

Impact of the Paris 2024 Olympic and Paralympic Games on Emergency Department Activity in Île-de-France

Publication context

The following article is an edited translation of the medical thesis of Dr. Maria Zientara on the *Impact of the Paris 2024 Olympic and Paralympic Games on the emergency departments of Île-de-France*, defended on September 5, 2025, supervised by Dr. Mathias Wargon and co-supervised by Dr. Jérémie Scire. Dr. Zientara's thesis jury was presided over by Pr. Frédéric Adnet and composed of Dr. Arnaud Tarantola and Dr. Christophe Choquet.

The original French thesis was translated into English with the assistance of an artificial-intelligence language tool. The authors reviewed and approved the final wording and remain responsible for the content.

Executive summary

Background. The Paris 2024 Olympic and Paralympic Games brought millions of visitors to Île-de-France and prompted an exceptional healthcare preparedness plan. This study assessed whether the Games altered regional emergency department (ED) activity and described visits explicitly linked to the event.

Methods. We conducted a retrospective descriptive study using standardized ED visit records from 85 consistently reporting hospitals. Activity from epidemiological weeks 27–38 of 2024 was compared with the equivalent period in 2023. Indicators included ED visits, hospital admissions, patients' place of residence and age, selected hospital activity, and use of the ICD-10 Y33.9 tag for Games-related visits.

Results. Mean daily ED attendance was 9,138.5 in summer 2024 versus 9,028.8 in 2023 (+1.5%), and 8,499.2 versus 8,080.2 during the Olympic period (+5.2%). Mean daily hospital admissions increased by 4.8% across the summer and by 5.0% during the Olympic period. Visits by patients residing abroad increased during the Olympics (61.1 vs 45.2 per day; +38.7%), but absolute numbers remained modest. Local peaks occurred near several event venues without producing regional saturation. Overall, 840 visits were tagged Y33.9; only 35 of 120 EDs used the tag, limiting interpretation. Most tagged cases had low or intermediate severity, trauma was the leading presentation, and 10% were admitted.

Conclusion. No sustained saturation of Île-de-France EDs was observed during the Games. The findings are compatible with effective preparation and coordination, but the descriptive design does not establish causality and temporary reinforcements may have masked underlying demand. Future mass-gathering surveillance should use clearer, standardized tagging guidance and targeted staff training.

Introduction

The 23rd edition of the Olympic Games took place in France between July 26 and August 11, 2024, marking the centenary of the country's previous hosting. The 17th edition of the Paralympic Games (PG) followed between August 28 and September 8. A total of 11.2 million visitors, including tourists, day-trippers, and residents of the Île-de-France region, gathered in the French capital for this sporting event, which featured over 10,500 athletes from 206 nations competing across 39 venues. Tourists accounted for 27.7% of visitors (3.1 million), 55% of them were international visitors. Residents of Île-de-France represented 44.6% of attendees (5 million). Tourist numbers in Paris increased by 19% during the Olympics. Paris 2024 sold over 9.5 million Olympic tickets to spectators from 222 countries [1]. The Paris Olympics officially began on July 26, 2024, with an opening ceremony along the Seine, attracting 320,000 spectators and 1.5 billion television viewers. This was the largest event ever held in France [2].

The organization of such large-scale events raises environmental, political, economic, social, and health-related challenges. The World Health Organization defines mass gatherings as “events attended by a sufficient number of people to strain the planning and response resources of a community, state, or nation.” In scientific literature, mass gatherings are often defined as events with over 1,000 attendees [3]. Such events represent significant public health challenges with multiple risks and uncertainties, placing emergency medicine services at the forefront [4-6]. The massive influx of visitors to the Paris Olympics was expected to put the healthcare system of Île-de-France (Paris region) under heavy pressure. A sudden increase in population density can be expected to increase emergency department (ED) attendance, a part of the ecosystem which is generally under almost-constant heavy load [7].

A preliminary risk analysis was conducted based on French and international studies of mass gatherings, and in the broader scientific literature [8-10], to anticipate the scenarios and consultation types likely to be encountered in EDs, for both event-specific and general cases. The literature remains limited regarding trends in ED activity during mass gatherings, even more so during Olympic Games. Most relevant studies focus on syndromic surveillance of communicable diseases and systems set-up for such monitoring.

Studies on mass gatherings, such as festivals or major sporting events, show correlations between these venues and outbreaks of infectious diseases, particularly respiratory infections and gastrointestinal illnesses [11-17]. Notable examples of mass gatherings studied include India's Kumbh Mela, the world's largest human congregation, and the Hajj pilgrimage to Mecca [18-20]. However, direct comparisons of these studies with the Olympic Games are limited, as the risk assessment for infectious diseases must consider the specific context of the event, including its duration, venue characteristics (confined or open spaces), climate, attendee demographics, population mixing, catering and sanitation pressures, and the host country's epidemiological situation [21-23].

International travel related to such gatherings has been associated with a risk of introducing imported pathogens [20, 24]. WHO has issued recommendations emphasizing early planning and close coordination with local and international organizations [25]. Arboviral diseases remained a primary concern during the 2024 Olympics, particularly dengue. A rise in autochthonous dengue cases, along with ongoing epidemics in several regions worldwide, highlighted the need for enhanced surveillance. Between January 1 and April 19, 2024, 1,679 imported dengue cases were reported in mainland France, ten times the total number of cases for 2023 [26].

In addition to infectious diseases, non-communicable diseases, commonly encountered in EDs year-round, remain relevant. Cardiovascular diseases, for example, are the leading cause of death during the Hajj, accounting for 66% of fatalities [27]. A sudden increase in population density over a short period can also lead to an increase in consultations for event-specific conditions [28], including:

- Traumatic causes (crowd crushes, altercations)
- Toxic exposures (alcohol-related incidents)
- Environmental and climatic conditions (dehydration, drowning)

As previously noted, the scientific literature on the Olympic Games remains scarce. According to the French National Risk Analysis (ANR), at least 261 risks were identified ahead of the 2024 Olympics, including nuclear, radiological, biological, chemical threats, cyber risks, and terrorist attacks.

Available studies primarily rely on syndromic surveillance, defined as “the collection, analysis, interpretation, and dissemination of health data in real-time or near real-time to identify early signs of an impact (or absence of impact) from a potential threat to human or animal health that may require public health action.” [29]. This approach uses non-specific health indicators, such as vomiting, fever, heat-related impact, or rash, rather than confirmed diagnoses, allowing for faster and more flexible response, particularly to unexpected threats. Syndromic surveillance has been implemented during past Olympic Games using systems with evolving sensitivity, which can hinder comparisons between different editions.

Existing literature

We conducted a literature review on ED consultation patterns from the 1984 Los Angeles Olympic Games to the 2020 Tokyo Games. Although the available literature is limited, it remains a key reference for anticipating potential changes in ED activity during the 2024 Olympic and Paralympic Games (OPG 2024).

Data from the 2020 Tokyo Games are not directly applicable to the 2024 Games, as the Tokyo Olympics occurred during the COVID-19 pandemic under a state of emergency, a first in Olympic history. Remaining visitors were also required to quarantine in Tokyo. One study evaluated potential health risks for Tokyo 2020 visitors based on national and local surveillance reports, focusing on communicable diseases and other health threats [30].

The most comprehensive literature relates to the 2012 London Olympics. Published studies describe infectious-disease surveillance systems. The UK Health Protection Agency (HPA) assessed the potential health risks and concluded that major infectious-disease outbreaks were unlikely, based on the absence of significant epidemics during the four previous editions of the Olympic Games (Atlanta, Sydney, Athens, and Beijing) [31-34]. Local and regional infectious-disease surveillance in England was nevertheless strengthened to ensure rapid detection and reporting of any events potentially affecting the Olympics [35]. A highly structured organization was put in place, linking all local and regional units, with daily data collection and multiple monitoring tools. A new syndromic surveillance system, the Emergency Department Syndromic Surveillance System (EDSSS), tracked daily ED attendances across 27 hospitals in England [36-38]. The daily public health reports included all kinds of events, even those unrelated to the Olympics. Most incidents were typical for summer and primarily involved gastroenteritis and vaccine-preventable diseases. No incident posed a risk to the Olympics, and all were managed using standard public-health measures. There was no increase in sexually transmitted infections during this period either [40].

Elliot and colleagues developed five scenarios to assess syndromic surveillance effectiveness for the 2012 London Olympics [41]. Expected activity was modeled using relevant syndromic indicators (diarrhea, vomiting, influenza-like illness, botulism), based on historical data and projected population movements, including visitor influx and potential outflux of residents. The study demonstrated that syndromic surveillance could detect major public-health events in the modeled scenarios. During the London Olympics, three polyclinics providing care to athletes and officials were established, with daily reporting of infectious-disease cases and suggestive clinical syndromes [35].

Infectious diseases accounted for less than 1% of medical visits during Atlanta 1996 and Sydney 2000 [31]. In contrast, Beijing 2008 recorded a 40% decrease in transmissible-disease cases compared with the previous year, likely reflecting strengthened health-protection measures, especially concerning food safety and hygiene [33, 42]. In 2008, a review of public-health planning for past Summer Olympics and other major events was conducted [43]. This analysis highlighted key health concerns requiring emergency care, including heat-related illness [44, 45], food- and waterborne diseases [44, 46], and sexually transmitted infections [47]. Studies show that events during hot weather significantly increase ED visits [48].

During the 1996 Atlanta Olympics, ED visits remained stable overall despite an influx of participants and spectators. 2% of ED visits were heat-related, 10% of which required hospitalization [49]. The 1996 Atlanta Olympics involved more countries, athletes, and spectators than any previous Olympic Games. A network of eight sentinel hospitals in Atlanta enabled enhanced surveillance of all emergency department visits. Their number apparently remained stable and did not show the expected increase, given the large influx of visitors. This observation was mentioned in the literature relating to these Games without being supported by any figures, as the authors themselves acknowledge [47]. On the other hand, while the overall number of visits remained stable, cases of patients presenting with gastrointestinal symptoms during the first week of the Atlanta Games

increased [no figures given, 35]. This may be, though without firm evidence, linked to a lack of hygiene in food handling. There was no increase in the number of patients presenting with sexually transmitted diseases compared to baseline data. A bombing at Centennial Olympic Park on July 27, 1996, caused 21 hospital admissions, 111 casualties, and 2 deaths [44, 47, 50], without altering general ED activity trends.

The Atlanta planning model was inspired by the 1984 Los Angeles Games. In LA, minor musculoskeletal and skin injuries represented 25% of ED visits, heat-related illness 12%, minor gastrointestinal disorders 8%, cardiac symptoms 2%, and alcohol or drug ingestion required care in only eight cases. Respiratory and gastrointestinal infections occurred less frequently than in 1982–1983 [45, 51]. These conclusions should be interpreted with caution, as syndromic surveillance systems were not the same as those in use today, and the articles cited are not very precise about the surveillance methods employed.

Syndromic surveillance systems were implemented for the 2000 Sydney Games, with daily reporting to health authorities. For these Australian Games, a list of priority risks was drawn up: foodborne diseases, terrorism (by conventional means), measles, rubella, whooping cough, meningococcal and viral meningitis, tuberculosis, sexually transmitted diseases, viral haemorrhagic fevers, bloodborne pathogens, waterborne diseases, and Legionnaires' disease. Heat-related illnesses were considered unlikely to pose a major problem in Sydney in September. Subsequently, a set of public health interventions and services were put in place based on this list. As was the case for the Atlanta Games, fifteen emergency departments in Sydney were selected as sentinel sites for surveillance, with round-the-clock data entry of patients' reasons for attending. The sentinel EDs recorded 55,339 patient admissions during August 28–October 4, 2000, a 5% increase compared to the same periods in 1999 and 2001 [31]. Consultation patterns were generally similar before and during the event, though slight increases occurred for illicit drug-related visits and trauma-related injuries, including glass, bicycle, and collision injuries. Notifiable diseases remained stable, and no unusual clusters were detected. Overall, the Sydney Olympic Games had minimal impact on the health system [31, 52–54].

A similar surveillance approach was applied to the 2004 Athens Games, with daily recording of symptoms and syndromes, including respiratory infections with fever, diarrheal disease, febrile rash, meningitis, encephalitis, viral hepatitis, botulism-like syndromes, lymphadenitis, sepsis, and unexplained deaths [32, 55–57]. Respiratory infections (6–7%) and gastroenteritis (3–7%) were the most frequent causes of primary care visits. Salmonellosis accounted for ~50% of mandatory notifications, tuberculosis 17%, hepatitis B 5%, aseptic meningitis 4%, and bacterial meningitis 3%. Small and large food- or waterborne outbreaks were identified [32]. Syndromic surveillance enabled early detection of a Salmonella outbreak before traditional systems flagged it.

Few studies addressed the 1992 Barcelona Games. A study monitoring four selected conditions reported no increase in ED activity [46]. For the 2016 Rio Games, a participatory digital platform was used for surveillance, but no ED disruption was reported [58].

Overall, the international literature on public health preparation and ED activity during Olympic Games is limited. Most studies simply enumerate consultation reasons, occasionally with percentages, without analysis or comparison to prior years. Nonetheless, knowledge transfer and lessons learned from past Games are increasingly utilized to guide the planning of future mass gatherings.

Organization of the Paris 2024 Games

For the 2024 Olympic and Paralympic Games, prior measures were implemented, based on existing recommendations [6,59–62] and considering not only the population density but also the geographic layout of the competition sites. The Olympic Games took place across multiple cities, including Marseille, Bordeaux, and Lyon, as well as at Teahupoo in Tahiti in the Southern Hemisphere, totaling approximately 35 competition venues. Of these, 25 were in the Île-de-France (IdF) region, including 13 in Paris and 12 in the surrounding departments of Seine-Saint-Denis, Hauts-de-Seine, Yvelines, and Seine-et-Marne [63]. In addition, around thirty “fan zones” were set up in and around Paris, attracting large numbers of spectators. A map of the French Olympic competition sites (Figure 1) illustrates the scale and logistical challenges of an event of this magnitude [64].

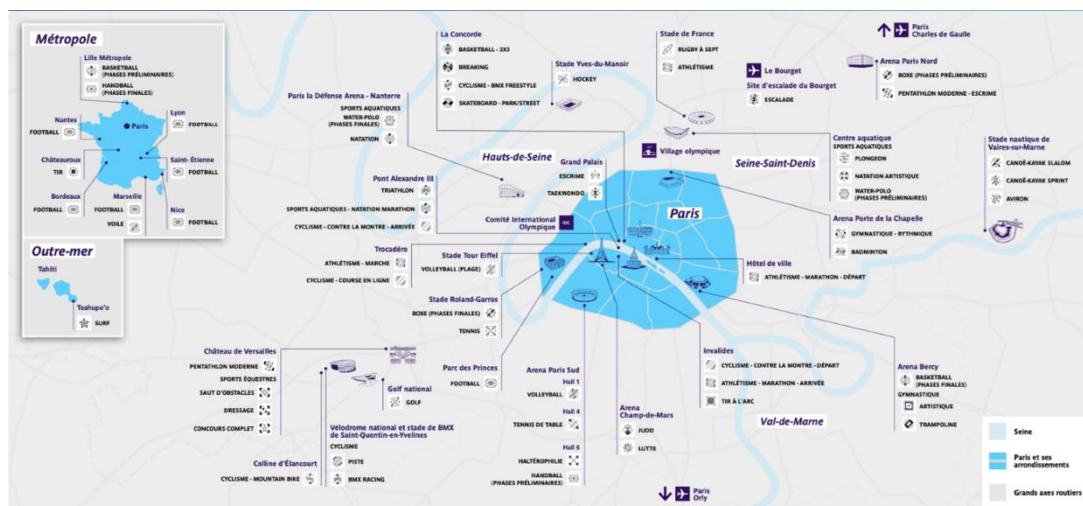


Figure 1: Map of the French Olympic competition venues, adapted from [64]

As part of the reinforcement measures implemented by the Île-de-France Regional Health Agency (ARS) prior to the Games, some hospitals were designated as “first-line” facilities. Within these hospitals, additional beds were made available, and their Emergency Departments (EDs) were reinforced. Outside of Assistance Publique-Hôpitaux de Paris (a major network of hospitals in the Paris region), twelve hospitals were designated as first-line facilities, listed below with their geographic location relative to Olympic events (Figure 2):

- Paris East Hospital (GHEF), Jossigny
- André-Mignot Hospital, (Centre Hospitalier de Versailles)
- Ouest Parisien Hospital (HPOP)
- Créteil Hospital (CHIC)
- Villeneuve-Saint-Georges Hospital (CHIV)

- Foch Hospital, Suresnes
- Delafontaine Hospital (HDSD), Saint Denis
- Robert Ballanger Hospital (CHIRB), Aulnay-sous-Bois
- André Grégoire Hospital (CHIAG), Montreuil
- Le Raincy-Montfermeil Hospital (GHI Le Raincy-Montfermeil), Montfermeil
- l'Estrée Clinic, Stains
- Marne Chanteraine Hospital, Brou-sur-Chanteraine (near Torcy)

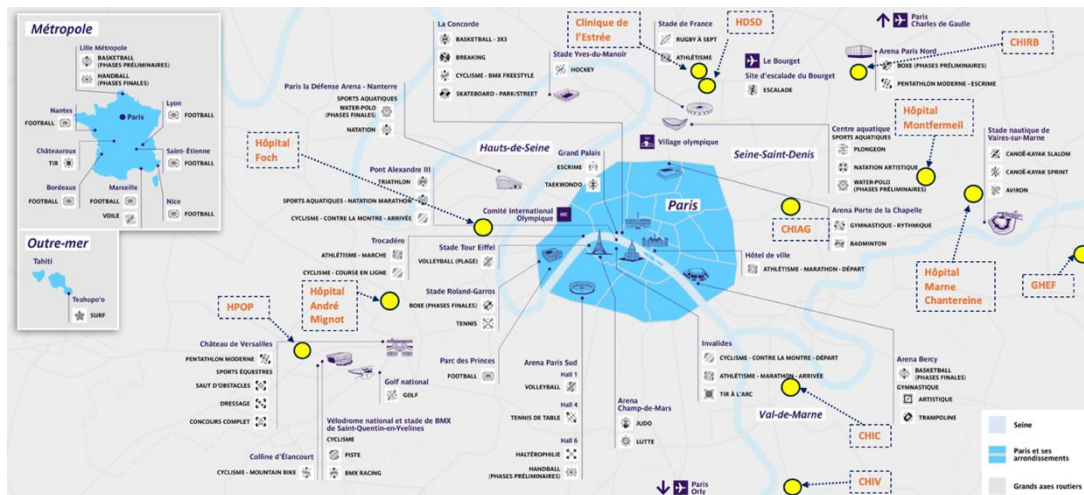


Figure 2: Map of Olympic sites and the 12 Île-de-France hospitals designated as "first-line", adapted from [64]

Among Assistance Publique- Hôpitaux de Paris (AP-HP) facilities, all 38 hospitals, including 25 with EDs, were considered first-line hospitals [65]. Three AP-HP hospitals were designated as reference centers for specific populations:

- Olympic officials: Hôpital Européen Georges Pompidou (HEGP), Paris 15th district
- Athletes and Olympic Village residents: Bichat Hospital (Paris 18th district)
- Media: Avicenne Hospital (Bobigny)

The Olympic and Paralympic Polyclinic (POP), created by AP-HP and collaborating closely with these three reference hospitals, was in Saint-Ouen, Seine-Saint-Denis. This temporary polyclinic received accredited individuals, including athletes, delegations, officials, and village staff. The primary objective of the temporary polyclinic during the Paris 2024 Games was to provide comprehensive medical care for accredited individuals in the Olympic village, while limiting transfers to local hospitals in order to avoid overburdening the Île-de-France healthcare system. To meet these needs, several services were put in place: an unscheduled care center open around the clock for medical emergencies, an imaging department including radiology, ultrasound and MRI, a pharmacy, a physiotherapy department, a medical consultation service covering various specialties, and a dental department. During the Olympic Games, the POP recorded 8,377 visits, of which 1,169 (average 43 per day) were unscheduled consultations. During

the Paralympic Games, there were 4,810 visits, including 1,141 (average 54 per day) unscheduled consultations [66].

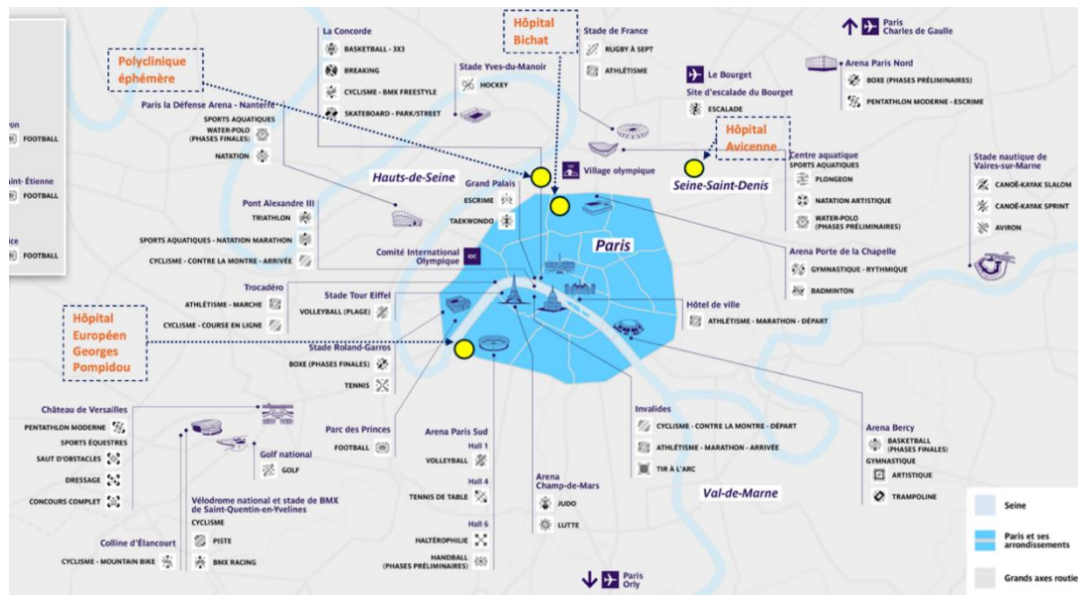


Figure 3: Map showing the Olympic sites, the reference hospitals, and the polyclinic, adapted from [64]

Despite these measures, an impact on ED activity in Île-de-France was expected. Therefore, public health and syndromic surveillance, as well as risk anticipation, were necessary to maximize preparedness, ensure medical care, and maintain continuity of services during the Games.

Data

In the Île-de-France region, EDs transmit their activity and epidemiological data to the Service Numérique de Santé (SESAN), a Public Interest Group whose mission is focused on supporting healthcare stakeholders in the digital health domain [67]. By centralizing and analyzing epidemiological and activity data, SESAN enables improved coordination and a faster response to public health challenges.

Epidemiological data is transmitted once daily and corresponds to patients who have visited EDs in the previous seven days. ED activity data is transmitted every five minutes, offering almost real-time visibility of the regional situation.

Tagging Olympics-related activity in Emergency Departments

Diagnostics encoding relies on standardized classification systems and specific codes that identify and categorize diseases, symptoms, injuries, and other reasons for consultation. In French EDs, the ICD-10 (International Classification of Diseases, 10th Revision) is used, which allows encoding of a wide range of clinical and social situations. According to the World Health Organization, the purpose of the ICD is “to enable systematic analysis, interpretation, and comparison of mortality and morbidity data collected in different countries or regions and at different times (...)” [73].

For the Paris 2024 Olympic and Paralympic Games, Santé Publique France (SPF) implemented a tagging system to “assess the health impact of the Games and identify potential public health signals from emergency care utilization” [74], which relied on the ICD-10 encoding of diagnoses. The Y339 code or, if unavailable, Y33 was used as a specific tag for ED visits related to the 2024 Paris Games, assigned by the attending emergency physician. The definition and instructions for applying this code were displayed on posters distributed to all relevant EDs before the Games began (Figure 4). This tag was to be used as a secondary diagnosis, not as a replacement for a primary diagnosis code.

Coding instructions

For every emergency department visit related to a health event occurring:

- while attending a ‘Paris 2024’ site*, and/or
- while travelling to or from that site, and/or
- after attending that site.

Santé publique France requests use of ICD-10 code Y33.9, ‘Other specified events, undetermined intent, unspecified place’, or, if unavailable, code Y33, ‘Other specified events, undetermined intent’, as a secondary diagnosis.

Important: this code supplements the medical diagnosis recorded as the primary diagnosis.

***‘Paris 2024 site’: competition venues, the Olympic Village, training venues, celebration sites (fan zones, Club France), or festive, sporting, or other events organized by local authorities.**



8 July to 15 September 2024

For every emergency department visit related to a health event occurring at a Paris 2024 site, while travelling to or from it, or after attending it:

Primary diagnosis

Secondary diagnosis

diagnosis + Y33.9
 or, if unavailable: Y33

The Y33.9 tag must be recorded in addition to the clinical diagnosis. It identifies visits linked to the Olympic or Paralympic Games and supports regional health monitoring.

Figure 4: Posters distributed by SPF issuing the coding instructions displayed in emergency departments

Study aim

The aim of this study is to evaluate ED activity in Île-de-France during the 2024 Olympic Games and assess the impact of such a large sporting event on regional emergency services. Detecting and analyzing changes in ED utilization during an unprecedented mass-gathering event can, based on prior experiences, support risk anticipation, emergency service organization (staff, equipment, etc.), and the planning of future events of this scale.

Materials and Methods

Study design

We conducted an observational, retrospective, and descriptive study of ED activity in the Île-de-France region during the Paris 2024 Olympic and Paralympic Games. We compared ED activity during this period (mid-week 27 to mid-week 38) with the equivalent period in 2023 (reference period) to evaluate the impact of the Games on emergency care utilization.

ED patient records - RPU

Emergency departments are key observatories of population health. Not only do they allow monitoring of common pathologies, but they also enable detection of unusual events through real-time collection of health data. For each ED patient, a standardized medical data record is generated; this record is called the *Résumé de Passage aux Urgences* (RPU) which translates to *Summary of ED visit*. The RPU captures patient profile, circumstances of arrival, severity level, care provided, and patient outcome after the ED visit.

This data provides an overview of ED activity and staff workload. It is transmitted daily to the Regional Health Agency (ARS) to support public health surveillance [76]. This data passes through SESAN, which centralizes the information before distributing it to the relevant entities.

The data presented in this study is drawn from RPU records of 85 hospitals (both public hospitals and private clinics) in the Île-de-France region. Among these 85 emergency departments, 16 are pediatric emergency units. Emergency departments are distributed across geographical departments as follows: 11 in Seine-et-Marne; 9 in Yvelines; 10 in Essonne; 12 in Hauts-de-Seine; 10 in Seine-Saint-Denis; 9 in Val-de-Marne; 9 in Val-d'Oise; and 15 in Paris.

Data was collected on a consistent basis, meaning that only departments reporting at least one visit per week from weeks 27 to 38 in 2023 and 2024 were included. This approach allows for a more precise year-to-year comparison, although it entails a partial loss of information on the actual situation.

For this study, all emergency visits recorded in these 85 facilities in Île-de-France were included. Data from André-Mignot Hospital near Versailles was excluded due to a cyberattack that interrupted data transmission to SESAN.

A dedicated care unit was established near the emergency department of Bichat Hospital (Paris, 18th district), designated as the reference hospital for athlete care. This care unit accommodates athletes, their families, and delegation members without affecting the care of other patients. Activity data from this care unit was recorded throughout summer in an Excel database and was included in the analysis.

Selection of indicators

This study is based on a retrospective analysis of indicators related to emergency department activity in the Île-de-France region during the 2024 Olympic and Paralympic Games, with the aim of comparing this period to the same period in 2023 within the same hospitals. Relevant indicators were selected, based on daily monitoring by the ORSNP (regional observatory of unscheduled and emergency care), discussed, and collectively validated with the Île-de-France Regional Health Agency.

The indicators selected in this study cover multiple aspects of emergency medicine, ranging from measurement of the intensity and volume of medical activity to the identification of periods of stress or strain on the system.

The indicators analyzed in this work are:

- Number of ED visits
- Number of hospitalizations
- Number of residents of Île-de-France
- Number of non-resident patients
- Number of patients residing abroad
- Proportion of patients under 2 years of age
- Proportion of patients over 75 years of age.

Software tools and statistical analysis

The RPU data is hosted by SESAN in an Oracle database. Data is extracted using Oracle SQL (Structured Query Language) and processed with the R scripting language (version 4.2) and Microsoft Excel (Microsoft 365 suite, version 2408).

An initial analysis of the indicators was performed daily by the ORSNP throughout the summer of 2024 to ensure public health monitoring. Subsequently, a retrospective analysis was conducted using the same indicators, based on a series of quantitative descriptive statistics.

Data are primarily presented and analyzed using line graphs to facilitate visualization of trends and extract information intuitively with a temporal reference.

For Graphs 1–6, the x-axis represents time (July 3 to September 18), and the y-axis represents the analyzed indicator. The Olympic Games period (July 26–August 11) is highlighted with a yellow rectangle, and the Paralympic Games period (August 28–September 8) with a green rectangle.

Ethical considerations

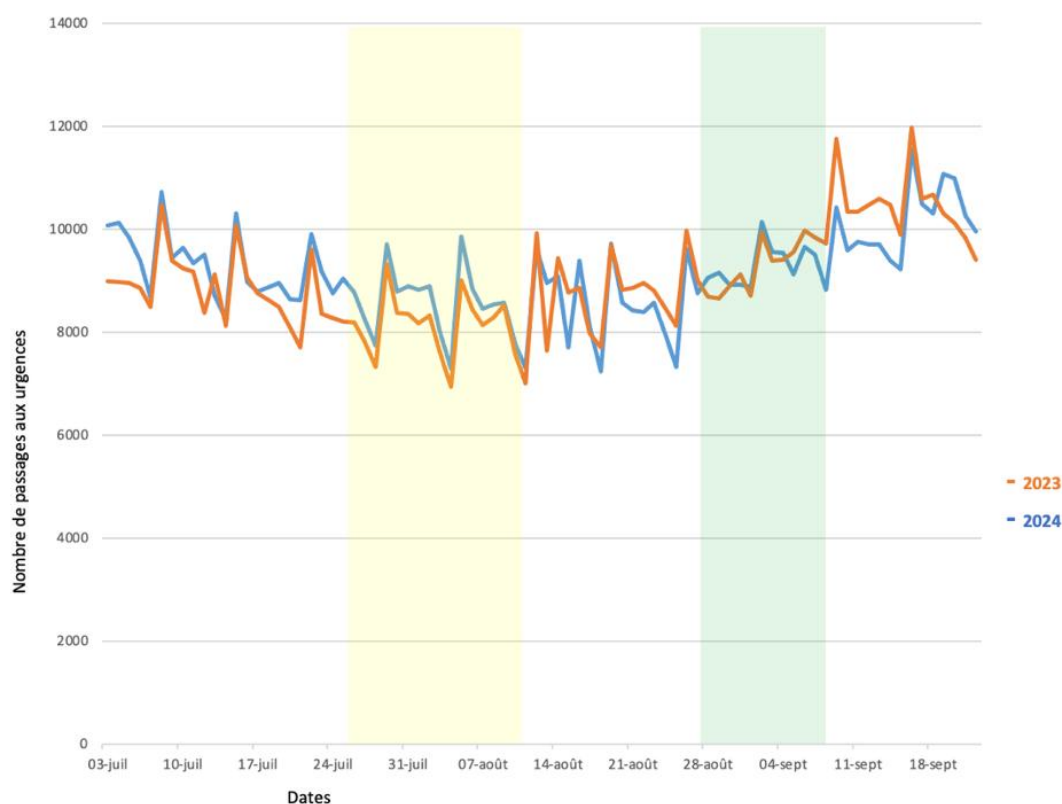
This study was conducted using anonymized and aggregated health data, processed in strict compliance with current national regulations on personal data protection. No directly or indirectly identifiable data were used. Access to the data was controlled and authorized by the competent authorities, including the Regional Health Agency and,

when applicable, the French Data Protection Authority (CNIL), in accordance with regulatory procedures governing the use of data for public health research purposes.

Results

Overview of Emergency Department Activity

Graph 1.1 compares the number of emergency department visits in Île-de-France between 2023 and 2024 over the period of interest. ED activity shows a similar fluctuation pattern throughout the summer, with an increase in 2024 during the first part of the summer up to the end of the Olympic Games (OG). After this period, the number of visits was lower in 2024 than in 2023, except at the beginning of the Paralympic Games, when the curves reversed for a few days. During the middle of the PG, the activity became almost identical between the two summers, before becoming lower again in 2024 compared to 2023 at the beginning of September.

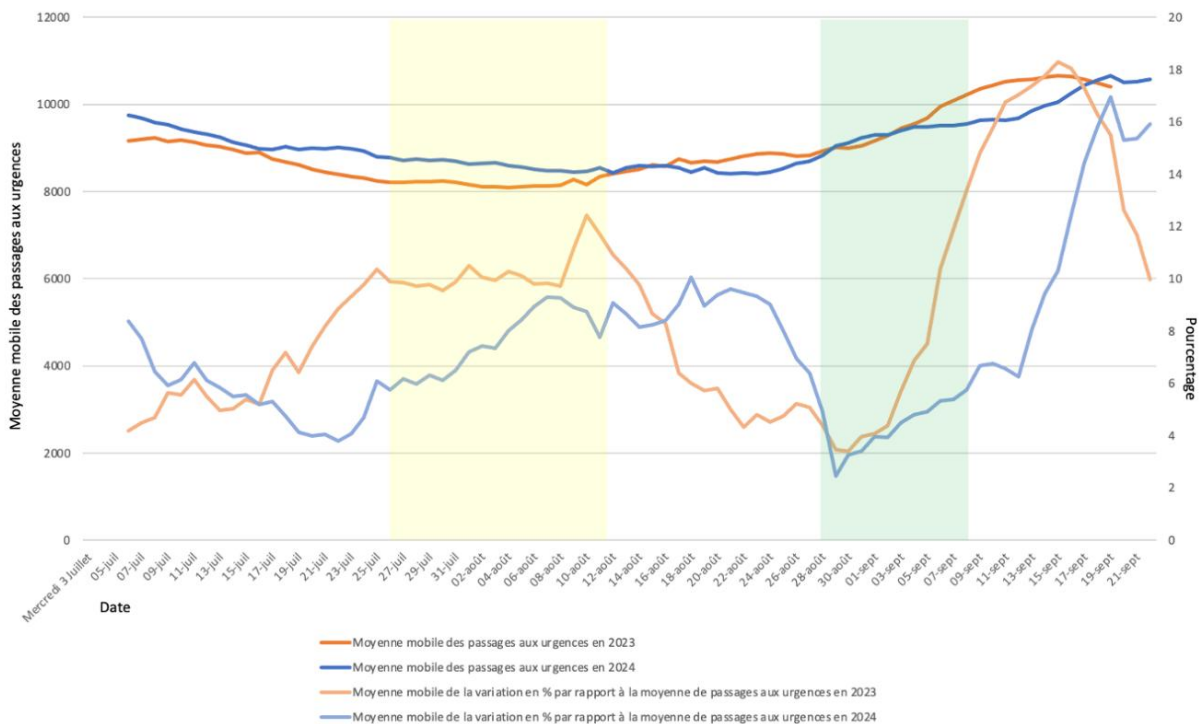


Graph 1.1: Number of emergency department visits in Île-de-France, Summer 2023 vs. Summer 2024

The average number of daily emergency visits over the summer in 2024 was 9,138.5 (8,499.2 during the OG period), compared to 9,028.8 in 2023 (8,080.2 during the same OG period in 2023). This corresponds to an average daily increase of 1.5% in 2024 compared to 2023 over the summer (a 110 visits per day difference), and 5.2% during the OG period (a 419 visits per day difference).

To further refine these results, percentage variations and moving averages were calculated and are presented in Graph 1.2 below. The variations in visits were less pronounced in 2024 than in 2023 during both the OG and PG, with a gradual increase in percentage variation starting from the end of July for both years. The two moving average

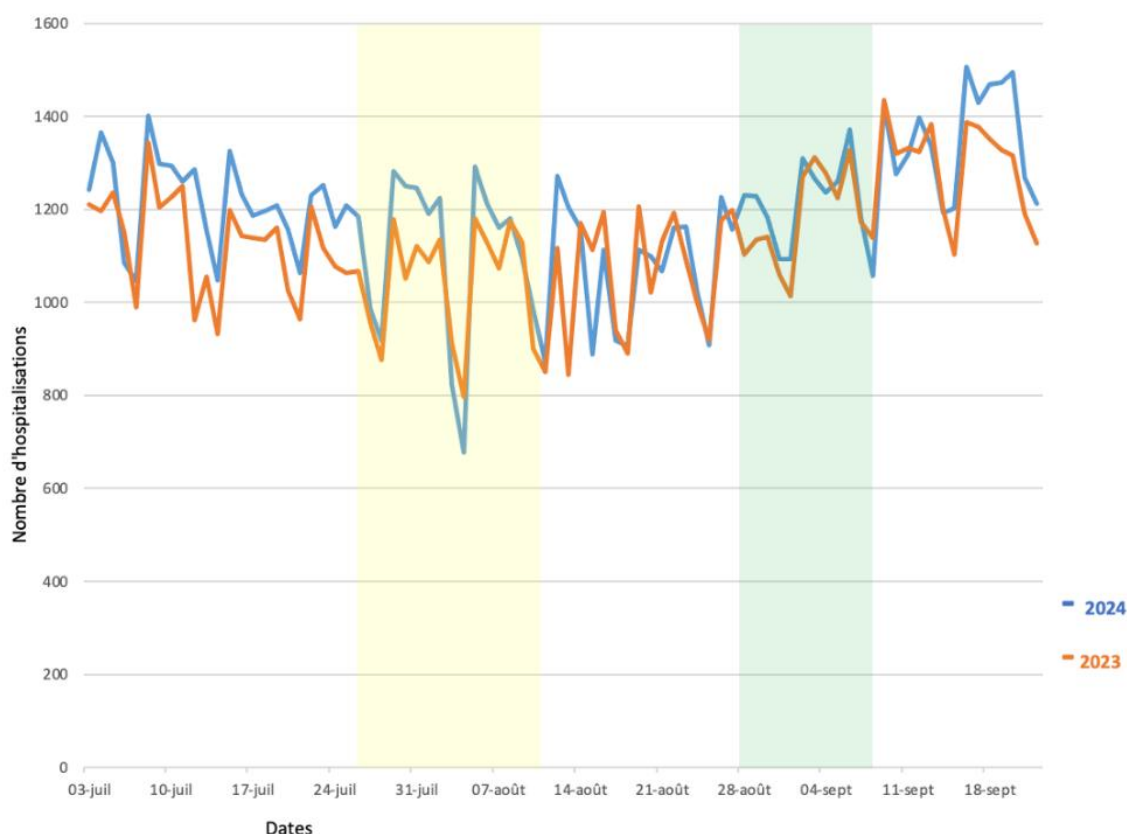
curves are very close, indicating overall stability in activity, despite a slight increase in 2024 during the OG. These curves show a gradual decrease in visits from early July to the end of August, followed by a rebound in September.



Graph 1.2: Moving averages of emergency department visits in Île-de-France and their percentage variations around the Summer 2023 average vs. Summer 2024 average

Number of hospitalizations

Regarding the number of hospitalizations during the summers of 2023 and 2024, the results are shown in Graph 2. The summer dynamics for both years are similar, with peaks and troughs in activity following an almost identical pattern, although the number of hospitalizations remained higher in 2024 between July 3 and August 14, as well as at the end of September. During the Olympic Games, hospitalizations were higher in 2024 than in 2023, whereas during the Paralympic Games, hospitalizations were initially higher in 2024 at the beginning of the PG, before aligning with 2023 from early September onward.



Graph 2: Number of hospitalizations in Île-de-France, Summer 2023 vs. Summer 2024

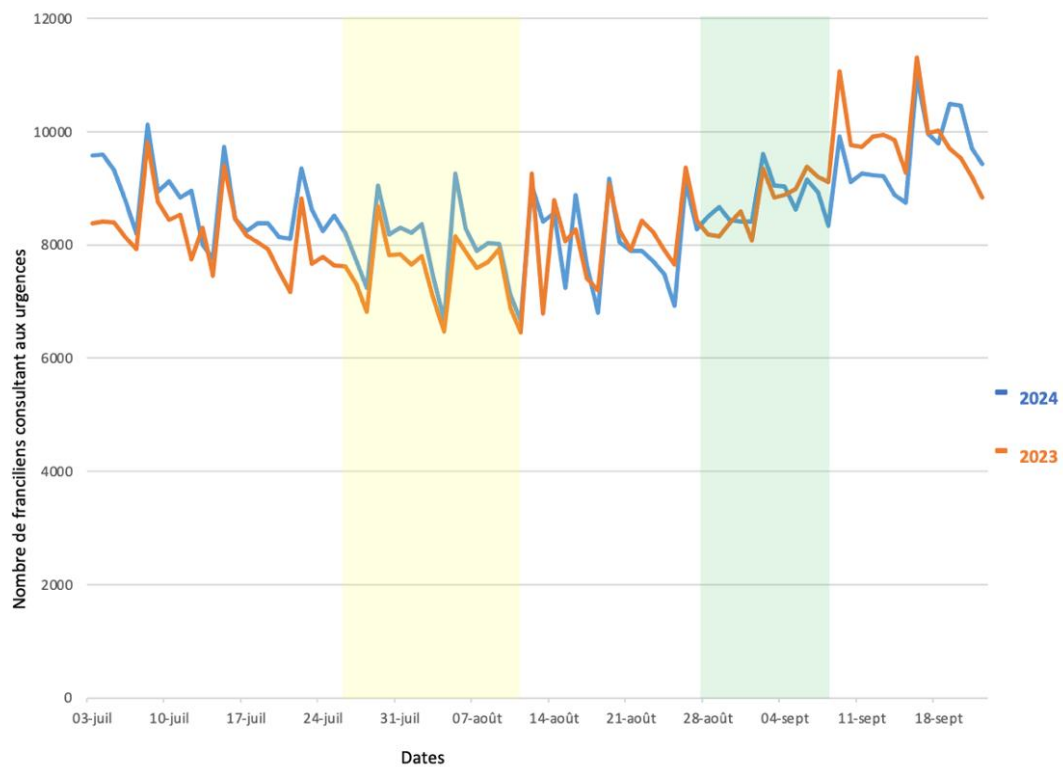
During the summer of 2024, an average of 1,188.6 patients visiting emergency departments in Île-de-France were hospitalized each day, compared to 1,136 in 2023. During the specific OG period, this average was 1,092.7 in 2024 versus 1,036.3 in 2023. This corresponds to an average daily increase of 4.8% in hospitalizations in 2024 compared to 2023 over the entire summer, and 5% during the OG period.

Geographic origin

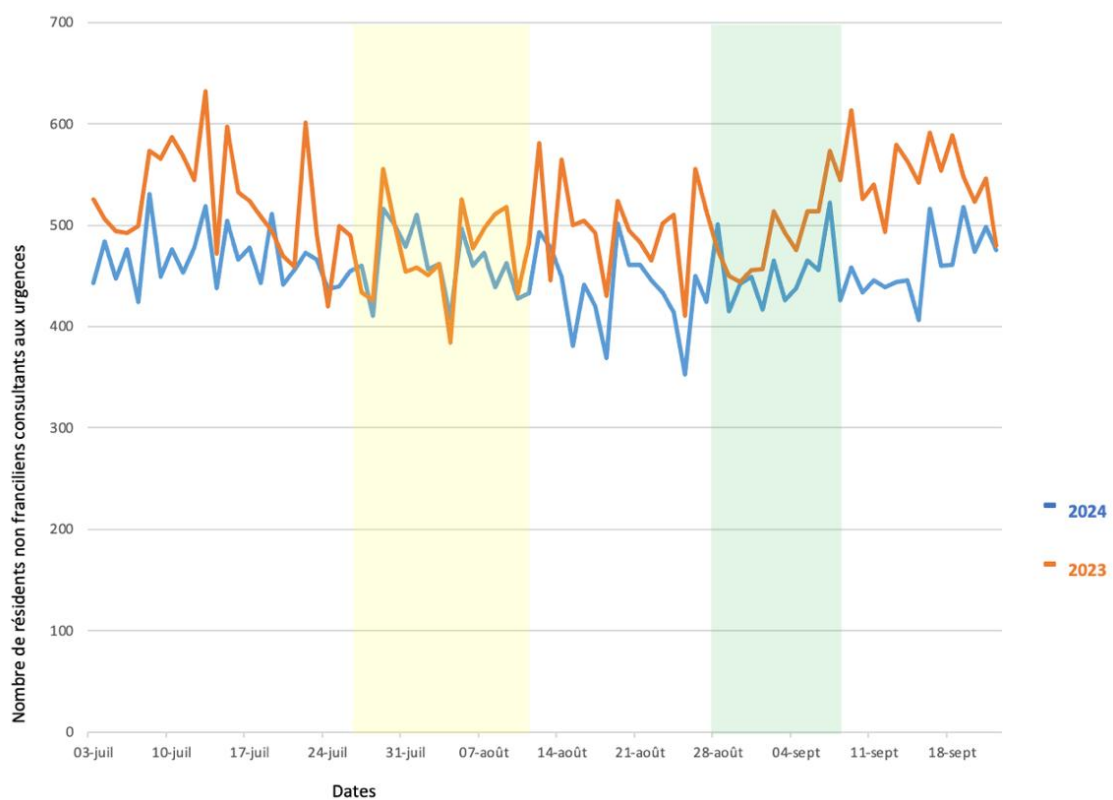
Graph 3.1 shows the number of patients residing in Île-de-France who visited emergency departments during the summers of 2023 and 2024. The overall dynamics were similar throughout both summers. Residents of Île-de-France visited EDs in greater numbers from July 3 to August 11, 2024, compared to 2023, which is also observed during the OG period. During the PG, residents of Île-de-France were initially more numerous in 2024 at the beginning of the PG, before the trend reversed in early September.

Patients visiting EDs in Île-de-France who were French nationals but not residents of the region were less numerous throughout the summer of 2024 compared to 2023, with a substantial gap between the two curves. These results are presented in Graph 3.2. This observation also holds true for the OG and PG periods.

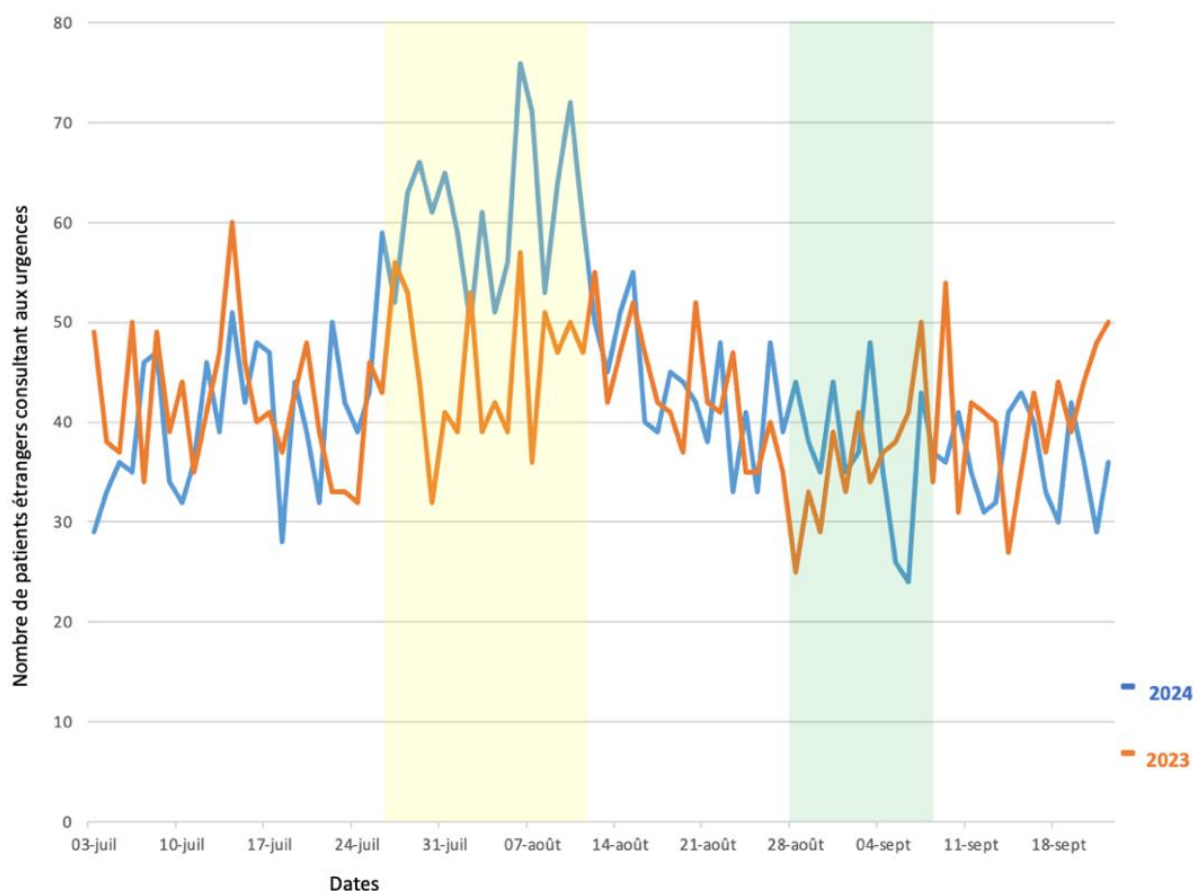
Regarding patients residing abroad, shown in Graph 3.3, there was a notable rise in ED visits in 2024 during the OG period. The increase remained significant, though less pronounced, during the first half of the PG. It should be noted that the scale used for patients residing abroad is different from the one used in the two previous graphs.



Graph 3.1: Number of Île-de-France resident patients visiting emergency departments, Summer 2023 vs. Summer 2024



Graph 3.2: Number of non-residents of Île-de-France patients visiting emergency departments in Île-de-France, Summer 2023 vs. Summer 2024



Graph 3.3: Number of patients residing abroad visiting emergency departments in Île-de-France, Summer 2023 vs. Summer 2024

During the summer of 2023, emergency departments in Île-de-France received an average of 8,426.7 patients residing in Île-de-France per day, 7,511.2 during the Olympic Games period. In 2024, these averages increased to 8,605.4 for the entire summer and 7,924.2 during the OG period. This corresponds to an average daily increase of 2.5% over the summer and 5.4% during the OG period compared to 2023.

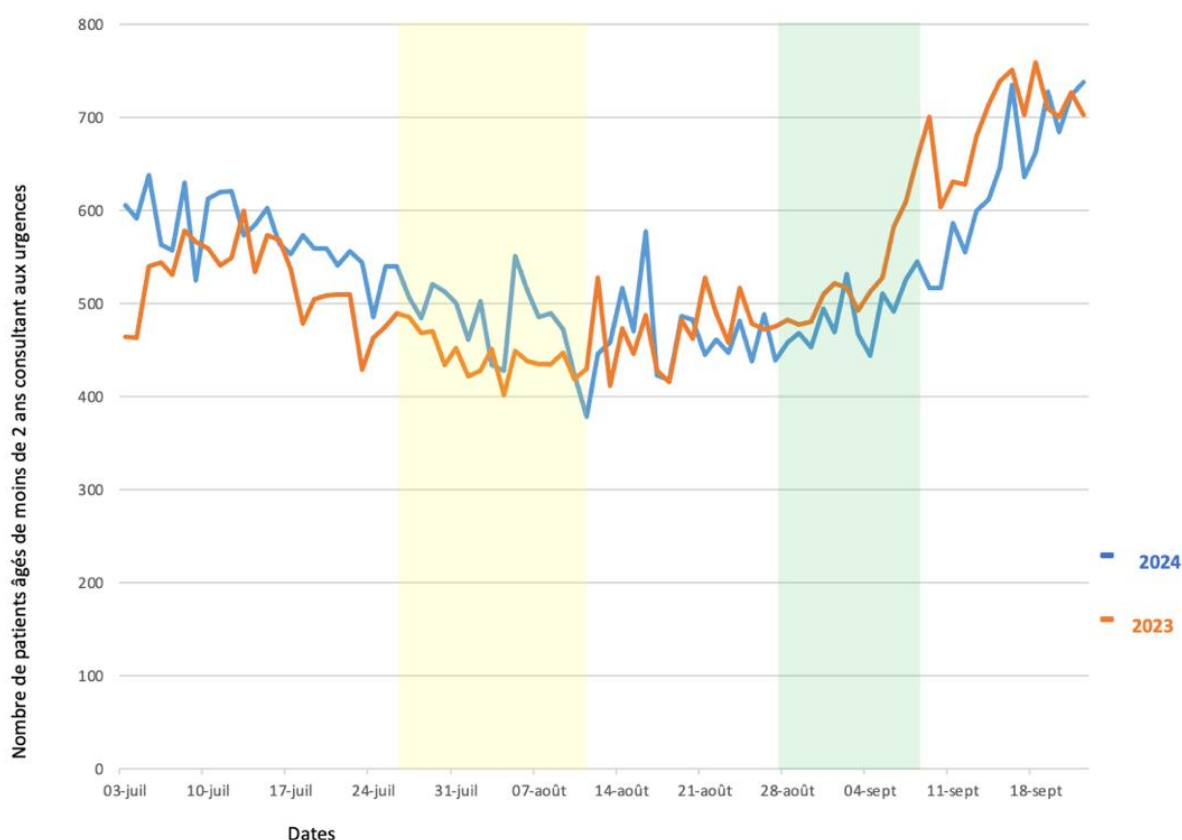
For non-resident of Île-de-France patients, EDs in Île-de-France accommodated an average of 456.8 patients per day in 2024, compared to 508.3 in 2023, which is a decrease of 9.6%. During the OG period, the average was 461.9 in 2024 versus 474.1 in 2023, a reduction of 2.2%.

Regarding patients residing abroad, the average number visiting EDs per day during the OG period was 61.1 in 2024 and 45.2 in 2023, corresponding to a 38.7% increase in patients residing abroad per day between July 26 and August 11. Over the entire summer of 2024, patients residing abroad averaged 43.9 per day compared to 41.8 per day in 2023, meaning that there was a 7.2% average daily increase in patients residing abroad visiting emergency departments in Île-de-France in 2024 compared to 2023.

Age distribution

Two specific age groups were analyzed: individuals over 75 years old and children under 2 years old, considered “at-risk” populations, their visits typically impose a heavier load to emergency departments than other age groups.

Graph 4.1 illustrates ED activity for patients under 2 years old in Île-de-France during the summers of 2023 and 2024. The graph highlights an increase in ED visits by this population from early July 2024 to mid-August, notably during the Olympic Games period. From mid-August to mid-September, corresponding to the Paralympic Games, the trend shifted: lower activity was recorded in 2024 compared to 2023. Over the entire summer, the average number of ED visits in Île-de-France for children under 2 was 527.4 in 2023 and 532.6 in 2024, corresponding to an increase of 2%. During the specific period of the Olympic Games, the average daily visits for this population were 444.3 in 2023 and 482.6 in 2024, equivalent to 8.6% rise.

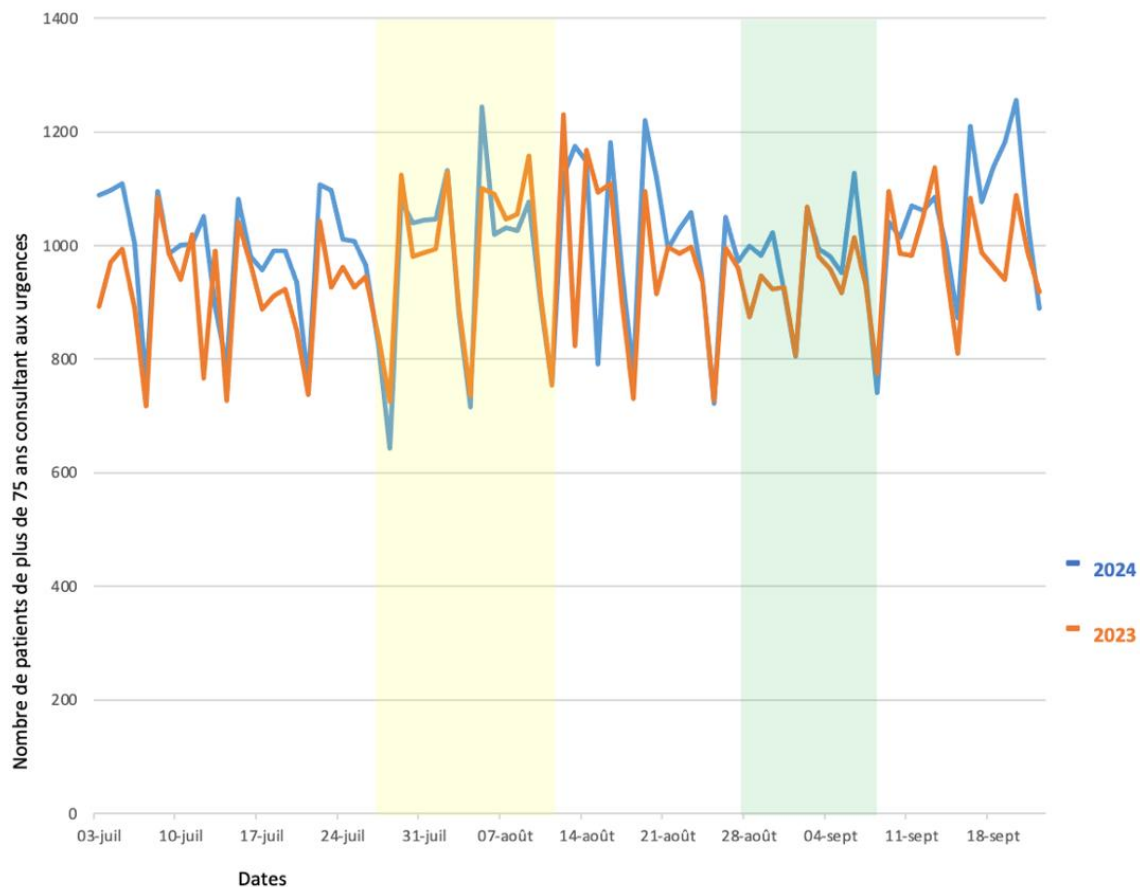


Graph 4.1: Number of patients under 2 years old visiting emergency departments in Île-de-France, Summer 2023 versus Summer 2024

Graph 4.2 focuses on the second age group studied, namely patients over 75 years old. The activity was very similar across both summers, with slightly more pronounced peaks in 2024.

On average, 956.3 patients over 75 years old visited EDs daily in Île-de-France during summer 2023, compared to 999.2 in 2024, representing an increase of 4.8%. During the Olympic Games period (July 26 to August 11), a slight decrease was observed: the daily

average was 969.3 patients in 2023 versus 966.3 in 2024, a reduction of 3 visits per day, corresponding to a 0.5% decrease.



Graph 4.2: Number of patients over 75 years old visiting emergency departments in Île-de-France, Summer 2023 versus Summer 2024

Hospitals and event venues

Emergency department activity in selected hospitals was also analyzed, based on their geographical location and the specific roles assigned to them during the Games. Within AP-HP (the major network of public hospitals in the Paris region), the facilities included in the analysis were: Pitié-Salpêtrière Hospital, Hôtel-Dieu Hospital, Lariboisière Hospital, as well as Bichat Hospital, Avicenne Hospital, and HEGP, which were designated as reference hospitals. A map displaying the locations of these hospitals in Paris is provided below [82].

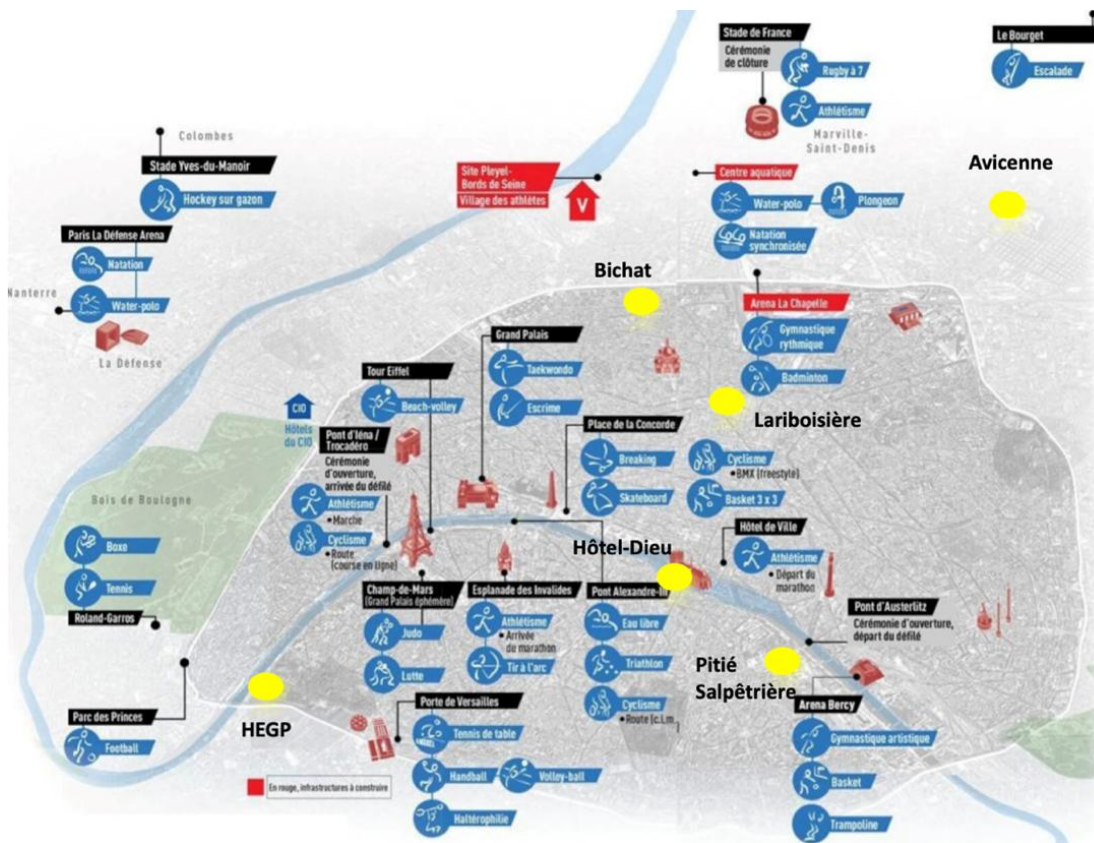


Figure 5: Map of Parisian hospitals selected for the results analysis, adapted from [82]

For hospitals located in the periphery, the analysis included: Ouest Parisien Hospital, Marne Chantreine Hospital, Foch Hospital, Delafontaine Hospital, and Marne-la-Vallée Hospital.

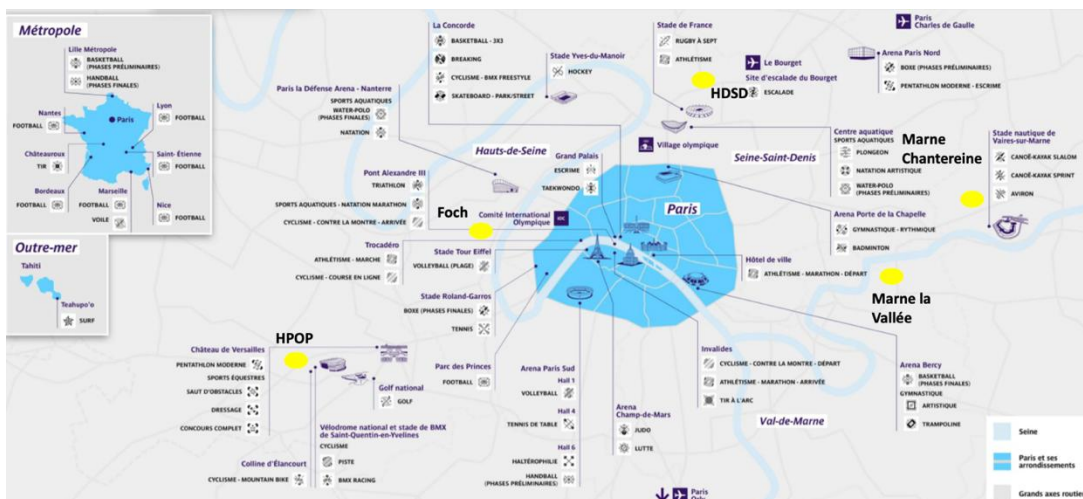


Figure 7: Map of suburban Paris hospitals selected for the results analysis, adapted from [64]

Average ED visits in these hospitals during the summers of 2023 and 2024, as well as during periods corresponding to the Olympic and Paralympic Games (26 July–11 August and 28 August–8 September in both years), are presented in the tables below:

Hospitals	Summer	
	2023	2024
Bichat Hospital	212.6	205
Pitié-Salpêtrière Hospital	178.5	168.4
Hôtel-Dieu Hospital	59.2	54.5
Avicenne Hospital	123	112
Lariboisière Hospital	189.8	190.6
HEGP	130.7	132.9
Marne-la-Vallée Hospital	174.9	180.6
Marne Chantereine Hospital	112.3	128.2
Foch Hospital	78	94.3
Delafontaine Hospital	176.9	176.1
Ouest Parisien Hospital	132.9	145

Hospitals	Olympic Games period	
	2023	2024
Bichat Hospital	199.7	201
Pitié-Salpêtrière Hospital	165.3	149.6
Hôtel-Dieu Hospital	50.8	51.2
Avicenne Hospital	121.5	109.8
Lariboisière Hospital	177.1	188.9
HEGP	119.6	129.2
Marne-la-Vallée Hospital	163.6	184.4
Marne Chantereine Hospital	98.7	116.6
Foch Hospital	66.9	87.3
Delafontaine Hospital	161.5	170
Ouest Parisien Hospital	116.5	126.8

Hospitals	Paralympic Games period	
	2023	2024
Bichat Hospital	219.5	203
Pitié-Salpêtrière Hospital	187	172
Hôtel-Dieu Hospital	63.5	56.2
Avicenne Hospital	123.6	110.5
Lariboisière Hospital	203.7	189.4
HEGP	137	140.5
Marne-la-Vallée Hospital	180.5	177.5
Marne Chantereine Hospital	122.3	130.2
Foch Hospital	79.1	99.4
Delafontaine Hospital	179.9	180
Ouest Parisien Hospital	137.4	151

Table 1: Average emergency department visits in the hospitals selected for analysis across three periods (Summer, Olympic Games, Paralympic Games)

During the summer months, average patient volumes were generally similar between 2023 and 2024. For Bichat, Hôtel-Dieu, Pitié, Avicenne, and Delafontaine, mean ED attendance was higher in 2023 than in 2024, whereas the opposite trend was observed for the other hospitals. During the Olympic Games period, average ED attendance was higher in 2024 for most hospitals, except Pitié-Salpêtrière Hospital and Avicenne Hospital. During the Paralympic period, the distribution was more heterogeneous; higher ED volumes in 2024 were observed at HEGP, Marne Chanteraine, Foch, Delafontaine, and Ouest Parisien.

Patients directly linked to the Games

Between July 24, 2024, and September 9, 2024, 840 patients were tagged with the Y339 code, the tag chosen to signal ED visits related to the Paris 2024 Olympic and Paralympic Games, across all emergency departments in Île-de-France. Only 35 emergency departments (out of 120) used this tag during summer 2024. The EDs reporting the highest numbers of Y339 patients were Rives de Seine (Hauts-de-Seine), Delafontaine (Seine-Saint-Denis), and Marne-la-Vallée, accounting respectively for 12%, 12%, and 10% of all Y339-coded patients.

Among the 840 Y339-coded patients, 50% were male and 50% female; 3% were aged 75 years or older, and 1% were aged 2 years or younger. Regarding geographic origin, 48% were residents of Île-de-France, 45% non-Île-de-France residents, and 7% foreign nationals. Among Île-de-France residents, the Hauts-de-Seine department (92) was most represented (13%), followed by Paris (10%).

Mode of transportation to the ED was reported for most patients: 58% got there by their own means, 9% by ambulance, and 30% via fire and rescue services (VSAV). Nine transfers by Mobile Emergency and Resuscitation Units (SMUR) were recorded (1%), and eight patients were brought in by law enforcement.

73% of Y339 patients were reported to be suffering from a low or medium severity condition and 26% from a severe condition. One patient died.

All reasons for ED presentation (ICD-10 based) were documented and categorized.

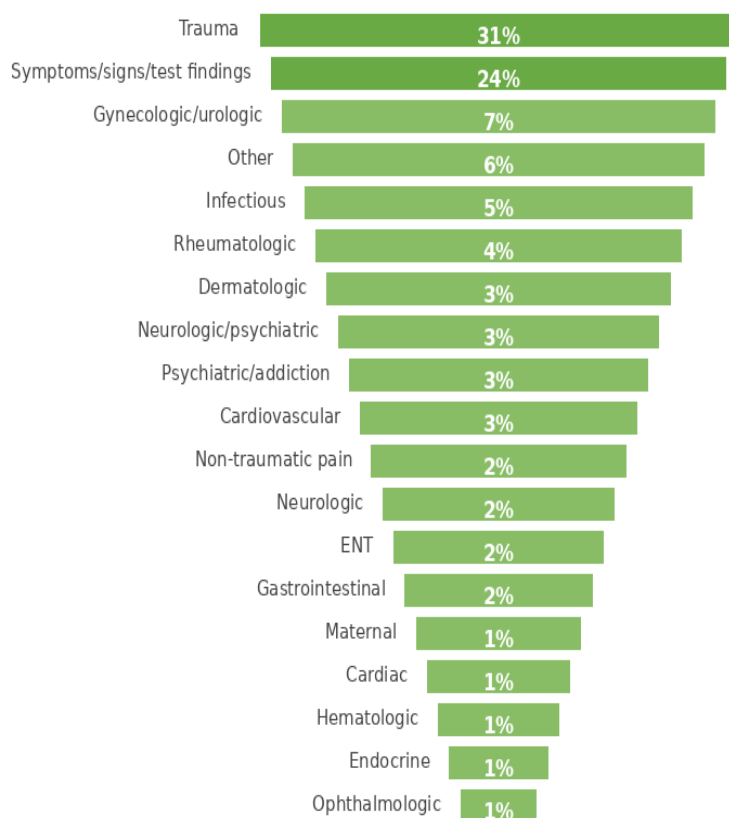


Figure 8: Funnel diagram of consultation reasons for Y339-coded patients visiting the emergency department during the Olympic Games

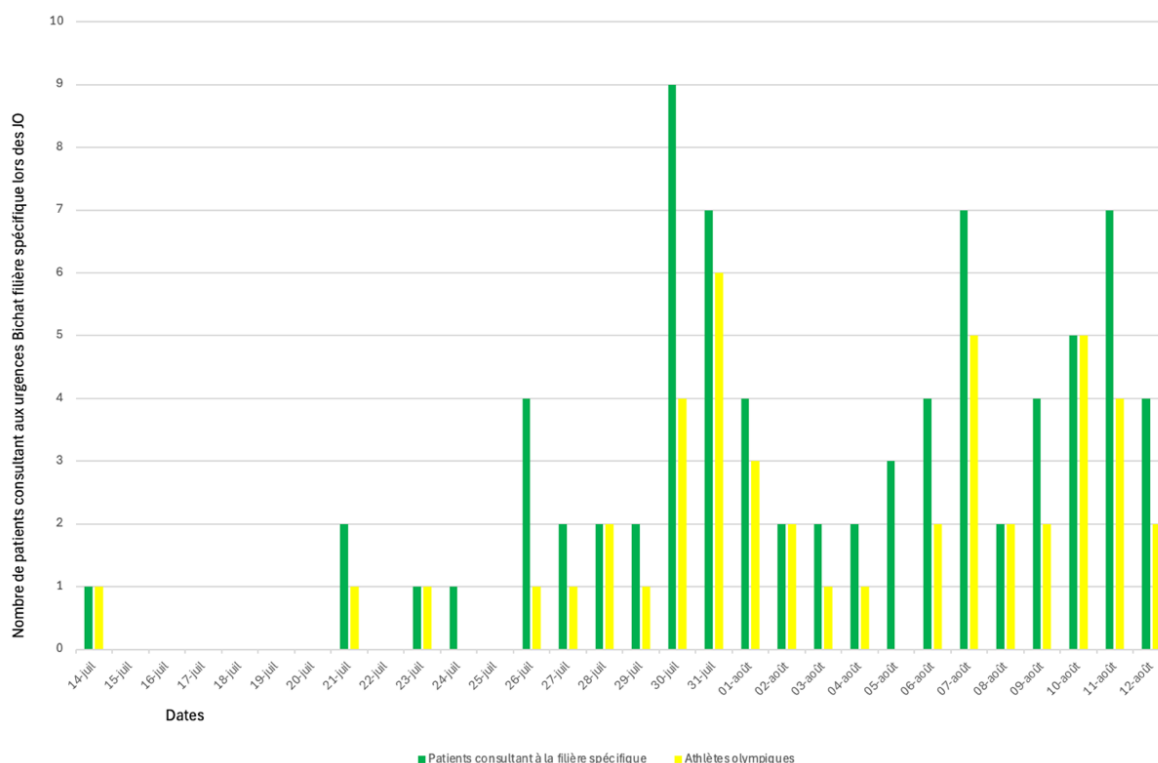
As shown in the funnel chart, ED visits among Y339-coded patients were primarily related to trauma (31%) and nonspecific signs/symptoms/test results (24%), followed by gynecologic/urologic (7%) and miscellaneous causes (6%); all other medical specialties represented less than 5% of consultation reasons each.

Among the 840 patients, 80 were hospitalized following their ED admission (10%). Among hospitalized patients, 3 were transferred to the ICU, 1 to intermediate care (USC), 1 to intensive care (USI), 18 to medical wards (2%), 5 to surgical wards (1%), 1 to obstetrics, and 37 were admitted to short-stay units (UHCD) (4%).

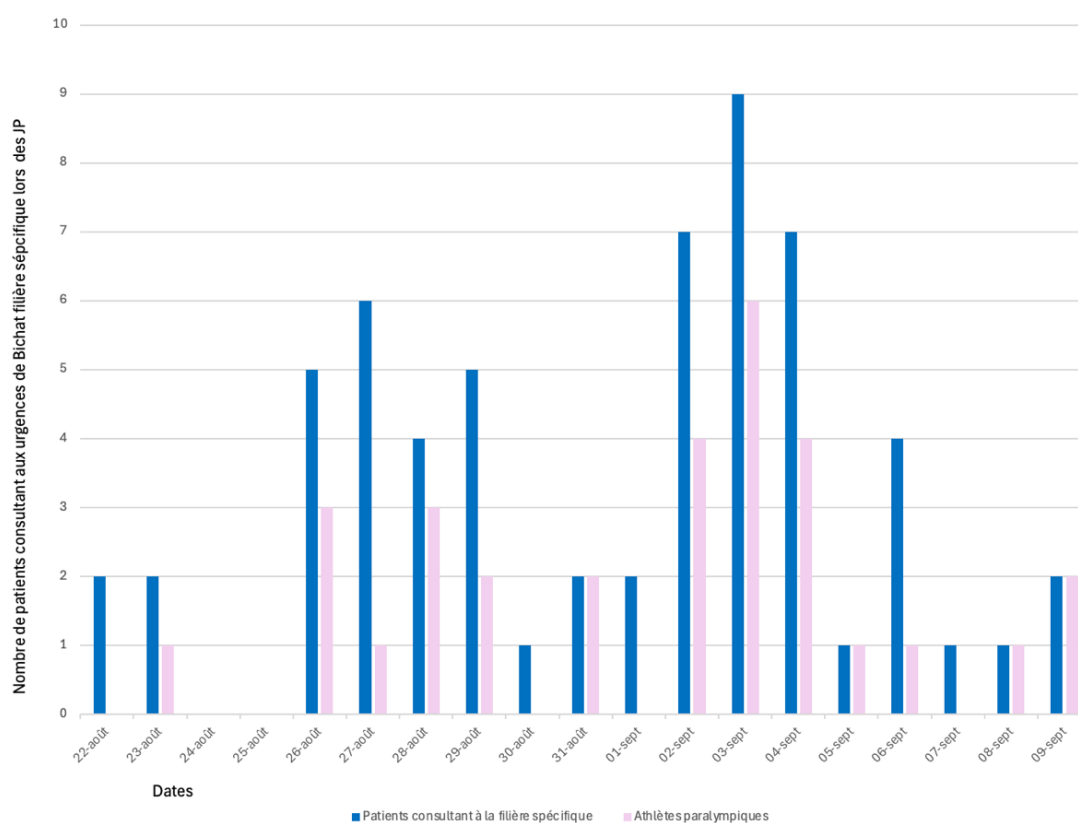
Focus on Bichat Hospital (athlete referral center)

The emergency department of Bichat Hospital, designated as the referral center for athletes and their accompanying persons requiring hospital care during the Games, received 78 patients through its dedicated pathway between July 14 and August 12, 2024. Among them, 47 were athletes of various nationalities, with the remaining patients being relatives or coaches. During the Paralympic Games, 61 patients were admitted to this specific ED pathway between August 22 and September 9, including 31 athletes. Most patients were referred by the Polyclinic: 63 of 78 during the Olympics and 51 of 61 during the Paralympics.

Daily attendance at the Bichat dedicated ED pathway is shown in Histograms 1.1 and 1.2 for the Olympic and Paralympic periods.



Histogram 1.1: Number of patients (green) visiting Bichat emergency department through the dedicated pathway for athletes (yellow) and their relatives during the Olympic Games



Histogram 1.2: Number of patients (blue) visiting Bichat emergency department through the dedicated pathway for athletes (pink) and their relatives during the Paralympic Games

Among the 78 patients admitted during the Olympic Games, 14 required hospitalization (18%):

- 4 admitted to orthopedics at Bichat (including 2 athletes)
- 1 to orthopedics at Beaujon (athlete)
- 1 to digestive surgery at Bichat (athlete)
- 1 to urology at Bichat (athlete)
- 1 to internal medicine at Bichat
- 1 to the cardiac intensive care unit (USIC)
- 4 to the short-stay unit (UHU) (including 2 athletes)
- 1 to the observation unit (UHCD) (athlete).

A total of 10 of the 61 patients admitted during the Paralympic Games (16%) required hospitalization:

- 1 to digestive surgery at Bichat
- 1 to orthopedics at Beaujon (athlete)
- 1 to orthopedics at Bichat (athlete)
- 3 to UHCD (including 1 athlete)
- 1 to infectious diseases
- 1 to ENT department for orthopedic surgery (athlete)
- 2 to UHU (2 athletes).

For both the Olympic and Paralympic periods, the patients' nationalities were highly diverse, representing all continents.

Discussion

The analysis indicates no significant increase in emergency department activity or strain in the Paris region (Île-de-France) during the 2024 Games. Overall, ED attendance and hospitalization rates in summer 2024 followed dynamics comparable to previous years, with a slight rise during the Olympic period that did not meaningfully impact the local healthcare system. According to the Regional Health Agency of Île-de-France, drawing on data from a larger number of facilities, the Olympic Games had a “limited impact on the Île-de-France healthcare system.” ED visits were globally lower than during the same period in 2023, particularly in the 12 frontline hospitals outside AP-HP [85]. Several factors may account for this stability. First, no exceptional public health situation (SSE) requiring activation of a crisis response plan (*plan blanc*) occurred, such major mobilizations of the healthcare system were avoided. An unprecedented, well-structured extra-hospital system, coordinated by SAMU 75 (Paris Emergency Medical Service) and complementing the Polyclinic, was deployed [86]. This system relied on efficient interagency coordination and on-site organization designed to limit the burden on hospital infrastructures. Pre-hospital emergency response units (DPS) were positioned at competition sites based on risk assessments considering site accessibility, trauma risks associated with sports disciplines, and expected audience profiles. Their mission

was to manage on-site care, thereby reducing the impact on public hospitals and anticipating potential SSEs.

At Bichat Hospital, for instance, few athletes required ED consultation, as most medical needs were managed directly at the Polyclinic. Transfers to Bichat were restricted to situations requiring specialized expertise or hospital admission that could not be provided on-site, such as severe trauma or complex surgical or intensive-care cases. Prehospital activity in AP-HP (Assistance-Publique Hôpitaux-de-Paris) facilities increased compared with 2023 but did not generate operational pressure. The impact of the 2024 Games on SAMU (Emergency Medical Services) activity in Île-de-France remained moderate, supported by additional triage lines dedicated to the event. Public health authorities also implemented a preventive communication campaign encouraging the population to defer non-urgent care. Crisis preparedness exercises (chemical, radiological, terrorist attacks, epidemics) were conducted, and Paris-based medical centers were reinforced [87]. Accordingly, primary care services, SOS Médecins, a network of general practitioners specialized in urgent and walk-in care, and reinforced care centers in Paris and Seine-Saint-Denis did not report increased activity during this period.

Meteorological conditions were also favorable: although summer of 2024 was warmer than that of 2023 in France, no heatwave occurred in Île-de-France whereas there was one in 2023 (from September 3 to 11) [88]. The heatwave and pollution peak on September 30, 2024, did coincide with an increase in calls to SAMU compared with 2023. A contributing factor to the absence of excess pressure on the healthcare system is the demographic profile of those attending the Olympic and Paralympic Games: a predominantly young, healthy, mobile, and often athletic population, generally at low risk for severe illness. Existing literature on mass sporting events also indicates typically low morbidity and mortality, although each event presents specific risks.

Together, these elements explain the absence of ED saturation in summer 2024 despite the substantial influx of visitors to the capital. This lack of strain can also be attributed to extensive pre-event planning, including human-resource reinforcement, regulated leave periods, additional hospital beds, and anticipated activity peaks according to the competition schedule. However, some unexpected findings warrant further investigation, such as the higher number of Île-de-France residents visits to EDs in 2024 compared with 2023, particularly during the Olympic Games period. Conversely, the number of visits by non-Île-de-France residents to emergency departments in the region was higher in 2023 than in 2024. This finding was unexpected, as, similar to what was observed during the London Olympic Games, it had been anticipated that Parisians would leave the capital during the event. During the 2012 London Games, a decrease in ED visits and other healthcare consultations among London residents had been reported. Several hypotheses may explain the opposite trend observed in 2024. Residents of Île-de-France may have chosen to remain in or near the capital during the Games due to the proximity of sporting events and the exceptional attractiveness of the occasion. In contrast, visitors from other French regions may have been less numerous than expected in Paris in 2024, potentially due to increased crowding, mobility restrictions, and price

inflation. Prior to the Olympics, controversies broadcast by certain media outlets and social networks, highlighting potential organizational failures (terrorist threats, transport saturation, etc.), likely contributed to public concern, leading to population behaviors that were difficult to predict [89–93].

These results should be interpreted with caution, as they only reflect ED attendance in Île-de-France and do not capture broader population mobility patterns during the event. Population behavior during major events such as the Olympic Games does not always follow predictable patterns and may be shaped by various factors, including risk perception and practical considerations such as mobility and access to care. The influx of patients residing abroad remained moderate, and their ED visits cannot be attributed with certainty to the Games.

Examining ED activity in selected hospitals was also of interest. This approach enabled assessment of the direct or indirect impact of the Games on ED utilization, depending on hospital location and the Olympic and Paralympic event schedule. As no major public health incident occurred during the Games and overall hospital activity remained stable between summer 2023 and summer 2024, drawing firm conclusions regarding a direct impact of the Olympics on ED services remains difficult. Some hospitals located in central Paris even showed reduced ED activity, contrary to expectations given their proximity to event venues. This was notably the case at Pitié-Salpêtrière Hospital (Paris, 13th district). Hôtel-Dieu (Paris, 4th district) provides a striking illustration of how the organization of the Games could locally decrease ED attendance: centrally located on the Île de la Cité, it was partially or completely inaccessible during certain periods related to the Games. For example, on 26 July (opening ceremony), it became inaccessible from 1 p.m. onward, and between July 18 and 26 access required both a “Pass Jeux” and personal identification, even for pedestrians [89]. Such access restrictions likely contributed to the marked decline in ED visits observed from July 18, 2024, onward.

In hospitals located in the northern part of Île-de-France, near several Olympic sites and fan zones, overall activity remained comparable between summer 2023 and summer 2024. A slight decrease in visits was observed at Avicenne Hospital (Bobigny) during the Games. Conversely, some hospitals showed temporary peaks in activity during the Olympic period; these spatiotemporal correlations may suggest a possible influence of major Olympic events on ED utilization in certain facilities. Delafontaine Hospital (Saint-Denis), located next to the Stade de France and near the Olympic Aquatics Center, displayed increased activity on August 2, 2024. This date corresponds to the start of medal events in athletics at the Stade de France, as well as finals in artistic swimming and diving at the Aquatics Center. This temporal alignment may indicate a link between event attendance and local hospital activity. A clear increase in activity was also recorded between July 26 and August 1, 2024, at Marne Chantereine Hospital (Brou-sur-Chantereine), compared with the same period in 2023. This rise coincided with medal events held at the Vaires-sur-Marne Nautical Stadium, located nearby. At the Ouest Parisien Hospital (Trappes), a pronounced increase was observed on August 5, corresponding to the opening day of track cycling finals at the National Velodrome in Saint-Quentin-en-Yvelines.

The activity observed in Emergency Departments during the Games period is strongly related to a more efficient healthcare organization connected to the planning of the Games, notably an increased referral to walk-in care centers. As explained in the introduction, the healthcare system was reorganized in preparation for the Olympic Games. The reinforcement of certain emergency services, SAMU/SMUR units, and walk-in care centers potentially allowed better patient flow distribution and optimized triage. Significant restructuring of non-scheduled care was implemented: eight regional Services for Access to Care (SAS) were operational in the Île-de-France region, a phone service that schedules short-term visits to general practitioners, a detailed online mapping was easily accessible, additional on-call lines were established for medical regulation and out-of-hours clinics, and the psychiatry, perinatal, and geriatric sectors were strengthened. All these measures reinforced emergency services, enabling more optimal patient care during the Olympic Games.

For patients under 2 years old, unlike adults, there were few alternative care options for pediatric patients (no adapted first-aid posts, no pediatric polyclinics). Emergency departments remained one of the few immediate care options for children under 2.

Directly linking Emergency Department activity to the Olympic Games is difficult. The flagging of Games-related visits to EDs with the ICD-10 Y339 code is relevant but was not widely adopted. Such flagging system offers several advantages, both for healthcare organization and for analyzing the event's impact on the health system. It allows for specific traceability of patient pathways; data obtained from the Emergency Department Summaries (RPU) provides a detailed and comprehensive view of patient journeys during the Olympics, representing valuable information for epidemiological monitoring and post-event evaluation to guide future planning. However, this flagging method was largely underused during the summer of 2024: few emergency departments adopted it, and even among those that did, its use remained limited. Notably, none of the athletes who attended the emergency department at Bichat Hospital were flagged with the Y339 code.

Several explanations may account for this underuse of such a flagging tool. First, challenges arose in following the guidelines provided by SPF (Santé Publique France). Communication from SPF, both in terms of implementation and dissemination of instructions, was not always understood. In some cases, healthcare staff could not determine whether a consultation was directly related to the Games, potentially leading to flagging errors. Second, difficulties with applying the Y339 flag reflect a broader issue with diagnosis coding in emergency departments. Each ED visit requires diagnostic coding using the ICD-10 classification, which is often challenging due to complex criteria. The ICD-10 contains no fewer than 14,400 different codes. Selecting the appropriate code among multiple options, particularly when several conditions present similar symptoms, can be difficult. Medical staff, especially emergency physicians, are often insufficiently trained in ICD-10 application, resulting in coding errors or incorrect code selection.

Despite its underuse, the analysis of Y339-flagged patients complements the previously presented data, providing an approximate profile of emergency department patients

during the Olympics. Most cases had intermediate severity levels, and only 10% required hospitalization, with limited use of critical care units (ICU, intensive care, or continuous care). Traumatology emerged as the primary reason for consultation, consistent with literature on mass gathering events. Non-specific signs and symptoms (24%) were also frequent, illustrating the application of Y339 flagging in diverse but clinically non-specific contexts. Simultaneously, primary care diagnoses appear to have remained unchanged during the Games, consistent with the findings of an unpublished thesis showing stability in summer primary care diagnoses. Analysis of consultation reasons is limited by ICD-10 coding variability, which allows the same health complaint to be coded either as an established diagnosis or a non-specific symptom, complicating aggregation and interpretation.

This study has limitations. First, although the analysis is based on RPU's from many EDs in Île-de-France, at least two major hospitals, Ballanger (Aulnay-sous-Bois) and Mignot (Versailles), are not included, potentially introducing selection bias and affecting local indicators, particularly if these hospitals serve specific populations (elderly or foreign populations). These hospitals were excluded from our analysis due to low quality or unavailable activity data. Both hospitals are strategically located relative to the Olympic Games: Ballanger is near Roissy-Charles de Gaulle airport and the climbing site at Le Bourget, and Mignot is close to Versailles, near equestrian, golf, and cycling venues, which could have significantly influenced patient flow. Second, as previously mentioned, establishing a direct causal link between observations and the Olympic Games remains challenging, as other external factors may affect emergency department activity. Third, data quality may be affected by input errors. Data collection relies partially on physicians' clinical judgment, which varies among professionals and facilities, introducing heterogeneity. Some information was missing, creating gaps that may influence analysis. Fourth, the IT outage at AP-HP on August 3, 2024, disrupted data collection. Although accounted for in the analysis, it may have affected data reliability for that period. Finally, structural changes in the French healthcare system in 2024, compared to the previous year, may have modified emergency department activity dynamics. These temporary resources allocated for the Games may have masked a real increase in activity, which would have been offset by the additional support measures implemented.

Conclusion

There was no saturation of emergency services in Île-de-France during the 2024 Olympic and Paralympic Games. Local short-term increases in ED activity were observed linked to major Olympic events nearby, but these small bursts of activity did not put emergency departments under significant stress. This overall success in the public health area highlights the strengths of the local healthcare system, which demonstrated its capacity to effectively manage a major international event thanks to thorough preparation and exceptional coordination among institutional, healthcare, and operational actors. Emergency services played a central role, serving as the cornerstone of the healthcare response system.

Analysis of the lessons learned from this event will help identify areas for improvement in preparation for future events of this type. Establishing and disseminating clear and standardized guidelines for applying an Olympics-related patient tag in data collection would be essential to obtain activity monitoring results that are meaningful, comparable, and actionable in such mass events. Practical considerations for implementing this tagging procedure should also be explored, including targeted training of healthcare workers, the potential use of artificial intelligence to assist in data collection, and the involvement of hospital workers.

List of abbreviations

ANR:	Analyse Nationale des Risques (French National Risk Analysis)
ARS:	Agence Régionale de la Santé (French Regional Health Agency)
AP-HP:	Assistance Publique- Hôpitaux de Paris (Network of hospitals in the Paris region)
CHIAG:	Centre Hospitalier Intercommunal André Grégoire (André Grégoire Hospital)
CHIC:	Centre Hospitalier Intercommunal de Créteil (Créteil Hospital)
CHIRB:	Centre Hospitalier Intercommunal Robert Ballanger (Robert Ballanger Hospital)
CHIV:	Centre Hospitalier Intercommunal de Villeneuve-Saint-Georges (Villeneuve-Saint-Georges Hospital)
CNIL:	Commission Nationale de l'Informatique et des Libertés (French Data Protection Authority)
DPS:	Dispositifs Prévisionnels de Secours (Pre-hospital emergency response units)
ED:	Emergency department
EDSSS:	Emergency Department Syndromic Surveillance System
GHEF:	Grand Hôpital de l'Est francilien (Paris-East Hospital)
HDSD:	Hôpital Delafontaine Saint-Denis (Delafontaine Hospital)
HEGP:	Hôpital Européen Georges Pompidou (Paris 15 th district Hospital)
HPA:	Health Protection Agency (United-Kingdom)
HPOP:	Hôpital Privé de l'Ouest Parisien (Paris-West Hospital)
ICD-10:	International Classification of Diseases, 10th Revision
IdF:	Île-de-France (geographical region encompassing Paris and surroundings)
LA:	Los Angeles
MRI:	Magnetic Resonance Imaging
OG:	Olympic Games
ORSNP:	Observatoire Régional des Soins Non Programmés d'Île-de-France (Regional observatory of unscheduled and emergency care)
PG:	Paralympic Games
POP:	Olympic and Paralympic Polyclinic
RPU:	Résumé de Passage aux Urgences (Data summary of an emergency department visit)
SAMU:	Service d'Aide Médicale Urgente (Emergency Medical Service)
SAMU 75:	Paris Emergency Medical Service
SAS:	Service d'Accès aux Soins (Care Access Service, on-call service aiding patients in need of medical consultations)
SESAN:	Service Numérique de Santé (Regional institution tasked with providing technical support and digital infrastructure in public health)

SPF: Santé Publique France (French institution tasked with epidemiological monitoring among other missions)

SQL: Structured Query Language

SMUR: Structure Mobile d'Urgence et de Réanimation (Mobile Emergency and Resuscitation Units)

SSE: Situation Sanitaire Exceptionnelle (Exceptional Public Health Situation)

VSAV: Véhicule de Secours et d'Assistance aux Victimes (Type of ambulance used by the French fire and rescue services)

UHCD: Unité d'Hospitalisation de Courte Durée (Short-term hospitalization unit in the emergency department)

UHU: Unité d'Hospitalisation des Urgences (Hospitalization unit in the emergency department)

USC: Unité de Soins Continus (Intermediate Care Unit)

USI: Unité de soins intensifs (Intensive Care Unit)

WHO: World Health Organization

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