Is there a place for triage at the out-of-hours GP post?

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Nederlands abstract

Achtergrond:

Mensen met een medisch probleem kunnen in België, buiten de kantooruren terecht bij een huisartsenwachtpost (HWP) of voor meer acute zorg, bij een spoedgevallendienst (SGD). De keuze van de patiënt welke dienst te raadplegen is niet alleen gebaseerd op het waargenomen medische probleem, maar wordt ook beïnvloed door factoren zoals eerdere ervaringen met de diensten, de verwachte wachttijd en eventueel contact met de 1733 telefoon centrale. Beide diensten worden echter geconfronteerd met een toenemende vraag als gevolg van een vergrijzende bevolking en veranderend patiëntengedrag in een 24/7 cultuur. Correcte verwijzing is essentieel om de balans tussen veiligheid, efficiëntie en betaalbaarheid te behouden. In de afgelopen tien jaar zijn er in Europese landen nieuwe modellen geïntroduceerd om de uitdagingen van veilige en betaalbare zorg buiten de kantooruren aan te gaan. Toegankelijkheid, kwaliteit en veiligheid van medische zorg blijft de grootste prioriteit. Dit heeft geleid tot de verplaatsing van sommige HWPen naar een locatie in de buurt van een SGD om verwijzingen tussen diensten te vergemakkelijken.

Deze studie wordt uitgevoerd in de HWP Brugge, gelocaliseerd naast de SGD van het AZ Sint-Jan. Patiënten die zich presenteren op de SGD worden getrieerd door een verpleegkundige, wat kan leiden tot een doorverwijzing naar de HWP. Momenteel worden patiënten in de HWP Brugge gezien op basis van de volgorde waarin ze zich hebben ingeschreven. Omdat patiënten op spitsuren soms lang moeten wachten kan dit systeem een potentieel gezondheidsrisico inhouden bij urgente problemen.

Doel:

In deze studie werden de urgentiecodes geëvalueerd van de patiënten die contact opnamen met de HWP Brugge, evenals de verschillen tussen de huisbezoeken en de consultaties. Verder werd de wachttijd van de consultaties bekeken in functie van de verwijsmethode en van de urgentie code. Als secundaire uitkomst werd de urgentie code van een willekeurige steekproef (500 dossiers) gegeven door de arts van wacht, vergeleken met de urgentie code gegeven door een in triage-ervaren arts (TEA) op basis van anamnese, leeftijd en tijdstip van presentatie.

Methode:

De gegevens van alle patiënten die gedurende één maand consulteerden bij de HWP in Brugge werden geïncludeerd in de studie. Deze omvatten raadplegingen (tijdstip, type, probleem), verwijsmethode, wachttijd, spoedcode, leeftijd en geslacht van de patiënt. Een willekeurige subset

van 500 persoonlijke raadplegingen werd onderworpen aan triage door een TEA en vergeleken met de beoordeling door de arts van wacht.

Resultaten:

Tijdens de geselecteerde maand deden er 2721 patiënten beroep op de HWP. De patiëntenpopulatie had een mediane leeftijd van 36 jaar (IQR 17 - 61 jaar) en 52,1% (1418) was vrouwelijk. Van deze contacten waren 15,1% (410) huisbezoeken. Huisbezoeken vonden significant vaker 's nachts plaats (p <0,001) en gebeurden bij een kwetsbaardere populatie (ouder, urgentere problemen). Zij hadden echter ook de langste mediane wachttijd (50 (33 – 84) minuten). Van alle consultaties werd 65,7% (1508) beschouwd als niet-planbare zorg, 3,9% (88) als (hoog)dringend en 30,4% (698) als planbare zorg. De mediane wachttijd van patiënten op consultatie was 19 (9-37) min. Er was geen significant verschil in wachttijd in functie van de verwijsmethode (zelfverwijzer, 1733, SGD) of van de urgentie graad. Er was geen verschil in urgentie tussen zelfverwijzers en 1733 telefonische verwijzingen. Alleen verwijzingen van de SGD waren minder vaak planbare zorg.

De willekeurige subset van geëvalueerde consultaties (500) verschilde niet significant van de totale groep (2294). Een hogere urgentie code (= overtriage) werd door de TEA gegeven aan 113 (22,6%) patiënten en een lagere urgentie code (=undertriage) aan 77 (15,4%) patiënten. Opvallend is dat slechts één patiënt met een dringend medisch probleem (n=19) een lagere code kreeg door de TEA. Bovendien vonden zowel de huisarts als de TEA dat 122 (24,4%) patiënten eigenlijk beroep konden doen op geplande zorg.

Besluit:

Slechts 15% van de contacten met het Brugse HWP waren huisbezoeken. Deze werden echter uitgevoerd bij een risicopopulatie, maar hadden tevens de langste wachttijden door het vervoer van de huisarts.

Hoewel de mediane wachttijd in het Brugse HWP binnen een aanvaardbare marge lag, was er geen waarneembaar verschil in wachttijd op basis van de urgentie van het medisch probleem. Dit vormt een potentieel gezondheidsrisico. Triage identificeerde nauwkeurig patiënten die dringende zorg nodig hadden. Bovendien identificeerden zowel de huisarts als TEA bijna 25% patiënten met planbare zorg. Toekomstig onderzoek moet zich richten op de implementatie van triage op de HWP om zo medische zorg te verlenen in functie van urgentie. Of deze strategie planbare zorg ontmoedigt, zonder patiënten met dringende problemen in gevaar te brengen, moet verder worden onderzocht.

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Abstract

Background & objectives: The out-of-hours medical care in Belgium is facing increasing demands, which has led to the development of new models and partnerships aimed at improving accessibility, quality, and safety. This study evaluates the relationship between wait time and urgency as well as the influence of referral method on urgency. Furthermore, the accuracy of the triage conducted by a triage-experience physician (TEP) is evaluated in comparison to the general practitioner (GP) assessed emergency code.

Methods: The study included all patient contacts over one-month period at the General Practitioners Cooperative (GPC) in Bruges. Data collected included consultation (time, type, problem), referral mode, wait time, emergency code, patient's age and gender. A random subset of 500 in-person consultations was subjected to triage by a TEP.

Results: Of the 2721 consultations, 84,3% were in-person consultations. The median age of patients was 36 years. House calls had the longest wait time, and were performed in a vulnerable population (older, higher urgency). There was no difference in urgency according to referral mode. There was no difference in wait time according to the urgency. Triage identified patients in need of urgent medical care, and both the GP and TEP identified plannable care in almost 25% of patients.

Conclusion: Although the median wait time at the Bruges GPC was within an acceptable range, there was no discernible difference in wait time based on the urgency of the medical problem. This poses a potential health risk. Triage accurately identified patients in need of urgent care. Both GP and TEP identified almost 25% of patients with plannable care.

List of Abbreviations

ED: emergency department

GP: general practitioner

GPC: general practitioners cooperative

IQR: interquartile range

OOH: out-of-hours

TEP: triage-experienced physician

Afkortingen in het Nederlands

HWP: huisartsenwachtpost

SGD: spoedgevallendienst

TEA: triage-ervaren arts

Introduction

In Belgium, out-of-hours (OOH) medical care covers evenings, nights, weekends and public holidays. People with a medical problem, can go either to a General Practitioners Cooperative (GPC) or, for more acute care, to a hospital emergency department (ED). Patients are free to choose which service they want to use. This decision is not only made based on the perceived medical problem but also influenced by factors such as previous experiences and access of the services, the expected wait time, … amongst others (1,2). However, both ED and GPC services are facing increasing demands due to an ageing population and changing patient behavior in a 24/7 culture. Correct referral is essential to maintain the balance between safety, efficiency, and affordability (3).

In Belgium, people with a medical problem during the OOH period, can also call 1733 if they are not sure which OOH service to contact. Based on the complaints and the evaluated emergency, the 1733 can refer patients to the GPC, the ED, or the 112-ambulance service (4).

Over the past decade, new models have been introduced in European countries to address the challenges of providing safe and affordable care during OOH period. Accessibility, quality, and safety of OOH GPC medical care remains the main concern. This has led to the relocation of some GPC's close to a hospital ED to facilitate referrals between services. Although, this relocation had a favorable effect on the ED visits in the Netherlands, this was not the case in Belgium where the GPCs do not act as a gatekeeper for the ED (5, 6). Furthermore, larger functional partnerships will reduce the on-call hours of the general practitioner (GP) (7). As a result, the Belgian government is currently encouraging GPCs to form larger functional partnerships serving at least 300,000 residents.

This study is conducted at the Bruges GPC. It offers OOH medical care to 272,542 residents and covers an area of 658 km². In 2016, It relocated from the city center to vicinity of the "AZ Sint-Jan" ED. The central entrance gives access to both the GPC and the ED. It is up to the patient to decide which unit they want to consult. However, if they go to the ED, they will be triaged by a nurse, which may lead to a referral to the GPC (8). During the weekend daytime, a satellite GPC is located in Knokke near the "AZ Zeno" ED. Every year, approximately 32.000 patients visit the Bruges GPC, of whom approximately 6% (1920) require referral to the hospital ED.

The Bruges GPC will have to merge with the GPC area of Ostend due to governmental guidelines. This will result in a population increase of 90,256 and an expansion of the area by 55.2 km². The

increased number of consultations necessitates a more efficient and safe organization of the OOH medical care at the Bruges GPC.

Currently, people with a medical problem will be treated at the Bruges GPC based on the order in which they registered. This situation poses a potential health risk, as patients may have to wait due to rush-hours despite requiring immediate attention.

The conducted study aims to evaluate the wait time, emergency codes and referral methods, at the Bruges GPC before its expansion. The emergency grading system was updated conform to the grading system used by the 1733 telephone service (table 1, addendum 1), prior to the study (4). This was necessary due to inherent limitations within the previous coding system that hindered the ability to differentiate the most appropriate emergency level. Two months before the data collection, the new grading system was implemented in the electronic emergency patient file provided by Mediris®.

This study was performed to evaluate the emergency codes from the patients who made contact with the Bruges GPC (huisartsenwachtpost Brugge) and whether there was a difference in wait time or referral mode according to the emergency code. As secondary outcome a random sample of 500 files will be evaluated by a triage-experience physician (TEP) to evaluate the discrepancy with the code given by the GP. If triage based on medical, age and gender is successful and safe, it might be possible to prioritize care for those with the highest emergency code.

Research questions

1. Is there a difference in emergency codes between patients referred by the 1733 (telephone triage) or the patients with self-referral?
2. Is there is a difference in wait time according to the emergency code?
3. What are the differences between house calls and in-person consultations?
4. How accurate would a triage done by a trained triagist be compared to the emergency code given by the GP on guard?

Methods

1. Study design and population

The study was conducted at the Bruges GPC which includes a location in Bruges next to the "AZ Sint-Jan" ED and a satellite location in Knokke next to the "AZ Zeno" ED. Knokke is open only on weekends from 8:00 AM to 8:00 PM. To obtain a representative sample of patients consulting at the OOH Bruges GPC (32.000/year) with a margin of error of 2%, a sample size of 2234 was calculated. Therefore, the evaluation of all contacts occurring during one month was considered as appropriate.

Data on time of consultation (weekend day/ weekday, daytime (8:00 AM – 10:59 PM) / nighttime (11:00 PM – 7:59 AM)), referral mode (self-referral, 1733, ED), wait time (time between medical registration and physician contact), emergency code (table 1), consultation type (in-person, house call, telephone), patient age and gender, and hospital referral post-consultation were collected from the medical program.

Table 1: Levels of urgency

Levels of urgency	Label	description
U1	**Life-threatening**	Immediate medical intervention is necessary
U2	**Emergent**	Must provide help as soon as possible; certainly <1hour
U3	**Urgent**	To be assessed < 2 hours
U4	**Non-schedulable**	Normal use of on call service must be helped during OOH care
U5	**Plannable**	Could basically wait until the next (working) day

OOH: out-of-hours

In order to evaluate whether triage could help to detect the patients with an urgent need for medical care, a random selection of 500 cases was made by the computer system from the in-person consultations, which reflected the same degree of urgency as the entire group. The selected cases were assessed by a TEP who is blinded to the evaluation done by the GP on duty. The sample size was determined to detect a 10% difference in emergency code "plannable care" (10% is the estimate for current practice) with alpha 0.05 and a power of 0.8, resulting in 398 patient contacts. For these cases, the system provided additional information about the reason for contact as well

as clinical parameters such as fever, glycemia for those with known diabetes and blood pressure. Cases were designated as overtriage when the emergency code assigned by the TEP was higher than the code provided by the GP, and undertriage when the TEP code was lower than the GP code.

2. Statistics

Data were analyzed using SPSS 29 ® IBM. Differences were compared using a Mann-Whitney U test or a Wilcoxon rank test. For categorical variables a Pearson Chi-square test or a Fisher's exact test was used. Differences were considered significant if the p-value was <0.05 but in case of multiple testing a Bonferroni correction was applied to address the problem of subgroup analyses. Results are given as total number and percentages or as median and interquartile ranges (IQR). To evaluate the emergency coding, a random sample of 500 consultations with the same proportions in urgency levels was obtained from the total number of consultations using the SPSS 29 ® IBM randomization software.
The study was approved by the ethics committee of the Antwerp University Hospital (nr 3703-EDGE) (addendum 2).

Results

1. Total cohort

During the selected month, the primary OOH care center recorded a total of 2721 consultations, with 2153 (79,1%) occurring during the weekend and 354 (13%) during the night between the hours of 11:00 PM and 7:59 AM (figure 1). The patient population had a median age of 36 years (IQR 17 – 61 years), with 52,1% (1418) being female. There were 2294 (84,3%) in-person consultations, 410 (15,1%) house calls and only 17 (0,6%) remote consultations via telephone. House calls were significantly more frequent during the night (76, 18,5%) compared to in-person consultations (276, 12%) (p <0.001) (figure 1).

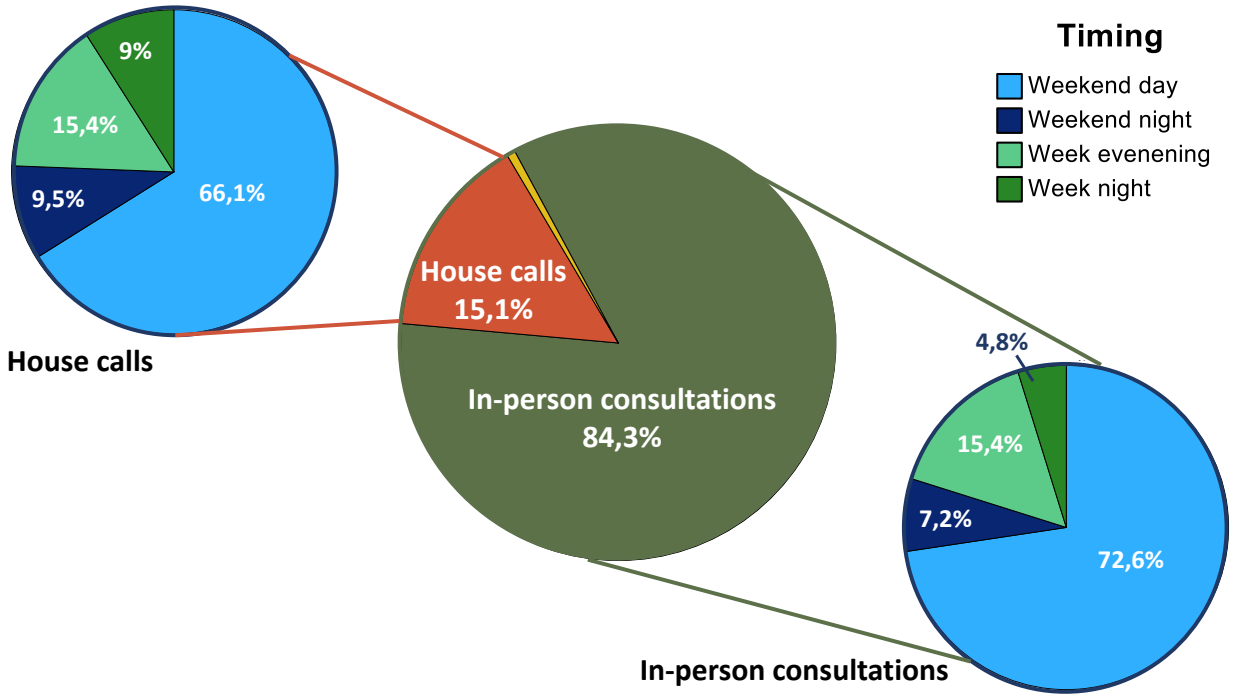


Figure 1: *distribution of the contacts between house calls and in-person consultations, along with their respective times (week/weekend, day/night)*

Of all the contacts, 1784 (65,6%) were considered as non-schedulable care, while 795 (29,2%) were considered as plannable care. Urgent, emergent and life-threatening cases accounted for 129 (4,7%), 10 (0,4%), and 3 (0,1%) cases, respectively. Due to the limited numbers, the urgent levels of care being urgent, emergent and life-threatening, have been combined in the further analysis. Following the medical consultation, 187 (6,9%) patients were referred to the hospital.

Patients asking for a house call were significantly older (Table 2, figure 2) ($p < 0.0001$), were more frequently female ($p < 0.001$) and had a higher level of emergency ($p < 0.001$). This resulted in a significantly higher likelihood for referral to a hospital ($p = 0.028$). The wait time for medical care was significantly longer for house calls ($p < 0.001$).

Table 2: Description of the contacts

			Type of contact					
			Consultation (n= 2294)		House call (n=410)		Telephone call (n=17)
Urgency level	**Plannable care**		698 (30,4%)		92 (22,4%)		5 (29,4%)
	Non-schedulable care		1508 (65,7 %)		265 (64,6%)		11 (4,7%)
	Urgent	Urgent	88 (3,9%)	84 (3,7%)	53 (12,9%)	44 (10,7%)	1 (5,9%)
		Emergent		4 (0,2%)		6 (1,5%)	0
		Life-Threatening		0		3 (0,7%)	0
Age (years, median (IQR)*			30 (13 – 50)		81 (67 -88)		72 (14 – 85)
Gender (female number, (%))			1155 (50,3%)		255 (62,2%)		8 (47,1%)
Wait time (minutes)*			19 (9-37)		50 (33 – 84)		n.a.
Referral to hospital after consult°			148 (6,4%)		38 (9,3%)		1 (5,8%)

*Emergency level, age, gender, wait time, referral to the hospital after medical consult according to the type of contact. Significance of differences between consultation and house calls (Mann-Whitney U test): *p < 0,001, °p = 0.028, Abbreviations: IQR: interquartile range, n.a. not applicable.*

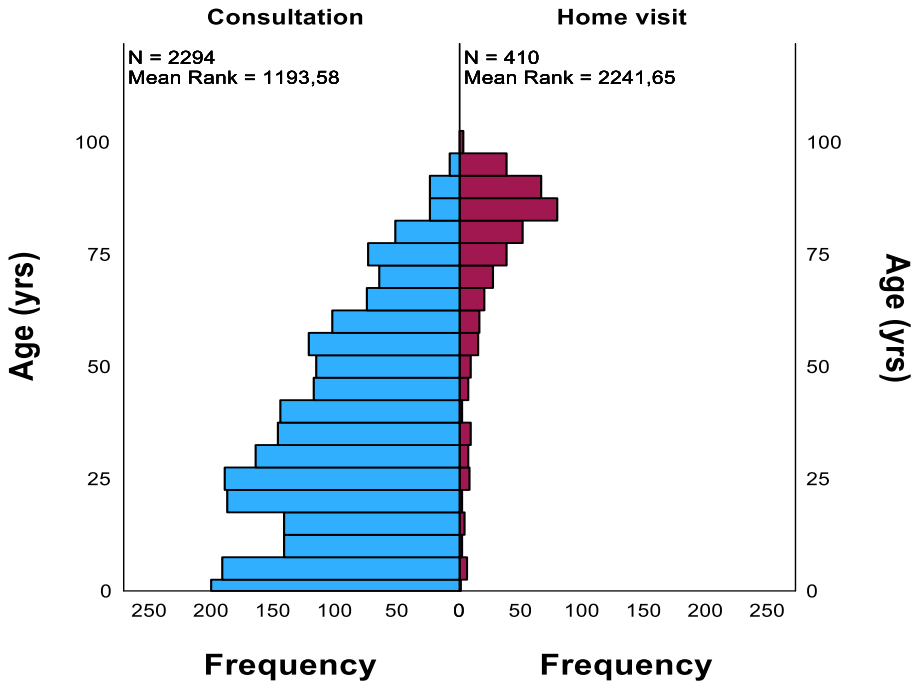


Figure 2: *age distribution of in-person consultations and house calls*

2. In-person consultations

Out of the 2294 in-person consultations, 1832 (79,9%) were conducted during the weekend of which 462 (25,2%) were conducted during daytime at the satellite location in Knokke. A total of 276 (12%) consultations took place during the night between 23:00 and 8:00. The median wait time of patients consulting during the night was significantly shorter (night 11 (4-22); day 21 (9-39) minutes) (p<0.001) (figure 3).

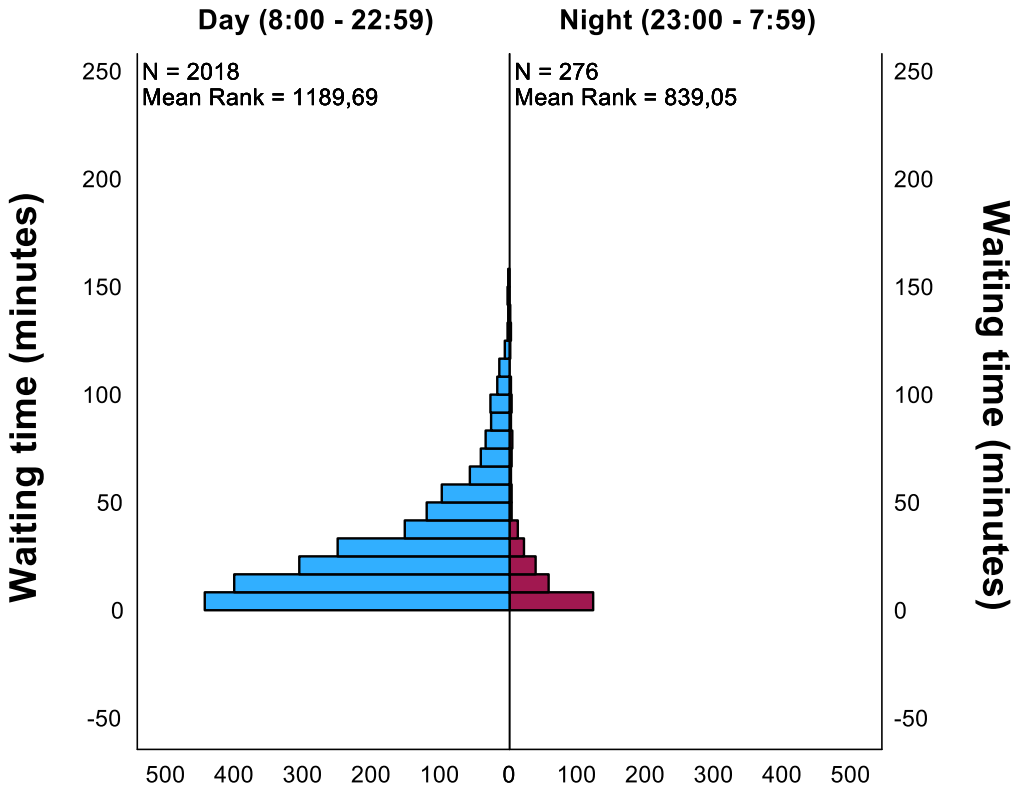


Figure 3: *Wait time distribution in minutes according to time of day (P<0.001)*

Of all the in-person consultations, 1508 (65,7%) were considered as non-schedulable care, 88 (3,9%) as urgent while 698 (30,4%) were considered as plannable care. After medical consult, 148 (6,5%) patients were referred to a hospital.

Among these in-person consultations, 1106 (48,2%) were self-referrals, 750 (32,7%) were referred by the telephone service (1733), and 438 (19,1%) were referred by an emergency ward. Patients referred by the ED were less likely to present with plannable care (p < 0.001). Patients referred through the 1733 telephone service were significantly younger than the self-referrals (p = 0.006)

and the patients referred through the ED (p = 0.007) (Table 3, Figure 4). There was no difference in wait time (figure 5) or frequency of hospital referrals following medical consult between the various notification methods (self-referral (62, 5,6%), 1733 (47, 6,3%), ED (39, 8,9%)).

Table 3: urgency level, age, gender, wait time, referral to the hospital according to the referral mode

		Self-referral (1106)	1733 telephone (750)	Emergency ward (438)
Urgency level	Plannable care (698)	358 (32,4%)	240 (32%)	100 (22,8%)
	Non-schedulable (1508)	717 (64,8%)	474 (63,2%)	317 (72,4%)
	Urgent/emergent (88)	31 (2,8%)	36 (4,8%)	21 (4,8%)
Age (years, median (IQR))*		31 (15 - 53)	28 (10 - 48)	31 (15 - 54)
Gender (female number, (%))		562 (50,8%)	403 (53,7%)	190 (43,4%)
Wait time (minutes)		20 (8 - 37)	18 (9 – 35)	19 (10 – 40)
Referral to hospital after consult (148)		62 (5,6%)	47 (6,3%)	39 (8,9%)

*Significance (Kruskal-Wallis) *p = 0.002 Abbreviations: IQR: interquartile range*

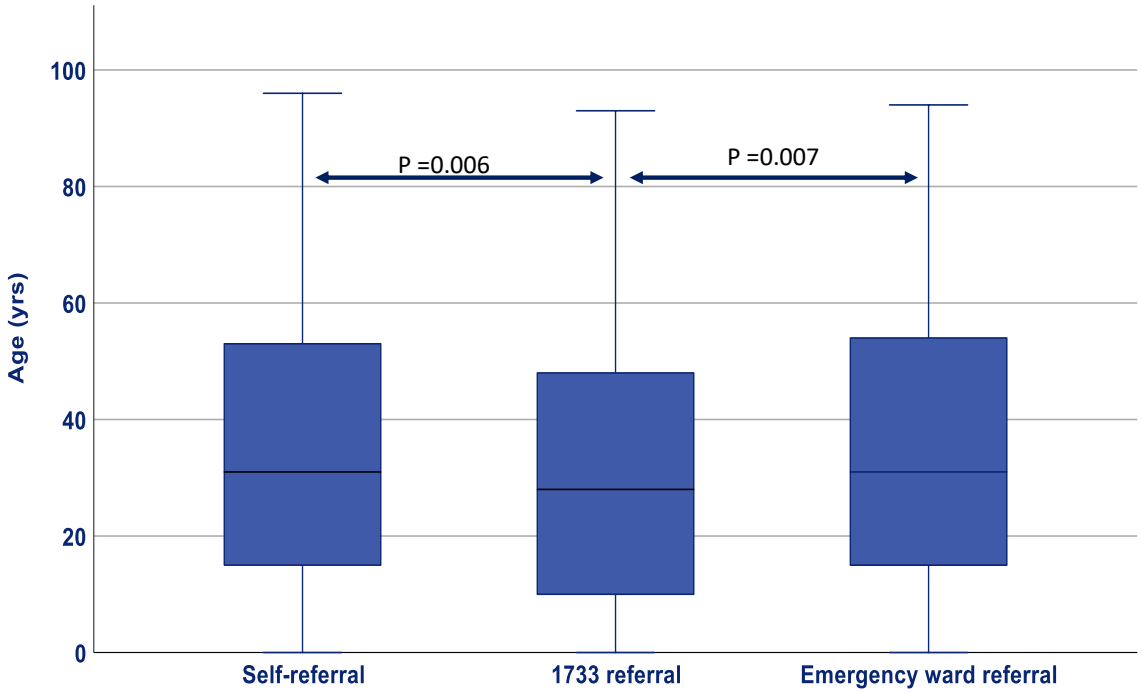


Figure 4: *Age according to referral mode is significantly different (Kruskal-Wallis p = 0.002). Adjusted significances are indicated in the figure using an arrow.*

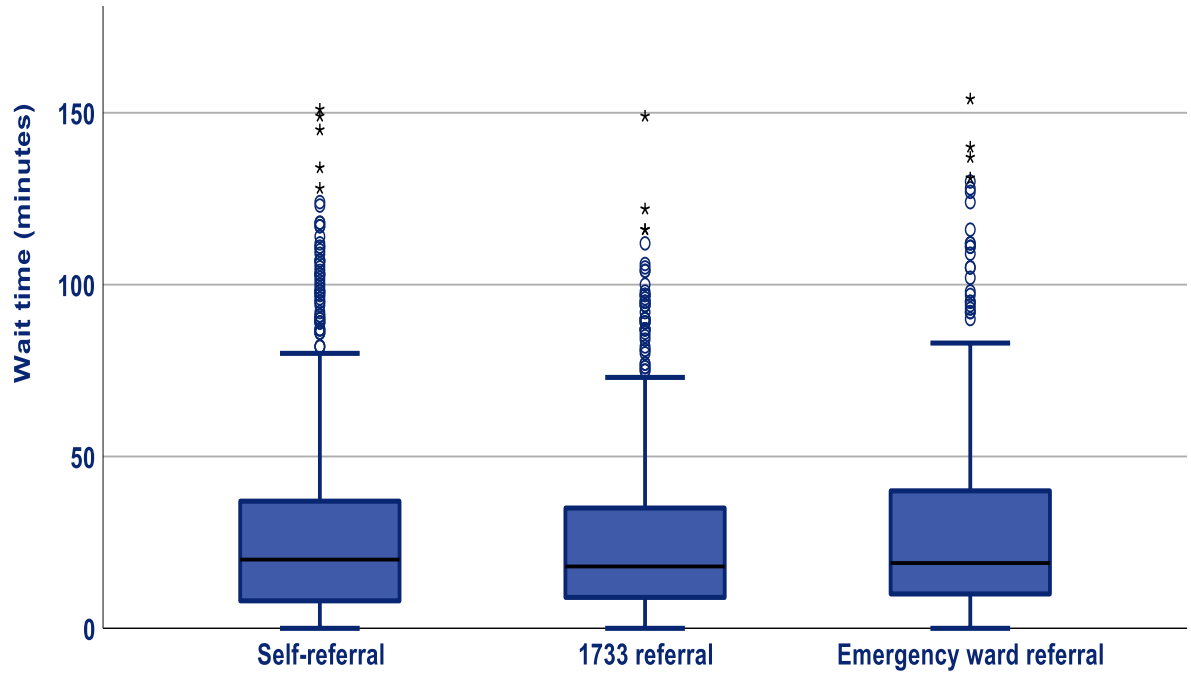


Figure 5 *Boxplots of the wait time according to referral mode.*

There was no significant difference in age, gender or wait time according to the level of urgency assessed by the GP (Table 4, figure 6). However, consultations rated as urgent were more likely to result in a referral to the hospital (p<0.001) (table 4).

Table 4: **Age, gender, wait time and referral to the hospital according to the urgency levels assessed by the general practitioner.**

		Plannable care (698)	Non-schedulable (1508)	Urgent/emergent (88)
Age (years, median (IQR))		29 (15 - 48)	30 (13 - 52)	37 (17 -57)
Gender (female number, (%))		365 (52,3%)	746 (49,5%)	44 (50%)
Wait time (minutes)	**Total** (IQR) [Min,Max]	19 (8 - 38) [0 - 151]	19 (9 - 36) [0 - 154]	16 (7 - 36) [0 - 130]
	Day (IQR) [Min,Max]	22 (10 – 42) [0 - 151]	20 (9 - 38) [0 - 154]	19 (9 - 50) [0 - 130]
	Night (IQR) [Min,Max]	10 (4 - 17) [0 - 101]	12 (4 - 24) [0 - 134]	4 (8 - 16) [0 - 87]
Hospital referral after consult°	**Total**	10 (1,4%)	94 (6,2%)	44 (50%)
	Day	9 (1,5%)	82 (6,2%)	33 (45,2%)
	Night	1 (1,2%)	12 (6,8%)	11 (73,3%)

Significance (Chi-square)°P< 0.001 Abbreviations: IQR: interquartile range, Min: minimum, Max: maximum

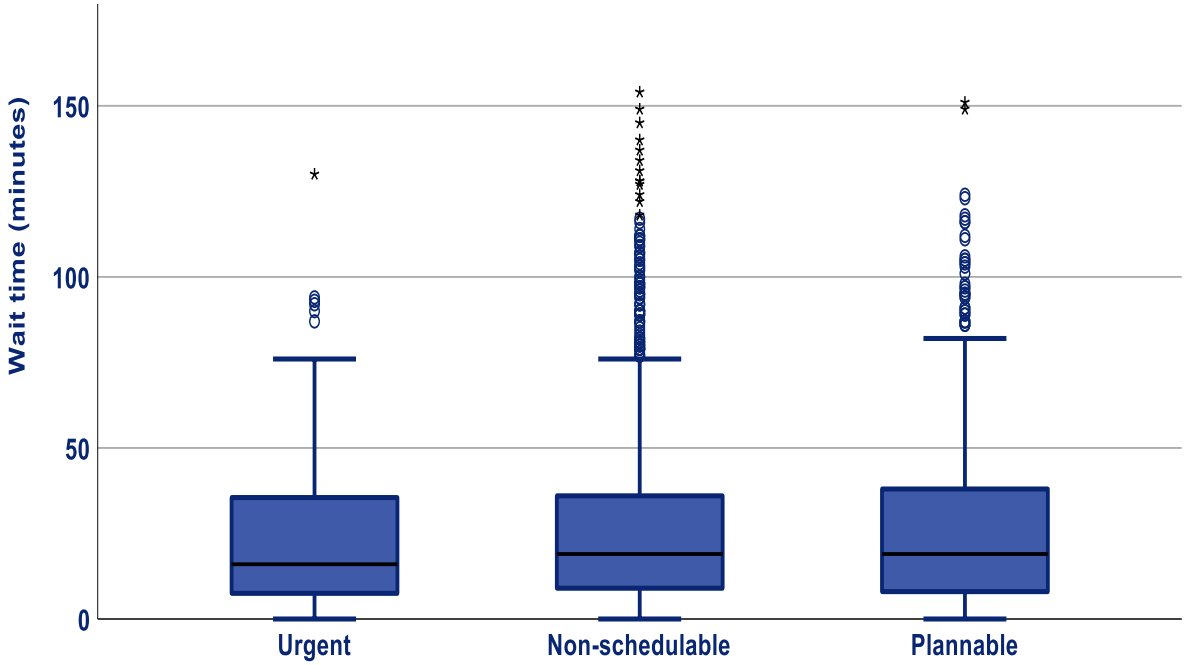


Figure 6: *wait time (minutes) across the different urgency levels*

3. Random subgroup analysis

The random subset was compared to the entire group of in-person consultations, and there were no significant differences between the groups for any of the parameters (table 5).

Table 5: Comparison between the random sample and the entire group of in-person consultations

In-person consultations		**Random group (500)**	**Total group 2294)**
Urgency level	Plannable care	152 (30,4%)	698 (30,4%)
	Non-schedulable	329 (65,8%)	1508 (65,7%)
	Urgent/emergent (88)	19 (3,8%)	88 (3,8%)
Referral	Self-referral	229 (45,8%)	1106 (48,2%)
	1733 telephone	174 (34,8%)	750 (32,7%)
	Emergency department	97 (19,4%)	438 (19,1%)
Time	Weekend day	397 (79,4%)	1832 (79,9%)
	Day hours	452 (90,4%)	2018 (88%)
Age (years, median (IQR))		30 (14 - 52)	30 (13 - 52)
Gender (female number, (%))		259 (51,8%)	1155 (50,3%)
Wait time (minutes)		18 (8 - 39)	19 (9 – 37)
Referral to hospital after consult° (148)		28 (5,6%)	148 (6,5%)

Abbreviations: IQR: interquartile range

These 500 patients were seen by 68 different GP. Each GP saw a median of 6 patients (minimum-maximum: 1-34) of the random sample. The emergency codes given by the GP and TEP is given in table 6. They differed significantly (p<0.001).

Table 6: Emergency codes given by the general practitioner and the triage-experienced physician.

		Triage-experienced physician				
		U2	**U3**	**U4**	**U5**	
General practitioner	**U2**	1				1
	U3	7	10	1		18
	U4	6	70	177	76	329
	U5	1	4	25	122	152
		15	84	203	198	500

Orange fields = undertriage by the TEP, green fields = overtriage by the TEP. Abbreviations: U2: emergent, U3: urgent, U4: non-schedulable, U5: plannable, GP: general practitioner. TEP: triage-experienced physician

Out of the 500 randomly selected patients, 310 patients (62%) were assigned the same code as that provided by the GP, while the TEP based the decision on anamnesis, age, gender and time of registration, without access to the GP-provided emergency code. A higher emergency code (=overtriage) was given to 113 (22,6%) patients and a lower emergency code (=undertriage) was given to 77 (15,4%) patients. It is of note that only one patient presenting with an emergent or urgent medical problem (n=19) was undertriaged. Furthermore, 122 (24.4%) patients were deemed suitable for planned care by both the GP and the TEP.

As undertriage entails a risk of insufficient medical care, these were looked at more closely. There were 16 GPs who never used the code plannable care and saw 97 (19,4%) patients. Of these patients, 35 (36%) were given a lower emergency code by the TEP. In contrast, of the 403 patients seen by a GP who used the plannable care code, only 42 (10,4%) were undertriaged (p<0.001) (table 7).

Table 7: Difference between the general practitioner's use or never use the code plannable care

	No undertriage by the TEP	Undertriage by the TEP	
GP using plannable care code	361 (89,6%)	42 (10,4%)	403 (80,6%)
GP not using plannable care code	62 (64%)	35 (36%)	97 (19,4%)
	423 (76,4%)	77 (22,6%)	500

Significance of difference (Chi-square) p<0.001 Abbreviations: GP: general practitioner, TEP: triage-experienced physician

Of the 77 patients who received a lower emergency code, 45 (58,4%) could have been helped with a telephone advice and alarm symptoms. Moreover, 26 (33,7%) out of the undertriaged patients were seen by a GP who never used the plannable care emergency code.
Among the overtriaged patients (113), 18 (15,9%) required stiches and in 8 (7,1 %) cases there was insufficient information resulting in a higher emergency code.

Discussion

This study analyzed all patient contacts made in September 2023 (n= 2721) at the Bruges GPC. The number of patients included in the study was consistent with the average monthly patient volume. The majority of contacts were in-person consultations (2294, 84,3%). However, house calls posed the greatest risks as they were performed on an older population, had a higher emergency code and were more frequently referred to the hospital. Despite this, house calls had the longest wait time due to GP transport (9). The wait time for house calls in this study was longer than reported in literature (50 and 30 minutes respectively) (9). As distance is correlated to wait time, strategic plans to minimize transport time will be necessary to safely implement the governmental-driven expansion of the covered OOH medical care area (9). One option could be to divide the area into zones covered by separate driving GPs, with only a small overlap.
The median wait time for in-person consultations was 20 minutes, which is acceptable. However, there was a significant variation with a maximum wait time of 154 minutes. As triage on admission was absent, wait times did not differ according to the emergency code. This could pose a health risk for individuals attending the GPC during rush hours. The in-person consultations were self-referrals in half of the cases, a third was referred by the telephone service (1733) and almost twenty percent were triaged by the emergency ward. The referral method had no influence on the wait

time but referrals from the ED were less likely to be plannable care. Still 9% of these referrals were send back to the hospital. To gain better understanding of this problem and avoid wasting time before appropriate care is given, the referrals back to the ED should also be studied in the future (10).

Of the 2294 in-person consultations, almost 30% were evaluated as plannable care by the GP, which is significantly higher compared to the approximately 10-25% reported in other studies (11,12,13). Several factors such as the presence of a stable problem for more than 24 hours or the problem occurring 2 hours before the GP practice opens or during a weeknight, have been identified as being related to more plannable care (14, 15). The easy accessibility of the OOH medical care is perceived as a significant reason for consulting with non-urgent problems (16). The number of contacts with the Bruges GPC increased with 34% over the past 5 years. To ensure optimal resource utilization in the future, the amount of plannable care during OOH medical care should be limited or at least be discouraged (16). Currently, the wait time is not adjusted according to the urgency of the problem, which could be improved through triage on arrival to identify patients needing more urgent care. By classifying patients according to urgency, wait times can be reduced. Efficient care provision requires effective triage. Therefore, it is essential to strike a balance between overtriage and undertriage. Overtriage is the practice of assigning patients to a higher level of care than is clinically necessary. While overtriage may seem like a sensible way to ensure that patients receive prompt medical care, it can lead to adverse consequences for the efficiency of care. For instance, it may result in unnecessary costs, divert attention from patients who genuinely require urgent care, increase the workload for healthcare providers, and lead to longer wait times for patients. Undertriage, the opposite of overtriage, could lead to insufficient care which poses a safety risk.

Previous studies have shown that there is an average of 9-18% overtriage and 10-12% undertriage (11, 12, 17). However, this study resulted in slightly higher frequencies of overtriage (22,6%) and undertriage (15,4%). Some of the overtriage was attributed to sutures (18/500). All GPs classified these patients as non-plannable, indicating that they should be seen during the waiting shift. However, the TEP marked them as 'urgent', requiring assistance within 2 hours. The most appropriate timeframe for sutures lies between these two classifications, as they should be done within 8 hours.

Although undertriage poses a potential health risk, there was undertriage in only 1 patient requiring urgent care. The major discrepancy observed was in the non-schedulable care. This might be the result of different interpretation of both the medical problem and the urgency codes. It is worth noting that in this study, 16 GP’s (responsible for 19,4% of patients) never used the code plannable

care. The reasons for avoiding this code were not investigated in this study but they could include medico-legal concerns or insufficient familiarity to the codes. It is important to mention that the GPs were not trained to use the new coding system.

Finally, both the TEP and the GP concluded that almost one in four patients presenting with problems could have been diverted to the regular medical care. This would result in a notable alleviation of the burden on the OOH medical care.

The future improvement of the OOH medical care lies in reliable telephone triage using evidence-based uniform protocols by trained and experienced triage professionals. Telephone advice and alarm symptoms provided by the triagist should be able to reduce the number of patients consulting with plannable care (11, 18-20). Moreover, waiting times for high urgency levels can be reduced, improving the safety.

Conclusion

A mere 15% of contacts with the Bruges GPC were house calls. However, these were performed on an at-risk population (older, with higher emergency codes, and more frequently referred to the hospital) but had the longest wait times due to GP transport. There was no difference in urgency between self-referrals and 1733 telephone referrals. Only referrals from the ED resulted in less plannable care.

Although the median wait time at the Bruges GPC was within an acceptable range, there was no discernible difference in wait time based on the urgency of the medical problem. This poses a potential health risk. Triage accurately identified patients in need of urgent care. Both GP and TEP identified almost 25% of patients with plannable care. Future research should focus on the implementation of on-site triage, with the aim of providing medical care according to urgency. If this strategy discourages plannable care, without endangering patients with urgent problems should be studied further.

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Addendum

Addendum 1: Nederlandse triage tabel

Evaluatie van urgentie	Label	description
U1	**Levensbedreigend**	Onmiddellijk ingrijpen vereist
U2	**Hoogdringend**	Moet binnen het uur gezien worden
U3	**Dringend**	Moet binnen de 2 uur gezien worden
U4	**Niet-planbare zorg**	Moet tijdens de wachtdienst geholpen worden
U5	**Planbare zorg**	Kan in principe wachten tot na de wachtdienst

Addendum 2: Goedkeuring Ethisch comité

ETHISCH COMITE

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Professor Hilde Philips

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Dr. Marie Vermeire

Huisarts In Opleiding

Datum: 13/02/2023

Project ID 3703 - EDGE n/a

Project titel: Triage at the out-of-hours General Practitioner (GP) post. Is there a place for triage at the out-of-hours GP post?

DEFINITIEF GUNSTIG ADVIES

Geachte collega

Het Ethisch Comité van het Universitair Ziekenhuis Antwerpen en de universiteit Antwerpen heeft bovenvermelde studie besproken en geeft een gunstig advies dd. 13/02/2023.

De volgende bijlagen werden volgens de ICH-GCP richtlijnen door het Ethisch Comité goedgekeurd:

Document Type	File Name	Date	Version
Accompanying letter	Accompanying letter	15/11/2022	1
CV	Short Curriculum vitae Hilde Philips 20221021_EC_M_Vermeire	15/11/2022	1
GCP	Certificate 20211029	15/11/2022	1
CV	CV_MarieVermeire_	15/11/2022	1
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Other	TRIAGE TABEL	15/11/2022	1
GCP	GCP_MV	30/11/2022	Versie 1
Insurance	Verzekering UAntwerpen 2022	30/11/2022	versie 1
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Remarks	Protocol_english tracked changes	07/02/2023	2
Remarks	Protocol_english clean	07/02/2023	2

Deze goedkeuring is geldig tot een jaar na bovenvermelde datum. Wij verzoeken u ons te melden wanneer de eerste deelnemer werd geïncludeerd, wanneer en waarom de studie (vroegtijdig) werd stopgezet of nooit werd opgestart.

Indien de studie nog loopt na een jaar verwachten we een follow-up rapport waarin eventuele voorvallen worden gemeld.

Tot slot wijzen we er op dat, voor in het UZA lopende studies, de ernstige ongewenste voorvallen dienen gerapporteerd via het incidentenmeldingssysteem.

Met vriendelijke groeten



Prof. dr. Peter Michielsen

Voorzitter Ethisch Comité UZA/UAntwerpen

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Emeritus Professor Hilde Bortier	MD, PhD
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