CORRESPONDENCE

The Post Mortem External Examination: Determination of the Cause and Manner of Death

by Prof. Dr. med. Burkhard Madea, Prof. Dr. med. Markus Rothschild
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Incorrect Causes of Death

Problems are repeatedly caused by pressure at the scene from the police or detectives who want the death certificate filled out on the spot. This does not allow one to have another look at a more detailed patient medical file, nor to refer to other colleagues who were involved in treatment either previously or concurrently. This alone, especially in cases where death occurs at an awkward time, must lead to incorrect statements of causes of death and chains of causality. In Schleswig-Holstein, the only permitted entries on the death certificate for manner of death are "yes" or "no" with reference to "indication to suspect unnatural event"—"unexplained" is not an option—so one has to commit oneself to an opinion. If you check the "unnatural" box, e.g., postoperatively or immediately after discharge from hospital, you are regularly put under strong pressure to reconsider this.

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REFERENCES

1. Madea B, Rothschild M: The post mortem examination—determination of the cause and manner of death. Dtsch Arztebl Int 2010; 107(33): 575–88.

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National Mortality Register

One additional benefit of the post mortem external examination is to collect valid information about cause of death and to set up a national mortality register. To date, the only German federal state to have established a mortality index for the purpose of epidemiological studies is the city of Bremen (1). Up until now, national epidemiological mortality follow-ups have only been feasible by requesting pseudonymized death certificates from the local public health departments. Because in some German federal states death certificates only need to be kept for a limited period of time (10 years), significant data losses, especially in the case of historical cohorts, may be assumed when follow-ups are based on the individual collection of death certificates (2).

To provide reliable follow-up information, not only the death certificate needs to be correctly completed, but the underlying cause of death must also be coded with the correct ICD. Coding is done by coders in the state statistical offices who work according to official coding rules (3). Most coders do not have any specific medical training or education. They learn the coding rules in seminars and regular refresher courses. Notwithstanding, even among experienced coders, differences in coding behaviour arise because of the complexity of the applied rules and the erratic quality of death certificates. In particular, when death certificate entries are ambiguous, coders have to try to interpret the underlying cause of death. This was confirmed in our experience of mortality studies in which coders carried out the reference coding of the cause of death from death certificates.

In addition to the specific medical qualification for carrying out post mortem external examinations as proposed in the current political debate, an automated multicausal coding of causes of death, comparable to the existing IRIS program (4), should be required. This would ensure valid, reproducible coding of causes of death. With the concurrent establishment of a national mortality register, an intensification of epidemiological research using mortality data should be expected in Germany, which should also reveal implausibilities in the determination of causes of death. This should also contribute to improved data quality in the cause of death statistics.

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REFERENCES

1. Giersiepen K, Brünings-Kuppe C, Lehmann C: Der Bremer Mortalitätsindex. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz 2004; 47(5): 451–6.
2. Zeeb H, Klug SJ, Ahrens W, Straif K: Follow-up Studien in Deutschland: Weitere Erfahrungen und neue Entwicklungen bei der Todesursachenrecherche. Informatik, Biometrie und Epidemiologie in Medizin und Biologie 2003; 34(4): 612–8.
3. Madea B, Rothschild M: The post mortem examination—determination of the cause and manner of death. Dtsch Arztebl Int 2010; 107(33): 575–88.
4. Witting B: Erste Ergebnisse aus den Testläufen des elektronischen Codiersystems IRIS in der Todesursachenstatistik. In: Methoden – Verfahren – Entwicklungen. Nachrichten aus dem Statistischen Bundesamt. Issue 1/2008: 9–12.

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Medication Lists as Long as Your Arm

Since we pediatricians were integrated into the on-call service a few years ago, the subject of the medical examination after death unfortunately now falls within our area of responsibility as well. However, in our specialty, as no doubt in other specialties such as ophthalmology, ENT, and orthopedics, the knowledge required for this service is somewhat lacking. First of all, we know nothing about the previous medical history of the deceased; often the medication lists—many of them as long as your arm—are beyond us; we have little understanding of medicolegal matters; and at three to five examinations per year we do not really get much practice in, either. Add to that the fact that in a private home the conditions for examination of a body are not the best, from inadequate lighting to lack of physical ability to manage undressing the body and changing its position. Given all of this, it does not surprise me that the result is many sources of error in cause of death statistics and missed cases of unnatural death. Introducing the principle that a second examination of the body should be carried out by a medical examiner or forensic physician, e.g., at the undertakers or funeral parlor, would serve a very useful purpose.

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REFERENCES

1. Madea B, Rothschild M: The post mortem examination—determination of the cause and manner of death. Dtsch Arztebl Int 2010; 107(33): 575–88.

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Bottom of the European League

I found this contribution very important, illuminating at an interdisciplinary level, and instructive. One statement in the last section, "Problem Areas," is still occupying my mind: "In Germany, the present autopsy rate is less than 5% of all deaths…." How valid is this percentage? What are the actual numbers at present—are they even above 1%? In the Epidemiological Bulletin of the Robert Koch Institute of 4 February 2000—already 10 years ago—the autopsy rate determined for Germany was 1.2% and on a downwards curve. "So far as autopsy rates are concerned," was the terse summary, "Germany is obviously bottom of the European league." This is bad for quality assurance of the work of those in the medical and caring professions. It is also bad for the reputation of the law and for the validity of the frequently cited official cause of death statistics in our country. What can be done—what *must* be done – to bring about a significant improvement in this dreadful state of affairs?

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REFERENCES

1. Madea B, Rothschild M: The post mortem examination—determination of the cause and manner of death. Dtsch Arztebl Int 2010; 107(33): 575–88.

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In Reply:

We have had many inquiries from colleagues in hospitals and private practice relating to our Continuing Medical Education piece "The Post Mortem External Examination" (5), reflecting not just the continuing interest in the subject, but also the problems inherent in our entire system of post mortem external examination and determination of cause of death. First and foremost are questions about the description of the manner of death, correct rendering of a cause of death cascade, and the time point of the examination.

A 2002 draft of the German Medical Association (Bundesärztekammer) for a law to regulate the post mortem external examination and issuance of a death certificate specified as to classification of the manner of death: "If it is impossible for the physician to establish the manner of death, the manner of death must be entered as 'unexplained.' An unexplained manner of death is also present when the cause of death is 'unknown' or 'unclear.' A death may only be entered as natural if it is to be ascribed to a diagnosed and documented natural disease. There must be a high degree of plausibility for such a cause of death. Mere possibility or balance of probability is by no means sufficient. Any further investigation, e.g., into the question of any fault of a third person or persons, is not the responsibility of a physician performing a post mortem external examination. The physician must decide on the classification of the manner of death free from influence from the authorities or from any third party."

On the subject of death in connection with medical interventions, the German Medical Association's draft suggests a category of "unexpected death in the context of medical interventions." Such a case would exist when diagnostic procedures or a treatment have been carried out that can in principle cause injury (possibly even without any error in treatment having occurred) and death was not to be anticipated because of the disease or injury being treated, or not anticipated to occur at this time (4). Unfortunately, such a category of manner of death was not taken into state law; if it were,

it would allow such deaths to be investigated without the implication of suspicion.

As physicians we can only take our direction from a scientific definition of unnatural death, which is as follows: death triggered, influenced, brought about by a nonnatural cause. It is a matter of a purely causal connection – not a value judgment. "Unnatural" means anything that comes about through an external event.
The Frankfurt criminal lawyer F. Geerds has attempted to define grounds for describing a death as unnatural by ruling out the possibility that it is natural (3). If there are no solid grounds for regarding a death as natural, in his opinion the death comes under paragraph 159 of the German Code of Criminal Procedure and the Public Prosecutor must investigate. According to this line of argument, it certainly is the responsibility of the Public Prosecutor, in a case where the cause of a death is unknown, to establish definitely the cause and hence also the manner of death by means of an autopsy. In such cases the autopsy is even the most efficient investigative approach. Sartorti's observation that physicians certifying a death come under pressure regarding their classification of the manner of death has been empirically confirmed (7).

The importance of valid entries on the underlying cause and immediate cause of death, not just for cause of death statistics, but also with regard to the establishing of a national mortality register with a step-up in epidemiological research, is beyond question. Properly qualified entries of the underlying and immediate cause of death, correct coding of the underlying cause in accordance with ICD codes, and multicausal coding of the cause of death when the background involves multicausal death processes, are all essential to the quality of a national mortality register (6). In this context, the epicrises provided for in the death certificates of various of the federal states, together with other entries relating to the classification of causes of death (accident category, stillbirths and neonatal deaths, and, especially, information on deaths among women, which is an important source of data for the investigation of maternal mortality) are important.

Dr. Lehmann complains of the lack of training in performing post mortem external examinations. Decoupling confirmation that death has occurred, which is a duty on all physicians, from the actual post mortem external examination of the body has worked well for city states such as Bremen and Hamburg, but does not work in larger, less densely populated states. With the support of the state medical associations, it could perhaps be investigated whether flexible solutions can be put in place at the local level, when colleagues feel themselves unqualified to complete a post mortem external examination. On the other hand, all physicians have a duty to obtain the requisite training.

The autopsy rate in Germany is less than 5% of deaths. The number of clinical autopsies in particular is falling sharply and is at present somewhere below 3% of deaths (1). The number of autopsies ordered by the courts under paragraph 87 of the Code of Criminal Procedure is relatively constant at around 2%. Particularly drastic is the fall in autopsies in the new (formerly East German) federal states (2). Sadly, the trusty instrument of "administrative autopsy" no longer exists.

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REFERENCES

1. Brinkmann B, Du Chesne A, Vennemann B: Aktuelle Daten zur Obduktionsfrequenz in Deutschland, DMW 2002; 127: 791–5.
2. Doberentz E, Madea B, Böhm U, Lessig R: Zur Reliabilität von Leichenschaudiagnosen bei nicht natürlichen Todesfällen vor und nach der Wiedervereinigung Deutschlands. Archiv Kriminologie 2010; 225 (1/2): 1–17.
3. Geerds F: Leichensachen und Leichenschau aus juristischer Sicht. Medizinrecht1984; 2: 172–7.
4. Madea B: Die Ärztliche Leichenschau – Rechtsgrundlagen, praktische Durchführung, Problemlösungen. Berlin, Heidelberg, New York (2nd ed.) Springer 2006.
5. Madea B, Rothschild M: The post mortem examination—determination of the cause and manner of death. Dtsch Arztebl Int 2010; 107(33): 575–88.
6. Schelhase T, Weber S: Die Todesursachenstatistik in Deutschland. Probleme und Perspektiven. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz 2007; 50969–76.
7. Vennemann B, Du Chesne A, Brinkmann B: Die Praxis der Ärztlichen Leichenschau. DMW 2001; 126: 712–6.

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