



An Analysis between Patient Demographics and Non-attendances in General Surgery Clinics at an NHS Trust: An Audit

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Missed clinic appointments can have bearing on a multitude of factors including patient care, hospital management and resources.

Aim: To assess the non-attendance rates to surgical clinics within our trust. Secondary outcomes will be to assess the correlation between travel distances to clinic, time of year, patient demographics, and whether the appointment is a new patient or follow-up, on DNA rate.

Methods: Retrospective audit including all patients attending outpatient general surgical appointments at all 5 district general hospitals within the trust between the fiscal years of April 2016 to March 2018. Using case notes and electronic patient records, data on patient demographics, type of appointment, time of year and distance from hospital were collected.

Results and Conclusions: There is correlation between DNAs and age, gender, ethnicity, subspecialty, and distance from hospital. The reasons behind DNAs will be multifactorial and efforts should be made to investigate the barriers to attendance.

Keywords: General surgery; economic burden; patient demographics; sustainability.

1. INTRODUCTION

Failure to attend clinic commonly known as “Did Not Attend” (DNA) has caused a huge economic burden on an already stretched National Health Service (NHS), especially in times of the current COVID-19 pandemic [1]. This is evident from NHS England quarterly activity return data (2008-2019) - average DNA rate for new outpatient appointments has been 8.7% to 8.9% [2]. Total costs of missed outpatient face-to-face clinic appointments in NHS England in 2017 to 2018 amounted to £1 billion [3]. As a result of this, there is growing interest in making health care services more efficient. By reducing DNA rates, NHS revenue, and ultimately patient safety, could be improved by reducing waiting times for clinics [4-7]. An avenue for exploration would be telephone consultations in an attempt to reduce surgical clinic DNA rates. Following this audit, we will review this avenue by diligent organisation of telephone consultations for surgical outpatient clinics across the trust and re-assess DNA rates, patients’ travel costs estimates and ultimately sustainability. This is achieved by reducing carbon monoxide emission from travelling to outpatient clinics.

1.1 Aims

We aim to assess the DNA rates to surgical clinics within our trust, in comparison to NHS England. Secondary outcomes will be to assess the correlation between travel distances to clinic, time of year, patient demographics, and whether the appointment is a new patient or follow-up, on DNA rate.

2. METHODS

This study is a retrospective audit looking into patient demographics associated with non-attendance in general surgery clinics within an NHS trust. The study included all patients attending an outpatient general surgical appointment at all 5 district general hospitals within the trust. The study looked into the fiscal years between April 2016 to March 2018. A list of patients who were given general surgical appointments was generated using clinical codes. The specialties under the general surgery clinical codes included: upper gastrointestinal, colorectal, bariatric, breast and vascular surgery. Using case notes and electronic patient records, data including patient demographics (age,

gender and ethnicity), type of appointment, time of year and distance from hospital were collected. Distance from hospital was calculated using patients’ home postcode and distance ‘as the crow flies’ to the hospital where the clinic appointment was held. Statistical analysis was carried out using chi-square test. Statistical significance was set as $p \leq 0.05$.

3. RESULTS

Total number of surgical outpatient clinic appointments from April 2016 to March 2018 is 76,834. Out of this total, 5,324 appointments were not attended, giving a DNA rate of 6.9% compared to NHS England’s total DNA rate of 8.7-8.9%.

There was a higher DNA rate in male patients, where percentage of DNA rate is 7.27% (i.e. 2,025 DNAs out of 27,840 appointments), compared to female DNA rate of 6.70% (i.e. 3,299 DNAs out of 48,994 appointments), significant at $p < 0.05$.

Total DNA rate in follow-up surgical outpatient appointments is higher than in new patient appointments, with rates of 7.9% (2,931 out of 5324 patients) and 6.0% (2,357 out of 5324 patients) respectively.

With regards to ethnicity, there is a significantly lower DNA rate in White British and Irish ethnicities, compared to other ethnicities, which is 6.7% (4,798 DNA out of 71,783 patients) compared to 18% (364 DNA out of 2024 patients) ($p < 0.05$).

Our NHS trust covers a wide geographical area, the furthest distance to hospital travelled was 80.6 miles and the nearest distance was less than 1 mile. The average distance was 6.4 miles. In our audit we found that there is a proportional relationship between travel distance to hospital and DNA rates, where the further the distance, the higher the DNA rate. This was 8.4% DNA rate (i.e. 305 DNA out of 3621 patients) for travel distance >15miles from hospital, compared to 7.1% (i.e. 4,898 DNA out of 69,110 patients) for travel distance <15miles ($p < 0.05$).

These comparisons are shown in Fig. 1 below.

The highest DNA rate is in the month of January as shown in the graph below (Fig. 2).

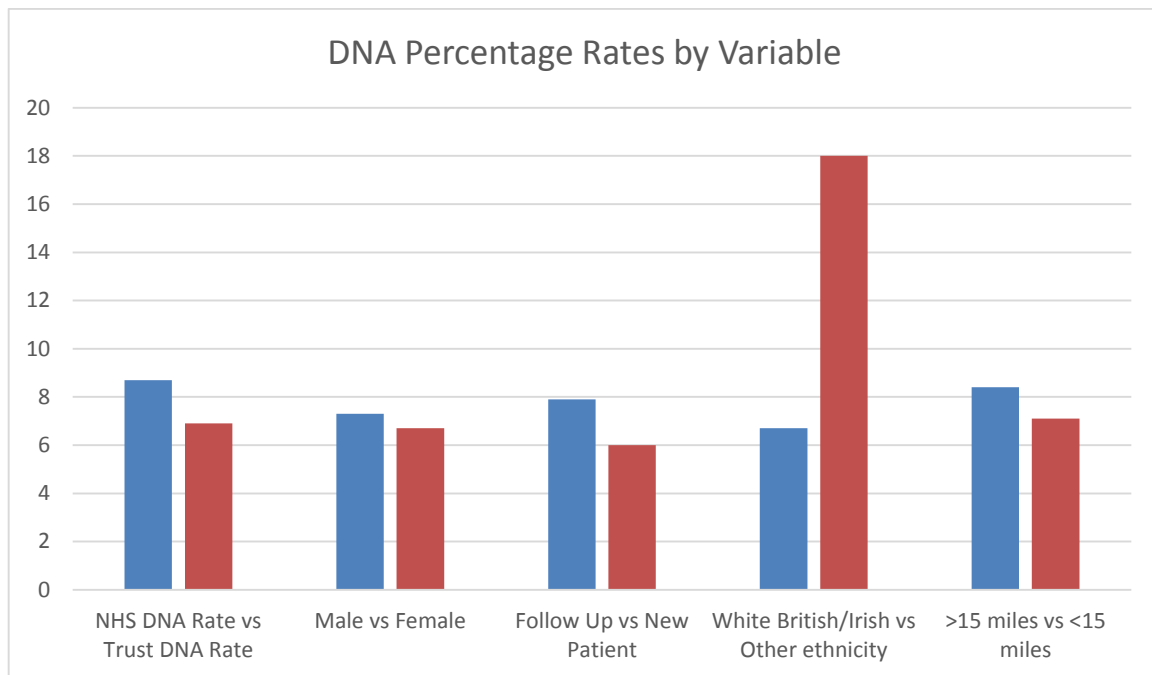


Fig. 1. Graph illustration between DNA rates in different categories of travel distances, ethnicities, follow-up and new patients and gender

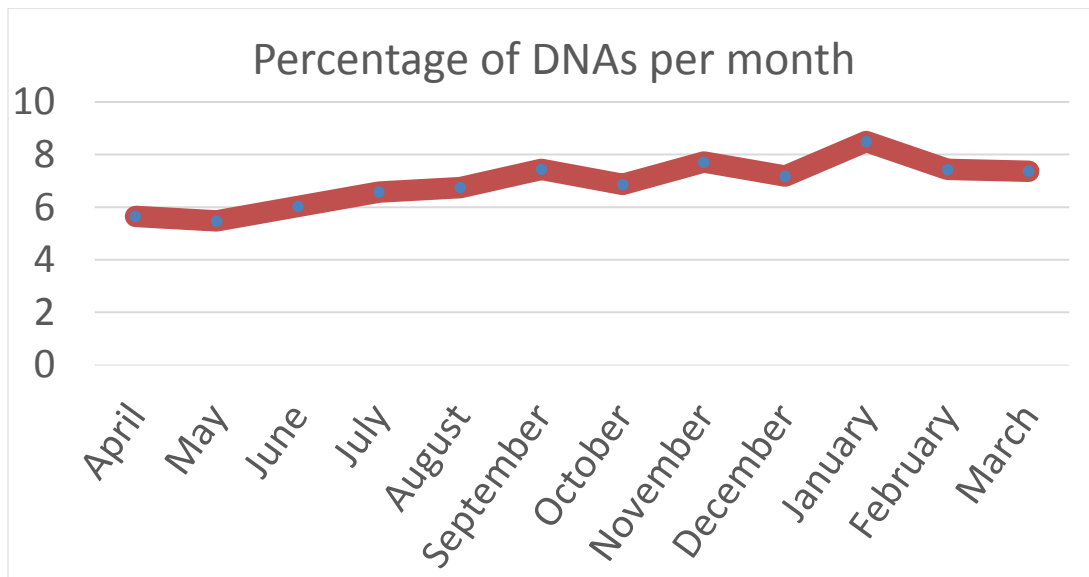


Fig. 2. Graph illustrating DNA rate over the months

Bariatric surgery has the highest DNA rate of 15% (411 DNA out of 2,726 patients), compared to breast and endocrine surgery of 5.3% (1,382 DNA out of 26,107 patients). This is shown in the graph below (Fig. 3).

In our local trust, we found that the highest DNA rate of 13% (996 DNA out of 7625) is in the 26 to 35 years old age group, compared to lowest DNA

rate of 3.3% (488 DNA out of 14755) in the age group between 66 to 75 years old. This is shown in Fig. 4.

4. DISCUSSION

Our audit found the DNA rate across our local NHS Trust to be lower than the NHS England rate (6.9% compared to 8.7-8.9%) [2]. Factors

that significantly correlated with non-attendance included age, male gender, non-white ethnicity, clinic specialty, and traveling a distance greater than 15 miles to hospital.

We found the DNA rate in male patients to be significantly higher ($p < 0.005$) which is in keeping with findings described by Corfield et al. ($p = 0.001$) and Wolffe et al. ($p < 0.001$) [8,9]. Likewise both studies showed a similar trend in DNA rates and age with younger patients having a higher DNA rate. Ethnicity was not examined in

these two studies however our audit determined attendance rates were higher in White British/Irish ethnicities compared to other ethnicities ($p < 0.00001$). Conversely a study by Sharma S et al examining non-attendance at ENT clinics found no significant difference in attendance with regard to patient ethnicity [10]. This study, however, included a comparatively small sample size ($n=133$), and the difference in non-attendance patterns could also be attributable to clinic specialty.

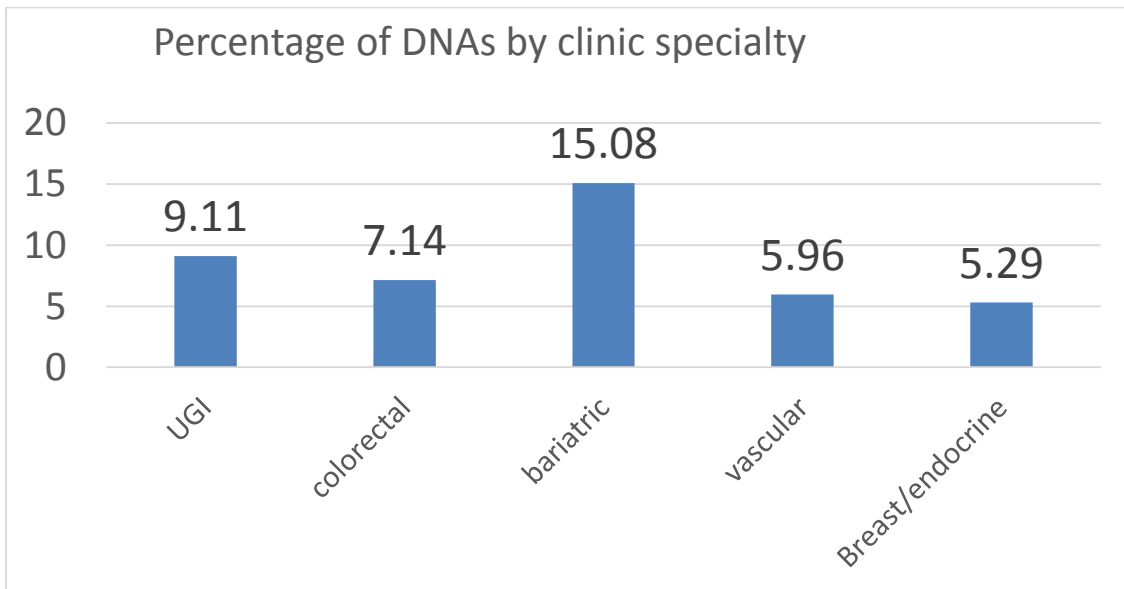


Fig. 3. Graph comparing DNA rates between 5 different surgical specialties

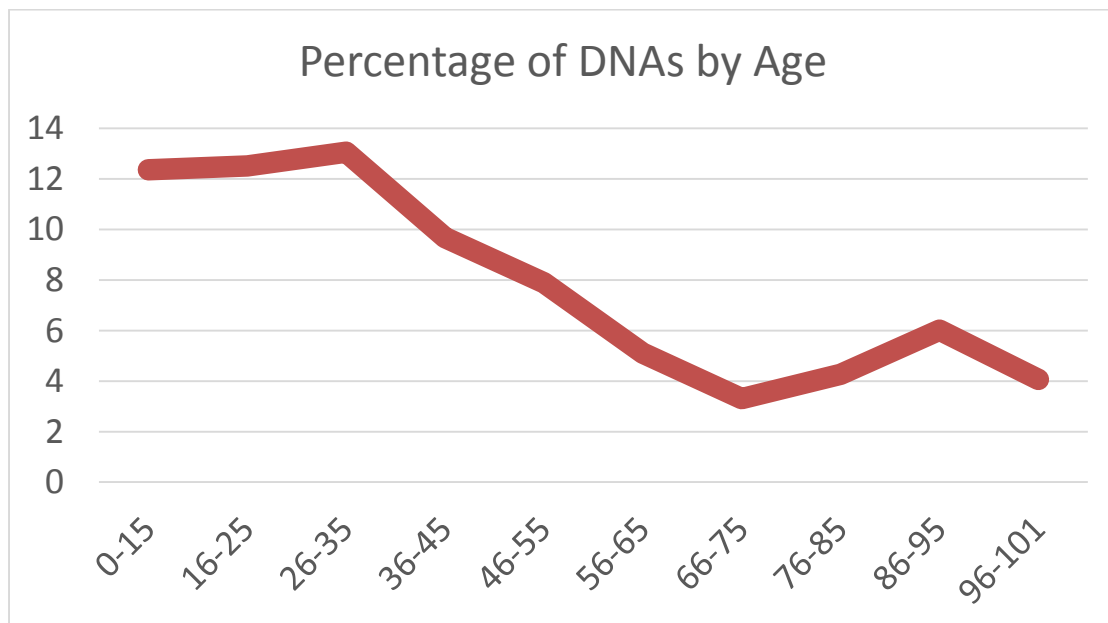


Fig. 4. Graph comparing DNA rates among different age groups

Our results demonstrated that across general surgery subspecialties in the local Trust (UGI, Colorectal, Bariatric, Breast/Endocrine, Vascular) there was a significant variance in DNA rates, with Bariatric clinics having the highest rate of 15.1%. This was markedly higher than the next highest DNA rate of 9.1% in UGI clinic. Similarly, a study conducted by Brook et al investigating predictors of attendance to obesity clinic in a tertiary centre in Australia demonstrated that “28.1% of patients attended half or less than half of their scheduled appointments” with a DNA rate of 17.1% to the first booked appointment [11]. In their study age, sex, rural post code, BMI and comorbidities were not found to be associated with non-attendance in obese patients [11]. It is well established that non-compliance to Bariatric follow-up can adversely affect outcomes and the introduction of measures to improve this is an area for further research.

Distance to hospital was also shown to be associated with a higher DNA rate. We found that 5% of patients travelled >15 miles to hospital and in this group the DNA rate was 8.4% compared to 7.1% ($p < 0.002$). This is in keeping with results from a systematic review by Dantas et al on non-attendance, which shows that a longer distance from hospital is associated with a higher DNA rate [12].

In considering barriers to clinic attendance, distance to hospital is one of the factors that can be addressed. A possible intervention could be the introduction of telephone appointments, which could save patients time and resources involved in travelling to hospital. A recent review of the use of telemedicine in surgical clinics by McMaster T et al suggested ‘significant savings relating to travel costs, loss of income due to missed work and reduced time burden’ [4]. With regard to sustainability, telephone appointments could reduce the carbon footprint of a clinic if patients are not travelling or requiring patient transport to hospital.

5. CONCLUSION

There is correlation between DNAs and age, gender, ethnicity, subspecialty, and distance from hospital. The reasons behind DNAs will be multifactorial and efforts should be made to investigate the barriers to attendance. Given the factors associated with clinic non-attendance identified above it is imperative to examine modifiable factors in service delivery to ensure outpatient clinics are inclusive and accessible.

One intervention that could be explored is the use of telephone appointments to make clinics more convenient for patients. This could not only lighten the economic burden of missed appointments to the NHS, but also benefit patient care and has implications for improved sustainability.

CONSENT

As per international standard or university standard, patients’ written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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