

Property, Privacy, and the Pursuit of Interconnected Electronic Medical Records

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ABSTRACT: Who owns a patient's medical information? The patient, the provider, or the insurer? All of the above? None of the above?

In the emerging era of electronic medical records, no legal question is more critical, more contested, or more poorly understood. Ownership was never much in doubt in an age of paper-based records, but now that information can be easily digitized and freed from any particular storage medium, confusion reigns. How this issue is resolved can determine how or whether massive anticipated developments in electronic health records will take shape. The respective property rights of patients, providers, and insurers will strongly influence, if not determine, what form of electronic health-record interchange will predominate. And, whether rights to access and use medical information can be commercialized may determine whether effective, comprehensive medical information networks can emerge at all, absent an overt government mandate.

This Article analyzes property rights in medical information from the perspective of network economics. It proposes that patients be allowed to monetize their access and control rights by assigning them to a trusted and regulated intermediary who may then place those rights in a stream of commerce that determines their value and best use. The funds generated can then be distributed both to patients and providers to encourage their creation and use of interconnected electronic records.

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To improve the quality of our health care while lowering its cost, we will make the immediate investments necessary to ensure that within five years all of America's medical records are computerized. This will cut waste, eliminate red tape, and reduce the need to repeat expensive medical tests. But it just won't save billions of dollars and thousands of jobs, it will save lives by reducing the deadly but preventable medical errors that pervade our health care system.

—President-Elect Obama, Jan. 8, 2009¹

[W]e have a twenty-first-century financial information infrastructure and a nineteenth-century health information infrastructure. . . . Meanwhile, thousands of small organizations chew around the edges of the problem, spending hundreds of millions of dollars per year on proprietary clinical IT products that barely work and do not coalesce into a systemwide solution, and the investment community has poured nearly a half-trillion dollars into failed HIT ["health information technology"] ventures

—J.D. Kleinke, *Health Care Economic Analyst*²

I. INTRODUCTION

Medical information is one of the most prominent, puzzling, frustrating, and entrenched aspects of dysfunction in U.S. health care finance and delivery. We each confront this reality every time we go to a new doctor. Each doctor—often even those who practice in the same medical system—starts a new medical relationship virtually from scratch, as if we have never been examined before. Unless our referring physician has dictated a personal note, the only convenient way to transmit information from our existing medical records is by the patient's own word of mouth, which the new doctor enters by hand and then painstakingly reconfirms by direct reexamination. Frustration also extends to researchers forced to use primitive and cumbersome methods of primary data collection rather than being able to access consolidated information from existing medical records. A myriad of such inefficiencies extend throughout our kaleidoscopic medical system.

President Obama vows to remedy this dystopia³ with an estimated \$20 billion⁴ through the American Recovery and Reinvestment Act of 2009

1. Barack Obama, President-Elect, Speech at George Mason University (Jan. 8, 2009) (transcript available at <http://www.nytimes.com/2009/01/08/us/politics/08text-obama.html>).

2. J.D. Kleinke, *Dot-Gov: Market Failure and the Creation of a National Health Information Technology System*, 24 HEALTH AFF. 1246, 1247–48 (2005).

3. Obama, *supra* note 1.

(“ARRA”),⁵ but skepticism remains. The constipation of information automation in health care has frustrated the best intentions and brightest minds for years, if not decades.⁶ A 1991 Institute of Medicine report first brought widespread attention to the problem.⁷ Since then, an array of prominent organizations and individuals have dedicated themselves to overcoming the barriers that keep health care providers from efficiently compiling and sharing a patient’s complete medical record⁸—but so far their efforts have been to no avail. The costs are staggering—from the \$100 billion spent each year on needless duplication of procedures to the half trillion dollars annually associated with medication errors, lost worker productivity, and, in the most extreme cases, loss of life.⁹

4. Charlie Savage & David D. Kirkpatrick, *Technology’s Fingerprints on the Stimulus Package*, N.Y. TIMES, Feb. 10, 2009, available at <http://www.nytimes.com/2009/02/11/technology/11corporate.html>.

5. American Recovery and Reinvestment Act of 2009, H.R. 1, 111th Cong. (2009).

6. See generally Jeff Goldsmith, David Blumenthal & Wes Rishel, *Federal Health Information Policy: A Case of Arrested Development*, 22 HEALTH AFF. 44 (2003); David U. Himmelstein & Steffie Woolhandler, *Hope and Hype: Predicting the Impact of Electronic Medical Records*, 24 HEALTH AFF. 1121 (2005); Edward H. Shortliffe, *Strategic Action in Health Information Technology: Why the Obvious Has Taken So Long*, 24 HEALTH AFF. 1222 (2005).

7. See generally INSTITUTE OF MEDICINE, THE COMPUTER-BASED PATIENT RECORD: AN ESSENTIAL TECHNOLOGY FOR HEALTH CARE (1991).

8. See also Briefing by Paul M. Ellwood, M.D., Jackson Hole Group, Crossing the Health Policy Chasm (Feb. 18, 2003), available at <http://www.ppionline.org/ndol/print.cfm?contentid=251324> (discussing Jackson Hole Group’s objectives). See generally California HealthCare Foundation, <http://www.chcf.org/> (last visited Jan. 15, 2010); Markle Foundation, Connecting for Health, <http://www.connectingforhealth.com/> (last visited Jan. 15, 2009); National Committee on Vital and Health Statistics, Workgroup on National Health Information Infrastructure, <http://www.ncvhs.hhs.gov/wg-nhii.htm> (last visited Jan. 15, 2009); Robert Wood Johnson Foundation, Project HealthDesign, <http://www.projecthealthdesign.org/> (last visited Jan. 15, 2010); United States Department of Health and Human Services, Health Information Technology Home, <http://healthit.hhs.gov/> (last visited Jan. 15, 2009).

9. These are “net” figures, that is, in excess of the costs of building and maintaining a comprehensive HIT system. See generally CONG. BUDGET OFFICE, EVIDENCE ON THE COSTS AND BENEFITS OF HEALTH INFORMATION TECHNOLOGY (2008), available at <https://www.cbo.gov/ftpdocs/91xx/doc9168/05-20-HealthIT.pdf> [hereinafter CBO REPORT]; FEDERICO GIROSI, ROBIN C. MEILI & RICHARD SCOVILLE, EXTRAPOLATING EVIDENCE OF HEALTH INFORMATION TECHNOLOGY SAVINGS AND COSTS (2005), available at http://rand.org/pubs/monographs/2005/RAND_MG410.pdf; Basit Chaudry et al., *Systemic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care*, 144 ANN. INTERNAL MED. 742 (2006); Caroline Goldzweig et al., *Costs and Benefits of Health Information Technology: New Trends from the Literature*, 28 HEALTH AFF. w282 (2009) available at <http://content.healthaffairs.org/cgi/reprint/28/2/w282>; Richard Hillestad et al., *Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings, and Costs*, 24 HEALTH AFF. 1103 (2005); Sharona Hoffman & Andy Podgurski, *Finding a Cure: The Case for Regulation and Oversight of Electronic Health Record Systems*, 22 HARV. J.L. & TECH. 103 (2008) [hereinafter Hoffman & Podgurski, *Finding a Cure*]; Jan Walker et al., *The Value of Health Care Information Exchange and Interoperability*, HEALTH AFFAIRS WEB EXCLUSIVE w5-10 (2005), <http://content.healthaffairs.org/cgi/reprint/hlthaff.w5.10/DC1>.

The vision of what better health information technology (“HIT”) could accomplish is well formed and has been discussed at length.¹⁰ Agreement on the need for interconnected electronic medical records is nearly universal—from the President, to both Houses of Congress, to both major political parties, to hospitals, physicians, patients, payors, and the business community at large. But, even though e-health is growing steadily and the economic stimulus package will undoubtedly provide a huge spur, the current widespread move toward automating clinical information does not ensure that medical information systems will actually interconnect to form consolidated medical records.¹¹ Existing medical record systems rarely interconnect,¹² and the economic stimulus act contains no legal requirement that funded systems actually interconnect to form a consolidated medical record for each patient—it requires only that interconnection be possible.¹³ If interconnected clinical-information systems do not emerge, much of this information’s potential utility will never be achieved and, consequently, the huge capital investments will be largely wasted.

The challenge is to move an enterprise representing one-sixth of U.S. gross domestic product, with 13 million employees and potentially 300 million patients, from a decentralized, fragmented, paper-based world, to an interconnected, automated, networked world where information follows the patient, information-based tools aid in decision making, and population

10. For the latest, see generally Rodney A. Hayward, *Access to Clinically-Detailed Patient Information: A Fundamental Element for Improving the Efficiency and Quality of Healthcare*, 46 MED. CARE 229 (2008); Kenneth D. Mandl & Isaac S. Kohane, *Tectonic Shifts in the Health Information Economy*, 358 NEW ENG. J. MED. 1732 (2008).

11. David J. Brailer, *Presidential Leadership and Health Information Technology*, 28 HEALTH AFF. w392, w395–97 (2009), available at <http://content.healthaffairs.org/cgi/reprint/28/2/w392>.

12. RAND CORPORATION, HEALTH INFORMATION TECHNOLOGY: CAN HIT LOWER COSTS AND IMPROVE QUALITY? 1 (2005), http://www.rand.org/pubs/research_briefs/2005/RAND_RB9136.pdf; Ashish K. Jha et al., *Use of Electronic Health Records in U.S. Hospitals*, 360 NEW ENG. J. MED. 1628, 1628 (2009).

13. See, e.g., American Recovery and Reinvestment Act of 2009, H.R. 1, 111th Cong. § 4101, at § 3000(13)(iv) (2009) (defining “qualified electronic health record” to be one that “has the capacity . . . to exchange electronic health information with, and integrate such information from other sources” (emphasis added)). The closest the Act comes to requiring actual integration is to include the records’ connectivity as one of Medicare’s conditions for temporarily receiving supplemental EMR incentives and for later avoiding a small Medicare penalty for failing to have a qualifying EMR system. *Id.* § 4311(a). However, this incentive provision does not specify how extensive connectivity must be or whether it even includes patient-specific information (as opposed only to deidentified information for research purposes). The only place the Act discusses a comprehensive patient-centered medical record is in the privacy section, which requires only notification of privacy breaches in such records, where they happen to exist. *Id.* § 4400(11). See generally ROB CUNNINGHAM, NAT’L HEALTH POLICY FORUM, STIMULUS BILL IMPLEMENTATION: EXPANDING MEANINGFUL USE OF HEALTH IT (2009), http://www.nhpf.org/library/issue-briefs/IB834_StimulusIT_08-25-09.pdf.

health data can be mined to improve the quality and outcome of care for all. This shared goal has failed so far and could easily continue to elude. The most well-meaning individuals driven by a common commitment have encountered an all-too-consistent pattern. While starting with a grand vision, they have invariably met resistance in the trenches. And so it goes—more money spent, more lives lost due to error, and more time lapsed without momentum toward achieving comprehensive, interconnected electronic health records in any foreseeable future.

These market failures prompted the government to intervene by facilitating electronic medical records (“EMRs”) through various means.¹⁴ But, the many previous efforts to create interconnected EMRs (“I-EMRs”) through central community planning have failed miserably, owing to the difficulties in meeting all the concerns of all the various stakeholders.¹⁵ If all else fails, perhaps the government will have no choice but to require EMR adoption and integration,¹⁶ but there would be significant opposition to a “command-and-control” approach.¹⁷ To paraphrase Winston Churchill, Americans usually resort to government mandates only after they have first tried everything else. This Article explores whether any hope exists for market-driven integration of health information systems.

With so much to gain, why are I-EMRs not emerging in the same spontaneous organic way that the Internet did? The primary barriers are not technological.¹⁸ Instead, they are economic,¹⁹ but these economics are

14. See *supra* notes 3–6 and accompanying text.

15. For an exhaustive catalogue of the many failures, see generally BRUCE MERLIN FRIED, CAL. HEALTHCARE FOUND., GAUGING THE PROGRESS OF THE NATIONAL HEALTH INFORMATION TECHNOLOGY INITIATIVE: PERSPECTIVES FROM THE FIELD (2008), <http://www.chcf.org/documents/chronicdisease/GaugingtheProgressoftheNationalHITInitiative.pdf>; JOY M. GROSSMAN ET AL., CTR. FOR STUDYING HEALTH SYS. CHANGE, CREATING SUSTAINABLE LOCAL HEALTH INFORMATION EXCHANGES: CAN BARRIERS TO STAKEHOLDER PARTICIPATION BE OVERCOME? (2008), <http://www.hschange.org/CONTENT/970/970.pdf>; Julia Adler-Milstein et al., *The State of Regional Health Information Organizations: Current Activities and Financing*, 27 HEALTH AFF. w60 (2007), available at <http://content.healthaffairs.org/cgi/content/abstract/hlthaff.27.1.w60v1>; Jonah Frohlich et al., *Retrospective: Lessons Learned from the Santa Barbara Project and Their Implications for Health Information Exchange*, 26 HEALTH AFF. w589 (2007), available at <http://content.healthaffairs.org/cgi/reprint/26/5/w589>; Robert H. Miller & Bradley S. Miller, *The Santa Barbara County Care Data Exchange: What Happened?*, 26 HEALTH AFF. w568 (2007), available at <http://content.healthaffairs.org/cgi/reprint/26/5/w568>.

16. The furthest that the current law goes is to impose up to a five-percent penalty under Medicare on providers who do not make “meaningful” use of qualified electronic records systems by 2019. American Recovery and Reinvestment Act of 2009 § 4311 (b).

17. Kleinke, *supra* note 2, at 1256. See generally CTRS. FOR MEDICARE & MEDICAID SERVS., SUMMARY OF RESPONSES TO AN INDUSTRY RFI REGARDING A ROLE FOR CMS WITH PERSONAL HEALTH RECORDS, <http://www.cms.hhs.gov/PerHealthRecords/Downloads/SummaryofPersonalHealthRecord.pdf>.

18. Certainly, there are many practical issues that must be worked out, but they are solvable, at least in principle. See generally, e.g., David J. Brailer, *From Santa Barbara to Washington: A Person’s and a Nation’s Journey Toward Portable Health Information*, 26 HEALTH AFF. w581, w587 (2007), available at <http://content.healthaffairs.org/cgi/reprint/26/5/w581> [hereinafter

shaped and driven by basic legal rights in networked medical information. The law's uncertainty over ownership and control of medical information is widely regarded as a major barrier to effective networking of EMRs, and policy analysts consider the legal status of medical information to be a critical question at or near the top of issues needing resolution.²⁰ Therefore, this Article explores whether the law is responsible for, or might be a solution to, the Balkanization of medical information. Part II introduces the network economics of EMRs to explain why network development has not occurred spontaneously. Part III dissects the uncertain and competing claims of property and privacy rights in medical information in order to find a possible solution for what is called the "anticommons" problem. Part IV reviews competing arguments for and against commercializing medical

Brailer, *Santa Barbara*]; W. Ed. Hammond, *The Making and Adoption of Health Data Standards*, 24 HEALTH AFF. 1205 (2005); Pamela Hartzband & Jerome Groopman, *Off the Record—Avoiding the Pitfalls of Going Electronic*, 358 NEW ENG. J. MED. 1656 (2008); Hoffman & Podgurski, *Finding a Cure*, *supra* note 9, at 104; Rebecca D. Kush et al., *Electronic Health Records, Medical Research, and the Tower of Babel*, 358 NEW ENG. J. MED. 1738 (2008).

19. See CBO REPORT, *supra* note 9, at 19 (citing "inability of providers to capture all of the financial returns of the health IT systems" as a barrier to adoption); Alexandra E. Shields, Sowmya R. Rao & Richard M. Kwong, *Are Physicians Serving Poor and Minority Patients Keeping Pace with ERH Adoption?*, in HEALTH INFORMATION TECHNOLOGY IN THE UNITED STATES: WHERE WE STAND, 2008, at 35 (2008), available at <http://www.rwjf.org/files/research/3297.31831.hitreport.pdf> (reporting "that the financial burden associated with [electronic health records] . . . is a major barrier to adoption among small and under-resourced subsets of providers").

20. Stressing the importance of legal resolution of property interests, see, for example, ALTARUM INST., ENVIRONMENTAL SCAN OF THE PERSONAL HEALTH RECORD (PHR) MARKET 23 (2006) ("Ultimately, legal ownership of the PHR and its data is a core unresolved issue, and will likely require further clarification at the state and federal levels."); Barbara Harty-Golder, *EMR Ownership Questions*, MED. LAB. OBSERVER, July 2007, at 54; Marc A. Rodwin, *Patient Data: Professionalism, Property and Policy*, in MEDICAL PROFESSIONALISM IN THE INFORMATION AGE (David Rothman & David Blumenthal eds., forthcoming 2010) (on file with the Iowa Law Review); Charles Safran et al., *Toward a National Framework for the Secondary Use of Health Data: An American Medical Informatics Association White Paper*, 14 J. AM. MED. INFORMATICS ASS'N 1, 6 (2007), available at <http://jamia.bmj.com/content/14/1/1.full.pdf> (reporting that "focusing on 'ownership' duties diverts attention from needed development of sound policies and practices"); Nicolas P. Terry & Chester A. Myers, *Healthcare Data: Public Good or Private Property?—Legal Issues Related to Data Access, Pooling, and Use*, in INSTITUTE OF MEDICINE, CLINICAL DATA AS THE BASIC STAPLE OF HEALTH LEARNING: CREATING AND PROTECTING A PUBLIC GOOD (Nat'l Inst. of Health, forthcoming 2010) (on file with the Iowa Law Review); SARA ROSENBAUM ET AL., CHARTING THE LEGAL ENVIRONMENT OF HEALTH INFORMATION 29 (2005), available at <http://www.rwjf.org/files/research/Legal%20Environment%20Long%20Version.pdf> (noting that "questions regarding ownership must be resolved at an extremely early stage of the process"); Web Memorandum from Edmund F. Haislmaier, Heritage Foundation, Health Care Information Technology: Getting the Policy Right (June 16, 2006), available at http://www.heritage.org/research/healthcare/upload/wm_1131.pdf (explaining why ownership of health care data is a core policy issue). See generally Pamela Samuelson, *Privacy as Intellectual Property*, 52 STAN. L. REV. 1125, 1170–71 (2000) (stressing "the lack of clarity in this country about the nature of the interest that individuals have in information about themselves: Is it a commodity interest, a consumer protection interest, a personal dignity interest, a civil interest, all of the above, or no interest at all?").

information, and searches for a common ground between them. Part V concludes that allowing patients to license limited rights to their medical information with trusted and regulated intermediaries will help stimulate market development of interconnected EMRs by placing these rights in a stream of commerce that rewards those who contribute to, and use, comprehensive EMRs.

II. THE NETWORK ECONOMICS OF ELECTRONIC MEDICAL RECORDS

We start with the field of network economics, which developed over the past generation to study the market dynamics of telecommunications, the Internet, consumer credit, and other large and complex interconnected services.²¹ The defining characteristic of these networks is that each user receives more benefit as the network's size increases. Network effects exist whenever there are increasing returns to scale,²² meaning that "the utility that a user derives from consumption of a good increases with the number of other agents consuming the good."²³

There are obvious network economies in connecting electronic medical records.²⁴ The more providers that are connected, the more comprehensive and useful the medical information is for any single patient. And, the more patients that are included, the more likely that providers will agree to participate. More patients, providers, and information not only make the network more useful for clinical work, but also for health-services research and public health monitoring. If including more people produces more bang for the IT buck, why do these win-win dynamics not snowball into widespread EMR interconnection?

Medical information networks are stalled because no one constituency is in a position to capture anywhere near the full social benefits of building the network. No matter who takes the initiative, many of the collective benefits are externalized to other actors.²⁵ An individual patient benefits

21. See generally YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* 1 (2006), available at http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf; S.J. Liebowitz & Stephen E. Margolis, *Network Effects and Externalities*, in *THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW* 671 (Peter Newman ed., 1998); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 *AM. ECON. REV.* 424 (1985).

22. This sounds similar to "economies of scale," but those usually refer to decreasing costs. Networks may also have decreasing unit costs, but the term "network effects" refers to increasing benefits per user.

23. Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 *CAL. L. REV.* 479, 483 (1998) (quoting Katz & Shapiro, *supra* note 21, at 424).

24. CBO REPORT, *supra* note 9, at 34.

25. See generally *id.*; ANTHONY G. BOWER, *THE DIFFUSION AND VALUE OF HEALTHCARE INFORMATION TECHNOLOGY* 62–63 (2005), available at http://www.rand.org/pubs/monographs/2006/RAND_MG272-1.pdf (stressing the "network externalities" that arise when each component of the system is under separate ownership); PAUL G. SHEKELLE, SALLY C. MORTON & EMMET B. KEELER, *COSTS AND BENEFITS OF HEALTH INFORMATION TECHNOLOGY*:

from better quality and research relating to the patient's particular treatment, but not necessarily from improved treatments for other conditions. Insurers (and other payors) benefit from lower costs, but only for their own subscribers. And each doctor and hospital has a stake only in its treatments for its own patients.²⁶ None of these key actors benefits from all the gains that could be realized by the others, so none stands to accrue most of the rewards from the considerable costs of I-EMR development. For networks to form, it is not necessary for all of the benefits to be internalized to a single actor, only a sufficient number to warrant the costs of building the network.²⁷ The problem here, though, is that the start-up costs of e-health are very high. Estimates for a complete, nationwide system range from \$100 billion to \$300 billion,²⁸ compared to the \$20 billion provided by the stimulus bill.²⁹

The externalization of benefits from better medical information is especially pronounced considering particular institutional features of health care. Private insurers benefit from lower costs only during the time their subscribers remain with the particular health plan, which averages about three years.³⁰ This is why they have limited incentives to invest in prevention and long-term health.³¹ Due to fee-for-service reimbursement, providers often are penalized for lowering medical costs and usually are not rewarded for improving quality.³² J.D. Kleinke astutely observes that, in "an industry

EVIDENCE REPORT/TECHNOLOGY ASSESSMENT NO. 132, at 12 (2006), *available at* <http://www.ncbi.nlm.nih.gov/books/by.fcgi?rid=hstat1b.chapter.6986> (noting that "private return-on-investment (ROI) calculations can provide results that are quite different from those of societal cost-benefit analysis").

26. See INST. FOR HEALTH POLICY AT MASS. GEN. HOSP. & THE SCH. OF PUB. HEALTH & HEALTH SERVS. AT GEORGE WASH. UNIV., HEALTH INFORMATION TECHNOLOGY IN THE UNITED STATES: THE INFORMATION BASE FOR PROGRESS 44 (2006), <http://www.rwjf.org/files/publications/other/EHRReport0609.pdf> [hereinafter INFORMATION BASE FOR PROGRESS] ("[D]octors and hospitals . . . would capture only a small fraction of HIT's potential economic benefits. It has been estimated that as much as 80 percent of the potential savings generated through HIT inure to insurers and health care group purchasers . . ."); SHEKELLE ET AL., *supra* note 25, at 13 ("[I]t does not pay one insurer to subsidize HIT for an entire provider or organization because a substantial portion of the cost savings accrue to other payers . . ."). See generally CBO Report, *supra* note 9.

27. See RUSSELL HARDIN, COLLECTIVE ACTION 41 (1982) (discussing so-called "k groups," which are subgroups who receive enough benefit from providing a collective good to be willing to do so for the benefit of a much larger group).

28. GIROSI, MEILI & SCOVILLE, *supra* note 9, at 45 fig.4.2 (estimating the cost of a nationwide system to be \$97 billion); Walker et al., *supra* note 9, at exhibit 2. See generally CBO REPORT, *supra* note 9 (surveying and critiquing relevant studies).

29. See *supra* notes 4–5 and accompanying text.

30. Randall Cebul, James B. Rebitzer, Lowell J. Taylor & Mark Votruba, *Organizational Fragmentation and Care Quality in the U.S. Health Care System*, 22 J. ECON. PERSP. 93, 97–98 (2008).

31. *Id.* at 97.

32. Doctors also fear that they will take on more liability exposure for knowing and managing information. INFORMATION BASE FOR PROGRESS, *supra* note 26, at 45; U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-04-991R HHS'S EFFORTS TO PROMOTE HEALTH INFORMATION

rife with dirty little secrets, this is health care's dirtiest: . . . not knowing is good for business [T]he less the hospital knows about [a patient], the more services it can render, the more it can bill his health insurer, and the more it will collect."³³

A straightforward remedy for the externalization of benefits is to form comprehensive integrated delivery systems that combine insurance with most elements of care. Thus, it is no surprise that interconnected EMRs have arisen only in comprehensive systems that operate under fixed, global budgets, like those in Europe.³⁴ The leading U.S. examples are Kaiser Permanente and the Veteran's Administration, which have had model EMRs in place for decades.³⁵ These delivery systems internalize most of the network benefits from adopting I-EMRs since they contain almost all of their patients' providers. Also, adopting I-EMRs does not cause negative economies for integrated systems. Reimbursement does not drop under global or capitated payments, and institutional liability does not expand.³⁶ Moreover, self-contained systems can interconnect EMRs more efficiently by adopting a single set of clinical protocols that apply to all of their physicians, who see only patients within the system.

It takes no great insight to see that integration would fix the problems caused by fragmentation. But market or government integration of both health care delivery and financing is a fanciful hope that wishes away our problem. Decades of painful experience teach us that the system's fragmentation is chronic and deeply entrenched. Therefore, we continue to

TECHNOLOGY AND LEGAL BARRIERS TO ITS ADOPTION 60 (2004), available at <http://www.gao.gov/new.items/d04991r.pdf>; Sara Rosenbaum & Michael W. Painter, *When New is Old: Professional Liability in the Information Age*, in MEDICAL PROFESSIONALISM IN THE INFORMATION AGE (forthcoming 2010) (manuscript at 1, on file with the Iowa Law Review). The more information doctors have access to, the more they are potentially responsible for. Increased scope of responsibility with decreased compensation is a recipe for intransigence.

33. Kleinke, *supra* note 2, at 1250–51. See generally INFORMATION BASE FOR PROGRESS, *supra* note 26; Robert H. Miller & Christopher E. West, *The Value of Electronic Health Records in Community Health Centers: Policy Implications*, 26 HEALTH AFF. 206 (2007).

34. See generally, e.g., Ashish K. Jha & David Blumenthal, *International Adoption of Electronic Health Records*, in HEALTH INFORMATION TECHNOLOGY IN THE UNITED STATES: WHERE WE STAND, 2008, at 104 (2008), available at <http://www.rwjf.org/files/research/3297.31831.hitreport.pdf> (noting that several developed nations have approached universal implementation of electronic health records systems); Denis Protti, *Comparison of Information Technology in General Practice in 10 Countries*, 10 HEALTHCARE Q. 107 (2007).

35. SHEKELLE ET AL., *supra* note 25, at 13; David Mechanic, *Rethinking Medical Professionalism: The Role of Information Technology and Practice Innovations*, 86 MILBANK Q. 327, 338 (2008); Anna-Lisa Silvestre, Valerie M. Sue & Jill Y. Allen, *If You Build It, Will They Come? The Kaiser Permanente Model of Online Health Care*, 28 HEALTH AFF. 334, 343 (2009); Letter from Janet Heinrich, Director of Health Care–Public Health Issues, U.S. Gov't Accountability Office, to Honorable Judd Gregg, Chair of Senate Comm. on Health, Labor, and Pensions (Aug. 13, 2004), available at <http://www.gao.gov/new.items/d04991r.pdf>.

36. Furthermore, antitrust liability is not a concern for cooperation among providers within an integrated network.

search for ways to replicate network economics in a highly decentralized system by structuring rights in electronic medical information so that someone captures enough of the social benefits to warrant the private investments needed to form interconnected systems.

One emerging model is patient-centric.³⁷ Proponents hope that patients and providers will have a lifetime of digitized medical and health information at their fingertips. Providers will contribute to and use this record bank, but patients will control it, and trusted third-party “infomediaries” will maintain it on behalf of the patients.³⁸ A widely discussed possibility at the moment is that popular Internet portals such as Microsoft or Google could host the secure data repositories that patients control and providers use. Other options include memory cards or chips that patients carry, or perhaps even have implanted, for easy access and continual updating.

Thus, we are not lacking innovative ideas and alternative models.³⁹ Which model ultimately prevails, and in what form, will be a product of three factors: (1) how well a given model actually works,⁴⁰ (2) the basic legal

37. The seminal report is MARKLE FOUNDATION, CONNECTING FOR HEALTH, THE PERSONAL HEALTH WORKING GROUP FINAL REPORT (2003), available at http://connectingforhealth.org/resources/final_phwg_report1.pdf. See generally Robert Steinbrook, *Personally Controlled Online Health Data—The Next Big Thing in Medical Care?*, 358 NEW ENG. J. MED. 1653 (2008); Lisa Sprague, *Personal Health Records: The People's Choice?*, ISSUE BRIEF: NAT'L HEALTH POL'Y F., available at http://www.nhp.org/library/issue-briefs/IB820_PHRs_11-30-06.pdf. For a skeptical view, see generally Nicolas P. Terry, *Personal Health Records: Directing More Costs and Risks to Consumers?*, 1 DREXEL L. REV. 216 (2009) (questioning the benefits and feasibility of patient-controlled medical records).

38. For examples and detailed descriptions, see generally Agency for Healthcare Research and Quality, National Health Data Stewardship, 72 Fed. Reg. 30803 (May 25, 2007); ALTARUM INST., *supra* note 20; CAROL CRONIN, AARP PUB. POLICY INST., PERSONAL HEALTH RECORDS: AN OVERVIEW OF WHAT IS AVAILABLE TO THE PUBLIC (2006), available at http://assets.aarp.org/rgcenter/health/2006_11_phr.pdf; T.R. Knapp, J. Walter & C.P. Renaudin, *Property Rights and Privacy Principles*, 14 J. HEALTHCARE INFO. MGMT. 83 (2000); Paul T. Kostyack, *The Emergence of the Healthcare Information Trust*, 12 HEALTH MATRIX 393 (2002); A. Shabo, *A Global Socio-Economic-Medico-Legal Model for the Sustainability of Longitudinal Electronic Health Records, Part I*, 45 METHODS INFO. MED. 240–45 (2006) [hereinafter Shabo, *Part I*]; A. Shabo, *A Global Socio-Economic-Medico-Legal Model for the Sustainability of Longitudinal Electronic Health Records, Part II*, 45 METHODS INFO. MED. 498–505 (2006); Judha Thornewill & Robert J. Esterhay, *Capitalizing the NHIN—A Strategy for Funding an Integrated Nationwide Network of Community HIEs*, 21 J. HEALTHCARE INFO. MGMT. 18 (2007); Haislmaier, *supra* note 20; Health Record Banking Alliance, <http://www.healthbanking.org/> (last visited Jan. 15, 2009).

39. See generally NAT'L COMM. ON VITAL & HEALTH STATISTICS, U.S. DEP'T. OF HEALTH AND HUMAN SERVS., PERSONAL HEALTH RECORD AND PERSONAL HEALTH RECORD SYSTEMS 21 (2006), available at <http://www.ncvhs.hhs.gov/0602nhirpt.pdf>; Sprague, *supra* note 37; Terry, *supra* note 37; Connecting for Health, *supra* note 8.

40. Aside from the technological challenges, these models raise practical concerns that are formidable. For instance, who has the “legal” version of the record that existed at any given point? Will patients trust the host institutions? Will doctors trust and use the information in records of uncertain provenance? Do privacy laws apply? For attempts at answers, see Hoffman & Podgurski, *Finding a Cure*, *supra* note 9; Sprague, *supra* note 37; Terry, *supra* note 37.

framing of competing rights in medical information, and (3) the information's economic value. Across these various models, participants in and observers of the HIT sector increasingly recognize that monetizing access to medical information is necessary in order to align interests and overcome the economic barriers to forming I-EMRs.⁴¹

However, allowing medical information to change hands in exchange for money is an unfamiliar and potentially troubling idea. Is this allowed at all, and if so, in what circumstances? All parties are looking to the law to define the ownership, control, and commercialization potential of medical information. How lawmakers resolve these issues will ultimately determine which information-network models are economically viable and what form they will take.

III. PROPERTY AND PRIVACY RIGHTS IN MEDICAL INFORMATION

A. LEGAL UNCERTAINTY AS A BARRIER

Who owns medical information? Patients, providers, both, or no one? The law provides incomplete, unclear, and somewhat inconsistent answers. But does this matter? According to one version of the Coase Theorem, the law's initial determination of who owns property or holds legal rights does not affect social welfare as long as the transaction costs of reallocating ownership or rights are roughly equivalent regardless.⁴² If so, no matter how the law makes the initial assignment of ownership, the parties are free to transfer their rights and responsibilities in whatever manner will best achieve their goals. But there is at least one important proviso to this theorem: property rights must be clearly established so that the respective parties know their legal default positions.⁴³ This clarity condition is absent here. The relevant parties are in a quandary over who owns or controls what and,

41. One leading group of diverse experts, for instance, concluded that a "critical path to enabling a market" for I-EMRs is "[e]nabling consumers to monetize their medical data" by giving them "economic interests . . . from providing access to [their] data." PCHRI 2006, Working Track Summaries 7 (Oct. 10–11, 2006), http://www.pchri.org/2006/presentations/pchri2006_track_output.pdf. These participants, from academia, government, and industry, were invited to a conference at Harvard Medical School. The conclusions described were those of the business model discussion group at the conference. See also Haislmaier, *supra* note 20, at 3 ("The best way to induce patients and providers to share the individual data they create is to help them unlock the value of that data and share in the benefits derived from letting others use it.").

42. Richard S. Murphy, *Property Rights in Personal Information: An Economic Defense of Privacy*, 84 GEO. L.J. 2381, 2387, 2395, 2403 (1996) (applying Coase's theorem to property rights in personal information).

43. If legal positions are uncertain, parties can still attempt simply to stake a claim—forcing a negotiation toward a contractual settlement that determines respective rights—but such contracts bind only the immediate parties, and the process of negotiation is an expensive barrier. Therefore, establishing clear property rights a priori greatly facilitates contractual transfer of these rights. Licensing of intellectual property rights is an obvious case-in-point.

thus, are not certain what they must do to construct any particular information-network model.⁴⁴

Moreover, uncertain legal rights over valuable property can spark a land grab that hoards rather than develops productive assets.⁴⁵ Medical information, whether networked or not, has considerable commercial value for purposes such as marketing to physicians or conducting medical research. Once one party stakes its ownership claim to this treasure trove, then so must all competing parties for fear of being trumped. Witness, for example, the American Medical Association's claim that physicians own the medical information they collect.⁴⁶ But, hoarding medical information destroys the commons that might otherwise support valuable public goods.⁴⁷

Similar legal logjams also arise from privacy protections. The risk of infringing patients' privacy rights gives providers another reason to isolate their medical records.⁴⁸ In one empirical study, economists at the University of Virginia and the Massachusetts Institute of Technology found that "[s]tate privacy laws [restricting hospital release of health information] reduce overall EMR adoption [by hospitals] by 24%."⁴⁹ Notably, the deterrence comes directly from dampening network benefits that would accrue by sharing electronic data among hospitals: "[T]he enactment of state privacy laws restricting the transfer of medical information from hospitals inhibits network effects that would have otherwise promoted hospital adoption of

44. See Safran et al., *supra* note 20, at 7–8 (posing several scenarios involving networked medical information where the first and primary question raised is "[w]ho owns the data"). Moreover, even if they knew their rights, the initial assignment of rights determines *private* welfare to a great extent since these rights form the parties' initial endowments that confer bargaining power.

45. *Id.* at 7 ("[A] well-established multimillion-dollar business exists that utilizes secondary health data as its primary resource."); Robert Steinbrook, *For Sale: Physicians' Prescribing Data*, 354 NEW ENG. J. MED. 2745 (2006) (discussing the sizeable market value of information about physicians' prescribing patterns); Thornewill & Esterhay, *supra* note 38, at 22–23.

46. See Kevin B. O'Reilly, *AMA to Set Guidelines on Control of Record Data*, AM. MED. NEWS, Nov. 28, 2005, available at <http://www.ama-assn.org/amednews/2005/11/28/bisb1128.htm>. Likewise, the Center for Studying Health System Change observed that hospitals' greatest concern with I-EMRs is "losing competitive advantage by relinquishing control of 'their' data. [Hospitals view] clinical data as a key strategic asset, tying physicians and patients to their organization." GROSSMAN ET AL., *supra* note 15, at 5.

47. Rodwin, *supra* note 20 (manuscript at 23).

48. See FRIED, *supra* note 15, at 12 (stating that many leaders and experts in the HIT community "believe that the resulting series of state and federal privacy policies hinders the flow of personal health information"); GROSSMAN ET AL., *supra* note 15, at 1 (discussing concerns about data misuse as a reason for physicians owning their patients' records); INFORMATION BASE FOR PROGRESS, *supra* note 26, at 45 (stating that, based on an extensive literature review, the "actual or perceived legal burden of compliance with" privacy regulations is a barrier to EMR adoption).

49. Amalia R. Miller & Catherine Tucker, *Privacy Protection and Technology Diffusion: The Case of Electronic Medical Records* 25 (NET Inst., Working Paper No. 07-16, 2009), available at <http://ssrn.com/abstract=960233>.

EMR.”⁵⁰ The high prices paid for patient-anonymized data about physicians’ prescribing behaviors⁵¹ demonstrates that, in the absence of privacy restrictions, vibrant markets in medical information can develop quickly and easily.

The legal threat from privacy laws may be based more on the perception of legal exposure than on its reality.⁵² Nevertheless, the perception of legal risk appears to be genuine,⁵³ perhaps due simply to uncertainty over the possible effects of these complex laws. Privacy laws played a major role, for instance, in one of the most visible failed attempts to establish an I-EMR system, among local providers in Santa Barbara. There, according to the former National Coordinator for Health Information Technology, privacy laws “were major issues from the outset. More money was spent on attorneys’ fees than on technology, consulting, or any other line item,” because “[a]ny number of lawyers would draw different conclusions from the federal and state privacy rules that were spread across many chapters of code and among many agencies.”⁵⁴ Therefore, it was “difficult for fifteen provider-leaders of the Santa Barbara Project to understand or agree on what they could or should do under these rules.”⁵⁵ Privacy laws’ oppressive aura is one reason that non-provider-based models for I-EMR networks are emerging so strongly. If someone who is not involved in health care finance or delivery maintains the centralized medical records, they are not subject to the same privacy strictures.⁵⁶

50. Amalia R. Miller & Catherine E. Tucker, *Privacy Protection and Technology Diffusion: The Case of Electronic Medical Records* 21 (NET Inst., Working Paper No. 07-16, 2007), available at http://www.netinst.org/Miller-Tucker_07-16.pdf.

51. See *supra* note 45.

52. A comprehensive analysis of all 113 relevant legal cases found no real cause for concern. SARA ROSENBAUM ET AL., DOES HIPAA PREEMPTION POSE A LEGAL BARRIER TO HEALTH INFORMATION TRANSPARENCY AND INTEROPERABILITY? 1 (2007), available at http://www.gwumc.edu/sphhs/departments/healthpolicy/dhp_publications/pub_uploads/dhpPublication_5FAA-CC0A-5056-9D20-3D4736236724C541.pdf.

53. The Georgetown study, for instance, concluded that “misunderstandings about the breadth, scope, and content of HIPAA’s basic rules, and the flexibility that covered entities have to design their own privacy policies appear to contribute to the perception that HIPAA and its preemption provisions may impede the development of interoperable and transparent health care information systems.” *Id.* at 2. See generally Linda Dimitropoulos & Stephanie Rizk, *A State-Based Approach to Privacy and Security for Interoperable Health Information Exchange*, 28 HEALTH AFF. 428 (2009) (reviewing complexities and conflicting impressions about states’ medical privacy laws).

54. Brailer, *Santa Barbara*, *supra* note 18, at w587.

55. *Id.*

56. Documenting and discussing this point, see generally NAT’L COMM. ON VITAL & HEALTH STATISTICS, *supra* note 39; Sharon Hoffman & Andy Podgurski, *In Sickness, Health, and Cyberspace: Protecting the Security of Electronic Private Health Information*, 48 B.C. L. REV. 331, 332 (2007) [hereinafter Hoffman & Podgurski, *In Sickness*]; Eric Rakestraw, *One Size Doesn’t Fit All: Why HIPAA Should Not Be Extended to Cover PHRs*, 30 J. LEGAL MED. 269 (2009).

From the economic perspective of investing in networked medical information, the lack of clear property rights plus the presence of strong privacy protections is the worst of both worlds. Privacy protections increase the costs of developing I-EMRs, and uncertain property rights decrease the returns. How lawmakers resolve these barriers and uncertainties could determine the kinds of networks that will emerge and how efficiently they can form. Accordingly, the next section sorts out who owns or controls exactly what, of both the pure information content of medical records and their physical embodiment. The tangible–intangible distinction is critical: the property regime that potentially applies to the paper or computer files that store medical records differs considerably from the intellectual property rights in their information content. We will start with the latter.

B. PATIENTS' RIGHTS IN THEIR MEDICAL INFORMATION

Is medical information the patient's property or the provider's? Framing the question this way fails to leave open the possibility that often no one owns information. According to intellectual property scholar Pam Samuelson, "the traditional view in American law has been that information as such cannot be owned by any person,"⁵⁷ unless specially protected by intellectual property laws. For instance, people do not own the information they reveal about themselves when they shop in stores, browse the Internet, or set forth into other public arenas.⁵⁸ Some analysts have called for creating a species of intellectual property covering valuable information about ourselves, but courts and legislatures have not heeded these calls.

These basic rules also govern medical information. As explained by the High Court of Australia in a case involving a patient's access to her own medical records, it "is only in a loose metaphorical sense that any knowledge as such can be said to be property."⁵⁹ Privacy law gives patients the right to control access to their medical information, and to inspect,

57. Samuelson, *supra* note 20, at 1130–31.

58. Bergelson, for instance, explains that "neither property nor torts theory recognizes individuals' rights in their [personal] information. At the heart of that nonrecognition is a view that personal information is no one's until collected . . ." Vera Bergelson, *It's Personal but Is It Mine? Toward Property Rights in Personal Information*, 37 U.C. DAVIS L. REV. 379, 403 (2003). Instead, personal information is like a wild animal, "not owned by anyone until captured." *Id.*

59. *Breen v. Williams* (1996) 186 C.L.R. 71, 128 (Austl.) (quoting *Fed. Comm'r of Taxation v. United Aircraft Corp.* (1943) 68 C.L.R. 525, 534 (Austl.)); see also John R. Christiansen, *Why Healthcare Information Isn't Property—And Why That Is to Everyone's Benefit*, 27 HEALTH L. DIG. 3, 5–6 (2009); Rodwin, *supra* note 20 (manuscript at 4) (noting that the law "does not give patients exclusive ownership rights in this information. Nor does the law grant exclusive property rights in patient data to other parties to have access to this information"); Adelle A. Waller & Oscar L. Alcantara, *Ownership of Health Information in the Information Age*, 69 J. AM. HEALTH INFO. MGMT. ASS'N 28, 28–29 (1998) ("[T]he traditional concept of 'ownership' is not a useful construct when applied to patient-identified information . . . [since] no one person or entity can be truly said to 'own' patient-identifiable information."). See generally Mark A. Hall & Kevin A. Schulman, *Ownership of Medical Information*, 301 JAMA 1282 (2009).

copy, and correct their medical records. While these privacy and access rights can be enforced in ways similar to property rights, properly characterized they are not actually property rights.⁶⁰ These rights arise out of the special relationship patients have with their health care providers and so they are enforceable only against those providers, not against the world at large.⁶¹ Also, they cannot readily be bought and sold, and they do not entail the rights to destroy or exclusively possess medical information.⁶²

For nonmedical personal information, lack of ownership leaves the information in the public domain where commercial or other productive uses can be made by anyone who cares to invest resources in collecting and compiling it (witness phone books, for instance). In contrast, because providers strongly guard the privacy of medical information, it remains out of circulation even though it is not, strictly speaking, owned. This combination of no ownership plus limited access leaves medical information lying dormant in an abandoned and fallow field (reminiscent of the former absence of phone books in the old Soviet bloc). Lacking any legal rights that clearly can be monetized, patients have no market mechanism for overcoming network externalities. Patients may control their medical information, but have no established way to transfer their rights.⁶³

As developed below, propertizing medical information could stimulate increased flow of medical information into more useful forms by giving stakeholders rights that they can license or sell. But, we also must beware the possibility that expanding stakeholders' legally protected economic rights could cause even more market constipation. There is a faint path between the extremes of too few and too many property rights in medical information. To see this more clearly, we next turn to providers' rights in their medical records.

C. PROVIDERS' AND INSURERS' RIGHTS IN THEIR MEDICAL RECORDS

Although medical information is not property, medical *records* are. Verifying the adage that "possession is nine-tenths of the law," those who possess and compile medical records own their tangible embodiment—

60. See *Estate of Finkle*, 395 N.Y.S.2d 343, 344–45 (N.Y. Sur. Ct. 1977) (listing cases where courts permitted patients to inspect but not possess their records).

61. See Hoffman & Podgurski, *In Sickness*, *supra* note 56, at 357–59 (describing patients' potential tort law causes of action); Rakestraw, *supra* note 56, at 270 (noting that Google Health could "generally breach its users' trust—with no legal consequences").

62. One searches HIPAA in vain for any such rights, for instance.

63. Although there is no reason in legal theory that patients could not transfer their rights, see *infra* notes 74–81 and accompanying text, possible ways of doing so have not been tested in the market or in court, so we do not know for sure. One reason they have not been tried is the absence of any clear legal recognition of the ability of third parties to make downstream transfers of patients' access and commercialization rights.

whether paper or electronic.⁶⁴ This does not mean, however, that health care providers can own a patient's medical information per se. Owning a book does not equate with owning its intellectual content. Likewise, a doctor's or hospital's ownership of medical records does not foreclose or interfere with others' ownership of different embodiments of the same information.

Multiple ownership of different pieces of a patient's medical history, however, makes it difficult for anyone to assemble a complete record. Balkanization among providers and insurers creates what legal scholars have termed an "anticommons" problem—one in which competing rights holders foreclose each other from productive use of a shared resource.⁶⁵ Here, the shared resource is a patient's complete medical record. Each health care provider and insurer controls a piece of a patient's complete medical record, and therefore each has the ability to exclude others from forming or using the complete record. Since the complete record has greater value than the sum of its parts, there is value to be gained in gathering all the pieces together, but no single provider or insurer has sufficient resources or incentives to accomplish this feat.

Conceivably, an organizer could pay all necessary providers and insurers to induce their cooperation, but this would raise significant issues under state and federal privacy laws. Even if these uncertainties were resolved, we would still face a more fundamental problem. The existence of multiple stakeholders in a single prize creates strategic behavior and coordination problems that are difficult to solve through private ordering.⁶⁶ Where the prize is a network benefit—one whose value depends on the number of joiners—later joiners sometimes obtain or confer more value than early ones, creating an obvious disincentive to join at all.⁶⁷ Real-estate developers know this as the holdout problem.⁶⁸ For information technology, one form

64. Estate of Finkle, 395 N.Y.S.2d at 344 ("[T]he vast majority of states hold 'that medical records are the property of the physician or the hospital and not the property of the patient.'" (quoting *Gotkin v. Miller*, 379 F. Supp. 859, 866–67 (E.D.N.Y. 1974), *aff'd*, 514 F.2d 125 (2d Cir. 1975))); Paul V. Stearns, *Access to and Cost of Reproduction of Patient Medical Records: A Comparison of State Laws*, 21 J. LEGAL MED. 79, 98 (2000) ("Historically, medical records belonged to the hospital that treated the patient, or to the physician [who] performed the treatment."); Terry, *supra* note 37, at 223 ("Doctors own the medical records they keep about patients.").

65. See, e.g., RICHARD A. EPSTEIN, *OVERDOSE: HOW EXCESSIVE GOVERNMENT REGULATION STIFLES PHARMACEUTICAL INNOVATION* 47 (2006) (noting that competing rights holders "prevent the coordination of . . . efforts needed for . . . further development [of a shared resource]").

66. See generally F. Scott Kieff & Troy A. Paredes, *Engineering a Deal: Toward a Private Ordering Solution to the Anticommons Problem*, 48 B.C. L. REV. 111 (2007) (discussing and analyzing the anticommons problem and a private ordering solution).

67. See Mark A. Lemley, *Private Property*, 52 STAN. L. REV. 1545, 1553 (2000) (noting that the various "collective action problems associated with getting large numbers of people to agree to anything [are] well documented").

68. *Id.*

of this dynamic is the reluctance to join until software standards are settled for fear the early systems will soon become outmoded. We can see other analogies in the “thickets” or “stacking” of multiple intellectual property interests in different aspects of a complex new technology or an entertainment production.⁶⁹ In these various situations, divided ownership or control of a common good makes it extremely difficult to assemble the pieces of the pie, even though the collective benefits would be well worth the costs.

This “tragedy of the anticommons” explains the lack of interoperability among EMRs even when they do exist. A comprehensive survey by the influential Markle Foundation concluded that providers’ ownership of medical records is a barrier to I-EMRs because “providers treat patient information as a highly proprietary asset that serves as a means of differentiation from the competition As a result, IT vendors compete without data standards and healthcare data becomes institution-based and compartmentalized.”⁷⁰ According to another report:

[T]he momentum [toward electronic records] is so great that the effort could be at risk of fragmenting, with companies and institutions producing a dizzying array of personally controlled health records. “The danger is that they each create their own system and every American now has the opportunity to have 17 personally controlled records rather than one.”⁷¹

Overcoming fractured ownership is critical to constructing a functioning I-EMR system. Imagine, for instance, that the country had tried in the 1950s to assemble its current interstate highway system out of thousands of separate segments that were privately owned. The coordination problems would be immense, and the holdout problems insurmountable. Imagine also if local nuisance ordinances gave any neighboring resident a right to object if traffic noise or pollution were a bother. Obviously, a smooth-flowing, interconnected highway system could never form under these legal and economic conditions, yet these essentially are the conditions that afflict medical information. Health care providers and payors own each local segment of the envisioned information highway, and patients are the affected parties whose permission is needed for access. The resulting anticommons phenomenon for I-EMRs is severe.

69. See generally JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE 189–91 (2008); Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCI. 698, 699 (1998); Kieff & Paredes, *supra* note 66; Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2010 (2007).

70. Connecting for Health, *supra* note 8.

71. Misia Landau, *Personally Controlled Health Records: Are They the Next Big Thing?*, FOCUS (2006), http://focus.hms.harvard.edu/2006/102706/information_technology.shtml (quoting a Harvard professor who is an expert on HIT).

D. COMMERCIALIZING PATIENTS' RIGHTS OF ACCESS

Can law loosen this logjam? Property theorists warn that once anticommons conditions form they can be very difficult to undo. One possible solution is a hierarchy of rights where providers' interests are subsidiary to the patient's. If a patient could command her providers to cooperate with a medical record compiler, then a well-motivated and informed patient might be able to break through the thicket of providers' and insurers' competing interests.

A blunt way to confer this authority would be to declare that patients have ultimate ownership of their medical records and that providers' interests are merely "custodial," holding them in trust for the benefit of their patients. Trusteeships and bailments are certainly well known in law, and this is essentially the legal characterization being adopted by non-health care hosts of patient-controlled personal health records, such as Microsoft and Google.⁷² However, mere custodianship does not fit the law's current understanding of providers' ownership of their medical records.⁷³ Nor does the law give patients an intellectual property interest in their medical records.

Short of ownership, though, the law does give patients a right to inspect, copy, and correct their medical information. In other words, a provider's property right to exclude others is good against all the world except the patient. Prior to the Health Insurance Portability and Accountability Act ("HIPAA"), this access right was (and still is) embodied in a host of state statutes,⁷⁴ and it is part of providers' common-law fiduciary

72. Terry, *supra* note 37, at 216.

73. Perhaps providers were legal custodians in an earlier time. See, e.g., *Pyramid Life Ins. Co. v. Masonic Hosp. Ass'n*, 191 F. Supp. 51, 54 (W.D. Okla. 1961) ("[T]he keeper of the records is only the custodian and not the owner of that information constituting the medical records of the patient. The patient has a property right in the information appearing or portrayed on the records . . ."). Custodianship fit the practice, prior to photocopy machines, of transferring the original record rather than a copy whenever it was needed for legal or other medical purposes. *Healthcare: Medical Records*, in 2 GALE ENCYCLOPEDIA OF EVERYDAY LAW 717, 718 (Shirelle Phelps ed., 2003), available at <http://www.enotes.com/everyday-law-encyclopedia/medical-records>. Once photocopying became the norm, however, providers insisted on retaining the original—consistent with their claim of its ownership. This history suggests the possibility of returning to a concept of custodianship once medical records become primarily electronic and therefore no special legal importance is attached to possession of the "original." See generally Meryl Bloomrosen & Don Detmer, *Advancing the Framework: Use of Health Data—A Report of a Working Conference of the American Medical Informatics Association*, 15 J. AM. MED. INFORMATICS ASS'N 715 (2008) (advancing the notion of data "stewardship"); Shabo, *Part I*, *supra* note 38, at 244 ("It is not about ownership, since medical records are perceived as objects that need custody rather than ownership.").

74. See generally James M. Madden, Comment, *Patient Access to Medical Records in Washington*, 57 WASH. L. REV. 697 (1983); Stearns, *supra* note 64, at 79 (discussing patients' statutory rights in obtaining their own medical records); Center on Medical Record Rights and Privacy, Georgetown University, <http://ihcrp.georgetown.edu/privacy/publications.html> (last visited Jan. 15, 2010) (providing guidance to consumers in obtaining medical records).

duties arising from their professional relationships with patients.⁷⁵ Federal privacy law makes this right to access medical records universal,⁷⁶ including, most recently, the right to receive medical information in electronic form.⁷⁷

A patient's right to access information is very useful for our purposes. It could catalyze what needs to happen in order to create consolidated medical records. One major hitch is the cost of exercising this right. HIPAA, the federal privacy law, permits providers to charge reasonable fees for the costs of copying records, including labor, and for preparing a summary or explanation.⁷⁸ One study found that hospitals' fees vary "widely, from \$2–55 for short records of 15 pages to \$15–585 for long ones of 500 pages."⁷⁹ A potential solution for the fee problem is insurance reimbursement. Health plans that sponsor I-EMRs could require provider cooperation as a condition of membership in the network, or they could pay a modest fee or supplement for doing so voluntarily, recapturing some or all of any net costs through supplemental premiums.⁸⁰

Assisting patients and providers in compiling a comprehensive medical record does not solve all of our problems, however. It is not possible to capture many of the social or network benefits of this compilation unless the compiler or custodian has the right to sell or license access to medical information under terms controlled by the patient. Patients can allow a compiler to exercise access and control rights on their behalf, but these custodial rights are personal and fiduciary. Consequently, the law currently does not clearly allow patients to transfer these rights in a form that can easily be retransferred or monetized.⁸¹ As developed further below, I am not contemplating irrevocable or absolute transfers, only transfers in a form similar to a license for use that the patient can revoke at any time. However,

75. See *Cannell v. Med. & Surgical Clinic, S.C.*, 315 N.E.2d 278, 278 (Ill. App. Ct. 1974) ("[T]he fiducial qualities of the patient-physician relationship require disclosure of medical data to a patient or his agent on request."). Similarly, *Murphy v. Godwin*, 303 A.2d 668, 673 (Del. Super. Ct. 1973) held that a physician has a legal duty to assist a patient with completing insurance application forms, based on the "recognized incidents of the doctor-patient relationship."

76. Joy L. Pritts, *Altered States: State Health Privacy Laws and the Impact of the Federal Health Privacy Rule*, 2 YALE J. HEALTH POL'Y L. & ETHICS 325, 325 (2002).

77. American Recovery and Reinvestment Act of 2009, H.R. 1, 111th Cong. § 4405(f) (2009).

78. 45 C.F.R. § 164.524 (2008). However, the fee may not include costs associated with searching for and retrieving the requested information.

79. Gianluigi Fioriglio & Peter Szolovits, *Copy Fees and Patients' Rights to Obtain a Copy of Their Medical Records: From Law to Reality*, 2005 AMIA ANN. SYMP. PROC. 251, 251 (2005).

80. One analysis estimates the annual costs for providers' assistance would be less than \$50 per subscriber. Thornevill & Esterhay, *supra* note 38, at 21.

81. The closest the law comes to allowing this is ARRA, which precludes payment for health information without the patient's permission. American Recovery and Reinvestment Act § 4405(e). ARRA suggests that payment is allowed *with* permission, including permission for the information to "be further exchanged for remuneration by the" first paid recipient. *Id.*

no one has yet tested whether current law allows patients to put into the stream of commerce even this limited license for nonexclusive and temporary use.

Thus, we return to the crux of network externalities discussed above: optimal incentives for I-EMRs will not exist unless an entity or person can capture and distribute much⁸² of the economic value for a group of providers, insurers, and patients.⁸³ Law can facilitate the compilation of a patient's entire medical treatment and health history from among multiple independent records holders and can reward doctors for using consolidated records—if only someone is willing to pay the associated costs. These costs can be considerable, however,⁸⁴ which means that the compiler must be in a position to reap and distribute some economic reward from this endeavor by sublicensing or reselling its limited rights. Thus, Heritage Foundation scholar Edmund F. Haislmaier has it right when he says that:

[A]n explicit mechanism for monetizing the value of medical information and passing that value back to the data owners is a major advantage The best way to induce patients and providers to share the individual data they create is to help them unlock the value of that data and share in the benefits derived from letting others use it.⁸⁵

Currently, law either prohibits monetizing medical information, or it does not clearly permit this.

In other arenas of intellectual property law, it is naive to think that enough people will invest enough of their creative talents and scientific ingenuity primarily for the public good, so we give them ownership rights in the form of patents and copyrights. Similarly, if patients were given ownership of their complete medical treatment and health histories, they could license to compilers their rights to that information in a propertized form that could be more fully developed and commercialized. These third parties could then form contracts or partnerships with others who use or contribute to the databases.

Placing these initial rights with patients in no way determines the eventual locus or form of ensuing medical records networks. Instead, the idea is to create a market mechanism for rewarding those who control access

82. I say “much” rather than “most” or “all” because the compiler need only capture its costs plus a reasonable profit margin, which might be considerably less than the full economic value if an I-EMR creates a large consumer surplus, as many analysts believe it would. See Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 300 (2007) (analyzing when externalities should be internalized, ignored, or encouraged).

83. I mean to leave open the very real possibility that several or many different I-EMR networks could co-exist.

84. See *supra* text accompanying note 28 (noting that estimates for a complete, nationwide I-EMR system range from \$100 billion to \$300 billion).

85. Haislmaier, *supra* note 20, at 3.

to medical information in order to place those rights in a stream of commerce that can direct them to their highest and best use. In a proper legal environment, these arteries will grow where they need to go. The following section explores this idea. It draws from the vigorous academic debate over whether either property or privacy law regimes should protect personal information collected through commercial transactions or Internet browsing.

IV. SHOULD PATIENTS HAVE PROPERTY RIGHTS?

Entrenched and competing property rights by health care providers and insurers, coupled with patients' privacy rights, have locked out much of the potential value of networked medical information. As we have seen, this architectural fragmentation can be described in the economic terms of network externalities and the tragedy of the anticommons. Those who own this information are not in a position to capture its full value, and those who are in such a position are not clearly permitted to purchase and sell rights to the information.⁸⁶

Absent outright government compulsion, the fluidity needed to efficiently assemble countless scattered pieces of medical information into an I-EMR could be achieved in a variety of ways. Here, we focus on property rights or other legal rights that will allow patients to transfer medical information to a data assembler for deployment into various productive uses. There are numerous variations on the precise institutional arrangements that could accomplish this transfer and deployment.⁸⁷ Rather than obsessing over particular institutional arrangements, we focus on the core rights that patients should possess in order to enable their participation in the necessary financial rewards.

The analysis is drawn primarily from the vigorous debate among legal scholars over ownership and protection of personal information revealed through consumer transactions or Internet browsing.⁸⁸ The explosive growth of technologies for capturing this information and for trading it in hidden markets brought anxious attention to how and whether consumers should be given more control over their personal information.⁸⁹ The issues we face here, though, differ in one critical respect. Nonmedical personal information is not protected by the strong privacy laws that apply to medical information. Therefore, the legal policy problem for nonmedical information is how to restrict the otherwise free flow and use of such

86. See *supra* note 81 and accompanying text.

87. See *infra* Part V.

88. See *infra* notes 89–111 and accompanying text.

89. See generally Bergelson, *supra* note 58, at 414–19; Paul M. Schwartz, *Property, Privacy, and Personal Data*, 117 HARV. L. REV. 2055 (2004); Symposium, *Commentary on Privacy and the Internet*, 32 CONN. L. REV. 809 (2000); Symposium, *Cyberspace and Privacy: A New Legal Paradigm?*, 52 STAN. L. REV. 985 (2000).

information. Our problem is just the opposite: the privacy of medical information is amply protected when in the hands of health care providers and insurers. Property or other legal rights are needed to dislodge medical information into more productive circulation, while keeping in place appropriate safeguards. Needing only to protect information puts the property debate in a much different light than also needing to produce more value from information. Nevertheless, the fully developed scholarly debate over property rights in all types of personal information sheds considerable light on the competing arguments for “propertizing” medical information in particular.

A. *IN FAVOR OF PROPERTY*

When confronted with similar issues, lawmakers have created intellectual property rights—such as copyrights and patents—as exceptions to the general rule that information is in the public domain. These legal rights serve the focused goal of generating private incentives to invest time, energy, and resources into creating, discovering, and developing valuable information.⁹⁰ Should a similar approach be used for medical information?⁹¹ Even though incentives are not needed to create medical information since it is created when patients seek treatment,⁹² similar financial rewards are needed to compile and transform it into useful forms. Property rights are an ideal way to bundle patients’ rights into a legal form that can be monetized and put into a stream of commerce. Fully realizing the economic potential of valuable assets is, in modern times, property law’s primary purpose: “We deem something property in order to facilitate its transfer.”⁹³

Blackstone famously intoned that “[t]here is nothing which so generally strikes the imagination, and engages the affections of mankind, as the right of property.”⁹⁴ Even when noneconomic values loom large, some civil-rights advocates favor property protections because of their strength and resonance in our modern legal system.⁹⁵ For instance, civil libertarian George Annas and his colleagues advocate giving people property rights in their own DNA in order to protect infringements from commercial

90. Samuelson, *supra* note 20, at 1140.

91. Analogously, some states (Oregon, Florida, Colorado, and Georgia) have given people property rights in their genetic information, to serve the instrumental goal of preventing others from capitalizing on and exploiting this information. Sonia Suter, *Disentangling Privacy from Property: Toward a Deeper Understanding of Genetic Privacy*, 72 GEO. WASH. L. REV. 737, 743–44, 744 n.27 (2004).

92. Rodwin, *supra* note 20 (manuscript at 4–5).

93. Jessica Litman, *Information Privacy/Information Property*, 52 STAN. L. REV. 1283, 1296 (2000).

94. 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 2 (photo. reprint, Univ. of Chi. Press 1979) (1766).

95. See Litman, *supra* note 93, at 1290.

interests.⁹⁶ Even propertization opponent Sonia Suter concedes that “[p]roperty has always been a powerful tool to protect important interests because it is familiar and effective. [It] has teeth and ‘symbolic force.’”⁹⁷

The opposite of propertization is placing information in the public domain. That route is unappealing for a variety of reasons. Providers’ and insurers’ existing property rights would be eliminated. That might pose significant constitutional issues and spark strong political opposition. Moreover, since privacy protections would remain, public-domain access would still be very limited. And, any economic benefits derived from this information would not flow back to patients. Conferring additional and superior property rights to patients appears to be a more feasible and appropriate route.

Calebresi and Melamed’s seminal economic theory also supports this route.⁹⁸ Their classic article⁹⁹ outlines the general criteria by which society should prefer a property regime over a liability, or, in our case, regulatory regime for determining access to and use of valuable resources. In general, property rules are preferable when markets determine best uses more efficiently than courts or regulatory agencies. Markets are generally preferred in economic arenas unless “market valuation of the entitlement is deemed inefficient,” or when a liability or regulatory rule “facilitates a combination of efficiency and distributive results which would be difficult to achieve under a property rule.”¹⁰⁰

In medical settings, these obviously are large questions that demand wide-ranging analysis, but much of that can be short-circuited by observing that we do not face an all-or-nothing choice. Medical privacy law already contains much of the normative content missing from property law in its plethora of restrictions on access to and use of medical information. The issue, then, is whether the law governing medical records should be *overwhelmingly* normative—under a legal regime that specifies most of the allowable and unallowable uses—or instead should have a neutral zone that permits individuals more leeway to decide what uses to make of their medical information and what value those uses should have. Adding property rights to privacy protections moves us in that direction.

The main concern of privacy law is controlling access to information rather than putting information to innovative uses. Therefore, it does not embrace a set of norms and practices that countenance financial

96. See generally George J. Annas, Leonard H. Glantz & Patricia A. Roche, *Drafting the Genetic Privacy Act: Science, Policy and Practical Considerations*, 23 J.L. MED. & ETHICS 360 (1995).

97. Suter, *supra* note 91, at 751 (emphasis omitted) (citation omitted).

98. I owe this insight to Bergelson, *supra* note 58, at 417. See also Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 799 (2001).

99. Guido Calabresi & Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1093 (1972).

100. *Id.* at 1110.

transactions. Privacy law facilitates the ready release of information only for narrow and specific treatment purposes. Thus, it primarily expresses negative liberties: the rights to exclude, limit, and refuse. Property law, in contrast, embraces a broader set of positive liberties: the rights to use, transfer, and develop.

Also, medical privacy rights grow out of the special nature of the relationships between patients and clinicians.¹⁰¹ Therefore, privacy rights are enforceable only against the particular providers who generate and possess this information. It is difficult to anticipate and specify all the conditions needed to allow the free flow of medical information since this depends on who possesses and controls the information and on its variety of potential uses. The same is true for specifying necessary protections. Building these rights and protections into the legal status of the information itself is therefore an advantage. The other option is for freedoms and protections to derive only from the origins or location of the information—that is, a patient’s particular relationship with the person who holds the information.

Property law addresses these enforcement concerns by creating rights that “run with the chattel.”¹⁰² In other words, the rights are enforceable against the world at large and not just against particular parties based on their relationship with the patient.¹⁰³ Also, property law provides a strong legal basis for seeking injunctive remedies against infringements.¹⁰⁴ To these extents, property law might confer more extensive rights than privacy law alone.

Finally, property law invokes a fairly standard bundle of protections that are well-established and understood in the law, rather than requiring specification and interpretation of each stick in the bundle. This relative simplicity and ease of recognition facilitate more efficient development. Using examples from for the former Soviet bloc, property law scholar Michael Heller concludes that productive use “emerges more successfully in resources that begin transition [into a newly created market economy] with a single owner holding a near-standard bundle of market legal rights.”¹⁰⁵ It is always possible to craft more tailored legal specifications that fit a

101. Suter, *supra* note 91, at 773. For views stressing the relational (as opposed to transactional) basis of health care law, see generally Mark A. Hall & Carl E. Schneider, *Where Is the “There” in Health Law? Can It Become a Coherent Field?*, 14 HEALTH MATRIX 101 (2004); William M. Sage, *Some Principles Require Principals: Why Banning “Conflicts of Interest” Won’t Solve Incentive Problems in Biomedical Research*, 85 TEX. L. REV. 1413 (2007).

102. Roscoe Pound, Book Review, 60 YALE L.J. 193, 197 (1951).

103. See Henry Hansmann & Reinier Kraakman, *Property, Contract and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. S373, S409–11 (2002) (explaining this “in rem” character of property rights).

104. Samuelson, *supra* note 20, at 1149.

105. Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets* 10–11 (The William Davidson Inst., Working Paper No. 40, 1997).

particular subject area more exactly, but perfection should not be pursued to the detriment of workable improvements. Property law theorist Henry Smith explains that standardized legal bundles can ultimately be more efficient because they are recognizable and so conserve on information costs: legal “lumpiness has its advantages” because “the on/off quality of [property law] allows complexity to be managed through modularity.”¹⁰⁶

B. AGAINST PROPERTY

There are several substantial arguments against giving patients property rights in their medical information. Many privacy advocates view proprietization of personal information as “morally obnoxious . . . anathema” because of the law’s expressive or symbolic function.¹⁰⁷ They feel that property law connotes a crass commercial attitude about information that inherently has deeply emotional and existential human significance. Sonia Suter articulates this position most forcefully. In her view, medical information is “integral to the self” because it “is *about* us in very central and personal ways.”¹⁰⁸ Rather than protecting “the wholeness of the self and of relationships through which the self flourishes,” property “by definition, commodifies and disaggregates the parts from the self.”¹⁰⁹ Therefore, “conceptualizing [medical] information as property distorts and impoverishes our understanding of the dignitary, personhood interests we have in this information and the nature of relationships we hope will be built around and through its disclosure.”¹¹⁰

Those who stress the special significance of personal medical information are adamantly opposed to governing its use primarily through marketplace norms. Intellectual property and privacy law scholars are rightly concerned that reducing the exchange of information to purely transactional legal analysis will permit commercial practices that give people little or no choice over what becomes of their vital information. According to Jessica Litman, the assumption “that initial legal ownership of [information] would enable individuals to restrain their downstream use by negotiating conditions of use before disclosing them . . . seems to be inspired by a fairy-tale picture of easy bargaining in cyberspace through the

106. Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 117 YALE L.J. 87, 93 (2007); see also Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 40–42 (2000).

107. See Samuelson, *supra* note 20, at 1143 (reviewing, but not embracing, this position); see also NAT’L COMM. ON VITAL & HEALTH STATISTICS, *supra* note 39, at 19 (expressing concern that “relying entirely on market forces to determine the nature and direction of PHR systems could cause personal health information to be exploited for its economic value without adequate consumer controls”).

108. Suter, *supra* note 91, at 773.

109. *Id.* at 798.

110. *Id.* at 749.

use of intelligent agents [t]hat's nonsense."¹¹¹ Mark Lemley agrees that, "from a privacy perspective, an intellectual property right that is regularly signed away may turn out to be *less* protection than we want to give individuals. To do any good, the right might have to be inalienable and waivable only in certain limited circumstances."¹¹²

These concerns have pressing salience for access to and control of medical information. One of the core elements in property law's classic bundle of rights is full alienability—allowing property owners to permanently relinquish all of their rights to a purchaser.¹¹³ Although actual commercial practices embrace many less absolute transactional forms such as leasing and licensing, property law disfavors prohibitions of full alienation.¹¹⁴ Yet it is unlikely our legal regime would ever allow patients to forever relinquish rights to access and control their private medical information because full alienability conflicts with the values we associate with personal medical information. In general, medical-information law should have a strong normative content—specifying permissible and impermissible uses and modes of obtaining consent. Privacy law does this to a considerable extent, but most of property law is adamantly neutral.

This clash between property and privacy regimes could be avoided by constructing a more limited bundle of property rights, as intellectual property law usually does, for example, by limiting the length of those rights, or as patent law specially does to take account of the importance of medical uses.¹¹⁵ For instance, "property rights" in medical information could be defined in a way that is nonexclusive and that permits free government access for public health and research purposes without having to pay "just compensation." But, the more sticks that are removed or shortened, the less compelling the argument is for pursuing a bundling approach at all. As

111. Litman, *supra* note 93, at 1297.

112. Lemley, *supra* note 67, at 1551; accord Murphy, *supra* note 42, at 2413; Schwartz, *supra* note 89, at 2077.

113. See Litman, *supra* note 93, at 1295 (suggesting that personal information should be an inalienable right).

114. See Richard A. Epstein, *Why Restrain Alienation*, 85 COLUM. L. REV. 970, 972 (1985); Lee Anne Fennell, *Adjusting Alienability*, 122 HARV. L. REV. 1403, 1405 (2009); Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931, 932 (1985); Samuelson, *supra* note 20, at 1145.

115. For instance, patents on medical procedures cannot be enforced against physicians. Aaron Kesselheim & Michelle Mello, *Medical-Process Patents: Monopolizing the Delivery of Health Care*, 355 NEW ENG. J. MED. 2036, 2037 (2006). The government can issue "compulsory licenses" for patented drugs during medical emergencies. Simone A. Rose, *On Purple Pills, Stem Cells, and Other Market Failures: A Case for a Limited Compulsory Licensing Scheme for Patent Property*, 48 HOW. L.J. 579, 591–92 (2005). Also, drug developers receive extensions of their patent periods to account for the delay in FDA review prior to marketing, and they may infringe the patents of their competitors in order to pursue testing needed for FDA review. *Id.* at 589.

Mark Lemley observes, “a properly designed right would look rather more like a system of regulation than a system of property rights.”¹¹⁶

An information system’s architecture could be designed creatively to reduce the complexity of a nonbundled regulatory regime.¹¹⁷ The detailed limits required by regulators or desired by contracting parties could be specified and enforced efficiently by embedding them in the software that operates I-EMRs. The technological sophistication of electronic systems makes it possible to protect individual rights at a much more granular level than traditional regulatory or contracting systems. Thus, according to Jonathan Zittrain, using a “trusted system may allow for ‘baby-splitting’ among interests that is not feasible in more traditional regimes.” For example, “in place of the stalemate over who should ‘own’ a record, a well-defined self-enforcing rights architecture could allow information sharing without having to ultimately resolve matters in as coarse a way as ‘owner’ or ‘nonowner.’”¹¹⁸

Still, if any kind of property regime were adopted for medical information, additional lines would need to be drawn between medical information and other personal information, over which there are no property rights. The balance of opinion among property- and privacy-law scholars opposes propertizing personal information generally. For medical information, there are good reasons to find the propertization arguments more compelling, but if we accepted those arguments we would then need to differentiate the two realms of personal information, which adds an additional element of complexity.

However, much the same is true for any type of intellectual property regime. Because property rights are not inherent in information, it is always necessary when creating intellectual property to define and justify what is protected from what is not. In part, we have undertaken this chore already for medical information by defining special privacy protections. Similar definitions could also describe the scope of patients’ property rights. However, property law definitions would likely differ from those in existing privacy law because, as noted above, the latter arise from special fiduciary responsibilities of health care providers and they have somewhat different aims. Excavating these additional layers is another reason to pause before leaping into a property regime.

116. Lemley, *supra* note 67, at 1554. For instance, Vera Bergelson proposes and explicates a complicated scheme for personal information under which people “would own this information during their lifetime, subject to a (i) non-exclusive automatic inalienable license to the original collector and (ii) limited non-exclusive automatic license to the general public.” Bergelson, *supra* note 58, at 442; *see also* Christiansen, *supra* note 59, at 8 (“These issues [of proper control of EMRs] . . . may be more easily resolved if the parties are not embroiled in a ‘red herring’ argument over property rights.”).

117. Jonathan Zittrain, *What the Publisher Can Teach the Patient: Intellectual Property and Privacy in an Era of Trusted Privication*, 52 STAN. L. REV. 1201, 1201 (2000).

118. *Id.* at 1246.

Finally, property rights might frustrate the very goals they seek by inhibiting the public-goods value of medical information. Creating more legal rights may not be the best solution to an anticommons problem that was created in part by too many legal rights in the first place. “An intellectual property law governing personal data would result in the creation of literally billions of new intellectual property rights every day; economics wisely counsels us not to expect frictionless licensing in this circumstance.”¹¹⁹ The Internet, for instance, owes its spectacular success to the fact that its basic structure and elements are all in the public domain.¹²⁰ Imagine how its development might have stalled or been severely stunted if key elements were protected by copyrights or patents that owners refused to license or provide for free.

For medical information, Professor Marc Rodwin makes an impressive argument that conferring property rights would interfere with important public goods, such as assembling research databases and engaging in public health monitoring.¹²¹ His focus is primarily on de-identified data rather than the personalized medical records we consider here, but his objections must be considered carefully. If patients had property rights in their personal medical data, would the government have to pay them “just compensation” for any “taking” of medical information for public purposes? Not if the information is not identifiable to the patient, since any property interest resides in patient-specific information. Government presumably would not take identifiable information except for public health purposes under its police power, as now happens without constitutional objection. Any newly created or expanded property rights would be against the backdrop of these long-standing government practices and policies and therefore could be made subject to them. Still, creating new property rights might give patients more legal power than they currently possess to refuse uses or demand payments for either public or private purposes.

C. COMMON GROUND

Whichever route is pursued, it will not lead to a pure legal regime. As with any other type of intellectual property, because these legal rules are specially constructed to serve an instrumental purpose, we cannot avoid a fairly *sui generis* set of rules, especially considering the unique importance attached to medical information. Therefore, in the end it may not matter a great deal whether the bundle of rights in medical information is built stick

119. Lemley, *supra* note 67, at 1553.

120. Lemley & McGowan, *supra* note 23, at 552–53.

121. Rodwin, *supra* note 20 (manuscript at 5); *see also* Litman, *supra* note 93, at 1294 (“When we recognize property rights in facts, we endorse the idea that facts may be privately owned and that the owner of a fact is entitled to restrict the uses to which that fact may be put. That notion is radical.”). *See generally* Marc A. Rodwin, *The Case for Public Ownership of Patient Data*, 302 JAMA 86 (2009).

by stick, starting with simple contract and privacy rights, or winnowed and reconstructed from a larger standard set of property rights. This gravitational pull toward a common ground can be seen in the broader debate over personal information generally. Some scholars favor a special bundle of property rights,¹²² others favor a special set of tort rules,¹²³ and still others feel that contract rights are sufficient if properly enforced.¹²⁴ Despite these differences, what is common (albeit far from identical) among them is a set of shared concerns about the following important interests that require legal protection and facilitation. By more finely mapping this common ground, the following principles can guide construction of patients' rights to license access to their own medical information.

1. People should be able themselves, or through their agents, to authorize access to and use of their medical information for financial rewards, and these licenses should be transferable.

Without clear recognition of the core entitlement to commercialize access rights, network benefits will not be sufficiently captured, or "internalized" to give anyone in the health care finance and delivery system (as it is currently structured) enough incentive to invest in the construction of I-EMRs. Conferring rights of access and use should not be demandable as an absolute condition of providing or insuring health care services. However, positive or negative incentives can be offered as long as they are not unconscionable¹²⁵—for instance, providing a modest discount to patients who allow their data to be warehoused.

2. Default rules should be set with some degree of paternalism toward protecting patients' interests, in order to take account of the cognitive and other limitations on consent involving vital medical information.

For instance, default rules can be set in a way that forces more choice and more information. Usually, to minimize transaction costs legal default rules are set in an "opt-out" fashion, so that these rules apply unless otherwise specified, according to what most parties would accept when fully informed. However, if a substantial minority strongly dislikes the majority option, there may be good reason to adopt a more protective default rule that requires parties to affirmatively opt in to the majority position. Otherwise, the net social condition might be suboptimal if the default position is offered only

122. See, e.g., Bergelson, *supra* note 58, at 437 (noting that "it may be worth recognizing a new bundle of rights"); Schwartz, *supra* note 89, at 2094–103 (advocating a "hybrid inalienability regime" that allows sale of personal info but only if there is a default rule (with opt-out) that restricts further transfers).

123. See, e.g., Litman, *supra* note 93, at 1312–13; Samuelson, *supra* note 20, at 1150–51.

124. See, e.g., Lemley, *supra* note 67, at 1551–52; Zittrain, *supra* note 117, at 1208–12.

125. See Bergelson, *supra* note 58, at 447.

on a take-it-or-leave-it basis, with no real choice or with a technical “choice” but inadequate notice.¹²⁶

3. Some rights or protections should be nonwaivable (or inalienable) and should follow the information regardless of agreement or provenance.

For instance, patients should always retain their basic rights to inspect, copy, and correct medical records, and patients should have a nonwaivable right to revoke any permissions they give for access or use. Enabling patients to back out of an improvident bargain helps correct market flaws by preventing initial mistakes from having long-term consequences.¹²⁷ This power also gives market participants a strong incentive to conform their behavior to patients’ expectations. Further protections are available by overseeing the “infomediaries” that assemble and process medical information and by embedding safeguards in the software architecture of the system. These protective mechanisms can originate either from regulators¹²⁸ or entrepreneurs.¹²⁹

4. Patients’ rights to control or sell access to their medical information should be limited to data that can be linked to them personally.

If information is anonymized (or “deidentified”) so that it cannot reasonably be connected to anyone in particular, the individual’s claim to “ownership” of the information should cease, along with the need for strong legal protections. Recognizing this limit will foster more public goods derived from medical research and public health monitoring.

V. SUMMARY AND CONCLUSION

Information by its nature is nonrivalrous, meaning it can be used by many people at once without depletion. Therefore, property rights are not needed to allocate access to information.¹³⁰ Instead, conferring ownership

126. Murphy, *supra* note 42, at 2412–16. For a description of one successful opt-in approach, see generally Micky Tripathi et al., *Engaging Patients for Health Information Exchange*, 28 HEALTH AFF. 435 (2009).

127. Schwartz, *supra* note 89, at 2105–07. For this reason, the intellectual property doctrine of “exhaustion” should not apply. This doctrine holds, in simple form, that the owner’s intellectual property (“I.P.”) rights are exhausted when the item embodying the property is sold, meaning that the I.P. owner cannot restrict subsequent uses or resales of the item. For patents and copyrights, this doctrine helps to avoid the I.P. owner’s abuse of its legal monopoly. For medical information, however, market conditions and concerns over privacy justify allowing patients to transfer their rights under terms that continue to protect patients from downstream uses.

128. See, e.g., Hoffman & Podgurski, *Finding a Cure*, *supra* note 9, at 134–40.

129. See generally Bloomrosen & Detmer, *supra* note 73, at 715 (providing examples of nonmedically based entrepreneurs that have entered the medical-information field).

130. Litman, *supra* note 93, at 1294.

or control over information can block its beneficial use. Accordingly, information is usually regarded as being in the public domain unless there is a good reason in public policy to propertize it. In other areas of intellectual property, that reason is to provide an economic incentive to discover or create information that otherwise might not exist.¹³¹ For medical information, there is quite a distinct reason: overcoming the diseconomies of the health care system's fragmentation.

Deeply fractured health care finance and delivery presents two daunting economic challenges that must be solved to fashion the interconnected electronic information systems missing from most other important economic arenas. Fragmentation creates *network externalities* that prevent any one actor from realizing sufficient benefits to make the necessary investments. Solutions to the network economics problems can be imagined, but they are barred by laws and practices that give individual stakeholders the power and incentive to block economic integration. Medical care providers, for instance, have inherent control of medical information owing to their ownership of the tangible embodiment of medical records and their legal obligations to protect privacy. Also, owing to reimbursement systems and legal uncertainties, doctors and hospitals lack sufficient incentives or authority to share their records with each other. These phenomena can be usefully thought of as examples of a "tragedy of the anticommons."

Absent government mandates or actual integration of our kaleidoscopic finance and delivery system, the only way to loosen this economic and legal constipation is to permit transfer payments among the various stakeholders that control access to valuable medical information. This can be accomplished in a variety of ways. This Article focuses principally on ordinary property and contract laws that would allow patients to license their rights of access and use under appropriately protective rules and institutions. These rules can be constructed either as a newly designed form of intellectual property, or as a specially constructed set of contract and privacy rights.

The previous Section outlines the pluses and minuses of the two general approaches and describes the common ground between them. Property rights are bundled, powerful, recognizable, and market-enabling, but they also are coarse, crass, greed-inducing, and possibly obstructive. Contract rights coupled with regulatory protections are malleable, fine-grained, situational, and normative, but they also are complex and potentially oppressive, and they tend to be enforceable only against particular parties based on their relationship with patients.

Common ground between these approaches can be formed by agreeing that patients' rights to medical information should be tradable in some form that can be monetized, but that special protections and institutions are

131. See Samuelson, *supra* note 20, at 1140.

needed to prevent marketplace abuses. These protections include giving patients a nonwaivable right to terminate permission to access and use their information and making patients' rights to inspect, copy, and correct medical information inalienable. A public or private coordinating institution is also needed to protect patients and ensure adequate market conditions, but the choice of that institution should not dictate the ultimate structure of medical information networks.

In all of this, we are informed by basic lessons in the academic literature on both property and privacy rights. Economic and social rights can suffer from too little or too much legal protection, creating either insufficient or excessive incentives for investment, leading to suboptimal development or social harms from excess development. Also, legal protections can exist in a variety of different forms. Thus, for property rights in medical information, we can think of legal protections along a spectrum from strong to nonexistent, for each stakeholder and potential use.

The problem broadly conceived, then, is to find the right mix and forms of property rights among patients, providers, researchers, and compilers to maximize the social benefits of I-EMRs while minimizing social or individual harms. Rights to medical information can overlap (or be nonexclusive) as long as there is a clear hierarchy of rights that gives one party ultimate control. The key is to avoid rules so complex that they are unmanageable, unintelligible, or unreliable. Clear but adaptable rules are needed so that stakeholders can make heterogeneous decisions that sort out which of several competing models for I-EMRs works best, and in what combination. This is a tall order, but it must be filled since legal uncertainty is itself a major deterrent to more productive use of medical information that will lower costs, improve quality, and ultimately save many lives.