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A Medical Ghost in the E-Health Machine

Nicolas P. Terry

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HAL: *I honestly think you ought to calm down; take a stress pill and think things over.*[1]

INTRODUCTION

THE APRIL 1924 COVER of *Radio News* depicts a patient interacting with a doctor through a Heath Robinson amalgam of diagnostic sensors and interactive video.[2] The headline suggested a technologically-mediated care, or "e-health," question for the ages: "The Radio Doctor—Maybe!"[3] Headlines were also written in October 2002 after a 53-year-old Florida patient died of complications following an "adverse event" during kidney removal surgery performed with a computer-enhanced microsurgery manipulator (a.k.a. a surgical robot).[4] For the overlapping period of academic endeavor celebrated in this issue of *Health Matrix*, e-health would seem to merit little more than a footnote. In fact, e-health deserves a more prominent billing and is particularly useful as a teaching and analytical tool.

First, the history of e-health illustrates the way that health care in the United States has devalued patient expectations and access to care while over-investing in processes and technologies that serve the few. Second, e-health provides a rich source of examples revealing the transformation of health law away from an increasingly marginalized

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[†] Professor of Law, Co-Director, Center for Health Law Studies, Professor of Health Management & Policy, Saint Louis University, email: terry@slu.edu; web: http://law.slu.edu/nicolasterry. My thanks go to Trevor L. Wear (J.D. Candidate, Saint Louis University) for editorial assistance.

[1] 2001: A SPACE ODYSSEY (Warner 1968).

[2] *The Radio Doctor – Maybe!*, RADIO NEWS, April 1924.

[3] *Id. See generally* COMMITTEE ON EVALUATING CLINICAL APPLICATIONS OF TELEMEDICINE, TELEMEDICINE: A GUIDE TO ASSESSING TELECOMMUNICATIONS IN HEALTH CARE 35-37 (Marilyn J. Field ed., 1996).

[4] *Patient Dies in Robot-Aided Surgery*, ST. PETERSBURG TIMES, October 30, 2002, at 1B. The robot in question was the da Vinci® Surgical System. Information on this device is available at http://www.intuitivesurgical.com/products/da_vinci.html (last visited Nov. 30, 2003).

doctrine rooted in professional and personal paradigms. Third, e-health provides a disruptive model, particularly in its most recent iterations, that can be used to shake out otherwise dormant issues of law and policy.

TECHNOLOGY AND POLICY

Traditionally, investing in medical technology has been part of the United States health care's "access" problem rather than its solution. The adoption of health care technology is emblematic of the current system's inability, or refusal, to tackle its escalating costs[5] and is symbolic of a system that provides elaborate and sophisticated care, but only on a selective basis. Other highly developed countries have sought to solve access issues with technology. For example, the Australia Flying Doctor service has leveraged aviation and radio technologies since the 1920s to provide care to isolated regions.[6] Similarly, developing countries such as Malaysia[7] and underdeveloped Eastern bloc states, now preparing for European Union membership, view the adoption of e-health as an alternative to building or rebuilding a conventional healthcare delivery infrastructure, essentially skipping the bricks-and-mortar primary care delivery mechanisms built by highly developed countries.

A history of under-reimbursement, the chilling effect of legal indeterminacy and the conservatism, even technophobia, of the medical establishment have tended to distance primary care from advances in technology. Telemedicine is the exception that proves the rule. While rural access projects are only intermittently funded, the only consistent area of growth is in servicing incarcerated populations, unpopular clients for health professionals, but the only population in the United States that is legally guaranteed health care.[8]

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[5] *See* PAUL STARR, THE SOCIAL TRANSFORMATION OF AMERICAN MEDICINE 384 (1982) (discussing the increase in national health expenditures, which jumped from $142 per capita in 1960 to $336 per capita in 1970).

[6] ROYAL FLYING DOCTOR SERVICE OF AUSTRALIA, at http://www.rfds.org.au/history.htm (giving the history of the Flying Doctor Service and emphasizing how it has helped serve Australia).

[7] Mohd Ariff bin Mohd Hashim, The Current Issue and Future Prospects of Integrated Telemedicine in the Health and Life Insurance Industry, 1 ELEC. J. INS. & RISK MGMT. (1999), *at* http://www.insurance.com.my/e-jirm/archives/vol01_no01/telemedicine_pt01.htm (describing the four components of the Malaysian Telemedicine Projects and discussing how they can help advance the country's standard of living).

[8] See e.g., Estelle v. Gamble, 429 U.S. 97, 103-04, 50 L. Ed. 2d 251, 97 S. Ct. 285 (1976).

In the United States, major growth in technology utilization has been limited to secondary and tertiary care. Even in those environments, however, investments have tended to be in traditional, albeit complex and costly, health care technologies, such as imaging. In contrast, companies outside of the health sector have more readily invested in Information Technologies (IT) and e-commerce applications that tend to increase access, improve service, and reduce costs for consumers. It has taken outside stimuli—such as HIPAA's electronic data interchange construct,[9] designed to reduce health transactions' costs, or the Institute of Medicine's faith in technological solutions to the medical error crisis[10]—to begin the reversal of this trend.

CHANGING LEGAL PARADIGMS

Conventional health law primarily reflects professional and personal paradigms. For example, the underlying premise of the clinical negligence liability construct is the physician-patient relationship, the default liability model is personal rather than institutional, and the legal implications of adverse outcomes are assessed by reference to professional norms. Meanwhile, public law quality assurance systems, such as licensure and discipline, are dominated by fellow professionals who ignore broader systems or process flaws and concentrate on rooting out the few "bad apples" guilty of interpersonal violations, such as sexual relations with patients or substance abuse.

Such "medical-legal jurisprudence is based on images of health care that no longer exist"[11] and tends to marginalize institutions and hence, institutional reform. As a result, process and system reform, with their increasingly technological components, are ill-served by traditional health law. Therefore, it is not surprising that these ad-

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[9] Health Insurance Portability and Accountability Act of 1996, Pub. L No. 104-191, § 261, 110 Stat. 1936 (codified as amended in scattered sections of 42 U.S.C.) (describing how establishing standards and requirements for electronic transmission of health information will improve the Medicare program). *See also* Medicare Program; Electronic Submission of Medicare Claims, 68 Fed. Reg. 48,805 (August 15, 2003) (to be codified at 42 C.F.R. pt. 424) (discussing when Medicare claims must be submitted electronically and when electronic submission can be waived).

[10] *See, e.g.*, COMMITTEE ON QUALITY OF HEALTH CARE IN AMERICA, INSTITUTE OF MEDICINE, CROSSING THE QUALITY CHASM: A NEW HEALTH SYSTEM FOR THE 21ST CENTURY (2001) (describing the deficiencies in American health care and discussing how information technologies are necessary for enhanced quality and improved efficiency).

[11] Perez v. Wyeth Laboratories Inc., 734 A.2d 1245, 1246 (N.J. 1999) (discussing how pharmaceutical manufacturers have shifted from physician-targeted advertising to patient-targeted advertising and holding that when these manufacturers make claims directly to consumers, they have a duty to warn about the dangers of their products).

vances in health policy increasingly rely on administrative law and compliance-based systems. For example, the failure of the common law to develop a professional confidentiality paradigm[12] into a modern privacy model led to the compliance-based HIPAA privacy regulations.[13]

A DISRUPTIVE MODEL

Technology can be quite disruptive of the status quo because of the manner in which it opens up novel delivery channels and decreases consumer information costs. The spread of e-commerce models into primary health care is particularly disruptive;[14] it is countercultural, penetrating areas of health care where there has been little investment or utilization of technology. For example, online health advice and direct-to-consumer drug advertising challenge the physician monopoly of medical information, while cross-border prescribing and dispensing expose the fiction of regulatory heterogeneity that is used to justify state-based licensure. Similarly, new generations of expert systems that will aid diagnosis, monitor remote patients, and sharply reduce medication errors are poised to challenge our formalistic understanding of the service-product dichotomy.[15]

CONCLUSION

Several decades may separate the fiction of the real-time, audiovisual "Radio Doctor" from the tragic reality of death by robotic surgeon, but policymakers in the United States have yet to harness the promise of health technology, while health law is ill suited to process the challenges of technology with a system that revolves around a

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[12] *See generally* Nicolas P. Terry, *Privacy and the Health Information Domain: Properties, Models and Unintended Results*, 10 EUR. J. HEALTH L. (forthcoming 2003).

[13] Standards for Privacy of Individually Identifiable Health Information, 45 C.F.R. pts. 160, 164 (2002), *available at* http://cms.hhs.gov/hipaa/hipaa2/regulations/privacy/finalrule/PvcFR01.pdf.

[14] *See generally* PHILIP EVANS & THOMAS S. WURSTER, BLOWN TO BITS, HOW THE NEW ECONOMICS OF INFORMATION TRANSFORMS STRATEGY 180-89 (1999) (describing the complex and inefficient information systems of the health care industry). *See also* Nicolas P. Terry, *Structural and Legal Implications of E-Health*, 33 J. HEALTH L. 606 (2000) ("Web and attendant e-Commerce phenomena are irretrievably at odds with the traditional structure and hence legal regulation of health delivery." *Id.* at 605.).

[15] *See generally* Nicolas P. Terry, *When the "Machine That Goes 'Ping'" Causes Harm: Default Torts Rules and Technologically-Mediated Health Care Injuries*, 46 ST. LOUIS U. L.J. 37 (2002) (discussing the liability issues created by the increase of technology in health care delivery).

relatively narrow paradigm based on relationships. With the increasingly disruptive influence of e-health applications and the legal problems they raise, the impact of e-health, not to mention its pedagogical value, will be immense. The foundation for both, however, has been set during the last fifty years.