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MALPRACTICE LIABILITY FOR PHYSICIANS AND MANAGED CARE ORGANIZATIONS

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This Article provides an economic analysis of optimal negligence liability for physicians and managed care organizations (MCOs), explicitly modeling the role of physician expertise (and inadvertent error) and MCO authority. Professors Arlen and MacLeod find that even when patients anticipate the risks imposed on them, physicians and MCOs do not take optimal care absent sanctions for negligence because markets and contracts cannot regulate their non-contractable, post-contractual actions that are essential to optimal care. Negligence liability can induce optimal care if damage rules are optimal. Optimality generally will require that MCOs be held liable for negligence by affiliated physicians, in addition to their own negligence. Moreover, Professors Arlen and MacLeod find that MCOs should be liable even when they do not exert direct control over physicians. Finally, they show that it may be optimal to preclude physicians and MCOs from obtaining liability waivers from patients, even when patients are fully informed and waive only when it is in their interests to do so at that moment.

The important question isn't how to keep bad physicians from harming patients; it's how to keep good physicians from harming patients.[†]

INTRODUCTION

Life is uncertain. People continually make important decisions unsure of the correct course of action. They investigate the matter, consult with others, and assess various options. Then, in a state of informed ignorance, they act.[1]

Perhaps nowhere is this more evident than in the provision of medical care. Patients entrust their fate to medical professionals with only imperfect information about the quality of the care those professionals will provide. In turn, medical professionals make treatment decisions essential to patients' lives without perfect knowledge of, or perfect capacity to control, the outcomes of their actions.

In most cases, patients fare well under this care; but in many cases, they do not. All too often, medical providers err. Indeed, medical error results in approximately 98,000 deaths per year and countless injuries.[2] Many of these mistakes result from medical personnel providing negligent treatment.[3] While some negligence can be blamed on incompetent or impaired physicians,[4] most negligent treatment is provided by good physicians who err.[5]

Perfect care is impossible. Even if perfect care theoretically were attainable, it would be prohibitively expensive. Thus, the medical system must solve a complicated problem: how to induce medical professionals to provide the medical care (including the rate of error) that represents the optimal balance between considerations of cost and quality.

[†] Atul Gawande, Complications: A Surgeon's Notes on an Imperfect Science 56-57 (2002).

[1] In other words, people at best exhibit "bounded rationality"—limited by information costs and the extent of their own foresight and analytical capacity. See generally Paul Milgrom & John Roberts, Economics, Organization and Management 128-31 (1992) (discussing bounded rationality).

[2] Institute of Medicine, To Err is Human: Building a Safer Health System 26 (Linda T. Kohn et al. eds., 2001).

[3] See infra Parts I.B and II.C.1.

[4] See infra notes 106 and 109.

[5] See infra Parts I.B and II.C.1.

Historically, physicians were vested with primary control over determining how to balance concerns of cost and quality in providing medical care, and were subject to the threat of malpractice liability to encourage them to limit the amount of medical error.[6] In the 1990s, however, managed care organizations (MCOs) revolutionized the health care industry, largely replacing traditional indemnity insurance.[7] Unlike traditional indemnity insurance providers—which limit themselves to paying for medical services—MCOs affect treatment choice by intervening directly in treatment selection through a process called "utilization review." Utilization review effectively enables MCOs to determine directly the medical care patients receive in many circumstances. MCOs also can, and do, intervene in medical care indirectly through the incentives they provide to physicians to prefer one type of care—usually lower-cost care—over another.

The rise of MCOs thus introduces a second medical provider with the capacity to affect the cost and quality of care patients receive. This requires reconsideration of the present system for regulating medical care, which continues to rely significantly on tort liability aimed primarily at physicians. In particular, the prevalence of MCOs raises questions about whether MCOs should be held liable in tort, and, if so, whether liability should be limited to MCOs' own coverage decisions or whether MCOs also should be liable for physician negligence.

MCOs currently seek authority to influence patient care but resist efforts to hold them liable either for their own negligent treatment coverage decisions or for negligent treatment provided by affiliated physicians. Physicians, too, increasingly are seeking insulation from malpractice liability. Both groups assert that market forces and physician norms (or compassion) are sufficient to ensure that patients receive medical care that represents an optimal balance between considerations of cost and quality.

This Article employs economic analysis to examine the claim that contracts and market forces suffice to ensure that MCOs and physicians provide optimal care. We show that contracts and market forces are not sufficient to ensure optimal care: Absent sanctions, neither MCOs nor physicians provide optimal care. Moreover, we find that contracts and market forces cannot be relied upon to induce optimal

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[6] See infra notes 35-36 and accompanying text.

[7] Managed care organizations (MCOs) now cover 70% to 98% of all Americans with health insurance. Sherry Glied, Managed Care, in 1A Handbook of Health Economics 708, 708-10 (Anthony J. Culyer & Joseph P. Newhouse eds., 2000); Jacob S. Hacker & Theodore R. Marmor, How Not to Think About "Managed Care," 32 U. Mich. J.L. Reform 661, 669-70 (1999).

care even when patients correctly anticipate the risks physicians and MCOs impose on them.

This Article then examines the optimal scope of physician and MCO negligence liability for medical malpractice, showing the importance of holding MCOs liable for their negligent treatment coverage decisions and determining optimal damage awards. In addition, the Article examines whether MCOs should be held liable for the negligence of affiliated physicians, and shows that such liability is essential to the provision of optimal medical care under plausible circumstances. Moreover, we find that MCOs should be liable for physician negligence even when they do not exert sufficiently direct control over physicians to satisfy the requirements for traditional vicarious liability. Finally, this Article examines the claim that any liability imposed on MCOs should be voluntary—that MCOs should be permitted to ask patients to waive liability because patients will do so only when it is in their best interests. This Article shows that permitting patients to waive liability is likely to be inefficient even if patients are fully informed about the costs of waiver and waive only when it is in their interests to do so at that moment.

To analyze medical malpractice, this Article develops an economic model of the patient, physician, and MCO relationship that departs from the existing literature on malpractice in several ways. Perhaps most importantly, in contrast with existing economic analyses of MCO liability, which generally rely on the classic economic model of entity-level liability,[8] this Article expands the traditional framework to account for essential features of the patient-physician-MCO relationship not incorporated in the traditional model.[9]

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[8] See, e.g., Patricia M. Danzon, Tort Liability: A Minefield for Managed Care?, 26 J. Legal Stud. 491 (1997) (employing traditional model of vicarious liability to analyze MCO liability); Richard A. Epstein & Alan O. Sykes, The Assault on Managed Care: Vicarious Liability, ERISA Preemption, and Class Actions, 30 J. Legal Stud. 625, 626-27 (2001) (same).

[9] This Article also departs from much of the existing law-and-economics literature in other ways. First, although extensive literature exists on physician malpractice and MCO liability, these analyses generally examine physician and MCO liability separately. See, e.g., Patricia M. Danzon, Medical Malpractice: Theory, Evidence and Public Policy (1985); Guido Calabresi, The Problem of Malpractice: Trying to Round Out the Circle, 27 U. Toronto L.J. 131 (1977); Gary T. Schwartz, Medical Malpractice, Tort, Contract, and Managed Care, 1998 U. Ill. L. Rev. 885, 900-06; see also Kenneth J. Arrow, Uncertainty and the Welfare Economics of Medical Care, 53 Am. Econ. Rev. 941 (1963); infra note 15. We consider physician and MCO liability simultaneously because their actions are inextricably linked. Second, existing analyses of MCO liability generally consider the scope of liability without thoroughly considering optimal damage rules. See infra note 15. This Article considers both together since optimal malpractice reform cannot be accomplished without reforming damage rules.

The traditional model of entity-level liability essentially overlays a particular principal-agent relationship onto the classic economic model of torts. In this model, individual agents determine the probability of an accident by choosing their level of care. Agents are assumed to be perfectly informed about the costs and benefits of their own actions, and thus can decide not to be negligent. The principal has no direct effect on care; it influences care solely through the incentives it provides its agents.[10]

In contrast with the traditional model, in actuality physicians are not perfectly informed about the costs and benefits of their decisions when providing medical care. Physicians often err and provide negligent medical care accidentally.[11] Medical care is such a complex task—involving uncertainty about the patient's condition, the range of treatments, and their likely outcomes—that even physicians who want to provide optimal care may unknowingly fail to do so. Accordingly, we expand the economic model of accidents to recognize the possibility of accidental physician error.

The probability of accidental physician error is not predetermined, however. A physician can reduce the probability that she is negligent by investing in expertise.[12] Accordingly, to assess optimal medical malpractice liability we expand the economic model of accidents to take explicit account of the role of physician expertise in determining the expected quality of treatment provided.

Economic analysis of optimal malpractice liability also requires that we account for the special nature of the MCO-physician relationship. The traditional model of entity-level liability assumes that entities can affect care only indirectly, by influencing their agents' actions.[13] By contrast, MCOs assert authority to determine directly the medical care patients receive, through the use of utilization review. Under utilization review, MCOs intervene prior to treatment

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[10] E.g., Lewis A. Kornhauser, An Economic Analysis of the Choice Between Enterprise and Personal Liability for Accidents, 70 Cal. L. Rev. 1345, 1346 (1982); Alan O. Sykes, The Economics of Vicarious Liability, 93 Yale L.J. 1231, 1237 (1984); see Jennifer H. Arlen, The Potentially Perverse Effects of Corporate Criminal Liability, 23 J. Legal Stud. 833, 839-40 (1994) (considering monitoring but not authority); Jennifer H. Arlen & Reinier Kraakman, Controlling Corporate Misconduct: An Analysis of Corporate Liability Regimes, 72 N.Y.U. L. Rev. 687, 706-12 (1997) (same); A. Mitchell Polinsky & Steven Shavell, Should Employees Be Subject to Fines and Imprisonment Given the Existence of Corporate Liability?, 13 Int'l Rev. L. & Econ. 239, 240 (1993) (assuming only agents directly control care).

[11] See infra Parts I.B and II.C.1.

[12] See infra Part II.C. See generally Atul Gawande, Complications: A Surgeon's Notes on an Imperfect Science (2002) (describing physician learning post-medical school and its implications for patient health).

[13] See, e.g., Kornhauser, supra note 10, at 1346; Sykes, supra note 10, at 1237.

to review proposed treatments, denying coverage for any treatment the MCO deems either not "medically necessary" or as "experimental." MCOs have considerable discretion to make these treatment decisions in their own best interests.[14] Thus, to analyze MCO liability, this Article explicitly considers MCOs' ability to use authority both to influence treatment choice directly and to indirectly affect the quality of physician-selected care.

This Article is, to our knowledge, the first to explicitly model the interaction of physician expertise, MCO authority, and liability.[15] While this Article focuses on medical malpractice, the model we develop can be employed to provide more general insights into the role of tort law in other areas that do not fit within the classic economic model of accidents.[16]

This Article proceeds as follows. Part I summarizes the current state of medical malpractice liability. Part II analyzes how physicians and MCOs would behave if each took those actions that maximize patient-physician-MCO joint welfare. Part III examines physician and MCO behavior when their actions are governed solely by markets and private contracting without sanctions imposed for negligence, and shows that their behavior will be inefficient. Part IV examines optimal negligence liability for MCO and physician negligence and determines optimal damage rules. Part V analyzes the allocation of liability for physician negligence and shows that MCOs should be liable for physician negligence. Part VI demonstrates that the parties' joint welfare may be higher when MCOs (and physicians) are not per-

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[14] The seminal economic analysis of authority is Phillippe Aghion & Jean Tirole, Formal and Real Authority in Organizations, 105 J. Pol. Econ. 1 (1997). We expand on this analysis by considering both the interaction of authority and liability and the interaction of authority and incentive contracts.

[15] In contrast with the present analysis, other recent analyses of MCO liability do not explicitly examine the impact of physician expertise or MCO utilization review on either the quality of care provided to patients or on the behavior of other medical providers and therefore do not formally consider the impact of liability on expertise and authority. See, e.g., Danzon, supra note 8; Epstein & Sykes, supra note 8; Clark C. Havighurst, Vicarious Liability: Relocating Responsibility for the Quality of Medical Care, 26 Am. J.L. & Med. 7 (2000); William M. Sage, Enterprise Liability and the Emerging Managed Health Care System, 60 Law & Contemp. Probs. 159 (1997) (examining enterprise liability for MCOs); see also Kenneth S. Abraham & Paul C. Weiler, Enterprise Medical Liability and the Evolution of the American Health Care System, 108 Harv. L. Rev. 381 (1994) (examining enterprise liability for hospitals); Kathy Zeiler, Medical Malpractice and Contract Disclosure: An Equilibrium Model of the Effects of Legal Rules on Behavior in Health Care Markets (Sept. 16, 2002) (unpublished draft, on file with *New York University Law Review*), available at http://www.hss.caltech.edu/~zeiler/zeiler%20job%20market%20paper.pdf (discussing damages and disclosure rules when MCOs employ capitation agreements but do not use authority).

[16] See infra note 173 and accompanying text.

mitted to obtain liability waivers from patients, even when patients only waive voluntarily and accurately estimate the expected costs and benefits of waiver.

I
INSTITUTIONAL AND LEGAL BACKGROUND

Every year millions of Americans become seriously ill and turn to physicians to provide care. In so doing, they largely relinquish control over their fate to their doctors. Medical decisions are so complex that it takes years of training, both in school and afterwards, to obtain the expertise necessary to diagnose illnesses and assess treatments. Moreover, research continually is leading to new advances in diagnoses, treatments, and procedures. Only someone specializing in medicine can hope to keep current. Patients thus generally must rely, of necessity, on medical care professionals to diagnose them properly, select treatment, and provide the best care possible, given appropriate considerations of cost.[17] Whether these medical professionals indeed provide optimal care depends on whether they have the capacity and desire to do so.

The United States relies on two basic systems to provide and pay for medical care. These can be differentiated based on the nature of the patient's insurance coverage: traditional indemnity insurance or managed care.[18] MCOs now dominate the market; there is little true indemnity insurance anymore.[19]

Although each system relies on private physicians to provide treatment, and on an insurer to pay for treatment costs, a critical difference exists between the two. Under indemnity insurance, the physician determines what treatment the patient receives without any pretreatment input from the insurer.[20] By contrast, MCOs can influence

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[17] See Arrow, supra note 9, at 965-66; infra Part II.B.

[18] Any discussion of MCOs is complicated by the fact that "MCOs" take a variety of forms and there is no clear definition of what constitutes an MCO. See Glied, supra note 7, at 708-11. We use the terms "indemnity insurance" (often referred to as "fee-for-service" insurance) and "managed care organization" to differentiate insurers based on whether the insurer has the capacity to preauthorize insurance coverage for physicians' treatment decisions. "Indemnity insurance" thus refers to the traditional insurance under which patients are reimbursed for their medical expenses (after a deductible) and no efforts are made to control costs. The term MCO applies to any plan that asserts pretreatment authority over the treatment decision, regardless of the plan's official designation as an MCO, Health Maintenance Organization (HMO), or Blue Cross plan.

[19] Glied, supra note 7, at 708-11.

[20] See supra note 18.

treatment choice directly through utilization review.[21] Thus, expected patient care depends on MCOs' incentives to provide optimal care.

This Part discusses traditional indemnity insurance and the system that has come to supplant it: managed care. This Part then addresses the existing laws governing physician and MCO negligence.

A. Medical Care Under Indemnity Insurance

The health care industry provides two basic services: medical care and insurance. Under indemnity insurance—the dominant form of insurance until the late 1980s[22]—these two services are provided separately. Under traditional indemnity insurance, the physician determines what treatment the patient should receive. The insurer then pays for any treatment provided (minus a deductible) without inquiring into whether the treatment was necessary or appropriate.

This system leads to excessive medical costs. Patients with indemnity insurance have little reason to consider treatment costs once ill because the insurer, not the patient, bears the additional cost of more expensive treatment.[23] Thus, patients seek the highest quality treatment available. Physicians in turn provide high cost treatment because they do not bear treatment costs. Indeed, indemnity insurance may encourage unnecessary procedures, since physicians are compensated based on the treatments provided, and not based on patient outcomes.[24] As a result, under this system patients often receive excessive care.[25]

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[21] MCOs also can influence care indirectly through their decisions as to with which physicians and hospitals to contract, the cost-cutting incentives they provide to doctors, and other measures. See infra Part II.D.5.

[22] Walter A. Zelman & Robert A. Berenson, The Managed Care Blues and How to Cure Them 1-3, 53, 61 (1998).

[23] While patients with indemnity insurance often must bear deductibles and portions of the cost, patients' total out-of-pocket costs generally are capped. Thus, in the case of expensive treatments, the insurer, not the patient, bears the full marginal cost of any decision to provide more expensive care.

[24] Russell Korobkin, The Efficiency of Managed Care "Patient Protection" Laws: Incomplete Contracts, Bounded Rationality, and Market Failure, 85 Cornell L. Rev. 1, 10 (1999).

[25] E.g., Michael Chernew, General Equilibrium and Marketability in the Health Care Industry, 26 J. Health Pol. Pol'y & L. 885, 887-88 (2001) (noting that consumption of medical care is greater than optimal under fee-for-service insurance); see Daniel P. Kessler & Mark B. McClellan, Do Doctors Practice Defensive Medicine?, 111 Q.J. Econ. 353, 356, 385-88 (1996) (concluding that, absent limitations on liability, doctors provide excessively costly treatment); Daniel P. Kessler & Mark B. McClellan, Medical Liability, Managed Care, and Defensive Medicine 17 (Nat'l Bureau of Econ. Research, Working Paper 7537, Feb. 2000) [hereinafter Kessler & McClellan, Managed Care] (arguing that MCOs appear to reduce cost relative to fee-for-service without reducing quality). But see infra Part III.B.5 (discussing evidence that MCOs reduce quality for some classes of treatments and some patients).

Under this system of indemnity insurance, health care expenditures in the United States skyrocketed. Health care spending went from 5.1% of GDP in 1960 to 14.1% in 2001.[26] The burden of this dramatic rise in costs was not borne simply by insurers. Patients also bore the expected cost of expensive medical care ex ante through higher insurance premiums and lower salaries,[27] which resulted in some patients being unable to afford insurance.

B. Quality of Medical Care

High-cost medical care has not ensured that patients receive high quality care. Indeed, studies suggest that physicians often provide substandard medical care.[28] One study found that only about 60% of patients with chronic diseases received the care indicated by medical literature; moreover, 20% of patients received contraindicated care.[29] A recent RAND study found that patients on average received only 54.9% of recommended care.[30] For example, fewer than half of diabetics had their blood sugar levels measured regularly, even though monitoring is important to prevent serious complications associated with diabetes (such as kidney failure and loss of limbs).[31]

Moreover, patients often are injured by the care they receive. Studies of medical care in hospitals reveal that hospital patients regularly are injured by medical error. The Harvard Medical Practice

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[26] See Katharine Levit et al., Trends in U.S. Health Care Spending, 2001, 22 Health Aff. 154, 154 (2003); Center for Medicare & Medicaid Services, National Health Care Expenditures, http://cms.hhs.gov/publications/overview-medicare-medicaid/default2.asp.

[27] While many patients receive insurance through their employers, employers respond to any increase in the costs of providing such insurance by paying lower wages. See Zelman & Berenson, supra note 22, at 17-18.

[28] E.g., Institute of Medicine, supra note 2; Lori B. Andrews et al., An Alternative Strategy for Studying Adverse Events in Medical Care, 349 Lancet 309 (1997) (analyzing medical errors in three surgical units based on on-site observation of error); Thomas J. Krizek, Surgical Errors: Ethical Issues of Adverse Events, 135 Archives of Surgery 1359, 1360-61 (2000) (same); Elizabeth A. McGlynn et al., The Quality of Health Care Delivered to Adults in the United States, 348 New Eng. J. Med. 2635 (2003) (discussing RAND study of physician failure to provide medically appropriate treatment); Mark A. Schuster et al., How Good is the Quality of Health Care in the United States?, 76 Milbank Q. 517, 521 (1998) (same); Paul C. Weiler et al., A Measure of Medical Malpractice: Medical Injury, Malpractice Litigation, and Patient Compensation (1993) (discussing Harvard Medical Practice Study, which examined written hospital records).

[29] Schuster et al., supra note 28, at 521.

[30] McGlynn et al., supra note 28, at 2635, 2641.

[31] Id. at 2642-43. Only 45% of heart attack patients received medications that could reduce their risk of death by more than 20%; only 38% of adults in the study were screened for colorectal cancer where routine screening and appropriate follow-ups could prevent an estimated 9600 deaths per year; fewer than two-thirds of elderly Americans were vaccinated against pneumonia; such vaccinations could prevent about 10,000 deaths per year. Id.

Study examined written hospital records and determined that about 4% of hospitalized patients were injured by the care they received, with one quarter of these injuries resulting from medical negligence. One quarter of the victims of negligence died as a result.[32] A subsequent research team, examining medical error in three surgical units based on on-site observation of care, found that almost 18% of the patients were the victims of at least one serious error.[33]

Contrary to conventional wisdom, this medical error has not produced a spate of tort litigation. Evidence reveals that patients rarely sue their doctors, even when they are the victims of serious error.[34] There also is evidence that patients who sue were more likely than not the victims of medical error, and that the tort system does differentiate between legitimate and frivolous suits, in that plaintiffs with legitimate suits are more likely to win and receive higher average awards than patients with strike suits.[35] While the evidence on the

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[32] Weiler et al., supra note 28, at 42-44, 137-39 (describing results of Harvard Medical Practice Study, which examined 30,195 written records in New York state hospital system); see also David A. Hyman, Medical Malpractice and the Tort System: What Do We Know and What (If Anything) Should We Do About It?, 80 Tex. L. Rev. 1639, 1641-44 (2002) (same).

[33] See Andrews et al., supra note 28, at 311; Krizek, supra note 28, at 1360-61. This study defined medical error (specifically "adverse events") as "situations in which an inappropriate decision was made when, at the time, an appropriate alternative could have been chosen." Andrews et al., supra note 28, at 310.

The lower rate of error in the Harvard Medical Practice Study than in the Andrews and Krizek study appears to be attributable, at least in part, to the Harvard study's reliance on written hospital records for evidence of negligence. Written hospital records understate the amount of negligence. Krizek, supra note 28, at 1361 (finding that comparison of written hospital records with on-site observation of error revealed that almost 80% of observed adverse events or errors were not officially recognized or recorded in written records).

[34] See Andrews et al., supra note 28, at 312 (reporting that only 13 of 175 patients who suffered serious error filed suit); Krizek, supra note 28, at 1360-61; see also Paul C. Weiler, Medical Malpractice on Trial 12-13 (1991) (reporting that Harvard Medical Practice Study found that only one in eight potentially valid claims of medical malpractice was actually filed, and that in cases of serious injuries, only approximately one tort payment was received for every three serious injuries).

[35] A study based on on-site evaluation of medical error found that patients who sue generally are indeed the victims of medical error. Andrews et al., supra note 28, at 312 (finding that eleven out of thirteen tort suits filed had merit in that they were brought for treatment-induced adverse event); Krizek, supra note 28, at 1361.

There is evidence from insurance company investigations that suggests that plaintiffs who prevail in tort generally had meritorious claims, and that large damage awards generally go to plaintiffs with valid claims, not frivolous ones. These results hold both for jury trials and settled cases. E.g., Henry S. Farber & Michelle J. White, A Comparison of Formal and Informal Dispute Resolution in Medical Malpractice, 23 J. Legal Stud. 777, 799 (1994) ("Controlling for severity, settlements in cases with bad care are estimated to be almost four times larger than in cases with good care."); Henry S. Farber & Michelle J. White, Medical Malpractice: An Empirical Examination of the Litigation Process, 22 RAND J. Econ. 199, 205 (1991) (presenting "strong evidence that negligence matters in

quality of the tort system is not unambiguous, the existing data does suggest that tort liability is a potentially useful tool for deterring negligence.[36]

C. *Managed Care Organizations*

In the 1990s, MCOs arose to address the problem of excess health care costs.[37] They now dominate America's health care insurance industry.[38] Most MCOs control costs, at least in part, by requiring physicians to obtain prior approval for treatments through a process called utilization review.[39] Utilization review provisions generally give MCOs the right to deny coverage for any treatments that either are not "medically necessary" or are considered "experimental." Moreover, MCOs assert the right to pre-authorize coverage—reviewing claims prior to physicians providing any treatment.[40] An

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determining liability"); see also Patricia Danzon & Lee Lillard, Settlement Out of Court: The Disposition of Medical Malpractice Claims, 12 J. Legal Stud. 345, 347 (1983) (finding that criticisms of negligence liability as being random are unfounded); Michelle J. White, The Value of Liability in Medical Malpractice, 13 Health Aff. 75, 77 (1994) (discussing evidence that claims involving negligence resulted in average award of $205,000, compared with $41,800 for claims not involving negligence).

[36] Those who claim tort liability is imposed randomly often cite the Harvard Medical Practice Study. See, e.g., Epstein & Sykes, supra note 8, at 642. The Harvard Study is an excellent study of medical error. Yet it included so few observations in which a suit was filed that its data cannot be used to draw any statistically significant conclusions regarding the tort system. See Patricia M. Danzon, Medical Malpractice, in 2 The New Palgrave Dictionary of Economics and the Law 624, 626 (Peter Newman ed., 1998). Moreover, to assess claim validity, the Harvard Study evaluated the merits of each claim using written hospital medical records. However, written hospital records do not document most observed medical error. See supra note 33. Thus many of the claims the Harvard Study determined to be invalid might, in fact, have been valid.

[37] See supra note 18 (defining MCOs and including HMOs).

[38] As of 1997, only 2% of health plans conformed to traditional fee-for-service plans, while 98% of health plans are either managed care or fee-for-service programs with some form of utilization review. See Hacker & Marmor, supra note 7, at 669-70.

[39] See Glied, supra note 7, at 716-17. MCOs also often use capitation agreements and other incentive arrangements to limit treatment costs. Under capitation agreements, each contracted primary care physician receives a fixed rate of payment for agreeing to provide services to an individual patient over a certain period of time; the physician bears all the costs of any services provided, over and above a small fee paid by the patient. While many plans are moving away from standard capitation because physicians are not good risk bearers, MCOs still employ a variety of measures to induce physicians to take treatment costs into account. Id. at 715.

[40] To implement a preauthorization utilization review process, an MCO generally employs a computer algorithm to review each initial treatment request, flagging certain requests for further clinical review. A nurse then usually reviews these cases, applying fairly basic screening criteria, to determine which ones require further physician review. Physicians then review certain cases, based on published studies of medical effectiveness as well as their own clinical judgment, and make determinations of medical appropriateness. See Mark A. Hall & Gerald F. Anderson, Health Insurers' Assessment of Medical Necessity, 140 U. Pa. L. Rev. 1637, 1654 (1992) (describing typical pre-certification procedure).

MCO's denial of insurance coverage often is a de facto denial of treatment, especially if the patient cannot pay for the treatment himself.[41]

Though MCOs can employ utilization review to reduce expected medical costs, this cost reduction need not necessarily come at the expense of quality. MCOs potentially can improve health care quality both through utilization review and through other measures. Physicians' medical practices often are based on custom and anecdotal experience; many treatments have yet to be tested empirically.[42] Even when best practices are known, physicians do not always adhere to them.[43] MCOs potentially can use their considerable data on treatment outcomes to assess treatment effectiveness and to intervene to improve treatment quality, both directly through the use of utilization review and indirectly through provision of treatment protocols to physicians. MCOs also can regulate the quality of care through both their control over which hospitals and physicians are included in the system and the financial incentives they provide to physicians. Finally, MCOs can, and do, influence physician choice through the financial incentives they provide physicians to prefer more appropriate treatment over less appropriate treatment.[44]

While MCOs potentially can improve quality, MCO intervention in health care also can reduce quality.[45] Utilization review can adversely affect patient outcomes in multiple ways. First, MCOs may use utilization review to deny physician-recommended treatment in favor of a substantially less beneficial treatment. Second, the process of utilization review itself may harm patients, even if an MCO eventually covers the recommended treatment. Many MCOs employ summary protocols to determine whether to deny a claim initially, placing the burden on patients to appeal the decision.[46] This utilization review process may effectively deny the patient the recommended

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[41] See Corrine P. Parver & Kimberly Alyson Martinez, Holding Decision Makers Liable: Assessing Liability Under a Managed Health Care System, 51 Admin. L. Rev. 199, 228 (1999); William M. Sage, Managed Care's Crimea: Medical Necessity, Therapeutic Benefit, and the Goals of Administrative Process in Health Insurance 6-7 (2003) (working paper, on file with *New York University Law Review*) (arguing that MCOs now are willing to acknowledge their influence over clinical care and seem to have abandoned fiction that medical necessity determinations are merely coverage decisions).

[42] See Jack Hitt, Evidence-Based Medicine, N.Y. Times, Dec. 9, 2001, § 6 (Magazine), at 68 (reporting that some experts estimate that only 20% of medical practices are based on rigorous research evidence); Lisa Sanders, Medicine's Progress, One Setback at a Time, N.Y. Times, Mar. 16, 2003, § 6 (Magazine), at 29-30 (stating that evidence-based medicine is relatively new development).

[43] McGlynn et al., supra note 28, at 2641-42; Schuster et al., supra note 28, at 520-21.

[44] See infra Part IV.

[45] See infra Part III.B.5 (discussing evidence that MCOs have reduced outcomes for some patients and procedures).

[46] See supra note 40 (describing process of utilization review).

treatment if MCO approval comes after the recommended treatment is no longer effective.[47] Finally, MCOs also can adversely affect quality by providing financial incentives to physicians to choose lower cost, lower quality treatments.[48]

D. MCO Liability

While indemnity insurers do not face potential tort liability for patients' injuries resulting from negligent treatment, patients have cited MCOs' greater role in medical care as a basis for holding MCOs liable for malpractice. Patients have sought, and continue to seek, to recover from MCOs directly for MCO treatment denials that resulted in patients receiving negligent care. They also seek to recover from MCOs under a theory of vicarious liability for injuries resulting from negligent care rendered by an MCO-affiliated physician.

Patients face considerable hurdles in recovering from MCOs for either negligent treatment coverage decisions or negligent treatment provided by affiliated physicians. Moreover, to the extent that courts recently have been more willing to permit patients' tort suits against MCOs, this expansion of liability has occurred primarily in suits seeking to hold MCOs liable for physician negligence. MCOs remain largely insulated from state tort actions based on claims that MCOs provided negligent treatment through the operation of utilization review.[49]

1. MCO Liability for Negligent Treatment Decisions

Patients often face significant hurdles when suing MCOs with claims based on denial of coverage. The most significant hurdle is presented by the Employee Retirement Income Security Act of 1974

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[47] For examples of patient injuries allegedly relating to delays associated with preauthorization MCO review, see, e.g., Roark v. Humana, Inc., 307 F.3d 298, 303 (5th Cir. 2002) (alleging that Aetna's initial refusal to approve physician-recommended drug Vioxx—which carries low ulcer risks—forced patient to take alternative drug first, causing severe bleeding ulcers and rendering patient incapable of taking Vioxx or any other medication absorbed through stomach); Cicio v. Vytra Healthcare, 208 F. Supp. 2d 288, 290 (E.D.N.Y. 2001), aff'd in part and vacated in part, 321 F.3d 83 (2d Cir. 2003) (alleging that delay between MCO's initial denial of coverage of physician-recommended cancer treatment and subsequent approval of treatment was sufficiently long to render treatment ineffective); Pappas v. Asbel, D.O., 768 A.2d 1089, 1091 (Pa. 2001) (alleging that health care plan's refusal to transfer patient to appropriate facility introduced sufficient delay that patient was rendered quadriplegic).

[48] See infra note 119 (discussing capitation).

[49] See generally Gail B. Agrawal & Mark A. Hall, What If You *Could* Sue Your HMO? Managed Care Liability Beyond the ERISA Shield, 47 St. Louis U. L.J. 235 (2003) (discussing changes in laws governing MCO liability); Sage, supra note 41, at 18-19 (discussing how Supreme Court has cut back on ERISA's preemptive reach).

(ERISA),[50] which precludes most patients from recovering in tort against MCOs for injuries resulting from MCOs' coverage denials.[51]

ERISA is a comprehensive federal statute governing employee benefit plans, including any health plans provided by employers.[52] ERISA potentially prevents tort suits against MCOs for coverage denials by restricting damages for such actions to the cost of the denied coverage.[53] It also prevents many patients from pursuing state law tort claims for consequential (i.e., compensatory) damages by pre-empting state laws that "relate to" the administration of a covered employee benefit plan.[54]

Courts generally hold that ERISA preempts suits against MCOs for negligent treatment coverage decisions.[55] Although several Supreme Court decisions since 1995 have resulted in a softening of the ERISA preemption doctrine—leading some courts to permit treatment coverage claims against MCOs that are brought as "quality of care" claims[56]—most courts continue to hold that treatment coverage

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[50] Pub. L. No. 93-406, 88 Stat. 829 (codified as amended at 29 U.S.C. §§ 1001-1461 (2000)).

[51] See Agrawal & Hall, supra note 49, at 236 (arguing that ERISA significantly restricts insurance subscribers' ability to obtain tort damages based on conduct of MCOs). In addition, while patients generally have state law contract claims against MCOs for treatment coverage denials, in many states patients do not necessarily have the right to sue MCOs in tort for injuries arising from coverage denials. Recently, various state legislatures have enacted statutes that provide for state law tort actions against health plans, and many other states are considering such legislation. See id. at 271-79; Nancy R. Mansfield et al., Evolving Tension Between HMO Liability Precedent and Legislation, 36 Tort & Ins. L.J. 949, 972-73 & n.184 (2001).

[52] Since at least 60% of non-elderly Americans receive health coverage through their employers, ERISA applies to most private health plans. See Sage, supra note 15, at 180. Moreover, it applies not only to the employers themselves, but also to the insurers and administrators to whom employers delegate responsibility for their health plans. See Mansfield et al., supra note 51, at 950.

[53] 29 U.S.C. § 1132(a)(1)(B).

[54] See 29 U.S.C. § 1144(a). A full discussion of ERISA preemption is beyond the scope of this Article. For an excellent discussion of this issue, see John H. Langbein & Bruce A. Wolk, Pension and Employee Benefit Law, ch. 10 (3d ed. 2000).

[55] See Karen A. Jordan, Coverage Denials in ERISA Plans: Assessing the Federal Legislative Solution, 65 Mo. L. Rev. 405, 420 (2000) (noting that as of 2000, most courts "steadfastly continue" to hold that ERISA preempts state law claims arising from negligent coverage determinations); Russell Korobkin, The Failed Jurisprudence of Managed Care, and How to Fix It, 51 UCLA L. Rev. (forthcoming Dec. 2003) (manuscript at 60-61, on file with *New York University Law Review*).

[56] See Agrawal & Hall, supra note 49, at 255-59 (discussing uncertainty surrounding scope of ERISA preemption post-1995 and some courts' willingness to let patients bring suits based on claims of "quality of care"); Korobkin, supra note 55 (manuscript at 60) (discussing recent decisions holding that tort claims based on utilization review decisions are not preempted); see also Sage, supra note 41, at 18 (discussing changes in law post-1995). Courts that permit suits when the patient argues that the MCO's denial was not a pure denial-of-coverage decision, but rather, a quality-of-care decision, do so on the

decisions are preempted, even when brought as "quality of care" claims. Moreover, suits based on pure "quantity of care" decisions are preempted by ERISA.[57]

2. *Vicarious Liability for Physician Negligence*

MCOs also face potential vicarious liability claims for the negligence of MCO-affiliated physicians. ERISA preemption poses less of a problem for these claims. Courts generally hold that ERISA does not preempt such claims, on the ground that indirect liability for physicians' quality-of-care decisions does not arise from administration of a health plan.[58]

Nevertheless, vicarious liability cases face significant limitations. The central problem is that most MCO-physician relationships do not satisfy the requirements for liability established by the doctrine of vicarious liability (or respondeat superior). Under this doctrine, a principal is liable for torts committed by an agent within the scope of her employment only if the principal exerts direct control over the agent. MCOs generally avoid liability under this doctrine because they do not themselves employ physicians, but instead offer health care services through a network of independent contractors, such as a preferred provider network. MCOs thus generally avoid liability even when they influence physicians indirectly through utilization review and financial incentives.[59]

State courts do appear to be expanding the scope of MCO liability for physician negligence beyond the scope of traditional vicarious liability.[60] Yet patients may find the effect of this expansion to be short-lived. Most of the growth in MCO liability has come from cases extending the scope of vicarious liability through liberal application of the doctrine of "apparent authority" or "ostensible agency," under which an MCO risks liability if the patient reasonably believed

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ground that ERISA's preemption of state laws relating to the "administration of a plan" applies to quantity-of-care decisions (which are insurance coverage decisions) but not to quality-of-care decisions (which are medical decisions). See Korobkin, supra note 55 (manuscript at 34-35).

57 See Jordan, supra note 55, at 420; Korobkin, supra note 55 (manuscript at 60) (noting most courts hold that ERISA preempts tort claims based on utilization review decisions).

58 E.g., Dukes v. U.S. Health Care, Inc., 57 F.3d 350, 357-58 (3d Cir. 1995); Pappas v. Asbel, D.O., 724 A.2d 889, 893 (Pa. 1998); Phommyvong v. Muniz, No. 3:98-CV-0070-L, 1999 WL 155714, at *3-4 (N.D. Tex. Mar. 11, 1999); see Agrawal & Hall, supra note 49, at 243-44.

59 See Agrawal & Hall, supra note 49, at 245-46 (noting that most MCOs do not exert sufficient direct control over physicians to satisfy requirements for traditional vicarious liability).

60 See id. at 241-45 (discussing expansion in MCO liability).

that the physician was an MCO employee.[61] MCOs potentially can avoid liability under this doctrine by ensuring that patients receive, and read, clearly written materials stating that their affiliated physicians are independent contractors.[62]

E. Implications for Reform

State and federal legislatures are considering proposals to reform medical malpractice liability as applied to both physicians and MCOs.[63] There is no clear consensus as to what directions these reforms should take, however. Scholars have weighed in on both sides of the issue of MCO liability, with some rejecting MCO liability for either treatment decisions or physician negligence and others advocating broad MCO liability for both MCOs' own decisions and physician negligence.[64]

At the heart of the debate are different opinions regarding whether MCO liability is needed to induce MCOs and physicians to provide optimal care or whether market forces and contracts suffice to induce optimal care. Resolution of this issue depends on the incentives MCOs and physicians have to provide optimal care absent sanctions for negligence, and the role negligence liability can play in reducing inefficiency. Economics provides a window into these issues by enabling us to examine carefully essential features of the patient-physician-MCO relationship to determine the incentives that MCOs

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[61] See id. at 243-44.

[62] Id. at 246-47.

[63] See generally id. at 271-79 (discussing federal and state legislative initiatives to govern MCO liability). Many states have adopted legislation that would hold MCOs liable for negligent coverage decisions. See id. at 273-74. Congress regularly is asked to consider legislation to remove the bar of ERISA preemption. Jess Bravin & Milo Geyelin, Patients Face New Limits Under Compromise Bill, Wall St. J., Aug. 3, 2001, at A8; Janet Hook, Negotiations Fail on Bill of Rights for HMO Patients, L.A. Times, Aug. 2, 2002, at A20. Alternative Congressional legislation would resolve the ERISA preemption issue by creating a combined federal and state liability regime to govern MCOs. See Agrawal & Hall, supra note 49, at 272, 274-75. Congress has yet to pass any such legislation. Moreover, simultaneously, there is a powerful effort to limit damages for malpractice. See Jonathan D. Glater, Pressure Increases for Tighter Limits on Injury Lawsuits, N.Y. Times, May 28, 2003, at A1.

[64] Both Professor Danzon and Professors Epstein and Sykes reject MCO liability for physician negligence and, while conceding the theoretical validity of MCO liability for MCO treatment denials, argue that such liability should be permitted only if MCOs are permitted to require patients to waive their right to recover for such decisions. Danzon, supra note 8, at 514; Epstein & Sykes, supra note 8, at 641-42, 647-48. By contrast, Professor Sage favors MCO liability for both MCOs' own treatment decisions and physician negligence. See Sage, supra note 15, at 164-66; see also Havighurst, supra note 15, at 8-9 (favoring MCO liability for physician negligence, but only if MCOs can obtain liability waivers from patients).

and physicians have to provide optimal care, both with and without sanctions.

II
OPTIMAL MEDICAL CARE

This Part determines optimal behavior by physicians and MCOs based on an economic model of malpractice that captures essential features of the patient-physician-MCO relationship not incorporated into the standard economic model of accidents.[65] We then employ this model to determine optimal medical care and examine the justification for MCO authority over medical treatment in an optimal medical system.

A. Basic Structure of the Patient-Physician-MCO Relationship

Medical care implicates a complex three-way relationship between the patient, the physician,[66] and the insurer, involving two separate products: medical care and insurance. Patients obtain health insurance from insurance companies, which generally bear the direct costs of treatment (in excess of any co-pay or deductible). Patients obtain treatment from physicians, on whom they rely both to select and provide treatment, because patients do not have sufficient expertise to determine their own medical care.[67] The expected quality of

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[65] For a formal presentation and analysis of this model, see Jennifer Arlen & W. Bentley MacLeod, Torts, Expertise and Authority: Liability of Physicians and Managed Care Organizations (Apr. 2003) (working paper, on file with *New York University Law Review*), available at http://www.ssrn.com.

[66] We are focusing on medical care provided by physicians. Our analysis also should apply to other medical professionals who provide treatment.

[67] See Arrow, supra note 9, at 951-52 (discussing patients' need to rely on physicians' superior expertise). Patients are particularly unlikely to be well informed about medical services that they purchase infrequently (such as surgery or experimental procedures), although they may be relatively well informed about services purchased frequently, such as antibiotics for children's ear infections. See Mark V. Pauly, Is Medical Care Different?, in Competition in the Health Care Sector: Past, Present, and Future: Proceedings of a Conference Sponsored by the Bureau of Economics, Federal Trade Commission 19, 20-21 (Warren Greenberg ed., 1978). Nor can patients eliminate the information asymmetry between themselves and their treating physicians through second opinions. Second opinions are increasingly rare and, moreover, are not possible in many situations (such as emergencies or once procedures are underway). Even when second opinions are available, patients often are not sufficiently well informed to evaluate scientifically the relative merits of two conflicting medical opinions, particularly given the paucity of independent empirical analysis of various treatment protocols. Cf. Hitt, supra note 42, at 68 (reporting that experts estimate that less than 20% of medical practice is based on rigorous research evidence). Finally, second opinions usually are not truly independent of all the forces influencing the first opinion. Patients generally must seek a second opinion from a physician under the same MCO and in the same hospital area as the first opinion. Therefore, many factors influencing the first opinion (such as MCO financial incentives and local custom)

care that each physician provides—including the expected quality of her treatment recommendations—depends in part on her level of expertise. The greater her expertise, the better able she is to provide the right treatment and the less likely she is to err.[68]

Although physicians initially recommend treatment, in the end the insurer may determine the treatment the patient receives. MCO insurers can use preauthorization utilization review to deny coverage for any treatment that they conclude is either not medically necessary or experimental. This authority over insurance coverage effectively grants MCOs authority to determine the treatment their patients receive in certain circumstances.[69]

The net expected benefit of medical care thus depends on both physician expertise and MCO authority.[70] We now examine optimal physician expertise and MCO authority, where optimal behavior is defined as the actions that physicians and MCOs would take if contracts were complete—that is, if the parties' contract set treatment choice, MCO authority, and physician expertise ex ante.[71] This can be determined by finding the level of expertise and authority that maximizes the joint welfare of all the parties to the relationship (the physician, the MCO, and the patient), assuming that each party acts in his own best interests and does not enter into contracts that reduce his own welfare.[72]

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also will affect the second opinion. See Zeiler, supra note 15, at 15 (discussing limited usefulness of second opinions).

[68] See infra Part II.C.

[69] MCO authority over insurance coverage effectively translates into authority over treatment when, as is often the case, the patient cannot pay for the treatment himself. See supra text accompanying note 41. MCOs' coverage decisions also affect treatment choice even when patients can pay for the recommended treatment. An MCO's denial of coverage distorts the patient's treatment choice (relative to the optimal) because in order to obtain the marginal additional benefit of the uncovered treatment relative to the covered treatment, the patient must pay the entire cost of the uncovered treatment, not just the additional cost. Thus, coverage denials may result in a patient selecting a covered treatment over one that is not covered even where the latter is optimal.

[70] See infra Parts II.C and II.D. But see Danzon, supra note 8, at 504-16 (analyzing MCO liability malpractice without formal consideration of role of MCO authority); Epstein & Sykes, supra note 8 (same).

[71] In this Part we assume that, at the optimal equilibrium, physicians and MCOs select optimal treatment when informed. See infra Parts II.C and II.D; cf. Arlen & MacLeod, supra note 65 (examining second-best optimal medical care when parties can contract over expertise and authority but not treatment choice).

[72] To be precise, optimal behavior is defined as the behavior that maximizes the joint welfare of the parties when contracts are complete, subject to the constraints that each person must find it in his own best interest to enter into the relationship (i.e., no one can be made worse off) and each party takes those actions that maximize her own welfare once the relationship is established (given the constraints imposed by the contract).

B. Optimal Treatment

A physician can provide an ill patient with any one of a number of different treatments, which differ both in their effect on patient welfare and in how expensive they are to provide.[73] If patients, physicians, and MCOs could determine treatment choice by contract, they would agree to the patient receiving the treatment that provides the maximum net benefit—this being the treatment that maximizes the expected benefit of treatment to the patient and physician minus the costs of treatment.[74]

Optimal treatment can be defined formally. Let c_t denote the cost of providing any given treatment t; assume that this cost is borne by the insurer post-treatment.[75] Let b_t denote the expected benefit of treatment t to the patient, where b_t is determined at the moment treatment is selected and takes into account any possible adverse outcomes of treatment.[76]

In those cases where only the patient benefits directly from treatment, optimal treatment is the treatment that maximizes $b_t - c_t$. Patients often are not the only people who directly benefit from good treatment outcomes. Many physicians care about their patients' welfare and obtain positive utility from making their patients better. We can capture physician compassion by assuming that, beyond any financial compensation, physicians obtain a direct benefit from treating a patient that is proportionate to the benefit to the patient of the treatment received; that is, the physician obtains benefit αb_t, where α mea-

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[73] We distinguish "treatments" based on the expected costs and benefits of the care provided, not based on how a physician might label the procedure. Thus, while a physician might view an appendectomy with a sponge-and-instrument count as the same treatment as an appendectomy performed without a sponge-and-instrument count, we treat these as two different treatments, because sponge-and-instrument counts produce superior expected outcomes for patients.

[74] Ex ante patients would select the treatment that maximizes the net benefit of treatment—net of treatment costs—because patients bear the expected costs of medical care ex ante through the insurance premiums they pay. Patients with employer-provided insurance bear the cost of medical premiums indirectly, in the form of lower wages to adjust for higher fringe benefits.

[75] See infra notes 119 and 136 (discussing capitation).

[76] The *expected* benefit of a treatment will differ from the actual benefit the patient receives when treatment can have more than one effect on the patient. For example, the expected benefit of surgery includes both the expected benefit of a successful surgery and expected patient outcomes if the patient develops an infection. Thus, even if optimal treatment entails high ex ante expected benefits, ex post it may injure a patient. Conversely, a patient who is provided an erroneous treatment may nevertheless be fortunate enough to recover fully. For example, a physician who fails to perform appropriate inexpensive diagnostic tests when presented with a patient whose symptoms suggest a serious problem provides suboptimal care when evaluated ex ante. Nevertheless, ex post, the substandard care may have no ill effect on some patients, such as those who were not in fact seriously ill.

sures the degree of physician compassion.[77] Throughout this Article, we assume that compassionate physicians benefit less than patients themselves from any treatment provided; in other words, we assume that $\alpha < 1$.[78] Thus, a physician who saves a patient's life is delighted, but not as delighted as is the patient; a physician who accidentally renders a patient quadriplegic suffers, but less than does the patient.

When physicians care directly about their patients, the parties would contract for the patient to receive the treatment that maximizes the net expected benefit of treatment to both the patient and the physician minus the cost to the MCO of providing treatment. This treatment can be represented formally by the treatment t^{**} that maximizes $(1 + \alpha)b_t - c_t$.

C. *Optimal Physician Expertise*

Even if the parties could write an enforceable contract requiring physicians to provide patients with optimal treatments, this would not be sufficient to ensure that physicians provide optimal treatments. A physician can select the optimal treatment only if she is sufficiently informed to know what optimal care is. She must know enough to correctly diagnose the patient, to accurately determine the relative costs and benefits of available treatments, and to provide correctly any treatment selected. This often is not easy to do.

Providing medical care is a complex task, involving uncertainty about the patient's condition, the range of treatments and their likely outcomes, and the physician's ability to perform the treatment. Accordingly, even a physician seeking to provide optimal care may accidentally provide suboptimal treatment (denoted $\hat{t}$) because she is "uninformed"—because she misdiagnosed the patient, was misinformed about the relative strengths and weaknesses of available treatments, or accidentally erred in how she performed the procedure.[79]

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[77] We incorporate the concept of physician compassion (α) to enable us to analyze physicians' claims that there is less need to impose tort liability because they care for their patients. Alternatively, the α term can be employed to capture the role of reputation when information about outcomes is sufficiently good that physicians internalize some of the patient's benefit from treatment, but are less directly affected by treatment outcomes than is the patient himself. Cf. William M. Sage, Reputation, Malpractice Liability and Medical Error 12-13 (2003) (unpublished draft, on file with *New York University Law Review*) (arguing that medical reputation cannot be equated with achievement, ability, or character, but instead is based on people's perceptions about qualities that are not easily measured).

[78] We can model "noncompassionate" physicians by assuming that α is equal to zero.

[79] Recognition of the possibility of accidental, unknowing negligence distinguishes our model of medical accidents from the classic economic model of torts, in which injurers know the costs and benefits of their actions. See John P. Brown, Toward an Economic Theory of Liability, 2 J. Legal Stud. 323, 335 (1973); Steven Shavell, Strict Liability Versus

Indeed, physicians often are not informed. Survey evidence suggests that approximately 20% to 50% of primary care practitioners are not aware of, or are not using, new evidence related to common current practices,[80] and thus often provide inadequate medical care.[81] Inadequate knowledge also may result in physicians failing to properly diagnose patients. A study of patients' autopsies found that improper diagnosis was the direct cause of death in about 40% of cases; in one-third of these cases the patient would have been expected to live if given proper treatment.[82]

Hospital patients often are victims of error attributable to inadequate knowledge or expertise. A study of medical error in surgical units found that errors occurred frequently and that almost 20% of all errors were directly attributable to inadequate knowledge or to a failure to employ knowledge.[83] Moreover, a substantial portion of the 60% of medical errors that this study attributed to "systemic error" arguably resulted from inadequate knowledge or expertise. Such "systemic errors" included medical residents performing tasks unsupervised for which they were not qualified; surgeons failing to update their practice protocols over time; and a general failure of physicians to adopt up-to-date guidelines and protocols.[84]

1. The Role of Physician Expertise

Physicians can take actions to reduce their risk of error by investing in "expertise": by undertaking investments to improve their capacity to diagnose patients, determine and assess available treatments, and provide treatments properly. These investments in expertise can take a variety of forms. For purposes of this Article, investments in expertise affect the probability that a physician provides the quality of care she wants to provide to any of her patients. In other words, expertise affects the probability that a physician who

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Negligence, 9 J. Legal Stud. 1 (1980). This classic model serves as the basis for both the seminal economic models of entity-level liability, e.g., Kornhauser, supra note 10, at 1352-61; Alan Sykes, Note, An Efficiency Analysis of Vicarious Liability Under the Law of Agency, 91 Yale L.J. 168, 173-87 (1981); Sykes, supra note 10, at 1231-59, as well as recent economic analyses of MCO liability for malpractice, e.g., Danzon, supra note 8, at 504-16; Epstein & Sykes, supra note 8, at 638-41 (employing Sykes' model of vicarious liability to analyze MCO liability).

80 Institute of Medicine, Health Professions Education: A Bridge to Quality 111 (Ann C. Greiner & Elisa Knebel eds., 2003), available at http://www.nap.edu/books/0309087236/html.

81 See supra notes 28-33 and accompanying text.

82 Gawande, supra note 12, at 197-98.

83 Krizek, supra note 28, at 1362. A single individual responsible for the error could be identified in almost 38% of the cases of error. Id. at 1359.

84 Id. at 1362.

wants to provide optimal treatment t^{**} (instead of erroneous treatment $\hat{t}$) can in fact do so.

An important aspect of physician expertise, as we define it, is that it is not patient-specific.[85] A physician's investment in her diagnostic ability, and in learning about treatments, affects her expected ability to provide care to any and all of her patients, not just her ability to provide care for any one patient. In addition, while physicians invest years in developing expertise prior to entering medical practice, they also necessarily undertake critical investments in expertise after entering practice.[86]

Expertise, as we define it, also can be employed to analyze investments in systems and equipment designed to reduce the probability of error by either increasing information or reducing the probability of patients being the victims of error. These investments include computer programs that double-check drug prescriptions to ensure that the drug and dosage are appropriate,[87] surgical procedures that ensure that all sponges and instruments are accounted for post-surgery,[88]

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[85] Our distinction between treatment choice and expertise enables us to distinguish between investments in "care" that affect only one given plaintiff and investments that affect the probability of an injury across a class of possible plaintiffs (here, patients). See infra Part IV for a discussion of why this distinction matters.

Our model of inadvertent error differs from Mark Grady's analysis of inadvertent error in two ways. First, he does not explicitly model the effect of liability on injurers' incentives to reduce the probability of error. Second, he does not examine the interaction between entity structure (here, authority) and agents' incentives to invest in expertise. See Mark F. Grady, Why Are People Negligent?, 82 Nw. U. L. Rev. 293 (1988) (exploring implications for malpractice of possibility of inadvertent errors).

[86] See infra Part III.A.3 (discussing importance of physicians' post-contractual investments in expertise). In Arlen & MacLeod, supra note 65, we focus on these post-contractual investments in expertise.

[87] There is evidence that drug errors in hospitals—for example, giving patients the wrong drug or the wrong dose—occurred approximately once every hospitalization. Such errors produce serious consequences in 1 of 100 cases. See Gawande, supra note 12, at 56. Physicians and hospitals could dramatically reduce the risk of such errors by computerizing drug prescription and delivery systems. Id. at 63. Yet as of 2001, only 5% of hospitals had computerized physician-order entry systems designed to prevent such errors. See Michael L. Millenson, Moral Hazard vs. Real Hazard: Quality of Care Post-Arrow, 26 J. Health Pol. Pol'y & L. 1069, 1076 (2001).

[88] There is evidence to suggest at least 1500 surgery patients each year have foreign objects left in them during surgery. Susan Burton, The Biggest Mistake of Their Lives, N.Y. Times, Mar. 16, 2003, § 6 (Magazine), at 48. Indeed, the problem is sufficiently severe that medical supply companies weave iodine-based materials into the gauze so that the gauze can be detected in X-rays post-surgery should the patient develop an infection. See Barbara F. Ostrov & Julie S. Lyons, Surgical Errors Alleged at Stanford Hospital, San Jose Mercury News, Apr. 30, 2002, at 1B. Yet the problem of materials left in the body is substantially avoidable through rigid adherence to sponge-and-instrument counts pre- and post-surgery.

and procedures that ensure that surgeons operate on the right body part.[89]

2. *Optimal Expertise*

Were complete contracting possible, patients, physicians, and MCOs not only would contract over what treatment physicians should provide (when informed), they also would contract over each physician's investment in expertise. Specifically, the parties would contract for each physician to invest in the level of expertise that maximizes the parties' joint welfare from the contract.[90]

Investments in expertise can be analyzed as investments that increase the probability that the physician is "informed" about what care should be provided. The greater a physician's level of expertise, the greater the probability that she can provide optimal care (should she be contractually obligated to do so). The relationship between expertise and patient care can be represented formally. Assume that investments in expertise—denoted $C(e)$—increase the probability that the physician is fully informed about the optimal treatment for any given patient, given by e. We refer to this probability, e, as the physician's "level of expertise," $(0 < e < 1)$. The probability that the physician errs inadvertently, and provides erroneous treatment $\hat{t}$, is given by $1\text{-}e$. We assume that physicians cannot practicably obtain sufficient information to eliminate any risk of error, and consequently $(1\text{-}e) > 0$.

Under complete contracts, the parties would constrain physicians to select optimal treatment when informed, since it maximizes the joint net benefit of treatment to patients, MCOs, and physicians.[91] Thus, under complete contracts, the physician's level of expertise, e, is the probability that the physician provides optimal treatment (t^{**}) instead of erroneous treatment. Thus, expected physician-selected treatment is given by $et^{**} + (1\text{-}e)\hat{t}$ under complete contracts.

Expertise benefits the parties to the contract, since it increases the probability that a physician provides optimal rather than erroneous treatment. Accordingly, were expertise free, the parties would

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[89] See Gawande, supra note 12, at 69 (arguing that significant problem of surgeons operating on—and sometimes removing—wrong body part could be averted through procedural safeguards, such as marking correct body part while patient is awake and can correct any error).

[90] See supra note 72 (defining optimality).

[91] Patients also are better off if they receive optimal treatment instead of erroneous treatment: in other words, $\hat{b} < b^{**}$. Nevertheless, although ex ante, patients are better off when given optimal treatment rather than erroneous treatment, patients will not always be injured, ex post, as a result of receiving erroneous treatment. For example, even if a physician fails to provide recommended care, the patient may nevertheless recover fully. See supra note 76.

contract for physicians to obtain as much expertise as possible. Expertise is not free, however. Thus, the parties would not contract for maximal expertise. Instead, the parties would contract for the physician to obtain the level of expertise that maximizes the *net* benefit of expertise, net of the costs of investing in expertise.

The optimal level of expertise can be determined by starting the physician at zero expertise and asking her to keep investing in expertise so long as the benefit of doing so equals or exceeds the costs—and to stop once the cost of the next unit of expertise would exceed the benefit.[92] Defining each unit of expertise as the additional expertise needed to enable the physician to provide one additional "informed" treatment, the optimal level of expertise thus is the level at which the cost to the physician of obtaining an additional unit of expertise equals the net gain to the parties of a patient receiving one additional optimal treatment instead of erroneous treatment.

This implies that, under fee-for-service insurance, optimal expertise is the level of expertise at which the marginal cost of obtaining expertise equals the net gain to the patient and physician, plus the cost-savings to the insurer, of the patient receiving one additional optimal treatment instead of erroneous treatment.[93] When the patient is insured with an MCO, this marginal benefit of expertise must be adjusted by the probability that the patient actually receives physician-recommended treatment (instead of being overruled by the MCO).[94]

Optimal expertise thus is the level of expertise physicians would invest in voluntarily if physicians bore the full cost of treatment and obtained the full benefit of treatment (to both herself and the patient). The optimal level of expertise varies from physician to physician depending on the marginal cost to each physician of acquiring expertise.

Observe that, since expertise is costly, the optimal level of expertise generally is less than the maximum amount possible. Thus, even physicians who invest optimally in expertise will err and inadvertently provide suboptimal treatment. This error is, in a sense, unavoidable, in that the parties would not want physicians to undertake the investments necessary to avoid it.

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[92] This assumes that the marginal cost of reducing the probability of error is increasing or that the marginal benefits are decreasing.

[93] $C'(e) = (1+\alpha)(b^{**} - \hat{b}) + (\hat{c} - c^{**})$. Erroneous treatment can be expected to entail higher costs than optimal treatment because it often requires additional treatment. Our analysis does not depend on the assumption that optimal treatment is less costly, however.

[94] Thus, optimal expertise is e^* at which $C'(e) = (1-a)\{(1+\alpha)(b^{**} - \hat{b}) + (\hat{c} - c^{**})\}$, where a is the probability that the MCO overrules the physician.

D. Optimal MCO Behavior

Physicians are not the only ones who affect the expected costs and the quality of care patients receive. MCOs affect expected medical care, both directly and indirectly through their impact on physician-provided care. A defining characteristic of MCOs is their assertion of authority to both review physician treatment choices prior to the patient receiving treatment and deny coverage for any treatments they determine to be "not medically necessary" or "experimental."

This Section shows that it can be socially optimal for MCOs to employ preauthorization utilization review even if all physicians behave optimally (as defined above), at least in some circumstances.

1. Determining MCO Authority

Under complete contracts, the parties would grant an insurer authority if, and only to the extent that, the insurer's assertion of authority increases the parties' joint welfare. Optimal authority thus depends critically on whether the parties benefit from letting the MCO, rather than the physician, select treatment. If the parties' expected welfare is greater when physicians select treatment than when MCOs select treatment, then parties to a complete contract would not grant insurers any authority.[95]

The level of MCO authority can be defined as the probability that an MCO alters a physician's treatment recommendation. We denote this probability by a, where $a < 1$. Observe that MCOs are deemed to have asserted authority when utilization review alters a physician's treatment choice, not just when the MCO explicitly rejects a physician's treatment choice. Thus, an MCO is deemed to have asserted authority not only when it actually denies coverage for physician-recommended treatment, but also when the utilization review process introduces sufficient delay that it adversely affects the expected outcomes or the expected costs of the recommended treatment.[96]

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[95] See supra note 69 (discussing how authority over insurance coverage directly affects treatment choice). Our explicit consideration of MCO authority thus distinguishes our analysis from the traditional model of entity-level liability, in which the principal only affects "care" indirectly by influencing the behavior of the agent (for example, through financial incentives). See supra note 15.

[96] See supra note 47 (discussing cases in which patients alleged that they received inadequate care because of delay resulting from MCO utilization review). MCO authority often is employed in circumstances where time is of the essence. For example, a review of two capitated medical groups in California found that these MCOs denied 16% to 17% of their patients' requests for emergency care. Kanika Kapur et al., Managing Care: Utilization Review in Action at Two Capitated Medical Groups, Health Aff., at W3-275, W3-278 (June 18, 2003), at http://www.healthaffairs.org/WebExclusives/2204Kapur.pdf.

Each MCO determines its level of authority through investments made in its capacity to assert authority: for example, through investments in obtaining information about optimal treatments for various illnesses[97] and in developing the infrastructure necessary to assert authority (e.g., the personnel and computer systems needed to review claims). An MCO also determines authority through the instructions it provides to its personnel as to which claims to review and when to deny coverage. Accordingly, we can represent the level of MCO authority, a, as depending on the MCO's investment in authority, denoted $C(a)$, which it necessarily undertakes prior to obtaining any given treatment recommendation from a physician. This investment, $C(a)$, is the total cost of authority to the MCO. The marginal cost of authority is the cost of the investment necessary to allow the MCO to affect treatment in one additional case.

2. *Fee-for-Service Versus MCOs*

Given that authority is costly, it is optimal to permit insurers to assert authority only if the parties benefit from letting the insurer interfere with physicians' treatment choices. In other words, a necessary condition for the creation of an MCO to be optimal is that the parties must be better off when the insurer is permitted to select treatment in some cases than when only physicians determine treatment. This implies that MCOs are optimal only when, for some treatments, the net expected benefit to the parties of expected MCO-selected treatment exceeds the net expected benefit of expected physician-selected treatment.[98]

Under complete contracts, the parties will obligate both MCOs and physicians to provide "optimal treatment." This might appear to imply that the MCOs and physicians can be expected to provide identical treatment when contracts are complete. This is not the case. Even when physicians want to provide optimal treatment (and invest optimally in expertise), they cannot necessarily do so. In some cases, they err. Thus, under complete contracts, the expected benefit of physician-selected treatment is the expected benefit of the patient

[97] Under complete contracts, when the MCO is constrained to assert authority in favor of optimal treatment, the MCO also can be constrained to assert authority only when it has the administrative capacity to review claims in a timely fashion and expects to be informed about the optimal treatment.

[98] The social expected benefit of any given treatment depends on the expected benefit of treatment to the patient (and physician) minus the expected cost of treatment to the MCO of any expected treatment provided.

receiving optimal treatment with probability e and erroneous treatment with probability $(1\text{-}e)$.[99]

Of course, MCOs also may err, accidentally providing erroneous treatment notwithstanding a binding contractual commitment to select optimal treatment. Accordingly, whether MCO authority increases the net social benefit of treatment to the parties depends on whether, assuming expertise and authority are optimal, the MCO is better able to select optimal treatment than is the physician. It depends, in other words, on whether the MCO is less likely to "err" than is the physician. In those circumstances where the risk of MCO error is lower than the risk of physician error, parties to a complete contract benefit from granting insurers authority to select treatment, even when the contract also constrains physicians to behave optimally. This implies that insurer authority is particularly necessary when physician expertise is low; it is less likely to be optimal when physician expertise is high.

Accordingly, under complete contracts, patients optimally would grant certain insurers authority over certain treatments in order to improve net expected outcomes. MCO authority is particularly likely to be optimal when physicians cannot easily determine optimal treatment—for example, because the existing studies conflict and require a meta-analysis, or because studies do not exist at all.[100] In such circumstances, MCO authority may be welfare-enhancing because MCOs often can develop expertise at lower cost per patient than can physicians. For example, MCOs can centralize the process of reviewing existing literature and spread the costs over a greater number of patients. In addition, MCOs can obtain superior information on

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[99] The social benefit of authority depends on *expected* physician treatment—and not the quality of the actual treatment recommended—because authority is determined in advance, when the MCO undertakes the investments and implements the guidelines necessary for its ability to intervene. This occurs prior to receiving any given treatment recommendation (and certainly prior to becoming fully informed about the specifics of any given patient's case). For example, each MCO must decide how to allocate its investments in determining optimal treatment—for example, which illnesses to evaluate—prior to obtaining a request for treatment in any given case. Similarly, each MCO decides which claims to screen thoroughly—introducing delay through additional review—based on its expectations about the likelihood of physician error, prior to having fully evaluated the merits of the recommended treatment in any given case. See supra note 40 (describing utilization review process). Accordingly, as the MCO determines its level of review in advance, the expected benefit of MCO authority must be determined based on the treatments physicians can be *expected* to recommend (given the probability of error), not their actual treatment recommendations. Thus, the expected benefit of physician-selected treatment is based on the expected benefit to the parties of the patient receiving expected treatment $et^{**} + (1\text{-}e)\hat{t}$.

[100] See supra text accompanying notes 28-31, 42 (discussing evidence that physicians often do not know or employ best medical practices).

optimal treatment even when studies do not exist, by examining their own rich data on the effects of various treatments on patients' outcomes to assess what treatments are optimal.[101] MCOs armed with such information may be better able than physicians to provide optimal treatment.

Nevertheless, certain MCOs may not have such a comparative advantage in determining optimal treatment. To the extent that such MCOs do not provide optimal treatment more reliably than physicians, those MCOs should operate as fee-for-service insurers.

3. *Optimal Level of MCO Authority*

In the case of those insurers who operate optimally as MCOs, the preceding analysis implies that, were complete contracts possible, the parties would authorize them to operate as MCOs but would prohibit them from asserting authority in any circumstances where the risk of MCO error exceeds the risk of physician error.

MCOs may be more likely than physicians to err in those cases where optimal treatment depends on individual patient characteristics that are readily ascertainable by the physician but not easily expressed in a written record (and thus not easily ascertainable by the MCO). The risk of MCO "error" also is particularly great where the MCO's assertion of authority introduces sufficient delay to adversely affect expected patient outcomes.[102] This suggests that parties to a complete contract are less likely to grant MCOs authority over treatment where optimal treatment depends on individual patient characteristics that physicians are better able to evaluate, or where time is of the essence in providing treatment.

The requirement that MCO authority yield superior expected treatments to those selected by the physician is a necessary, but not sufficient, condition for determining the circumstances under which the MCO should assert authority. Parties to a complete contract determine authority by balancing the benefits of authority against the costs. They therefore would constrain MCOs to assert authority in

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[101] Individual physicians often have to select between treatments without the benefit of good empirical evidence to determine which treatment is best. See supra note 42. Moreover, existing studies sometimes conflict, resulting in no accepted best treatment. By contrast, MCOs often are better able to collect and disseminate available data on optimal medical protocols, and can correlate this data with their own extensive databases. In addition, MCOs can analyze their own data. Many MCOs are national and can obtain data on treatments employed nationwide and the outcomes for their patients. This can enable MCOs to develop superior quality treatment protocols to those available to physicians. See Glied, supra note 7, at 725.

[102] See supra note 47 (discussing cases in which patients alleged that they received inadequate care because of delay resulting from MCO utilization review).

those circumstances, but only in those circumstances, where the marginal cost of an assertion of authority, $C'(a)$, is less than (or equal to) the expected benefit of authority, where the latter depends on the difference in the probability of error of the MCO and the physician.[103] Accordingly, in some cases MCO authority may not be optimal even where the MCO can reduce the risk of error, because the cost to it of doing so exceeds any resulting benefits.

Observe that the optimal level of MCO authority depends on the net cost of error to society. When MCOs reduce error, MCO authority is more likely to be welfare-improving the greater the net benefit to the patient, physician, and MCO of the patient receiving optimal treatment instead of erroneous treatment. When increased treatment costs are nearly equal to the increase in patient and physician welfare associated with improved treatment, it may not be optimal for the MCO to incur the costs of asserting authority over such treatments, even though it could reduce error and improve patient welfare post-treatment.

4. The Relationship Between Authority and Expertise

It should be observed that the optimal levels of care by physicians and MCOs are mutually dependent, in that the optimal level of authority depends on the level of physician expertise, and the optimal level of physician expertise depends on the level of MCO authority.

The first relationship is perhaps the most obvious. The greater the level of physician expertise, the lower the risk of error, and the less the need for MCOs to assert authority.

Yet just as authority depends on expertise, expertise depends on authority.[104] The social marginal benefit of physician expertise is the benefit to the parties of reducing the risk of physician error. Physician error affects the parties' welfare, however, only when the physician selects the treatment. Physician expertise does not affect patient treatment when the MCO determines treatment. Thus, the benefit to

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[103] In those circumstances where the parties' contract does not constrain the MCO and physician to select optimal treatment when informed, optimal authority also will depend on the relative net expected benefits of the expected treatments each would select when informed. In this case, the level of optimal authority will be greater the greater the cost-savings associated with MCO-selected "informed" treatment as compared to physician-selected "informed" treatment (holding quality constant), and the greater the quality improvements (holding costs constant). See Arlen & MacLeod, supra note 65, at 6-8.

[104] Our model thus expands on prior analyses of the effects of liability on incentives to obtain information about "care," in that we explore the interaction between entity structure (including authority) and agents' incentives to obtain information about optimal care. See, e.g., Steven Shavell, Liability and the Incentive to Obtain Information About Risk, 21 J. Legal Stud. 259 (1992) (focusing on effect of liability on individuals' incentives to obtain information about risk).

the parties of a physician's investment in expertise depends on the probability that the patient actually receives physician-selected treatment. Optimal expertise thus depends negatively on the MCO's level of authority.[105] This implies that in determining the socially optimal level of MCO authority, care must be taken to recognize that increased authority may benefit the patient to the extent that the MCO does assert authority, but may adversely affect the patient to the extent that it reduces physicians' expertise.

5. *Beyond Authority: Screening and Financial Incentives*

MCOs improve medical care in other ways. Of particular importance, MCOs can affect the net social benefit of medical care by screening physicians and hospitals, channeling patients toward those that confer higher expected net benefits.

Physicians (and hospitals) are not created equal. Even when each physician invests optimally in expertise, some physicians provide better care than others. Indeed, some physicians are incompetent. Hospitals also can vary substantially in the quality of care provided, as a result, for example, of differences in their affiliated physicians and in their capacity to employ optimal systems or equipment. Thus the expected net benefits associated with care in some hospitals exceeds those provided by others.[106]

MCOs can improve patient welfare by reducing the likelihood that their subscribers obtain treatment from incompetent physicians and low-quality hospitals. MCOs generally provide patients with a list of preferred providers. Under complete contracts, the parties would constrain the MCO to screen providers to maximize the parties' joint welfare. MCOs potentially can improve the parties' joint welfare by

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[105] See Arlen & MacLeod, supra note 65 (showing this relationship formally); see also Aghion & Tirole, supra note 14 (establishing this relationship between expertise and authority for principals and agents generally). For example, a physician's expertise about experimental treatments for cancer will not benefit her patients if the MCO denies coverage for all experimental treatments (and the patients cannot afford the treatments without coverage).

[106] See, e.g., Mark R. Chassin et al., Benefits and Hazards of Reporting Medical Outcomes Publicly, 334 New Eng. J. Med. 394, 394-97 (1996) (analyzing quality of care provided to patients undergoing coronary artery bypass graft surgery and showing significant variation in mortality across both physicians and hospitals, even after controlling for various risk factors). Indeed, some experts estimate that approximately 3% to 5% of practicing physicians are unfit to see patients, often as a result of problems arising after the physician enters practice. See Gawande, supra note 12, at 94 (detailing problems of burnout, alcoholism, drug addiction, and mental or physical illness that can lead good physicians to go bad); cf. Gerald B. Hickson et al., Patient Complaints and Malpractice Risk, 287 JAMA 2951 (2002) (citing evidence that small group of physicians accounts for disproportionate percentage of patient complaints).

employing their rich data on provider-specific patient outcomes to identify incompetent physicians and poorly performing hospitals and exclude them from the acceptable-provider list. MCOs also could require any hospital (or physician) with which it contracts to employ certain optimal procedures known to be cost-effective means of improving expected patient outcomes.[107]

Optimal MCO screening could constitute a significant improvement over the limited quality controls provided by existing physician licensure laws and state medical boards, which do not regulate effectively the activity levels of low-quality physicians.[108] MCO intervention would be particularly effective in the case of physicians who are incompetent, as MCOs potentially can respond quickly by using the delisting process to steer patients away.[109]

Relatedly, MCOs can affect care through rules governing access to specialists. In many practice areas, evidence indicates that specialists provide better care than generalists. MCOs can affect the quality

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[107] Cf. Gawande, supra note 12, at 56 (suggesting that computerized drug prescription and delivery systems could dramatically reduce risk of errors); Millenson, supra note 87, at 1076 (noting that as of 2001 only 5% of hospitals had computerized physician-order entry systems designed to prevent such errors). In addition, MCOs can regulate care by insisting that the providers they contract with have adequate procedures to ensure that inexperienced physicians are properly supervised, whether during a residency program or when a more senior physician is learning a new procedure.

[108] See Richard A. Cooper & Linda H. Aiken, Human Inputs: The Health Care Workforce and Medical Markets, 26 J. Health Pol. Pol'y & L. 925, 926-27, 929 (2001) (arguing that licensure currently guarantees nothing more than minimum physician quality); William M. Sage, Putting the Patient in Patient Safety: Linking Patient Complaints and Malpractice Risk, 287 JAMA 3003, 3004 (2002) ("Experience with professional discipline has demonstrated that neither broad self-regulatory organizations (e.g., medical societies) nor formal government bodies (e.g., state medical boards) are well positioned to receive and respond to patient complaints." (footnotes omitted)); see also Institute of Medicine, supra note 80, at 111 (noting current lack of regulatory mechanism to ensure that licensed practitioners remain up to date on, and provide, current best practices); infra note 128 (discussing limitations of existing medical continuing education).

[109] By contrast, under existing regulation, even when a physician has become known as a cause of regular error, it often takes years for either hospitals or medical review boards to intervene. See Gawande, supra note 12, at 88-106 (describing slow response to problem physicians). Moreover, state disciplinary review boards rarely impose serious disciplinary sanctions (e.g., suspension, probation, or license revocation on physicians). For example, in 2001, Connecticut, Delaware, the District of Columbia, Hawaii, Illinois, Indiana, Maine, Maryland, Minnesota, Rhode Island, South Carolina, South Dakota, Wisconsin, and Wyoming each imposed fewer than two disciplinary actions per 1000 physicians. The most active review boards sanctioned five times as many physicians. For example, Arizona imposed sanctions at a rate of 10.5 per 1000 physicians, and Alaska sanctioned at a rate of almost 8.6 per 1000 physicians. See Public Citizen, Ranking of State Medical Boards' Serious Disciplinary Actions in 2001 (HRG Publication #1616), at http://www.citizen.org/publications/release.cfm?ID=7166 (last visited Oct. 31, 2003).

of care a patient receives by making it easier (or harder) for the patient to see a competent specialist.[110]

Finally, MCOs can affect treatment quality by screening providers to ensure their financial health and by properly structuring the financial incentives they employ to ensure that physicians optimally balance cost and quality concerns.[111]

III
INCOMPLETE CONTRACTS AND THE PURPOSES OF TORT LIABILITY

Complete contracts enable the parties to constrain each other to take actions that maximize the parties' joint welfare, while ensuring that each party is as well off, if not better off, than she would be otherwise. In practice, however, contracts often are not complete, in that the parties cannot draft enforceable contract terms to regulate essential aspects of their relationship. To the extent that contracts are incomplete, the parties cannot rely on explicit contract terms to ensure optimal behavior. In this case, each party takes suboptimal actions if doing so maximizes her welfare.

Incomplete contracts do not necessarily result in inefficient behavior, however. Each party to an incomplete contract may nevertheless behave optimally—voluntarily taking the actions that maximize the parties' joint welfare—if each bears the full costs and benefits of her actions. To the extent that any party does not bear the full costs and obtain the full benefits to others of her actions, she will undertake inefficient actions if regulated only by incomplete contracts. In this situation, the imposition of tort liability may be welfare-enhancing if tort sanctions ensure that each actor bears the full costs of her behavior.

This Part examines the relationship between patients, physicians, and MCOs to determine whether physicians and MCOs can be expected to invest optimally in expertise and authority, respectively, and to select optimal treatment, if their behavior is regulated solely by contracts and market forces with no sanctions imposed for negligence.

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[110] See Joseph Gottfried & Frank A. Sloan, The Quality of Managed Care: Evidence from the Medical Literature, 65 Law & Contemp. Probs. 103, 129-30, 132 (2002) (discussing how MCOs may adversely affect patient care by restricting access to specialists, who are more likely to adhere to evidence-based guidelines than generalists).

[111] Physicians' asset sufficiency is important because physicians with lower assets (and thus greater immunity from tort liability) are less likely to take optimal care. See infra Part V.B. In addition, provider bankruptcy can impair patient care by forcing patients to switch providers, undermining the mutual knowledge and trust necessary to the provision of good primary care. See Lawrence Casalino, Managing Uncertainty: Intermediate Organizations as Triple Agents, 26 J. Health Pol. Pol'y & L. 1055, 1063-64 (2001).

This Part finds that, absent sanctions for negligence, physician and MCO behavior is inefficient, even if patients know physicians' and insurers' payoffs, and thus can predict accurately, at the moment of contracting, the risks physicians and MCOs will impose on them. Thus, we find that even if patients exhibit accurate rational expectations, market forces and contract alone are not enough to induce efficient behavior by MCOs and physicians, absent ex post sanctions.[112]

A. Physician Behavior with Incomplete Contracts

A fundamental feature of the patient-physician-MCO relationship is that the contracts regulating physicians are not complete, in that the parties cannot employ an enforceable contract that binds physicians either to invest optimally in expertise or to select optimal treatment when informed.[113] In order for the MCO-patient contract with the physician to be complete, the patient and MCO would need to be able either to condition the contract price on each physician's expertise and treatment choice at the moment of contracting[114] or to employ an enforceable contract clause to specify each physician's actions post-contract to ensure that she invests optimally in expertise and selects optimal treatment when informed.

1. Treatment Choice and Incomplete Contracts

The physician's contract governing treatment choice is necessarily incomplete. At the moment of contracting, patients and MCOs cannot condition payments to physicians on the quality of the treatment the physician provides because a physician generally does not provide treatment until after the parties' financial obligation to her is established. Nor can the parties employ complete contracts to regulate physicians' future treatment choices by specifying in the contract what treatments the physician will select for any given illness. Such a contract would be impracticable. There are too many diseases, and

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[112] We adopt the assumption that patients know the payoffs of physicians and MCOs, and thus can predict accurately the expected benefit of care provided by physicians and MCOs, because this assumption tips the scales *against* finding that tort liability is needed. It is well known that liability may be required if potential victims in contractual relationships with their injurers underestimate the risks imposed on them. Yet it is commonly asserted that tort liability is not needed if such victims accurately estimate the risks imposed on them. See Shavell, supra note 79, at 4-6, 16-17; Michael Spence, Consumer Misperceptions, Product Failure, and Product Liability, 44 Rev. Econ. Stud. 561 (1977).

[113] See Chernew, supra note 25, at 888-89 (arguing that contracts for medical services are incomplete in that consumers cannot purchase pre-specified medical services, at pre-specified prices, from pre-specified vendors in different states of world).

[114] We are focusing on ex ante compensation because this Part assumes that the parties do not employ ex post sanctions. We consider the role of ex post sanctions in Part IV, infra.

too many possible treatments, to permit the parties to write a complete contract. Moreover, any given illness may have a range of possible optimal treatments depending on factors such as the patient's family history, gender, and any other medical conditions afflicting the patient.[115] Medical provider contracts could not possibly specify treatment choice for every possible illness, contingency, and patient-type. Moreover, medical care evolves so rapidly that contractually specified treatments would become outdated shortly after the contract was signed.[116] Given this, it would not be advisable to bind physicians to select particular treatments ex ante.[117]

2. *Physician Treatment Choice Absent Sanctions for Negligence*

When treatment choice is non-contractable, each physician selects the treatment that maximizes her welfare, post-contract, at the time the choice is made. Absent sanctions, this treatment is not the optimal treatment. Physicians do not select the optimal treatment because, at the moment treatment is selected, they do not bear the full costs, or obtain the full benefits to the parties, of their actions.

The full net benefit of treatment is given by the benefit to the patient (and physician) of the treatment provided minus the cost to the MCO of providing treatment. Yet post-contract, the only benefit the physician obtains from treating the patient is the direct benefit she gets from making the patient better (αb_t). She does not fully internalize either the additional benefit to the patient of treatment or the costs to the MCO of treatment. Accordingly, post-contract compassionate physicians maximize their own welfare by selecting the treatment that maximizes patient outcomes, without regard for treatment costs, denoted t^*.[118] This implies that compassionate physicians pro-

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[115] See Robert S. Ledley & Lee B. Lusted, Reasoning Foundations of Medical Diagnosis, Science, July 3, 1959, at 9, 15 (noting significance of patient's unique situation in choice of treatment).

[116] See Sanders, supra note 42, at 29-30 (detailing how, each week, medical journals provide new evidence on treatments that challenges old knowledge and sometimes provides new knowledge). For example, in 1991 one researcher reported that approximately 35% of the 200 largest-selling prescription drugs are new each year. Annetine C. Gelijns et al., Uncertainty and Technological Change in Medicine, 26 J. Health Pol. Pol'y & L. 913, 914 (2001). "[I]n 1999, the Food and Drug Administration (FDA) approved some 5000 new and modified devices. Over the same time period, physician-innovators were pioneering new clinical procedures." Id.

[117] Indeed, insurers do not attempt to regulate physician treatment choice ex ante, notwithstanding their strong incentives to do so. Physicians are left to determine for themselves ex post what treatment to select, subject to any indirect discipline imposed through mechanisms such as utilization review. Similarly, patients do not attempt to regulate MCOs' treatment choices ex ante, but rather grant them enormous ex post discretion to determine what treatments are "medically necessary."

[118] The physician maximizes physician welfare (αb_t) by maximizing b_t.

vide excessive care instead of optimal care, because they benefit from the superior patient outcomes but do not bear the treatment costs.[119]

Excessive treatment not only harms MCOs, it also hurts patients. Although ex post each fully-insured patient is delighted with the physician's decision to maximize patient outcomes, ex ante each patient's welfare would be greater if physicians could commit to providing optimal treatment. Whenever "excessive treatment" differs from optimal treatment, the additional cost to the patient of "excessive treatment" (in the form of a higher insurance premium) necessarily exceeds the expected benefit to the patient of any additional care provided.[120]

3. *Expertise and Incomplete Contracts*

Physicians' investment in expertise also is non-contractable. Patients and MCOs cannot accurately condition their financial obligations to each physician on that physician's actual level of expertise, in part because actual physician expertise—her probability of error—generally is unobservable ex ante.[121] Patients cannot determine the expected quality of individual physicians because they generally cannot obtain precise evidence on an individual physician's patient outcomes and, moreover, cannot evaluate it, controlling for all the fac-

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[119] Although physicians select optimal treatment whenever it maximizes the patient's expected outcomes (i.e., whenever $b^* = b^{**}$), they provide excessive care when a treatment is available with outcomes superior to those of optimal treatment, since the definition of optimal treatment implies that the additional benefit of moving from optimal treatment to treatment t^* necessarily is less than the additional cost of providing this treatment. Cf. supra note 25 and accompanying text (discussing evidence that physicians provide excessively costly treatment).

The physician may not select overly expensive treatment if the MCO employs a capitation system. Under a full capitation system, the MCO pays the physician a flat fee for treating the patient but does not reimburse the physician's out-of-pocket costs. Thus the physician may provide suboptimal care if the physician bears a greater portion of the treatment costs than the portion of treatment benefits she obtains as a result of reputation or compassion. See infra note 136 (discussing expertise with capitation).

[120] The definition of optimal care implies that the additional costs of excessive treatment are less than the joint benefits: $(c^* - c^{**}) > (1+\alpha)(b^* - b^{**})$. This implies that $(c^* - c^{**}) > (b^* - b^{**})$.

[121] Our analysis assumes that patients know their own payoffs, as well as the payoffs of physicians and MCOs, and thus accurately can predict average MCO and physician behavior. In so doing, we assume that patients know the average impact of expertise on physician investment in expertise, but not the actual expected quality of any given physician. Accordingly, our assumption that patients accurately can anticipate the expected risks imposed on them by physicians does not imply that patients can differentiate the expected quality of any given physician. See supra note 112.

tors that could affect care other than physician quality (such as differences in patient populations).[122]

Moreover, even if well informed ex ante, patients could not regulate expertise by contract because critical investments in expertise are determined post-contract, after payments are determined.[123] Physicians' post-contractual investments in expertise are critical to good patient care, because physicians continually must invest in expertise in order to provide good care.[124] Medical care is a dynamic technology: What constitutes good care today may not be good care tomorrow.[125] Thus, to provide good care, a physician must continually invest in expertise throughout her career. These investments include reading medical journals, attending training sessions and lectures on new procedures, obtaining hands-on training in new diagnostic techniques, and investing in state-of-the-art equipment.[126] Physicians also can improve care through systems and procedures designed to reduce

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[122] Thus the problems of insufficient patient information on the quality of physician care cannot be remedied easily through the use of simple rough measures of physician quality, such as "Health Report Cards" to measure surgeon quality. Health Report Cards focus on surgeons' success rates. One cannot obtain meaningful information using such a simple measure, because it leads to the problems of moral hazard and self-selection. For example, poor physicians may hide their low quality by refusing to treat patients who have a low probability of success. David Dranove et al., Is More Information Better? The Effects of "Report Cards" on Health Care Providers, 111 J. Pol. Econ. 555, 556-57 (2003). Moreover, it often may be the case that the best surgeons have the lowest success rates because they treat sicker patients. Data on success rates for such physicians would not confer good information on physician expertise.

More generally, it commonly is argued that reputation and market forces can result in efficient use of the information because, if gains from trade exist, they will be exploited. This argument pays insufficient attention to the costs involved in learning about the gains from trade. In particular, this type of argument fails to appreciate just how extraordinarily difficult it is to obtain a good measure of quality, particularly in the presence of nondisclosure rules. For an excellent discussion of making inferences from survey data, see Joshua D. Angrist & Alan B. Krueger, Empirical Strategies in Labor Economics, in 3A Handbook of Labor Economics 1277 (Orley Ashenfelter & David Card eds., 1999).

[123] Patients cannot rely on licensing, continuing education, and state medical boards to ensure physician expertise, as such measures no longer guarantee anything more than minimum physician quality. See Cooper & Aiken, supra note 108, at 929; Deborah Haas-Wilson, Arrow and the Information Market Failure in Health Care: The Changing Content and Sources of Health Care Information, 26 J. Health Pol. Pol'y & L. 1031, 1037-41 (2001); see also supra notes 108-09 and accompanying text and infra notes 128 and 168 (discussing limitations of existing regulations).

[124] See Gawande, supra note 12, at 24-26 (describing critical importance to medical care of physician's ongoing investments in expertise post-medical school).

[125] See supra note 116 (discussing evidence on rapidity of technological change in medical care).

[126] Post-contractual investments in physician expertise also include actions the physician takes to address adverse changes in herself. See supra note 106 (discussing problem of incompetent physicians); see also Gawande, supra note 12, at 94-95 (discussing problem of physician incompetence resulting from physician alcoholism, drug addiction, mental illness, and physical illness).

error. For example, surgeons can reduce error by employing a sponge-and-instrument count, an action necessarily taken post-contract, generally out of sight of the patient.[127]

Patients and MCOs cannot induce optimal post-contractual expertise by conditioning ex ante payments to physicians on physician expertise, because ex ante payments do not provide physicians with incentives to undertake post-contractual investments. Nor can patients and MCOs induce optimal post-contractual investments in expertise by specifying physician investments in expertise by contract, because many of the activities that constitute investments in expertise cannot be specified in an enforceable contract. For example, while patients and MCOs could require physicians to read specific medical journals, attend rounds at local hospitals, or attend certain medical conferences, they cannot regulate whether physicians pursue such activities effectively.[128] Accordingly, absent ex post sanctions, MCOs and patients cannot employ contract provisions to regulate physicians' investments in expertise, because expertise is non-contractable.

4. *Physician Expertise Absent Sanctions for Negligence*

When expertise is non-contractable, physician expertise is inefficient, absent sanctions for negligence, because physicians invest too little in expertise. A physician considering post-contractual investments in expertise[129] invests in the level of expertise that maximizes her expected payoffs post-contract.[130] Thus, absent sanctions, she invests optimally if, but only if, she bears the full costs and obtains the full benefits to the parties of her actions (as this ensures that a physi-

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[127] Similarly, a transplant patient's expected health does not depend on whether her transplant surgeon *usually* checks for organ-patient compatibility, but rather whether the surgeon invests in determining compatibility in that patient's particular case. Cf. Randal C. Archibold, Girl in Transplant Mix-Up Dies After Two Weeks, N.Y. Times, Feb. 23, 2003, at A18 (discussing death of Jésica Santillán as result of Duke University Hospital surgeon giving her heart and lung transplant from incompatible donor).

[128] Indeed, although physicians are subject to continuing education requirements, analysis of medical CLE suggests that it has little effect on changing clinical behaviors or health outcomes. Medical continuing education sessions often occur at holiday resorts and thus are viewed as mini-vacations. Moreover, physicians are not tested at the end to ascertain what, if anything, they learned. Institute of Medicine, supra note 80, at 111-13.

[129] A similar analysis can be applied to pre-contractual expertise to the extent that it is unobservable at the moment of contracting.

[130] Although physicians are regulated by various licensing and certification requirements, these governmental and self-regulatory mechanisms generally do not ensure that practitioners remain up to date with current best practices. See supra notes 108-09 and accompanying text (discussing licensing); see also supra note 128 (discussing continuing medical education).

cian maximizing her own welfare selects the expertise that maximizes the parties' joint welfare).[131]

Each physician bears the full cost of expertise: paying the full cost of any post-contractual investment in expertise without any expectation of being reimbursed by the other parties.[132] She does not obtain the full benefit to the parties of each additional unit investment in expertise, however. Expertise increases the likelihood that the physician provides "informed" treatment. The expected joint benefit of each additional unit of expertise is the expected net benefit to the parties of the patient receiving informed rather than uninformed treatment (adjusted by the probability that the physician actually selects treatment).[133] Yet the benefit to a physician of post-contractual investments in expertise is the direct expected benefit to her of providing informed rather than erroneous treatment. She does not obtain either the full benefit of treatment to the patient or any cost-savings to the MCO of informed treatment.[134] Thus, the net gain of expertise to the physician is less than the net benefit of expertise to the parties jointly. She therefore invests less than is optimal in expertise.[135] Accordingly, absent sanctions for negligence, the probability of physician error is too high.[136]

5. *Physician Activity Levels*

Some physicians provide care that is so poor that society would be better off if they did not treat patients at all. Absent sanctions for

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131 In this Section, we necessarily must consider the second-best optimal level of expertise, defined here as the expertise that the parties would select if they could contract over expertise and authority but could not regulate physicians' or MCOs' treatment choice by contract. In this case, compassionate physicians select treatment t^* if MCOs do not subject them to ex post incentive contracts. See Arlen & MacLeod, supra note 65; see also infra note 136 (discussing physician behavior under capitation plans).

132 This follows from the non-contractable (in particular, nonverifiable) nature of such investments.

133 This is given by $(1-a)\{(1+a)(b^* - \hat{b}) + (\hat{c} - c^*)\}$. Although informed treatment is overly costly, we assume that the net social benefit of informed treatment exceeds the net social benefit from erroneous treatment, which can both reduce treatment benefits and increase treatment costs.

134 Although we assume that, under incomplete contracts, treatment costs are lower when an MCO selects treatment than when an informed physician selects treatment ($c^0 < c^*$), we assume that expected treatment costs of informed physician care are lower than the expected costs of erroneous care ($c^* < \hat{c}$).

135 See Arlen & MacLeod, supra note 65 (providing formal proof of this result).

136 If we expand the analysis to permit the MCO to implement a capitation system, then physicians consider treatment costs when determining expertise. This does not render the system efficient, however. Expertise still is suboptimal because physicians do not consider the full benefit to the patient of expertise. Moreover, informed physicians continue to make inefficient treatment choices: Physicians now select suboptimal treatment because they bear the full cost of treatment but only obtain part of the benefit of treatment (ab_t).

negligence, these incompetent physicians do not face adequate incentives either to stop practicing medicine or to obtain additional training, because they do not bear the full cost to patients and MCOs of their incompetence and patients cannot weed out incompetent physicians on their own.[137]

B. MCO Behavior with Incomplete Contracts

MCO behavior also is inefficient absent sanctions for negligence, because the contract governing an MCO's choice of how frequently to assert authority and what treatment to select when it asserts authority is incomplete, and, at the time it acts, the MCO does not bear the full costs to the patient and physician of its actions.

1. MCO Treatment Choice Absent Sanctions for Negligence

MCO treatment choice is non-contractable for the same reasons that physician treatment choice is non-contractable.[138] When treatment choice is non-contractible, an MCO that has asserted authority selects the treatment that maximizes its own profits post-contract after the premium is paid, subject to any constraints resulting from the requirement that it deny coverage only for treatments that arguably are not "medically necessary" or are "experimental."

At the moment an MCO selects treatment, it bears the full cost of treatment but does not obtain the full direct benefits of treatment to the patient or physician, because the MCO's post-contractual treatment choice does not affect its payments from the patient. Accordingly, each MCO asserts authority in order to minimize treatment costs, without full regard for its effect on treatment benefits. Thus, whenever possible, the MCO will deny physician-recommended treatment in favor of lower-cost treatment, even when the cost to the patient and physician of the resulting reduction in treatment benefits exceeds the resulting cost-savings to the MCO. Expected (or average) MCO-selected treatment, therefore, will be suboptimal.

Thus, absent sanctions, MCOs provide suboptimal quality treatment on average even though market forces (specifically reputation) may ensure that MCOs bear *some* costs of providing lower quality treatment.[139] Reputation does not ensure that the MCO bears all the

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[137] See Gawande, supra note 12, at 94 (discussing evidence that approximately 3% to 5% of practicing physicians are unfit to see patients); see supra notes 108-09 (discussing limitations of existing mechanisms for regulating incompetent physicians).

[138] See supra Part III.A.1.

[139] In addition, in some cases an MCO benefits from higher quality care if this care reduces the MCO's future costs of treating that patient. Yet even when this is the case, the future medical costs to the MCO of providing poor care that shortens the patient's life can

costs of its post-contractual treatment decisions,[140] however, because patients' information about MCO quality is sufficiently poor that MCOs often can deny coverage at little or no cost in terms of future enrollment.[141] Moreover, MCOs may even benefit from discouraging those consumers most likely to seek out information on MCO quality. MCOs profit from covering healthy patients but may lose money on sick ones. To the extent that only ill patients investigate MCOs' approved treatments for certain illnesses (e.g., leukemia or diabetes), MCOs may benefit from treatment denials if they disproportionately discourage ill patients from subscribing.[142] Accordingly, even when reputation exerts some influence on MCOs, MCOs assert authority to

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be expected to be less than the expected costs to that patient of substandard care. Moreover, MCOs are unlikely to internalize the full benefit of reduced future medical costs, because patient turnover with MCOs is sufficiently high that MCOs generally do not expect to cover a patient for the patient's entire life.

[140] For example, the reputational cost to an MCO of denying coverage for vital life-saving treatment will be less than the cost to most patients of the resulting loss of life.

[141] See, e.g., Clark C. Havighurst, The Backlash Against Managed Health Care: Hard Politics Makes Bad Policy, 34 Ind. L. Rev. 395, 410-12 (2000); Stephen C. Schoenbaum & Kathryn L. Coltin, Competition on Quality in Managed Care, 10 Int'l J. Quality in Health Care 421, 421-22 (1998) (noting that in selecting MCOs, consumers have better information on cost than on quality and thus will focus more on cost than on quality); cf. Pennsylvania Health Care Cost Containment Council, Measuring the Quality of Pennsylvania's Commercial HMOs 13-24 (Mar. 2003), http://www.phc4.org/adobe/HMO2001.pdf (providing limited quality information on hospitalization rates and length of stay—limited to few specific procedures or diseases, such as asthma, heart attacks, and hysterectomies—without any general information on actual patient outcomes). MCOs do not provide consumers with important information on quality, such as information on the circumstances under which MCOs deny coverage based on medical necessity, in part because providing such information would undermine their ability to elicit the most accurate information possible from physicians recommending treatment: Telling physicians what factors will cause an MCO to approve a treatment might distort physician reporting. In addition, many MCOs do not need to provide such information to employees to induce subscriptions because they do not face competition from another plan. See Lynn Etheredge et al., What Is Driving Health System Change?, 15 Health Aff. 93, 94 (1996) (reporting that nearly 50% of employees have only one health plan offered to them). Finally, MCOs may benefit from deterring those potential subscribers most likely to obtain and analyze information on treatment outcomes. See infra note 142 and accompanying text.

Employer selection of health plans does not eliminate the inefficiencies resulting from inadequate employee information on MCO quality. First, employers also generally cannot obtain sufficiently high quality information on MCO quality to enable them to make optimal choices between cost and quality. Moreover, even perfectly informed employers do not select optimal health plans if employees are incorrectly informed. Employers benefit from offering health plans to the extent that employees value them and are willing to accept lower compensation in return. Employers thus offer plans that employees can be expected to value. Where employees have good information on costs but poor information on quality, this implies that employers will favor low-cost plans even if they also are low quality.

[142] Healthy patients tend to investigate MCO quality (if at all) in terms of the scope of coverage for standard items like vaccinations, well-visits, and maternity-related care (and perhaps some forms of cancer), but not more unusual illnesses. Those patients most likely

provide less than optimal care when possible, because they bear the full cost of treatment but do not internalize the full benefit to the patient (and physician) of superior outcomes. This can be formalized by assuming that the *expected* treatment provided by an MCO that asserts authority is given by t^0, which, on average, has lower expected costs[143] and lower *expected* benefits[144] than either expected physician-selected treatment or optimal treatment (t^{**}). Thus, on average MCO-selected treatment will be suboptimal.[145]

2. *Non-Contractable MCO Authority*

Absent sanctions for negligence, MCO authority also is inefficient, because MCO authority is non-contractable and the MCO does not bear the full cost to the patient and physician of its assertion of authority.

MCO utilization review decisions necessarily occur after a patient has subscribed to the MCO. Thus, at the moment the patient pays the insurance premium, he does not know each MCO's authority level as it will be applied to him. The amount each patient is willing to pay

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to investigate an MCO's history of treating certain more unusual illnesses are particularly likely to have that illness. See Korobkin, supra note 24, at 40-44, 60-62.

[143] In other words, $c^0 < c^{**} < c^*$. The expected cost of MCO-selected treatment also will be less than $ec^* + (1\text{-}e)\hat{c}$ if the MCO-selected low-cost treatment is less expensive than erroneous treatment.

[144] While at the moment the MCO asserts authority its expected treatment choice can be expected to make patients worse off, in actual practice MCOs provide optimal care in some circumstances and erroneous care in others. The MCO may provide optimal treatment because its contractual obligation to provide "medically appropriate" treatment is binding, optimal treatment is in fact the low-cost treatment, or the MCO internalizes the full costs of any treatment denial—for example, because it is providing treatment to a particularly high-profile patient. Thus *expected* treatment t^0 is best viewed as the weighted average of those occasions where the MCO provides optimal treatment and those where it provides suboptimal, erroneous, treatment $\hat{t}$. This implies that only a percentage of patients provided expected treatment t^0 will actually receive poor treatment, potentially giving rise to a claim for injury. We denote the probability that a patient in fact receives suboptimal treatment by $(1\text{-}\pi)$. We assume that the probability that the MCO selects suboptimal treatment absent sanctions exceeds the probability that the physician would do so if she invested optimally in expertise. See Arlen & MacLeod, supra note 65 (providing formal proof).

[145] Although patients are worse off under MCO-selected treatment than under informed physician-selected treatment, they nevertheless may benefit from granting MCOs authority in the no-liability equilibrium. Notwithstanding the lower benefit provided by the MCO's expected treatment choice, patients may benefit from granting MCOs authority if patients benefit on net from the fact that MCOs reduce the costs to patients of suboptimal physician behavior—specifically, the costs associated with excessive physician error and the selection by informed physicians of excessively costly physician treatment. Nevertheless, if physicians could be induced to behave optimally, patients often would be better off with less MCO authority than MCOs will assert under incomplete contracts absent sanctions. See Arlen & MacLeod, supra note 65; infra Part III.B.3.

thus depends on *expected* MCO authority, but not on actual MCO authority as applied to that patient.

Nor can each MCO pre-commit in its contract to a precise level of authority. MCOs cannot commit to any given frequency of treatment denials because the level of MCO authority depends on physician expertise and treatment choice, both of which are determined post-contract. Nor can MCOs predetermine by contract precisely when they will overrule the physician—i.e., which treatments will be rejected and which will be favored[146]—for the same reasons that MCOs cannot pre-specify treatment choice by contract.[147]

Actual MCO-patient contracts reflect the non-contractable nature of authority. MCO contracts define the scope of authority using vague clauses that grant MCOs authority to deny coverage for treatments that are not "medically necessary" or are "experimental"—terms which can be, and are, interpreted in various ways.[148] Moreover, MCO contracts generally grant MCOs sole authority to interpret what constitutes "medically necessary" or "experimental" treatment, free from external review. These provisions thus grant MCOs enormous discretion to determine what treatments are avail-

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[146] See supra note 69 (discussing how authority over treatment coverage determines treatment choice).

[147] See supra Part III.A.1.

[148] The term "medically appropriate" is sufficiently vague to enable some MCOs to deem treatments to be not "medically appropriate" even when most medical experts would deem the treatments to be appropriate. For example, although a panel of physician experts judged almost 80% of ear tube inserts to treat middle-ear infection to be warranted, application of one set of utilization review guidelines would have judged more than 70% of them to be unwarranted. Lawrence C. Kleinman et al., Adherence to Prescribed Explicit Criteria During Utilization Review, 278 JAMA 497, 499 (1997).

Similarly, although most MCOs exclude coverage for "experimental treatments," MCOs vary significantly in how they apply this term. Thus, knowing that "experimental treatments" are not covered does not clearly tell a patient what treatments are not covered. Indeed, some insurers deem as "experimental" treatments that a majority of other insurers cover as non-experimental treatment. For example, a study of coverage requests for autologous bone marrow transplants to treat breast cancer determined that insurance companies approved the treatment in roughly three quarters of the cases, yet denied the treatment in roughly one quarter, generally on the grounds that the treatment was experimental, with no apparent difference in the cases. See William P. Peters & Mark C. Rogers, Variation in Approval by Insurance Companies of Coverage for Autologous Bone Marrow Transplantation for Breast Cancer, 330 New Eng. J. Med. 473, 474-75 (1994). See generally Korobkin, supra note 24, at 31 (discussing wide variance in health insurance plans' understanding of term "experimental").

Moreover, most MCOs use similar language concerning which treatments are covered and do not release information on the frequency with which they do, in fact, assert authority with respect to particular types of treatment. Thus, patients cannot necessarily predict how an MCO will respond to a given treatment request.

able after the patient has subscribed,[149] as is to be expected given that authority is non-contractible.

Moreover, MCOs retain considerable authority to alter treatment choice even in states that grant patients the right to obtain external review of MCOs' coverage decisions.[150] An MCO can influence expected care through its assertion of authority even if an external review board might be expected to reject the MCO's coverage denial. Many patients do not appeal coverage denials. Even when patients do appeal, review cannot eliminate the harm done by the coverage denial where the review process introduces sufficient delay to reduce (or eliminate) the effectiveness of the recommended treatment.[151]

3. *MCO Authority Absent Sanctions for Negligence*

Thus, once the patient has signed up with an MCO, the MCO has considerable discretion to determine its level of authority post-contract. MCOs select the level of authority that maximizes their profits. Post-contract, each MCO directly bears the full cost of authority.[152] They thus select optimal authority if, but only if, they obtain the full benefit (or cost) of authority to the patient or physician.

Each assertion of authority by an MCO—i.e., each unit of authority—results in the patient receiving the MCO's preferred expected treatment, t^0, instead of the expected treatment provided by the physician, $et^* + (1\text{-}e)\hat{t}$. The net "social benefit" of each assertion of

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[149] See supra note 69. In some cases, experimental treatments may be the only effective treatments available. See Hall & Anderson, supra note 40, at 1638-41.

[150] Patients now increasingly are getting the right to external review. By the end of 2001, forty-two states, including the District of Columbia, had enacted laws requiring independent medical review of MCOs' refusals to pay for covered services. Karen Pollitz et al., Kaiser Family Foundation, Assessing State External Review Programs and the Effects of Pending Federal Patients' Rights Legislation, at v (May 2002), available at http://www.kff.org; see also Rush Prudential HMO, Inc. v. Moran, 536 U.S. 355, 359 (2002) (holding that Illinois statute providing for such review is not preempted by ERISA).

[151] See supra text accompanying note 47. Moreover, external review may not reverse the depressing effect of MCO authority on physician expertise if such review either does not rely on physician expertise or imposes significant unreimbursed costs on the physician. See infra text accompanying note 156.

[152] Authority is costly because the MCO can assert authority to deny a treatment for lack of "medical necessity" only when informed that a lower-cost treatment is available that satisfies its contractual obligation to the patient. To assert authority, an MCO thus must invest in learning about medical treatments, in particular about treatment costs, and also about what treatments are medically necessary and appropriate. MCOs also must invest in the utilization review process itself. It must employ people to review claims and hear appeals. As denials often require more effort than approvals, the MCO must hire more people the more frequently it plans to deny coverage. MCO authority thus will depend on the cost to the MCO of obtaining the information and personnel necessary to determine that a physician-recommended treatment can be overruled as being excessively costly (or experimental). This cost also is a social cost of MCO authority.

authority, accordingly, is the cost-savings to the MCO, plus (or minus) the expected effect on the patient and physician of the patient receiving expected treatment, t^0, instead of expected physician-selected treatment, $et^* + (1\text{-}e)\hat{t}$. This may be positive or negative.

Yet, post-contract authority necessarily benefits MCOs because they obtain the full benefit of the treatment cost-savings associated with each assertion of authority. They do not bear the full cost—or obtain the full benefit—of the effect of authority on expected treatment outcomes, however.[153] Thus, absent sanctions, MCO authority is not efficient because authority will not be set at the level that maximizes the parties' joint welfare.

Accordingly, absent sanctions, insurers allocate themselves inefficiently between fee-for-service and MCO insurance. In particular, some insurers profitably operate as MCOs (asserting authority) even when it would be optimal for them to operate only as fee-for-service insurers (with no authority). An insurer should not operate as an MCO if its use of authority invariably negatively impacts expected treatment outcomes to such a degree as to wipe out any cost-savings resulting from its assertion of authority. Yet, with incomplete contracts, such an insurer may profitably operate as an MCO absent sanctions for negligence because the insurer invariably benefits from each substitution of its preferred treatment for expected physician-selected treatment (because this substitution necessarily reduces expected treatment costs) and the MCO does not bear the effect of authority on treatment benefits. Thus, an insurer may find it profitable to operate as an MCO even when the parties' joint welfare would be higher if it offered only fee-for-service insurance.[154]

Although some insurers should not operate as MCOs, others should. The parties may benefit jointly from granting insurers authority, even though MCOs on average select suboptimal treatment.[155] With incomplete contracts, MCO control over treatment choice may be welfare-improving even when MCOs select suboptimal

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153 Because the MCO selects authority ex post, after the patient has paid his premium, authority does not affect the amount the patient pays the MCO. Thus, the MCO does not obtain any increased premium from the patient by providing higher-quality treatment. The MCO, therefore, bases its decision on the direct effect of authority on its own treatment costs and does not consider the full effect of its assertion of authority on the patient or physician. Moreover, the insurer also will ignore the full indirect impact of insurer authority on physician expertise. The physician's incentive to invest in expertise is lower the greater the level of insurer authority. See supra Part III.B.2.

154 See Arlen & MacLeod, supra note 65 (discussing why, at no-liability equilibrium, patients may accept MCO contracts from insurers that would not be able to offer MCO contracts if authority and expertise were contractable).

155 See id. (offering proof of this claim).

treatment because physician treatment choice also is suboptimal. In some circumstances, MCO authority may reduce problems associated with excessively costly and excessively error-prone physician treatment. Granting insurers authority is particularly likely to be welfare-improving when potential treatments differ little in their expected outcomes but vary enormously in their expected costs, or when patients expect better outcomes when MCOs select treatment than when physicians select treatment.

Yet even when granting insurers authority is optimal, MCOs do not assert the optimal level of authority when they are not subject to sanctions for selecting negligent treatments. Absent sanctions for negligence, MCOs do not internalize the full effect of their treatment decisions on patients and physicians. Thus, MCOs assert too much authority in those circumstances where denial of coverage for physician-recommended treatment can be expected to reduce treatment costs yet make patients and physicians worse off.

Excessive insurer authority is inefficient both in and of itself and because it suppresses physician expertise. Insurer authority reduces the benefit to the physician of expertise, because physicians benefit from their investments in expertise only if they determine the treatment the patient receives. Thus, excessive insurer authority also results in inefficiently low physician expertise and thus suboptimal physician-provided medical care.[156]

In some circumstances, however, MCOs assert too little authority absent sanctions. MCOs assert too little authority in those circumstances where an MCO's denial of physician-recommended treatment can be expected to improve patients' expected outcomes, because MCOs bear the full cost of asserting authority but do not obtain this additional benefit of authority.

4. MCO Screening of Physicians

MCOs not only can affect treatment quality through authority, but also can affect social welfare through their influence over which physicians their patients see. MCOs can screen for physicians who provide unusually low-quality medical care, by analyzing the data they obtain on physician-specific treatment outcomes and patient characteristics through both their obligation to cover patients' medical claims and the utilization review process. MCOs could increase the parties' joint welfare by refusing to enter into provider contracts with physicians who provide care with a negative net social benefit relative

[156] See supra Part II.D.4.

to either no treatment or to what the patient could otherwise receive from another physician.[157]

Under incomplete contracts, MCOs screen physicians (if permitted to do so), but they do not do so efficiently absent sanctions for negligence. Because MCOs bear treatment costs but do not obtain the full benefit of superior treatment outcomes, MCOs can be expected to base their physician selection decisions primarily on each physician's expected treatment costs, and not on the expected quality of care provided. This may lead MCOs to contract with physicians who provide substandard care if those physicians provide lower-cost care.[158]

5. *Evidence on MCO Quality*

There is empirical evidence consistent with our conclusion that, absent effective sanctions for negligence, MCOs may employ authority to reduce treatment costs, even at the expense of treatment quality. The existing evidence considers MCO behavior at a time when MCOs avoid a considerable amount of tort liability for negligence, but do face some risk of liability.[159] Existing MCO expected treatment quality thus can be expected to exceed expected quality that MCOs would provide if MCOs faced no sanctions for negligence.

The evidence on the effects of MCO intervention suggests that MCOs have lowered treatment costs[160] and improved outcomes in some areas, but not in others.[161] There is evidence that MCOs may

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157 See supra Part II.D.5. Some states limit MCOs' ability to exclude physicians through "Any Willing Provider" laws that require each MCO to associate with any provider willing to accept the MCO's physician contract. See Korobkin, supra note 24, at 16. Optimal regulation of MCOs would require rewriting Any Willing Provider laws to allow MCOs to exclude physicians who provide substandard care.

158 Cf. Gottfried & Sloan, supra note 110, at 108 (citing evidence that financial risk may provide strong incentive for health plans to select low-priced hospitals even when available data on quality militates against use of such facilities).

159 See supra Part I.D.

160 E.g., Zelman & Berenson, supra note 22, at 120; David M. Cutler et al., How Does Managed Care Do It?, 31 RAND J. Econ. 526, 544 (2000); Robert H. Miller & Harold S. Luft, Managed Care Plan Performance Since 1980: A Literature Analysis, 271 JAMA 1512, 1514-17 (1994); see also Kessler & McClellan, Managed Care, supra note 25, at 17 (finding that managed care has reduced treatment intensity).

161 See Miller & Luft, supra note 160, at 1515-18 (reviewing studies without controlling for differences in coverage of preventive treatments).

The existing empirical evidence on the impact of MCOs on quality may be biased in favor of finding that MCOs provide good quality care. First, patients covered by MCOs tend to be younger and better educated than fee-for-service patients, which biases in favor of finding that MCOs achieve equivalent, or better, outcomes. See Gottfried & Sloan, supra note 110, at 127-28; see also David U. Himmelstein et al., Quality of Care in Investor-Owned vs. Not-for-Profit HMOs, 282 JAMA 159, 162 (1999) (discussing evidence that MCOs may intentionally encourage ill patients to disenroll). Second, many studies

have improved patient outcomes through increased use of low-cost measures to improve quality, such as increasing the use of preventive medicine and low-cost medications that reduce risk (such as aspirin following a heart attack).[162] When cost considerations and treatment outcomes conflict, however, there is evidence to suggest that MCOs reduce costs at the expense of expected treatment outcomes. For example, a review of studies of cardiac patients found that MCOs' patients are less likely than are fee-for-service patients to receive expensive procedures even when these would improve expected patient outcomes.[163] In addition, there is evidence to suggest that while enrollees of average health have equivalent outcomes under managed choice and indemnity insurance, both seriously ill and poor patients suffer worse outcomes under managed care.[164]

Moreover, the evidence on utilization review suggests MCO authority reduces quality on average. A review of empirical studies found that MCOs' cost-control mechanisms (such as utilization review) generally lower treatment quality, or at best leave it

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may not provide good evidence on quality of care provided by investor-owned MCOs, because they are based on care provided by not-for-profit and group- and staff-model MCOs, which evidence suggests provide higher expected care than the investor-owned MCOs. Id. at 163. Furthermore, MCOs are sufficiently new that any adverse effects of MCO authority on physician expertise would not yet have been fully realized. If so, only a long-run study will enable researchers to discern the true effect of managed care. See infra note 237. Finally, studies comparing care based on whether a given patient is an MCO subscriber may not capture the full effects of MCOs, because there is evidence that the quality of care a patient receives from his physician depends not only on whether the patient is enrolled in an MCO, but also on whether the physician's other patients are predominately managed care patients. See Sherry Glied & Joshua Zivin, How Do Doctors Behave When Some (But Not All) of Their Patients Are In Managed Care? 2-3 (Nat'l Bureau of Econ. Research, Working Paper No. 7907, 2000); see also Paul A. Heidenreich et al., The Relation Between Managed Care Market Share and the Treatment of Elderly Fee-for-Service Patients with Myocardial Infarction 3 (Nat'l Bureau of Econ. Research, Working Paper No. 8065, 2001) (providing evidence that physicians' treatment outcomes depend on portion of patients enrolled in managed care in local market, and not just individual patient's choice of insurer).

162 See Gottfried & Sloan, supra note 110, at 107-08; see also Miller & Luft, supra note 160, at 1515 (reviewing literature and finding that MCOs reduce use of treatments that are expensive and/or have less costly alternatives).

163 See Gottfried & Sloan, supra note 110, at 107-08.

164 See Kip Sullivan, Managed Care Plan Performance Since 1980: Another Look at 2 Literature Reviews, 89 Am. J. Pub. Health 1003, 1005 (1999) (discussing evidence that elderly patients fare worse under MCO insurance than under fee-for-service); see also Gottfried & Sloan, supra note 110, at 118 ("In general, 'frail' or disabled elderly appear to do marginally better in [fee-for-service] than MCO settings."); cf. Himmelstein et al., supra note 161, at 162 (noting that Medicare HMOs apparently encourage sick patients to disenroll).

unchanged.[165] Consistent with our analysis of the impact of cost considerations on quality, another study found that investor-owned MCOs spend less to improve care than do not-for-profit MCOs.[166]

Consistent with our analysis of the effect of MCO authority on physician expertise, there is evidence to suggest that an MCO's effect on care extends not only to its own patients but to all patients treated by MCO-affiliated physicians, including those patients enrolled with indemnity insurers.[167]

Finally, evidence suggests that MCOs are not taking all the steps they could take to improve quality, such as screening physicians and hospitals to weed out suboptimal providers.[168] Indeed, consistent with our findings, there is evidence that MCOs appear to be screening physicians and hospitals in favor of lower-cost providers even at the expense of quality.[169] Another study, focusing on referrals to specialists, found evidence that there is more quality screening of specialists under the physician-controlled referral system that prevails under fee-for-service insurance than under MCO insurance, in which patients are restricted to MCO-favored physicians.[170]

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165 See Sullivan, supra note 164, at 1006 & tbl.1 (1999) (reviewing existing studies and suggesting that MCOs provide either inferior or equal health quality after controlling for coverage).

166 See Himmelstein et al., supra note 161, at 162-63 (providing evidence that investor-owned plans are associated with lower quality care than are not-for-profit plans).

167 See Glied & Zivin, supra note 161, at 24-30, 36 & tbl.5 (providing evidence that care provided to any given patient, whether insured through MCO or fee-for-service, depends both on whether patient is enrolled with MCO and on percentage of that physician's patients enrolled in managed care); see also Heidenreich et al., supra note 161, at 11 (providing evidence that physicians' treatment outcomes depend on portion of patients enrolled in managed care in local market, and not just individual patient's choice of insurer).

168 Indeed, in part because of MCO resistance, federal regulation to detect incompetent physicians has been similarly ineffective. Mandatory event-reporting systems such as the National Practitioner Data Bank have been "all but ignored." William M. Sage, Principles, Pragmatism, and Medical Injury, 286 JAMA 226, 227 (2001); see Robert Pear, Inept Physicians Are Rarely Listed as Law Requires, N.Y. Times, May 29, 2001, at A1 (reporting that 84% of HMOs and 60% of hospitals did not report to government any "adverse action" against any affiliated physician for incompetence or misconduct over ten-year period and that HMOs reported total of only 715 "adverse actions" in ten years).

169 E.g., Lars C. Erickson et al., The Relationship Between Managed Care Insurance and Use of Lower-Mortality Hospitals for CABG Surgery, 283 JAMA 1976, 1976, 1978 (2000) (finding that patients with fee-for-service insurance are more likely than those insured through MCOs to get coronary artery bypass graft surgery at lower-mortality hospitals in New York State).

170 Gary M. Fournier & Melayne Morgan McInnes, The Effects of Managed Care on Medical Referrals and the Quality of Specialty Care, 50 J. Indus. Econ. 457, 458, 467 (2002).

C. *Markets, Information, and Incomplete Contracts*

The present analysis suggests that the medical care market results in inefficient physician expertise and insurer authority absent sanctions. Market forces operating at the moment of contracting do not provide optimal incentives because insurers and physicians can take actions post-contract that affect the welfare of patients and each other. The parties cannot pre-commit by contract to undertake optimal actions, because expertise, authority, and treatment choice are non-contractable. Nor is physician compassion sufficient to induce efficient expertise, because even compassionate physicians do not benefit from good treatment outcomes as much as their patients. Thus, even though physicians and insurers would be better off ex ante if they could commit to optimal actions, when contracts are incomplete they do not in fact behave optimally, because they cannot obtain the full benefit of such actions absent sanctions for negligence. Accordingly, physicians subject patients to an excessive risk of error, while providing excessive care when informed. Insurers operate as MCOs even when doing so is not efficient, and do not assert optimal authority.

Our conclusion that physicians provide medical care that is both too expensive and of insufficient quality is consistent with existing evidence on physician care.[171] Our analysis shows how these apparently conflicting findings—that care is both too expensive and of too low quality—could both be true. Physicians provide two types of care (treatment choice and expertise) and face different payoffs for each. Thus, while informed compassionate physicians select overly expensive treatment when they do not bear treatment costs, they undertake insufficient investment in expertise because they bear the full cost of expertise but do not obtain the full benefits. Insufficient physician investment in expertise results in patients receiving substandard expected quality of care, even though informed physicians provide excessive care.

In addition, our analysis shows that, absent sanctions for negligence, both physicians and MCOs provide inefficient care even if patients accurately predict the risks actually imposed on them. This result contrasts with the result of the traditional model of accidents that tort liability is unnecessary if consumers (here, patients) correctly anticipate the risks producers impose on them. In the traditional

[171] See supra Parts I.A and I.B. At present, physicians cannot be viewed as subject to tort law that ensures that they fully internalize the expected costs of poor outcomes, because the risk of suit is extremely low, see supra note 34, and because damages are not sufficiently high to adjust for the low probability of suit, see infra note 185.

model, product prices adjust to reflect actual differences in quality.[172] By contrast, we show that market forces do not provide optimal incentives if quality is determined by non-contractible actions taken after the consumer purchases the product. In this situation, producers cannot obtain a higher price by credibly committing to provide optimal quality. Consequently, they provide lower than optimal quality. Consumers, fully informed about producers' payoffs, anticipate this and base their willingness to pay on this low expected quality. Consumer expectations are realized, but quality is inefficient.

This conclusion—that market forces are not necessarily sufficient to induce producers to undertake optimal post-contractual investments in quality—not only reveals an important potential role for malpractice liability, but also suggests a broader potential for tort law to regulate market relationships than generally has been recognized.[173]

IV

SCOPE OF LIABILITY AND MAGNITUDE OF DAMAGES

Tort liability is a potentially effective tool for remedying inefficiencies resulting from incomplete contracts because it is imposed ex post, after each party has acted. The threat of these future sanctions thus can induce MCOs and physicians to invest optimally in "care." Tort sanctions employed to induce optimal behavior would result in higher joint welfare for the parties relative to that achieved without sanctions.[174]

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[172] Steven Shavell, Economic Analysis of Accident Law 52-53, 66-69 (1987) (discussing liability when victims are customers of firms); Shavell, supra note 79, at 4-5, 20-22 (arguing that no-liability equilibrium is efficient if customer-victims accurately assess risk imposed on them by sellers); see Spence, supra note 112, at 563-64 (contending that absent sanctions, producers do not take optimal care when consumers underestimate risks producers impose on them); see also Alan Schwartz, Proposals for Products Liability Reform: A Theoretical Synthesis, 97 Yale L.J. 353, 379-84, 413-14 (1997) (suggesting that products liability generally is unnecessary because evidence suggests customers accurately estimate product risks or at least do not underestimate them).

[173] This analysis is applicable beyond the area of medical malpractice. Our analysis of optimal liability for physician malpractice has implications for any situation where the potential injurer can affect expected accidents costs through post-contractual fixed investments that affect her ability to take "care." Our analysis of MCO liability extends to other situations in which the principal partially regulates the agent by retaining authority over certain decisions, as is standard in many professional situations. Certain independent contractor relationships also will share this feature, as will certain franchisee-franchisor relationships.

[174] Our analysis of sanctions includes both liability imposed by a court and sanctions imposed by the MCO and physician on each other for the provision of negligent treatment. We discuss whether sanctions should be purely voluntary in Part VI, infra.

This Part examines the use of negligence liability to induce optimal treatment choice, optimal physician expertise, and optimal MCO authority. We find that negligence liability imposed for both physicians' and MCOs' suboptimal treatment decisions can induce optimal expertise and optimal authority, and that liability coupled with optimal MCO-physician incentive contracts can induce physicians and MCOs to select optimal treatment when informed.[175] Negligence liability does not induce efficient behavior by either MCOs or physicians unless damages are optimal, as specified below, and MCOs are held liable for their coverage decisions that result in patients receiving suboptimal care.[176]

A. Negligence Liability and Incentive Contracts

In evaluating negligence liability imposed for both physicians' and MCOs' negligent treatment decisions, in this Part we assume that negligence liability is imposed on the physician or the MCO, depending on who has authority over the treatment choice. The imposition of liability also turns on whether the patient received suboptimal treatment that resulted in his suffering injury ex post. Thus, not all suboptimal treatment decisions result in liability—only those where the patient suffers actual injury ex post.

In order to examine the capacity of the tort system to provide optimal incentives, we assume that courts assess negligence based on whether the patient received optimal treatment. Courts thus impose liability whenever the patient received treatment with expected benefits less than b^{**}.[177] We also assume that MCOs and physicians can,

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Our analysis of tort liability is predicated on the assumption that the problems afflicting the health care market cannot be solved through regulation alone. See supra notes 108, 109, 128, and 168 (discussing limitations of existing regulations); see also Calabresi, supra note 9, at 137 (arguing that regulation has limited role in establishing good incentives in health care); cf. Jennifer H. Arlen, Compensation Systems and Efficient Deterrence, 52 Md. L. Rev. 1093, 1104 n.42 (1993) (arguing that regulation may not increase welfare, even if regulators are well informed, because regulators do not have clear incentives to make optimal decisions and indeed are vulnerable to interest group capture).

[175] This assumes that physicians and insurers are risk-neutral.

[176] In addition, optimal treatment requires that "due care" be based on the treatment that maximizes the *net* benefit of treatment, not the treatment that maximizes patient outcomes. See Danzon, supra note 8, at 493 (arguing that due care should be based on patient's ex ante preferences and thus should include cost considerations).

[177] This assumption is consistent with the standard economic model of negligence liability. See, e.g., William M. Landes & Richard A. Posner, The Economic Structure of Tort Law 63 (1987); Shavell, supra note 79, at 8.

At present, negligence liability generally is determined by physician custom, which can be expected to be based on t^*, not t^{**}, as custom generally developed under full indemnity insurance. See Danzon, supra note 8, at 493 (arguing that standard of care developed under traditional insurance promotes overtreatment and is thus inefficient). In other work,

and do, employ incentive contracts to impose sanctions for negligence on each other, and that MCOs also can condition payments to physicians on treatment costs.[178]

B. *Optimal Liability for Physician Negligence*

To induce optimal physician behavior, negligence liability must regulate both physician expertise and treatment choice. Thus, tort liability must ensure that a physician contemplating an additional expenditure on expertise obtains the full benefit of expertise. This implies that the expected sanction imposed for each error must equal the cost of error to the other parties—that is, the additional cost to the MCO and patient of the patient receiving erroneous treatment instead of optimal treatment.

While optimality requires that physicians bear the cost of error to both MCOs and patients, tort liability need not be employed to ensure that physicians internalize the cost of physician negligence to MCOs if MCOs can sanction negligent physicians.[179] When MCOs can sanction negligent physicians, MCOs will employ incentive contracts to ensure that physicians take into account the expected costs to MCOs of physician negligence; MCOs thus will impose expected sanctions on negligent physicians equal to the expected cost to the MCO of physician error. Absent liability for physician negligence, MCOs do not employ sanctions to induce the physician to take into account the benefit to patients of good treatment outcomes because MCOs would bear the cost of these sanctions but would not benefit ex post from expenditures to increase patient welfare. Accordingly, tort liability is

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we examine negligence liability where courts measure medical negligence based on whether the patient received "customary" care, as measured by the treatment an informed physician would select (i.e., "excessive" treatment t^*), and show that tort law can induce (second-best) optimal authority and expertise, given physicians' treatment decisions. See Arlen & MacLeod, supra note 65, at 22-24.

178 Consistent with our conclusion that expertise and authority are non-contractable, it is assumed that the parties cannot condition payoffs on either physician expertise or MCO authority. They can condition sanctions on whether the physician or MCO provided suboptimal care, however.

179 Indeed, incentive contracts imply a different role for tort liability than generally is imagined. Absent incentive contracts, tort liability must be designed to regulate the post-contractual behavior of MCOs and physicians, i.e., to provide each with ex post incentives to behave optimally. When principals and agents can employ incentive contracts, and both parties are solvent, tort liability does not determine either party's ex post sanctions for negligence. Tort liability determines the parties' joint incentives to deter negligence. The parties themselves determine the ex post allocation of liability that maximizes their joint welfare. This implies that the central role of the tort system is to ensure that the parties jointly bear any external costs they impose on others, as this provides the requisite incentives for the parties to implement optimal incentive contracts.

required to provide the physician with the requisite incentives to take patient welfare into account.[180]

1. *Optimal Expected Damages for Physician Negligence*

To induce physicians to invest optimally in expertise, expected tort damages for physician negligence must equal the *expected* cost to the patient of physician error. This implies that optimal expected liability for physician negligence equals $(b^{**}-\hat{b})$, where b^{**} is the expected benefit to the patient of optimal treatment, and $\hat{b}$ is the expected benefit to the patient of the erroneous treatment he actually received.

These damages influence both physicians' expertise and their choice of treatment when informed. Tort damages for negligent treatment provided by *informed* physicians induce informed physicians not to provide suboptimal treatment by ensuring that even noncompassionate physicians take patients' welfare into account. When combined with MCO-imposed sanctions for excessive treatment costs, liability can induce informed physicians to select optimal treatment.[181] Liability imposed for informed treatment regulates treatment choice, and not expertise, because informed physicians can avoid all liability by selecting optimal treatment.

Physician expertise is regulated by tort liability imposed for inadvertent negligent care provided by uninformed physicians. Tort liability imposed for physicians' inadvertent error regulates expertise because physicians cannot simply avoid liability by taking "due care." Liability for inadvertent error necessarily attaches when physicians try to take due care but accidentally fail to do so because of insufficient expertise. Tort liability for inadvertent error thus ensures that physicians bear the cost to patients of their failure to obtain expertise. Damages are efficient if they ensure that physicians bear the cost to patients of their error.

Under our damages regime, the expected price to a physician of each error equals the expected cost of error to the patient. Thus, ex post each physician obtains the full benefit of expertise and invests in the level of expertise that maximizes the parties' joint welfare. Consequently, tort liability for a physician's unintentional mistakes is not

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[180] Liability not only provides physicians with optimal incentives to provide good quality medical care, but it also provides MCOs with the requisite incentives to want physicians to do so. See infra Part V.

[181] This depends on whether MCOs can sanction physicians for providing excessively costly treatment even when this treatment provides optimal (or supra-optimal) benefits ($b_i > b^{**}$).

without justification. It is a central mechanism for inducing physicians to invest optimally in expertise.[182]

2. *Negligence as a Duty-Based Sanction and a Price*

The preceding analysis reveals that negligence liability regulates physician behavior in two different ways: first, by operating as a duty-based "sanction" to deter suboptimal treatment; and second, by effectively operating as a "price"—or form of strict liability—when it imposes sanctions for inadvertent error in order to regulate physician expertise.[183] Negligence liability imposed for inadvertent error effectively operates as a form of strict liability imposed to regulate physician expertise because, as under strict liability, physicians cannot avoid liability by investing in optimal expertise; all they can do is invest in optimal expertise in order to reduce their expected liability.

Recognition that physicians cannot avoid all negligence liability by taking "due care" has implications for optimal damages. As previously explained, optimal expected damages for physician negligence should equal the expected cost of error to the patient, $(b^{**} - \hat{b})$. While the traditional model of accidents implies that damages for negligence are optimal if they equal *or exceed* the minimum optimal award, our analysis reveals that damage awards under negligence liability must be set precisely equal to the optimal amount. Excessive damages do not

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[182] This liability for accidental negligence also has positive implications for the long-run stability of the tort system. As previously discussed, in the classic model of torts, injurers at equilibrium invariably take due care under optimal negligence liability and thus are never liable. This creates dynamic problems, as plaintiffs have little reason to consider suit if defendants are never negligent; but defendants have little reason to take due care if they do not expect plaintiffs to sue. By contrast, our model produces an equilibrium in which physicians are negligent even when they invest optimally in expertise and select optimal treatment whenever informed. This tort liability for inadvertent negligence ensures that, in equilibrium, plaintiffs have an incentive to sue, which in turn ensures that defendants continue to behave optimally.

[183] See Robert Cooter, Prices and Sanctions, 84 Colum. L. Rev. 1523, 1524-25 (1984) (distinguishing between sanction regime and pricing regime based on whether liability is imposed only for failure to adhere to legal duty (such as duty to take due care) or is imposed even if injurer undertakes permitted actions).

Our conclusion that tort liability can induce optimal expertise even though negligence depends on actual treatment choice, and not the physician's capacity to select optimal treatment, differs from Warren Schwartz's conclusion that under negligence liability injurers do not make optimal investments in their capacity to take due care if liability is based on an objective standard because they can avoid all liability by taking "due care." See Warren F. Schwartz, Objective and Subjective Standards of Negligence: Defining the Reasonable Person to Induce Optimal Care and Optimal Populations of Injurers and Victims, 78 Geo. L.J. 241 (1989). Schwartz's analysis depends on the assumption that injurers do not err—that they can ensure that they take due care. By contrast, we find that negligence liability can induce physicians to invest optimally in their capacity to take care (i.e., expertise), because physicians may err and expertise affects the probability of error.

distort behavior in the traditional model, because injurers know the costs and benefits of their actions and can simply decide not to be negligent, thus avoiding any threat of liability.[184] By contrast, in our analysis, excessive damages distort behavior because physicians err and can reduce the risk of error by investing in expertise. Thus physicians inevitably face some expected tort liability, but can reduce its magnitude through investing in expertise. The larger the expected sanction, the greater physicians' incentives to investment in expertise. Accordingly, to induce optimal expertise, damages must equal, but not exceed, the optimal amount.

3. *Magnitude of Optimal Damages*

Evaluation of the optimal expected damage rule reveals that expected optimal damages are based on the expected cost of error to the patient, not the actual injury suffered. In other words, optimal expected damages are based on the *expected* benefit to the patient of receiving optimal treatment instead of erroneous treatment—taking into account the risks of optimal treatment and any expected benefit of erroneous treatment. Thus, the expected award differs from tort awards currently imposed, which generally are based on (though not equal to) the cost to the victim of any actual injuries suffered.[185] Thus, for example, optimal damages for an erroneous treatment that resulted in the loss of a patient's life are less than the value of the patient's life where either the patient would not necessarily have recovered fully if given optimal care or the patient might well have recovered even with erroneous care.

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[184] See Cooter, supra note 183, at 1527-28 fig.3 (arguing that negligence liability deters by providing sanction for failure to take due care, and that damages are optimal if they equal or *exceed* amount sufficient to induce injurers to conform to legal standard). But see Marcel Kahan, Causation and Incentives to Take Care Under the Negligence Rule, 18 J. Legal Stud. 427, 437-40 (1989) (arguing that causation rules can operate to transform negligence from duty-based regime into pricing scheme).

[185] Under existing law, damages are based on the victim's harm in cases involving nonpermanent physical injuries. In cases involving death or serious permanent physical injury, however, damages rules do not even try to fully compensate victims for their losses—damages compensate for some, but not all or even most, of the victim's pecuniary losses. See, e.g., Jennifer H. Arlen, Tort Damages, in 2 Encyclopedia of Law & Economics 682, 686, 697-98, 710-11 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) [hereinafter Arlen, Tort Damages] (discussing theoretical and empirical literature on optimal tort damages for death and injury); accord Jennifer H. Arlen, Note, An Economic Analysis of Tort Damages for Wrongful Death, 60 N.Y.U. L. Rev. 1113, 1127-28, 1133-35 (1985) (finding current damages for wrongful death are not, and cannot be made, efficient).

While *expected* optimal damage awards[186] often are less than the amount that fully compensates the patient for her actual injury, the optimal *actual* award often exceeds the victim's losses. Expected damages are the expected value of the damages an injurer expects to pay, adjusted for the probability that she is held liable if negligent. Thus, a physician who faces a one-in-eight chance of being subject to an $800 sanction if negligent faces expected liability for negligence of $100. Actual damages are the amount she actually pays—here, $800.

Actual optimal damages for physician negligence must exceed optimal *expected* damages because most victims of medical negligence do not sue.[187] Thus, to ensure that expected damages equal $(b^{**} - \hat{b})$, actual damages must equal $((b^{**} - \hat{b})/p)$, where p is the probability that a negligent physician is held liable.[188] Thus, tort liability imposed on a physician who only faces a one-in-eight chance of being held liable for any negligence must equal $8(b^{**} - \hat{b})$ in order to ensure that the expected award equals the cost of error to the patient.

4. *Liability and Incompetent Physicians*

Optimal liability for physician negligence not only induces competent physicians to invest optimally in patient care, it also should induce incompetent physicians to leave the practice of medicine (or gain increased competency).[189]

MCOs can be expected to assist in this process by excluding incompetent physicians from their provider networks.[190] Physician liability provides MCOs with an incentive to exclude incompetent physicians, because MCOs bear the expected cost of physicians' sanctions ex ante.[191] Although physicians pay the actual sanctions

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[186] Throughout this analysis, we focus on the "deterrence" measure of damages that an injurer must pay, and thus need not consider whether victims of serious injury should receive a lesser amount in order to ensure optimal risk spreading.

[187] See supra note 34.

[188] See Shavell, supra note 172, at 161-62 (showing that when risk-neutral wrongdoers may escape detection, optimal sanction is given by harm caused divided by probability that wrongdoer is held liable); see also Gary S. Becker, Crime and Punishment: An Economic Approach, 76 J. Pol. Econ. 169, 183, 207-08 (1968) (same).

[189] At present, physician liability is not optimal because damages for physician negligence are not optimal, see supra note 185, and the due care standard is not set at the optimal level.

[190] See supra note 157 (discussing need to reform "Any Willing Provider" laws). Individual liability does not provide sufficient incentives for insolvent and incompetent physicians to refrain from medical practice if the wage differential between competent and incompetent physicians is less than the difference in the expected benefits of the care provided, as is likely because patients are imperfectly informed about differences in physician quality and select physicians in part based on their MCOs' recommendations.

[191] See infra Part V.A. This assumes physicians are solvent. Id.

imposed for physician negligence,[192] MCOs nevertheless bear the expected cost of physicians' negligence because they must pay physicians sufficient ex ante compensation to ensure that physicians are no worse off treating MCO patients than otherwise. This implies that each physician's ex ante compensation must cover her expected tort liability. Thus, this expected liability becomes a cost to the MCO of providing care. MCOs facing competitive market pressure seek to minimize costs, including expected payments to physicians. Thus, they will favor low-cost physicians over high-cost ones—where low cost now depends not only on expected treatment costs but also on expected liability for poor patient outcomes. Since incompetent physicians can be expected to be higher-cost,[193] optimal physician liability induces MCOs to use their rich data on physician-specific patient outcomes to exclude incompetent physicians from their networks.[194]

C. *Optimal Liability for Suboptimal MCO-Selected Treatment*

In order for negligence liability to induce both efficient MCO behavior and efficient physician expertise, negligence liability also must be imposed for utilization review decisions that result in patients receiving suboptimal treatment.[195] Negligence liability imposed when patients are injured by suboptimal treatment resulting from an MCO's assertion of authority serves two goals: It provides MCOs with incentives to assert optimal authority and to select optimal treatment when they do assert authority.[196]

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[192] Even under entity-level liability, the MCO-physician contract will ensure that physicians bear the full ex post burden of liability for physician negligence if physicians are risk-neutral. An MCO subject to liability for physician negligence (as well as for its own) has an incentive to induce efficient physician expertise by imposing an expected sanction on risk-neutral negligent physicians equal to the optimal expected damage award. See Arlen & MacLeod, supra note 65, at 30-31, 34 (determining optimal damages rules and optimal MCO-physician incentive contract for risk-neutral physicians). If physicians are risk-averse and MCOs are risk-neutral, then the burden of this liability will be shared between the two. See Milgrom & Roberts, supra note 1, at 212-14.

[193] The definition of optimal treatment implies that the expected liability associated with suboptimal treatment should exceed any cost-savings associated with poor care (if any).

[194] MCOs' ex ante liability should induce them to exclude incompetent physicians to the extent that incompetent physicians expect to face greater liability costs and thus insist on additional compensation. If incompetent physicians do not know they are incompetent, MCOs do not need to pay them additional compensation. As a result, these physicians will bear greater uncompensated liability which, over time, should drive them from the market (assuming that patients who are victims of negligence can be encouraged to sue more regularly, perhaps by the ability to recover from MCOs). See infra Part V.

[195] As efficient MCO authority is a precondition for optimal efficient physician expertise, both authority and expertise will be inefficient unless liability induces MCOs to assert optimal authority. See supra Part II.D.4.

[196] Indeed, MCO liability may improve the efficiency of the tort system. At present, liability is based on customary physician-selected treatment. This is generally too expen-

In order to induce MCOs to assert optimal authority, negligence liability must ensure that MCOs bear the cost to patients of each decision to substitute expected MCO-selected treatment for expected physician-selected treatment. Tort liability need not address the cost of MCO authority to the physician, as the MCO and physician can privately determine any sanctions imposed by the physician on the MCO for negligence.

Thus, optimal expected damages for MCO negligent treatment decisions equal the expected cost to a patient of receiving MCO-selected treatment instead of optimal treatment. Accordingly, optimal expected damages equal $b^* - b^0$, where b^0 is the expected quality of treatment provided by an MCO that asserts authority.[197]

Subjecting MCOs to optimal damages not only induces MCOs to assert optimal authority, it also should induce insurers to abandon MCO contracts in favor of fee-for-service contracts in those cases where the cost of utilization review to the parties exceeds the benefits. Optimal MCO liability also will induce MCOs to alter their treatment choice when they do assert authority—inducing MCOs to select optimal treatment, rather than suboptimal treatment, whenever they are sufficiently informed to do so. Thus, imposing such MCO liability not only does not hurt medical markets, but it increases the joint welfare of physicians, MCOs, and patients.[198]

V
MCO Liability for Physician Negligence

In addition to holding MCOs liable for their own coverage decisions, MCOs also can be held liable for physician negligence (either as an alternative to, or in addition to, physician liability for physician negligence).[199] This Part examines whether MCO liability for physician negligence that injures MCO subscribers maximizes the joint welfare of physicians, MCOs, and patients, or whether pure physician

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sive. If courts would permit MCOs to avoid liability by showing that "custom" entails excessive care, this could improve the efficiency of the due care standard. See Danzon, supra note 8, at 493, 508-09.

197 See Arlen & MacLeod, supra note 65, at 30 proposition 6 (demonstrating optimality of this damage award).

198 See Arlen & MacLeod, supra note 65; see also infra note 232 (discussing why MCOs may object to liability at present even though liability would be welfare-improving if due care and damages were set optimally and patients correctly anticipated risks imposed on them).

199 When MCO insolvency also is an issue, it may be advisable to have joint MCO and physician liability for physician negligence. See Reinier H. Kraakman, Corporate Liability Strategies and the Costs of Legal Controls, 93 Yale L.J. 857, 869-72 (1984) (favoring joint individual and entity-level liability when firms cannot cover tort damages of their agents).

liability for physician negligence is sufficient. This Part shows that MCO liability for physician negligence is optimal: MCO entity-level liability is preferable to pure physician liability in some cases and provides equivalent incentives in others.

This Part also examines whether MCO liability should be predicated on an MCO's capacity to "control" its affiliated physicians—as that concept is defined under traditional vicarious liability—or whether MCOs should face broader entity-level liability, under which MCOs are liable for negligence by affiliated physicians even when MCOs do not exert (or appear to exert) direct control over them. We show that predicating MCO liability on control (as under traditional vicarious liability) is inefficient because it may discourage MCOs from exercising welfare-enhancing controls to reduce medical error. Instead, MCOs should face a broad entity-level liability for physician negligence that injures subscribers if the MCO had the *capacity* to affect its physicians' behavior by sanctioning negligent physicians, regardless of whether the MCO actually exercises direct control over physician behavior.[200]

A. The Benefits of MCO Liability for Physician Negligence

The choice between a regime of pure physician liability for physician negligence and one in which physician liability is supplemented by entity liability imposed on MCOs for physician negligence depends on whether the addition of entity-level liability is necessary to induce efficient behavior by both physicians and MCOs. The relative efficiency of pure physician liability and MCO liability for physician negligence thus turns on whether pure physician liability ensures that MCOs and physicians jointly bear the full expected cost to patients of physician error, or whether MCO liability is needed to ensure that the parties bear the full cost to patients of treatment error, assuming that damage awards are optimal.

1. Solvent Physicians: The Neutrality Result

The central role of tort law when MCOs and physicians can regulate each other's behavior through incentive contracts (e.g., private sanctions) is to induce MCOs and physicians to employ such contracts (and other mechanisms) optimally to induce behavior that maximizes the joint welfare of MCOs, physicians, and patients. Tort liability

[200] Thus, the conclusions of our analysis differ from those of Professors Epstein and Sykes. See Epstein & Sykes, supra note 8, at 638-41 (suggesting that limiting MCO liability to situations where MCOs control physicians may be preferable to broad MCO liability for physician negligence).

accomplishes this goal if expected liability imposed for physician error equals the expected cost of error to patients. Given this expected tort liability, MCOs and physicians allocate expected ex post sanctions to maximize the parties' joint welfare. Thus, they impose an expected sanction on risk-neutral negligent physicians equal to the expected costs of error to the patient: Under MCO liability, the MCO seeks full indemnification from the physicians; under physician liability, the MCO lets tort liability lie where it falls. In either case, the expected sanction on the physician is the same.[201]

Accordingly, when the choice between individual and entity-level liability does not affect expected sanctions imposed on the parties, then the choice between the two regimes does not affect behavior.[202] Thus, both pure physician liability and MCO liability for physician negligence can induce optimal behavior if physicians have sufficient wealth to pay optimal damage awards, provided MCOs and physicians can implement optimal incentive contracts.[203]

When physicians are solvent, each regime not only induces optimal physician behavior but also provides MCOs with incentives to reduce physician error, because under each MCOs bear the expected

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[201] The formal proof is provided in Arlen & MacLeod, supra note 65.

Where physicians are risk-averse and MCOs are risk-neutral, the optimal MCO-physician contract may allocate most, if not all, liability for physician negligence to the MCO, leaving the MCO to regulate physician care through other mechanisms, such as monitoring, providing information and training, improving systems to prevent error, and screening physicians. See Milgrom & Roberts, supra note 1, at 212-14 (1992) (discussing circumstances under which principals will not fully employ incentive contracts to discipline risk-averse agents). In this case as well, however, the incentive structure adopted by the MCO and physician will not be affected by whether tort law formally imposes individual liability or entity-level liability for physician negligence, provided physicians are solvent.

[202] See Arlen & MacLeod, supra note 65 (providing formal proof of this result). Lewis Kornhauser and Alan Sykes established this neutrality result in contemporaneous articles on vicarious liability. See Kornhauser, supra note 10; Sykes, supra note 79; see also Sykes, supra note 10. Those articles considered principal-agent relationships when agents, not principals, directly control the level of care. In those models, principals regulate agents primarily through incentive contracts, although they also may employ monitoring. We extend the analysis of entity liability versus individual liability to consider whether the neutrality result also holds when principals also can directly affect outcomes through the exercise of authority. In another analysis, we prove that the neutrality result holds when principals can exercise authority, provided physicians are solvent with respect to optimal damages. It does not hold when physicians do not have sufficient wealth to pay optimal damages, however. See Arlen & MacLeod, supra note 65 (providing formal proof of this result in model with physician expertise and MCO authority). For an exploration of the relative effects on both disclosure rules and physician liability versus MCO liability when patients do not necessarily know whether they are victims of negligence and do not necessarily observe MCOs' contracts with physicians, see Zeiler, supra note 15.

[203] See Arlen & MacLeod, supra note 65 (providing formal proof of this result); accord Kornhauser, supra note 10 (establishing this result in general case without authority); Sykes, supra note 10 (same).

cost of sanctions ex ante. In order to induce physicians to treat its patients, each MCO must ensure that physicians expect to be no worse off if they agree to treat the MCO's patients than if they do not. This implies that an MCO's ex ante payments to its physicians must compensate physicians for their expected tort liability, in addition to covering any expected treatment costs. Accordingly, under each regime, MCOs bear the cost of expected physician sanctions and thus invest optimally in ex ante measures to reduce physicians' expected liability, such as screening physicians. The MCOs' incentives to invest ex ante in physician care will be efficient if expected damages equal the expected cost to patients of physician negligence.

2. *Non-Neutrality and the Problem of Physician Insolvency*

While individual liability and MCO liability are equally effective when physicians are solvent, MCO liability is superior when physicians are insolvent or otherwise do not bear full expected damages under physician liability.[204]

The neutrality result does not hold when physicians do not have sufficient wealth to pay optimal actual damage awards (but MCOs do) because in this case the choice between pure physician liability and entity-level liability affects the magnitude of expected liability imposed on the parties. Under physician liability, damages cannot exceed the physician's available wealth. By contrast, under MCO liability, the MCO must pay the full award regardless of whether the physician is insolvent. Thus, when MCOs have sufficient wealth to pay an optimal award, but physicians do not, expected liability under MCO liability exceeds expected liability under pure physician liability, and the two regimes do not produce the same outcomes. MCO liability is efficient because it ensures that the parties bear optimal tort liability; pure physician liability is not efficient because the parties do not bear the full cost of error to the patient. Thus, while MCO liability provides optimal incentives, pure physician liability does not.[205]

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[204] See infra note 209.

[205] See Arlen & MacLeod, supra note 65 (proving this result in model with physician expertise and MCO authority); Kornhauser, supra note 10.

Similarly, the neutrality result does not hold if, as is the case, physicians purchase liability insurance that is not "experience-rated," in that premiums are invariant to individual physician's claims experience. Sage, supra note 77, at 18. In this case, the parties will bear the full expected optimal damage award under MCO liability, but will only bear the ex ante cost of the insurance premium under physician liability, a premium which does not depend on individual physician expertise or treatment choice. By contrast, the parties will bear the full cost of liability under MCO liability because MCOs often self-insure and corporate liability insurance generally is experience-rated.

Consideration of the requirements for physician solvency reveals that physicians often do not have sufficient wealth to pay optimal damages, particularly for important cases such as those involving serious injury to the patient or death. Physicians are "insolvent" if they do not have sufficient wealth to pay the optimal award.

The optimal *expected* award is based on the cost to the patient of physician error. This optimal expected award can be in the millions when physician error kills a patient who otherwise would have been expected to recover completely.[206]

Moreover, the optimal award actually imposed for negligence—the award by which physician insolvency must be determined—generally exceeds the optimal *expected* award by many times. Physicians face optimal incentives when they expect to face damages equal to the cost of error to patients each time they are negligent. When, as at present, physicians correctly expect to avoid liability for most of their negligence,[207] then actual tort damages imposed in those few cases where patients do recover must equal a multiple of the patient's expected losses in order to ensure that each physician's expected liability is optimal. For example, to ensure optimal behavior when physicians face only a one-in-eight chance of being held liable for any negligence, the actual award imposed must equal eight times the optimal expected award.[208] This suggests a significantly greater risk of insolvency than previously has been recognized.[209] Indeed, most physicians likely are insolvent with respect to optimal damages in cases

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[206] The proper award paid by physicians in this case would be the deterrence value of life, not the insurance value of life, because tort liability is needed to provide incentives to regulate risk. See Arlen, Tort Damages, supra note 185, at 697-702 (discussing this issue and estimates of deterrence value of life).

[207] See supra note 34 (discussing evidence that most victims of medical negligence do not sue).

[208] See Shavell, supra note 172, at 161-62 (showing that optimal sanctions equal harm caused divided by probability of sanction when risk-neutral wrongdoers may avoid detection); see also Becker, supra note 188, at 183, 207-08 (same).

[209] Professors Epstein and Sykes agree that MCO liability is superior to physician liability when physicians are insolvent, but suggest that physician insolvency generally is not a problem. See Epstein & Sykes, supra note 8, at 636, 640 (stating that MCO liability for physician negligence would be optimal if physicians are insolvent but concluding that "insolvency is usually not a serious concern with independent-contractor physicians"). Professors Epstein and Sykes do not explain the basis for this conclusion, but it appears to be based on a comparison of expected physician wealth with damages actually imposed in tort cases. This is not the proper measure of physician insolvency. Physicians' ability to pay the damages currently imposed for medical negligence has little bearing on the issue of whether physicians have sufficient wealth to pay optimal damage awards, because current awards generally are lower than optimal awards. See Arlen, Tort Damages, supra note 185, at 697-702 (discussing evidence on divergence between actual and optimal damages). Thus, even if physicians can pay current damage awards (which is debatable), this would not imply that physicians are not insolvent with respect to *optimal* awards.

where negligence results in serious permanent injury or death. Accordingly, in many cases, physicians can be expected to be insolvent with respect to the optimal award.

3. *Pure Physician Liability with Insolvent Physicians*

Thus, pure physician liability for physician negligence does not induce either efficient physician expertise or efficient treatment choice by informed physicians because, under this regime, "insolvent" physicians do not bear the full cost to patients of their errors.[210]

Yet, beyond this, pure physician liability does not provide MCOs with adequate incentives to employ the tools available to them to ameliorate the problems arising from physician insolvency: ranging from redesign of incentive contracts, screening of physicians for competency and solvency, and monitoring physicians.[211] Under physician liability, physician insolvency insulates both physicians and MCOs from the full cost of physician error because expected liability is capped by physicians' wealth.[212] Thus, MCOs bear the full cost of treatment, but not the full cost of any reduction in treatment outcomes. Accordingly, under this regime, MCOs employ the tools available to them—incentive contracts, monitoring, screening, and other measures—to maximize their profits, placing disproportionate emphasis on reducing treatment costs, even at the expense of a greater reduction in expected treatment outcomes. Accordingly, MCOs can be expected to screen physicians with an excessive focus on treatment costs, continuing to contract with substandard physicians if

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The problem of physician "insolvency" also is exacerbated to the extent that plaintiffs' lawyers are reluctant to go after physicians' personal assets if insurance coverage is insufficient, or if physicians can shield their assets from tort claimants. See Tom Baker, Blood Money, New Money, and the Moral Economy of Tort Law in Action, 35 Law & Soc'y Rev. 275 (2001) (finding, through qualitative study of personal injury lawyers, that many are reluctant to seek awards beyond amount provided by malpractice liability insurance); Rachel Emma Silverman, Litigation Boom Spurs Efforts to Shield Assets, Wall St. J., Oct. 14, 2003, at D1 (discussing doctors' increased use of asset-protection trusts).

Moreover, the prevalence of physician groups does not eliminate the insolvency problem because physician groups increasingly are teetering on, or over, the edge of bankruptcy, in part as a result of financial risks associated with MCO capitation contracts. See Kristin Madison, Regulatory Drift: Regulation of Risk-Bearing Health Care Providers 5-6 (2000); Casalino, supra note 111, at 1063-64. Thus, the risk of physician insolvency remains even when group practices are prevalent.

210 See supra Part III.A.

211 See supra Part II.D.

212 The MCO bears the expected cost of physician liability through its obligation to provide physicians with compensation equal to their expected tort liability for negligence. The cost to the MCO of this obligation is lower the greater the risk of physician insolvency, because MCOs only compensate physicians for liability physicians expect to pay, and not for the liability the state threatens to impose.

they provide especially low-cost treatment. Moreover, MCOs and physicians may agree to financial arrangements that place excessive risk on physicians, because they obtain the full benefit of any treatment cost-savings, while externalizing the costs of any adverse consequences onto patients.[213]

In addition, when physicians are insolvent, pure physician liability distorts MCOs' incentives to assert authority. MCOs' assertion of authority potentially can ameliorate problems arising from physician insolvency by substituting superior MCO-selected treatment for inefficient physician-selected treatment when MCOs are less likely to err than physicians.[214] Yet, while MCOs could employ authority to increase welfare, they may not necessarily do so because they bear the full cost of authority but do not obtain the full benefit of authority when only physicians are liable for physician negligence.[215]

Indeed, pure physician liability may even dissuade MCOs from asserting authority they might otherwise assert absent sanctions, because an MCO faces full expected liability for any negligent treatment provided if it asserts authority, but faces expected liability limited by physicians' wealth if it lets physicians determine treatment. In such circumstances, MCOs face excessive incentives to reduce expected costs by shifting authority to the physician—with the incentives not to assert authority being greater the lower the physician's assets.[216]

4. *Superiority of MCO Liability with Insolvent Physicians*

In contrast to pure physician liability, under entity liability the MCO and physician jointly bear the full expected optimal damage award even if physicians are insolvent. This implies that, when damages are optimal, MCOs have optimal incentives to design their rela-

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[213] Indeed, MCOs and physicians may benefit from arrangements that increase the risk of physician insolvency, in that the parties' joint expected liability is lower the greater the risk of physician insolvency. See Arlen & MacLeod, supra note 65; cf. Madison, supra note 209, at 5-6 (discussing problem of physician group insolvency resulting from capitation plans).

[214] MCOs endeavor to provide optimal treatment when subject to liability for their negligent decisions, as we assume in this Part.

[215] See supra text following note 156.

[216] Whether MCOs assert too little or too much authority depends on two competing effects of authority when physicians are insolvent. On the one hand, authority reduces expected treatment costs, while on the other hand, shifting decisionmaking from the MCO to insolvent physicians reduces expected liability for each negligent treatment. If the latter effect dominates, then under individual liability MCOs may shift authority to insolvent physicians with low expertise; if the former effect dominates, MCOs may assert more authority when physicians are insolvent. In either case, authority is inefficient. See Arlen & MacLeod, supra note 65.

tionship to induce optimal authority, expertise, and treatment choice, given the limitations arising from physician insolvency. MCOs thus have optimal incentives to undertake a variety of measures that can improve the expected quality of physician-provided treatment.

Of particular importance, MCOs may be able to implement incentive contracts that induce physicians to invest optimally in expertise and to select optimal treatment when informed, notwithstanding physicians' insolvency with respect to optimal actual damage awards. MCOs potentially can induce efficient physician behavior—when physician liability cannot—if, under individual liability, physicians are insolvent with respect to the optimal actual award (given the probability of liability) but have sufficient assets to pay the optimal expected award, $b^* - \hat{b}$. In this circumstance, MCOs can employ sanctions to induce optimal behavior when physician liability cannot, because MCOs are not limited to sanctioning negligent physicians only in those relatively rare instances when an injured patient actually sues. MCOs can implement incentive contracts that permit them to sanction physicians for negligence whenever the MCO determines that the physician provided negligent treatment. MCOs can detect negligence, even if a patient does not sue, through the information they obtain on treatment outcomes as their patients' insurers. For example, MCOs have notice of potential negligence whenever a patient remains in the hospital for an unusually long duration because of complications or infections not usually associated with the procedure the patient received. Employing this data, MCOs can attempt to sanction each instance of serious negligence, thereby increasing the frequency of sanctions relative to physician liability. With more frequent sanctions, MCOs need not impose such enormous sanctions in order to provide optimal incentives. For example, in contrast with individual physician liability where the optimal actual sanction must be $8(b^* - \hat{b})$ if only one in eight instances of negligence result in a suit, an MCO that is able to sanction every instance of negligence could provide optimal incentives with a sanction of only $(b^* - \hat{b})$. Physicians unable to pay the eight-fold sanction nevertheless might be able to pay the MCO's optimal sanction. Thus, by providing MCOs incentives to implement optimal incentive contracts, entity-level liability not only can encourage optimal MCO behavior, but also potentially can induce MCOs to induce physicians to invest in optimal expertise and to provide optimal treatment when informed.[217]

[217] Under individual liability, market incentives do not provide MCOs with adequate incentives to implement such contracts. Patients' preferences for optimal care only provide the MCO with an ex ante incentive to *claim* it has instituted incentive provisions designed to boost physicians' expertise to optimal levels. It does not provide the MCO with an

Entity-level liability also provides MCOs with efficient incentives to screen for incompetent (or insolvent) physicians. MCOs facing entity-level liability bear the full cost of physician negligence. Thus, they will seek to contract with physicians most likely to provide optimal treatment, and will eschew incompetent physicians even if they generally employ low-cost treatments. In addition, under this regime MCOs will evaluate the solvency of physicians and hospitals, no longer benefiting from dealing with providers likely to go under.

Under entity-level liability, MCOs also reduce expected costs by investing in developing and disseminating optimal treatment protocols, as they bear the full cost of physician error.[218]

Finally, entity-level liability provides MCOs with optimal incentives to assert authority where authority can be used to reduce the expected cost of physician error. With MCO liability for MCO treatment choice *and* physician negligence, MCOs bear the full expected cost of treatments provided by either physicians or MCOs. They do not benefit from shifting authority to insolvent physicians, since MCOs bear the full expected liability for physician negligence. Thus, in contrast with pure physician liability,[219] under entity-level liability MCOs determine authority optimally, allocating authority to either the MCO or the physician based on which provides the treatment with the higher net expected benefit.[220]

Accordingly, as MCO liability for physician negligence is superior to pure individual liability when physicians may be insolvent, and provides identical incentives in those cases where physicians are solvent, entity-level liability is superior to pure physician liability and should govern physician negligence in all cases.[221]

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incentive actually to implement these provisions because the MCO obtains the full benefit of higher expected physician expertise once the patient pays his premium to the MCO, whereas actually agreeing to such a contract term would entail the MCO paying the physician a higher ex ante wage to account for both liability that the MCO imposes and the cost of the physician's increased investment in expertise. Thus, the MCO does not intervene to improve expected physician treatment quality unless it has a direct financial incentive to do so. Tort liability provides such an incentive.

218 See supra Part II.D.5.

219 See supra Part V.A.3.

220 Our analysis thus counters the argument that MCO liability for physician negligence is bad because it would lead MCOs to exert an inefficient level of control over physicians. See Danzon, supra note 8, at 514 (arguing that entity-level liability for physician negligence could cause MCOs to increase controls over providers in ways that would decrease consumer welfare). We find that MCO liability either will not affect MCO behavior relative to pure physician liability, or will result in superior MCO behavior should physicians be insolvent with respect to optimal damages.

221 Many of the preceding arguments favoring MCO liability for physician negligence arguably apply as well to hospital liability for physician negligence. See Abraham & Weiler, supra note 15, at 393-94 (suggesting that hospitals face enterprise liability for

B. *Vicarious Versus Entity-Level MCO Liability*

MCO liability, accordingly, is superior to pure physician liability. Yet the question arises, what form should this liability take? Specifically, should all MCOs be liable for wrongs to their patients committed by all their affiliated physicians, or should liability be limited to the minority of MCOs who either hire physicians as employees or otherwise exert sufficient direct control over affiliated physicians to satisfy the traditional requirements for vicarious liability?

Outside the medical context, vicarious liability operates to hold principals liable for the torts of their agents committed in the scope of employment, but only if the principal and agent are in a master-servant relationship. Principals, thus, are not liable unless they have the capacity to exert control over the manner in which the agent performs her job—as in an employer-employee relationship. Courts interpreting vicarious liability in the non-MCO context generally require some indicia that the principal has the capacity to exert direct control over the agent; a contractual relationship where the principal only utilizes indirect financial incentives often is not enough. Thus, principals who hire independent contractors can structure relationships to avoid tort liability while still providing financial performance incentives.[222]

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iatrogenic injuries caused by affiliated physicians and medical personnel whether on- or off-site). At present, MCOs are the superior entities to bear primary entity-level liability, although we favor letting MCOs contract with hospitals for indemnification (as they will when hospitals are better able to regulate risk). MCO liability is superior in part because of concerns about entity asset insufficiency. Patients are better able to assess the financial health of an MCO than a hospital, because patients have time to evaluate health plans but often seek hospital services when in need of immediate or proximate care. MCOs also restrict the hospitals to which its subscribers may go; MCO liability would encourage MCOs to consider a hospital's financial health in making this selection. In addition, MCOs are in a superior position to regulate providers by contract, because they generally have contracts with both hospital-affiliated and off-site providers. Hospitals, by contrast, do not necessarily have contractual relationships with off-site providers of care and cannot readily ascertain the identity of such providers. Finally, MCOs are better able to assess optimal treatment protocols and disseminate information because they have information about expected costs and consequences of various treatment protocols employed nationwide as applied to a defined population of enrollees, while hospitals generally only know about outcomes of on-site services. For a more extensive discussion of the relative merits of MCOs versus hospitals as the locus of liability, see Sage, supra note 15, at 163; see also Glied, supra note 7, at 725.

222 See Restatement (Second) of Agency §§ 140, 142 (1958); Agrawal & Hall, supra note 49, at 241-46 (discussing requirement of traditional vicarious liability). Principals also can be liable on a theory of apparent (or ostensible) agency if a reasonable person in the position of the victim would have believed that the agent was a servant of the master, the victim relied on this master-servant relationship, and the agent committed the tort apparently within the scope of this master-servant relationship. See supra text accompanying notes 60-62 (discussing apparent authority as applied to MCOs).

Under a traditional vicarious liability regime, most MCOs would avoid liability for physician negligence. Most MCO-physician relationships do not satisfy the requirements for control that govern traditional vicarious liability because most MCOs enter into independent contractor relationships with physicians; they do not hire physicians as employees. Physicians, not MCOs, control the operation of their practices: they decide which patients to serve, determine with which MCOs to contract, determine what treatments to recommend (subject to MCO limitations on what treatments would be covered), and regulate their own office staff. Courts holding MCOs vicariously liable generally have had to expand beyond the bounds of traditional vicarious liability to do so.[223]

This control requirement is inefficient. Thus, courts should not simply push at the boundaries of vicarious liability, they should eliminate the capacity-to-control requirement altogether in favor of a broader capacity-to-contract requirement. When physicians are insolvent with respect to optimal damages, traditional vicarious liability effectively penalizes MCOs that exert control. Those MCOs that exert control trigger vicarious liability and thus bear full optimal damages; those that do not are not subject to entity-level liability and thus only face expected sanctions capped by the wealth of insolvent physicians. Thus, vicarious liability increases the costs to MCOs of exerting control by the additional expected liability associated with the shift from pure physician liability to MCO liability for physician negligence. Accordingly, predicating liability on whether the MCO exerts direct control over physicians undermines one of the central purposes of MCO liability: to induce MCOs to invest optimally in measures that influence the quality of care provided by insolvent physicians, including direct control.

By contrast, a broader entity-level liability rule predicated on the MCO's capacity to *contract* with affiliated physicians can induce MCOs to employ optimally the tools available to them to regulate treatment quality, because it does not effectively penalize one tool or another. The MCO faces the same expected liability for each injured patient, regardless of whether or not it exercises "control." Thus, provided damages are optimal, such a regime provides MCOs with optimal incentives to exert control, as well as incentives to increase the net benefits of medical care.

The parties' joint welfare thus is higher if MCOs face broad entity-level liability for injuries to subscribers resulting from the negligence of any physician with whom that MCO has the capacity to enter

[223] See Agrawal & Hall, supra note 49, at 241-42.

into a contractual relationship (which includes incentive compensation) instead of traditional vicarious liability limited to those physicians they directly control.[224]

VI
WAIVER OF LIABILITY

The preceding analysis shows that the parties can maximize their joint welfare by holding MCOs liable both for their own negligent coverage decisions and for negligence by affiliated physicians. The question is, should this liability be mandated or voluntary? Specifically, should MCOs and physicians be able to obtain waivers from patients that absolve them of any liability for negligence?

The argument favoring voluntary liability is a simple one: Tort liability in this area is intended to benefit contracting parties, and the parties are better able than others to determine what is in their best interests. As patients enter into contracts with MCOs when they are not in extremis, they should be permitted to decide for themselves whether to waive their right to sue in order to get lower-cost insurance. Thus, should MCOs want to offer liability waivers and patients want to accept them in return for lower-cost insurance, courts should honor this decision. Similar analysis would support permitting physicians to obtain liability waivers from patients, at least in those circumstances where the initial decision to enter into the contract is purely voluntary (e.g., the patient is not in extremis).[225]

This Part examines the claim that MCOs and physicians should be permitted to obtain waivers of liability from patients. We show that the mere fact that patients, MCOs, and physicians voluntarily agree to enter into waiver agreements does not imply that waiver is efficient. The parties may agree to waivers even when their joint welfare would be higher were waiver prohibited.[226] Moreover, permitting waiver may be suboptimal even when patients accurately anticipate the risks imposed on them. Thus, while permitting waiver may be optimal in some circumstances, the fact that patients consent voluntarily is not sufficient to establish that permitting waiver is efficient.

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[224] This conclusion distinguishes our analysis from that of Professors Epstein & Sykes, who prefer MCO liability predicated on the exercise of control. See Epstein & Sykes, supra note 8, at 638-39.

[225] See Danzon, supra note 8, at 504-16 (asserting that MCOs, physicians, and employers should be able to allocate liability rules through contract); Epstein & Sykes, supra note 8, at 644, 647-48 (same); Havighurst, supra note 15, at 8-9.

[226] This condition is necessary but not sufficient for waiver to be efficient if the patient-physician-MCO contract imposes external costs on others (e.g., the patient's friends and loved ones).

A. MCO Waiver, Expertise, and Imperfect Information

One essential precondition for efficient waiver is that patients must be able to estimate accurately the expected costs and benefits to them of waiver at the moment of contract.[227] Patients cannot do this.[228]

The expected cost of waiver to a patient is given by the expected effect of waiver on the quality of care provided, adjusted by the probability that the patient needs care. Patients generally underestimate the probability that they will become seriously ill,[229] and thus can be expected to underestimate the cost to them of waiver, waiving liability even when it is not in their best interests to do so.[230] Patients also cannot estimate accurately the expected impact of waiver on the quality of medical care. Patients can be expected to underestimate the role of waiver to the degree to which they underestimate the role of physicians' post-contractual investments in expertise in determining expected treatment quality. Accordingly, were waiver permitted, patients would accept—and MCOs would offer—waiver provisions even when they are not welfare-enhancing, because imperfectly informed patients can be expected to underestimate the costs to them of waiver.[231] These information problems imply that waiver should not be permitted in situations where imperfectly informed patients would be presented with policies that clearly establish the gains to them of waiver (in terms of lower insurance costs) but not the costs of

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227 See Alan Schwartz & Louis L. Wilde, Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Securities Interests, 69 Va. L. Rev. 1387, 1389, 1425-46 (suggesting that merits to consumers of liability waiver turn on whether consumers are fully informed about costs and benefits of waiver at moment of contracting). Observe that what is critical is that patients be able to determine the expected costs and benefits of *waiver*, not that patients know the expected costs and benefits of any given treatment. Thus, if waiver could be expected to have no effect—or alternatively an astronomical effect—on care, patients could accurately evaluate waiver clauses even if they could not determine the expected cost or benefit of any particular care provided.

228 In this Section, we abandon the assumption that patients know the payoffs of all the parties and thus each party's expected behavior. We retain this assumption throughout the remaining Sections of this Part, however.

229 See Neil D. Weinstein, Unrealistic Optimism About Susceptibility to Health Problems: Conclusion from a Community-Wide Sample, 10 J. Behav. Med. 481, 494-96 (1987).

230 See Schwartz & Wilde, supra note 227. When parties have asymmetric information, free contracting over waivers may be inefficient for other reasons. For example, contracting may not be efficient, and indeed markets may break down, when one party may obtain a product from numerous providers, each of whom has superior information on the quality of the good provided. See George A. Akerlof, The Market for "Lemons": Quality Uncertainty and the Market Mechanism, 84 Q.J. Econ. 488, 488-91, 494 (1970).

231 The impact of MCO liability for physician negligence depends on whether (and the degree to which) physicians are insolvent. See supra Part V.

waiver, if patients might underestimate the costs of waiver resulting from the lower expected quality of the medical care provided.[232]

B. *The Problems with Granting Patients Choice Regarding Waiver*

Although patients' information problems constitute a potentially potent argument against permitting MCO waivers, this is not the only problem. Permitting waivers may be inefficient even when patients are fully informed about the costs of waiver and act in their own best interests at the moment the waiver decision is made.[233]

1. *Durable Expertise and the Problem of Short-Run Contracting*

Permitting malpractice liability waivers may be suboptimal even when patients are fully informed about the immediate costs of waiver, because patients may choose to waive to maximize their short-run welfare, even when doing so is not in their long-run best interests.

In the short run, waiver confers immediate benefits on patients (in terms of lower-cost medical care) with little short-run cost (in terms of lower-quality medical care).[234] When physicians are compassionate, waiver could be expected to have little short-run effect on expected patient care because expected care depends on expertise. Expertise is a capital good: Initial investments in expertise continue to affect quality in subsequent years.[235] Physicians' expertise thus is determined largely by investments incurred prior to the patient con-

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232 Accordingly, the fact that MCOs currently resist liability does not imply, as Professor Danzon has suggested, that MCO liability is not efficient. See Danzon, supra note 8, at 515. If patients obtain a direct benefit from waiving liability, but are unsure of—and underestimate—the resulting costs, then MCOs can increase profits by obtaining waivers even when waivers are not in fact optimal. In addition, our analysis is limited to circumstances in which courts employ optimal damage rules. At present, neither damage rules nor the rules governing due care are optimal. Liability with suboptimal damage and due care rules may not be welfare-improving. See also infra Part VI.B (discussing other reasons why waiver may be inefficient).

233 In addition to the reasons given below, other problems also attend proposals to let MCOs and physicians insist that patients waive the right to file malpractice liability suits. In many areas, the market for physicians is not competitive. There even may be only one provider. Thus, the physician can insist on waiver without patients having any effective choice. Moreover, MCOs similarly may dominate certain local markets.

234 Imposing liability on either physicians or MCOs is costly, particularly relative to first-party insurance. See Paul C. Weiler, The Case for No-Fault Medical Liability, 52 Md. L. Rev. 908, 925-26 (1993) (arguing that first-party insurance has lower administrative costs than compensation systems, even when compared to low-cost compensation systems such as no fault and workers compensation). Patients, MCOs, and physicians thus rationally would abstain from imposing liability unless liability would provide sufficient benefits from the resulting increase in health care quality.

235 Similarly, elements of MCO authority—such as investments in determining optimal treatments—also are capital investments in the MCO's capacity to use authority to provide good treatment.

tracting with the MCO or physician. Thus, a patient can waive liability with little concern about affecting the quality of care in the short run—for example, over the one-year life of the MCO contract—because liability would have little effect on physician quality over this period.

While waiver imposes few costs on the patient in the short run, the long-run costs may be significant and may exceed any gains. Although the absence of liability does not substantially affect compassionate physicians' behavior in the short run, it will depress physician quality over time, because liability is needed to induce physicians to make ongoing investments in expertise.[236] Thus, while in any given year waiver may be optimal, under an optimal liability rule a patient could maximize his welfare by pre-committing ex ante not to waive liability throughout the duration of the relationship.[237]

Consequently, patients may be better off if waivers are prohibited, because patients contemplating waivers in one-year MCO contracts may focus on the short-run effects and waive each year, even when sequential annual waivers are not optimal over the long run. Patients may waive each year even when waiver is not in their long-run interests for several reasons. First, patients may be overly myopic, discounting future costs too heavily. Second, a patient contemplating a one-year contract with a given MCO may be unsure of internalizing the long-run benefits of imposing liability on this MCO, because patients face considerable uncertainty about the duration of their rela-

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[236] See supra Parts III.A.4, IV.B.1, and IV.B.2.

[237] This analysis also reveals why legislatures contemplating legislation to restrict malpractice liability cannot rely on evidence that limiting malpractice liability has little or no immediate effect on quality. E.g., Daniel Kessler & Mark McClellan, Malpractice Law and Health Care Reform: Optimal Liability Policy in an Era of Managed Care, 84 J. Pub. Econ. 175 (2002) (providing evidence that limiting malpractice liability has immediate effect on medical costs but little effect on expected quality). Even if laws restricting malpractice liability reduce physicians' incentives to invest in expertise, they may not have an immediate effect on care quality because, in the short run, physicians' expertise is determined by investments undertaken prior to the reform. Malpractice liability reform nevertheless may have an adverse long-run effect by reducing physicians' incentives to undertake further investments in expertise, resulting in lower expected quality of care over time. The delayed impact of legal reform may be particularly pronounced if physicians learn about legal reforms gradually and adjust their behavior slowly over time. Cf. J. David Cummins et al., The Incentive Effects of No-Fault Automobile Insurance, 44 J.L. & Econ. 427, 454-55 (2001) (finding that no-fault insurance has long-run effect on accident rates); Thomas Lemieux & W. Bentley MacLeod, Supply Side Hysteresis: The Case of the Canadian Unemployment Insurance System, 78 J. Pub. Econ. 139, 139-70 (2000) (showing that individuals responded to laws decreasing Canada's unemployment insurance benefits, but only gradually, and in response to actual experience).

tionship with any given MCO (or physician).[238] Patients who are uncertain about obtaining the long-run benefits of imposing liability on any given MCO thus may waive liability each year, even though patients generally would be better off if patients each imposed liability on MCOs.

2. *Durable Expertise and the Problem of Renegotiation*

While durable expertise suggests why patients may have excessive incentives to waive in the short run, renegotiation suggests why the problem of excessive waiver may persist as an equilibrium over time. Patients' ability to renegotiate waiver in a subsequent period undermines their ability to employ sanctions to improve treatment quality, and may result in patients waiving liability even when imposing liability would be welfare-improving.

The renegotiation problem is best illustrated in the context of patient in-office waiver of physician liability. Patients and physicians regularly have opportunities to renegotiate their agreement immediately prior to services being rendered. Renegotiation presents problems, because even when a patient initially insists on imposing liability, each physician anticipates correctly that this liability in fact may not be imposed because the patient will have a subsequent opportunity to reconsider waiver on the eve of treatment. At that moment, the patient can be expected to absolve the physician from liability, because, with treatment imminent, the physician's expertise is effectively fixed. Because liability now will have little effect on the quality of care, patients have every reason to waive in return for a lower price. While patients rationally waive in this latter period, their ability to do so may be welfare-reducing because it undermines their ability to use the *initial* imposition of liability to improve care. Physicians will not invest in expertise in response to the initial imposition of liability if they do not expect it to be imposed. Indeed, given this, patients unable to pre-commit to impose liability in every period can be expected to simply waive liability right up front, since imposing non-credible liability confers little benefit.[239]

Thus, the optimality of permitting waivers is not guaranteed even if patients are fully informed and always act in their best interests at

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238 Patient-MCO relationships are regularly terminated because, for example, the employer changes health plans (perhaps because the employer merged with another firm) or because the patient changes employers.

239 This analysis is based on the analysis of renegotiation developed by Drew Fudenberg & Jean Tirole, Moral Hazard and Renegotiation in Agency Contracts, 58 Econometrica 1279, 1279-87 (1990) (finding that ability to renegotiate contract reduces agent's incentives to take care).

the moment of choice. In plausible situations, patients' welfare is higher when they are not allowed to waive, as this may enable them to create a credible commitment that optimal liability will be imposed.[240] Less choice, in some cases, may be better.

3. *Contracting Problems When Expertise Is a Collective Good*

Permitting waiver also may be inefficient, even when each patient accurately assesses the waiver decision, because a critical end product of the waiver-versus-liability decision—physician expertise—has attributes of a "collective good."[241]

Patients contemplating waivers obtain the full benefit of waiver but do not bear the full cost. Expertise is a collective good that affects the expected quality of care for *all* of the physician's patients, not just one patient. Yet each patient contemplating a waiver considers the direct effect of liability on the care he receives, but not the effect on care provided to other patients. Thus, patients have excessive incentives to waive.

Indeed, when physicians have many patients, the "collective goods" nature of expertise implies that all patients may waive both physician liability and MCO liability for physician negligence, even when they each would be better off if they all imposed liability. Patients can be expected to waive because a physician's investment in expertise depends on her total expected liability across all her patients. When a physician (or MCO) has many patients, each patient knows that his individual waiver decision will have little effect on a physician's expected total liability, and thus little effect on expected care. Thus, each patient may view the decision to waive as essentially costless and may waive liability, even when each patient would be better off if patients collectively could agree to impose liability. Similar analysis suggests that each patient would waive MCO liability for physician negligence, even when patients are better off when liability is imposed.[242]

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[240] See id.; cf. Arlen & Kraakman, supra note 10, at 712-17 (exploring other problems for liability regimes of principals' inability to pre-commit to imposing liability on agents). Patients have an incentive to sue even when they would have waived liability prior to treatment, because waiver occurs in return for an immediate benefit when liability is only a possibility. Post-injury, the benefits of liability to patients are more immediate.

[241] This analysis reveals the importance of distinguishing between care as treatment choice and care as expertise, because expertise—unlike treatment choice—is not patient-specific.

[242] It may appear that MCOs can eliminate the free-rider problem by dividing themselves between "waiver" MCOs and "no waiver" MCOs. This possibility does not undermine our argument. First, this would not be sufficient to provide optimal incentives to waive. Physicians generally contract with multiple MCOs, some of whom would be "waiver" and some "no waiver." Thus, patients could rationally contract with "waiver"

Thus, even when patients collectively would benefit from having liability imposed, each patient rationally is likely to waive if permitted to do so. Accordingly, permitting waiver may be inefficient even when patients are fully informed. Therefore, even when patients accurately predict the benefits and costs of waiver, our analysis reveals that we should anticipate that patients will accept waiver contracts more often than is efficient. This suggests that patient welfare (and indeed joint welfare) may be higher when waiver is not permitted than when it is.

C. Implications for the Enforceability of Waivers

Our analysis reveals that straightforward freedom-of-contract arguments are not sufficient to justify permitting patients to contract over whether to waive MCO (or physician) liability. Indeed, to the contrary, contract theory implies that the parties' joint welfare may be higher when waiver is not permitted. This implies that those seeking to justify MCO waivers must rely on arguments other than simple freedom of contract and must demonstrate that any proposal to permit waiver confers benefits on the parties that exceed the costs of waiver articulated above.

Nevertheless, it must be remembered that the arguments against permitting waiver depend on our assumption that physicians and MCOs are subject to an optimal negligence liability regime, and thus that negligence liability can be expected to be welfare-improving. Ensuring that negligence liability is efficient would require reforming the existing system in ways discussed above, particularly regarding the scope of MCO liability and the rules for determining damages. With such reforms, imposing mandatory liability on MCOs for their own treatment decisions and for physician negligence can be expected to be optimal. Moreover, while we conclude that it is inefficient to permit unrestricted waiver of either physician or MCO liability (when an optimal liability regime is employed), this does not imply that it would be impossible to design an optimal, regulated, waiver regime, perhaps combined with quality controls.

MCOs in the hope of free-riding on the quality resulting from those patients contracting with "no waiver" MCOs. If each patient free-rode in this way, "no waiver" MCOs would not arise, even if each patient would be better off if all MCOs were subject to liability. Moreover, the problems articulated above, see supra Parts VI.A, VI.B.1, VI.B.2, would remain.

Second, our core claim is that proponents of waiver cannot defend waiver simply on the grounds that it is necessarily optimal to give fully informed contracting parties choice about whether to impose liability. Our central claim holds if MCO waivers are potentially optimal only if restrictions are imposed on the types of waivers offered. See infra Part VI.C.

CONCLUSION

MCOs have fought for the ability to affect patient care free from the threat of malpractice liability, either for their own negligent treatment decisions or for physician negligence. Physicians, too, have argued that they should be protected from malpractice—that market forces and their own compassion are sufficient to ensure good quality. Leading law-and-economics scholars have supported MCOs and physicians, employing the traditional model of entity-level liability in market relationships to argue that voluntary arrangements should be sufficient.[243]

The present analysis expands beyond the traditional model to recognize the influence of physician expertise and MCO authority on medical care. Analyzing physicians' and MCOs' incentives absent liability, the present analysis reveals the importance of careful attention to the information and controls available to the parties at the moment of contracting. We show that markets and contracts cannot be relied upon to ensure optimal care where, as here, care depends upon non-contractable actions taken post-contract. In this situation, MCOs and physicians invest insufficiently in "care" ex post because they do not obtain the full benefit of good outcomes ex post, and cannot benefit ex ante from the promise of providing optimal care, because that promise is not credible when "care"—expertise and authority—is non-contractable.

Our analysis also reveals the importance of careful attention to the nature of "care" when determining optimal damage rules. Recognizing the bifurcated nature of care—as both expertise and treatment choice—alters optimal damage rules and reveals that damage rules must be amended in order to induce optimal behavior. Consideration of the role of expertise and error reveals that accurate damage rules are more important to ensuring efficient negligence liability than previous analysis has suggested.

In addition, our analysis demonstrates that it is optimal to hold MCOs liable for both their own negligent treatment coverage decisions and injuries resulting from malpractice by their affiliated physicians. MCOs should be liable for the negligence of all their affiliated physicians; liability should not be limited to those circumstances where an MCO exerts sufficient direct control over the physician to satisfy the requirements of traditional vicarious liability.

Finally, our analysis shows why it may not be optimal to allow either MCOs or physicians to be able to avoid liability by obtaining patient waivers. Specifically, careful attention to the technology of

[243] E.g., Danzon, supra note 8; Epstein & Sykes, supra note 8.

"care" in the medical context—to the timing and effects of expertise—reveals why waivers by patients may be inefficient even if patients are fully informed about the costs of waiver and act in their best interests at the moment of choice.

While this Article focuses on medical malpractice, the present analysis also has broader implications. Most directly, the framework we develop should be useful in many other situations where the potential injurer is imperfectly informed about the optimal course of action and can affect either her capacity to decide, or her probability of error, by investing in expertise. For example, our framework can be applied usefully to liability governing professionals, such as lawyers and accountants. In addition, our model of the MCO-physician relationship can be extended readily to other situations in which the principal partially regulates the agent by retaining authority over certain decisions, as in many professional situations (e.g., attorney-client relationships).

More broadly, our analysis reveals the importance to economic analysis of moving beyond the abstract concept of "care" to take more explicit consideration of what is meant by "care" in any given situation. "Care" means different things in different situations, and, as we have shown, these differences matter both to the ability of the parties to regulate their behavior by contract and to the optimal structure of liability rules. Thus, our analysis reveals the importance of situating economic analysis of liability in the context being considered.