

## Professional Liability in Orthopaedics and Traumatology in Italy

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### Abstract

**Background** Interest in medical errors has increased during the last few years owing to the number of medical malpractice claims. Reasons for the increasing number of claims may be related to patients' higher expectations, iatrogenic injury, and the growth of the legal services industry. Claims analysis provides helpful information in specialties in which a higher number of errors occur, highlighting areas where orthopaedic care might be improved.

**Questions/purposes** We determined: (1) the number of claims involving orthopaedics and traumatology in Rome; (2) the risk of litigation in elective and trauma surgery; (3) the most common surgical procedures involved in claims and indemnity payments; (4) the time between the

adverse medical event and the judgment date; and (5) issues related to informed consent.

**Methods** We analyzed 1925 malpractice judgments decided in the Civil Court of Rome between 2004 and 2010.

**Results** In total, 243 orthopaedics claims were filed, and in 75% of these cases surgeons were found liable; 149 (61%) of these resulted from elective surgery. Surgical teams were sued in 30 claims and found liable in 22. The total indemnity payment ordered was more than €12,350,000 (USD 16,190,000). THA and spinal surgery were the most common surgical procedures involved. Inadequate informed consent was reported in 5.3% of cases.

**Conclusions** Our study shows that careful medical examination, accurate documentation in medical records, and adequate informed consent might reduce the number of claims. We suggest monitoring of court judgments would be useful to develop prevention strategies to reduce claims.

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### Introduction

Medical malpractice claims have increased during the last 10 years [12, 24]. A medical error may be defined as an inappropriate action in medical practice because of an act commission or omission attributable to incorrect judgment. Malpractice may be defined as a "professional responsibility derived from inadequate medical care caused by lack of competence, negligence, or deceit" [1]. Medical liability is the "obligation to repair or satisfy the consequences of medical action from a penal, civil, or administrative perspective" [1].

General surgery, gynecology, and orthopaedics and traumatology are the specialties most involved in claims in Italy [23, 24]. In the United States orthopaedics claims

account for approximately 7% of such lawsuits [6, 11]. Some studies [9, 19] state that the main causes of claims against orthopaedic surgeons are attributed to surgical errors, improper treatments, and misdiagnoses. Furthermore, some physicians perceive trauma care as a specialty with a high risk of malpractice [9, 20]. Communication errors and failure to obtain adequate informed consent from patients also are frequent causes of litigation [4, 26]. In monetary terms, the defense costs and total payments to plaintiffs to settle claims are high [26]. Studdert et al. reported in their study that USD 73 million (approximately 21% of total costs) was paid for defense costs [21]. Between 2005 and 2006 in the United Kingdom, the total legal costs were more than USD 160 million, almost 1/3 the value of the claims [12]. Higgins [11] suggested that physicians should take extra care with their diagnosis and surgical procedures to help to avoid litigation. Furthermore, improved communication with patients, vigilance, and education may help to reduce medicolegal litigation [4, 13].

In Italy, the reasons lawsuits are brought and the reasoning behind the judgments are not entirely clear because malpractice claims are confidential; thus there are limited data regarding such judgments. To address this issue, the Observatory Project on Medical Responsibility (ORMe) was created in 2007 via an agreement between the Civil Court of Rome and the Court of Appeal of Rome, the University of Rome “Tor Vergata”, and The Provincial Order of Physicians and Surgeons and Dentistry of Rome. ORMe is a scientific association with the aim to promote research regarding medical professional liability by monitoring and analyzing all relevant jurisprudence of the Court of Rome since 2001. The first data from the ORMe study were presented in October 2009 at the Istituto Superiore di Sanità (The Higher Institute of Health) [2] and showed that orthopaedics and traumatology are among the medical specialties most likely to be subject to malpractice lawsuits. This analysis generated great interest and concern among orthopaedic surgeons, and as a result an agreement was reached in June 2010 between the Italian Society of Orthopaedics and Traumatology (SIOT) and ORMe. This agreement allowed us, in this study, to analyze the judgments previously filed in the ORMe database regarding orthopaedics and traumatology professional liability, with the aim of identifying critical areas where orthopaedic care might be improved.

We therefore determined: (1) the number of claims involving orthopaedics and traumatology filed in Rome and how many orthopaedic surgeons were found liable; (2) whether the risk of litigation is greater in trauma care or elective surgery; (3) the surgical procedures most commonly involved in claims and whether indemnity payments are higher in elective orthopaedic surgery than in trauma

surgery; (4) the time between the adverse medical event and the judgment date; and (5) how often an improper informed consent case succeeded in court.

## Material and Methods

We retrospectively examined the judgments of 1925 case studies of professional liability lawsuits and judgments from the Civil Court of Rome filed and heard between January 1, 2004, and December 31, 2010.

The Italian legal system is based on Roman law. The court system is divided into three levels for criminal and civil proceedings. At the first level, a case is tried in a court of first instance (Tribunale) and involves a single judge. All decisions of first instance may be appealed. An appeal is a process for requesting a formal change to an official decision because of a belief that the court failed to appreciate all the facts or that the court incorrectly interpreted the law. The Court of Appeal sits at the second level of the Italian judicial system and consists of three judges; it decides appeals from courts of first instance. The highest level of justice is the Supreme Court (Suprema Corte di Cassazione). It is a collegiate body and generally consists of five members. Appeals to the Supreme Court are only possible on points of law, and its role is to ensure the exact observance and uniform interpretation of the law. If the Supreme Court considers the appeals well founded, the contested judgment is overruled and it may refer the court documents to the judge and order a new trial.

Italian physicians are open to civil and criminal liability in medical malpractice cases. Civil liability is the legal consequence of any illicit professional conduct, and when a physician is found liable by the civil court compensation for damage is awarded. Physicians also may be judged by a criminal court in cases involving negligence in personal injuries [25]. In this study, we examined only civil proceedings against medical professional liability; in particular, we analyzed claims where the final judgment was determined by the court of first instance.

All of the judgments studied here were included in the ORMe database via a program called Sirfind, which was designed specifically for that task and is used by the Civil Court of Rome. First, two of the current authors (LTM, EM) collected the filed documents and selected those regarding orthopaedics and traumatology in the ORMe database; data from the ORMe database can be accessed only by attorneys or medicolegals. Second, three of us (LTM, AE, VM, all medicolegals) extracted the following information: (1) total number of judgments regarding orthopaedics and traumatology, general surgery, gynecology, and plastic surgery; (2) judgment decisions: accepted or dismissed; (3) number of defendants; (4) subjects found liable or not liable; (5) surgical

procedure: elective or trauma surgery; (6) anatomic area involved: upper limbs, lower limbs, or spine; (7) type of surgical procedure performed; (8) the indemnity payment for medical malpractice; (9) average time between adverse medical event, claim file, and judgment date; and (10) absence of or defects in the informed consent procedure. Finally, three of us (AG, UT, EM) then analyzed the extracted data.

We compared orthopaedics and traumatology with general surgery, gynecology, and plastic surgery (Bernoulli's model), determining differences in the number of claims using Student's t-test. We also used Student's t-test to determine differences in the average compensation between elective surgery and trauma surgery. We used Microsoft Excel for Windows XP software (Microsoft Inc, Redmond, WA, USA) for all analyses.

## Results

Among the 1925 claims, 243 (13%) related to orthopaedics and traumatology, 631 to general surgery, 199 to gynecology, and 195 to plastic surgery. All claims were resolved by a final judgment. The prevalence of orthopaedic claims was 0.46 per 1000 patients discharged (outpatients) (Table 1). The orthopaedist's risk of being sued was less ( $p < 0.01$ ) than that of general surgeons and plastic surgeons, but was greater ( $p < 0.01$ ) than the gynecologist's risk (Table 2). Of the 243 claims related to orthopaedics or traumatology, 182 (75%) were found in favor of the plaintiff and 61 (25%) were dismissed. Medical professionals were sued in 70% of claims and of these 94% were orthopaedic surgeons, 2.4% were anesthetists, and 2% were general surgeons. In addition, one radiologist, one nurse, and one physiotherapist were sued (Table 3). Surgical teams were sued in 30 claims (12% of claims); the surgeon and assistants were found liable in 16 cases, the surgeon alone in six, and the team was found not liable in eight cases.

**Table 1.** Number of discharged patients in Rome\* and number of claims

Specialty	Number of discharged patients (outpatients)	Number of claims	Prevalence $\times 1000$
Orthopaedics	527,152	243	0.46
General surgery	966,873	631	0.65
Gynecology	729,810	199	0.27
Plastic surgery	133,998	195	1.45

\* ASP Lazio (Agenzia di Sanità Pubblica Regione Lazio – Public Health System Region of Latium), available at: [www.asplazio.it](http://www.asplazio.it). Accessed March 15, 2013 [3].

**Table 2.** Risk of claim (Bernoulli's model)

Comparison between orthopaedics and other specialties	z-score	p value
Orthopaedics versus general surgery	-4.629	< 0.01
Orthopaedics versus gynecology	5.556	< 0.01
Orthopaedics versus plastic surgery	-5.693	< 0.01

**Table 3.** Medical professionals sued and found liable

Medical professionals	Sued	Found liable	Percent
Orthopaedists	231	147	63
Anesthetists	6	1	1.6
General surgeons	5	3	60
Radiologists	1	1	100
Nurses	1	0	0
Physiotherapists	1	0	0
Total	245	152 (62%)	

Elective surgery was responsible for 149 judgments (61%) and trauma surgery for 94 (39%).

In 75 cases, claims were filed for procedures involving upper limbs (31%), in 136 cases, lower limbs (56%); and in 32 cases, the spine (13%). THA and lumbar discectomy and decompression were the most commonly litigated procedures followed by knee arthroscopy, nonsurgical treatment, metatarsal osteotomy for hallux valgus correction, hand surgery, and other procedures (Table 4). A total of €12,361,755 (USD 16,193,899) was paid in compensation between 2004 and 2010, with an average of €71,594 (USD 93,788) per case. A higher indemnity was paid for spine surgery and THA (Table 5). The procedure with the highest mean award was lumbar spine fusion (€164,475; USD 216,498), and the single highest award was paid in a lumbar spine decompression case (€1,400,000; USD 1,842,820). Total indemnity payments for elective surgery were €8,604,168 (USD 11,271,460) and €3,757,586 (USD 4,922,437) for trauma surgery. The average compensation per case was similar ( $p = 0.16$ ) for elective and trauma surgery: €86,549 (USD 113,379) (SD €216,200; USD 279,742) and €57,349 (USD 75,127) (SD, €100,500; USD 131,655), respectively. A total of €667,866 (USD 874,904) was paid for inadequate informed consent claims. The average compensation per claim was €60,700 (USD 79,517) (range, USD 4,142–USD 302,109; SD, USD 90,929). When inadequate informed consent was the only claim in a successful litigation, €3200 (USD 4192) was paid. We identified six death claim cases and a total of €2,985,644 (USD 3,948,527) was paid (average, USD 644,141; SD, USD 1,989,105) (Table 6). We observed a

**Table 4.** Surgical procedures most frequently involved in claims

Treatment	Number	Percent (%)	Accepted claims	Rejected claims	Percentage of accepted claims (%)
THA	27	11.1	19	8	70
TKA	4	1.6	3	1	75
Shoulder arthroplasty	1	0.1	0	1	0
Shoulder arthroscopy	7	2.8	3	4	42
Knee arthroscopy	25	10.2	17	8	68
Hallux valgus correction	22	9	18	4	81
Lumbar decompression	26	10.7	24	2	92
Lumbar interbody fusion	4	1.6	4	0	100
Hand surgery	19	7.8	12	7	63
Nonsurgical treatment	25	10.2	19	6	76
Misdiagnosis	14	5.7	12	2	85
Others	69	28.4	51	18	73
Total	243	100	182	61	75

nonsignificant trend relative to a higher average compensation paid for death claims that involved elective surgery compared with trauma surgery (€896,989 versus €297,921) (USD 1,167,583 versus USD 387,794) (Table 7).

The average waiting period between the adverse medical event and filing the claim was 3.2 years (range, 1–8 years), whereas there were 3.8 years (range, 2–8 years) (Table 8) between filing the claim and the judgment date.

Inadequate informed consent occurred in 12 cases (5%) (Table 9). The likelihood of recurrence following hallux valgus correction was not specified in the informed consent and it was the only reason for successful litigation in one case.

## Discussion

Khan et al. [12] stated that monitoring judgments may be useful to develop prevention strategies and reduce the number of claims. They also stated that although healthcare systems differ worldwide the underlying issues are common, and understanding these problems can help physicians to provide improved care for their patients [12]. Wong et al. [26] investigated various medical errors through a survey of the membership of the American Academy of Orthopaedic Surgeons (AAOS). They found equipment errors (such as instrumentation errors, technical use errors, intraoperative breakage) and communication errors (between surgeons and patients or their families) are the most frequently observed and that medication and wrong-site surgery are high-risk areas. They suggested this sort of analysis would be helpful to point out critical areas of potential additional research to improve orthopaedic care. The creation of a national database also may help to fill the knowledge gap regarding

medical malpractice [5]. The British National Health Service Litigation Authority is a special health authority that manages claims against the National Health Service and provides the largest database of medical malpractice [16]. Because of an agreement between SIOT and ORMe, we were able to monitor filed professional liability cases, to identify areas where orthopaedic care may be improved, and ultimately to create a national database. We addressed the following questions: How many claims involving orthopaedics and traumatology have been reported in Rome? How many orthopaedic surgeons have been found liable? Is the risk of litigation greater in elective surgery or in trauma surgery? What is the surgical procedure most commonly involved in claims? What is the amount of compensation paid for each surgical procedure? Is indemnity payment higher in elective orthopaedic surgery than in trauma surgery? How much time elapses between the adverse medical event and the judgment date? How often has an improper informed consent case succeeded in court? Can an improperly obtained informed consent be the reason for an accepted judgment?

Our study has several limitations. First, we were unable to determine the total number of procedures, whether surgical or not, performed during the study period. Healthcare in Italy is provided by a public-private mixed system (the public sector is the National Health Service or Servizio Sanitario Nazionale). Patients may choose a private hospital where they pay for healthcare whether directly or by private insurance. We know the number of procedures performed in public hospitals as they are provided by the Servizio Sanitario Nazionale, but we are unable to obtain data regarding the procedures done in private hospitals as they have not been officially registered. Thus, we cannot

**Table 5.** Indemnity payment in orthopaedics judgments (EUR/USD 1.31)

Treatment	Total	Mean	Minimum	Maximum	Mean for accepted judgment	SD
THA	€ 2,135,279 (USD 2810,667\$)	€ 92,838 (USD 122,202)	€ 3000 (USD 3,948)	€ 1,181,000 (USD 1,554,550)	€ 125,000 (USD 164,537)	€ 260,910 (USD 343,435)
TKA	€ 116,518 (USD 153,372)	€ 23,303 (USD 30,673)	€ 33,300 (USD 43,832)	€ 47,000 (USD 61,866)	€ 38,839 (USD 51,123)	€7217 (USD 9499)
Shoulder arthroplasty	€ 0	€ 0	€ 0	€ 0	€ 0	€0
Shoulder arthroscopy	€ 44,364 (USD 58,396)	€ 6337 (USD 8341)	€ 7400 (USD 9754)	€ 21,100 (USD 27,814)	€ 14,788 (USD 19,465)	€6916 (USD 9103)
Knee arthroscopy	€ 959,709 (USD 1,263,264)	€ 38,388 (USD 50,530)	€ 3740 (USD 4930)	€ 612,000 (USD 805,575)	€ 56,453 (USD 74,309)	€144,897 (USD 190,727)
Hallux valgus correction	€ 441,879 (USD 581,645)	€ 20,085 (USD 26,437)	€ 3200 (USD 4218)	€ 113,000 (USD 148,741)	€ 24,548 (USD 32,359)	€28,030 (USD 36,895)
Lumbar spine decompression	€ 3,154,416 (USD 4,152,157)	€ 126,176 (USD 166,085)	€ 2533 (USD 3339)	€ 1,400,000 (USD 1,842,820)	€ 137,148 (USD 180,527)	€289,800 (USD 381,463)
Lumbar spine fusion	€ 657,900 (USD 865,993)	€ 164,475 (USD 216,498)	€ 15,900 (USD 20,929)	€ 467,000 (USD 614,721)	€ 164,475 (USD 216,498)	€209,800 (USD 276,159)
Hand surgery	€ 153,777 (USD 202,416)	€ 8093 (USD 10,668)	€ 4100 (USD 5404)	€ 37,000 (USD 48,773)	€ 12,800 (USD 16,872)	€8800 (USD 11,583)
Nonoperative treatment	€ 609,836 (USD 802,727)	€ 25,409 (USD 33,445)	€ 5400 (USD 7118)	€ 200,000 (USD 263,260)	€ 33,879 (USD 44,659)	€46,665 (USD 61,425)
Misdiagnosis	€ 612,639 (USD 806,416)	€ 43,759 (USD 57,599)	€ 3600 (USD 4745)	€ 245,350 (USD 322,954)	€ 51,000 (USD 67,131)	€104,984 (USD 138,190)
Others	€ 3,466,493 (USD 4,562,944)	€ 43,879 (USD 57,757)	€ 2600 (USD 3427)	€ 189,500 (USD 249,438)	€ 58,124 (USD 76,508)	€21,230 (USD 27,945)

**Table 6.** Compensation for death claims (EUR/UD 1.31)

Surgery	Diagnosis	Cause of death	Compensation paid
Trauma	Polytrauma	Clinical complications	€467,000 (USD 617,795)
	Pelvic fracture	Clinical complications	€200,000 (USD 264,495)
	Hip fracture	Misdiagnosis	€345,349 (USD 456,715)
	Hip fracture	Misdiagnosis	€179,337 (USD 237,168)
Elective	Arthroscopic meniscectomy	Intraoperative complications	€612,000 (USD 809,354)
	THA	Pulmonary thromboembolism in patients not treated with LMWH	€1,181,978 (USD 1,563,000)

LMWH = low-molecular-weight heparin.

estimate what percentage of procedures lead to claims. However, our database does include claims regarding public and private hospitals. Second, because our data sources are restricted to Civil Court judgments, we have no information regarding cases settled out of court. We assume

these cases would make up a large proportion of successful claims. Therefore our cases comprised only a part of all successful malpractice claims in the field of orthopaedics and traumatology during the analysis period, and our data would underestimate the numbers of claims. It is impossible

**Table 7.** Compensation in nondeath claims versus death claims (EUR/UD 1.31)

Treatment	Total	Mean for accepted judgment	Mean compensation in nondeath claims	Mean compensation in death claims
Elective surgery	€ 8,604,168 (USD 11,199,787)	€ 86,549 (USD 112,658)	€ 66,032 (USD 85,951)	€ 896,989 (USD 1,167,583)
Traumatology	€ 3,757,586 (USD 4,891,136)	€ 57,349 (USD 74,649)	€ 37,711 (USD 49,087)	€ 297,921 (USD 387,794)
THA	€ 2,135,279 (USD 2,810,667)	€ 125,000 (USD 164,537)	€ 60,136 (USD 78,277)	€ 1,181,978 (USD 1,563,000)
Knee arthroscopy	€ 959,709 (USD 1,263,264)	€ 56,453 (USD 74,309)	€ 21,731 (USD 28,286)	€ 612,000 (USD 809,354)

**Table 8.** Waiting period between adverse medical event, claim filing, and judgment dates

Waiting period	Orthopaedics	Traumatology	p value
Adverse medical event claim	3.8 years	3.8 years	0.58
Elimination period	3.2 years	3.9 years	0.21

to know whether the inclusion of these additional claims would change our findings and conclusions. Third, we had access only to data regarding the Court of Rome. We did not have access to any data from other courts and consequently we are not able to provide any comparisons. Finally, because we restricted our analysis to the court of first instance, we are unable to determine whether some of the judgments were successfully appealed by the Court of Appeals or the Supreme Court.

Some authors noted an increase in litigation between 1996 and 2006 [5, 12, 24]. Khan et al. reported that the number of medical malpractice claims in England in 1978 was approximately 500, compared with 7000 between 1990 and 1991 [12]. Traina [24] reported a 50% increase in the number of medical malpractice cases filed between the early 1980s and 1986, and an additional 90% increase in 1987. In Italy, currently, more than 15,000 civil medical professional liability proceedings are filed each year and more than €10 billion is paid in compensation to plaintiffs [24]. Several factors may explain the increase in claims. Progress in diagnosis and surgical techniques have increased patients' expectations [2, 15], and subspecialization has helped to instill in patients a stronger belief in the higher likelihood or certainty of success. Moreover, malpractice suits also are filed for financial reasons. In 2009, Traina [24] reported that orthopaedics and traumatology are among the specialties most commonly involved in malpractice suits. These data have been confirmed by an international study [9] and the ORMe project [2]. However, the risk of orthopaedic surgeons being sued is less than the risk for general surgeons and plastic surgeons. Orthopaedic teams were sued in approximately 12% of

judgments and found liable in more than 70% of those cases. Furthermore, if we consider only these judgments, we find that surgeons and assistants were judged liable in 73% of cases. We believe that surgical assistants should warn the surgeon when they see that an error is about to occur.

Fattorini et al. [8] analyzed civil cases regarding orthopaedics and traumatology from five regions of Italy. They reported that 72% of litigations concerned traumatology. We found the number of traumatology claims was lower than the number for elective surgery. Other authors have published similar data [14, 20]. McGwin et al. [14] considered 13 medical and surgical specialties and found that trauma care had the fewest lawsuits per 10,000 patient days. Stewart et al. [20] stated that the likelihood of being sued for trauma malpractice is less than for elective surgery. However, that study regarded general surgery and included only a few trauma cases.

Our data show that spine surgery, THA, knee arthroscopy, nonsurgical treatment, and foot surgery are the specialties most commonly involved in malpractice claims. Looking at all 243 judgments, the most common reasons for litigation in the emergency department relate to nonsurgical treatment and misdiagnosis (10.2% and 5.7% respectively of all judgments). Furthermore, the number of claims is not proportional to the severity of injury [9, 12]. In 2003, Gould et al. [9] reported that hip, tibial, and distal radius fractures were the most common fractures involved in litigations. Guly noted that 80% of all errors made in emergency departments involved missed fractures [10]. A careful medical examination, paying particular attention to circulatory and neurologic status, careful medical history, and accurate and complete documentation in the emergency first aid medical records would reduce such claims. We found that higher compensation was paid for spinal surgery, THA, knee arthroscopy, and foot surgery, according to national [8] and international studies [21]. In addition, the cost of claims in cases where patients received treatment for trauma was lower than for cases involving elective surgery. Similar findings were reported by Khan et al. [12]. The average compensation paid for THA is consistent

**Table 9.** Claims in which an inadequate informed consent occurred

Diagnosis	Treatment	Complication
Disc hernia	Spine decompression	Recurrence of symptoms
Disc hernia	Spine decompression	Recurrence of symptoms
Disc hernia	Spine decompression	Error of diagnosis and surgical indication
Spondylolisthesis and disc hernia	Spine fusion and decompression	Surgical error
Coxarthrosis	THA	Hip dislocation
Coxarthrosis	THA	Sciatic nerve injury
Gonarthrosis	TKA	Persistent knee pain
Hallux valgus	Hallux valgus correction	Pseudarthrosis
Hallux valgus	Hallux valgus correction	Recurrence of hallux valgus
Carpal tunnel syndrome	Carpal tunnel decompression	Recurrence of symptoms
Proximal humerus fracture	Reduction and osteosynthesis	Circumflex nerve injury
Tibial fracture	Reduction and osteosynthesis	Pseudarthrosis

**Table 10.** Study comparison of average indemnity payments for medical malpractice claims (EUR/UD 1.31)

Variable	Atrey et al. [4] (England)	Suk et al. [22] (USA)	McGwin et al. [14] (USA)	Gould et al. [9] (USA)	Upadhyay et al. [25] (USA)	Current study (Italy)
Elective spine surgery	USD 268,900	–	–	–	–	USD 167,588
TKA	USD 198,668	–	–	–	Median range, USD 51,000 to USD 99,000	USD 30,673
Knee arthroscopy	USD 144,815	–	–	–	–	USD 50,530
Inadequate informed consent	USD 136,178	–	–	–	–	USD 79,647
Average compensation	–	USD 196,500	–	–	–	USD 94,375
Average compensation in trauma care	–	–	USD 38,600	USD 133,441	–	USD 75,500

with that reported in the literature, whereas the amount paid for TKA is lower in Rome [24, 25]. An average of €71,594 (USD 94,375) was paid for accepted claims, ranging from €6000 to €164,000 (USD 7763 to USD 212,194) depending on the surgical procedure, and it is lower compared with the amount in the United States reported by Suk et al. (Table 10) [22]. However, it is difficult to compare statistics from different studies because the data come from different sources, for example surveys [26], insurance companies [21], hospital experience [20], or national databases [4, 5], and a standardized method for research is not used.

In Rome, many surgeons have maximum coverage greater than €2,000,000 (USD 2,587,730). When comparing these numbers with ours, the average compensation for medical errors is much lower than the maximum coverage. This suggests that orthopaedic surgeons choose professional insurance with lower maximum coverage. However, the reason why patients are encouraged to pursue compensation is not always to improve the medical delivery system or individual behavior, but to obtain compensation and income

for attorneys. In fact, various legal firms widely advertise their services to attract clients, stating that it is possible to obtain financial rewards from litigation [11]; such firms often offer free online advice [18]. Ries et al. [17] suggested that the number of claims is not directly proportional to the number of medical services but rather to the number of attorneys operating in a certain area.

The average times were 3.2 years between the adverse medical event and filing the claim and 3.8 years between filing the claim and the judgment date. These times were similar and consistent with the data registered in the United States (3.1 years) [6].

Satisfactory treatment does not reduce the importance of informed consent, which, if not properly obtained, could be the only reason for a claim and judgment. The most common method used to obtain consent is a standardized model that contains only the sentence “the risks and benefits of the surgical treatment have been discussed with the patient”. Thus, patients are not always fully informed about the risks connected to the surgical procedure, the

occurrence frequency, and the risks and benefits of alternative medically reasonable approaches. In our analysis, some orthopaedic surgeons were found liable for lack of informed consent when they obtained some sort of “standardized informed consent” and only added the patient’s personal data, the type of surgical procedure, but without reference to complications. In 2008, a judgment of the Civil Court of Rome (no. 2272) defined informed consent obtained in that case as a “summary and not specific for that type of surgery”. Unfortunately, there are no data clarifying how surgical complications should be discussed. The AAOS suggests that at least one of the most severe complications, like death or amputation, should be mentioned [7]. We believe it is important to adopt a specific informed consent for each type of surgery, describing general and local complications and possible alternative treatments. This might help the patient better understand the risks involved in the surgical procedure [6]. Bhattacharyya et al. [6] suggested if informed consent was obtained in the surgeon’s office by the operating surgeons there would be a lower rate of litigation compared with informed consent obtained in hospital wards or in the preoperative holding areas. They also suggest that the inclusion of a statement declaring that informed consent was obtained and a brief description of the informed consent process in the surgeon’s notes would decrease the risk of indemnity payout.

Orthopaedics and traumatology are frequently involved in malpractice litigations but the risk of claims is less than for general surgery and plastic surgery. The risk of litigation for orthopaedics surgeons who deal with trauma surgery is not greater than in elective surgery. Spine surgery, THA, and nonsurgical treatments are the procedures most cited in claims. The average indemnity payment seems to be higher for elective surgery than for trauma surgery, but additional studies are needed. Surgeons must ensure that they obtain informed consent correctly to reduce the litigation rate. Continuous monitoring of judgments also is useful to develop effective prevention strategies and reduce the number of claims.

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## References

1. Aguirre-Gas HG, Zavala-Villavicencio JA, Hernandez-Torres F, Fajardo-Dolci G. Quality of medical care and patient surgical safety: medical error, malpractice and professional liability. *Cir Cir*. 2010;78:456–462.
2. Amadio FM. [Medical professional liability and litigation. The first steps of ORMe project][in Italian] Bulletin of the Provincial order of Physicians and Surgeons and Dentistry of Rome. *Bollettino dell'ordine provinciale di Roma dei Medici Chirurghi e degli Odontoiatri*. 2009;5:6–9.
3. ASP Lazio (Agenzia di Sanità Pubblica Regione Lazio – Public Health System Region of Latium), available at: [www.asplazio.it](http://www.asplazio.it). Accessed March 15, 2013.
4. Atrey A, Gupte CM, Corbett SA. Review of successful litigation against English health trusts in the treatment of adults with orthopaedic pathology: clinical governance lessons learned. *J Bone Joint Surg Am*. 2010;92:336.
5. Atrey A, Nicolaou N, Katchburian M, Norman-Taylor F. A review of reported litigation against English health trusts for the treatment of children in orthopaedics: present trends and suggestions to reduce mistakes. *J Child Orthop*. 2010;4:471–476.
6. Bhattacharyya T, Yeon H, Harris MB. The medical-legal aspects of informed consent in orthopaedic surgery. *J Bone Joint Surg Am*. 2005;87:2395–2400.
7. Burstin HR, Johnson WG, Lipsitz SR, Brennan TA. Do the poor sue more? A case-control study of malpractice claims and socioeconomic status. *JAMA*. 1993;270:1697–1701.
8. Fattorini P, Peretti A, Bergamini P, Valentini R. Orthopaedics cases from observatory GISDI. Medical malpractice daily. Addendum of Forensic Medicine’s books. Court of Camerino. Casistica ortopedica dell’osservatorio GISDI. Medical malpractice daily. Supplemento di Medicina Legale Quaderni Camerti, reg. Trib. di Camerino; 2007.
9. Gould MT, Langworthy MJ, Santore R, Provencher MT. An analysis of orthopaedic liability in the acute care setting. *Clin Orthop Relat Res*. 2003;407:59–66.
10. Guly HR. Diagnostic errors in an accident and emergency department. *Emerg Med J*. 2001;18:263–269.
11. Higgins LD. Medicolegal aspects of the orthopaedic care for shoulder injuries. *Clin Orthop Relat Res*. 2005;433:58–64.
12. Khan IH, Jamil W, Lynn SM, Khan OH, Markland K, Giddins G. Analysis of NHSLA claims in orthopedic surgery. *Orthopedics*. 2012;35:e726–731.
13. Matsen FA 3rd, Stephens L, Jette JL, Warne WJ, Posner KL. Lessons regarding the safety of orthopaedic patient care: an analysis of four hundred and sixty-four closed malpractice claims. *J Bone Joint Surg Am*. 2013;95:2201–208.
14. McGwin G Jr, Wilson SL, Bailes J, Pritchett P, Rue LW 3rd. Malpractice risk: trauma care versus other surgical and medical specialties. *J Trauma*. 2008;64:607–612; discussion 612–613.
15. Morris JA Jr, Carrillo Y, Jenkins JM, Smith PW, Bledsoe S, Pichert J, White A. Surgical adverse events, risk management, and malpractice outcome: morbidity and mortality review is not enough. *Ann Surg*. 2003;237:844–851; discussion 851–852.
16. NHS Litigation Authority. Available at: <http://www.nhsla.com>. Accessed March 15, 2013.
17. Ries MD, Bertino JS Jr, Nafziger AN. Distribution of orthopaedic surgeons, lawyers, and malpractice claims in New York. *Clin Orthop Relat Res*. 1997;337:256–260.
18. Risarcimenti medici. Medical indemnity payments. Available at: <http://www.risarcimentimedici.it>. Accessed March 15, 2013.
19. Sonmez MM, Seckin FM, Şen B, Birgen N, Ertan A, Oztürk I. [A review of malpractice claims concerning orthopedic applications submitted to the Council of Forensic Medicine][in Turkish]. *Acta Orthop Traumatol Turc*. 2009;43:351–358.
20. Stewart RM, Johnston J, Geoghegan K, Anthony T, Myers JG, Dent DL, Corneille MG, Danielson DS, Root HD, Pruitt BA Jr, Cohn SM. Trauma surgery malpractice risk: perception versus reality. *Ann Surg*. 2005;241:969–975; discussion 975–977.
21. Studdert DM, Mello MM, Gawande AA, Gandhi TK, Kachalia A, Yoon C, Puopolo AL, Brennan TA. Claims, errors, and compensation payments in medical malpractice litigation. *N Engl J Med*. 2006;354:2024–2033.



22. Suk M, Udale AM, Helfet DL. Orthopaedics and the law. *J Am Acad Orthop Surg.* 2005;13:397–406.
23. Tarantino U, Giai Via A, Macri E, Eramo A, Marino V, Marsella LT. “[Professional liability in orthopaedics and traumatology][in Italian].” *GIOT.* 2011;37:27–32.
24. Traina F. Medical malpractice: the experience in Italy. *Clin Orthop Relat Res.* 2009;467:434–442.
25. Upadhyay A, York S, Macaulay W, McGrory B, Robbennolt J, Bal BS. Medical malpractice in hip and knee arthroplasty. *J Arthroplasty.* 2007;22(6 suppl 2):2–7.
26. Wong DA, Herndon JH, Canale ST, Brooks RL, Hunt TR, Epps HR, Fountain SS, Albanese SA, Johanson NA. Medical errors in orthopaedics: results of an AAOS member survey. *J Bone Joint Surg Am.* 2009; 91:547–557.