

An evaluation of a referral management and triage system for oral surgery referrals from primary care dentists: a mixed-methods study

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Declared competing interests of authors: Iain Pretty is involved with the delivery of referral management services to NHS England, for which he receives financial reward. He was involved with the development of early pilot models in referral management at NHS Trafford. He was involved in the evaluation of the Index of Sedation Need (IOSN) tool. Paul Coulthard chaired the Oral Surgery and Oral Medicine Working group that developed the *Guide for Commissioning Oral Surgery and Oral Medicine*. This guide advocated the use of referral management systems in pathway management. He was involved in the development of the IOSN tool.

Published February 2018

DOI: 10.3310/hsdr06080

Scientific summary

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Health Services and Delivery Research 2018; Vol. 6: No. 8

DOI: 10.3310/hsdr06080

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Scientific summary

Background

The NHS is under significant financial pressure; in 2015/16 there was a £2.45B overspend. In 2016/17, additional funding of £1.8B has been committed. Despite this injection of funding, NHS trusts forecast a net deficit of £873M for 2016/17. Not only are NHS trusts struggling financially, but they are also reporting difficulties in hitting required performance targets.

There has been a sustained increase in referrals from primary care into hospital services, which has contributed to these pressures on performance and finances. A Cochrane systematic review identified three main approaches to management of the problem, each intervening in the referral process: (1) professional education, (2) referral management systems and (3) financial incentives to provide care within general practice or refer patients to lower-priced primary care facilities.

Health-care systems across the NHS have introduced referral management systems often coupled to newly commissioned Level 2 services (services providing a degree of specialised care but in a primary care setting). In dentistry, oral surgery cases are the most common referrals from general dental practitioners (GDPs) to hospitals. Following the introduction of the 2006 NHS dental contract [www.gov.uk/government/publications/standard-general-dental-services-contract-and-personal-dental-services-agreement (accessed 29 January 2018)], there was a sharp rise in oral surgery referrals, in part driven by the structure of the contract, which paid dentists the same fee to refer a patient as to undertake the procedure themselves.

Other factors driving referral include lack of oral surgery experience at the undergraduate level among junior GDPs and the increasing proportion of older patients retaining their teeth but presenting with complex medical histories. Like in medicine, referral management systems, with centralised triage and the possibility of deflection to primary care-based oral surgery services, have been introduced by dental commissioners. However, the costs and effects of referral management systems with Level 2 services on a health-care system have not been robustly evaluated.

This issue is important for the NHS, as in response to the current financial and performance problems commissioners have been introducing referral management systems, usually without a clear understanding of population needs and without robust evaluation. There is a concern that new additional services are added to the system without ensuring that there is corresponding downsizing of secondary care services. Thus, instead of substitution, supplementation occurs, producing an overall increase in costs.

This project investigated the costs and effects of introducing an electronic referral management system for oral surgery, including a new Level 2 service, on a whole health-care system, addressing the research gaps identified by previous reviews. The findings have implications not just for oral surgery services but also for the efficient management of referrals to other disciplines.

Aims and objectives

The overarching aim of this programme was to understand how a robust online referral management and triage system, allied to provision of a specialist primary care service, impacts on the cost and quality of oral surgery services provided by different providers in different settings in a defined health-care system.

To meet this aim the programme was split into:

- an initial project to determine the efficiency of remote clinical triage, conducted by consultants or GPs
- a new referral management system which was then implemented in three distinct phases and the impact of each phase was evaluated in sequence –
 - phase 1 – to evaluate the impact of the implementation of a passive online referral management and triage system without active deflection
 - phase 2 – to evaluate the impact of the implementation of an online referral management system with remote consultant-led triage and active deflection to a Level 2 service
 - phase 3 – to evaluate the impact of the implementation of an online referral management system with triage undertaken by referring GPs and active deflection to a Level 2 service.

Methods

A mixed-methods approach was used, integrating both quantitative and qualitative methodologies at each phase of the project.

The project to determine the efficiency of remote clinical triage was a diagnostic accuracy study with a paralleled qualitative component divided into two stages. Stage 1 assessed remote triage versus face-to-face clinical assessment by a single consultant oral surgeon. The consultant in oral surgery first examined all of the referral forms supplied on a standard form that requires a minimum data set to be provided and adequate radiographs supplied. Referrals were categorised into:

- suitable for secondary care services (Level 3)
- suitable for primary care advanced services (Level 2)
- suitable for any competent GDP to undertake (Level 1)
- rejected as a result of insufficient information provided.

Following a washout period, the same consultant clinically examined the same patients to determine a reference standard clinical triage. For the qualitative element, an experienced qualitative researcher carried out detailed observations of a purposive sample ($n = 30$) of the consultant's clinical (face-to-face) sessions.

In stage 2, triage decisions from different examiners were compared with the reference triage decision. Four clinicians (one further consultant in oral surgery, one consultant in oral and maxillofacial surgery and two experienced GPs) assessed the paper referrals of the cases that had been assessed face to face, and were asked to triage according to the same options as described above.

Following completion of the diagnostic accuracy study, the implementation of a new referral management system was assessed using an interrupted time series design with parallel qualitative elements. The research was conducted in the area covered by Sefton Primary Care Trust. This health-care system was selected as it was a virgin site with no referral management system or Level 2 services in place, and referrals were made to three hospital types: (1) a district general hospital (DGH), (2) a large regional foundation trust accepting tertiary referrals for oral surgery and maxillofacial services and (3) a dental hospital providing both services and training.

The intervention was implemented in three year-long phases. Phase 1 involved implementation of an electronic referral management system to capture oral surgery referrals from primary care dentists with passive consultant-led triage. Four consultants completed the triage in phases 1, 2 and 3 to either Level 1, 2 or 3, using the same categories as those described above. All NHS dental practices ($n = 34$), plus the community dental service, were approached to adopt the system.

The impact of the electronic referral system on referral volume and quality of referrals was measured by descriptively comparing the assessment of referrals sent to secondary care in 2013 from Sefton GPs, with referrals sent following introduction of the new system in 2014. Contemporary Hospital Episodes Statistics (HES) data and data produced by the electronic referral system were used to compare referrals pre and post implementation. Qualitative investigation included feedback from dental practices, triagers and patients collected pragmatically, often in response to problems encountered by referring dentists, triagers and/or patients. Participants from stakeholder groups were also invited to take part in qualitative interviews, which were recorded, transcribed and analysed.

Phase 2 assessed the use of referral management with consultant-led triage, and in phase 3 the triage was undertaken by the referring GP, who indicated which level of referral was appropriate for their patients' needs. Consultant triager decisions were dichotomised as primary care (Level 1 or 2) or secondary care (Level 3). Descriptive statistics were generated to describe measures of central tendency and location (mean and standard deviation or median and interquartile range). A health economic evaluation compared costs of referrals between the passive and active phases. Patients attending for procedures in each setting were consented to receive a paper questionnaire following their surgery to collect data on patient outcomes, experiences and costs.

The qualitative element in phases 2 and 3 included a nested case study focused on implementation and acceptability of the specialist primary care service. In addition, semistructured interviews with stakeholders were conducted by experienced qualitative researchers. Semistructured interviews were also conducted with patients who had been referred by their GP for oral surgery. Finally, a focus group was held to explore gaps in data around the triage processes.

Results

Diagnostic accuracy study

In stage 1, there was substantial variance between remote triage decisions and reference clinical examination decisions made by the same consultant. The default decision in remote triage was to refer to secondary care if there was a query or uncertainty over a referral. In stage 2, the performance of the various clinicians was very similar, but differed markedly from the reference triager. Experienced GP triagers were more likely than consultants to refer to Level 2 services. The attendant qualitative work highlighted the complexity of the decision-making process and the importance of providing complete information via the referral forms and high-quality radiographs to increase the accuracy of triage decision-making. Clinicians seemed to find it difficult to make objective decisions solely on the basis of information provided without attempting to create a holistic picture of the patient.

In phase 1, implementation of triage without deflection (to primary care) enabled us to evaluate the effects of a mandatory electronic data capture of referrals alone. Pragmatically, we found that an electronic referral system can be successfully established within a short time period and cover an entire health-care system, with little pushback from GPs about the mandatory requirements of the system. Clear communication was the most important factor in supporting implementation, along with a clear message that there was a universal, mandatory requirement to use the new system.

The introduction of the new system seemed to be associated with a fall in the total number of referrals (based on historical HES data), possibly because of the greater inconvenience of providing more detailed clinical information. This fall could have resulted from a reduction in Level 1 referrals (although without comparable baseline data it was not possible to verify this). Most referrals were for Level 2 cases: approximately 80% of referrals for the DGH and dental hospital but only approximately 50% for the tertiary referral centre.

The completeness and the quality of the information content of referrals were markedly improved by the introduction of the referral system, primarily as a result of its mandatory requirement to complete all fields in the standardised referral form.

General dental practitioners reported that, once they were familiar with the system, each referral took about 5 minutes. Lack of computer literacy, financial implications of computerisation and corporate priorities were significant barriers to smooth implementation. The most important factor that supported uptake and sustained use was having a designated person in each practice who had a clear understanding of the reasons for introducing the new system with the authority to implement the change. Clear communication was also critical in explaining the processes involved, reasons for introducing the system and the benefits it would bring.

In phases 2 and 3, we could evaluate the effect of a fully working centralised referral management system coupled with a newly commissioned Level 2 service operating in two centres.

Referral volume reduced slightly between phases 1 and 2 and could have been attributable to a delay in referral as GPs familiarised themselves with the new service. The mean cost savings per referral from consultant-led triage (phase 1 vs. phase 2) were £108.23 (NHS cost perspective) and £103.92 (societal cost perspective), which in both cases was a statistically significant difference.

In phase 3, when GPs performed the triage, the total referral volume increased and a significantly larger proportion of referrals were sent to Level 3 providers. The mean cost saving per referral was smaller from the GDP-led triage (phase 1 vs. phase 3) than from the consultant-led service, reflecting the lower proportion of referrals that were directed to primary care: £84.13 (NHS cost perspective) and £80.28 (societal cost perspective). The cost savings were statistically significant. There were also large differences in cost savings between the hospitals, primarily because of the different approaches to tariff coding in each trust.

This key finding demonstrated the importance of a comprehensive understanding of the local context before commissioning a referral management service. Patients demonstrated high satisfaction levels with all the services and the metrics used, such as the NHS Friends and Family Test, and rates of complications were the same for both primary and secondary care.

The foundation trust and dental hospital secondary care services felt the new service had little impact on their workload because their catchment area was much larger than Sefton. The service was felt to have a more pronounced effect on the DGH, although this was reduced when consultant triage was replaced by GDP triage. There seemed to be a view among consultants and hospital managers that, because of the financial pressures on the NHS and the demand pressures on their services, the introduction of Level 2 services was inevitable and this was, in general, supported. Few managers recognised the potential of secondary care providing Level 2 services.

Patients accepted the services, and appreciated the timeliness of appointments and the local accessibility of the service. The main requirement of patients was that their problem was dealt with quickly and effectively; the setting and who performed the surgery were secondary considerations. Patients expected clear communication about the process and viewed patient-centred care as a key indicator of the quality of the service.

Conclusions

Implementation of referral management systems into primary care general dental practices can occur smoothly with good communication. The intervention seems to suppress referrals and greatly improves the quality of information accompanying the referral. Consultant-led triage provided greater costs savings than practitioner-led triage.

The effect on costs was context specific, but relatively significant cost savings can be made without a detectable detrimental impact on the quality of care. In Sefton, the coding behaviour of trusts showed large variation, and the need to ensure consistent and accurate coding is essential if cost savings from referral management are not to be inflated.

For a referral management system to have a significant effect on large trusts, the referral system needs to operate on a large population footprint. Provision of timely and rapid alleviation of a patient's symptoms was more highly valued by patients than where the service was provided. Primary care services were accepted by patients and provided care metrics similar to those in hospitals.

Further research

Further research is needed on how to measure the quality of dental care, including specialist care. The impact of referral management systems needs to be assessed in different geographical, social and service contexts. It is particularly important to assess the impact of any new NHS dental contract on the volume and appropriateness of referrals to specialist services.

The system evaluated in this project has the potential to be applied to various other disciplines, for example dermatology, where the use of lesion imaging is analogous to the assessment of surgical complexity from radiographs.

Funding

Funding for this study was provided by the Health Services and Delivery Research programme of the National Institute for Health Research.

Health Services and Delivery Research

ISSN 2050-4349 (Print)

ISSN 2050-4357 (Online)

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Editorial contact: journals.library@nihr.ac.uk

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The research reported in this issue of the journal was funded by the HS&DR programme or one of its preceding programmes as project number 11/1022/15. The contractual start date was in December 2012. The final report began editorial review in March 2017 and was accepted for publication in July 2017. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HS&DR editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report document. However, they do not accept liability for damages or losses arising from material published in this report.

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