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When Death is the Issue: Uses of Pathological Testimony and Autopsy Reports at Trial

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WHEN DEATH IS THE ISSUE: USES OF PATHOLOGICAL TESTIMONY AND AUTOPSY REPORTS AT TRIAL†

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"Death is at the bottom of everything. . . .
Leave death to the professionals."
Calloway, *The Third Man*

Trial lawyers often must present or confront evidence concerning the death of a party, victim or witness in the course of litigation. Clearly, the fact of death is a key issue considered in homicide[1] and wrongful death actions.[2] It may also prove significant in other proceedings, either as the focal point of litigation—as in contested probate matters—or in respect to some collateral matter, such as the death of a witness who might otherwise testify.[3] Generally, the party

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1. The state's burden of proof in a homicide case, including murder, includes proof of *corpus delecti*—the fact of a crime—and that the death resulted from the criminal act of another and not from natural causes, suicide or accident. State v. Vellejos, 93 N.M. 387, 600 P.2d 839 (Ct. App. 1979), *cert. denied*, 93 N.M. 205, 598 P.2d 1165 (1979).

2. For instance, under the Texas Workers Compensation Act, the death of an employe, which results from the act of a third person for a reason unrelated to the employment relationship, is not compensable. TEX. REV. CIV. STAT. ANN. art. 8309, § 1 (Vernon 1967). *See also* Matter of Robinson, 23 Or. App. 126, 541 P.2d 506 (1975) (construing ORS 656.002(7)(2).

When the cause of an employe's death is unexplained, a determination that it resulted from accident rather than intentional assault can lead to recovery. *See* Deatherage v. International Ins. Co., 615 S.W.2d 191 (Tex. 1981); Scott v. Millers Mut. Fire Ins., 524 S.W.2d 295 (Tex. 1974).

3. The issue might arise in context of the "Dead Man's Rule," an exception to the hear-

whose cause of action is predicated upon the death is required to offer some type of expert testimony and documentary evidence to prove the cause of death.[4]

This Article explores the strategies of using and countering the pathologist's testimony, the death certificate and the autopsy report. When resource limitations pose no barrier, the simplest approach is to counter expert testimony with other expert testimony. Eminent experts in forensic pathology[5] may differ, and such differences in opinion provide an opportunity to attack or support a cause of action.[6] In other instances live rebuttal is not an option because the client cannot afford expert testimony,[7] or because consensus among

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say rule in which the statement of a deceased made in anticipation of death is ruled admissible. 3 J. WEINSTEIN & M. BERGER, WEINSTEIN'S EVIDENCE, §§ 601, 601[3], (1981) [hereinafter cited as WEINSTEIN].

4. The fact of death may often be proved by introduction of a copy of the public record of death—the death certificate. As a general rule, the death certificate carries no probative value as to the cause of death. *See* Fowler v. Connecticut Mut. Life Ins. Co., 38 F.R.D. 11, 13-14 (1965) (D.C. La. 1965), construing the applicable Louisiana provision (insurer refused to pay benefits because of insured's suicide). LA. REV. STAT. ANN. § 33:1561 (West 1951), a case in which insurer refused to pay life insurance benefits based on defense of insured's suicide); *accord*, Benjamin v. Woodring, 303 A.2d 779, 788, 268 Md. 593 (1973); Carson v. Metropolitan Life Ins. Co., 156 Ohio St. 104, 112-14, 100 N.E.2d 197, 202-03 (1951); Combined Am. Ins. Co. v. McCall, 497 S.W.2d 350, 357 (Tex. Civ. App. Amarillo 1973) (issue whether deceased died in accident or as a result of heart attack). *But see* California State Life Ins. Co. v. Fuqua, 40 Ariz. 148, 10 P.2d 958 (1932).

5. An excellent treatment of the work of pathologists is provided in HALPERIN, AUTOPSY (1977). *See also* Wecht, *Forensic Pathology for Trial Lawyers*, in J. CEDERBAUMS & S. ARNOLD, Eds., SCIENTIFIC AND EXPERT EVIDENCE IN CRIMINAL ADVOCACY 83-96 (1975).

6. Consider F. Lee Bailey's discussion of his celebrated *Coppolino* case in F. BAILEY, FOR THE DEFENSE (1975).

The Texas Court of Criminal Appeals reversed the conviction in Hill v. State, 585 S.W.2d 713, 714-15 (Tex. Crim. App. 1969) based on the trial court's refusal to charge the jury on the alternative cause of death raised by the testimony of the defense expert who testified that the deceased died of natural causes, sharply in conflict with the State's expert's conclusion that the deceased died as a result of beating or choking, as charged in the indictment. Both experts relied on the autopsy report for their conclusions. The fact that an expert may express an opinion contravening the theory of the offense advanced by the State is not necessarily binding on the trier of fact, however, if other evidence would support the theory relied on by the prosecution. *See* Gonzales v. State, 505 S.W.2d 819 (Tex. Crim. App. 1974) (holding evidence sufficient despite expert's testimony that hematoma could have been caused by means other than blow to the victim's head and notwithstanding the possibility that the deceased could have contracted pneumonia, the immediate cause of death, prior to entering the hospital).

7. Some jurisdictions impose limits on funds available to indigent defendants in criminal actions for investigation and expert witness fees. *E.g.*, TEX. CODE CRIM. PROC. ANN., art. 26.05, § 1(d) (Vernon 1965) (limiting investigative expenses at a maximum amount of $500).

Under the Federal Rules of Evidence, the trial judge is empowered to appoint and compensate experts in criminal cases. FED. R. EVID. 706(b). Weinstein's survey of state adoption of this rule demonstrates that even jurisdictions adopting the federal rules have not uniformly

the experts negates the potential for contradictory testimony. Other strategies, however, offer valuable options.

I. THE PATHOLOGIST AS EXPERT WITNESS

A pathologist is a medical expert in the analysis of disease or injury that causes damage or death to the human organism.[8] In addition to an initial medical degree, the American Medical Association and the American Osteopathic Association require a four-year residency program for certification as a pathologist. Further specialization in forensic pathology provides additional expertise in investigation of unnatural cause of death or injury. This training may be enhanced by specialized study in criminalistics[9] or toxicology. Thus, the testifying pathologist often brings to trial an impressive background and highly technical approaches to the complex problems associated with death and injury.

Pathologists are recognized as having a great range of expertise within the general ambit of the field. For example, in *Commonwealth v. Cooper*,[10] the court concluded that the forensic pathologist

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dealt with the issue of compensation for experts. 3 WEINSTEIN § 706[04], at 706-24 through 706-32. Generally, an indigent criminal defendant will be entitled to appointment and compensation of necessary experts. *See* Britt v. North Carolina, 404 U.S. 226 (1971) (transcript of prior trial for indigent if essential to defendant); Miranda v. Arizona, 384 U.S. 436 (1966); Gideon v. Wainwright, 372 U.S. 335 (1963); Douglas v. California, 372 U.S. 353 (1963); Griffin v. Illinois, 351 U.S. 12 (1956).

8. An interesting general treatment of this subject is provided in Bucklin, *Forensic Pathology for Attorneys*, 12 CAL. W.L. REV. 197, 222 (1976). Bucklin writes from the dual perspective of pathologist and attorney. *See also* Devlin, *The Autopsy in Criminal Cases*, in J. CEDERBAUMS & S. ARNOLD, Eds., SCIENTIFIC AND EXPERT EVIDENCE IN CRIMINAL ADVOCACY 33-81 (1975).

9. State v. Torres, 60 Hawaii 271, 589 P.2d 83 (1978) (pathologist who established expertise in X-ray photography and ballistics was qualified to state opinion on caliber of bullet lodged in abdomen of attempted homicide victim); *accord*, People v. Anderson, 184 Colo. 32, 518 P.2d 828 (1974) (nonpathologist could testify regarding gunshot wounds based on treatment of over one thousand bullet wound victims); Singleton v. State, 90 Nev. 216, 522 P.2d 1221, 1223 (1974); State v. Wilks, 25 Utah 2d 22, 474 P.2d 733, 734 (1970) (doctor could testify as to whether victim's bullet wound could *possibly* have been made by .357 magnum caliber ammunition—based on defendant's theory other officers could have inflicted wound to patrolman and evidence showed he had .22 caliber weapon and they carried .357 caliber weapons). The cases suggest that experience in ballistics qualifies the expert to render an opinion as to the type of weapon used. A brief summary of training and certification available to specialists in pathology and forensic medicine is discussed in Wecht, *supra* note 5, at 83-84.

10. 270 Pa. Super. 365, 411 A.2d 762, 764-65 (1979) (following Comm. v. Daniels, 480 Pa. 340, 390 A.2d 172 (1978); Comm. v. Gonzales, 463 Pa. 597, 345 A.2d 691 (1975)). Interestingly, the court discusses the Pennsylvania rule that the trial judge charge the jury that expert opinion evidence is "low grade" when not based on personal observation or when it is rebutted by direct evidence. The rule did not apply in *Cooper* because the forensic pathologist and

who performed the autopsy could testify as to the path of the bullet through the body, the proximity of the murder weapon to the body, and contusions and abrasions on the decedent. Permitting this testimony at trial was not an abuse of discretion because these were all matters within the recognized parameters of the expert's field.[11] The use of expert testimony in this manner is within the discretion of the trial court,[12] and trial judges have been accorded considerable leeway in permitting expert pathological testimony.[13] Moreover, this testimony does not invade the province of the jury.[14]

A pathologist's attempt to testify to matters beyond the recognized scope of expert pathological testimony or his own particular competence may inject error into the trial.[15] For example, in *Sanne v. State*,[16] the court reversed a capital murder conviction because the prosecutor introduced the testimony of a forensic pathologist during the punishment phase of the trial to show that the accused would commit future acts of criminal violence. Although courts have previously recognized use of expert testimony on this issue,[17] the

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ballistics experts all testified based on personal observations in the autopsy and in the test firing of the alleged murder weapon. *Id.*

11. *Id.* at 369, 411 A.2d at 764.

12. As a general rule, admissibility and scope of testimony of expert witnesses is a matter for the trial court's discretion. State v. Fierro, 124 Az. 182, 603 P.2d 74 (1979); Dixon v. State, 597 S.W.2d 77 (Ark. 1980); Daniels v. State, 381 So. 2d 707 (Fla. Dist. Ct. App. 1979); Wilkie v. State, 153 Ga. App. 609, 266 S.E.2d 289 (1980); State v. Griffiths, 101 Idaho 163, 610 P.2d 522 (1980); People v. Campbell, 77 Ill. App. 3d 804, 396 N.E.2d 607 (1979); Gary v. State, 400 N.E.2d 215 (Ind. App. 1980); State v. Reed, 226 Kan. 519, 601 P.2d 1125 (1979); State v. Goyette, 407 A.2d 1104 (Me. 1979); Commonwealth v. White, 1980 Mass. App. Ct. Adv. Sh. 814, 403 N.E.2d 948 (1980); People v. Jones, 95 Mich. App. 390, 290 N.W.2d 154 (1980); State v. Jones, 594 S.W.2d 932 (Mo. 1980); State v. Fulton, 299 N.C. 491, 263 S.E.2d 608 (1980); State v. Benton, 413 A.2d 104 (R.I. 1980); State v. Jones, 273 S.C. 723, 259 S.E.2d 120 (1979); Chavez v. State, 604 P.2d 1341 (Wyo. 1979).

13. A litigant objecting to improper admission or exclusion of expert testimony must demonstrate an abuse of discretion by the trial court to gain reversal. State v. Stoops, 4 Kan. App. 2d 130, 603 P.2d 221 (1979); *see* State v. Gentry, 123 Ariz. 135, 598 P.2d 113, 115 (Ct. App. 1979).

14. State v. Morgan, 299 N.C. 191, 261 S.E.2d 827, 835-836 (N.C. 1980) (cause of individual's death is proper subject for expert testimony). The court cites Comment, *Expert Medical Testimony, Differences Between the North Carolina Rules and Federal Rules of Evidence*, 12 WAKE FOREST L. REV. 833 (1976).

15. In Smith v. State, 564 P.2d 1194, 1199-1200 (Wyo. 1977), a medical doctor was not qualified to testify concerning his opinion of defendant's state of mind at the time of the offense because he was not present at the commission of the crime and had no first hand knowledge of the accused's state of mind at the time. *Accord* Dawson v. State, 84 Nev. 260, 439 P.2d 472 (1968); *cf.* State v. Craig, 82 Wash.2d 777, 514 P.2d 151 (1973).

16. 609 S.W.2d 762 (Tex. Crim. App. 1980).

17. Smith v. State, 540 S.W.2d 693 (Tex. 1976).

pathologist was not qualified as an expert witness in the field of human behavior and was not acquainted with the defendant so as to be qualified as a lay witness.

Trial counsel should keep in mind that not all pathological investigation is conducted by highly qualified medical experts.[18] Further, the trial court has discretion to admit nonpathologist testimony on matters essentially within the particular expertise of the pathologist.[19] Thus, the quality of examination, expertise and testimony may vary. Most urban areas will be served by a medical examiner's office[20] or a forensic pathologist; rural areas may not have these resources and the actual autopsy may be conducted by a general practitioner or surgeon whose experience in such procedures is limited. The use of a nonpathologist expert presents the greatest potential for introducing conflicting expert testimony. Even when contradiction is not present, counsel may identify deficiencies in training and experience, irregularities in procedure, and hypothetical alternative conclusions to limit the impact of the expert's opinions.[21]

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18. In Riggle v. State, 585 P.2d 1382, 1387-88 (Okla. Crim. App. 1978), the court held that a recent graduate of a college of osteopathic medicine, lacking experience as a practicing physician or a license from the state to practice, could render an opinion based on his examination of a homicide victim's body. The trial court did not abuse discretion in admitting the testimony, because the witness possessed the requisite minimal qualification to testify, even though he had graduated just five days prior to conducting the examination, relying on Harvell v. State, 395 P.2d 331, 340-341 (Okla. Cr. 1964). *Cf.* State v. Jones, 95 Ariz. 230, 388 P.2d 806, 808 (1964) (unlicensed physician competent, in part because of prior practice in another jurisdiction. Evidence showed physician was medical school graduate, had completed internship and partial residence and had practiced medicine for one and one half years in another jurisdiction).

19. A physician who was not a forensic pathologist was qualified to testify concerning the number of shotgun wounds sustained by the victim, over objection of defense counsel that he was not an expert. State v. Barnhart, 587 S.W.2d 308 (Mo. App. 1979). *Cf.* Holt v. State, 84 Okla. Cr. 283, 181 P.2d 573 (1947) (lack of training in pathology or practical experience may be proper subjects to attack credibility of testifying expert).

20. The history and development of the office of coroner or medical examiner is chronicled in Shapiro, *Forensic Medicine: Legal Responses to Medical Developments*, 22 N.Y.L. SCH. L. REV. 905-24 (1977).

21. Deficiencies in the testimony of the expert, once qualified, will affect the weight but not the admissibility of the testimony. *E.g.* McGee v. State, 614 P.2d 800, 807 (Alaska 1980) (expert qualified not on ballistics, but on tool mark identification); State v. Torres, 60 Hawaii 271, 589 P.2d 83, (1978).

Cross-examination may be predicated on conflict between the expert and published authorities in the field. Michigan has adopted a policy of permitting impeachment of expert testimony with scholarly treatises and other works by recognized experts. Michigan Rule of Evidence 707 (1978) provides:

> To the extent called to the attention of an expert witness upon cross-examination or relied upon him in direct examination, statements contained in published treatises, periodicals or pamphlets on a subject of history, medicine, or other science or art,

Even the most qualified expert may be cross-examined on the basis of hypothetical questions or alternative conclusions, although the conclusion could not be exacted with certainty on direct examination.[22] For example, alternative explanations for the cause of death,[23] such as accident, suicide[24] or natural causes, may be plausible in a homicide prosecution. In such cases, the expert's equivocation may provide grounds for an instructed verdict, acquittal or, ultimately, reversal on grounds of insufficient evidence.[25]

Counsel also should realize that the testifying expert may not have performed the autopsy personally.[26] In large forensic science centers, medical examiner's offices and hospital pathology departments, a number of pathologists share the duty of performing autopsies on a rotating basis. Results of the examination are presented in a formal autopsy report[27] that is adopted or rejected by the nonex-

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established as a reliable authority by the testimony or admission of the witness or by other expert testimony or by judicial notice, are admissible for impeachment purposes only.

22. "The pathologist . . . very early in his forensic practice will encounter cases in which no convincing cause of death is found." Jaffe, *Some Limitation of the Medico-Legal Post-Mortem Examination*, 17 CRIM. L.Q. 178, 187 (1974-75).

23. Existence of an intervening factor that caused death, but was unconnected with the defendant, will provide a defensive theory. People v. Gulliford, 86 Ill. App. 3d 237, 407 N.E.2d 1094, 1097-99 (1980) (the defendant argued death caused by negligence of physician treating victim based on pathologist's opinion that the immediate cause of death was pneumonia and proximate cause of death was victim's comatose state. The latter was attributable to defendant's blow to victim's head with a metal pipe. The treating physician testified that the injury to the brain impaired the neurological function which controls breathing, resulting in development of the pneumonia).

24. Any competent evidence that the victim caused his own death is admissible in a murder prosecution. People v. Taylor, 112 Cal. App. 3d 348, 169 Cal. Rptr. 290, 298-300 (1980) construing CAL. PENAL CODE, §§ 187-189 and CAL. EVID. CODE §§ 352, 1250 (defendant was entitled to present defense based on victim's suicide through statements of victim that he wished to die and overdosed on heroin. Cause of death was heroin overdose).

25. Proof of cause of death, or proof that the accused caused the death where the exact cause of death cannot be ascertained, constitutes an element of the offense that should be proved beyond a reasonable doubt. Jackson v. Virginia, 443 U.S. 307 (1979). Evidentiary failure on this element should constitute grounds for reversal, requiring acquittal. Greene v. Massey, 437 U.S. 19 (1978); Burks v. United States, 437 U.S. 1 (1978).

26. In Mahaffey v. State, 471 S.W.2d 801, 803-04 (Tex. Crim. App. 1971), the court held that it was not an abuse of discretion to permit the pathologist to testify, even though his predecessor had performed the autopsy and the testifying expert did not participate in the procedure. The testifying expert based his opinion that the deceased died of a bullet wound on the autopsy report that had been admitted before the court, but not the jury. *See also* Whitfield v. State, 492 S.W.2d 502 (Tex. Crim. App. 1973); Neely v. State, 409 S.W.2d 552 (Tex. Crim. App. 1966).

27. Under Texas law, the autopsy report is a public record. TEX. CODE CRIM. PROC. ANN., art. 49.25 § 11 (Vernon 1979). The report is admissible as a public record, or as a business record, and may provide the only evidence of cause of death in the absence of a

amining members of the department.

The practical consequence of sharing this responsibility is that an expert other than the pathologist who actually performed the autopsy may testify at trial. In a series of cases involving this situation, the Texas Court of Criminal Appeals concluded that a pathologist who did not participate in the autopsy may testify to findings in the report completed by the pathologist who conducted the post-mortem examination.[28] Counsel should be aware, however, that an expert may not testify as to the conclusions of another expert.[29] In this situ-

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defense subpena for the medical examiner or pathologist who prepared the report. Burleson v. State, 585 S.W.2d 713 (Tex. Crim. App. 1979), construing the Texas business records statutes, TEX. REV. CIV. STAT. ANN. art. 3737e and 3731a (sec. 1) (Vernon 1979).

Wisconsin permits an expert to read a report into the record. WIS. STAT. ANN. § 907.07 (West Cum. Supp. 1979) provides: "An expert witness at the trial may read in evidence any report which he made or joined in making except matter therein which would not be admissible if offered as oral testimony by the witness. Before its use, a copy of the report shall be provided to the opponent."

28. Viser v. State, 396 S.W.2d 867 (Tex. Crim. App. 1965) (associate medical examiner permitted to testify to report of pathologist who performed the autopsy.) In Burrell v. State, 446 S.W.2d 323 (Tex. Crim. App. 1969), the court held that a doctor may testify from a report made by another physician if the latter is not available to testify in person. The partner of the pathologist who prepared the autopsy report was allowed to testify as to the findings previously filed with the judge. *See also* Cato v. State, 534 S.W.2d 135 (Tex. Crim. App. 1976). Similarly, in Denny v. State, 558 S.W.2d 467 (Tex. Crim. App. 1977), the justice of the peace ordered an autopsy after an inquest and the designated pathologist filed his report with the justice court. At trial, his partner was permitted to testify even though he had not conducted the exam, seen the body or examined its tissue. The court also ruled no abuse of discretion was committed in Garcia v. State, 581 S.W.2d 168, 177-78 (Tex. Crim. App. 1979), where the pathologist testified concerning a bullet retrieved by another pathologist, based on findings recorded in the morgue ledger book, which was established as a business record.

29. The rule precludes the reliance of one expert on the conclusions, as opposed to findings, of another expert. In Forney v. Memorial Hosp., 543 S.W.2d 705, 709 (Tex. Civ. App. 1976), the expert was permitted to testify as to the cause when he testified that he had reviewed the opinion of another expert and the record of the patient's EKG, and formed his own conclusion without relying on the other opinion. *Accord* Goodrich v. Tinker, 437 S.W.2d 882 (Tex. Civ. App. 1969) (holding expert opinion based on reports or records made by other experts inadmissible unless the reports or records relied upon have been admitted into evidence); Muro v. Houston Fire & Casualty Ins. Co., 329 S.W.2d 326 (Tex. Civ. App. 1959), (holding that testimony of expert based on conclusions of other experts constitutes hearsay and lacks probative value, even in absence of objection); A ballistics expert may not testify from the conclusions of another ballistics expert, but could base his conclusions on test results; *see* People v. Ferrell, 613 P.2d 324, 327 (Colo. 1980). In Kent v. State, 374 S.W.2d 671 (Tex. Crim. App. 1963), a chemist under supervision of another chemist could generate findings forming the basis for the latter's testimony from records of the findings. *Accord* Green v. State, 451 S.W.2d 393 (Tex. Crim. App. 1970). An expert may also give an expert opinion based on facts admitted or proven by any party, or on reports admitted into evidence. Commonwealth v. Haddle, 271 Pa. Super. 418, 413 A.2d 735, 738 (1979). *Cf.* United States v. Williams, 431 F.2d 1168, 1172 (5th Cir. 1970) ("The fact that his testimony was admitted in the form of an expert's opinion does not by some magical legerdemain remove the stigma of inadmissible hearsay.")

ation, counsel should consider cross-examination based on conclusions or factual findings with which the testifying expert may only generally concur.[30] Further, when counsel is unable to counter the opposing expert's conclusion with conflicting expert testimony, the report itself may suggest alternate avenues of cross-examination.

II. THE AUTOPSY REPORT

The autopsy report contains a variety of information, including the examiner's conclusion as to the cause of death.[31] When the fact of death is the only matter which must be proved, an autopsy report or pathologist's testimony is usually unnecessary at trial. The fact may be established by a death certificate signed by an attending physician, medical examiner, coroner, or in some jurisdictions, even by a

30. The cross-examiner may suggest alternative explanations that are medically plausible through hypothetical questions posed to the expert, which are based on evidence in the record. *See* State v. Cunningham, 23 Wash. App. 826, 598 P.2d 756, 772-773 (1979), *rev'd on other grounds*, 93 Wash. 2d 823, 613 P.2d 1139 (1980). Even if the expert should provide an unequivocal answer based on the hypothetical, the jury is not bound by the conclusion. *See* State v. Ward, 374 So. 2d 1128, 1129-30 (Fla. App. 1979) (State's hypothetical question to testifying neurologist would not bind jury to answer where neurologist testified defendant was probably suffering epileptic seizure while driving when involved in fatal accident resulting in defendant being charged with vehicular homicide). The hypothetical question must be based on facts properly established by the evidence, as well. Fort Worth & Denver Ry. Co. v. Janski, 223 F.2d 704 (5th Cir. 1955); Continental Ins. Co. v. Marshall, 506 S.W.2d 913 (Tex. Civ. App. 1974).

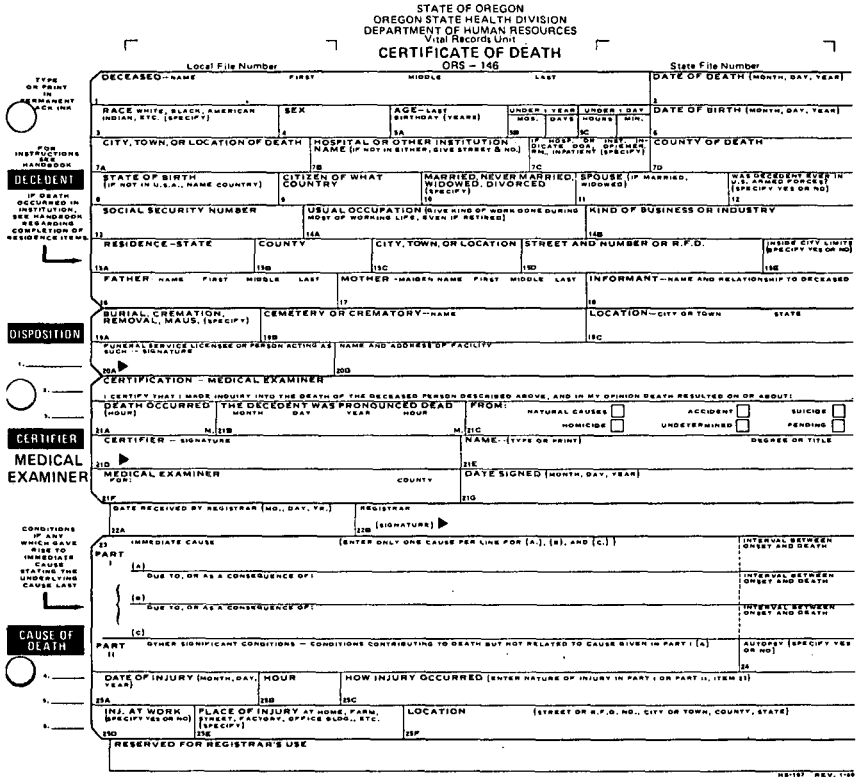
31. One reason for the significant amount of information available in the autopsy report is that the officer charged with investigating violent or unexplained deaths is authorized to use necessary procedures to determine the cause of death. Gardner v. Meyers, 491 F.2d 1184, 1188-89 (8th Cir. 1974); *In re* Bernardi, 132 Ill. App. 2d 186, 267 N.E.2d 717 (1971); *See also* Davis v. Texas Employers' Ins. Ass'n, 516 S.W.2d 452, 454 (Tex. Civ. App. 1974).

justice of the peace who has no medical training or qualification.[32]

The death certificate may be admissible as a public record,[33] but will usually be lacking in probative value as to the cause,[34] rather than the fact, of death. These limitations in the death certificate prompted the court in *Commonwealth v. Bastarche*,[35] to hold that the

32. Under Texas law, an elected justice of the peace who is not required by statute to be an attorney, has statutory authority to pronounce death, hold an inquest and appoint a medical specialist to perform an autopsy. Denny v. State, 558 S.W.2d 467 (Tex. Crim. App. 1977); *Davis,* 516 S.W.2d at 456. *Cf.* MD. CODE ANN. art. 22, §§ 6, 9 (Michie, 1982 cum. supp.) (statutory duty of medical examiners to investigate "essential facts concerning medical causes of death").

33. This is a sample Oregon Death Certificate:


STATE OF OREGON
OREGON STATE HEALTH DIVISION
DEPARTMENT OF HUMAN RESOURCES
Vital Records Unit
CERTIFICATE OF DEATH
ORS – 146

Local File Number — State File Number

DECEASED—NAME (FIRST, MIDDLE, LAST) — DATE OF DEATH (MONTH, DAY, YEAR)

RACE (WHITE, BLACK, AMERICAN INDIAN, ETC. [SPECIFY]) — SEX — AGE—LAST BIRTHDAY (YEARS) — UNDER 1 YEAR (MOS., DAYS) — UNDER 1 DAY (HOURS, MIN.) — DATE OF BIRTH (MONTH, DAY, YEAR)

CITY, TOWN, OR LOCATION OF DEATH — HOSPITAL OR OTHER INSTITUTION—NAME (IF NOT IN EITHER, GIVE STREET & NO.) — IF HOSP. OR INST., INDICATE DOA, OPD, EMER., OR INPATIENT (SPECIFY) — COUNTY OF DEATH

DECEDENT

STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY) — CITIZEN OF WHAT COUNTRY — MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY) — SPOUSE (IF MARRIED, WIDOWED) — WAS DECEDENT EVER IN U.S. ARMED FORCES? (SPECIFY YES OR NO)

SOCIAL SECURITY NUMBER — USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED) — KIND OF BUSINESS OR INDUSTRY

IF DEATH OCCURRED IN INSTITUTION, SEE HANDBOOK REGARDING COMPLETION OF RESIDENCE ITEMS

RESIDENCE—STATE — COUNTY — CITY, TOWN, OR LOCATION — STREET AND NUMBER OR R.F.D. — INSIDE CITY LIMITS? (SPECIFY YES OR NO)

FATHER—NAME (FIRST, MIDDLE, LAST) — MOTHER—MAIDEN NAME (FIRST, MIDDLE, LAST) — INFORMANT—NAME AND RELATIONSHIP TO DECEASED

DISPOSITION

BURIAL, CREMATION, REMOVAL, MAUS. (SPECIFY) — CEMETERY OR CREMATORY—NAME — LOCATION—CITY OR TOWN, STATE

FUNERAL SERVICE LICENSEE OR PERSON ACTING AS SUCH—SIGNATURE — NAME AND ADDRESS OF FACILITY

CERTIFICATION – MEDICAL EXAMINER

I CERTIFY THAT I MADE INQUIRY INTO THE DEATH OF THE DECEASED PERSON DESCRIBED ABOVE, AND IN MY OPINION DEATH RESULTED ON OR ABOUT:

DEATH OCCURRED (HOUR, MONTH, DAY, YEAR) — THE DECEDENT WAS PRONOUNCED DEAD (HOUR, MONTH, DAY, YEAR) — FROM: NATURAL CAUSES, ACCIDENT, SUICIDE, HOMICIDE, UNDETERMINED, PENDING

CERTIFIER

CERTIFIER – SIGNATURE — NAME—(TYPE OR PRINT) — DEGREE OR TITLE

MEDICAL EXAMINER

MEDICAL EXAMINER — COUNTY — DATE SIGNED (MONTH, DAY, YEAR)

DATE RECEIVED BY REGISTRAR (MO., DAY, YR.) — REGISTRAR (SIGNATURE)

CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST

CAUSE OF DEATH

PART I — IMMEDIATE CAUSE (ENTER ONLY ONE CAUSE PER LINE FOR (A), (B), AND (C).) — INTERVAL BETWEEN ONSET AND DEATH
(a) DUE TO, OR AS A CONSEQUENCE OF:
(b) DUE TO, OR AS A CONSEQUENCE OF:
(c)
PART II — OTHER SIGNIFICANT CONDITIONS – CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a) — AUTOPSY (SPECIFY YES OR NO)

DATE OF INJURY (MONTH, DAY, YEAR) — HOUR — HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 25)

INJ. AT WORK (SPECIFY YES OR NO) — PLACE OF INJURY AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC. (SPECIFY) — LOCATION (STREET OR R.F.D. NO., CITY OR TOWN, COUNTY, STATE)

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34. Combined Am. Ins. Co. v. McCall, 497 S.W.2d 350 (Tex. Civ. App. 1973); *see also supra* note 1.

35. 1980 Mass. Adv. Sh. 2465, 414 N.E.2d 984, 997 (1980). The court did rule that autopsy photographs of the victim's skull and brain were admissible even though they were "inflammatory, graphic, and grisly" because they supported Commonwealth's theory of the case. The court discussed at length the admissibility of such photographs in affirming the court of appeals on this point.

jury should not have been permitted to see the statement on a death certificate indicating the cause of death as "homicide." The prejudicial impact of this information substantially outweighs its probative value and, in absence of the opportunity to qualify and cross-examine the individual advancing this opinion, constitutes hearsay. Even if the notation as to cause of death is made by a qualified expert, introduction of the certificate as evidence of causality would still be subject to objection on the basis of denial of confrontation.[36]

In contrast to the certificate of death, the autopsy report possesses probative value as to the cause of death.[37] The report records the findings of the pathologist or other physician performing the examination.[38] While peculiarities may characterize the work methods of different pathologists or institutions, the procedure should in all cases reflect the "state of the art."[39] When the report reflects a criti-

36. A statutory distinction between admissibility of the death certificate and the autopsy report may exist. The latter will contain the results of tests and findings from physical examination that will, ideally, support the conclusions of the performing pathologist. The death certificate, however, will usually not provide a factual basis for the conclusions of its author and thus, cross-examination of the author will be of critical importance in ascertaining whether the conclusions have an adequate factual basis. Nonavailability for cross-examination of the pathologist that performed the autopsy may be grounds for a continuance, if defense counsel made timely application for subpena of the pathologist prior to trial. Burleson v. State, 585 S.W.2d 711 (Tex. Crim. App. 1979).

37. *Id.* at 712-13. The report may provide the only evidence of cause of death at trial, where admitted as a public record.

38. For an overview of the pathologist's duties, see Bucklin, *supra* note 8.

39. Sample testimony from the direct examination of the pathologist in State v. Blea, No. 14,559 (N.M. Supreme Court, appeal filed) relates a typical procedure involved in forensic autopsy:

> Q: Doctor, could you briefly explain to us what the procedures are that are followed when you have a suspected homicide or something of that nature?
>
> A: All of the autopsies performed at the State Medical Examiner's Office are performed in roughly the same fashion with some minor modifications. The autopsy first starts as we receive the body which is usually sealed in a plastic body bag and has been sealed across the top of the zipper by a piece of paper by the individual who is responsible for receiving the body or removing the body from the scene of the alleged crime or the scene where the body was found. We document and begin a dictated protocol at that point which is carried throughout the entire autopsy. The first part of this protocol involves dictating the external appearance of that bag and the evidence seal, as I have just mentioned. Photographs are taken of this, as well as photographs—photographs are also taken throughout the course of the autopsy. Next, we open the autopsy bag and immediately look for trace evidence in the form of small fibers or hairs, pieces of glass or paint which might be on the body and would be disturbed if we went ahead and disrobed the body. These are removed and sealed into evidence. Following this the body is removed from the plastic bag and placed on an autopsy table. At this point the body is carefully disrobed and the clothing is very carefully

cal departure from standard procedure,[40] the conclusions may be impeached in their entirety, although this will almost certainly require conflicting expert testimony.

A party offering expert testimony based on the report may choose not to offer the report into evidence.[41] One reason for limiting proof to oral testimony might be to conceal contradictory or issue-generating matter found in the report itself.[42] In such a case,

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dictated into the protocol, that is, the appearance, color, nature of the clothing, any defect in the clothing or other aspect of the clothing which might help in further investigation. Following this, the body is carefully weighed and measured. The next portion involves dictation of the external condition of the body, including all potential bloodstains, the color of the hair, the eyes, routine features, as well as any other general characteristics of the body. Following this the body is cleaned up. Blood or other extraneous material on the body is removed and we search for identifying marks and scars. There we're looking for particularly distinctive surgical scars, for tattoos, for missing digits or limbs, or other items which might help us in our identification. Following this we also look for evidence of therapy—that is, are there any tubes or lines extruding from the body which were used in an attempt to resuscitate the individual before he died. Next we go over the body carefully looking for external evidence of injury, documenting all bruises, cuts, all injury patterns that are present externally. In addition, these are measured, dictated into the protocol as well as photographed. Next, we perform a complete internal examination. This involves opening the body cavities—the thorax or chest and the abdominal cavity or belly—and removing all the organs and very carefully examining them and correlating them back to what we saw externally in terms of possible therapy and injury. In addition, we remove the top of the scalp and remove the brain and examine it. Small portions of each of these organs are then saved and placed in formaldehyde for preparation of small glass microscopic slides that we can look at later under the microscope to further aid in our diagnosis. In addition, samples of the individual's blood, his gall bladder fluid—bile, fluid from the eye, also known as vitreous, and from the bladder or urine are saved in special tubes and submitted for analysis of foreign substances, such as alcohol or drugs or other items. We then take the protocol as results from this examination and correlating back with facets of the investigation—the results of the toxicological examination, the results of the microscopic examination and discussion with the investigative officers—form a final protocol which includes all of the information that I have described and sign out the case as to the cause and manner of death.

Q: Doctor, when you use the term "protocol" what exactly do you mean by that?

A: "Protocol" is simply a written log which is typed from our dictated word at the autopsy to give us a complete and permanent record of what we did during the autopsy and what we found.

40. In State *ex rel* Murray v. Shanks, 27 Wash. App. 363, 618 P.2d 102, (1980), the court held that when bias on the part of the coroner is demonstrated, the trial court can appoint the prosecutor as an alternative official to redetermine the cause of death.

41. Oral expert testimony is sufficient to establish expert opinion without test result proof.

42. Conversely, in Ellis v. State of Oklahoma, 428 F. Supp. 254, 255 (D. Okla. 1976), the court recognized that stipulation to admission of the autopsy report and to testimony of medical examiner was a legitimate trial tactic to limit testimony concerning the "gruesome" nature

opposing counsel may offer the report defensively, because the admitted report can accompany the jury into deliberations, whereas oral testimony is available only through the individual recollection of each juror.

Several theories may be advanced for admission of the report, and counsel should be aware of pitfalls of inadequate trial preparation. First, when the report is deemed a public record, its admissibility is governed by statute.[43] Because the report is a matter of public record, it will be difficult for counsel to argue surprise if opposing counsel offers the report, or if the prosecutor fails to produce the report in response to a pretrial discovery motion. Second, when expert testimony is predicated on or involves review of the findings in the report, the report may be introduced as a business record. In the event the report contains important defensive matter, opposing counsel should be prepared to offer the report. If counsel is not prepared to offer the report, inquiry should be directed at use of the report to refresh the memory or recollection of the testifying expert;[44] counsel then may be entitled to examine the report prior to cross-examination and may offer the report to impeach the testimony of the expert.[45] The success of this approach may be limited when the testifying expert did not conduct the autopsy or prepare the report, because contrary conclusions in the report will not bind the testifying expert at trial.[46]

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of the act. Stipulation to cause of death, however, does not necessarily preclude the State from offering evidence to prove that element of the offense. See People v. Kuntz, 52 Ill. App. 3d 84, 10 Ill. Dec. 628, 368 N.E.2d 114 (1977).

43. *See, e.g.*, TEX. CODE CRIM. PROC. ANN. art. 49.25, §§ 9, 11 (Vernon 1978).

44. A report used to refresh memory is generally available to the opposing party. FED. R. EVID. 612 provides, in part:

> Except as otherwise provided in criminal proceedings by Section 3500 of title 18, United States Code, if a witness uses a writing to refresh his memory for the purpose of testifying, either (1) while testifying or, (2) before testifying . . . an adverse party is entitled to have it produced at the hearing, to inspect it, to cross-examine the witness thereon, and to introduce in evidence those portions which relate to the testimony of the witness.

45. Additionally, counsel should be aware that when results are not generally available and would be exculpatory to the accused, a motion for the exculpatory results of tests and examinations should be requested. *See* Brady v. Maryland, 373 U.S. 83 (1963). Generally, discovery procedure should be available in civil actions to seek the results of any tests or examinations performed by experts, unless these are subject to restriction of the "work product" rule. *See generally* Hickman v. Taylor, 329 U.S. 495 (1947). An excellent discussion of use of the report to refresh the recollection of a witness and availability to the opponent appears in 3 WEINSTEIN § 612[04] at 612-32 through 612-42.

46. Because the admissibility of the expert opinion requires the expert to arrive at his

III. CONTENTS OF THE AUTOPSY REPORT

Proper use of the autopsy report at trial requires: (1) an understanding of the information routinely available in the report;[47] and (2) the development of a technique that allows counsel to use what appears to be extraneous information to impeach or dilute the expert's direct testimony.

A. General Characteristics and Possible Uses of the Report

Typically, the report will include information describing the condition of the body at the time the examination is performed.[48]

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conclusions based on review of the pertinent data or test results, a contrary conclusion will not bind the testifying expert.

47. The form of autopsy or postmortem reports may vary from one pathology department or medical examiner's office to another. Generally, all reports will contain basic information such as the date of death, date of the autopsy, and identification of the physician(s) actually performing the examination.

48. The descriptive information may include reference to the type of clothing found on the body, any specific physical evidence found in or on the clothing or body, and a general summary of the appearance of the body. For example, an actual report included the following description:

> The body is that of a well nourished, well developed Latin-American male who appears the previously stated age of 31 years. It is clothed in a blue acrylic sweater which covers the neck, left arm and is covering the right hand. The chest, right arm and back are not covered by the sweater. There is a pair of blue jeans with brown belt, red tennis shoes, and brown socks clothing the remaining portions of the body. Beside the body is a green military type jacket with the inscription "Jiminez" over the right top pocket. In the right lower pocket of the jacket is a red religious calling card and two nickels. Two quarters are found in the left lower pocket of the jacket. The money is given to the officer for proper disposition. There are two keys, one of which appears to be a General Motors car key, on a link chain attached to a belt loop and placed into the left front pocket of the jeans. The clothing and personal items are placed in a bag and turned over to the officer.
>
> The body is 63 1/2 inches in length. The head is normocephalic and covered with long black hair. No scalp lesions or wounds are present. Pupils are equal and each measures 6 mm. in diameter. Aqueous humor is removed from each eye for analytical studies. Blood is present in the left nostril and the mouth is closed with the teeth biting the anterior portion of the tongue. There is a black mustache. There is marked rigor mortis of the body with livor mortis over the face and shoulders. The left arm is flexed at the elbow and wrist and was previously stated by the police officer to have been hanging off the car seat. There is mottled liver mortis over the upper portion of the right arm and the nail beds of both hands are quite dusky. There is a tattoo "MJ" on the lateral dorsal aspect of the left forearm approximately 5 cm. below the antecutial fossa. A 0.8 x 0.8 old crusted lesion on the dorsum of the hand is present. There is no edema or discoloration of the lower extremities. An 1.0 cm. polypoid skin lesion is noted on the left inner thigh at the level of the scrotum. There is diffuse scarring over the right knee and an old well healed 1 cm. scar on the mid-anterior right thigh. A rectal temperature of 22 degrees C. (81.6 degrees F.) is recorded.

The time of examination itself may be significant, because deterioration of the body may render some conclusions and observations of the performing physician less reliable than if the autopsy had been performed immediately following death.

The report should provide descriptive and empirical data relating to the entire body and individual organs examined during the autopsy.[49] General remarks concerning the appearance and age of the individual will be supplemented by precise measurements of height and gross weight of the deceased.[50] This information may prove important in impeaching witnesses concerning the size of the

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This medico-legal autopsy involved an individual who died of pulmonary edema and congestion and whose blood alcohol was 299 mg%. The deceased was reported to have been drinking heavily with friends who put him in his car to "sleep off" his intoxication. Police investigating the death considered charging the friends with negligent homicide, but subsequently decided not to prosecute. The report suggests that the state of the deceased's undress at the time his body was found is "intriguing" and refers to Wedin & Hirvonen, *Paradoxical Undressing in Fatal Hypothermia*, FORENSIC SCI. 24:543 (1979). Had the State prosecuted the friends based on negligence for placing the deceased in his car, defense counsel on cross-examination could have relied on the report to demonstrate the deceased may have been left in a fully clothed state, but that he removed his own clothes, contributing to or causing his own death—the "paradoxical undressing" mentioned in the report. Further, the blood alcohol level supports the defensive theory that the direct cause of death was the deceased's self-indulgence, leading to stupor and inability to prevent his own death.

49. Usually, the report will include an organ-by-organ, system-by-system summary of those internal parts of the body examined. The report may include a sequence of summaries covering the respiratory system, cardiovascular system, gastrointestinal system, hepatobiliary system, musculoskeletal system and central nervous system. The report may also include specific information concerning the gross weight and description of individual organs examined. The following description of the heart of an elderly individual suffering from end stage arterial nephrosclerosis with renal failure, who died as an immediate result of severe bronchiolotis obliterans and acute pneumonia, is taken from the postmortem report:

> The heart weighs 410 grams and has an unremarkable external surface and contour. The coronary arteries are serially sectioned and there is severe atherosclerosis with calcification and complete occlusion of the left anterior descending artery approximately 3 cm. from the left coronary ostia. Further dissection of the left anterior descending artery reveals luminal narrowing varying from 60% to 80%. The right coronary artery is serially sectioned from the coronary ostia and is the dominant vessel. It is only focally involved by atherosclerosis with minimal luminal narrowing. The circumflex artery is anatomically very small and there are no emboli or thrombi upon serial sectioning. The heart is then sectioned serially from apex to base and there is fibrosis and scarring in the anterior wall. There are recent small areas of subendocardial infarction in the posterior wall. The chambers are of normal size and the left and right ventricular wall thicknesses are unremarkable. Sections of the thoracic and abdominal cavities reveals severe atherosclerosis with focal ulcerating plaques in both the thoracic and abdominal portions. The wall of the artery is extremely calcified. The renal arteries are patent but are extensively atherosclerotic.

50. Particularized information concerning the appearance of the deceased, such as presence of a mustache, may be important in characterizing or identifying the deceased. Often, the information may be unique to the deceased, such as the presence of a particular tattoo. In-

deceased when compared to the size of an accused.[51] Moreover, the measurements may provide the jury with an accurate picture of the deceased, thereby minimizing evidence of some characteristic assumed to be related to the death. In an industrial accident case, for example, portrayal of the deceased as a "large" individual may convey the concommitant characteristic of strength, minimizing an apparent danger in the workplace.

Some medical examiner's offices routinely photograph the body to supplement the written report.[52] The photographs commonly depict the location, position and condition of the body at the scene where initially discovered, the general condition of the body upon examination, and particularly, the wounds and their location on the body.[53] The initial photographs may be taken by a field investigator employed by the medical examiner's office to conduct an initial investigation. When this is done, counsel should attempt to discuss with the investigator any theory of the circumstances of the offense he may have formulated. This helps gather all data which may support the opposing counsel's theory at trial and, also, helps to find support for defensive theories which may emerge during the preparation of the case.

Descriptive and empirical findings regarding internal organs may reveal other characteristics material to an explanation of the deceased's behavior to impeach witnesses.[54] A demonstrated severe pulmonary or cardiac disorder may suggest an alternative explanation for inability to perform a specific task. Evidence of disease af-

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deed, one report of an actual autopsy stated: "There is a gold restoration in the shape of a heart in the left upper incisor."

51. Often the relative sizes of the accused and deceased will prove significant in determining which was the probable aggressor, or whether force used by one was disproportionate to the size and threat posed by the other. In one murder prosecution that resulted in a second degree murder currently pending in the New Mexico Court of Appeals, the State argued in its brief that refusal of a lesser included offense instruction on voluntary manslaughter was not trial court error, in part because: "The pathologist who performed the autopsy on the victim testified he was about 5' 7" and 155 lbs. (Tr. 61). Defendant testified that he was 6' 6" or 6' 7" (Tr. 296, 9)." State v. Jackson, — NM —, 660 P.2d 120 (1983), 660 P.2d 120 (1983) (Brief for the State, at page 1).

52. *See, e.g.*, sample testimony reprinted *supra* note 39.

53. Admissibility of photographs taken in conjunction with the postmortem examination is generally a matter vested in the trial court's discretion. *See* Commonwealth v. Bastarche, 1980 Mass. Adv. Sh. 2465, 414 N.E. 2d 984 (1980).

54. In State v. Jackson, No. F81-305931 (Dallas County Criminal District Court 1981), the autopsy report on the deceased showed that the lungs contained "talc and cellulose granulomata within the interstitium." The conclusions in the report referred to these findings as consistent with "repeated injections of illicit drugs into the veins."

fecting organ function may be dispositive of the cause of death in an industrial accident case, negating the claim of accidental injury. Unreasonable or erratic behavior traced to abnormality or disease of the brain or nervous system may explain the deceased's behavior in terms other than wilfulness. Where such behavior forms an element of the defense theory, as might be the case in a self-defense argument in response to a charge of murder,[55] counsel may use the report to elicit supporting testimony from an otherwise unsympathetic expert.

It is important for counsel forced to cross-examine the expert to remember that matters collateral to direct testimony may be significant in developing the defense. Even if the expert is called only to testify as to the actual cause of death, inquiry into collateral matters supporting the defensive theory[56] may be critical to a credible presentation of that theory. The possible limitation on the scope of cross-examination in this respect may pose a serious problem, depending on the individual trial judge's interpretation of the scope of cross-examination. Counsel should thoroughly evaluate forcing the proponent to open the door to a broader examination on cross and justifying the expanded scope of questioning as a means of impeaching or explaining the substance of the expert's conclusions.

In addition to a justified collateral inquiry into the source of the testifying expert's conclusions, a second significance may attach to collateral issues raised in the report. For example, discrediting the deceased by inquiry into evidence of substance abuse may enhance the jury's view of the client and the client's credibility.[57] Also, the collateral inquiry might legitimately focus on evidence of disease or disorder posing a statistically significant prospect for shortened

55. In *Jackson, id.* the State's theory of the offense was that the defendant had killed the deceased in a fight over a marijuana cigarette. The defense used the information contained in the autopsy report and an additional finding, that there were multiple linear, needle track-type scars in the left antecubital fossa, ranging in length from 3/4 to 2 1/2 inches and there was no evidence of recent aggression and characterized the deceased as a long-time drug user and the actual aggressor in the assault. Defense counsel also elicited testimony from the pathologist concerning the effect of prolonged drug use on users to show psychological tendency to have engaged in aggressive conduct over illicit drugs. *Id.*

56. The type of collateral matter contemplated might be inquiry into effects of drug usage on individuals, depending on the defensive need to characterize the decedent as aggressive or irritable, or the accused as withdrawn or placid. Since the pathologist will typically have training in toxicology and pharmacology, this type of examination is often within his training and experience as an expert. Additionally, toxicological testing is often an integral part of the total postmortem examination and specific examination regarding test results may prove significant in demonstrating intoxication or presence of drugs affecting behavior or range of physical activity. *See, e.g., Jackson, id.*

57. See the example presented *supra* note 54.

life.[58] Indeed, evidence of coronary disease suggesting a high probability of heart failure may rebut the impression that the deceased has been "cheated" out of his normal life expectancy. This testimony may be actuarially important in determining damages for lost income and support in a wrongful death action.[59] It may also result in mitigate the impact of a criminal homicide when weighed against the merits of a claimed defense, even though the inference may have no legitimacy except in the jury's deliberations.

The single most important finding in the report will almost always relate to the cause of death.[60] The examination will likely reveal wounds or injury to the body or other abnormalities not a result of natural deterioration.[61] The pathologist will generally be able to

58. Evidence of severe coronary atherschlerosis may suggest imminent heart attack or shortened life span and will generally be revealed in the autopsy. For example, one 37 year old murder victim who was beaten to death and then burned, *supra* note 64, see Insert D, was demonstrated to have "severe two vessel coronary artery disease with up to 90% narrowing of the right coronary and left anterior descending arteries." This finding suggests diminished life expectancy of the deceased.

59. In such cases, life expectancy will be relevant to the issue of lost earnings.

60. The pathologist's opinion regarding the actual cause of death may be critical for the plaintiff to meet its burden of proof, because cause of death usually must be proven in either a homicide prosecution or an industrial accident case. Conversely, the actual mode or manner of causing death may have only tangential relevance to the issue of whether the accused caused the death. *See* Meyer v. State, 43 Md. App. 427, 406 A.2d 427, (1979), *cert. denied*, 446 U.S. 938 (1980) (no error in admitting autopsy reports without deleting the statement, "the manner of death is homicide" where the statement was product of autopsy examination without reference to external evidence and was consistent with defendant's claim that the cause of death was undisputed, but that accused was not criminally responsible); *see also* Walters v. American States Ins. Co., No. C-1536, appeal pending, (Tex. 1983). *But see* Benjamin v. Woodring, 268 Md. 593, 303 A.2d 779, (1973) (pathologist's conclusion death "suicide" was based on findings that deceased suffered by barbiturate overdose and extrinsic facts supplied by plaintiff. Since cause of death was central issue in the action, conclusion of medical examiner that death was "suicide" was prejudicial and should be struck from the autopsy report prior to its admission before jury).

61. For instance, in one postmortem report, in which the medical examiner concluded death resulted from a "gunshot wound to left posterior thorax," the actual description of the wounds on the body included the following specific information:

PATHOLOGICAL DIAGNOSES:

I. Gunshot wound, posterolateral left hemithorax, range undetermined, without exit
   - A. Perforation, subcutaneous tissue and skeletal musculature of posterolateral left hemithorax
   - B. Perforation, posterior left 10th intercostal space
     1. Comminuted fracture, superior margin of 11th rib with deflection of bullet
   - C. Perforation, posterior left hemidiaphragm
   - D. Through-and-through perforation, posterior gastric cardia
   - E. Perforation, medial left hemidiaphragm

determine, with varying degrees of certainty, whether the death was the result of injury from an external source or internal deterioration.[62] Where actual wounds or surface defects are present in the body, the report will often include a drawing indicating their location and provide information describing the wounds.[63]

The report will also have a conclusions section that will provide the expert's opinion as to the cause of death, and the manner of in-

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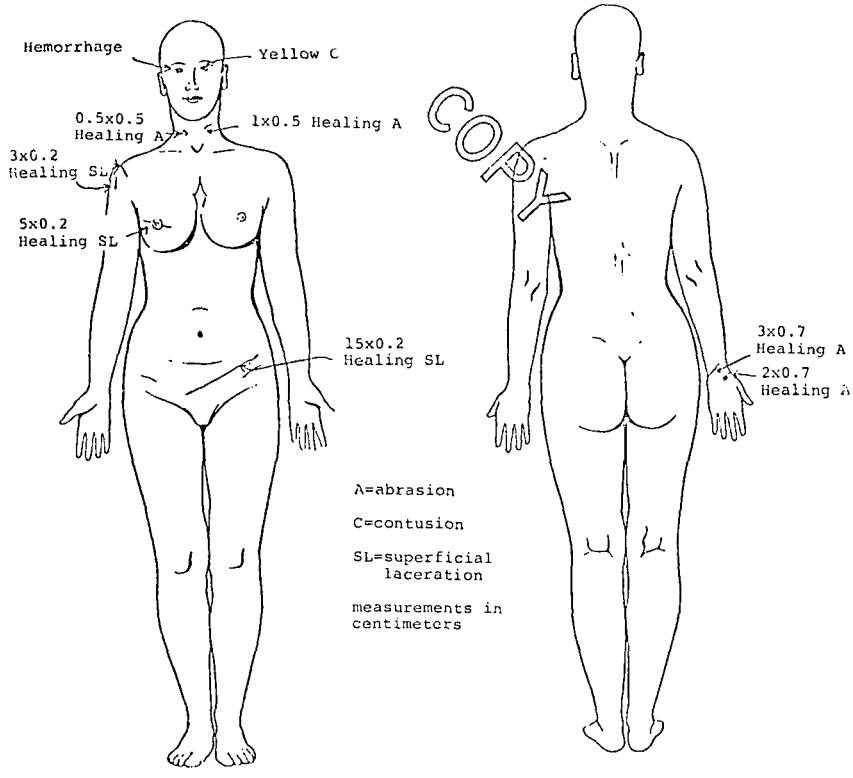
F. Through-and-through perforation, esophagus immediately above diaphram
G. Perforation, anteromedial right middle lung lobe
H. Comminuted fracture-perforation, anterior right 5th rib
I. Penetration, skeletal musculature of anterior right hemithorax
J. Bilateral hemothraces (60 ml. right, 440 ml. left), hemoperitoneum (400 ml.), and posterior mediastinal hemorrhage (200 gm.)

II. Status-post attempted resuscitation with bilateral placement of chest tubes
III. Acute ethanolism (blood alcohol .12 mg.%)

62. The following findings were made in a medico-legal autopsy performed on a four-year-old apparent drowning victim, confirming that "the cause of death of this 4 year old white male is consistent with accidental drowning. There was no evidence of trauma to the individual." The conclusion relied on a more specific finding in the report: "A careful dissection and examination is then made of the anterior neck looking for evidence of muscular trauma. Dissecting to just proximal to the hyoid bone there is no evidence of muscular or soft tissue trauma, and the larynx is removed from just above the hyoid bone." This type of finding is significant with respect to whether the drowning of the child was truly accidental or the result of violence indicating the possibility of criminal act.

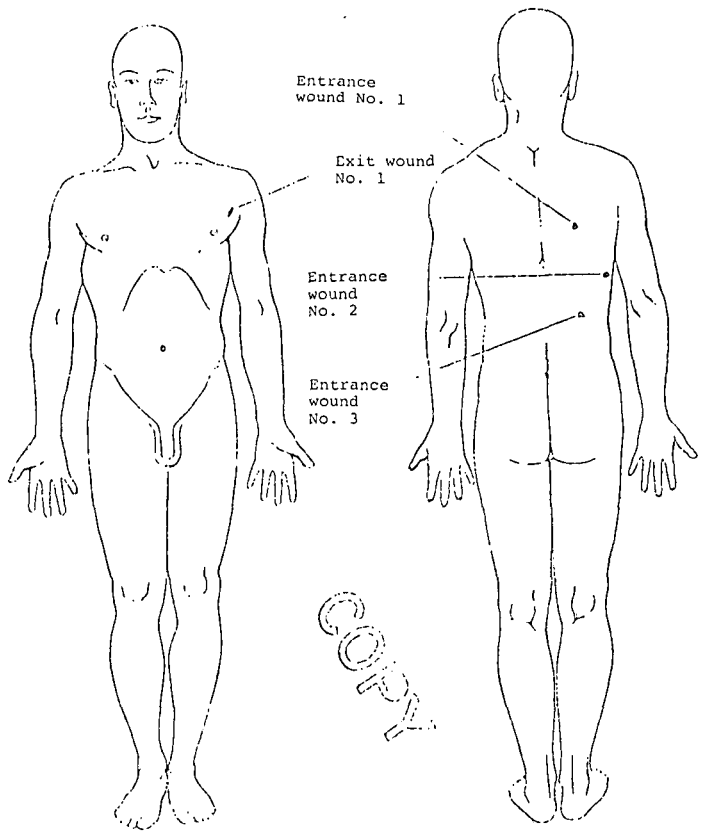
63. Some autopsy reports will include an illustration of the location of wounds (see Example A). Such illustrations are particularly helpful to a practitioner unfamiliar with anatomy and medical terminology, and to jurors as an aid in visualizing the type of wound inflicted. Example A shows the location of superficial wounds and other abrasions present in a case in which the cause of death was determined to be ligature strangulation:



EXAMPLE A

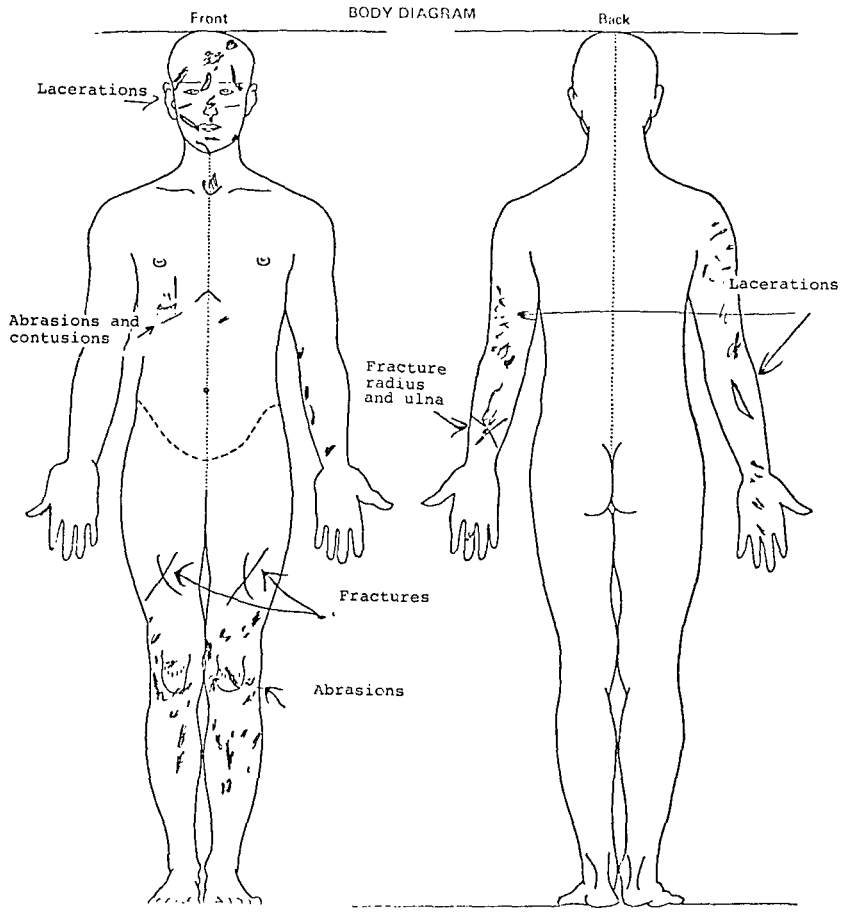
The autopsy was performed by the Southwestern Institute of Forensic Sciences, Dallas, Texas, which includes the Dallas County Medical Examiner's Office.

Example B, also performed by the Southwestern Institute of Forensic Sciences, shows the victim of gunshot wounds.



EXAMPLE B

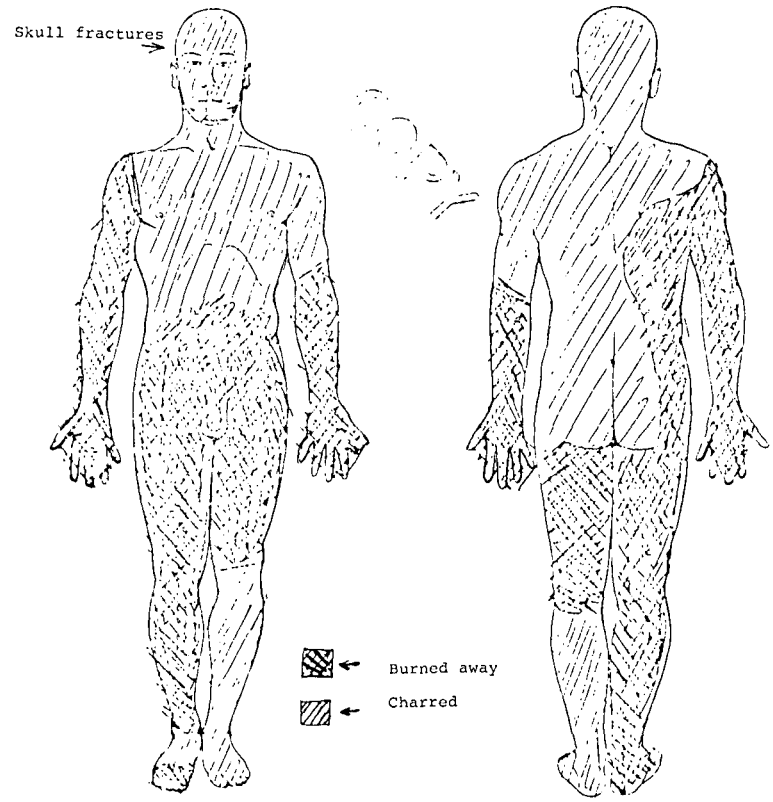
Example C demonstrates the use of illustration in an autopsy report performed by the Office of the Chief Medical Examiner, Board of Medicolegal Examinations, Tulsa, Oklahoma. The cause of death was determined to be "[m]ultiple blunt injuries of head, chest and abdomen." The deceased sustained the injuries in a head-on collision between his vehicle and a school bus.



EXAMPLE C

This drawing reflects another autopsy performed by the Dallas County Medical Examiner's Office. The Defendant died from "sever craniocerebral trama concentrated to the right side of the head. The body was subsequently set on fire, resulting in massive destruction of a large part of it. The victim's carbon monoxide level was 1% and although it is possible that thermal injury contributed to death (the conflagration being of such repidity and intensity that severe thermal injury occurred before an elevated carbon monoxide level could be obtained) it is very likely that the victim was already dead before the fire."

fliction, if essential to the findings.[64] Evidence of other sources of injury, disease or deterioration of internal organs in the conclusions section may provide a basis for cross-examination, especially if the evidence reflects an alternative explanation for the death or equivocation on the part of the examiner.[65] In cross-examining the witness



EXAMPLE D

The use of the type of drawings illustrated by the foregoing examples, while potentially helpful to nonexperts, is not standard.

64. Specific findings may provide additional information that relates to factors leading to death. In the autopsy report illustrated in Example A, *supra* note 63, the pathologist expanded upon the immediate cause of death: "In our opinion [deceased], a 26-year-old Caucasian female, died as the result of cerebral anoxia secondary to ligature strangulation. There is also evidence at autopsy of blunt trauma to the head. The bronchopneumonia found at autopsy is a complication of cerebral anoxia." The report also concludes that the manner of death was "homicide."

65. For example, the postmortem examination of the accident victim, illustrated in Example C, *supra* note 63, showed not only that the deceased suffered blunt injuries to his head, chest, abdomen and extremities but also noted the presence of "marked coronary artherosclerosis" and "ethanol intoxication." Further, the report states that the deceased's blood ethanol

it is sufficient to show that alternative hypotheses regarding the cause of death have merit. This strengthens the defense advanced at trial, particularly where conclusions in the report appear equivocal.

Description of wounds and conclusions as to the manner of their infliction may also provide a basis for advancing defensive theories. The nature of the injury may suggest an explanation other than that relied on by the testifying expert; evidence of fatal wounds can be countered by evidence of wounds caused by the deceased's offensive acts. While the actual cause of death may be undisputed, or resolved by expert testimony, the circumstances in which the death-causing act occurred may lead to a conclusion that the homicide was justified,[66] or caused by some degree of negligence on the part of the deceased.[67]

Generally, a medical examiner is qualified to give his opinion as to the cause of death and the circumstances surrounding the act causing death.[68] The rule in criminal cases can be traced, at least in part, to language in the United States Supreme Court's decision in *Hopt v. Utah*,[69] an appeal from a homicide conviction. Justice Harlan noted:

> [T]he testimony of the physician as to the direction from which the blow was delivered was admissible. It was a conclusion of fact which he would naturally draw from the wound. It was not expert testimony in the strict sense of the term, but a statement of a conclusion of fact, such as men who use their senses, constantly drawn from what they see and hear in the daily concerns of life.[70]

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count was 0.17%, bringing it within the probable range of intoxication. The information in the report supports the conclusion that the accident in which deceased was killed was caused by his own intoxication. Counsel, however, might want to explore the possibility that it could have been the result of a nonfatal heart attack sufficient to cause deceased to lose control of his vehicle. The portion of the report relating to the examination of the heart shows that it suffered some injury in the collision, and also that "[f]ocal atheromatous plaquing producing virtually complete occlusion of the right coronary and 50% occlusion of LAD" were also present. These findings might be sufficient to raise the issue of heart attack, even though no direct evidence of heart failure is recorded.

66. See *supra* note 51.

67. See *supra* note 48.

68. For instance, the medical expert may testify concerning the time of death, a common finding included in the autopsy report, even though this opinion is not strictly based upon scientific tests—any objection goes to the weight and not admissibility of the testimony. Commonwealth v. Campbell, 378 Mass. 680, 393 N.E.2d 820, (1979); *see also* State v. Smoot, 381 So. 2d 668, 670-671 (Ala. Crim. App. 1980) (non-physician medical investigator trained in pathology and employed by medical examiner's office qualified to testify).

69. 120 U.S. 430 (1887).

70. *Id.* at 438.

Courts have consistently recognized that an expert, particularly in the field of medicine or forensic pathology, is qualified to render an opinion as to both the actual cause of death and the accompanying circumstances,[71] thereby demonstrating the theory of the act and its result, which form the basis of the offense charged. Thus, in *People v. Campbell*,[72] the Illinois court noted that the fact and cause of death, the number and location of wounds, the manner in which the wounds had been sustained, and the wilfulness of the act in inflicting the wounds were all material in homicide prosecutions. A similar rule was advanced by the Mississippi Supreme Court in *Crump v. State*[73] and the Massachusetts Supreme Court in *Commonwealth v. Campbell*.[74]

B. The Fact and Cause of Death

Expert testimony is essential to establish the underlying element of the homicide prosecution—the criminal act of taking human life. In *Bullock v. State*,[75] a Mississippi capital murder case, the defendant argued that testimony of a pathologist was cumulative and unnecessary to prove *corpus delicti* where the deceased was found in an unusual place under unusual circumstances.

The court held that the pathologist's testimony, that the cause of death was in fact skull fracture, was properly admitted.[76] Similarly, the Missouri Court of Appeals held that expert testimony regarding

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71. Commonwealth v. Cooper, 270 Pa. Super. 365, 411 A.2d 762 (1979), discussed in *supra* note 10 and accompanying text. Wary counsel, however, should watch for testimony which exceeds either the scope of expertise of the pathologist, or that which appears to be tailored to the prosecution's theory of the case in a criminal prosecution or to the opposing counsel's theory in a civil trial. For example, if the deceased died as a result of a stab wound and the proponent has developed a theory in which a knife having a certain blade length is the instrument inflicting the fatal wound, the expert's testimony may be that the wound is one consistent with that which would be made by the weapon. Because of the compression of the skin when punctured, however, and other variables, it is not necessarily the case that wound depth can be directly and conclusively associated with a particular length of blade. In this situation, counsel should always be prepared to examine the expert as to whether the wound would also be consistent with those inflicted by other instruments having different blade lengths from that of the weapon upon which the case has been predicated by opposing counsel. Equivocation on this point may result in diminuation of the significance of the weapon as evidence in the trial.

72. 77 Ill. App. 3d 804, 311 Ill. Dec. 218, 396 N.E.2d 607 (Ill. App. 1979).

73. 375 So. 2d 225 (Miss. 1979) (testimony concerning second, and fatal wound to deceased probative on issue of intent in murder prosecution).

74. 378 Mass. 680, 393 N.E.2d 820 (1979).

75. 391 So. 2d 601, 607-08 (Miss. 1980).

76. *Id.*

evidence of bone fractures sustained by a child was admissible to negate the inference that the child's massive brain damage resulted from accident, natural causes or some type of self-infliction.[77] The need for expert testimony to counter a claim of accident in a case involving a child's death also moved the New York Court of Appeals to hold that testimony concerning burns, bruising, and evidence of abuse of the child opened the door to other testimony of abuse to demonstrate that death was not accidental.[78]

C. The Number and Location of Wounds

Appellate courts have implicitly recognized the value of testimony that demonstrates the circumstances in which the fatal wound was caused by allowing expert testimony regarding the number and location of wounds. Most commonly, such evidence results from multiple shootings or stabbings, or the existence of multiple wounds from different causes, as discussed above. For instance, in *State v. Rose*,[79] the New Mexico court held that testimony of the medical expert, that the wound in the body and the hole in the chair in which the deceased was apparently seated indicated that the deceased was sitting when shot, was admissible. The court noted that the doctor was also qualified as a gun expert, which seemingly led it to conclude that the trial court properly recognized this combination of credentials.[80] *Rose* followed the earlier decision in *Miera v. Territory*,[81] in which the testifying physician was deemed qualified by his extensive experience in investigating deaths. Testimony in *Miera* showed that the victim was seated when shot, leading to the doctor's conclusion that, given the circumstances of the body, the wounds could not have been self-inflicted.[82]

Similar opinion testimony has been permitted in a number of other jurisdictions. In a Michigan case, *People v. Meatte*,[83] testimony of a pathologist supplemented other testimony showing that shotgun pellets could have penetrated a door. The pathologist's testimony that particles from the door observed in the wounds had been carried by the shotgun charge permitted his conclusion that the

77. State v. Letterman, 603 S.W.2d 951, 956 (Mo. App. 1980).
78. People v. McNeely, 77 A.D.2d 205, 433 N.Y.S.2d 293 (1980).
79. 79 N.M. 277, 442 P.2d 589 (1968).
80. *Id.* at 279, 442 P.2d at 591.
81. 13 N.M. 192, 81 P. 586 (1905).
82. *Id.* at 197, 81 P. at 588.
83. 98 Mich. App. 74, 296 N.W.2d 190, 191 (1980).

deceased had been shot through the door.[84] In *Commonwealth v. Cooper*,[85] the Pennsylvania court found it clearly within the expertise of the pathologist to testify to his opinions concerning the path of the bullet through the body of the deceased, the approximate distance of the weapon from the body, and cause of facial wounds not the result of the shooting. Further, with respect to empirical findings not requiring expert conclusion, the Missouri Court of Appeals has allowed, over a defendant's objection, testimony of a licensed physician who was not an expert in forensic pathology as to the number of shotgun wounds in the body of a victim.[86]

D. The Manner of Infliction of Wounds

The manner in which wounds were inflicted or sustained is crucial to an understanding of the factual context of an alleged criminal offense.[87] Testimony of a pathologist, who had extensive homicide investigation experience in cases involving sexual crimes, has been admitted regarding the act of sexual intercourse and the position of the killer and victim at the time of the killing.[88] Another court has held that testimony by a forensic pathologist that the victim was shot three times while lying down was proper.[89] In both cases, the type of evidence offered related not only to the specific wounds sustained by

84. *Id.* at 77, 296 N.W.2d at 191. Similarly, the pathologist may be able to estimate the distance from which a deceased was shot by examination of the characteristics of the wound. *See* Devlin, *supra* note 8, at 38. Defense counsel, however, should be prepared to object to testimony concerning distance of weapon from the wound as outside the field of expertise of the pathologist and to counter this testimony with that of a ballistics expert, if helpful to the defense position. Distances predicated on findings regarding absence or presence of powder burns, soot, or particulate matter are not accurately determined unless the testifying expert can base his opinion with certainty on the type of ammunition used. The most reliable testimony would be based on tests conducted with the actual or suspected weapon, using the same type of ammunition or powder load. The difficulty defense counsel may experience in attempting to limit the expert's testimony to his true realm of expertise lies in the deference paid experts once they are qualified and willing to assert expertise based on experience or training. Often, the trial judge may simply rule that an objection or cross-examination on this basis affects only the weight and not admissibility of the expert's opinion. *Cf.* United States v. Williams, 431 F.2d 1168 (5th Cir. 1970), regarding limiting the scope of "expert" testimony to matters properly subject of expert opinion.

85. 270 Pa. Super. 365, 369, 411 A.2d 762, 764 (1979).

86. State v. Barnhart, 587 S.W.2d 308, 310 (Mo. App. 1979).

87. See Example A, *supra* note 64. The report diagram indicates the possibility that the murder was committed in conjunction with a sadistic sexual assault, based on the superficial cuts across the breast and lower abdomen. *See generally* Wecht, *supra* note 5, and Devlin, *supra* note 8.

88. People v. Lowe, 184 Colo. 182, 190-91, 519 P.2d 344, 348 (1974).

89. Commonwealth v. Covess, 273 Pa. Super. 72, 76, 416 A.2d 1094, 1096 (1979).

the victim, but also presented a picture of how they were inflicted. This is often the most damaging evidence the prosecutor can offer.

E. The Wilfulness of the Act Inflicting the Wounds

Frequently, the way in which the crime is committed or the injury inflicted will prove determinative of the mental state of the defendant. Thus, where the evidence demonstrates a particularly sadistic or determined approach to infliction of injury, a high degree of culpability may be established. A requirement of many first degree or capital murder sentencing statutes is proof of "depraved mind," premeditation, or deliberate intent.[90] Evidence concerning the circumstances surrounding infliction of the injury or the extent of the injuries suffered will prove probative on the issue of intent.[91] Conversely, this type of evidence may support an alternative conclusion, such as suicide or other action by the victim contributing to his own death or injury.

Homicides involving sexual offenses present an important area of proof and cross-examination of the expert witness. In *State v. Fagundes*,[92] the Washington Court of Appeals held that testimony offered by a pathologist was relevant in a felony murder and rape prosecution to the issue of the presence of seminal fluid in the victim's vaginal area prior to the time of her death. Generally, experts also are entitled to offer opinion testimony regarding evidence of rape or sexual activity. Courts have allowed a gynecologist's testimony that the apparent cause of bruising of a patient's vaginal area was contact with an object the size of a penis,[93] and the opinion of an expert in chemical analysis concerning how long sperm may be ex-

90. FLA. STAT. ANN. § 921.141(3)(h) (1973) ("The capital felony was especially heinous, atrocious or cruel, manifesting exceptional depravity"); MISS. CODE ANN. § 99-19-101(5)(h) (1972) ("The capital offense was especially heinous, atrocious or cruel"); MONT. CODE ANN. § 46-18-303(4) (1981) ("The offense was deliberate homicide and was committed by a person lying in wait or ambush"); NEB. REV. STAT. § 29-2523(1)(d) (1979) ("The murder was especially heinous, atrocious, cruel, or manifested exceptional depravity by ordinary standards of morality and intelligence"); N.H. REV. STAT. ANN. § 530:5II(a)(7) (1981) ("The murder was especially heinous, atrocious or cruel"); N.C. GEN. STAT. § 15A-2000(e)(9) (1978) ("The capital felony was especially heinous, atrocious or cruel"); PA. CONS. STAT. ANN. tit. 42, § 1311(d)(8) (Purdon 1982) ("The offense was committed by "means of torture"); WYO. STAT § 6-4-102(h)(vii) (1977) ("The murder was especially heinous, atrocious or cruel").

91. People v. Jackson, 28 Cal. 3d 264, 304, 618 P.2d 149, 168 168 Cal. Rptr. 603, 622 (1980).

92. 26 Wash. App. 477, 483, 614 P.2d 198, 200 (1980).

93. Commonwealth v. Peets, 8 Mass. App. Ct. 916, 395 N.E.2d 362 (1979).

pected to stay intact.[94]

In cases based on lack of consent where substances indicating sexual activity are present, it is appropriate to cross-examine the expert with regard to whether the same physical evidence could have resulted from a consentual act. If the autopsy or rape report[95] indicates that additional evidence of violence or sadistic behavior may be evident, defense counsel may elect not to open these areas for further examination by posing a hypothetical based on consenting behavior. Any equivocation by the expert regarding consent that is disclosed during pretrial deposition or on hearing outside the presence of the jury, however, may suggest similar questioning before the jury to rebut an inference of rape or to preserve the witness' responses for appeal on the issue of sufficiency of the evidence.

Because sex-related offenses, even when related to a homicide charge, may generate rape reports prepared independent of the autopsy report, defense counsel should seek information regarding these reports without involving the prosecutor's office. Most medical examiners and coroners have a working relationship with the prosecutor's office. The relationship between the prosecutor's office and general practitioners, internists and gynecologists who might prepare a rape report may not be as formal; they may be more willing to disclose valuable information and opinions to defendant's counsel. Further, independent access to rape reports, sometimes a matter of public record, may enhance pretrial plea negotiations or even result in charges not being filed against a client. Even if disclosure of relevant information is not favorable to the client, independent investigation may enable counsel to avoid or deflect sensitive evidence at trial that might otherwise enter the proceedings as a result of surprise.

CONCLUSION

Counsel confronted with expert testimony concerning cause of death and attendant facts can often use cross-examination as a tool to diffuse the impact of the expert testimony or raise alternative theories of the cause or circumstances of death.

Approaching an individual case with a specific strategy for ex-

94. Martin v. State, 151 Ga. App. 9, 258 S.E.2d 711 (1979).

95. The rape report is likely to be made only if the victim reports a nonconsenual or forced act of intercourse. Thus, only in the rare circumstance when the victim subsequently died after reporting a rape would there be both a rape and autopsy report on the same victim.

amining the opponent's expert leads to more favorable results than relying on standard, albeit unsatisfactory, questions concerning qualifications, opportunity to examine the data, or certainty of conclusions. The issue of qualification is seldom significant unless the qualifications of conflicting experts arise or the testifying expert makes a glaring mistake in characterizing his own testimony as "expert." Similarly, once the expert's qualifications are established in the jury's mind, positive testimony regarding conclusions is likely to resolve any issue of opportunity to examine the data. Further, an expert experienced in testifying is unlikely to be shaken by cross-examination that merely requests the expert to disagree with previously expressed conclusions.

The most satisfactory way of diffusing an opponent's expert testimony is to offer equally impressive conflicting testimony from another expert. When that is not feasible, counsel must be prepared for cross-examination with a thorough understanding of the issues raised by procedures used by the expert to arrive at conclusions or the quality of the conclusions. The "quality" of conclusions should reflect not only the appropriateness of a conclusion based on the data or testing available, but also the scope of the expert's qualification. The gap between medical and legal terminology may prove to be the difference between conviction and acquittal or preservation and waiver of an issue for appellate review.[96] Finally, skillful cross-examination should be based on an understanding of the testifying expert's practice and the contents of the report. This may result in an unbiased witness conceding important points and negating significant conclusions, or raising doubt sufficient for a favorable verdict.

96. A medical expert may commonly refer to "rape" or "sexual assault" without regard to the precise legal definition of the term employed.