

Non-urgent consultations in polyvalent emergency department: Proportion and contributing factors

Consultations non appropriées aux urgences polyvalentes: Proportion et facteurs associés

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ABSTRACT

Introduction: Overcrowding in emergency departments (EDs) is a concerning global problem with negative repercussions for patients and caregivers. It is partly due to non-urgent consultations. The aims of our study were to determine the proportion of non-urgent ED visits and to identify factors associated.

Methods: Cross-sectional study with an analytical aim including patients aged over 15 years consulted a polyvalent ED during 14-day period. Consultations were coded from 1 to 5 according to the Clinical Classification of Emergency Patients (CCMU). We compared 2 groups: group 1 with urgent consultation (CCMU 3,4 and 5) and group 2 with non-urgent consultation (classified CCMU 1 and 2).

Results: N= 589, mean age=42 years with a female predominance (54.5%). Group 1 included 149 patients and the second Group 440 patients (74.7%). Patients were significantly younger in group 2 and 60.8% had social security coverage ($p=0.006$). Reasons that motivated the ED visit were proximity, search for a quick solution and ignorance of the appropriate health facility to attend ($p<0.05$). Independent factors of non-urgent ED visit were single status, self-referral to the ED, perception of the symptom as not severe, no attending physician, no history of similar symptoms, search for a quick solution, and patient-perceived need for further investigations.

Conclusion: Easy access to investigations in EDs leads patients to consult them for non-urgent reasons. Better communication between them and basic health centers is recommended for the management of patients in CCMU 1 and 2 to avoid ED overload.

Keywords: Emergency Medical Services, Referral and Consultation, Ambulatory Care Facilities, non-urgent, Factors

RÉSUMÉ

Introduction : L'encombrement des services des Urgences constitue actuellement un problème international majeur avec des répercussions négatives sur les patients et le personnel soignant. Ce phénomène est en partie dû aux consultations non-urgentes. Les objectifs de cette étude étaient de déterminer la proportion des consultations non-urgentes et d'identifier les facteurs associés.

Méthodes : Etude transversale à visée analytique réalisée sur une période de 14 jours dans un SU polyvalent. Les consultations étaient codées de 1 à 5 selon la Classification Clinique des Patients Urgents (CCMU). Nous avons comparé 2 groupes : groupe 1 avec consultation classée urgente (CCMU 3,4 et 5) groupe 2 avec consultation classée non-urgente (CCMU 1 et 2).

Résultats : N=589. L'âge moyen était de 42 ans avec une prédominance féminine (54.5%). Le groupe 1 comptait 149 patients et le 2ème groupe 440 (74,7%). Les patients étaient plus jeunes dans le groupe 2 et la plupart avaient une couverture sociale ($p=0,006$). Les raisons motivant la consultation étaient la proximité et la méconnaissance d'autres options ($p<0,05$). Les facteurs indépendants associés aux consultations non-urgentes étaient le célibat, l'arrivée par ses propres moyens, la perception du symptôme comme non grave, l'absence de médecin traitant, l'absence d'antécédent d'épisode similaire, la recherche d'une solution rapide et le besoin ressenti d'examens complémentaires.

Conclusion : L'accès facile aux explorations aux urgences incite les patients à les consulter fréquemment. Une meilleure coordination avec les centres de santé de base est recommandée pour la prise en charge des patients CCMU 1 et 2.

Mots-clés: Urgences, Revue de pertinence, Consultations, Motifs

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INTRODUCTION

Emergency departments (EDs) are an essential element of any hospital setting. In addition to their main function of providing urgent and unscheduled care, they are an essential gateway into hospital care pathway and their functionality reflects the institution's quality of care and performance of the national health system (1).

In addition, the accessibility of the ED is thought to be an easier way for some patients to access health care facilities. Over the past few years, the influx of patients to the ED has continued to increase with more and more consultations relevant of ambulatory care facilities (1, 2) Tunisia, like most countries in the world, has been affected by this trend with more than 3,500,000 use per year (1).

Thus, in the face of increasing health care needs and the demands of patients and society in terms of quality and safety, the various emergency structures currently constitute one of the most difficult challenges for our health system in Tunisia (1). Currently, the concept of time is essential in emergency medicine, it concerns many pathologies especially cardiovascular and neurological ones: "Time is heart" "Time is brain", as well as in the resuscitation environment with the development of the concept of "Golden Hour". Thus, EDs are expected to ensure the most appropriate and rapid care of patients with adapted means and resources. Nevertheless, the expected benefit can be neutralized in case of overload. This is partly attributed to non-urgent visits and can lead to delays in care. ED overcrowding has negative repercussions for patients and caregivers including non-respect of hygiene rules by the nursing staff (3), an increase in patient absconding (4), a predisposition to burnout syndrome with prescription errors (5), higher care costs (6), a negative impact on the quality of care provided with an increase of morbidity and mortality (7,8).

The aims of this study were to determine the proportion of non-urgent ED visits and to identify factors associated with inappropriate ED use.

METHODS

Study design and setting

Prospective, analytical cross-sectional study conducted over 14-day period from 01/12/2020 to 14/12/2020 in the ED of the Ariana regional hospital. It consists of a polyvalent ED with an average of 40,000 visits per year and 67 visits per day during the survey time. During study period, each individual presenting with a health concern was first evaluated by a nurse before being registered in our ED. Triage based on international scales, however, has not been carried out.

Study population

Our study included all consenting patients older than 15 years consulting our ED during the study's period. Dead patients at presentation were not included. Exclusion criteria were patients with drunkenness, psychiatric

conditions impairing judgment or mental retardation and those presenting with a not specified consultation. A non-specific consult or "CX" category in the CCMU classification is assigned if (9):

1. The patient is a child, redirected to a special pediatric division (not included in our study), or
2. The patient has left without having been examined by a doctor, this field is left empty as the patient has not been diagnosed.

Considering a non-urgent consultation rate of 61% (10), the minimum number of subjects required was 366 (power=95% and significance level $\alpha = 0.05$).

Data collection

A structured, pre-established written form was completed by the ED team. The interview was conducted in a private area respecting patient confidentiality. It collected the following data:

- Day, date, and time of consultation
- Patient demographics including socio-economic status and means of transport to the hospital
- Patient's perception of the urgency of their condition
- The delay between the beginning of the symptoms and the ED visit
- Patient's perception of need for complementary investigations
- The reason(s) for the ED visit
- The Clinical Classification of Emergency Patients known as CCMU (Classification Clinique des Malades des Urgences) class assigned by the physician. He coded the consultation from 1 to 5 (9).

Table 1 illustrates the different categories of CCMU classification

Table 1. Different categories of Clinical Classification of Emergency Patients (CCMU) (9)

CCMU* class	Description
C1	Stable situation, abstention of complementary diagnostic or therapeutic act
C2	Stable situation, perform a complementary diagnostic or therapeutic act
C3	Situation likely to deteriorate without involving life-threatening
C4	Prognosis committed, no immediate resuscitation maneuver
C5	Prognosis committed, perform immediate resuscitation maneuver
CP	Patient with psychological and / or psychiatric problems dominant in the absence of any unstable somatic pathology
CD	Patient dies at the entrance to the emergency
CX	Not specified

* Clinical Classification of Emergency Patients known as CCMU

Socio-economic status was determined based on the most commonly used indicators: education, occupation and income (11).

Primary endpoint: Urgent or non-urgent consultation in the ED

Based on a review of the literature and an interdepartmental collegial decision, it was decided

that ED consultations classified as CCMU 1 and 2 were considered non-urgent given the stability of the patient's condition. Whereas CCMU 3, 4 and 5 consultations were considered urgent since these patients' functional or vital prognosis could be compromised. Specifically, among CCMU level 2 consultations at our ED, cases involving minor trauma were closely examined. It was observed that these patients frequently presented with either old injuries or underlying chronic rheumatologic conditions, rather than acute traumatic events. Furthermore, a subset of patients appeared to simulate or exaggerate symptoms of recent trauma, likely with the intent to obtain a standard X-ray and expedite access to ambulatory care. This pattern was systematically considered during data analysis and reinforced the classification of CCMU level 2 consultations as non-urgent within the context of this study.

Accordingly, patients were stratified into two groups based on the CCMU classification for comparative analysis:

- Group 1: Patients with an urgent consultation (classified CCMU 3, 4 and 5).
- Group 2: Patients with a non-urgent consultation (CCMU 1 and 2).

Statistical analysis

For statistical analysis, SPSS statistical software was used. Binary logistic regression was used for multivariate analysis. Adjusted Odds Ratios were calculated to measure the role of each factor associated with the non-urgent visit to the ED. For all statistical tests, a P value <0.05 was considered significant.

Ethical considerations

The local ethics committee of the Ariana regional hospital (Mahmoud El Matri) approved the study protocol. Adult patients had to sign an informed consent before being included. Legal tutor's consent was obtained for minor patients. Confidentiality of data and anonymity were respected during our study. No conflicts of interest were declared.

RESULTS

Among 821 patients who have consulted in the period of study, 589 were enrolled (figure 1).

The mean age was 42 + 17 years with a female predominance (54.5%). 61.1% of the patients were married. Most of our consultants had a good socio-professional status and health insurance. Forty-one percent of patients resided within a 5 km area of the study hospital.

The two peaks of visits were at 10 am and around 6-7 pm. Most patients were at home when the symptoms started and came to the ED on their own. The average time from symptom onset to consultation was 9.6 + 5.5 hours with extremes ranging from 15 minutes to 360 hours. 91% of patients consulted within 24 hours. The most common

reasons for consultation were trauma (n=151; 25.6%), cardiovascular (n=84; 14.3%) and digestive diseases (n=77; 13.1%). Table 2 shows the characteristics and profile of patients visiting our ED over the study period.

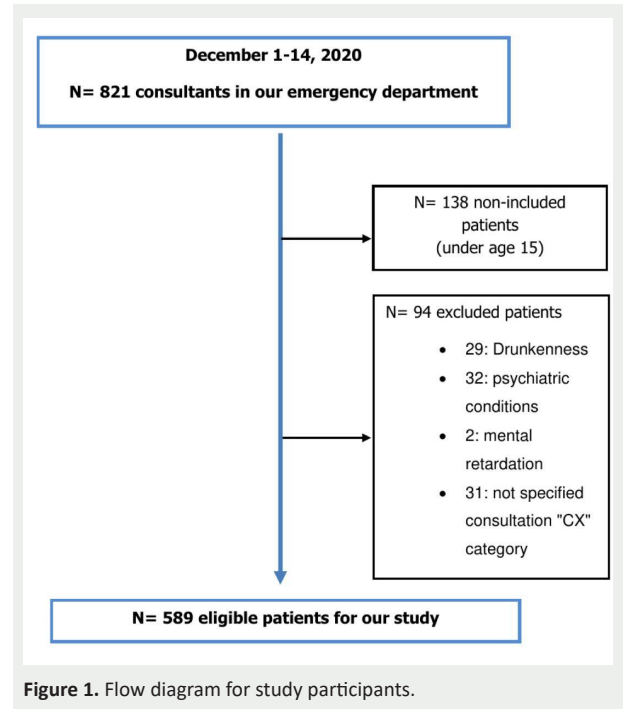


Figure 1. Flow diagram for study participants.

CCMU categories

Figure 2 shows the distribution of patients according to their CCMU class. Almost half of the patients were classified as CCMU 2. Consultations considered non-urgent represented 74.7% of all consultations.

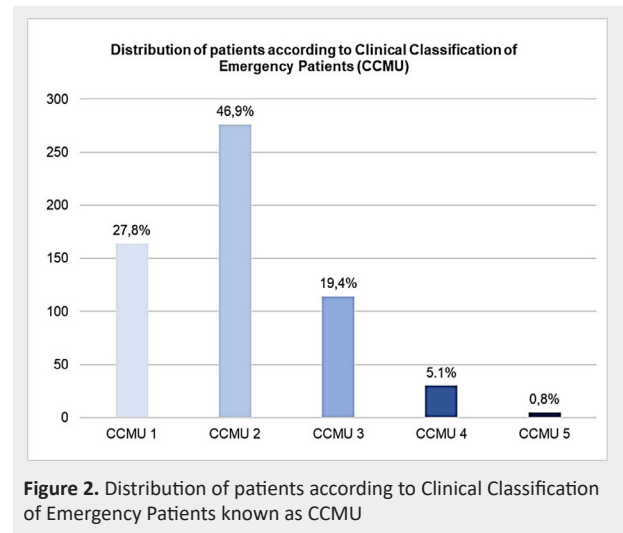


Figure 2. Distribution of patients according to Clinical Classification of Emergency Patients known as CCMU

Analytical study

Univariate analysis:

Group 1 included 149 patients and group 2 consisted of 440 patients (74.7%). Both groups were comparable in gender, education level and proximity to the hospital. There was no significant difference regarding the consultation day, and whether patient visited the ED spontaneously. Patients were significantly younger in

group 2 (51 + 18 versus 39.7 + 16.5 years; $p < 10^{-3}$). There was a significant difference in terms of average time from symptom onset to consultation between the groups (5 + 2 vs 11 + 6 hours; $p = 0.006$). Table 3 provides a summary of other factors.

Table 2. Characteristics and profile of patients visiting the emergency department over the study period.

Parameters	Description	N (%)
Patients' emotional state	Calm	307 (52.1)
	Anxious	174 (29.5)
	Agitated	108 (18.3)
Level of symptom severity perceived by patients	Severe	181 (30.7)
	Moderately severe	222 (37.7)
	Not severe	186 (31.6)
Patients' perception of the urgent nature or otherwise of their condition	Urgent	204 (34.6)
	Mid-urgent	210 (35.7)
	Non urgent	175 (29.7)
History	Chronic disease	105 (17.8)
	No history	484 (82.2)
Follow-up	Attending physician	110 (18.7)
	Absence of follow-up	479 (81.3)
Patient's perception of need for complementary investigations	Medical imaging	269 (45.7)
	Biological analysis	52 (8.8)
	Electrocardiogram	48 (8.1)
	Total	369 (62.6)
History of a similar reason for ED referral	Yes	184 (31.2)
	No	405 (69.8)
Previous consultation in our ED	Yes	Total
		Frequent flyers*
	No	231 (39.2)
The reason(s) for the ED visit: multiple answers are possible	Proximity	358 (60.8)
	Need for further examinations perceived	355 (60.3)
	Needs a rapid solution	298 (50.6)
	Accessibility of the ED	215 (36.5)
	Lack of information on available alternatives	203 (34.5)
	Concern for vital prognosis	199 (33.8)
	No improvement after a previous consultation	13 (2.2)

ED: Emergency Department

* Patients who visited the Emergency Department at least four times in 12 months

Multivariate analysis:

The results of the binary logistic regression for independent factors of non-urgency ED visit are presented in Table 4.

DISCUSSION

The purpose of our study was to assess the frequency of non-urgent ED visits, explore its reasons, and identify factors associated. The rate of non-urgent consultations was 74.7% and reasons that motivated ED visits were proximity, accessibility, and lack of information on

available alternatives. Factors associated were single status, self-referral to the ED, the patient's perception of the symptoms as moderate or not severe, no attending physician, no history of similar symptoms, search for a quick solution, and need for further investigation.

Studies conducted in different countries around the world have shown rates of non-urgent visits ranging from 12.5 to 79% in the United States and 19.6 to 55% in Europe (12). In Kuwait, Shah et al reported 61% of non-urgent consultations (10), the same proportion was found in Saudi Arabia (13) and in Jordan the rate was 90% (14).

Difference between the proportions in Europe and in the Middle East countries is, in part, due to the healthcare system organization, which varies from country to country. In France, for example, MMGs (Maisons Médicales de Garde) have been implemented to handle non-urgent consultations at night. While in Kuwait, many patients attend the ED for any complaint because of their "wasta" or acquaintance in the hospital, which facilitates access to symptoms relief (10).

On the other hand, non-urgent ED visit has different definitions. For some authors, a consultation will be considered as such, if the physician judges that it is so (6,15,16). For others, it depends on the circumstances in which it occurs (6). Some used the Appropriateness Evaluation Protocol (AEP), a questionnaire designed to assess the degree of appropriateness of an ED admission (17). Thus, the approach adopted may explain the disparities in the findings in literature; for example, Naouri et al used three different definitions for the same population in the same study, and found rates ranging from 13 to 23% (15).

Non-urgent visits, in our study, were defined according to the CCMU Classification, a validated and reproducible method. Consultations classified as CCMU 3, 4 and 5 were considered urgent as the patients' functional or vital prognosis could be at risk. Non-urgency was defined by the stability of the patient's condition (CCMU 1 or 2). Data in the literature are divergent regarding the level of CCMU to define urgent ED consultation. Some authors consider that only consultations classified as CCMU 1 are considered non-urgent particularly in the elderly, while others consider that in the absence of a vital or functional emergency (CCMU 1 and 2), they are not relevant for the ED (17). The French Directorate for Research, Studies, Evaluation and Statistics (DREES) in its national survey on hospital emergencies published in 2013 stated that: "it is not true that all patients classified as CCMU 1 and 2 materially depend on ambulatory medicine. Nevertheless, it is certain that these patients did not require emergency care" (18). Thus, in France, MMGs contributed to a net decrease in ED consultations of CCMU 1 and 2 in the evening. Moreover, medical triage could reduce the rate of irrelevant ED visits (19), and the relative high rate in our study could be related to lack of triage.

The reasons for ED referral and factors associated with non-urgent visits were also assessed. In the literature, various reasons have been identified.

Table 3. Factors associated with non-urgent visits to Emergency Department

Parameter	Category	Group 1* N=149 (%)	Group 2† N=440 (%)	P-value	Crude OR (95% CI)
Family status	Single	42 (28.2%)	187 (42.5%)	0.002	1.88 (1.26-2.82)
	Married	107 (71.8%)	253 (57.5%)	-	Reference
Number of children	≤ 2	65 (43.6%)	278 (63.2%)	<0.001	2.21 (1.53-3.19)
	≥ 3	84 (56.4%)	162 (36.8%)	-	Reference
Professional status	Student	11 (7.4%)	78 (17.7%)	<0.001	Not applicable
	With Profession	61 (40.9%)	198 (45.0%)	-	-
	No profession	57 (38.3%)	138 (31.4%)	-	-
	Retired	20 (13.4%)	26 (5.9%)	-	-
Health insurance	Coverage	105 (70.5%)	253 (57.5%)	0.006	Not applicable
	Indigent	28 (18.8%)	92 (20.9%)	-	-
	No coverage	16 (10.7%)	95 (21.6%)	-	-
Consultation time	08:00 to 20:00	95 (63.8%)	328 (74.5%)	0.011	Reference
	20:00 to 08:00	54 (36.2%)	112 (25.5%)	-	0.60 (0.41-0.89)
Means of transport	Assisted	38 (25.5%)	39 (8.9%)	<0.001	Reference
	Own means	111 (74.5%)	401 (91.1%)	-	3.52 (2.16-5.74)
Consultation delay	≤ 24 Hours	142 (95.3%)	394 (89.5%)	0.034	Reference
	> 24 Hours	7 (4.7%)	46 (10.5%)	-	2.37 (1.04-5.39)
State on presentation	Calm	59 (39.6%)	248 (56.4%)	<0.001	1.97 (1.36-2.86)
	Agitated	90 (60.4%)	192 (43.6%)	-	Reference
Perceived severity	Severe	95 (63.8%)	86 (19.5%)	<0.001	Not applicable
	Moderately severe	49 (32.9%)	173 (39.3%)	-	-
	Not severe	5 (3.4%)	181 (41.1%)	-	-
Attending physician	Yes	68 (45.6%)	42 (9.5%)	<0.001	Reference
	No	81 (54.4%)	398 (90.5%)	-	7.96 (5.10-2.41)
Medical history	Yes	65 (43.6%)	40 (9.1%)	<0.001	Reference
	No	84 (56.4%)	400 (90.9%)	-	7.74 (4.94-2.12)
Need for investigation	Yes	77 (51.7%)	282 (64.1%)	0.007	1.67 (1.15-2.42)
	No	72 (48.3%)	158 (35.9%)	-	Reference
Type of investigation	Radiology	34 (22.8%)	235 (53.4%)	<0.001	3.87 (2.53-5.91)
	Biology	23 (15.4%)	29 (6.6%)	0.001	0.39 (0.22-0.69)
	Electrocardiogram	41 (27.5%)	7 (1.6%)	<0.001	0.04 (0.02-0.10)
Reasons for ED visit	Proximity	113 (75.8%)	245 (55.7%)	<0.001	0.40 (0.26-0.62)
	Rapid solution	60 (40.3%)	238 (54.1%)	0.004	1.75 (1.20-2.55)
	Lack of alternatives	64 (43.0%)	139 (31.6%)	0.012	0.61 (0.42-0.90)
	Concern for prognosis	104 (69.8%)	95 (21.6%)	<0.001	0.12 (0.08-0.18)

* Group 1: urgent consultation †Group 2: Non-urgent consultation

Table 4. Multivariate study of factors independently associated with non-urgent visits to Emergency Department

		Adjusted OR	IC 95%	P
Marital status	Married	Ref	Ref	0,031
	Unmarried	1,822	[1,056-3,145]	
Mean of transport to the ED	Self-care arrival at the ED	2,892	[1,497-5,586]	0,02
	Assisted transport	Ref	Ref	
Perception of symptom severity	Severe	Ref	Ref	<10 ⁻³
	Moderately Severe	3,7	[2,157-6,348]	
	Not severe	21,031	[7,717-51,31]	
Presence of attending physician	Presence	Ref	Ref	<10 ⁻³
	Absence	6,195	[3,178-12,077]	
History of similar symptoms	Yes	Ref	Ref	0,044
	No	2,035	[1,020-4,058]	
Need for further perceived by the patient	Yes	Ref	Ref	<10 ⁻³
	No	4,975	[2,605-9,503]	
Need for an EKG perceived by the patient	Yes	Ref	Ref	<10 ⁻³
	No	23,528	[8,908-62,143]	
Search of a quick solution	Yes	2,215	[1,235-3,973]	0,008
	No	Ref	Ref	

ED: emergency department

EKG: electrocardiogram

Naouri et al (15) found the following reasons to be significant: looking for a rapid solution, proximity, fear for the vital prognosis, lack of knowledge of available options, accessibility and absence of attending physician. For Padgett and Brodsky (20) proximity was the only factor identified. Accessibility was retained for Coster et al (21).

In our study, factors associated with ED misuse were lack of knowledge of available options and search for a quick solution as an independent factor. In fact, family and professional constraints explain that patients are looking for a rapid solution to their health problem, and so they consult Eds. Unawareness of available options may be due to insufficient patient information.

Young age and no history of similar symptom were also associated with non-urgent visits in our work. Similar results were reported by several authors (2,10,22–26). This is due to the absence of underlying pathologies and the high prevalence of trauma in young subjects consulting for pain and seeking access to radiological explorations.

Unmarried status was found to be an independent factor associated with ED misuse. Same finding was reported by Shah et al (10) and Afilalo et al (25) in contrast to other studies (27–29). Having 3 or more dependent children was associated with urgent visits in our work, which may be explained as patients with family responsibilities couldn't easily consult for non-serious symptomatology. Urgent consultations were made within 24 hours of the symptomatology onset with a significant difference in this and other studies (6,15,26,27,30). Patients with non-urgent presentation usually remain calm and know that their condition is not serious (6,10,25,27). They visit EDs for various reasons, mainly to access technical facilities as was reported by Oterino et al (31). Yet, many authors have reported that patients' perceived need for further investigation was associated with an appropriate ED visit (6,15). This heterogeneity could be attributed to the choice of urgent consultation definition. Thus, we have decided to consider the patient's perceived need for a radiological examination without clinical evidence of its necessity or seriousness as a non-urgent reason. In this study, we also found that self-care arrival at the ED and the absence of an attending physician were independent factors for non-urgent consultation. Afilalo et al (25) and Oh et al (29), reported that arrival by ambulance was more associated with urgent ED visit and literature data indicate that presence of an attending doctor decreases the ED misuse (10,15,22).

Our study highlighted a phenomenon that affects the quality of care in EDs. The overcrowding of emergency departments with no-urgent consultations related to general medicine is a worldwide problem that is increasingly frequent. We have adopted a valid and simple assessment tool to classify the appropriateness and degree of urgency of the ED consultations. In our opinion, studying this issue ought to be the first step in adopting a corrective action strategy.

Limitations:

Despite the large sample size, the sampling was done

for convenience over a restricted period that does not represent all periods of the year, which could affect the generalizability of the data.

CONCLUSION

The easy access to check-ups and radiology at ED leads patients to consult more often, thinking that they are better equipped and more efficient in terms of management. The poor organization of the health care system has been identified as a key factor in the overloading of Eds.

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