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ESSAY

SAMPLING LIABILITY

Laurens Walker and John Monahan***

INTRODUCTION

MORE than forty lawsuits¹ were brought by states seeking reimbursement from tobacco companies for Medicaid payments attributable to tobacco-related diseases. During 1995 over thirty-six million people received Medicaid benefits totaling more than \$120 billion,² figures which suggest both the huge pool of people potentially involved in this litigation as well as the enormous stakes. Although all of these cases (and claims) eventually settled,³ a legacy remains that should benefit future complex litigation. Liability in these state tobacco cases depended in part on proof of causation: The plaintiff must prove that products sold by the defendant tobacco companies resulted in the illnesses which required the Medicaid payments by the states.⁴ Given the huge number of

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¹ See Minnesota Judge Rules on Summary Judgment Motions; Trial Begins, *Andrews Tobacco Industry Litig. Rep.*, Jan. 30, 1998, at 3, available in WESTLAW, 13 No. 4 ANTILR 3.

² See Centers for Disease Control and Prevention, National Ctr. for Health Statistics, U.S. Dept. of Health & Human Servs., *Health United States 1996-97 and Injury Chartbook 282 tbl.148 (1997) (DHHS Pub. No. (PHS) 97-1232)*.

³ See *Cigarette Maker Raises Price 45 Cents a Pack*, N.Y. Times, Nov. 24, 1998, at A15.

⁴ See *City and County of San Francisco v. Philip Morris, Inc.*, 957 F. Supp. 1130, 1142-43 (N.D. Cal. 1997) (“[P]laintiffs face the difficult task of proving that the health care expenses incurred for each individual smoker were a result of that smoker’s tobacco use, as opposed to some other factor.”). This is nothing more than a statement of the common law requirement that a tort plaintiff prove causation. See W. Page Keeton et al., *Prosser and Keeton on the Law of Torts* § 41, at 263 (5th ed. 1984)

Medicaid patients, proof of this element of liability in any traditional way would have been impossible. States might well be barred from recovery by practical, not legal, reasons.

The response by the states to this liability problem was remarkable. In 1994 Florida adopted legislation providing that causation could be proved by "statistical analysis."⁵ In early 1998 Maryland⁶ and Vermont⁷ adopted similar statutes, both permitting proof, as did Florida, by "statistical analysis."⁸ Mississippi,⁹ Texas,¹⁰ and Minnesota¹¹ planned to use statistical analysis without enacting such legislation. The Florida,¹² Mississippi,¹³ and Texas¹⁴ cases settled before trial.¹⁵ The Minnesota case also settled, but *after*

("An essential element of the plaintiff's cause of action for negligence, or for that matter for any other tort, is that there be some reasonable connection between the act or omission of the defendant and the damages which the plaintiff has suffered.")

⁵ Fla. Stat. Ann. § 409.910(9) (West 1998). In *Agency for Health Care Administration v. Associated Industries of Florida*, 678 So. 2d 1239 (Fla. 1996), cert. denied, 520 U.S. 1115 (1997), the Supreme Court of Florida held the provision facially valid under Florida's constitution. See *id.* at 1256.

⁶ See Md. Code Ann., Health-Gen. I § 15-120 (West, WESTLAW through 1998 Reg. Sess.).

⁷ Vt. Stat. Ann. tit. 33, § 1911(f)(5) (West, WESTLAW through 1997 Adj. Sess.). Philip Morris and other tobacco companies filed a declaratory judgment action on April 23, 1998 seeking to nullify the statute as unconstitutional. See *Tobacco Companies Sue Over Vermont Statute Making Them Liable For Medicaid Costs*, Mealey's Litig. Rep.: Tobacco, May 7, 1998, at 8, available in WESTLAW, 12 No. 1 MLRTOBAC 8.

⁸ Md. Code Ann., Health-Gen. I § 15-120 (West, WESTLAW through 1998 Reg. Sess.); Vt. Stat. Ann. tit. 33, § 1911(f)(5) (West, WESTLAW through 1997 Adj. Sess.).

⁹ See Mark D. Fridy, *How the Tobacco Industry May Pay for Public Health Care Expenditures Caused by Smoking: A Look at the Next Wave of Suits Against the Tobacco Industry*, 72 Ind. L.J. 235, 246-47 (1996).

¹⁰ See 5th Cir. *Refuses to Overturn Orders for Phased Trial, New Cause of Action*, *Andrews Tobacco Industry Litig. Rep.*, Oct. 24, 1997, at 16715, available in WESTLAW, 1997 ANTILR 16715.

¹¹ See *Minnesota, Tobacco Cos. Spar Over Trial Date, Gambling Documents*, *Andrews Tobacco Industry Litig. Rep.*, Nov. 18, 1996, at 15651, available in WESTLAW, 1996 ANTILR 15651.

¹² See Barry Meier, *Cigarette Makers Agree to Settle Florida Lawsuit*, N.Y. Times, Aug. 26, 1997, at A1.

¹³ See *Just Days Before Trial, Mike Moore, Tobacco Firms Reach \$3 Billion Deal*, *Mealey's Litig. Rep.: Tobacco*, July 17, 1997, at 3, available in WESTLAW, 11 No. 6 MLRTOBAC 3.

¹⁴ See Barry Meier, *Tobacco Concerns Settle Texas Case for a Record Sum*, N.Y. Times, Jan. 16, 1998, at A1.

¹⁵ After the settlement, the Florida Legislature repealed the legislation permitting "statistical analysis." See H.B. 3077, 15th Leg., 2d Reg. Sess. (Fla. 1998). Governor Lawton Chiles had pledged that the provisions in the law that aided the state would

trial,¹⁶ and hence provides an example of the use of statistical analysis in the courtroom to prove liability in the state tobacco cases.¹⁷

In this Essay we begin by asking, What meaning should be given to legislation permitting proof by “statistical analysis”?¹⁸ We answer by proposing a model for determining the method of proof in complex cases and by applying that model to diverse subject matters. In Part I we describe the state tobacco cases, including both the legislative and common law responses to the problems of proof. In Part II we discuss the recent case of *In re Estate of Ferdinand E. Marcos Human Rights Litigation*,¹⁹ which, in the process of using sampling to determine compensatory damages, also used sampling to determine the “exposure” element of liability, and hence is an important precedent for the state tobacco cases. In Part III we offer a model for determining elements of liability in complex civil cases. In addition to the example of the exposure element of liability derived from *Marcos*, we offer examples of sampling to determine other liability elements such as harm and causation. We argue that these precedents suggest that proof by “statistical analysis” allows, at an absolute minimum, for the use of sampling methodology. Thus, in cases like the state tobacco cases where individual consideration is a practical impossibility, the minimum step necessary to solve the “proof problem” is statistical sampling.

We also ask whether a statute is a necessary basis for the use of sampling to determine liability or whether this technique of scien-

be used only against the tobacco companies. See Lawmakers Voted Friday to Make Sure the Law that Brought About Florida's Landmark \$11 Billion Tobacco Lawsuit Settlement is Never Used Against Another Industry, Associated Press Pol. Serv., Apr. 24, 1998, available in 1998 WL 7408502. The 1998 bill expressly preserves the settlement agreement between the statute and tobacco companies reached in 1997. See *id.*

¹⁶ See Pam Belluck, Tobacco Companies Settle a Suit With Minnesota for \$6.5 Billion, N.Y. Times, May 9, 1998, at A1. The Florida, Texas, Mississippi, and Minnesota settlements totaled \$36.8 billion. See Todd Lewan, 2 Tobacco Firms to Skip Talks with States Seeking Settlements of Claims, Wash. Post, Aug. 27, 1998, at A7.

¹⁷ See Trial Transcript, *State v. Philip Morris, Inc.* (Minn. 2d Dist. Ct. Aug. 17, 1994) (No. C1-94-8565) [hereinafter Trial Transcript], available in 1998 WL 79867 (testimony of Dr. Timothy Wyant).

¹⁸ The Maryland, Florida, and Vermont statutes provide no insight into the intended meaning of the phrase. See 1998 Md. Laws 122; 1994 Fla. Sess. Law Serv. 94-251 (West); 1998 Vt. Acts & Resolves 142. The Florida Supreme Court did not discuss what meaning should be given to the phrase in the Florida statute. See *Agency for Health Care Admin. v. Associated Indus. of Fla.*, 678 So. 2d 1239, 1256 (Fla. 1996).

¹⁹ 910 F. Supp. 1460 (D. Haw. 1995), *aff'd sub nom. Hilao v. Estate of Marcos*, 103 F.3d 767 (9th Cir. 1996).

tific proof is available as a matter of common law. We respond that sampling is available without legislation in federal courts because of the Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals*,²⁰ which fully incorporated methods of scientific research—such as sampling—as techniques for legal proof.²¹ State courts are not bound by the *Daubert* decision, which construed a Federal Rule of Evidence.²² But many states have decided to follow *Daubert*,²³ and in other states, the intellectual power of the *Daubert* opinion may provide a legal basis for employing sampling methodology. Just as techniques of individual proof are limited by the legal constraint of due process, sampling should be limited by the scientific constraint of validity, as described in *Daubert*.²⁴

In Part IV we move beyond our model to discuss the potential for using sampling in other important litigation. We discuss opportunities involving federal antitrust litigation, federal mail and wire fraud claims, and individual fraud claims against the tobacco industry. In this last category, defendant use of polling data provides an example of how plaintiffs might solve class certification problems. In Part V we offer our conclusions about the state tobacco cases as well as other uses of sampling to prove elements of liability. We argue that in both situations the use of sampling would reduce the number of outcomes determined by information search costs and increase adjudication on the merits.

I. THE STATE TOBACCO CASES

In May 1994, the State of Mississippi filed suit in a Mississippi court against thirteen tobacco company defendants, six cigarette distributors, two trade associations, and a public relations firm

²⁰ 509 U.S. 579 (1993).

²¹ See Laurens Walker & John Monahan, *Daubert and the Reference Manual: An Essay on the Future of Science in Law*, 82 Va. L. Rev. 837 (1996).

²² See *Daubert*, 509 U.S. at 588-89 (discussing Federal Rule of Evidence 702).

²³ See 1 David L. Faigman et al., *Modern Scientific Evidence: The Law and Science of Expert Testimony* § 1-3.0, at 11 n.7 (1997) (“[As of 1997,] nineteen states have accepted the essential principles of *Daubert*, either because they were persuaded by the Supreme Court’s reasoning or they already adhered to a substantially similar test.”).

²⁴ See *Daubert*, 509 U.S. at 594-95 (“The inquiry envisioned by Rule 702 is, we emphasize, a flexible one. Its overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission.”).

seeking to collect money Mississippi had paid for the health care of citizens who were consumers of tobacco products.²⁵ The Attorney General of Mississippi said at the time that the lawsuit was “premised on a simple notion—you cause the health crisis, you pay for it.”²⁶ Later that year Minnesota brought a similar action in state court,²⁷ and early in 1995 Florida did as well.²⁸ Texas followed early in 1996, bringing an action in federal court seeking to recover \$4 billion from the tobacco industry.²⁹ By mid-1998 the same kind of action had been filed by more than forty states.³⁰ The substantive theories of these cases varied. Mississippi sought indemnity for Medicaid expenses incurred by the state for treatment of smoking-related illnesses and also sought injunctive relief to bar marketing allegedly targeted at minors.³¹ It based its case on common law claims of unjust enrichment and creation of a public nuisance.³² Minnesota based its suit on statutory and common law causes of action. It alleged violations of state antitrust laws, consumer fraud, unlawful trade practices, deceptive trade practices, and false advertising statutes.³³ The common law claims included undertaking of a special duty, performance of another’s duty, unjust enrichment, and conspiracy.³⁴ While most state cases asserted claims based on existing statutes, the Florida suit was based on a statute crafted

²⁵ See *State of Mississippi Sues Tobacco Industry*, Mealey’s Litig. Rep.: Toxic Torts, June 16, 1994, at 5, available in WESTLAW, 3 No. 6 MLRTT 5.

²⁶ James W. Brosnan, “We Needed to Build an Army,” Moore Says, Commercial Appeal, June 21, 1997, at A11.

²⁷ See *Minnesota, Blue Cross and Blue Shield of Minnesota Sue Tobacco Companies*, Mealey’s Litig. Rep.: Toxic Torts, Sept. 1, 1994, at 9, available in WESTLAW, 3 No. 11 MLRTT 9. Blue Cross and Blue Shield of Minnesota was also a plaintiff in the suit. See *id.*

²⁸ See *Florida Enters into Tobacco Litigation Fray*, Mealey’s Litig. Rep.: Toxic Torts, Mar. 3, 1995, at 4, available in WESTLAW, 3 No. 23 MLRTT 4.

²⁹ See *Texas Files Medicaid Suit in Federal Court, Marking Seventh Such Case*, Mealey’s Litig. Rep.: Tobacco, Apr. 4, 1996, at 3, available in WESTLAW, 9 No. 23 MLRTOBAC 3.

³⁰ See *Cigarette Prices Hiked 6 Cents a Pack*, L.A. Times, Aug. 4, 1998, at D3.

³¹ See *Complaint ¶¶ 84-88, 92-98, State v. American Tobacco Co.* (Miss. Ch. Ct. May 23, 1994), available at State Tobacco Information Center (visited Oct. 29, 1998) <<http://stic.neu.edu/MS/2moore.htm>>.

³² See *id.* ¶¶ 78-83, 89-91.

³³ See *Complaint ¶¶ 89-120, Minnesota v. Philip Morris, Inc.* (D. Minn. Aug. 17, 1994), available at State Tobacco Information Center (visited Oct. 29, 1998) <<http://stic.neu.edu/MN/3BCBS.HTM>> [hereinafter *Minnesota Complaint*].

³⁴ See *id.* ¶¶ 84-88, 121-33.

specifically for the tobacco litigation³⁵—the Medicaid Third-Party Liability Act³⁶—as well as on common law and equity grounds.³⁷ The Texas suit included RICO and Sherman Act claims.³⁸ In addition to these federal claims, Texas alleged that the tobacco industry had violated the state's Free Enterprise and Antitrust Act.³⁹ The state's common law claims included negligence, strict liability for manufacturer of a defective and unreasonably dangerous product, breach of warranty, unjust enrichment, creation of a public nuisance, negligent performance of a voluntary undertaking, and fraud and intentional misrepresentation.⁴⁰ All the substantive theories, however, required that the alleged behaviors of the defendants caused the payments to be made by the states for medical care.⁴¹ This, in turn, meant that the behavior of the defendants must have caused the illnesses of the patients later assisted by the states.

The response of Mississippi, Florida, and Texas to the problem of proving the causation element of liability likely would have involved some version of statistical proof. This was the plan in all three cases,⁴² but because of the pretrial settlement of the three cases, these plans were never carried out in court. However, although Minnesota's case was settled before verdict, the trial was

³⁵ See *New Florida Law Enables State to Sue Tobacco Companies*, Mealey's Litig. Rep.: Toxic Torts, June 2, 1994, at 12, available in WESTLAW, 3 No. 5 MLRTT 12. The Florida statute strengthened existing provisions of the state's Medicaid law allowing the state to seek damages when a third party is responsible for Medicaid expenses. See *id.*

³⁶ Fla. Stat. Ann. § 409.910(2) (West 1998).

³⁷ See Complaint ¶ 52, *State v. American Tobacco Co.* (Fla. Cir. Ct. Feb. 21, 1995) (No. 95-1466AO), available at State Tobacco Information Center (visited Oct. 29, 1998) <<http://stic.neu.edu/Fl/1florida.htm>>. The state based its claim on several substantive theories including unjust enrichment, indemnification, negligence, strict liability for manufacturing a defective and unreasonably dangerous product, breach of warranties, negligent performance of a voluntary undertaking, fraud and intentional misrepresentation, conspiracy and concert of action, and aiding and abetting liability. See *id.* ¶¶ 145-208.

³⁸ See Complaint ¶¶ 162-76, *Texas v. American Tobacco Co.* (E.D. Tex. Mar. 28, 1996) (No. 5:96 CV91), available at State Tobacco Information Center (visited Oct. 29, 1998) <<http://stic.neu.edu/Tx/3TXCOMP.HTM>>.

³⁹ See *id.* ¶¶ 177-82.

⁴⁰ See *id.* ¶¶ 183-237.

⁴¹ For a discussion of the necessity of proving causation, see *supra* note 4.

⁴² See Fridy, *supra* note 9, at 247 (citing Mississippi and Florida cases); 5th Cir. Refuses to Overturn Orders for Phased Trial, New Cause of Action, *supra* note 10 (citing Texas case).

nearly completed at the time of settlement, and an example of statistical proof of liability was fully presented in court.

The Minnesota case began in August 1994, when the State of Minnesota and Blue Cross and Blue Shield of Minnesota sued seven tobacco companies and two tobacco trade organizations in a Minnesota state court.⁴³ Both plaintiffs claimed that the defendants had, through a combination of conspiracy and intentional wrongdoing, violated the Minnesota consumer protection law and antitrust law by hiding the addictive nature of nicotine and the health risks of smoking, and that the defendants had unjustly profited from their behavior.⁴⁴ According to the plaintiffs, this alleged misconduct resulted in the sale and use of cigarettes which caused disease, which in turn resulted in costs for medical services. These costs, according to the plaintiffs, were ultimately paid by the State of Minnesota, in the case of Medicaid patients,⁴⁵ and by Blue Cross and Blue Shield of Minnesota, in the case of its subscribers.⁴⁶ The plaintiffs asked that these costs, said to total \$1.77 billion, be awarded as damages against the defendants.⁴⁷

The trial of the case began in January 1998.⁴⁸ Setting the stage for much of the proof, an attorney for the plaintiffs remarked in his opening statement, "This case is not about individual smokers or non-smokers."⁴⁹ The plaintiffs began their case by calling a series of witnesses to testify about the alleged misconduct of the defendants in suppressing information about the effects of nicotine and

⁴³ See Minnesota Complaint, *supra* note 33, ¶¶ 9-17.

⁴⁴ See *id.* ¶¶ 89-120. The suit also was based on common law claims. See *supra* note 34 and accompanying text.

⁴⁵ See Minnesota Complaint, *supra* note 33, ¶ 7. Minnesota also sought compensation for costs the state incurred through its General Assistance Medical Care plan. The plan is available to qualifying individuals who are not eligible for Medicaid. See *id.* ¶ 7(b). The state receives no federal reimbursement for General Assistance Medical Care. See *id.*

⁴⁶ See *id.* ¶ 8. Blue Cross and Blue Shield of Minnesota participated in the action on its own behalf as a purchaser of health care services and on the behalf of groups it insured. Blue Cross and Blue Shield claimed that it and the groups it insured paid increased premiums for health insurance as a result of tobacco-related illnesses. See *id.*

⁴⁷ See Minnesota Trial Opens with State Quoting from Industry Reports, Mealey's Litig. Rep.: Tobacco, Feb. 5, 1998, at 3, available in WESTLAW, 11 No. 19 MLRTOBAC 3.

⁴⁸ See Trial Transcript, *supra* note 17, available in 1998 WL 36940.

⁴⁹ *Id.* at *5 (opening statement of Michael Ciresi).

smoking.⁵⁰ Many were called as “hostile” witnesses, including a number of senior trade association and tobacco company officials.⁵¹ This evidence was traditional in character because it focused on the individual behavior of the defendant companies. But the remainder of the plaintiffs’ liability case was plainly unconventional because the rest of the evidence presented was based on sampled data.

After testimony about the conduct of the defendants, the plaintiffs called a series of expert witnesses who presented evidence about causation and exposure. The first expert was a physician and epidemiologist who testified about the effects of smoking on health and the resulting medical costs.⁵² The expert’s testimony was based on a review of over 900 epidemiological studies.⁵³ The expert first described a number of these studies, explaining the variety of designs employed, and ultimately stated his opinion that smoking was a cause of at least thirteen specific diseases.⁵⁴ He then turned to the question of whether the incidence of these diseases caused expense.⁵⁵ He described two studies about the relationship of disease to expense, and then stated his opinion that the incidence of these diseases had caused expense.⁵⁶

The plaintiffs next called an expert in biostatistics to continue the presentation of their direct evidence.⁵⁷ This expert referred to the “medical foundation” offered by the physician-epidemiologist and described a model used to estimate the loss to the plaintiffs

⁵⁰ See, e.g., Trial Transcript, *supra* note 17, available in 1998 WL 36949 (testimony of Dr. Richard Hurt); *id.*, available in 1998 WL 39147 (testimony of Dr. Channing Robertson).

⁵¹ See Trial Transcript, *supra* note 17, available in 1998 WL 93748 (testimony of Andrew J. Schindler, president and chief executive officer of R.J. Reynolds Tobacco Co.); Trial Transcript, *supra* note 17, available in 1998 WL 85584 (testimony of James J. Morgan, former president of Philip Morris Companies); Trial Transcript, *supra* note 17, available in 1998 WL 45665 (testimony of Walker Merryman, vice-president and director of communications of the Tobacco Institute).

⁵² See Trial Transcript, *supra* note 17, available in 1998 WL 53513 (testimony of Dr. Jonathan M. Samet).

⁵³ See *id.* at *10.

⁵⁴ See Trial Transcript, *supra* note 17, available in 1998 WL 55972, at *13 (testimony of Dr. Jonathan M. Samet).

⁵⁵ See *id.*

⁵⁶ *Id.* at *1, *18.

⁵⁷ See Trial Transcript, *supra* note 17, available in 1998 WL 72053 (testimony of Dr. Scott L. Zeger).

resulting from the alleged misconduct of the defendants.⁵⁸ Essentially, the model involved four steps. First, 280 million medical bills coded with one or more of the thirteen smoking-related diseases and presented for payment to the plaintiffs—the State of Minnesota or Blue Cross and Blue Shield of Minnesota—were summed. Then three reductions were made. The first was intended to eliminate bills for patients not exposed to the defendants' alleged misconduct because the patients were not smokers. Since information about the smoking habits of the patients was not included on the bills, a survey of a random sample of Minnesota residents was used to determine the reduction necessary to eliminate disease and expense not caused by smoking. The second reduction was intended to take into account the fact that some of the smokers would have acquired one of the thirteen diseases without smoking. The expert used epidemiological studies to determine the percentage of patients who were smokers but who likely would have contracted one of the thirteen diseases even if they had not smoked. The third reduction took into account the probability that persons with a smoking-related disease would have incurred expenses for a non-smoking related disease but for their smoking-related illness. For example, a person hospitalized with a smoking-related illness might otherwise have slipped on an icy sidewalk at home, broken an ankle, and incurred medical costs. Survey data was used to determine a fraction of the gross cost probably not attributable to smoking-related diseases and that fraction was used to calculate the third reduction.⁵⁹

At trial the defendants did not object to the admissibility of the sampled data, but instead used cross-examination to question the weight of the expert evidence. Their most significant critique was that the studies employed by the plaintiffs used the wrong subjects because none of the studies had been focused exclusively on Medicaid recipients.⁶⁰ The effectiveness of this tactic—if any—will never be known because during closing arguments the defendants agreed to pay the plaintiffs \$6.1 billion and to take a number of measures

⁵⁸ See *id.* at *38-*42.

⁵⁹ See *id.*

⁶⁰ See Trial Transcript, *supra* note 17, available in 1998 WL 36941, at *16-*17 (opening statement of Peter Bleakley, counsel for Philip Morris).

intended to reduce future under-age smoking in Minnesota.⁶¹ In November 1998, all remaining cases and claims in all states were settled.⁶²

II. THE *MARCOS* CASE

*In re Estate of Ferdinand E. Marcos Human Rights Litigation*⁶³ was concerned with the claims of citizens of the Philippines for compensatory damages under the Federal Alien Tort Claims Act and the Torture Victim Protection Act.⁶⁴ The claims were based on allegations that Ferdinand Marcos, former President of the Philippines, and his agents had violated these citizens' human rights during a time of martial law.⁶⁵ The court certified a class of 9,541 persons in three categories (tortured, summarily executed, and disappeared),⁶⁶ and then heard testimony from an expert in statistics who presented a plan according to which the depositions of a random sample of 137 claimants would be taken to provide a basis for permitting the jury to decide the total amount of compensatory damages due to the claimants.⁶⁷ The court appointed a special master to travel to the Philippines and conduct the 137 depositions. The Special Master conducted the depositions and used the information to propose both an amount of damages for each deponent as well as a total amount for all of the remaining members of the class.⁶⁸

Particularly pertinent here, the Special Master determined that 6 of the 137 sampled plaintiffs (approximately 5%) had invalid claims (that is, claims for which the defendant was not liable; for example, the claimant may have been tortured, but not by Marcos's

⁶¹ See *Minnesota, Blue Cross and Blue Shield Settle for \$6 Billion, Andrews Tobacco Industry Litig. Rep.*, May 8, 1998, at 3, available in WESTLAW, 13 No. 11 ANTILR 3.

⁶² See *supra* note 3 and accompanying text.

⁶³ 910 F. Supp. 1460 (D. Haw. 1995), *aff'd sub nom. Hilao v. Estate of Ferdinand Marcos*, 103 F.3d 767 (9th Cir. 1996).

⁶⁴ See *id.* at 1461, 1469; 28 U.S.C. § 1350 (1993) (Alien Tort Claims Act); *id.* § 1350 note (Torture Victim Protection Act).

⁶⁵ See *Marcos*, 910 F. Supp. at 1461.

⁶⁶ See *id.* at 1462.

⁶⁷ See *id.* at 1464.

⁶⁸ We have discussed this aspect of the case in *Laurens Walker & John Monahan, Sampling Damages*, 83 Iowa L. Rev. 545 (1998).

agents).⁶⁹ In setting recommended damages, therefore, the Special Master applied a “5% invalidity rate” to the number of claimants in each category. The total recommended damages was set as the average damage per case in the given category multiplied by the number of cases in that category minus the 5% of those cases for which Marcos was estimated to be without liability.⁷⁰ That is, each case was awarded 95% of what its damages otherwise would have been. In an earlier phase of the litigation, the jury found Marcos liable for torture, summary execution, and disappearance, all pursuant to an instruction which required that Marcos had personally directed or known about the events.⁷¹ The complete liability determination, however, was not limited to the earlier phase. The construction of an “invalidity rate” based on the results of the sampling and the application of that rate to the entire class demonstrates a use of sampling to prove liability. The court of appeals approved the sampling techniques employed by the trial court,⁷² noting that the “adversarial resolution of each class member’s claim would pose insurmountable practical hurdles.”⁷³ Thus *Marcos* is a precedent for using sampling to determine liability, and not merely damages.

III. A MODEL FOR PROVING LIABILITY WITH SAMPLED DATA

Although the facts of *Marcos* may seem unusual, it was not the first case to use sampling to determine an element of liability. For example, the existence of harm, an element of liability in trademark actions brought under the Lanham Act,⁷⁴ is often determined with sampled information. The leading case in this regard is *Zippo Manufacturing Co. v. Rogers Imports*,⁷⁵ where the plaintiff alleged trademark infringement on the part of the defendant because of the sale of Rogers cigarette lighters resembling the plaintiff’s

⁶⁹ See Addendum Amending Recommendations, In re Estate of Ferdinand E. Marcos Human Rights Litig., 910 F. Supp. 1460 (D. Haw. 1996) (MDL No. 840), available in 1994 WL 874222, at *2.

⁷⁰ See *id.* at *2-*3.

⁷¹ See *Hilao v. Estate of Marcos*, 103 F.3d 767, 776 (9th Cir. 1996).

⁷² See *id.* at 786.

⁷³ *Id.*

⁷⁴ 15 U.S.C. §§ 1051-1127 (1994).

⁷⁵ 216 F. Supp. 670 (S.D.N.Y. 1963).

Zippo lighter.⁷⁶ The plaintiff relied on three surveys which sampled all smokers eighteen years and older residing in the continental United States; based on those surveys, the court found that actual confusion between the Zippo and Rogers lighters had been proved.⁷⁷ Similarly, in *Exxon Corp. v. Texas Motor Exchange*,⁷⁸ the issue was whether a likelihood of confusion existed between the trademark EXXON and the word "Texon."⁷⁹ Plaintiff relied on a survey of 515 randomly sampled licensed drivers conducted in two shopping centers.⁸⁰ The court determined that the survey indicated a "high possibility of confusion."⁸¹ Finally, in *Kroger Co. v. Johnson & Johnson*⁸² the issue was whether the trademark Tylenol was infringed by the words "Actenol," "Supernol," and "Hydenol."⁸³ The court relied on a scientific survey involving sampling to find potential confusion, although the defendant presented the affidavits of 152 non-randomly sampled purchasers of Tylenol who stated that they were not confused.⁸⁴

Causation in toxic tort cases is another element of liability now often determined with sampled data. Consider four examples. In *Brock v. Merrell Dow Pharmaceuticals*,⁸⁵ the court considered causation in a case involving exposure to the drug Bendectin.⁸⁶ In making its determination the court relied heavily on research using sampled data, commenting, "Undoubtedly, the most useful and conclusive type of evidence in a case such as this is epidemiological studies."⁸⁷ In *Hall v. Baxter Healthcare Corp.*,⁸⁸ the court determined causation in connection with exposure to silicone, and

⁷⁶ See *id.* at 671.

⁷⁷ See *id.* at 681, 691.

⁷⁸ 628 F.2d 500 (5th Cir. 1980).

⁷⁹ See *id.* at 501.

⁸⁰ See *id.* at 507.

⁸¹ *Id.*

⁸² 570 F. Supp. 1055 (S.D. Ohio 1983).

⁸³ See *id.* at 1056-57.

⁸⁴ See *id.* at 1057-59. Similarly, claims of liability for deceptive advertising are routinely resolved through judicial review of studies carried out by one or both parties that were predicated upon sampling consumer perception. See Shari Seidman Diamond, Reference Guide on Survey Research, *in* Reference Manual on Scientific Evidence 221, 228 (Federal Judicial Ctr. ed., 1994).

⁸⁵ 874 F.2d 307 (5th Cir. 1989).

⁸⁶ See *id.* at 307.

⁸⁷ *Id.* at 311.

⁸⁸ 947 F. Supp. 1387 (D. Or. 1996).

wrote, "The existence or nonexistence of relevant epidemiology can be a significant factor in proving general causation in toxic tort cases."⁸⁹ In *In re "Agent Orange" Product Liability Litigation*,⁹⁰ epidemiological studies were used to determine causation in connection with a herbicide manufactured by defendant chemical companies.⁹¹ The court held, "In a mass tort case such as Agent Orange, epidemiological studies on causation assume a role of critical importance."⁹² Finally, in *In re Joint Eastern & Southern District Asbestos Litigation*,⁹³ the court called epidemiological evidence "indispensable in toxic and carcinogenic tort actions where direct proof of causation is lacking."⁹⁴

Thus, ample precedent exists to suggest that statutes permitting proof by "statistical analysis" in the state tobacco cases mean, at a minimum, to permit proof involving sampling. All of these cases involved situations where individual proof of key elements of liability was prohibited by information search costs—the practical impossibility of trying the plaintiffs' cases one at a time. The universal response to this problem was the use of sampling. This response by the courts finds support in standard scientific practice. When scientists confront the problem of collecting information in situations where the population is so large as to rule out considering each member individually, a sample is collected and statistics are used to determine the probability that results based on the sample can be applied to the whole population.⁹⁵

⁸⁹ *Id.* at 1403.

⁹⁰ 611 F. Supp. 1223 (E.D.N.Y. 1985), *aff'd*, 818 F.2d 187 (2d Cir. 1987), cert. denied, 487 U.S. 1234 (1988).

⁹¹ See *id.* at 1231-34, 1239-41.

⁹² *Id.* at 1239.

⁹³ 52 F.3d 1124 (2d Cir. 1995).

⁹⁴ *Id.* at 1128. In addition, the liability element of foreseeability in tort actions has been proved with sampled data. In *Zinck v. Whelan*, 294 A.2d 727 (N.J. Super. Ct. App. Div. 1972), the court relied in part on a 1966 Department of Justice survey regarding the risk of auto theft when keys are left in vehicles to hold that the defendant should have foreseen the risk of leaving keys in his vehicle. See *id.* at 735, 737.

⁹⁵ See *Diamond*, *supra* note 84, at 225-26. *Diamond* writes:

As a method of data collection, surveys have several crucial potential advantages over less systematic approaches. When properly designed, executed, and described, surveys (1) economically present the characteristics of a large group of objects or respondents and (2) permit an assessment of the extent to which the measured objects or respondents are likely to adequately represent a relevant group of objects, individuals, or social organisms.

But is a statute necessary to permit sampling? In *Daubert v. Merrell Dow Pharmaceuticals*,⁹⁶ the Supreme Court determined the standard for admitting expert scientific evidence in a federal trial court.⁹⁷ The evidence involved was offered to prove that Bendectin was capable of causing birth defects in humans.⁹⁸ The lower courts refused the offer, based in part on the decision in *Frye v. United States*,⁹⁹ which permitted the use of expert testimony based on scientific research only if that research had gained “general acceptance” in the scientific community.¹⁰⁰ The Supreme Court held that Federal Rule of Evidence 702 did not incorporate the *Frye* test, and instead required the trial court to make an independent determination of the validity of the research.¹⁰¹ In the process of reaching this decision, Justice Blackmun, writing for seven Justices, three times described valid science as legal proof,¹⁰² apparently fully incorporating and equating these methods of determining facts. He wrote that Rule 702’s “overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission.”¹⁰³

A strong reading of *Daubert* thus suggests that in a federal court no statute would be required to permit the use of sampling to determine liability. Sampling is a widely accepted scientific method,¹⁰⁴ and, if validly conducted, would constitute evidence under *Daubert*. Although state courts are not bound by *Daubert* because they are free to create local rules of evidence, a number of states have chosen to follow the federal precedent.¹⁰⁵ Even in states which have not followed *Daubert*, the powerful rationale advanced in *Daubert*

Id. (footnotes omitted); See Faigman et al., *supra* note 23, § 2-3.0 (“Researchers rarely collect data on every single instance of the objects of study. That is called a *census*. They usually *sample* those objects . . . Sampling not only is less expensive and less time-consuming, under most circumstances it is more accurate than a census.”).

⁹⁶ 509 U.S. 579 (1993).

⁹⁷ See *id.* at 592-95.

⁹⁸ See *id.* at 583.

⁹⁹ 293 F. 1013 (D.C. Cir. 1923).

¹⁰⁰ *Id.* at 1014.

¹⁰¹ See *Daubert*, 509 U.S. at 594-95.

¹⁰² See *id.* at 590 n.9, 594-95, 597; see also Walker & Monahan, *supra* note 21, at 843-44 (describing the three references made by Justice Blackmun).

¹⁰³ *Daubert*, 509 U.S. at 594-95.

¹⁰⁴ See Diamond, *supra* note 84, at 227-28.

¹⁰⁵ See John Monahan & Laurens Walker, *Social Science in Law* 44 n.1 (4th ed. 1998).

for equating scientific and legal proof might serve as a sufficient legal basis to permit the use of sampling to prove liability.

With or without a statute, we propose as a model for determining liability in complex cases that the method of proof be determined by the cost of collecting information. Individualized information should be used where it is practical—i.e., cost effective—to obtain. If individual information is not practical to obtain, however, sampling should be used so that a judgment can be reached efficiently and expeditiously.¹⁰⁶ The fundamental justification for this model is found in its capacity to avoid outcomes determined by the cost of gathering information. In a situation where critical information about liability is costly to obtain, one side can prevail simply because the relevant information costs too much for the other side to gather and not because of the merits as established by law. Our proposal is not “pro-plaintiff” or “pro-defendant”; instead we contend that legal cases should be decided as often as possible according to legal standards and not information search costs. In our view, this justification extends beyond the single element of causation referred to in the statutes and includes all elements of liability which involve very costly proof. For these purposes, there is no rational distinction between, for example, causation, harm, experience, or reliance: If the cost of proving any of these elements is too high, adjudication on the merits can be blocked.

We propose that a practical method of proof be chosen in complex cases, subject to two limitations. If individualized proof is undertaken because it is practical, the touchstone of acceptability should (of course) be *due process*. If sampling is used because individual proof is impractical, then the study must employ *valid methodology* (in addition to due process) within the terms of the *Daubert* opinion. The due process constraints are well known,¹⁰⁷ but the *Daubert*-based constraints on sampling are only now being developed. For example, on remand in *Daubert* itself, the court of appeals was required to evaluate epidemiological studies according

¹⁰⁶ Sampled evidence should be tested by traditional burden of proof rules, thus guaranteeing that the use of sampling is not a guarantee that plaintiffs will recover in some measure in virtually every case. If the sampled evidence of liability is not sufficient to meet a plaintiff's burden, there should be no recovery.

¹⁰⁷ See Laurence H. Tribe, *American Constitutional Law* § 11-2, at 772-74 (2d ed. 1988) (discussing due process constraints as they relate to issues of trial fairness).

to the Supreme Court's *Daubert* test.¹⁰⁸ The court held that in the case of research done for litigation, *Daubert* required the experts to state exactly how the research was carried out and to offer independent evidence that the method is scientifically acceptable.¹⁰⁹ The studies were rejected on remand because the plaintiffs failed to make the required showing.¹¹⁰ On the other hand, when a party is able to make the required showing, the analysis can lend support to the research. In *Hand v. Norfolk Southern Railway Co.*,¹¹¹ for example, a question before the Tennessee Court of Appeals was whether the trial court had properly permitted an expert to testify regarding the harmful effects of certain solvents.¹¹² Following the *Daubert* analysis, the court held that the epidemiological studies were valid and supported the testimony, agreeing with the trial court that "the methodology and principles underlying the scientific evidence are sufficiently trustworthy and reliable to be presented to the trier of fact."¹¹³ We propose that similar *Daubert*-based methodological review serve as the chief limitation in complex cases where sampling is a practical necessity for determining liability. Fortunately, the acceptable techniques for sampling are well-established,¹¹⁴ as are the statistical techniques for estimating the probability that the sample is representative of the population as a whole.¹¹⁵

The plaintiffs' direct evidence in the Minnesota trial provides a strong example of our proposal. Much of the liability case was proved with sampled data consistent with the *Marcos* precedent concerning exposure as well as precedents for the use of sampling to show causation. For example, exposure to tobacco was proved with sampled data in the Minnesota trial,¹¹⁶ just as exposure to the *Marcos*-led military was proved with sampled data in the *Marcos*

¹⁰⁸ See *Daubert v. Merrell Dow Pharms.*, 43 F.3d 1311, 1314-15 (9th Cir.) (on remand), cert. denied, 516 U.S. 869 (1995).

¹⁰⁹ See *id.* at 1316-17.

¹¹⁰ See *id.* at 1319.

¹¹¹ No. 03A01-9704-CV-00123, 1998 WL 281946 (Tenn. Ct. App. June 2, 1998).

¹¹² See *id.* at *2.

¹¹³ *Id.* at *5.

¹¹⁴ See *Diamond*, *supra* note 84.

¹¹⁵ See David H. Kaye & David A. Freedman, *Reference Guide on Statistics, in Reference Manual on Scientific Evidence 331* (Federal Judicial Ctr. ed., 1994).

¹¹⁶ See Trial Transcript, *supra* note 17, available in 1998 WL 79868, at *1-*20 (testimony of Dr. Timothy Wyant).

trial.¹¹⁷ The use of sampled data was necessary as a practical matter because information about the health risks of smoking, related expenses, incidence of smoking, and medical expenses not related to smoking surely could not be proved on an individual basis because of cost. On the other hand, in the two categories where individual proof could be obtained at a reasonable cost—the conduct of the defendants¹¹⁸ and the amount of damages¹¹⁹—traditional methods were employed, a response we view as entirely proper. The defense response also illustrates our proposal. Cross-examination of the plaintiffs' experts focused repeatedly on the validity of the research employed rather than on the fact that it was statistical in nature.¹²⁰

IV. BEYOND THE STATE TOBACCO CASES

Although the occasion for our analysis of sampling liability is the state tobacco litigation, our model can be generally applied. Certainly the state tobacco cases, which we have addressed to this point, are atypical of current mass tort litigation. Usually, those cases were each brought by a single plaintiff, the state; yet the causes of action stated in each case required proof involving very large numbers of Medicaid recipients. More typical are cases brought in a class action format where very large numbers of people are collected and represented by volunteer parties, known as class representatives.¹²¹ The problems of proof are essentially the same, but the status of the harmed people is different. In the state

¹¹⁷ See *Marcos*, 910 F. Supp. at 1466-69.

¹¹⁸ See, e.g., Trial Transcript, supra note 17, available in 1998 WL 45665, at *35-36 (testimony of Walker Merryman) (discussing alleged marketing efforts of tobacco companies to target youth).

¹¹⁹ See Trial Transcript, supra note 17, available in 1998 WL 72053, at *35-36 (testimony of Dr. Scott L. Zeger) (discussing the use of medical bills filed with the state or with Blue Cross and Blue Shield as a basis for establishing damages).

¹²⁰ See, e.g., Trial Transcript, supra note 17, available in 1998 WL 60253, at *34 (cross-examination of the plaintiffs' expert witness, Dr. Jonathan Samet) (implying that the special population of Minnesota Medicaid recipients should have been studied specifically in order to determine accurately health care costs related to smoking); Trial Transcript, supra note 17, available in 1998 WL 83136, at *13-15 (cross-examination of the plaintiffs' expert witness, Dr. Timothy Wyant) (arguing that the plaintiffs' statistical model was also flawed because it did not include enough variables influencing health and health care costs).

¹²¹ See Fed. R. Civ. P. 23(a) (providing that "[o]ne or more members of a class may sue or be sued as representative parties on behalf of all").

tobacco cases the plaintiff (the state, and sometimes, the insurance company) chose to bring a single action for total reimbursement rather than numerous actions for individual reimbursement, thus accepting the use of sampling. The defendants in the state tobacco cases should have been indifferent to a sampling methodology which would deliver essentially the same total result as would a series of individual adjudications. This should also be true of defendants in class actions. In class actions, however, individuals in the plaintiff class are subjected to the risk of underpayment or overpayment because of sampling (for example, if a plaintiff with relatively high damages was combined with a plaintiff with relatively low damages to produce the average amount of damages for the class). The opt-action provisions of the Rule 23(b)(3) class action¹²² provide a crucial opportunity for choice. Members of the class can choose to remain in the class and risk a reduced payment because of sampling, or choose to exit and pursue individual litigation in the hope of being awarded greater damages.¹²³

We recognize, of course, that in situations where the experiences of individual plaintiffs are quite different from one another, many plaintiffs might choose to opt-out, thereby defeating the purpose of class treatment. This would be most likely to occur when the plaintiffs are all lumped in one large category for sampling, increasing the likelihood that many would be dissatisfied with an “averaged” determination of liability. The proper solution to this problem of excessive opt-outs would be decertification of the class as originally certified, and certification of a new class with subclasses¹²⁴ certified for different sampling treatment. Too many subclasses would—just as excessive opt-outs—defeat the purpose of class treatment, so parsimonious use of separate categories or strata should be employed. We also recognize that the certification process and the sampling process must be carefully coordinated to avoid adverse selection. Opt-out *after* sampling must not be permitted, because if it were the defendant could be required to face an “averaged” liability determination applied only to weak (i.e.,

¹²² See Fed. R. Civ. P. 23(c)(2)(A) (allowing for the exclusion of class members who make such a request to the court “by a specified date”).

¹²³ See *id.*

¹²⁴ See Fed. R. Civ. P. 23(c)(4)(B) (permitting the division of classes into “subclasses”).

“below average”) cases. In the future, the defendant might then face strong (i.e., “above average”) cases on an individual basis.

The potential of sampling for solving currently intractable problems in complex civil litigation is great. For example, in *Alabama v. Blue Bird Body Co.*,¹²⁵ the Fifth Circuit reversed certification of a national b(3) class action because proof of the liability element of impact (fact of damage) was not practical to obtain.¹²⁶ The national class action had been certified for a claim that the defendant manufacturers of school bus bodies had conspired to fix prices, requiring proof that the numerous plaintiff class members had, in fact, been damaged or impacted by the alleged conspiracy. The court reviewed the precedents and, quoting the Fourth Circuit, observed:

[I]n cases where the fact of injury and damage breaks down in what may be characterized as “virtually a mechanical task,” “capable of mathematical or formula calculation,” the existence of individualized claims for damages seems to offer no barrier to class certification on grounds of manageability. On the other hand, where the issue of damages and impact does not lend itself to such a mechanical calculation, but requires “separate ‘mini-trial[s]’” of an overwhelming large number of individual claims, courts have found that the “staggering problems of logistics” thus created “make the damage aspect of [the] case predominate,” and render the case unmanageable as a class action.¹²⁷

Thus, according to the Fifth Circuit, proof of the impact element of liability in prior cases turns largely on the costs of gathering the information. The use of sampling could provide a practical solution in those cases involving “staggering problems of logistics.”¹²⁸

Sampling liability could also provide practical solutions to the problem of proving reliance in class actions claiming mail and wire fraud.¹²⁹ In *Andrews v. American Telephone & Telegraph Co.*,¹³⁰ the Eleventh Circuit reversed certification of a plaintiff class of indi-

¹²⁵ 573 F.2d 309 (5th Cir. 1978).

¹²⁶ See *id.* at 327-28.

¹²⁷ *Id.* at 326-27 (quoting *Windham v. American Brands, Inc.*, 565 F.2d 59, 68 (4th Cir. 1977)).

¹²⁸ *Id.* (quoting *Windham*, 565 F.2d at 68).

¹²⁹ See 18 U.S.C. § 1341 (1994) (providing that mail fraud is a federal crime); *id.* § 1343 (providing that fraud by wire, radio, or television is a federal crime).

¹³⁰ 95 F.3d 1014 (11th Cir. 1996).

viduals solicited for credit cards by organizations using 900-number call programs.¹³¹ The court based its reversal, in part, on the perceived cost of proving reliance, although the district court believed class treatment to be the “*only* feasible method of adjudication, given the small size of each member’s claims.”¹³² The practical problem of proof, viewed as intractable by the court of appeals and likely as outcome determinative by the trial judge, could easily have been solved by using sampling. In a closely related area, federal securities fraud, the failure of courts to employ a practical method of proof such as sampling resulted in a much criticized modification of substantive law to permit the use of class actions.¹³³ A “fraud on the market” doctrine was recognized to eliminate the necessity of individualized proof of reliance,¹³⁴ judicial lawmaking that would not be required according to our proposal.

Indeed, recognition of the potential use of sampling liability to provide a practical solution to mass federal wire and mail fraud claims raises the question of whether actions by large numbers of *individual* smokers against the tobacco interest might also reach a practical solution by sampling. If the states successfully used sampling to recover Medicaid payments, why not use the same methodology to foster the efficient resolution of individual tobacco suits? The issue was sharply presented in *Castano v. American Tobacco Co.*,¹³⁵ which was proposed as a national class action based on the theory that the defendant tobacco companies fraudulently failed to inform consumers that nicotine is addictive and manipulated the levels of nicotine to sustain addiction.¹³⁶ Although the court of appeals regarded this approach as novel, it was, of course, very similar to the claims made by the states in the Medicaid suits (particularly

¹³¹ See *id.* at 1023-25.

¹³² *Id.* at 1020 (quoting the trial court).

¹³³ See generally Louis Loss & Joel Seligman, *Fundamentals of Securities Regulation* 741-927 (3d ed. 1995) (discussing the laws governing securities fraud).

¹³⁴ See *id.* at 757-58, 1054-58 (explaining the “fraud on the market” presumption); see also Michael P. Dooley, *Fundamentals of Corporation Law* 958-80 (1995) (discussing class actions and the “fraud on the market” presumption); Paul G. Mahoney, *Precaution Costs and the Law of Fraud in Impersonal Markets*, 78 *Va. L. Rev.* 623, 626 (1992) (criticizing the “fraud on the market” theory by arguing that it achieves “less deterrence of fraud at a greater cost than . . . individual suits brought by investors who could prove reliance”).

¹³⁵ 84 F.3d 734 (5th Cir. 1996).

¹³⁶ See *id.* at 737.

Minnesota),¹³⁷ except that rather than two plaintiffs, the state and the insurance company, there were many. The trial court certified a b(3) national class, but the court of appeals reversed.¹³⁸ One problem, according to the court of appeals, was the trial court's treatment of the fraud claim for purposes of certification. The trial court refused to consider whether the reliance element of liability would be an issue in individual trials, apparently deferring the question. According to the court of appeals:

The problem with the district court's approach is that after the class trial, it might have decided that reliance must be proven in individual trials. The court then would have been faced with the difficult choice of decertifying the class after phase 1 and wasting judicial resources, or continuing with a class action that would have failed the predominance requirement of Rule 23(b)(3).¹³⁹

But the use of sampling for the reliance element could prevent such a supposedly painful choice by providing a practical measure of the degree of reliance.

Thus the circle comes full around in this sense: A practical solution for the states reaching compensation for Medicaid payments ought to be available to individuals seeking compensation for similar behavior. In both situations, sampling liability would prevent the costs of gathering information from determining the result of litigation and would open the door to determination on the merits. Indeed, the tobacco industry itself has provided an example of the use of sampled data in these cases. Industry lawyers introduced the results of a 1954 Gallup poll in an effort to prove that individual smokers assumed the risk of their behavior.¹⁴⁰ The answers to one question in the 1954 poll indicate, according to industry lawyers, that 90% of the general public knew about the risk of smoking.¹⁴¹ One industry expert also testified about the results of a 1960 survey conducted by *Senior Scholastic* magazine.¹⁴² Al-

¹³⁷ See *supra* text accompanying note 44.

¹³⁸ See *Castano*, 84 F.3d at 748-53.

¹³⁹ *Id.* at 745.

¹⁴⁰ See Milo Geyelin, *Gallup Accuses Big Tobacco of Misusing Poll in Court*, *Wall St. J.*, June 26, 1998, at B1, available in 1998 WL 3499439.

¹⁴¹ See *id.*

¹⁴² See *id.*

though both the poll and the magazine complained about the use, or, more precisely, the alleged distortion, of their research, the use of this data by defendants provides a strong example for plaintiffs. Consider the reliance problem in *Castano*. Defendant use of sampled data to show knowledge would be closely analogous to plaintiff use of sampled data to show reliance. Our proposal would provide support for both defendants and plaintiffs in such a case because of the practical necessity of using sampled data to reach the merits on both issues.

CONCLUSION

The suits brought by the states to recover Medicaid payments from the tobacco industry brought to the forefront problems of proof in civil actions involving a huge number of people. The substantive law required the states to show that the behavior of the defendants resulted in the illness of Medicaid beneficiaries which in turn resulted in payments by the states. The cost of carrying out this task and proving liability with respect to each recipient would have been prohibitive, given the substantial number of Medicaid recipients. Thus, the dilemma was posed that states might fail in legally sanctioned recovery efforts simply because of the high information search costs and not because of the merits of their claim. The response of some states in passing statutes permitting use of "statistical analysis" has been remarkable.

We began by asking about the meaning of this legislation and went on to propose a model of proof for complex cases which suggests that such statutes should, at a minimum, be construed to permit sampling to determine elements of liability when proof might otherwise be prohibited by cost. This interpretation provides a solution to the cost problem: Sampling methodology is the classic scientific response to the problem of high cost in data collection. We also argue that the same result should be obtained without a statute in jurisdictions following *Daubert v. Merrell Dow Pharmaceuticals*,¹⁴³ which merged legal and scientific method with the assertion that valid science is valid legal evidence. According to a strong reading of *Daubert*, a valid sample of some element of liability is valid legal evidence of that element. Thus, the federal

¹⁴³ 509 U.S. 579 (1993).

courts, which are bound by *Daubert*, could sample liability without legislative authorization, and the same would be true for state courts which follow *Daubert*. In other states the powerful rationale of *Daubert* might provide a sufficient justification for sampling.

Our model is neither “pro-plaintiff” nor “pro-defendant,” but strongly favors adjudication on the merits of a legal dispute rather than disposition according to information search costs. Indeed, our commitment to adjudication on the merits applies regardless of subject matter. This view leads us to propose the application of our model to cases involving diverse subjects. We find ample opportunity to use sampling to solve information cost problems in federal antitrust litigation, federal mail and wire fraud claims, and in individual fraud claims against the tobacco industry. Although the format of the state tobacco cases was different from the class action format typically found in these cases, the potential for sampling to solve information cost problems is the same. Furthermore, defendants in these cases should be indifferent to the method of proof since the aggregate outcome will be similar to the sums of individual verdicts, and the opt-out provisions of Rule 23(b)(3) offer class members an appropriate choice as to sampled or individualized methods of proof. In both these cases and the state tobacco cases, sampling liability would diminish the effect of information search costs on outcome and increase the likelihood of adjudication on the merits.

