

# The Impact of an Online Microbiology Referral service on Departmental Workload and on Efficiency Savings

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## Background

The demands on the microbiology clinical service have been increasing over the preceding years. The volume of requests for clinical advice could no longer be facilitated by clinical teams having a direct telephone call to the pathology secretary team. The number of calls received began to have a direct impact on the other work streams, leading to delays in clinic letters being typed and outpatient investigations being organised.

This required the development of a novel method of generating referrals, with an increased use of automated technologies to make best use of the resources we have available.

## Aim

To develop an automated intranet based referral service for clinical microbiology advice requests from hospital clinicians that provides a robust audit trail, and complies with information governance legislation.

## Methods

The trust intranet site was created using "concrete5", an Open Source Content Management System (CMS). This allows users to create content using fixed pre-programmed blocks. The microbiology department utilised this technology to create an online referral form using a "form block". This is presented in Figure 1.

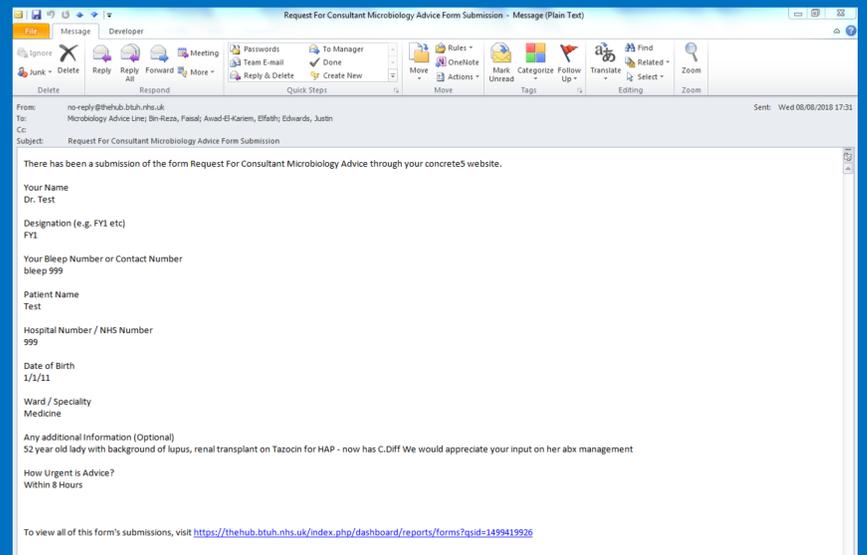
Patient's clinical details are mandatory fields, as the data remains within the Trust system, it complies with information governance requirements.

Once the form is submitted it generates an e-mail to a shared mailbox, which all microbiologists have access to. The output e-mail is presented in Figure 2. The form is for use during working hours only.

The microbiology online portal was launched on 26th September 2017. The service was advertised in the preceding two weeks using the ward pharmacists to distribute fliers on each ward.

## Figure 1: The online Submission form available on the Trust intranet Site

## Figure 2: E-mail generated from Online Referral



## Results

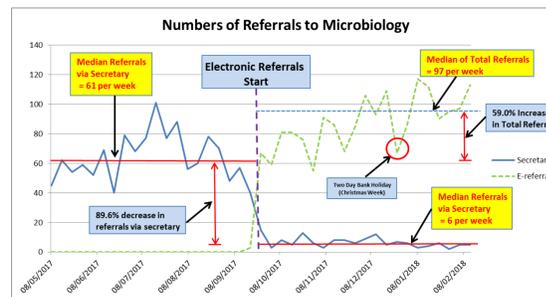


Figure 3: Number of referrals to Microbiology

Figure 3 illustrates that the clinical teams adapted to change in referral methodology very quickly, almost an instantaneous switch to an online system.

The median number of referrals via the secretaries dropped from 61 to 6.0 per week. On average each telephone referral would take 10 minutes of secretarial time.

This translated into increased productivity in other areas of the pathology secretaries workload, with clinic letter turnaround times improving.

**Efficiency Savings in Secretarial Time:**  
 Median number of calls reduction per week =  $61 - 6.0 = 55.0$   
 Number of minutes saved =  $55.0 \times 10 = 550$  (per week)  
 Number of hours saved = **9 hours 10 minutes (per week)**

Form	Submissions
Content Page	0
Form test	2
Staff publication	4
Paediatric Immediate Life Support (ILS) application	14
Adult in-hospital Resuscitation Training Application	837
Immediate Life Support (ILS) Application	629
Request For Consultant Microbiology Advice	3816
MEMS Customer Feedback	6
Paediatric In-hospital Resuscitation	288

Figure 4: Number of times forms have been accessed on the Trust Intranet site

Following the change, the median number of total referrals received **increased by 59.0%** to 97.0 referrals per week.

The Microbiology online service has been demonstrated to be the most popular online submission tool within the trust intranet system (see figure 4).

## Conclusions

The switch to an electronic referral system has increased accessibility by clinical staff to the microbiology team, as demonstrated by the increase in requests. The consultant microbiologists were able to use their time more effectively and to establish better interactions with the various clinical teams delivering timely microbiology advice, with manageable interference with their other duties. Similar benefits have been demonstrated elsewhere with other disciplines online referral services<sup>1</sup>. Furthermore, this has had a positive impact on anti-microbial stewardship. Ward pharmacists have utilised the system to query antibiotic prescriptions, which have led to interventions by the microbiologists. The subsequent conversations with clinical teams have led to increased contemporaneous teaching opportunities with junior medical staff regarding their anti-microbial prescribing.

The use of the structured form has led to an improvement in the information provided prior to a discussion taking place, and facilitates referrers having a clear synopsis of the patient's condition. This improves the efficacy of the subsequent conversation and reduces the transcription errors (when the referral came through the secretarial support team). This has too been the experience of other disciplines<sup>2</sup>.

The improved use of secretarial time is particularly important with the current resource limitations within NHS structures presently. The automation of processes allow skill sets to be focused on priority tasks without a negative impact on service provision leading to improved efficiencies.

## References

1. The effect of an online referral system on referrals to bariatric surgery. Doumouras AG, Anvari S, Breaux R, Anvari M, Hong D, Gmora S. Surg Endosc. 2017 Dec;31(12):5127-5134.
2. A web-based referral system for neurosurgery—a solution to our problems? Choo MC, Thennakon S, Shapely J, Tolia CM. Br J Neurosurg. 2011 Jun;25(3):384-7.