

Referrals by General Practitioners in Slovenia

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Abstract—Background In Slovenian public healthcare system family medicine specialists/general practitioners (GPs) act as gatekeepers and regulate access to specialist medical care, similar to some other European countries. Through means of a standardised referral letter, the general practitioner defines the speciality, reason, urgency and time validity of the referral, as well as relevant medical information. The goal of this study was to explore the rate, urgency, and the initiator of GP referrals along with regional differences.

Methods In this cross-sectional study, referrals of 175 family medicine residents were studied on the national level in the context of the obligatory residency referral analysis, between March 2014 and November 2017. Each resident recorded details of their own or their mentor's referrals in their GP office or an emergency department for 15 work days. Additional information was collected, such as the number of patient contacts and clinic location.

Results The average referral rate was 16%. We found no regional differences in referral rates. We found no association between the referral rate and the total number of visits. Urgent referrals accounted for 22% of referrals, 17% were fast referrals and 61% regular referrals. Initiators of referrals were most commonly GPs (51%), followed by other specialists (44%) and patients (5%). As a whole, patients were most commonly referred to ophthalmologists, orthopaedic surgeons, dermatologists, otorhinolaryngologist, cardiologists and internal medicine/surgical emergency services. Urgent referrals were most common for internal medicine emergency services, surgical emergency services, and infectious diseases specialist, while regular urgency was most common for genetic specialist, diabetologist and anticoagulant therapy specialist. GPs most common non-urgent referrals were to proctologists, pain management clinics, allergist and dermatologists. Other specialists most commonly initiated referrals to anticoagulant therapy clinics, cardiac surgeons and diabetologists. Self-referral was most common for allergists, dermatologists and ophthalmologists.

Conclusions The average GP referral rate was one of the highest reported in reviewed literature, supporting the evidence of increasing referral rate. GPs with more patient contacts referred as commonly as those with less, with no clear consensus in reviewed literature. The study showed to which specialists patients are most commonly referred and how common different urgencies of referrals were. We found a relatively high share of

urgent referrals. GPs initiated referrals as commonly and to similar specialists as reported in reviewed literature.

Surprisingly, patient initiated referrals were less common than previously reported, although patients wanted referrals for similar specialties. We found no relevant differences between regions for any of the examined parameters.

Index Terms-- Gatekeeping, GP referrals, primary healthcare, regional differences.

I. INTRODUCTION

Primary care oriented health systems can optimise patient care as well as reduce inappropriate use of specialist services [1]. Strong primary care is often associated with the gatekeeping position of GPs [2]. Their role is to match the demand of the patients with their medical needs, rationing access to specialists while also promoting coordination of care [3]. In Europe, gatekeeping is present in 2 forms: obligatory and incentive based. Obligatory is present in countries such as Austria, Denmark, Italy, the Netherlands, Norway, Portugal, Spain, the UK and Slovenia [4,5]. In the latter, gatekeeping is present in the public healthcare sector. Primary care consists of general practitioners, paediatricians, gynaecologists and dentists. Specialist care is limited by referrals with an only exception of psychiatrists [6]

The referral rates of general practitioners (GPs) are an important determinant of specialty care utilization [7]. Studies examining individual GP referral rates report variation ranging from two to twentyfold. Factors that influence referral rates include patient characteristics, practice characteristics, GP characteristics and access to specialist care. Variation in referral rates remains largely unexplained [8-12].

In Slovenia, referrals were extensively analysed in 1992 [13] and 2007 [5]. The goal of this study was to explore some parts of the referral process: the rate, the urgency, and the initiator of family physician/general practitioner (GP) referrals to specialists along with potential regional differences and to see how they compare to past and international results.

II. MATERIAL AND METHODS

A cross-sectional study was performed on a national level. Between March 2014 and November 2017, all family medicine residents in Slovenia (178) were included in the context of an obligatory one-month residency course. Each resident received instructions to record the details of their own/their mentor's referrals to specialists (excluding diagnostic procedure referrals), while working in their GP office or an emergency department. Instructed time period was 15 work days. Information was recorded on a premade excel form and was recorded manually. For each referral, the resident defined the referred specialist (32 different options), the urgency level (urgent, fast, regular), and the initiator for non-emergency referrals (GPs themselves, other specialists, or patients). Additional information was collected, such as the total number of patient contacts and regional location.

After excluding inadequate reports, 175 were used for the statistical analysis. Periods of referral recordings varied between 9 and 34 work days, with a median of 15 days.

For each medicine resident, the referral rate was calculated as the number of all referrals per total number of visits in the whole period. Similarly, the referral rate for each specialty was calculated as the number of all referrals to this specialty per total number of visits. Furthermore, we calculated the rate of urgent/fast/regular referrals per all referrals for each medical resident. We estimated the average rates for Slovenia and for its ten regions, 95% confidence intervals (CIs) were reported. For each specialty, we calculated the proportion of urgent/fast/regular referrals, together with 95% CIs.

For the analysis of initiators, a subsample of 51 residents had to be used, because the other 124 residents reported inconsistent results for initiators (for specific specialties and overall) - for instance, the number of referrals and initiators didn't add up, the residents possibly marking several initiators for a single referral or due to error in keeping the score, which was done by hand. To include these would impact the accuracy of our results. Firstly, we calculated the rate of referrals initiated by GP/specialist/patient per all referrals for each medical resident and then reported the average rates for Slovenia with 95% CIs. Here, we used a subsample of only 51 residents with complete data for all specialties. Secondly, we calculated the proportion of referrals initiated by GP/specialist/patient for each specialty, together with 95% CIs. For each specialty, we used a subsample of residents with complete corresponding data (169 residents had complete data for at least one specialty; in total, 88% of the data on initiators were used).

This was an exploratory analysis as no clear hypotheses were stated, regions and specialties were compared using 95% CIs. Any differences between regions that were found cannot be generalized to the population due to many comparisons that were made. All analyses were performed using R statistical software, version 3.6.2 [14].

III. RESULTS

The average referral rate (per total number of visits) was 16% (95%CI 15-17%). We found no statistically significant regional differences. We found no association between the referral rate and the total number of visits. On average, 22.1% of referrals were urgent, 16.9% fast and 61% regular. Regions with an university hospital had more (7.1%) regular referrals than those without.

Our result showed what specialties were most commonly referred to overall and what specialties had the highest rate of urgent, fast and regular referrals (Figures 1-4)

GPs were initiators for 30% of non-emergency referrals. Assuming all urgent referrals were also decided by the GP, GPs initiated 51% of all referrals. Other specialists initiated 44% of referrals, while patients initiated referral in 5%. We observed no statistical differences between regions.

We established referrals to what specialties were most commonly initiated by GPs, other specialists, patients. Urgent referrals were categorised separately, the initiator was not established (Figures 5-7).

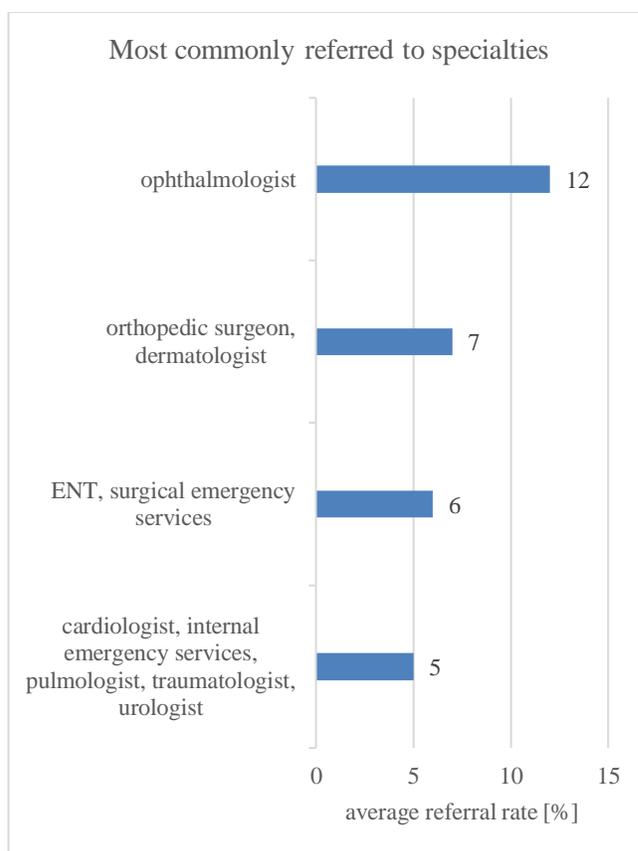


Figure 1: Most commonly referred to specialties

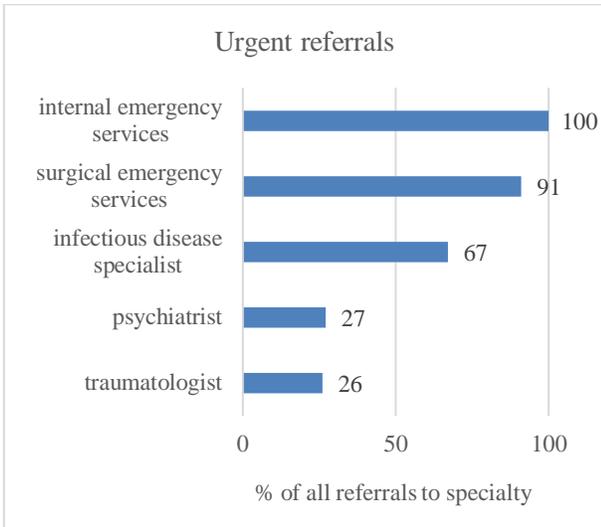


Figure 2: Specialties with the highest rate of urgent referrals

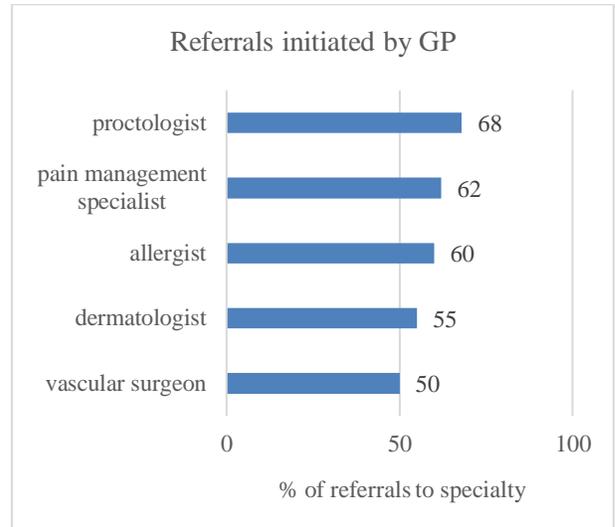


Figure 5: Specialties with the highest rate of GP initiated referrals

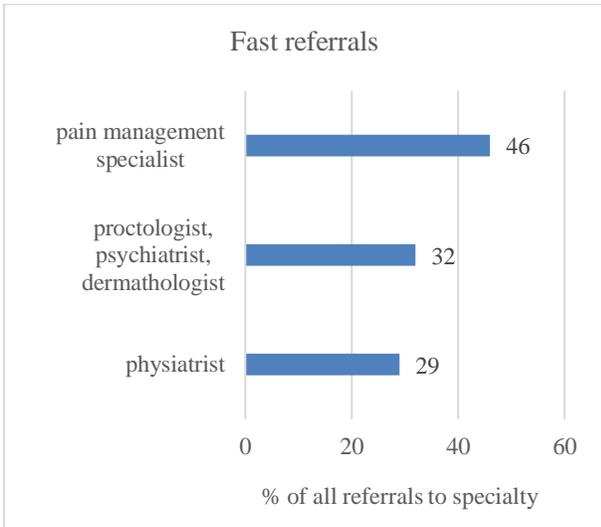


Figure 3: Specialties with the highest rate of fast referrals

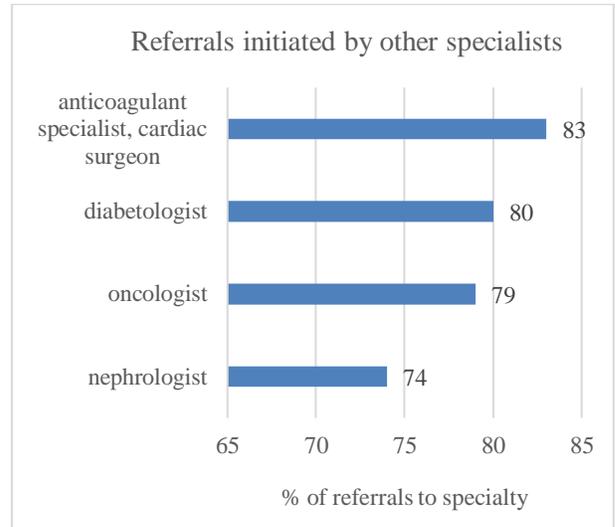


Figure 6: Specialties with the highest rate of specialist initiated referrals

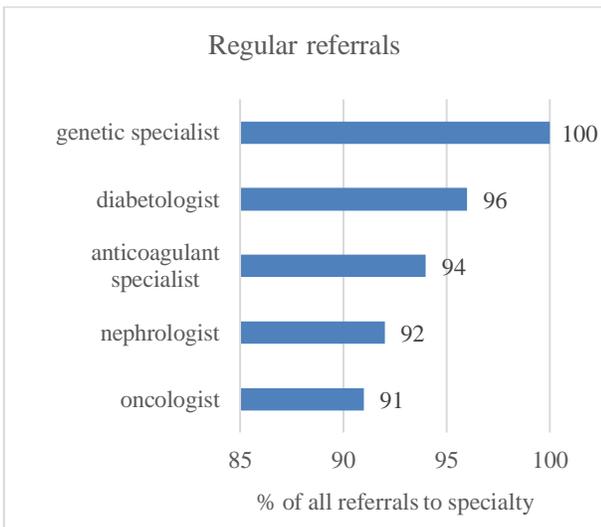


Figure 4: Specialties with the highest rate of regular referrals

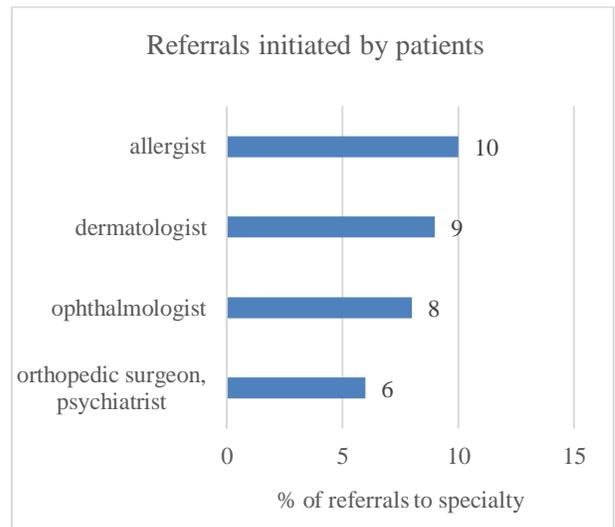


Figure 7: Specialties with the highest rate of patient initiated referrals

IV. DISCUSSION

In Slovenia, the National Institute of Public Health reported referral rate every few years from 1989. First reported referral rate was 5,1% in 1989 and had steadily increased to 13,9% in 1999. These include radiology referrals that were excluded in our study [6]. Increasing referral rate is also reported in 2 Slovenian studies that show an increase from 7,8% in 1992 [13] to 20,2% in 2007 [5]. Reports from other countries also reported values ranging from 5,1% to 13,7% [7-11], more recent articles reporting higher values. Our study found one of the highest **referral rates** in reviewed literature, which was expected being one of the most recent. One could argue that lack of experience of GP residents resulted in more referrals, but Vajd [5] found that residents do not refer more than licenced GPs. The increase of referral rate has been extensively studied and so far attributed to a variety of factors, such as less restrictive GP function, increasing complexity of medical care, expanded diagnostic and therapeutic options with lesser age restrictions and lastly increasing patient demand [7]. Additionally, referrals have become increasingly limited to one medical condition, meaning that a patient now requires multiple referrals for the same specialty for different diagnosis. For example: referral for each problematic body part for orthopedic surgeon, or separate referrals for cataract treatment of left and right eye for ophthalmologist. Also, there is no differentiation in whether it is a first referral for a new condition or for a regular follow up examination, which can be scheduled yearly or more frequently than that. Patients require a valid referral letter for these examinations, which is a considerable administrative burden and represents quite a few of referrals.

We found no regional differences in referral rate, contrary to Švab [10], who reported both regional and county differences, ranging from 4 to 17 fold. Vajd [5] reported GP practices further from hospitals had less referrals, but did not compare regions. Our results imply that referral rate has equalised across the country and specialist care access has improved in regions that were previously lacking. Further studies are warranted to confirm this and explore consequences.

The number of patient contacts did not influence the referral rate in our study. The same conclusion was made by some authors [10, 13, 15], while others [5, 16-18] reported that GPs with a higher patient load refer more. One study even reported that higher patient load had a lower referral probability [9]. This influence therefore does not seem to be agreed upon and might be specific for each country's healthcare system.

Urgency of referral was defined by law (ZpacP) [19] as follows: urgent, fast and regular with corresponding maximum waiting times of 24 hours, 3 and 6 months, respectively. Urgency of referral is decided by the referring GP based on the patient's clinical needs. One fifth of all referrals was for urgent medical treatment, which is high in our opinion, although similar was reported 19% by a UK study [18]. It is important to note that work in emergency services was included in

residents' reported data. We suspect there are less urgent referrals made by GPs in their regular practices.

Referral rates to specific specialties were similar to past results in Slovenia [5, 13], which implies that most common pathology in GP's practice that requires referral has not drastically changed in recent years. However, our results partly differ from those reported from studies performed in other countries. (Germany [20], Australia [8] and the US [10]). We speculate these differences arise mainly from different healthcare organisation and referral process.

Urgency of referral for specific specialties seemed to reflect corresponding pathology. Urgent referrals were most common for specialists that typically deal with urgent medical conditions that require immediate medical care. Similarly, regular referrals were most common for specialists that deal with not-urgent pathology and require routine control visits. We speculate that these control referrals account for the most of these referrals, based on similar distribution of specialist initiated referrals for these specialties.

Initiators of referral were most commonly GPs, who initiated half of all referrals, which is the same as reported in 2007 [5] and more than in 1992 (18%). [13] A German study reported 74% GP initiated referrals [20].

Other specialists initiated 44% of referrals, which is less than in 1992 (82%) [13], but similar as in 2007 (35,7%) [5]. These referrals could have been made by specialists themselves, which would save GPs unnecessary administrative work and should also improve the quality of these referrals.

Patient influence for a referral was identified as the main reason for referral in 5% of all referrals, which is less than in 1992 (8%) [13] and 2007 (13%)[5]. Two studies made in comparable healthcare systems reported a much higher rate of 20-25% [20,21], while a study from the US that has no gatekeeping reported a much lower rate of just 1,1% [10]. We speculate that GPs have a higher threshold for patient self-referral than in the past and compared to some other countries. On the other hand, patients might be self referring to specialists in the private sector, foregoing their GPs, which would result in low self referral rate in our study.

We found that different initiators most commonly referred to different specialists. The most popular specialists for self-referral were similar to those reported by Kulu-Glasgow et al [21], after excluding those for which a referral is not necessary in Slovenia. For these specialists the patients expected to end up in specialist care for the symptoms they had, regardless of the GP visit.

It is important to note that different methods of measuring patient influence on referral were used in compared studies. There is scarce literature on this topic from countries with a gatekeeping GP function for relevant conclusions. Further research for better interpretation is warranted.

Possible limitations of our work

Residents were instructed to report their or their mentors' referral, which might have increased variability of results owing to GP characteristic bias. Data was recorded manually, which resulted in some individuals reports as inconsistencies. Some residents predominantly worked in emergency services and others in GP offices, which might have influenced emergency referral rate.

We also made an assumption for interpretation of referral initiators, that all emergency referrals were initiated by the GP, but some exceptions might have been missed. It was made on the grounds that an urgent referral is made for medical emergencies that require further treatment within 24h.

ACKNOWLEDGMENT

The authors are grateful to all GP residents that helped with our study. We also thank Nina Ružić Gorenjec, Ph.D. for the comprehensive statistical analysis and help with interpretation, and lastly our mentor for general guidance.

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