Editorial

Greek fragility hip fracture registry 2025 annual report

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Abstract

The Greek Fragility Hip Fracture Registry continued its expansion in 2025, its third year of operation, with five additional orthopaedic departments joining the initiative and increasing the number of active centres to thirteen. During the year, data from 2046 patients were recorded, raising the total number of cases in the registry to 4228. The mean patient age was approximately 83 years and the majority were female (71.2%). Most patients lived independently prior to injury and had preserved cognitive function. Intertrochanteric fractures were the most common fracture type (50.7%), followed by displaced intracapsular fractures (34.4%). Operative treatment was performed in most cases, predominantly using intramedullary nailing or hip hemiarthroplasty, although only 35.2% of patients underwent surgery within the recommended 48-hour from admission timeframe. The mean length of hospital stay in 2025 was 9.1 days, slightly reduced compared with the previous year, and in-hospital mortality was 3.2%. Most patients were mobilized on the first postoperative day and were discharged home, while approximately one quarter were transferred to rehabilitation facilities. However, documentation of secondary fracture prevention remained limited, with only 21.2% of patients discharged with recorded anti-osteoporotic treatment. Thirty-day mortality was 11.2%, showing improvement compared with 2024. Overall, the registry continues to provide important national data on fragility hip fracture care and highlights areas requiring further improvement, particularly timely surgery and secondary fracture prevention.

Keywords: Hip fracture; fragility fractures; osteoporosis; clinical registry; Greece; geriatric trauma; quality of care; national registry

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Introduction

Fragility hip fractures constitute a major public health concern in ageing populations, being associated with increased mortality, functional decline, and substantial healthcare utilization.[1] Registries are useful and reliable tools with the view on improving outcomes for these patients, which requires timely surgical management, coordinated multidisciplinary care, and systematic evaluation of clinical practice.[2-4]

The Greek Fragility Hip Fracture Registry was initiated in 2022 by the Greek Fragility Fracture Network (FFN-Gr) to facilitate the systematic nationwide collection of standardized data on the management and outcomes of patients with fragility hip fractures.[5] By providing reliable national data, the registry aims to support quality improvement, identify variations in care, and promote adherence to evidence-based clinical standards.

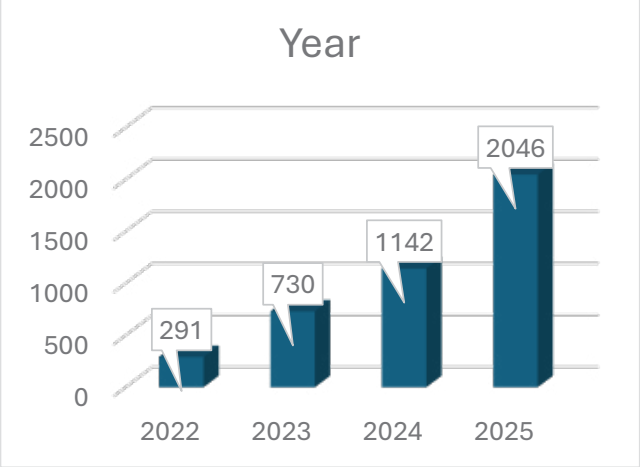
The present 2025 Annual Report summarizes the registry's activity and development over the past year. Continued participation from collaborating hospitals, together with the inclusion of newly engaged ones, has enhanced the representativeness of the dataset, allowing for a more robust evaluation of Greek patients characteristics and clinical outcomes.

2025 Annual Report

Involved Departments

The Greek Fragility Hip Fracture Registry continued its operation for the third consecutive year in 2025. At the beginning of the year, three new orthopaedic departments joined the registry: the 3rd Academic Department of Orthopaedics of the National and Kapodistrian University of Athens at 'KAT' General Hospital in Athens, the Orthopaedic Department of the General Hospital of Patras "Agios Andreas" and the Orthopaedic Department of General Hospital of Tripolis. Later in the year, two additional orthopaedic departments from Athens joined the initiative: the 1st Department of Trauma and Orthopaedics of the General Hospital of Athens 'G. Gennimatas' and the Orthopaedic Department of the General Prefectural General Hospital of Athens 'Korgialenio – Benakeio' Hellenic Red Cross". With the addition of these four departments, the number of active centres in 2025

Figure 1. *Geographic Map of Greece with the involved departments annotated with a star.*



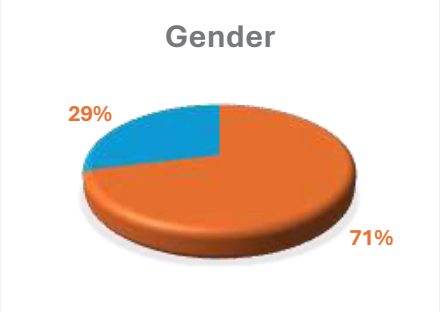


Figure 3. *Gender distribution of the 2025 cohort.*

Figure 2. *Data entries of the Greek registry per year*

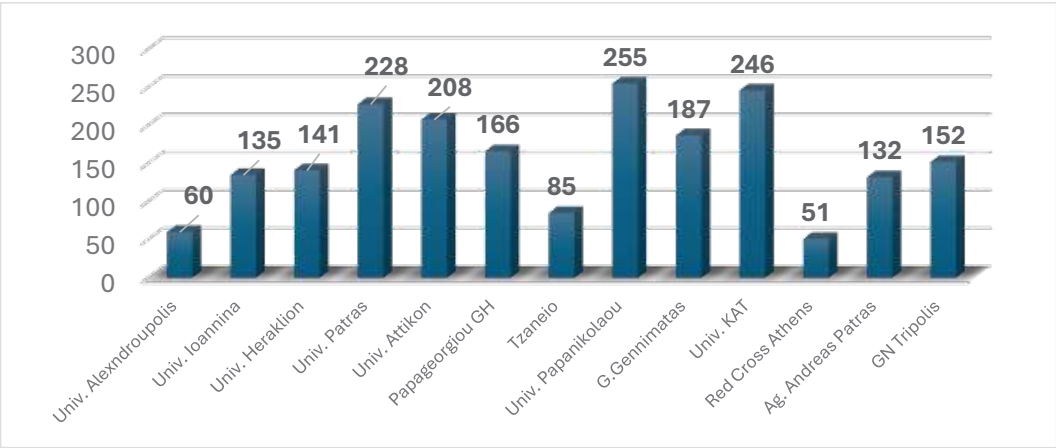


Figure 4. *2025 entries from the different hospitals involved.*

increased to thirteen (figure 1). Furthermore, six additional orthopaedic departments from across the country expressed their willingness to participate in the registry and initiated the procedures required for their inclusion.

Data Collected

Data from a total of 2046 patients were collected during 2025, increasing the total number of patients included in the Greek registry to 4,228. The year 2025 recorded the highest number of entries to date (Figure 2). The mean age of patients in 2025 was 83.13 ± 8 years, which is slightly higher than the overall registry mean age of 82.76 ± 8.3 years. The majority of patients were female (71.2%), a proportion similar to the overall registry average of 70.8% (Figure 3).

Most entries this year were made by the Papanikolaou University General hospital of Thessaloniki followed closely by KAT University General Hospital of Athens (figure 4).

The spring of 2025 was the season with least fragility hip fracture admissions, and autumn the with the most admissions. December and August were the busiest months of 2025 (Figures 5&6).

Patients' pre-injury status

The mean ASA grade of patients with fragility hip

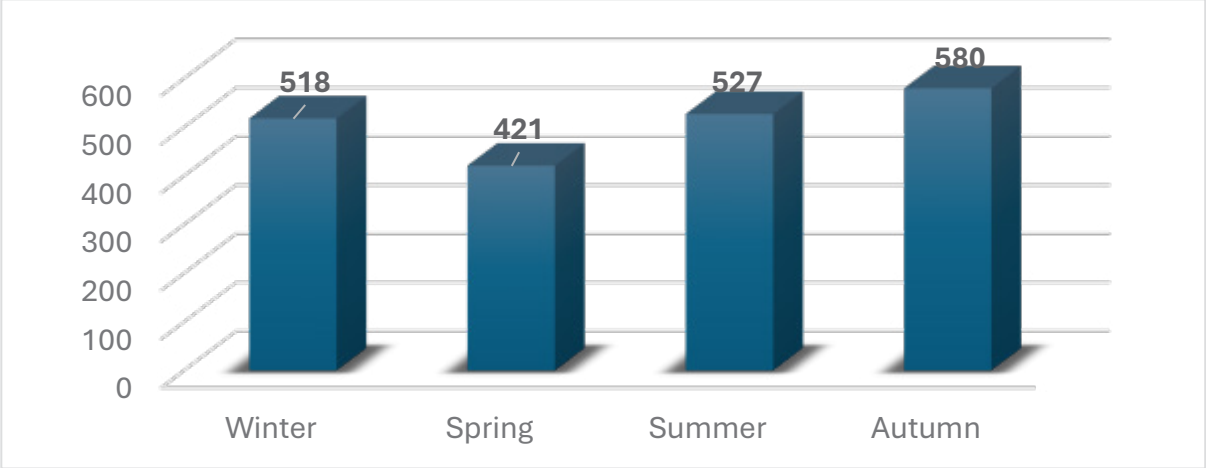


Figure 5. *2024 entries as distributed across the year.*

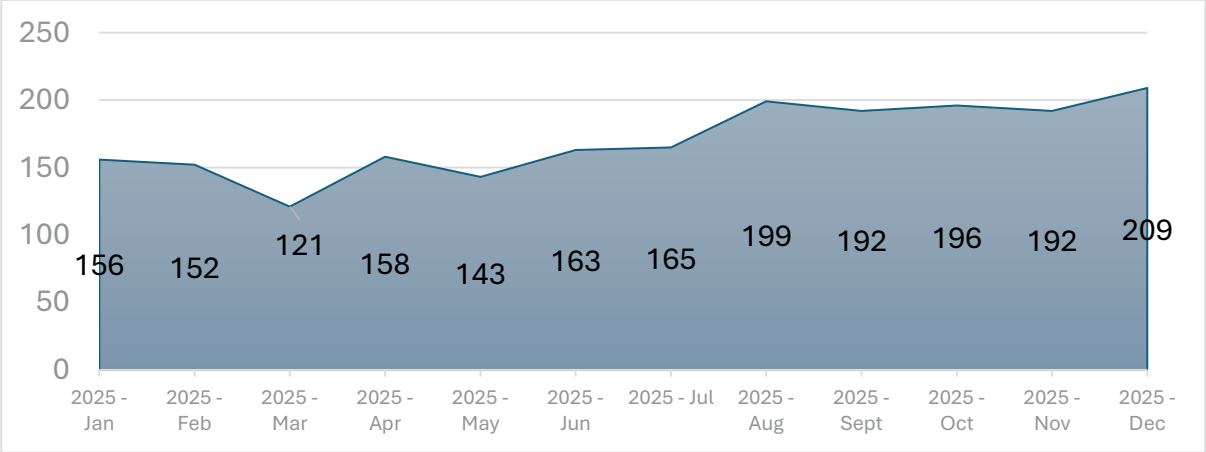


Figure 6. *2025 entries as distributed across the months of the year.*

fractures in 2025 was 2.63 ± 0.9, which is similar to the overall registry average (2.68 ± 0.89). Almost half of the patients (46.3%) were classified as ASA I or II. The cognitive status of the majority of patients was normal (72%); however, 11.4% had positive screening tests for cognitive impairment at admission despite having no previously diagnosed dementia (Figure 7).

Most patients were living in their own homes prior to the injury (92.9%), and a large proportion were functionally independent, with 76.8% able to mobilize outdoors either without aids or using only a single walking stick (Figures 8 and 9).

Fracture type information

Among elderly patients in Greece, intertrochanteric fractures remain the most common type of fragility hip fracture, a pattern that was also observed in 2025. (Table 1 & Figures 10 and 11).

Table 1. Distribution of fracture types in the cohort

Fracture Type	No	Valid %
Intracapsular Undisplaced	138	6.8
Intracapsular Displaced	703	34.4
Intertrochanteric	1036	50.7
Subtrochanteric	131	6.4

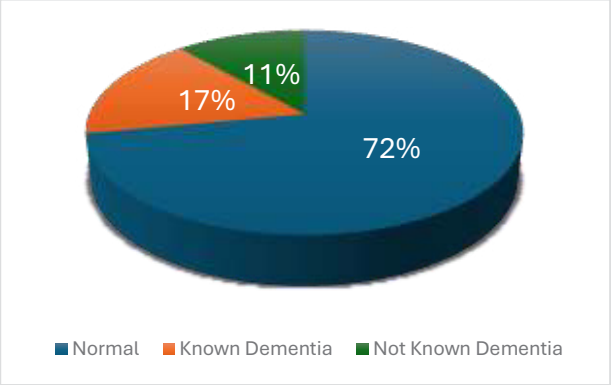


Figure 7. *Cognitive status of the cohort.*

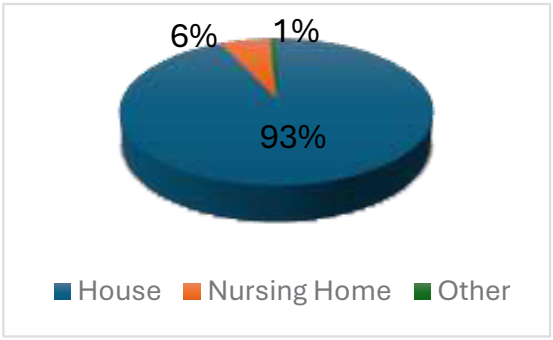
Other	36	1.8

Surgical Procedure Information

Surgical treatment was considered unsuitable for 6.2% of patients, who were therefore managed conservatively, a slight decrease compared with 6.5% in 2024. The remaining patients underwent operative treatment, which was performed under spinal anaesthesia in the majority of cases (78.5%) (Figure 12). The types of surgical procedures performed are summarized in Table 2. Unfortunately, only 35.2% of patients underwent surgery in a timely manner (within 48 hours of admission), once again highlighting the significant issue of limited operating theatre availability and shortages of anesthesiology staff in Greek hospitals (Figure 13).

Table 2. Types of operations performed during 2025

Type of Operation	No	Valid %
Conservative Management	124	6.2
Cannulated Hip Screws	13	0.6
Dynamic Hip Screw	11	0.5
IM nail	1086	54.3
Hip Hemiarthroplasty	699	34.9
Total Hip Arthroplasty	50	2.5
Other	18	0.9



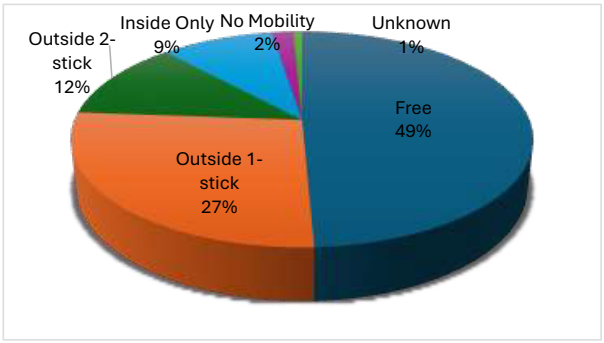


Figure 9. *Patients' pre-injury mobility.*

Hospitalization

The mean length of hospital stay for fragility hip fracture patients in 2025 was 9.08 ± 6 days, lower than the 10.4 days recorded in 2024, reducing the overall average length of stay in the Greek registry to 9.89 ± 7.18 days. In-hospital mortality was 3.2%, representing more than 1% decrease compared with the previous year (4.5%). More than half of the patients (66.7%) were mobilized out of bed on the first postoperative day (Figure 14), while 8.4% developed a new pressure sore during hospitalization (Figure 15). Internal medicine physicians were involved in the management of 47.2% of these patients, highlighting the lack of specialized orthogeriatric services in Greece.

Discharge Data

Most patients were discharged home following their admission for fragility hip fracture (65.6%), while discharge to a rehabilitation centre accounted

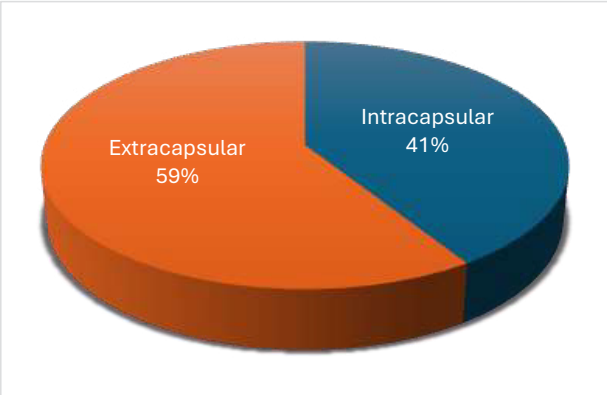


Figure 10. *Fragility hip fracture types during 2025*

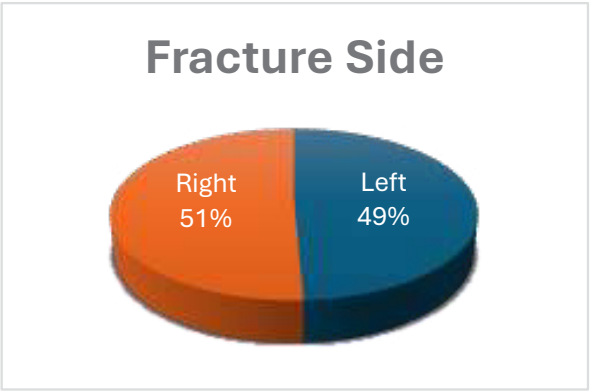


Figure 11. *Fracture side percentage during 2025*

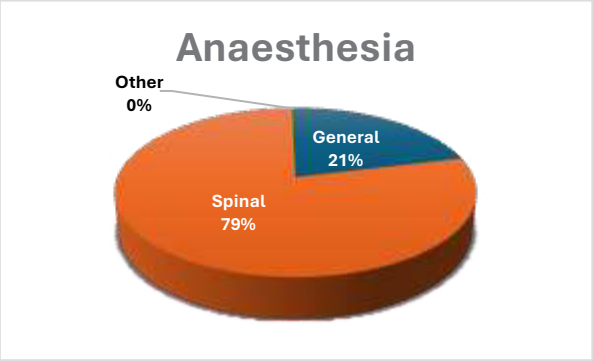


Figure 12. *Type of anesthesia*

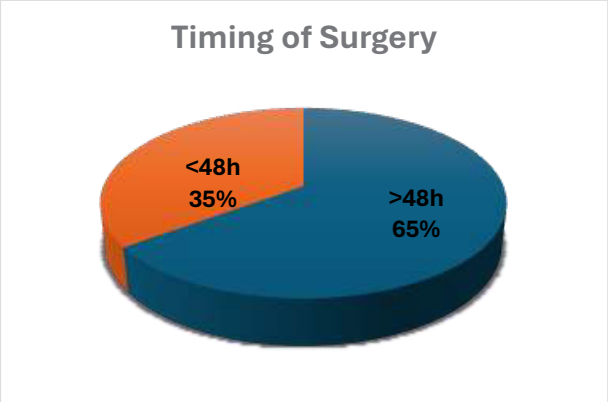


Figure 13. *Time to surgery distribution across the cohort.*

for 28.1% of cases this year (Figure 16).

Only 21.2% of patients were discharged from hospital with documented information regarding the initiation, continuation, or modification of anti-osteoporotic medication, an increase compared with 16.2% in 2024. Nevertheless, the majority of patients still left hospital without a documented attempt at secondary fracture prevention (Figure 17).

Follow-up Data

The 30-day mortality for 2025 was 11.2%, similar to the registry total of 11%. This figure was significantly reduced compared to 2024 which was 14.5%.

Discussion

The 2025 annual report of the Greek Fragility Hip Fracture Registry represents the third consecutive year of its operation and reflects the continued expansion and maturation of the initiative. During 2025, five additional orthopaedic departments joined the registry, increasing the number of participating centres to thirteen, while six further departments initiated the process of participation. As a result, the registry collected data from 2,046 patients during the year, raising the total number of recorded cases to 4,228. The increasing number of participating centres and recorded cases strengthens the representativeness of the registry and enhances the reliability of the data generated. National registries for fragility hip fractures have proven to be powerful tools for monitoring quality of care and guiding healthcare policy.[6] Established registries such as the National Hip Fracture Database,[7] the Australian and New Zealand Hip Fracture Registry,[8] and the Irish Hip Fracture Database[9] have demonstrated how systematic data collection can drive improvements in patient care and outcomes. The progres-

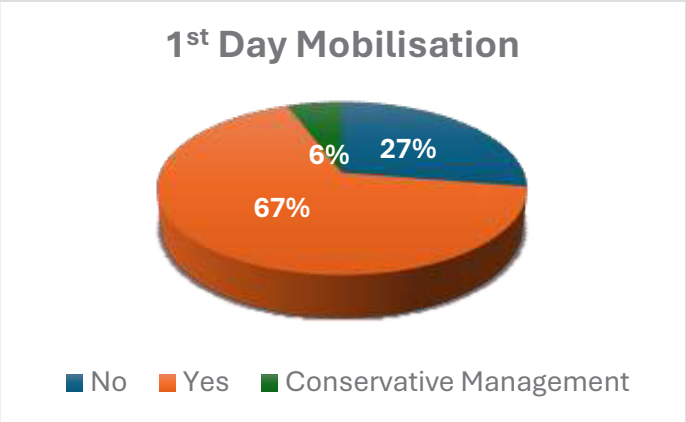


Figure 14. *Percentage of patients managed to be mobilised off bed during the 1st post-operative day.*

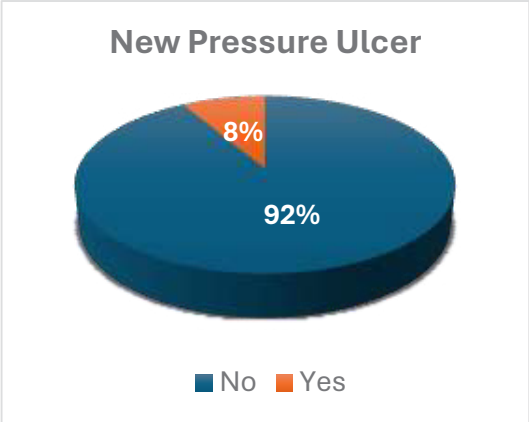


Figure 15. *Percentage of patients developed a new pressure ulcer during the acute hospital admission.*

sive expansion of the Greek registry represents an important step toward developing a similar national quality improvement framework.

The demographic characteristics of the patients included in the Greek registry remain consistent with those reported internationally. The mean age of approximately 83 years and the predominance of female patients reflect the well-established epidemiology of fragility hip fractures observed across most countries. Similarly, the majority of patients in Greece were living independently at home prior to injury and maintained a relatively high level of pre-fracture mobility. Comparable patterns have been reported by both the National Hip Fracture Database and the Spanish Hip Fracture Registry, highlighting the substantial functional impact that hip fractures have on previously independent older adults.[10,11]

Despite these similarities, several important challenges in the Greek healthcare system remain evident. One of the most significant findings of the present report is the persistent delay in surgical treatment. Only 35.2% of patients underwent surgery within 48 hours of admission. This proportion is considerably lower than the performance indicators reported by well-established registries.[10] In particular, countries such as Germany, Sweden, Finland, and the Netherlands report rates exceeding 90% of surgeries performed within 48 hours. Other

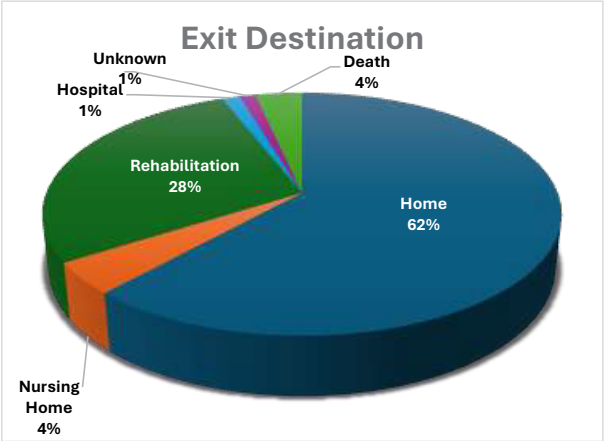


Figure 16. *Destination of discharge.*

European registries, including those from Ireland, Norway, and Italy, report rates ranging between 65% and 85%. In contrast, among European countries, only Spain and France demonstrate rates comparable to those observed in the Greek registry, with proportions below 50%.[10,12] Similar patterns have also been reported in certain Asian healthcare systems, such as Japan and China.[13,14]

Early surgery is widely recognized as a key quality indicator in hip fracture care, as delays have been associated with increased complications, longer hospital stays, and higher mortality.[15] The relatively low rate of timely surgery observed in

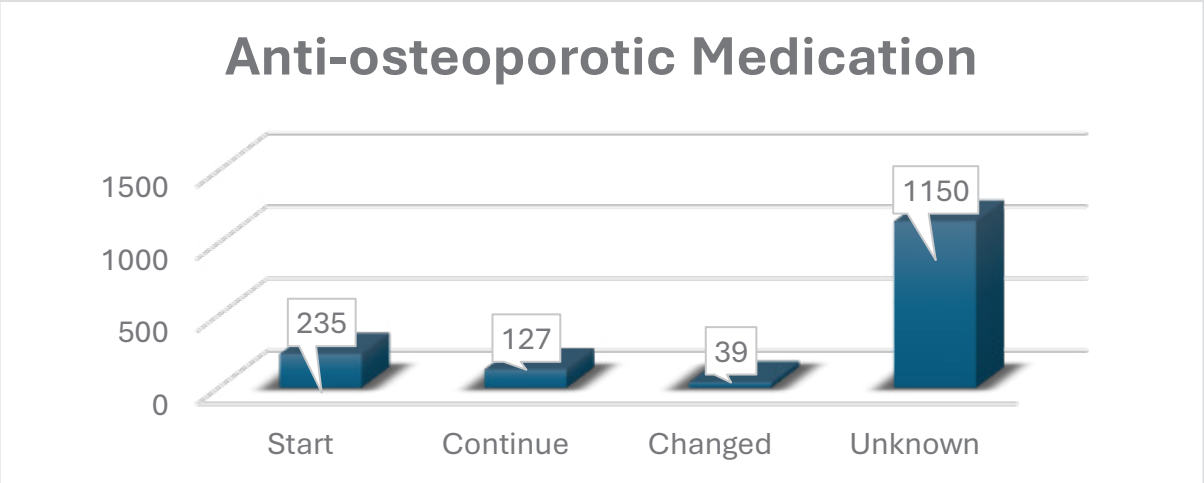


Figure 17. *Secondary prevention during first admission.*

Greece likely reflects a combination of systemic and patient-related factors. Organizational constraints such as limited operating theatre capacity and shortages of anaesthesiology staff in many public hospitals may play an important role. At the same time, as reported in the international literature, patient comorbidities and the need for preoperative optimization are also significant contributors to surgical delay. Further in-depth investigation into the relative impact of these factors in the Greek setting is warranted and will be the focus of future research.

Encouragingly, several clinical outcomes showed modest improvement during 2025 compared with the previous year. The mean length of hospital stay decreased, and both in-hospital mortality and 30-day mortality were reduced compared with 2024.[16]The 30-day mortality rate of 11.2% represents a substantial improvement compared with the 14.5% reported in the previous year and despite being still high, is now closer to the figures reported by some international registries.[10]

Another important finding from the registry concerns the limited implementation of secondary fracture prevention. Only 21.2% of patients were discharged with documented information regarding the initiation, continuation, or modification of anti-osteoporotic medication. Although this represents an improvement compared with the previous year, the majority of patients still leave hospital without a documented strategy for osteoporosis management. In contrast, countries with established fracture liaison services, including those participating in the Scottish, English and Spanish Hip Fracture Database, report significantly higher rates of secondary prevention interventions.[10]

In Greece, early efforts toward the implementation of structured FLS models have been reported, demonstrating their feasibility and potential impact on improving post-fracture care.[17,18] However, nationwide adoption remains limited. The further development and systematic integration of FLS programs within the Greek healthcare system could represent a key strategy for improving secondary fracture prevention and reducing the risk of subsequent fractures, and the establishment of a nationwide registry can become the first step towards this goal.[19,20]

Overall, the findings of the 2025 report provide valuable insight into the current state of fragility hip fracture care in Greece. The continued growth of the registry represents an important achievement and significantly enhances the ability to monitor clinical practice and outcomes across the country. At the same time, the data clearly identify key areas requiring improvement, particularly the reduction of delays to surgery and the systematic implementation of secondary fracture prevention strategies.

Addressing these issues will be essential for aligning Greek hip fracture care with international standards and improving outcomes for the rapidly growing elderly population.

Further expansion of the registry and increased participation from orthopaedic departments nationwide will strengthen its role as a national quality improvement tool. By providing robust and continuously updated data, the Greek Fragility Hip Fracture Registry has the potential to support evidence-based healthcare planning and guide targeted interventions aimed at improving the care of fragility hip fracture patients in Greece.

Conclusions

The 2025 annual report of the Greek Fragility Hip Fracture Registry shows continued growth, with more participating centres and recorded cases strengthening the reliability and national relevance of the data. While the characteristics of Greek hip fracture patients are similar to those reported internationally, the registry highlights ongoing challenges, including delays in surgery and insufficient implementation of secondary fracture prevention. Although some improvements were noted in 2025, such as shorter hospital stays and slightly lower mortality, overall mortality remains higher in comparison to several international registries. These findings underline the need to improve timely access to surgery, strengthen osteoporosis management, and further develop the registry as a national tool for improving fragility hip fracture care in Greece.

Conflict of Interest

The authors declared no conflicts of interest.

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