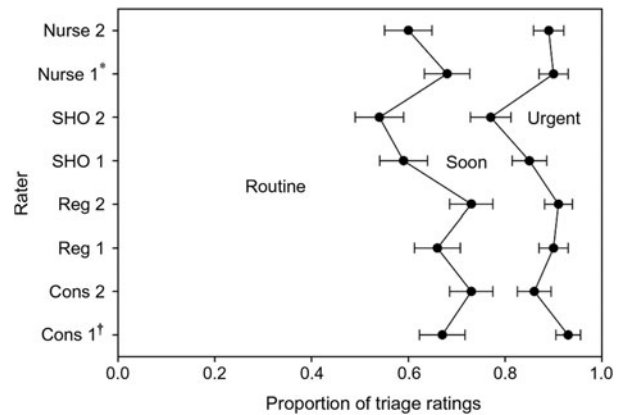


FIG. 1

Proportion of referrals considered routine, soon or urgent by each rater. Bars indicate standard error. *Triage-trained. †Senior. SHO = senior house officer, Reg = specialist registrar; Cons = consultant

the trained nurse, and no cases which should have been urgent were missed.

Discussion

Nurse-led triage has become established practice in many other areas of medicine, but this is the first study of its use in ENT. We found that triage varied both within and between grades of rater. Pothier and Repanos¹¹ found that ENT triage by doctors was highly variable within, but not necessarily between, grades. A degree of variability is inevitable no matter who triages referrals, with some doctors more likely to triage cases as urgent than others. In the current study, the agreement between the two consultants (weighted $\kappa = 0.62$) represented the accuracy of the current system, as both these consultants regularly triaged referral letters in the ENT department. All the other doctors showed similar agreement to that of the consultants, with only the most junior SHO showing statistically significant poorer agreement. Most importantly, we found that

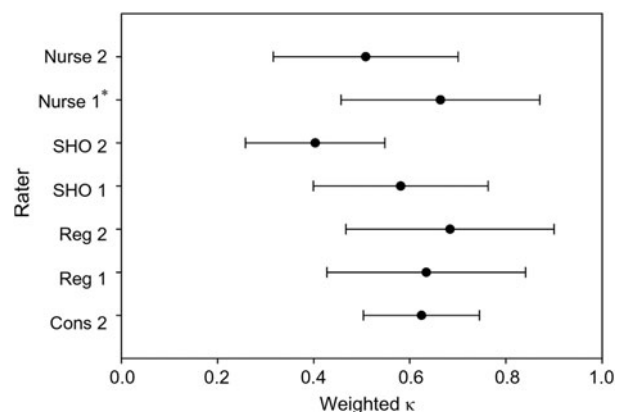


FIG. 2

Weighted κ statistics for agreement of each rater with the senior consultant. *Triage-trained. SHO = senior house officer, Reg = specialist registrar; Cons = consultant

TABLE I
WEIGHTED κ STATISTICS FOR COMPARISON OF ALL RATER PAIRS

Rater	Cons 1*	Cons 2	Reg 1	Reg 2	SHO 1	SHO 2	Nurse 1 [†]	Nurse 2
Cons 1*	–	0.62	0.63	0.68	0.58	0.40	0.66	0.51
Cons 2	0.62	–	0.61	0.58	0.62	0.47	0.63	0.52
Reg 1	0.63	0.61	–	0.70	0.51	0.42	0.74	0.44
Reg 2	0.68	0.58	0.70	–	0.55	0.33	0.66	0.45
SHO 1	0.58	0.62	0.51	0.55	–	0.44	0.48	0.39
SHO 2	0.40	0.47	0.42	0.33	0.44	–	0.44	0.36
Nurse 1 [†]	0.66	0.63	0.74	0.66	0.48	0.44	–	0.49
Nurse 2	0.51	0.52	0.44	0.45	0.39	0.36	0.49	–

*Senior. [†]Triage-trained. Cons = consultant; Reg = specialist registrar; SHO = senior house officer

the triage-trained nurse showed closer agreement with the senior consultant (weighted $\kappa = 0.66$) in the triage of out-patient referrals than did the other consultant. In fact, the trained nurse triaged more consistently with the senior consultant than all but one of the doctors (registrar two).

While it is impossible to generalise from the performance of one nurse to the nursing profession as a whole, we have certainly shown that it is possible for a trained nurse to triage consistently and safely in comparison to a senior consultant and other ENT specialists. The process of triaging referrals, and medicine as a whole, cannot be completely standardised. There will always be variation between raters due to their individual responses to the many different patient presentations encountered, responses which rely heavily on previous experience. The agreement of the untrained nurse and senior consultant was lower, suggesting that adequate triage training must be provided to senior ENT nurses prior to taking on this role. However, the patient medical records review did not reveal any patients who had been triaged inappropriately by the trained nurse, and certainly no cases that should have been urgent were missed. This would seem to support the fact that triage-trained nurses can carry out this role appropriately.

- **Triage of ENT out-patient referrals is traditionally carried out by consultants and senior trainees**
- **There is increasing emphasis on extended roles for nurses within the National Health Service**
- **A triage-trained nurse was shown to have good agreement with a senior ENT consultant regarding out-patient referral triage**
- **No cases were triaged inappropriately and no urgent cases were missed by the triage-trained nurse**
- **Nurse-led triage of ENT out-patient referrals is an acceptable alternative to traditional methods**

We therefore suggest that nurse-led triage of out-patient referrals, conducted by experienced and trained ENT nurses, is safe and effective, and that it should be

considered by other ENT departments as a viable and acceptable alternative to the traditional consultant vetting of out-patient referrals. In our department, this has been introduced within a strict framework. Any uncertainty or unusual referrals will result in the case being discussed with the senior consultant. The system is under regular review and audit to ensure that it continues to improve and function effectively.

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