ACCSCIENCE PUBLISHING

Global Health Economics and Sustainability

ORIGINAL RESEARCH ARTICLE

Analysis of medical professional liability claims in Catalonia, Spain (2002–2017)

Juan Ignacio Morales-Ferrero[1]*, Carles Martin-Fumadó[1,2], and Josep Arimany-Manso[1,2,3]

[1]Professional Liability Service, Barcelona's College of Physicians, Barcelona, Spain

[2]UB Chair Legal Medicine, Professional Liability and Clinical Safety, University of Barcelona, Barcelona, Spain

[3]Faculty of Medicine and Health Sciences, University of Barcelona, Barcelona, Spain

Abstract

Statistical information on the number of malpractice claims against physicians and the amounts of compensation by specialty is scarce and subject to several limitations, including age, a narrow geographic focus largely centered on the United States, limited access to legal claims data, and a lack of information on the number of awards. A retrospective analysis was conducted of malpractice claims filed with the Council of Medical Colleges of Catalonia between 2002 and 2017, examining the number of claims and the compensation costs by medical specialty. The analysis included claims covered under the professional medical liability insurance policy of the Council's insurer, comprising a total sample of 4,832 claims. From the initial data of 4,832 claims, it can be seen that a limited number of specialties—namely Obstetrics and Gynecology, Orthopedic Surgery and Traumatology, General Surgery and Digestive System, and Plastic, Aesthetic and Reconstructive Surgery—account for 63% of the total cost in the period and 53% of the number of claims. An analysis of data from these four specialties could facilitate the identification of risk areas, the development of guidelines to ensure clinical safety (such as clinical practice guidelines and quality programs), and improvements through management based on good medical practices and error learning. These measures may reduce patient harm and the associated costs of medical errors.

Keywords: Medical malpractice; Medical professional liability; Risk management; Health services research

Academic editor:
Mihajlo Jakovljevic M.D. Ph.D. MAE

***Corresponding author:**
Juan Ignacio Morales-Ferrero
(jmorales@comb.cat)

Citation: Morales-Ferrero J.I., Martin-Fumadó C., Arimany-Manso J. (2026). Analysis of medical professional liability claims in Catalonia, Spain (2002–2017). *Global Health Econ Sustain,* 4(1):70-80.
https://doi.org/10.36922/ghes.8481

Received: January 9, 2025

Revised: December 5, 2025

Accepted: December 17, 2025

Published online: January 8, 2026

1. Introduction

Despite international and national interest in clinical safety and medical professional liability (MPL), statistical information on the number of malpractice claims against physicians and the amounts of compensation by specialty remains scarce. Ernest Amory Codman (1869–1940) was an orthopedic surgeon from Boston who, in a pioneering move for his time, began recording the outcomes of his operations, including diagnostic and treatment errors, for the purposes of improving his clinical practice (Neuhauser, 2002). Danzon (1984), according to previous work by Lucian Leape, analyzed the causes of the medical malpractice crisis (medical, demographic, and legal factors),

and concluded that factors specific to medical care and malpractice law have significant explanatory power. Kohn *et al.* (2000), in turn, estimated the impact of medical errors and advocated for their reduction and the improvement of patient safety through the design of a safer health system. Other authors, such as Thorpe (2004), have examined recent trends and the impact of state tort reforms on preventing a medical malpractice crisis. Several factors such as traditional insurance cycle trends, high investment returns, rising severity, rising costs of reinsurance, and reduced capacity likely account for medical malpractice carriers' deteriorating financial condition. Baker (2004) studied the insurance underwriting cycles and their influence on malpractice and the effect of state tort reforms and detected that the underwriting cycle is driven by a combination of institutional and behavioral causes. Mello (2006) proposed some reforms to the health sector to promote clinical safety initiatives and the reporting of adverse effects, highlighting the need to systematize information on claims and premiums at the national level for analysis, as it is currently dispersed across each U.S. member state. She paid particular attention to a new key concept: defensive medicine (Mello *et al.*, 2010) and argued for the link between medical liability reforms and their potential to save money by reducing the practice of defensive medicine. The total annual costs of the medical liability system, including defensive medicine, were estimated at $55.6 billion in 2008, representing 2.4% of total health expenditures. Jena *et al.* (2011) described the claims and the amount according to specialty. On the other hand, Schaffer *et al.* (2017) characterized paid malpractice claims by specialty. A study by Makary and Daniel (2016) that identified medical error as the third leading cause of death in the U.S. has been widely criticized. Beyond the borders of the U.S., Klemann *et al.* (2022) analyzed 15 years of malpractice claims filed and closed by insurance companies in the Netherlands. Moreover, in Spain, Perea-Pérez *et al.* (2009) analyzed 1,899 judicial rulings from Spanish courts of second or third instance corresponding to the criminal, civil, and contentious-administrative jurisdictional areas for traumatology, gynecology and obstetrics, anesthesia and resuscitation, and dentistry. Giraldo *et al.* (2016) and Perea-Pérez *et al.* (2013) conducted a retrospective review of medical errors in court. In Catalonia, Benet Travé (2020) retrospectively analyzed claims in the period from 2000 to 2018. Previously, the possible existence of catastrophic compensation had been reviewed (Arimany- Manso *et al.*, 2013a). The cited studies have limitations, including outdated data, a U.S.-centric focus, restricted access to legal claims only, and missing information on awarded compensation.

2. Data and methods

In this study, we conducted a retrospective analysis of the number of claims and the amounts compensated by specialty of the medical acts for alleged malpractice filed with the Council of Medical Colleges of Catalonia (CCMC) between 2002 and 2017.

This article is based on the database of claims handled by the CCMC Professional Liability Department between 2002 and 2017 on behalf of CCMC's MPL insurer during the period. Arimany-Manso and Gómez-Durán (2013a) focused on promoting improvements in clinical safety and contributing to the prevention of the "malpractice crisis" described in other countries through direct management in accordance with the principles and values of the medical community, and in another work, Arimany-Manso *et al.* described the insurance coverage model for medical negligence in Catalonia (Arimany-Manso *et al.*, 2013c).

The data on payments and reserves for the claims considered were provided by the insurer of the CCMC model in June 2019. The MS Office Excel 2010 software was used to conduct a retrospective descriptive analysis of data derived from the CCMC Praxis Area claims database.

3. Results

The sample consists of 4,832 claims submitted between January 01, 2002, and June 30, 2017, extracted from the PLS database dated June 2019, with the cost of the claims being €114,071,553.03, the payments being €101,123,913.35, and the claims reserves being €12,947,639.68 (Morales Ferrero, 2021).

3.1. MPL claims by specialty of the medical act

A total of 870 Orthopedic Surgery and Traumatology claims were identified among 4,832 malpractice claims between 2002 and 2017. With a high percentage of 18.00%, this specialty ranks first among high-risk specialties.

Figure 1 shows the total number of claims in the period 2002–2017 by specialty of the medical act, and we can conclude that four specialties, namely Orthopedic Surgery and Traumatology (870 claims, 18%), Obstetrics and Gynecology (699 claims, 14.47%), Plastic, Aesthetic and Reconstructive Surgery (596 claims, 12.33%), and General and Digestive Surgery (392 claims, 8.11%), represent 2,557 claims, accounting for 53% of the total claims of the Catalonian model in the period (Table 1).

3.2. Amounts compensated for MPL by specialty of the medical act

The mean cost of all claims is €23,607 (4,832 claims). When the analysis is restricted to claims with economic

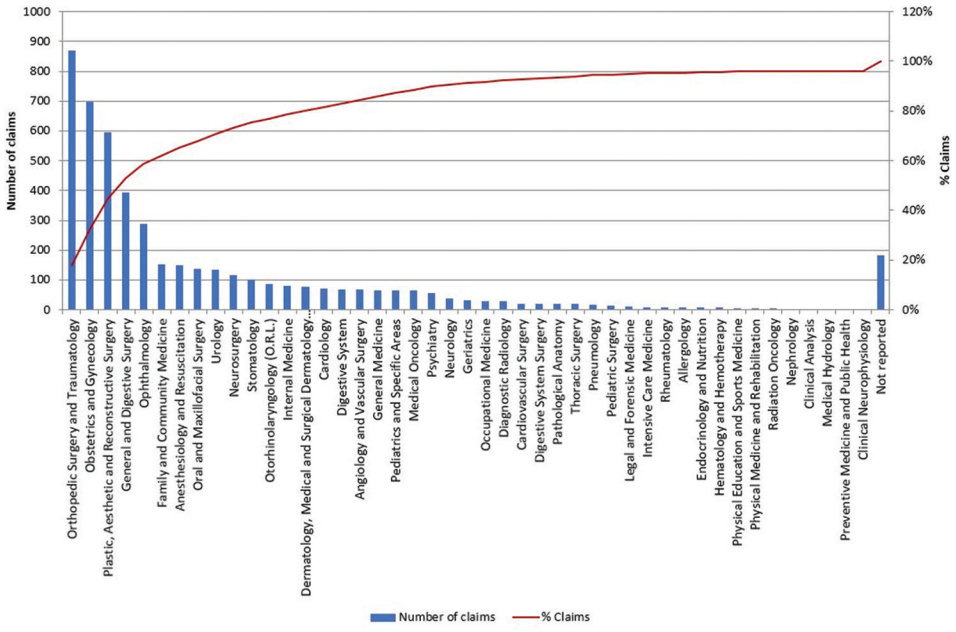

Figure 1. Frequency of medical professional liability claims under the Medical Act

Table 1. Medical act specialties with higher number of claims (2002–2017)

Medical act specialty	Number of claims	Claims (%)	Accumulation (%)
Orthopedic Surgery and Traumatology	870	18.00	18.00
Obstetrics and Gynecology	699	14.47	32.47
Plastic, Aesthetic, and Reconstructive Surgery	596	12.33	44.81
General and Digestive Surgery	392	8.11	52.92

consequences—3,091 claims with costs greater than €0 — the mean compensation amount is €36,904; however, some specialties among high-risk specialties present significantly higher mean claim costs, with the exception of Plastic, Aesthetic and Reconstructive Surgery specialty, which presents a mean cost much lower than the total mean cost.

Figure 2 shows the total amount of costs of claims in the period 2002–2017 by specialty of the medical act. We can see that the four high-risk specialties account for 63% of the total amount of the cost of the Catalonian model in the period 2002–2017 (Table 2), the same specialties that were presented because of the higher number of claims and they represent 53% of the total number of claims. Obstetrics and Gynecology accounts for 24.59% of the total amount of the cost of payouts of the Catalonian model in the period 2002–2017, a mean cost of €40.131 and a mean cost with economic consequences of €57,956. Orthopedic Surgery and Traumatology represents 20.17% of the total amount of the cost of payments, a mean cost of €26,441, and a mean cost with economic consequences of €40,429. General and Digestive Surgery represents 12.69%; a mean cost of €36,941 and a mean cost with economic consequences of €56,646; and Plastic, Aesthetic, and Reconstructive Surgery represents 6,26%, a mean cost of €11,977, and a mean cost with consequences of €20,872.

3.3. Analysis of MPL claims with or without economic consequences

On the initial database of 4,832 claims, there are 3,091 claims (64%) with economic cost (cost > €0) and 1,741 claims (36%) without economic cost derived from the claim.

Obstetrics and Gynecology is the specialty with the highest percentage of claims with economic cost, accounting for 69.24% in the period between 2002 and 2017 among high-risk specialties. This high percentage ranks this specialty, Obstetrics and Gynecology, in the first position among the high-risk specialties. Orthopedic Surgery and Traumatology, as well as Obstetrics and Gynecology, accounted for 65.40% of claims with economic cost, whereas Plastic, Aesthetic, and Reconstructive accounted for 57.38% and General and Digestive Surgery specialty accounted for 67.60% (Table 3).

Figure 3 shows the claims with economic consequences per medical act in the period 2002–2017 by medical act specialty. Some specialties present extreme values due to

Table 2. Cost of claims by specialty of medical procedure

Medical act specialty	Cost (%)	Accumulation (%)	Mean cost	Mean cost (economic consequences)
Obstetrics and Gynecology	24.59	24.59	€40,130.31	€57,956.79
Orthopedic Surgery and Traumatology	20.17	44.76	€26,441.56	€40,429.09
General and Digestive Surgery	12.69	57.45	€36,941.93	€54,646.17
Plastic, Aesthetic, and Reconstructive Surgery	6.26	63.71	€11,977.29	€20,872.70

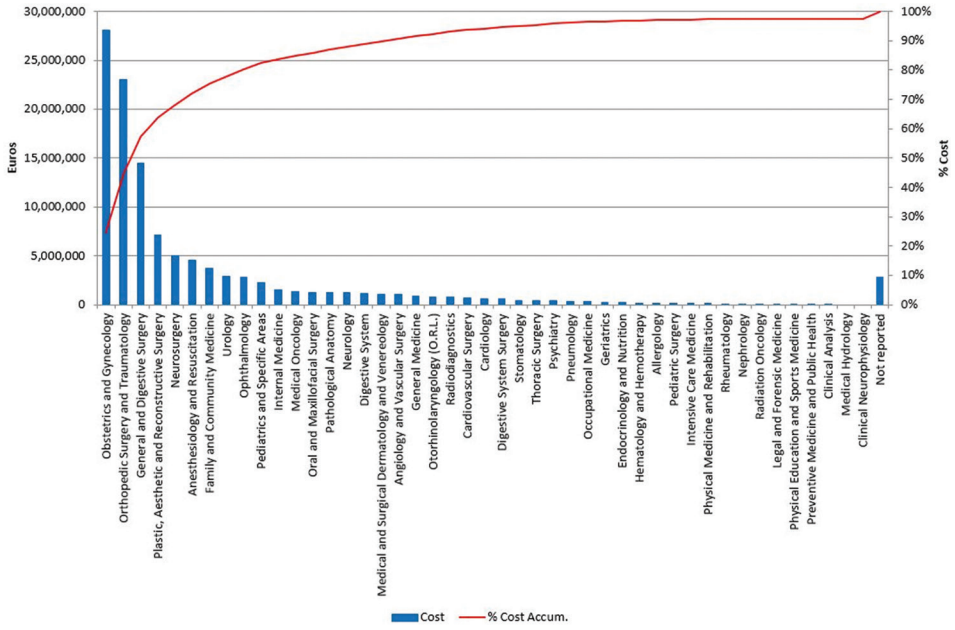

Figure 2. Cost of claims by specialty of the medical act

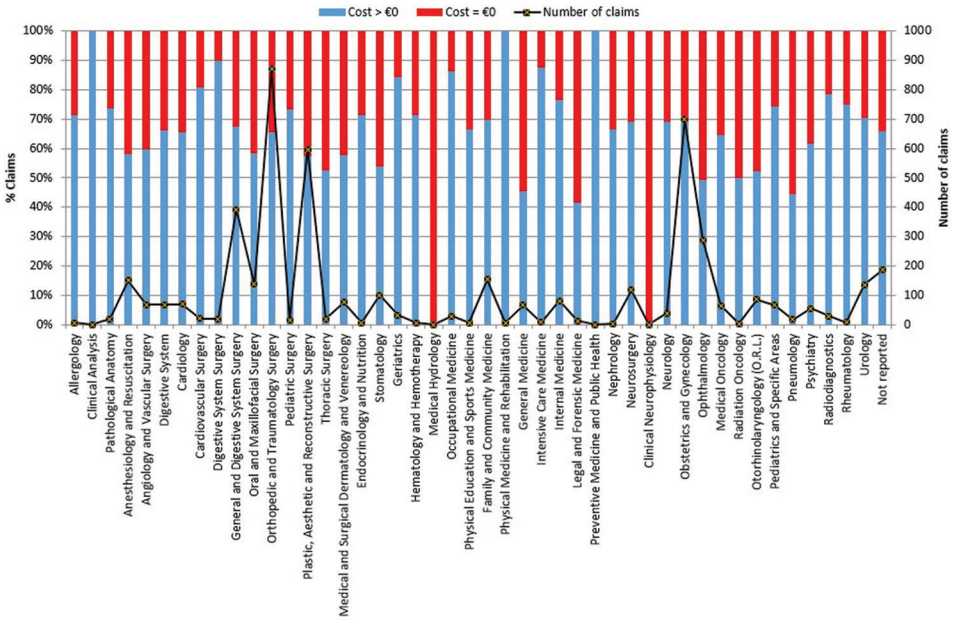

Figure 3. Claims with or without economic consequences per medical act in the period 2002–2017 by medical act specialty

their low number of claims, which do not allow conclusions to be drawn.

3.4. Analysis of MPL claims with economic consequences

An analysis of the claims with economic consequences—3,091 claims, representing 64% of the total claims database (4,832 claims)—showed that 82% of the medical claims, with a cost of less than €50,000, account for 21% of the total amount of the cost of the Catalonian model, while the remaining 18% of the number of claims, claims with a cost ≥ €50,000, account for 79% of the total compensation cost (Pareto Principle) (Table 4).

By repeating the analysis of the cost above and below €50,000 on the 3,091 claims with economic cost by specialty of the high-risk specialties, which account for 53% of the total cost of the model, we found that Obstetrics and Gynecology was the specialty with the highest percentage of claims with economic cost above €50,000 for claims with economic consequences (cost > €0), with a percentage of 27.89%. Orthopedic Surgery and Traumatology accounts for 17.57%; Plastic, Aesthetic, and Reconstructive Surgery for 10.53%; and General and Digestive Surgery for 24.91%.

Table 3. Distribution for the most relevant specialties according to their cost with or without economic consequences

Medical act specialty	Cost >€0 (%)	Cost=€0 (%)	Claims (%)	Accumulation (%)
Orthopedic Surgery and Traumatology	65.40	34.60	18.00	18.00
Obstetrics and Gynecology	69.24	30.76	14.47	32.47
Plastic, Aesthetic, and Reconstructive Surgery	57.38	42.62	12.33	44.81
General and Digestive Surgery	67.60	32.40	8.11	52.92

4. Discussion

This study aimed to investigate whether certain medical specialties are more likely to be involved in malpractice claims and to examine the associated costs. The main findings indicate that both the number and the cost of MPL claims are concentrated in four specialties: Orthopedic Surgery and Traumatology; Obstetrics and Gynecology; Plastic, Aesthetic, and Reconstructive Surgery; and General and Digestive Surgery. Furthermore, 18% of claims with a cost ≥€50.000 accounted for 79% of the total compensation, illustrating a Pareto distribution in the Catalonian MPL model between 2002 and 2017.

4.1. Strengths and limitations

The study database includes claims from physicians insured by CCMC, but not all claims in Catalonia, since there are claims that are not addressed directly to the physician but are directed against the administration or against another health entity (mutual insurance companies, private health centers, *etc.*), and there is the possibility that physicians can insure their professional liability through a policy other than the one offered by the CCMC although approximately 90% of registered doctors are insured under the model studied (more than 27,000 insured). However, it incorporates claims filed with the judicial authority and cases handled out of court, *i.e.*, without the filing of a lawsuit—an increasingly common method. Claims may be addressed to one or more physicians, regardless of whether a public or private health institution is ultimately involved.

Although the database sample is sufficiently mature in relation to the status of the claims, it is important to mention that 12% of the claims are still being processed (604 claims out of a total of 4,832 claims from the period 2002–2017), and, therefore, there could be circumstances that alter the data in this article.

The data on payments and reserves for the claims considered were provided by the insurer of the CCMC

Table 4. Analysis of claims with consequences (cost>€0) by cost ranges

Cost	Claims (%)	Claims accumulated (%)	Cost (%)	Cost accumulated (%)	Mean cost
€1–1,000	22.58	82.47	0.33	21.08	€539
€1,001–5,999	23.23		1.70		€2,707
€6,000–24,999	25.66		8.44		€12,136
€25,000–49,999	11.00		10.61		€35,591
€50,000–74,999	4.66	17.54	7.57	78.91	€59,933
€75,000–99,999	2.98		7.09		€87,951
€100,000–249,999	6.99		28.78		€152,014
€250,000–499,999	2.07		19.69		€351,030
≥€500,000	0.84		15.78		€692,469

model in June 2019, at the company's discretion, and could have varied depending on the favorable or unfavorable processing of the claims.

Finally, while the broad study period offers the advantage of a larger sample size, it may obscure current trends that have emerged over the entire period. For instance, a proven upward trend has been observed in recent years with regard to cosmetic, plastic, and reconstructive surgery.

4.2. Interpretation within the contest of the wider literature

It should be pointed out, as Arimany-Manso *et al.* (2013b) argue, that the scenario of CCMC complaints, both in terms of quantity and frequency, as well as in their incidence by specialties, differs ostensibly from the scenario in the USA (Bixenstine *et al.*, 2014), due to the special characteristics of the different health systems. Jena *et al.* (2011) highlighted the proportion of doctors who face a malpractice lawsuit annually, by specialty, noting that neurosurgery, thoracic-cardiovascular surgery, general surgery, and orthopedic surgery are the most frequently sued specialties.

In France, Mauroy (2021) questioned the usefulness of recommendations from the analysis of claims. Data from the Observatoire des Risques Médicaux (ORM) indicate that faulty technical acts occur most frequently in the specialties of dental surgery, plastic and cosmetic surgery, physiotherapy, and other medical disciplines involving invasive procedures.

Buzzacchi *et al.* (2016) analyzed the frequency of medical malpractice insurance claims in an Italian region (2004–2010), to estimate the presence of significant trends and to identify volume effects at both department and healthcare organization levels. The most requested specialties (70%) are orthopedics, general surgery, specialized surgery, and obstetrics. In a study commissioned by the patients' rights group TDM (March 19, 2007), Toraldo *et al.* (2015) reported that the medical specialty most affected by complaints was Orthopedics and Traumatology, followed by Oncology, General Surgery, Obstetrics and Gynecology, Ophthalmology, Dentistry, Angiology, Urology, and General Medicine.

In Germany, Madea and Preuß (2009), in a multicenter retrospective analysis of 4,450 autopsies conducted due to suspected medical malpractice across 17 institutes of forensic medicine from 1990 to 2000 for the German Federal Ministry of Health, found that the specialties with the highest incidence were Surgery, Internal Medicine, and cases of unknown specialty.

Klemann *et al.* (2022) analyzed 15 years of malpractice claims in the Netherlands from two insurance companies (2007–2021) covering approximately 95% of all hospitals, with a total of 21,826 closed claims. The research team found that the top three medical specialties with the highest number of claims filed and the highest damage burden that remained consistent each year were General Surgery, Orthopedic Surgery, and Gynecology/Obstetrics. Dronkers *et al.* (2024) compared the risk of malpractice claims for all major medical specialties in the Netherlands, concluding that most malpractice claims in the country were filed against surgeons, general orthopedic physicians, and plastic surgeons.

Franchuk *et al.* (2025) analyzed official statistical data concerning medical crimes registered in the Unified Report on Criminal Offences Nationwide since 2013, as well as decisions of Ukrainian courts from 2007 to 2024, encompassing a total of 6,739 criminal cases. Obstetrics-Gynecology, Surgery, Therapy, and Anesthesiology are high-risk medical specialties in Ukraine (Franchuk *et al.*, 2025), with punitive measures rarely applied as the Ukrainian judicial practice tends to exercise leniency in resolving medical malpractice cases. The transition from criminal to civil resolution, accompanied by better compensation mechanisms for patients and legal clarity, would better align Ukrainian practices with international standards.

A recent study focusing on Middle Eastern countries concluded that the highest rates of medical errors occurred in Neurosurgery, Orthopedic Surgery, and Cardiology, whereas the lowest rates were reported in Dermatology, Vascular Surgery, Gastroenterology, Endocrinology, and Rheumatology (Hemeda *et al.*, 2025).

In an analysis of 13,340 closed medical malpractice claims from the Japanese Supreme Court between 2006 and 2021, Taniguchi *et al.* (2023) found that the specialties with higher frequency of claims were Internal Medicine, Surgery, Orthopedics, Dentistry, and Obstetrics and Gynecology. It is worth mentioning that there has been a decrease in the number of medical malpractice claims in Obstetrics and Gynecology, as an obstetric care compensation system was established to compensate patients and their families for accidents during childbirth (compensation for cerebral palsy, standardized clinical guidelines, and adverse event investigation system) and to prevent disputes mediated through lawsuits. Taniguchi *et al.* (2023) concluded that medical malpractice lawsuits settled in Japan have decreased across most medical specialties since 2006 in contrast with the situation in the U.S. and Europe. The factors contributing to the decline in Obstetrics and Gynecology in Japan versus the U.S. have been studied by Kamijo *et al.* (2025).

On the other hand, in Africa, Nagieb *et al.* (2023) conducted a retrospective descriptive observational

study of medical malpractice death cases in Cairo and Giza governorates, using records and reports available at the Forensic Medical Authority from January 1, 2014, to January 1, 2015. Based on their data of 112 cases with alleged medical malpractice dead cases, the specialties with a higher number of cases are Obstetrics and Gynecology, Anesthesia, General Surgery and Their Specialties (GS), and Pediatrics and Neonatology. Also, in Egypt, Sobh *et al.* (2025) examined 311 malpractice claims involving 416 physicians, investigated by the Alexandria Medical Syndicate over a five-year period (2018–2022). The specialties with the highest incidence are General Surgery, Orthopedics, Gynecology and Obstetrics, and Anesthesiology.

In China, medical malpractice lawsuits, amounting to 4,380 claims, have also been analyzed to assess patient safety in tertiary hospitals in China (Li *et al.*, 2020). Tertiary hospitals were listed as top-ranking hospitals according to standards stipulated by public authorities. The specialties with the highest frequency of consultations were Orthopedics, Gynecology and Obstetrics, Emergency Medicine, and Gastroenterology. For all the specialties, the average proportionate liability ranged from 29.4% to 51.9%; the average payment was US$ 8,820–41,733. The average payment for malpractice claims was US$31,430, and Li *et al.* (2020) noted a continuous increase from 2008 to 2017. The highest annual average payment was US$34,844 in 2017, more than double the average recorded in 2008 (US$15,462). Among medical specialties, Stomatology had the lowest average payment (US$8,820), while Cardiovascular Surgery had the highest (US$41,733).

In India, Rayamane *et al.* (2016) analyzed 41 cases of medical negligence registered in the National Consumer Disputes Redressal Commission/National Commission (NCDRC/NC). Obstetrics and Gynecology specialty recorded the highest number of medical negligence cases, followed by Orthopedics and then General Surgery.

In an analysis of 3,997 medical malpractice claims documented in the Iranian Medical Council, Raeissi *et al.* (2019) concluded that the claims were concentrated in Gynaecology, Orthopedics, General Surgery, and Anaesthesiology specialties.

AlBalushi *et al.* (2023) conducted a retrospective observational study on medical malpractice litigation in Oman, analyzing 1,284 cases filed by Omani nationals and non-Omani expatriates and investigated by the Higher Medical Committee over 12 years (2010–2021). The specialties with the highest frequency of claims were Obstetrics and Gynecology, Internal Medicine, Surgery, and Orthopedics. The study also noted an upward trend in the incidence of medical malpractice litigation.

Almannie *et al.* (2021) conducted a review and analysis of the annual statistics published by the Medico-Legal Committees in Saudi Arabia over the years 1437–1439 H (Hijri calendar, corresponding to approximately 2016–2019 Gregorian years). Their findings showed that Obstetrics and Gynecology consistently accounted for the highest number of lawsuits compared to other medical specialties, followed by Dentistry, Internal Medicine, and General Surgery. Conversely, Anesthesia and Intensive Care recorded the lowest number of lawsuits. The authors concluded that the number of lawsuits in Saudi Arabia has been increasing rapidly during the study period.

Austin *et al.* (2021) identified factors associated with patient complaints, malpractice claims, and deterioration in physician performance in a comprehensive review of the research articles published between 2011 and 2020. The systematic review included 40 studies from the U.S. (60% of the total), 12 from Australia (12%), and two studies each from Canada, Denmark, Japan, Taiwan, and the U.K. One study was included from each of the following countries: Chile, Colombia, Egypt, France, India, Iran, Italy, the Netherlands, and Spain. It should be noted that the General Surgery specialty was associated with a higher risk of malpractice compared with other surgical subspecialties. Other high-risk specialties included Psychiatry, Obstetrics and Gynecology, which were 4–17 times more likely to result in malpractice claims compared with General Medicine.

It should be noted that data from some countries are influenced by differences in healthcare systems and cultural contexts across regions. Therefore, findings from different countries must be interpreted within their respective contexts when making comparisons or drawing conclusions. The findings differ from those reported in Spain by Hernández Gil (2008) based on the Insalud experience, where a notably high proportion of claims occurred in the specialty of Family and General Medicine. In addition, Internal Medicine and Pediatrics were also among the specialties with the highest frequencies; together, these specialties accounted for 70% of all claims. This pattern contrasts with the experience observed under the Catalonian Professional Liability model.

In view of the higher incidence of complaints observed in the specialties of Orthopedic Surgery and Traumatology, Obstetrics and Gynecology, Plastic, Aesthetic and Reconstructive Surgery, and General and Digestive Surgery, the CCMC Praxis Department has prepared a series of articles on clinical safety, recommending a series of preventive measures to avoid complaints. In this regard, the analyses of claims by Gómez-Durán *et al.* (2013) and Arimany-Manso *et al.* (2014) are worth mentioning. At

this point, it is important to note that in Spain, the formal recognition of Emergency Medicine as an independent medical specialty is relatively recent. Therefore, despite being a relatively high-risk specialty, the database examined includes emergency-related cases that are classified under other specialties. This circumstance should be considered in future research.

The mean total cost of all claims is €23,607.52, with a median of €956.45 and a standard deviation of €72,864.72. When only claims involving economic cost were considered, the mean cost increased to €36,904.42, the median to €7,000.00, and the standard deviation to €88,371.76. These findings contrast with Perea-Pérez *et al.* (2013), who analyzed all judicial rulings recorded in the legal databases CENDOJ and Westlaw–Aranzadi up to 2010 and found a mean compensation amount of €83,457.50.

With regard to the specialty of Orthopedic Surgery and Traumatology, Cardoso-Cita *et al.* (2016) concluded that, although the number of convictions of orthopedic surgeons is high, compensation amounts are usually below €50.000. They reported a mean compensation of €81,767, with values ranging from a minimum of €600 to a maximum of €867,000. In contrast, the CCMC experience showed a mean cost of €26,441. When only claims involving economic consequences are considered, the mean cost rises to €40,429, which is approximately 50% lower.

In relation to Gynecology and Obstetrics, García Ruiz (2018) analyzed 581 claims obtained from the Westlaw–Aranzadi database, covering the period from January 1975 to May 2013 and including all judicial channels: criminal, civil, and contentious-administrative. The study found that compensation amounts increased over time, with a mean of €106,712 between 1995 and 1999 and €257,932 between 2010 and 2013. These figures contrast with the CCMC experience, which reported mean costs of €40,130 and €57,957 for claims with economic consequences for the specialty of Obstetrics and Gynecology.

Jena *et al.* (2011) note that malpractice payment amounts are higher in the specialties of Pediatrics, Obstetrics and Gynecology, and Neurosurgery.

4.3. Implications

More specific studies should be encouraged for the specialties with the highest frequency of claims, both in terms of number and cost, particularly the Orthopedic Surgery and Traumatology, Obstetrics and Gynecology, Plastic, Aesthetic and Reconstructive Surgery, and General and Digestive Surgery. Such research would help evaluate clinical safety initiatives in relation to the most common incident types and the corresponding recommended preventive measures. Considering the volume and cost of claims in these specialties, implementing these safety initiatives could have a significant impact on clinical safety, given that these specialties account for 63% of the total cost of claims in the CCMC model study (€114 million) and 53% of the total number of claims (4,832 claims), with a claim rate with economic consequences of between 57% and 65%. Analyzing data from these four specialties could

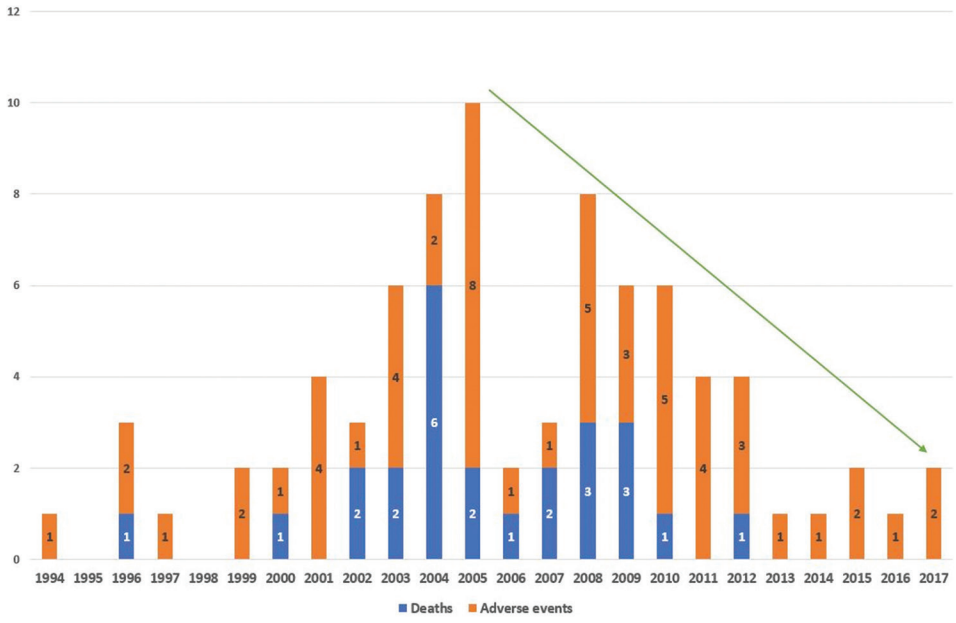

Figure 4. Deaths and adverse events in Bariatric Surgery

help identify high-risk areas and inform the development of clinical safety guidelines, such as clinical practice guidelines and quality improvement programs. This approach would promote the adoption of best practices and facilitate improvements through management based on sound medical practices and mistake learning. An example of this type of initiative aimed at learning from mistakes is provided by Bruguera *et al.* (2012), who analyzed claims submitted to the Professional Liability Service of the CCMC from 1992 to 2009 for damages arising from bariatric surgery. They concluded that the early detection of surgical complications is essential for reducing litigation related to bariatric surgery. Following the publication of the article, the number of adverse events decreased, and no more deaths were reported, suggesting that the scientific dissemination of the findings by Bruguera *et al.* contributed, at least in part, to this improvement (Figure 4). These measures may also reduce patient harm and the costs associated with medical errors.º

5. Conclusion

This paper highlights that the number and cost of MPL claims are primarily concentrated in four specialties: Orthopedic Surgery and Traumatology, Obstetrics and Gynecology, Plastic, Aesthetic and Reconstructive Surgery, and General and Digestive Surgery. In the CCMC model study, these specialties accounted for 63% of the total cost of claims (€114 million) and 53% of the total number of claims (4,832 claims), with a claims rate involving economic consequences ranging from 57% to 65%. Claims with a cost ≥€50,000 represented 18% of the total number of claims but accounted for 79% of the total compensation cost (Pareto Principle) in the Catalan MPL model between 2002 and 2017.

Acknowledgments

None.

Funding

None.

Conflict of interest

The authors declare that they have no competing interests.

Author contributions

Conceptualization: Juan Ignacio Morales-Ferrero
Formal analysis: All authors
Investigation: Juan Ignacio Morales-Ferrero
Methodology: All authors
Writing–original draft: Juan Ignacio Morales-Ferrero
Writing–review & editing: All authors

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data

Data are available from the corresponding author upon reasonable request, subject to a signed data access agreement.

References

AlBalushi, A.A., Al-Asmi, A., Al-Shekaili, W., Kayed, R.R., Islam, M.M., Ganesh, A., *et al.* (2023). Medical malpractice in Oman: A 12-year. *PLoS One*, 18(8):e0290349.

https://doi.org/10.1371/journal.pone.0290349

Almannie, R., Almuhaideb, M., Alyami, F., Alkhayyal, A., & Binsaleh, S. (2021). The status of medical malpractice litigations in Saudi Arabia: Analysis of the annual report. *Saudi Journal of Anaesthesia*, 15(2):97-100.

https://doi.org/10.4103/sja.SJA_908_20

Arimany-Manso, J., & Gómez-Durán, E. (2013a). La gestión de la responsabilidad profesional médica desde el colectivo de la profesión médica y enfocada a la seguridad clínica [The management of medical professional liability by the medical profession as a whole, with a focus on clinical safety]. *Revista Española de Medicina Legal,* 39(4):142-148. [In Spanish].

https://doi.org/10.1016/j.reml.2013.09.001

Arimany-Manso, J., Gómez-Durán, E.L., & Aubia-Marimon, J. (2013b). Las reclamaciones sobre responsabilidad profesional por especialidades en un escenario diferente al estadounidense [Claims related to professional liability by specialty in a setting other than the United States]. *Gaceta Sanitaria*, 27(1):92-93. [In Spanish].

https://doi.org/10.1016/j.gaceta.2012.03.006

Arimany-Manso, J., Gómez-Durán, E., Bruguera, M., & Aubía, J. (2013c). Un modelo integral y de gestión directa del aseguramiento de la responsabilidad profesional médica en Cataluña [A comprehensive, directly managed model for medical professional liability insurance in Catalonia]. *Medicina Clinica,* 141(7):300-304. [In Spanish].

https://doi.org/10.1016/j.medcli.2013.02.025

Arimany-Manso, J., Benet-Travé, J., Bruguera-Cortada, M., Torné-Escasany, R., KLamburg-Pujol, J., & Gómez- Durán, E.L. (2014). Procedimientos quirúrgicos objeto de reclamación por presunto defecto de praxis [Surgical procedures subject to claims for alleged malpractice]. *Medical Clinic (Barc)*, 142(2):47-51. [In Spanish].

https://doi.org/10.1016/S0025-7753(14)70072-7

Austin, E.E., Do, V., Nullwala, R., Pulido, D.F., Hibbert, P.D., Braithwaite, J., *et al.* (2021). Systematic review of the factors and the key indicators that identify doctors at risk of complaints, malpractice claims or impaired performance. *BMJ Open*, 11:e050377.

https://doi.org/10.1136/bmjopen-2021-050377

Baker, T. (2004). Medical malpractice and the insurance underwriting cycle. *DePaul Law Review*, 54:393.

Benet Travé, J. (2020). Análisis de las Reclamaciones por Responsabilidad Profesional Médica en Cataluña durante el período 2000-2018 [Analysis of Medical Malpractice Claims in Catalonia during the period 2000-2018]. Spain: *Universitat Autònoma de Barcelona.* [In Spanish].

Bixenstine, P.J., Shore, A.D., Mehtsun, W.T., Ibrahim, A.M., Freischlag, J.A., & Makary, M.A. (2014). Catastrophic medical malpractice payouts in the United States. *Journal for Healthcare Quality*, 36:43-53.

https://doi.org/10.1111/jhq.12011

Bruguera, M., Delgado, S., Viger, M., Benet, J., Bruguera, R., & Arimany, J. (2012). Análisis médico-legal de las reclamaciones judiciales en cirugía bariátrica [Medical-legal analysis of legal claims in bariatric surgery]. *Cirugía Española,* 90(4):254-259. [In Spanish].

https://doi.org/10.1016/j.ciresp.2011.12.003

Buzzacchi, L., Scellato, G., & Ughetto, E. (2016). Frequency of medical malpractice claims: The effects of volumes and specialties. *Social Science and Medicine*, 170:152-160.

https://doi.org/10.1016/j.socscimed.2016.10.021

Cardoso-Cita, Z., Perea-Pérez, B., Albarrán-Juan, M., Labajo-González, M., López-Durán, L., Marco-Martínez, F., & Santiago-Saéz, A. (2016). Análisis de sentencias judiciales relativas a negligencias médicas emitidas contra traumatólogos entre 1995 y 2011 [Analysis of judicial sentences issued against traumatologists between 1995 and 2011 as regards medical negligence]. *Revista Española de Cirugía Ortopédica y Traumatología,* 60(1):29-37. [In Spanish].

https://doi.org/10.1016/j.recot.2015.07.001

Danzon, P. (1984). The frequency and severity of medical malpractice claims. *The Journal of Law and Economics*, 27(1):115-148.

https://doi.org/10.1086/467060

Dronkers, W.J., Van Rees, J.M., Klemann, D., Buis, D.R., Amelink, Q.J., Grünhagen, D.J., *et al.* (2024). Surgical specialists face higher a risk for malpractice compared to their non-surgical colleagues. *Scientific Reports*, 14(1):30310.

https://doi.org/10.1038/s41598-024-81058-x

Franchuk, V.V., Selskyy, P.R., Kalyniuk, N.M., Slyva, A.F., Krulyk, N.V., & Myroshnyk, V.A. (2025). Medical errors in Ukraine: A retrospective review of court decisions from 2007 to 2024. *Emergency Medicine*, 21(5):510-515.

https://doi.org/10.22141/2224-0586.21.5.2025.1917

García Ruiz, N. (2018). *La Responsabilidad Profesional en Obstetricia y Ginecología: mirando al futuro* [Professional Liability in Obstetrics and Gynecology: Looking to the Future]. Spain: Universidad Complutense de Madrid. [In Spanish].

Giraldo, P., Sato, L., Sala, M., Comas, M., Dywer, K., & Castells, X. (2016). A retrospective review of medical errors adjudicated in court between 2002 and 2012 in Spain. *International Journal for Quality in Health Care*, 28(1):33-39.

https://doi.org/10.1093/intqhc/mzv089v

Gómez-Durán, E., Mulà-Rosías, J., Lailla-Vicens, J., Benet-Travé, J., & Arimany-Manso J. (2013). Analysis of obstetrics and gynecology professional liability claims in Catalonia, Spain (1986-2010). *Journal of Forensic and Legal Medicine*, 20:442-446.

https://doi.org/10.1016/j.jflm.2012.12.006

Hemeda, M.S., Sayed, H.Y., Mostafa, A.A., Salem, A.A., Arafa, I.A., Mosa, H.H., *et al.* (2025). Medical errors across specialties: A systematic review and meta-analysis of global incidence and contributing factors. *Médecine and Droit*, 2025:14-36.

https://doi.org/10.1016/j.meddro.2024.10.001

Hernández Gil, Á. (2008). Estudio médico forense de la responsabilidad profesional médica [Forensic medical study of medical professional liability]. *Revista Estudios Jurídicos Segunda Época*, 8:12-16. [In Spanish].

Jena, A.B., Seabury, S., Lakdawalla, D., & Chandra, A. (2011). Malpractice risk according to physician specialty. *New England Journal of Medicine*, 365(7):629-636.

https://doi.org/10.1056/nejmsa1012370

Kamijo, K., Wada, Y., Ishida, K., Warsof, S L., Saade, G., & Kawakita, T. (2025). Medical-legal claims in obstetrics and gynecology: Japan versus the United States. *Journal of Healthcare Risk Management*, 44(4):5-11.

https://doi.org/10.1002/jhrm.70001

Klemann, D., Mertens, H., & Van Merode, F. (2022). Trends and developments in medical liability claims in The Netherlands. In: Healthcare. Vol. 10. Switzerland: MDPI, p.1929.

https://doi.org/10.3390/healthcare10101929

Kohn, L.T., Corrigan, J.M., & Donaldson, M.S. (2000). Institute of Medicine. To Err is Human: Building a Safer Health System. Committee on Quality in America. Institute of Medicine, Washington, DC: National Academy Press, 1999. Available from: https://pubmed.ncbi.nlm.nih.gov/25077248

Li, H., Dong, S., Liao, Z., Yao, Y., Yuan, S., Cui, Y., *et al.* (2020). Retrospective analysis of medical malpractice claims in tertiary hospitals of China: The view from patient safety. *BMJ*, 10:e034681.

https://doi.org/10.1136/bmjopen-2019-034681

Madea, B., & Preuß, J. (2009). Medical malpractice as reflected by the forensic evaluation of 4450 autopsies. *Forensic Science International*, 190(1-3):58-66.

https://doi.org/10.1016/j.forsciint.2009.05.013

Makary, M.A., & Daniel, M. (2016). Medical error-the third leading cause of death in the US. *BMJ*, 353:i2139.

https://doi.org/10.1136/bmj.i2139

Mauroy, B. (2021). La sinistralité en médecine: Des recommandations sont-elles utiles?[Are recommendations useful?]. *Bulletin de l'Académie Nationale de Médecine,* 205(7):800-808. [In French].

https://doi.org/10.1016/j.banm.2021.04.016

Mello, M.M. (2006). Medical malpractice: *Impact of the Crisis and Effect of State Tort Reforms*. Research Synthesis Report no. 10. Princeton, NJ: Robert Wood Johnson Foundation.

Mello, M.M., Chandra, A., Gawande, A.A., & Studdert, D.M. (2010). National costs of the medical liability system. *Health Affairs (Millwood)*, 29(9):1569-1577.

https://doi.org/10.1377/hlthaff.2009.0807

Morales Ferrero, J.I. (2021). Análisis de los Factores Críticos de Éxito y de las Ventajas Competitivas del Modelo de Responsabilidad Civil Profesional (RCP) Médica del Consejo de Colegios de Médicos de Cataluña (CCMC). Spain: Universitat Autònoma de Barcelona.

Nagieb, M.M., El-Gallad, G.Z., Ghaleb, S.S., & Saleh, A.R. (2023). Medico legal aspects of medical malpractice dead cases in Cairo and Giza governorates from 2014-2015. *Egyptian Journal of Forensic Sciences*, 13(1):30.

https://doi.org/10.1186/s41935-023-00350-5

Neuhauser, D. (2002). Ernest amory codman MD. *BMJ Quality and Safety*, 11(1):104-105.

https://doi.org/10.1136/qhc.11.1.104

Perea-Pérez, B., Santiago-Saéz, A., Labajo-González, M., Albarrán-Juan, M., Dorado-Fernández, E., & García-Martín, Á. (2013). El médico ante los tribunales: Análisis de las sentencias judiciales relacionadas con la responsabilidad profesional médica en España [Doctors before the courts: Analysis of court rulings related to medical professional liability in Spain]. *Revista Española de Medicina Legal*, 39(4):130-134. [In Spanish].

https://doi.org/10.1016/j.reml.2013.05.001

Perea-Pérez, B., Santiago-Sáez, A., Labajo-González, M.E., Albarrán-Juan, M.E., & Sánchez-Sánchez, J.A. (2009). Análisis de las consecuencias médico-legales de las reclamaciones judiciales de pacientes. Estudio comparativo de los casos de traumatologia [Analysis of the medical-legal consequences of patient lawsuits. A comparative study of the cases of traumatology, gynecology and obstètrics, anesthesia and resuscitation, and dentistry]. *Trauma*, 4(20):264-268. [In Spanish].

Raeissi, P., Sepehrian, R., Afshari, M., & Rajabi, M.R. (2019). Medical malpractice in Iran: A systematic review. *Medical Journal of the Islamic Republic of Iran*, 33:110.

https://doi.org/10.34171/mjiri.33.110

Rayamane, A.P., Nanandkar, S.D., & Kundargi, P.A. (2016). Profile of medical negligence cases in India. *Journal of Indian Academy of Forensic Medicine*, 38(2):144-148.

https://doi.org/10.5958/0974-0848.2016.00037.3

Schaffer, A.C., Jena, A.B., Seabury, S.A., Singh, H., Chalasani, V., & Kachalia, A. (2017). Rates and characteristics of paid malpractice claims among US physicians by specialty, 1992-2014. *JAMA Internal Medicine*, 177(5):710-718.

https://doi.org/10.1001/jamainternmed.2017.0311

Sobh, Z.K., Galal, M.A., Ghanem, M.A., Ali, H.M., Abdelgawad, A.M., & Balah, M.I. (2025). Medicolegal analysis of alleged and judicially proven malpractice claims in Alexandria Medical Syndicate, Egypt. *Journal of Forensic and Legal Medicine*, 117:103020.

https://doi.org/10.1016/j.jflm.2025.103020

Taniguchi, K., Watari, T., & Nagoshi, K. (2023). Characteristics and trends of medical malpractice claims in Japan between 2006 and 2021. *PLoS One*, 18(12):e0296155.

https://doi.org/10.1371/journal.pone.0296155

Thorpe, K.E. (2004). The medical malpractice 'crisis': Recent trends and the impact of state tort reforms. *Health Affairs*, 23:20-30.

https://doi.org/10.1377/hlthaff.W4.20

Toraldo, D.M., Vergari, U., & Toraldo, M. (2015). Medical malpractice, defensive medicine and role of the "media" in Italy. *Multidisciplinary Respiratory Medicine*, 10(1):12.

https://doi.org/10.1186/s40248-015-0006-3