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## Medical Malpractice Charges in Germany – Role of the Forensic Pathologist in the Preliminary Criminal Proceeding

**ABSTRACT:** Medical malpractice charges from 1989 to 2002 were evaluated. A rising number of cases during this period is evident. The charges of practice falling below the standard of care ( $n = 285$ ) were surveyed to determine who informed the prosecution, which clinical subjects are involved, what kind of charges can be found and whether such allegations can be appropriately assessed by means of a forensic autopsy. Forensic pathologists were found to be useful for ascertainment and interpretation of autopsy findings. If special questions arise, an additional expert opinion should be suggested by the forensic pathologist. There was no relevant shift in the range of subjects involved compared to former studies. The investigated charges might represent only a small fraction of cases of medical practice falling below the standard of care.

**KEYWORDS:** forensic sciences, medical malpractice charges, autopsy, expert opinion

The present study was conducted to assess the role of forensic autopsies in the investigation of charges by relatives and other persons of deaths in whole or in part due to claimed professional negligence.

### Methods

The cases of medical malpractice charges were carried out between 1989 and 2002 in the Institute of Forensic Medicine at the University of Bonn, Germany. Additionally, the clinical disciplines, the physicians involved, the kinds of malpractice charges, and the persons informing the prosecution were studied. The analysis of 285 cases was conducted to see whether such allegations could be appropriately assessed by means of forensic autopsy, whether other experts were consulted and if a shift can be found in the range of subjects involved compared to former studies.

### German Legal Context

Within the context of preliminary proceedings concerning alleged medical practice falling below standard of care, the prosecutor in Germany often requests expert opinions by the local Institute of Forensic Medicine. In a minority of reproaches another expert opinion is demanded directly by the prosecutor. As reported in previous studies from Germany and other countries, the initial charges are typically manslaughter by negligence, §222 StGB (German criminal code), bodily harm caused due to negligence, §230 StGB, failure to render assistance, §323c StGB, and rarely maltreatment of wards, §223b StGB. Rarely, forensic expert opinions are ordered for civil law proceedings, primarily to clarify charges for an insurance company. There is no legal obligation in Germany to report to the police/the prosecution about claims of medical misadventure. However, the Medical Association in Hamburg urges physicians to announce justified suspicion of severe therapeutic misadventures.

Forensic expert opinions concerning medical malpractice charges are almost exclusively ordered by the prosecutor and usually the forensic expert opinions were conducted after a formal charge was filed. Medical malpractice charges concern all clinical subjects as reported in the literature (1–5). The primary medical disciplines involved can be found in Table 1. Between 1989 and 2002, 285 expert opinions on malpractice charges were reported by the Institute of Forensic Medicine at the University of Bonn, all reports were initiated by the prosecutor.

### Causes and Basis of Forensic Expert Opinion

The distribution of malpractice charges from 1989 to 2002 is shown in Fig. 1. A rising number of cases in recent years is evident. Most cases were initiated by a complaint by the relatives or decedents, leading to preliminary investigations. Also, declarations of causes of death as “unexplained” on the death certificate, automatically invoked investigations by the police. In cases of suspected bodily harm caused by negligence, the patients themselves filed complaints with the police. In contrast, confessions or notification by the attending doctors or nursing staff were rare. There was only one case of a doctor instigated malpractice charge against a colleague. In three cases, the statements were made anonymously (Table 2).

In all expert opinions of death due to negligence, the basis was an autopsy of the deceased. Forensic autopsies were generally carried out according to §§87 ff. German Code of Criminal Procedure (Strafprozessordnung; StPO). Re-autopsies by forensic pathologists of previous clinical autopsies done by hospital pathologists were made occasionally. In those circumstances the second forensic autopsy was the basis for further prosecutor decisions. The forensic autopsies are always carried out by forensic pathologists, not by hospital pathologists. In six cases, prosecutors ordered exhumations. The medicolegal opinion was rarely based exclusively on autopsy findings of hospital pathologists. In these cases, autopsy reports, complete medical records, and histological investigations of the retained organ samples were the basis for the forensic

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TABLE 1—Previous studies on medical malpractice charges from German Institutes of Forensic Medicine (see Ref. 4).

Former Surveys in Germany	Surgery	Internal Medicine	General Medicine	Orthopedics	Gynecology	Otorhino-Laryngology	Pediatrics
v.Brandis, Pribilla (1973)	48	20	26	3	10	2	—
Eisenmenger (1978)	41	35	44	2	28	17	16
Figgenger (1981)	22	7	16	—	6	3	3
Schmidt (1982)	37	8	16	—	7	4	3
Kohnle (1983)	12	10	13	3	7	2	3
Mattern, Kohnle (1984)	15	11	7	3	8	3	3
Althoff, Solbach (1984)	22	9	10	4	8	4	4
Mallach (1989)	214	93	124	—	58	15	15
Pluisch (1990)	10	8	7	7	6	3	3
Janssen, Püschel (1998)	24	10	11	—	6	2	7
Dettmeyer, Egl, Madea (2004)—this report	81	35	22	5	46	6	3
Total	526 37.4%	246 17.5%	296 21.1%	27 1.9%	190 13.5%	61 4.3%	60 4.3%

TABLE 2—Initiation of proceedings.

	Number
Complaint by relatives	134
Complaint by the patient	49
Certification of death as unexplained or unnatural	49
Certification of death as due to medical negligence	23
Confession of the treating physicians	8
Anonymous complaint	8
Not to clarify	7
Complaint by subsequent treating physicians	5
Complaint by nursing staff	2

TABLE 3—Autopsy basis of the forensic pathologist's expert opinion.

	Number
Forensic autopsy	175
Hospital autopsy with forensic pathology reautopsy	16
Hospital autopsy only	11
Forensic autopsy after exhumation	6
Survey without autopsy	73

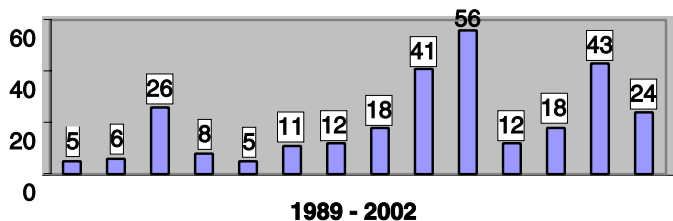


FIG. 1—Distribution of medical malpractice charges from 1989 to 2002.

pathologist's expert opinion. The autopsy basis for the proceedings is listed in Table 3.

As reported in the literature, surgery is the most common medical discipline involved [(6,7); see Tables 1 and 4]. General surgery and traumatology were often prominent, single charges concerned neurosurgery, vascular surgery, cardiac surgery, and in one case, cosmetic surgery. Gynecology and obstetrics, internal medicine and general medicine were also involved frequently. In addition there were several cases where an emergency doctor was accused of substandard of care. In psychiatry, the charges claimed suspicion of drug overdose, inadequate patient restraint, and faulty monitoring of patients endangered to commit suicide. As reported

TABLE 4—Medical basis of malpractice charges.

	Number
Surgery	101
Gynecology	55
Internal medicine	36
General medicine	25
Emergency physician	12
Psychiatry	9
Otorhinolaryngology	6
Urology	6
Orthopedics	5
Nursing home care	5
Radiology	4
Ambulance/Paramedic	4
Neurology	4
Pediatrics	3
Anesthesia	2
Dermatology	2
Emergency room	2
Pathology	1
Non-medical practitioner	1
Rehabilitation/Physical therapy center	1
Public health department	1
Total	285

TABLE 5—Outcome of forensic pathology investigations.

	Number
Alleged malpractice unsupported, no further inquiry	99
Settlement negotiated	71
Malpractice charge confirmed	22
Malpractice charge unresolved, further inquiry necessary	17
Malpractice not ruled out, expert opinion suggested	76

in the literature (8–10), other clinical subjects were rarely involved (Table 4).

The autopsy investigations resulted in:

1. Cases where pathology findings led to negotiated settlements;
2. Cases where pathology findings did not support a causal relationship between an alleged error of treatment and death; and
3. Cases that needed further investigations.

A large proportion of medical malpractice charges (25,8%) were ruled out at autopsy (Table 5). In other cases, a causal relationship

between possible malpractice and death could not be proved with the certainty required by a criminal court.

Where medical records were incomplete, a further confiscation was suggested by the forensic pathologist and initiated by the prosecutor. Some of the medical records presented major gaps in documentation, in a few cases exactly the important and determining information were missing. In one case, documents were found to be manipulated afterwards. In several cases the confiscated medical records contained the correspondence between the accused doctor and his liability insurance, in a lawsuit this might lead to its exclusion.

Great variation was found in requests by prosecutor's offices for medical expert opinion. In a large number of offices, standardized formulations were used. In other offices, assignments were made after a sophisticated and detailed catalogue of questions on the chronology and legal aspects of the case.

In some cases, relatives merely alleged malpractice; "this must be malpractice, otherwise the person concerned would not have died". In such cases, the charge was often withdrawn. In other cases, complaints were made with detailed and clearly established arguments for the suspicion of medical practice falling below standard of care due to professional negligence, demonstrating medical knowledge. Naturally, even less precisely formulated charges must be checked carefully (11).

### Distribution of Malpractice Charges Concerning the Circumstances of the Case

As reported in the literature, "classical" constellations of medical misadventures were found. For example, there were 23 cases with well-known complications of surgical operations like bursting of suture, secondary bleeding, and injury of the bowel wall with delayed peritonitis. In these cases the charges were not made because of the complication itself but of the delayed notice resulting in a lethal course.

Nine complications occurred after endoscopic surgery where an injury was not immediately recognized. This includes two cases of purulent peritonitis following endoscopical adhesiolysis, one severe pancreatitis after endoscopical treatment of gallstones in the ductus choledochus, and one clostridial infection of the pleural cavity due to injury of the esophagus during bronchoscopy.

Thirteen cases involved patients restrained for suicidal tendencies. Malpractice charges concerning a practice falling below the standard of care varied from missing railings on the bed to protect the patient to excessive or faulty restraint.

Four cases involved patients who fell down during emergency transport. Here the autopsy first had to clarify whether the fall caused the death. After autopsy this could be denied in all four cases. The cause of death in each of these cases of mainly elderly patients was determined to be severe atherosclerotic coronary vascular disease or acute myocardial infarction.

Another group of cases concerned the misinterpretation of symptoms—particularly by residential doctors or emergency room doctors. The most common mistaken diagnosis was a beginning heart attack that was misinterpreted as backache in the context of neuritis or orthopedic diseases. The fact that the patients often died only a few minutes or hours after the home visit of the doctor frequently led to allegations that the doctor failed to send the patient immediately to hospital. In the presence of evidence for severe atherosclerotic coronary vascular disease or acute myocardial infarction during autopsy, it could not be assumed that the patient would have survived if sent to the hospital in a timely fashion. Apparently, death occurring after short outpatient consultations place

TABLE 6—Distribution of malpractice charges by duration and site of treatment.

Site of Treatment	Treatment Day 1	Treatment Day 2–5	Treatment > Day 5
Hospital	10	45	138
Home visit	58	8	26

physicians at higher risk for malpractice charges, as demonstrated by the distribution of duration of treatment and charges against hospital doctors and residential doctors (Table 6).

Also, typical malpractice charges included insufficient prophylaxis for thrombosis (8 cases) and deficient nursing treatment with ensuing decubital ulcers. Particularly after the accusation of deficient prophylaxis of decubital ulcers, documentation of activities in nursing treatment was often found to be fragmentary or non-existing. Another group of cases followed from the administration of drugs or contrast medium ( $n = 27$ ). In some cases these were due to acute allergic-anaphylactical reactions, known rare side effects. In addition, charges of overdosing or inappropriate medication were raised and toxicological analysis was necessary (12).

Six cases involve sudden death on the operating table where autopsy findings showed severe atherosclerotic coronary vascular disease (2x), surgical secondary bleeding, unrecognized pulmonary embolism, and exanguination (renal tumor, pelvic artery during operation of an intervertebral disk). Differences in mortality among patients consulting physicians or admitted to hospitals on weekends in comparison to weekdays were not investigated (13).

A variety of other unique cases were seen. In general, these patients suffered from unexplained clinical symptoms, which were often explainable after autopsy:

- In spite of a written documented double count of surgical sponge, one sponge had been forgotten in the pericardial sac during heart surgery, months later it had to be removed in a second surgery.
- A right kidney of a 76-year old man was removed by mistake, and then the left kidney in part. After the operation, the tumor in the left kidney was identified as benign angiomyolipoma (4).
- Intrathecal application of vincristin due to confusion of syringes concerning two patients with acute leukemia (14).
- Lethal alcohol intoxication of a patient in a psychiatric hospital.
- Unrecognized disseminated pulmonary tuberculosis after living in a nursing home for 25 years.
- Overlooked skull fracture after head trauma and admission in a psychiatric hospital.
- Insufficient monitoring of a patient with hyperglycemia by a first-year resident over a weekend.
- Drowning of a female epileptic patient who was left alone in a bathtub of a nursing home.
- Insufficient resuscitation attempt (missing emergency equipment and no emergency drugs) after the collapse of a patient during an unmonitored physical exercise with ECG (4).
- Failure to mammogram despite presence of palpable tumor.

Finally, there were cases where the question involved "manipulation of indication"—improper permission for surgery obtained. Was the patient fully informed prior to giving consent? Were alternative ways of treatment concealed or false information given to get permission of a medical treatment? Often only a chary statement

TABLE 7—Types of malpractice charges (partially several charges).

Charge	Number
Improper procedural technique	72
Incorrect diagnosis	53
Non recognition of complications after a medical intervention	45
Inappropriate medication (wrong drug, wrong dosage)	27
Failing to act in spite of essential medical intervention	26
Insufficient supervision	16
Insufficient enlightenment	13
Nonessential medical intervention	13
Insufficient thrombosis prophylaxis	8
Insufficient decubitus prophylaxis	6
Mix-up	3
Forgotten artefact during a surgery	3

was possible and only cases of obviously false information were classified as “manipulation of indication”. The quality of information given by the doctor was often described very differently by the patient and by the doctor. Sometimes even a third version was found in the documentation of the case history. Thus, a determination of the quality of the informed consent was often not possible.

The charges can be divided into different types, but a specific allocation was often not possible. As shown in Table 7 incorrect diagnoses were most common, followed by mistakes in medical treatments and non-recognition of complications after operations.

Nevertheless, independent from alleged errors in treatment, autopsies sometimes revealed misdiagnoses and undiagnosed conditions and complications that may have affected outcome. This substantiates the well-known role of autopsies as a measure for quality assurance (15).

## Results

Our findings corroborate the results of previous studies by other German Institutes of Forensic Medicine, particularly the high number of preliminary proceedings with the charge of “involuntary manslaughter” and the relatively low number with the charge of “bodily injury caused by negligence”. There was no relevant shift in the range of subjects involved compared to former studies. The investigated charges might represent only a small fraction of cases of medical practice falling below the standard of care. Up to now the question of the frequency of medical maltreatment is sparsely discussed (16–18). In a study of all prescriptions of a 631-bed-US-hospital over a one-year period, 696 out of 2103 deficient prescriptions were considered as potentially harmful for the patients (19).

In another American study published in 1997 (20), a total of 480 (45.8%) cases of inappropriate treatment were discovered in 1.047 cases studied. 185 (17.7%) had been characterized as “profound” by the authors. Mistakes occurred regarding diagnosis, surgical treatment, follow-up treatment, monitoring, nursing, medical treatment (21), nutrition and anesthesia (22). Nevertheless, only 1.2% of the patients of this study filed a lawsuit. However, the term “malpractice” is not well defined. Acceptable practice may be different for different settings (rural clinic vs. urban hospital) and for different practitioners; and flexibility and judgement should be accorded.

In 69 out of 267 cases (= 25.8%), the alleged malpractice was excluded directly by autopsy or suspected professional negligence was determined not to be the cause of death. Especially in cases of involuntary manslaughter (§222 German Criminal Code), the autopsy was of high exculping importance. If autopsy findings were unclear, the cause of death was the main focus of forensic expert witnesses. In at least 47 out of 119 cases (39.4%) extensive

toxicological and/or histological investigations were done and the forensic survey was restricted to the cause of death. If therapeutic misadventure due to professional negligence was thought to have occurred, then the proximate causality between the misadventure and the death or bodily injury was investigated and the case was referred to a medical expert of the medical discipline involved.

Subsequently, if suggested by the forensic pathologist (see Table 6), other medical experts again used the autopsy findings as an essential basis of their statements. Nevertheless, there were isolated cases where a collective expertise—forensic pathologist and another special medical expert—was created or a medical expert was suggested by the forensic pathologist. When looking for a medical expert, lawyers assume that forensic pathologists should write their reports with the necessary neutrality.

Generally, physicians familiar with medicolegal issues write their expert opinions in a shorter period of time after reception of the complete medical reports. Additionally, they are more familiar with the way of thinking and argumentation of jurists as well as with the requirements of giving evidence in trial. The risk of misunderstandings in court is significantly lower for medicolegal physicians. Forensic pathologists are more intensely prepared for their role as medical appraisers than clinical colleagues. Most physicians are not prepared for forensic consultations. In contrast to their clinical colleagues, forensic pathologists are experienced in their role as medical expert witnesses. Additionally, the questions to answer in the expert reports are determined by juristic criteria. Was the result (e.g. the death), predictable and/or preventable? Could the risk be decreased by doing or omitting certain actions? Was the demanded behavior objectively reasonable? The forensic pathologist can anticipate the important questions and answer them.

Most importantly, forensic experts should accept that their own professional competence is limited. However, forensic pathologists are uniquely qualified for this role and prepared to address causality and other issues important for investigators, prosecutors, and the court.

## Conclusions

The forensic pathologist is competent for the “ascertainment and interpretation of autopsy findings”. Thus, the forensic pathologist is an excellent resource to address questions of alleged medical misadventure. If necessary, further specialty expertise can be requested by the forensic pathologist and possibly integrated into the forensic expert report. This is of special importance in cases where malpractice and the causality to the death or bodily injury is found. Often the accused will demand second expert opinion to look for contradictions in the forensic expert report. All cases of death in connection with medical interventions should be investigated by an obligatory forensic autopsy. The results demonstrate that in a predominant number of cases, the forensic autopsy leads to exculpation of incriminated physicians.

## References

1. Hansis ML. Insufficient coordination as a cause for presumed malpractice. *Dtsch Arztebl* 2001;98(31–32):A2035–2040.
2. Kohn LT, Corrigan JM, Donaldson MS (editors). Institute of Medicine (IOM). *To err is human: building a safer health system*. Washington, DC: National Academy Press, 1999.
3. Brennan TA. [The Institute of Medicine reports on medical errors—could it do harm?](#) *N Engl J Med* 2000;342:1123–5. [PubMed]
4. Dettmeyer R, Madea B. Rechtsmedizinische Gutachten in arztstrafrechtlichen Ermittlungsverfahren. *Medizinrecht* 1999;12:533–9.
5. Sakamoto N, Maeda S, Ikeda N, Ishibashi H, Nobutomo K. The use of experts in medical malpractice litigation in Japan. *Med Sci Law* 2002;42(3):200–6. [PubMed]

- [PubMed] 6. Giordano. [Malpractice and the vascular surgeon](#). *J Vasc Surg* 1993;18:901–4.
- [PubMed] 7. Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ. [Risk factors for retained instruments and sponges after surgery](#). *N Engl J Med* 2003;348:229–35.
- [PubMed] 8. Barloon TJ, Shumway J. Medical malpractice involving radiologic colon examinations: a review of 38 recent cases. *Am J Roentgenology* 1995;165:343–6.
- [PubMed] 9. Eckardt A, Horn S, Rompe JD, Heine J. Malpractice in orthopaedic treatment. *Rechtsmedizin* 1997;7:105–12.
- [PubMed] 10. Kahan SE, Goldman HB, Marengo S, Resnick MI. [Urological medical malpractice](#). *J Urology* 2001;165:1638–42.
- [PubMed] 11. Karp D. The top ten reasons physicians are sued for malpractice. *Alaska Medicine* 2000;42(2):48–9.
- [PubMed] 12. Rothschild JM, Federica FF, Gandhi TK, Williams D, Bates DW. [Analysis of medication-related malpractice claims](#). *Arch Int Med* 2002;162:2414–20.
- [PubMed] 13. Bell CM, Redelmeier DA. [Mortality among patients admitted to hospitals on weekends as compared with weekdays](#). *N Engl J Med* 2001;345:663–8.
- [PubMed] 14. Dettmeyer R, Driever F, Becker A, Wiestler OD, Madea B. [Fatal myeloencephalopathy due to accidental intrathecal vincristin administration—a report of two cases](#). *Forensic Sci Int* 2001;122:60–4.
- [PubMed] 15. Autopsy as an outcome and performance measure. Summary, Evidence Report/Technology Assessment: Number 58. AHRQ Publication No. 03–E001, October 2002. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/clinic/epcsums/autopsum.htm>
16. Bennett RG, O’Sullivan J, DeVito EM, Remsburg R. The increasing medical malpractice risk related to pressure ulcers in the United States. *J Am Geriatr Soc* 2000;48:73–81. [PubMed]
17. Dean BS, Allan EL, Barber ND, Barker KN. Comparison of medication errors in an American and a British hospital. *Am J Health System Pharmacy* 1995;52:2543–9. [PubMed]
18. Philipps DP, Christenfeld N, Glynn L. [Increase in US medication-error deaths between 1983 and 1993](#). *Lancet* 1998;351:643–4. [PubMed]
19. Lesar TS, Briceland L, Stein DS. [Factors related to errors in medication prescribing](#). *JAMA* 1997;277(4):312–7. [PubMed]
20. Andrews LB, Stocking C, Krizek T, Gottlieb L, Krizek C, Vargish T, Siegler M. [An alternative strategy for studying adverse events in medical care](#). *Lancet* 1997;349:309–13. [PubMed]
21. Brennan TA, Leape LL, Laird N, Hebert L, Localia AR, Lawthers AG, et al. Incidence of adverse events and negligence in hospitalized patients. Results of the Harvard Medical Practice Study I. *N Engl J Med* 1991;324(15):370–6. [PubMed]
22. Goldstein RL. Medical malpractice in the absence of a doctor-patient relationship: the potential liability of psychiatric examiners in New York State. *J Forensic Sci* 1989;34:1246–9. [PubMed]

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