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Telemedicine and Integrated Health Care Delivery: Compounding Malpractice Liability

Patricia C. Kuzlert†

I. INTRODUCTION

Telemedicine became a significant part of the health care equation long before we realized what it was or how important it will be in the future. Telephone discussions and consultations between health care providers have been a part of medical practice since Alexander Graham Bell gifted society with telephones.¹ Furthermore, who among us has not been transfixed watching and learning about open heart surgery on cable television?² Propelled by the information superhighway and the breadth of emerging computer and communication technologies, telemedicine will change the face of medicine and methods of interaction between providers and patients.³ Access, quality and cost of health care may all improve, but not without the sacrifice of some time-honored norms in medical practice.⁴

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¹ Even in the early years of medical practice, physicians were quick to recognize the value of modern technology like the telephone and their potential for improving communication. See Joel D. Howell, *Making a Medical Practice in an Uneasy World: Some Thoughts from a Century Ago*, 72 ACAD. MED. 977, 978 (1997) (discussing the impact of the book, DANIEL W. CATHELL, *THE PHYSICIAN HIMSELF AND WHAT HE SHOULD ADD TO THE STRICTLY SCIENTIFIC* (1882), on young physicians during that era).

² See, e.g., *Live from the Operating Room: Open Heart Surgery as Entertainment*, TIME, Mar. 7, 1983, at 77.

³ The doctor-patient relationship stems from the personal interaction between the physician and the patient. See Robyn Meinhardt & Kenneth W. Landis, *Bioethics Update: The Changing Nature of the Doctor/Patient Relationship*, 16 WHITTIER L. REV. 177, 177-80 (1995). To date, no consensus exists as to whether telemedicine improves or harms the traditional practice of medicine. See R. Wootton & A. Darkins, *Telemedicine and the Doctor-Patient Relationship*, 31 J. ROYAL C. PHYSICIANS LONDON 598, 598 (1997). However, a relationship based on telemedicine technology is distinctly different from the face-to-face model of the past. See *id.* One of the few studies looking at patient attitudes toward telemedicine found that, before engaging in a telemedicine experience, patients were skeptical and believed it would not be as satisfactory as a face-to-face interaction. See Rashid L. Bashshur, *Public Acceptance of Telemedicine in a Rural Community*, 4 BIOSCIENCES COMM. 17, 34 (1978). However, this skepticism largely disappeared as patients became exposed to telemedicine and its capabilities. See *id.*

⁴ A telemedicine-based doctor-patient relationship will force rethinking of the physician's role—a transformation of his absolute authority in medical work to a role as a senior member of a health

The changes telemedicine will bring to medical practice exacerbate the changes deriving from the proliferation of managed care integrated delivery systems (IDSs) and the contraction of the health care industry.⁵ The solo practitioner revered by Norman Rockwell is rapidly becoming extinct, superseded by groups of providers employed by or engaged in contractual partnerships with one or more integrated managed care plans.⁶ The community hospital of the mid-twentieth century has merged, remerged and now emerged as part of an organized network of hospital services, often affiliated with one or more health plans.⁷ The traditional Blue Cross and Blue Shield plans spun off for-profit managed care plans that, along with provider partners, are vibrant and successful, while the gutted parent companies languish, relics of the past.⁸

This Article considers how theories of medical negligence might be applied in

"team." See Ben Park & Rashid L. Bashshur, *Some Implications of Telemedicine*, 25 J. COMM. 161, 163 (1975). Indeed, psychological and cultural factors may affect physicians, nurses or patients, and limit the effectiveness and quality of the outcome. See *id.* at 165; see also R.C. King, *Technology and the Doctor/Patient Relationship*, 63 POSTGRADUATE MED. J. 591, 591-92 (1987) (discussing the adjustments patients and doctors may need to make in light of telemedicine developments); Truls Ostbye & Petter Hurlen, *The Electronic House Call—Consequences of Telemedicine Consultations for Physicians, Patients, and Society*, 6 ARCHIVES FAM. MED. 266 (1997), available in WESTLAW, AMA-JNLS Database (discussing the new relationship that is likely to develop between patients and physicians as a consequence of the use of telemedicine).

⁵ See generally, James C. Robinson, *The Dynamics and Limits of Corporate Growth in Health Care*, HEALTH AFF., Summer 1996, at 155 (discussing the transformation of the health care industry by means of horizontal and vertical integration and diversification strategies designed to coordinate services, to reduce excess capacity and to improve quality and cost effectiveness); Marc Grobman, *Managed Care's Last Frontier*, BUS. & HEALTH, May 1997, at 31, available in LEXIS, News Library, ASAPII file (discussing expansion of integrated delivery system (IDS) products into rural marketplaces).

⁶ Physicians are three times more likely to be working in a group practice setting than they were a generation ago. See David W. Emmons & Carol J. Simon, *Managed Care: Evolving Contractual Arrangements*, in SOCIOECONOMIC CHARACTERISTICS OF MEDICAL PRACTICE 15, 16 (Martin L. Gonzalez ed. 1996). Moreover, the number of physicians who are employed, rather than independent practitioners, has grown dramatically. See *id.* By 1998, 54% of physicians worked as employees as opposed to only 29%, in 1983. See Phillip R. Kletke, *Trends in Physicians' Practice Arrangements*, in SOCIOECONOMIC CHARACTERISTICS OF MEDICAL PRACTICE 17, 18 (Martin L. Gonzalez & Puling Zhang eds. 1997/98). Ninety-two percent of physicians participate in one or more managed health care plans, if not as employees, then on a contract basis. See Carol K. Kane et al., *Physician Managed Care Contracting*, in SOCIOECONOMIC CHARACTERISTICS OF MEDICAL PRACTICE 7, 7 (Martin L. Gonzalez & Puling Zhang eds. 1997/98).

⁷ The last ten years have demonstrated a strong movement away from the independent, stand-alone community hospital to regional IDSs. See F. Kenneth Ackerman, III, *The Movement Toward Vertically Integrated Regional Health Systems*, HEALTH CARE MGMT. REV., Summer 1992, at 81, 81. In addition to a remarkable number of mergers between hospitals, hospitals demonstrated increased willingness to enter into affiliations with each other. See Sandy Lutz, *Mergers and Acquisitions Report; 1995: A Record Year for Hospital Deals*, MOD. HEALTHCARE, Dec. 18, 1995, at 43, available in 1995 WL 2496743. A 1994 study conducted by Deloitte & Touche revealed that 81% of hospital chief executive officers predicted that their hospitals would not be operating on a stand-alone basis in the next five years. See DELOITTE & TOUCHE, U.S. HOSPITALS AND THE FUTURE OF HEALTH CARE 1 (1994). Of the inner city hospitals the survey considered, only 11% believed that they would continue as independent facilities in 1999. See *id.* at 2.

⁸ See Eleanor Hamburger et al., *The Pot of Gold: Monitoring Health Care Conversions Can Yield Billions of Dollars for Health Care*, 1995 CLEARINGHOUSE REV. 473, 475 (discussing Blue Cross of California's attempt to spin off a for-profit subsidiary using 90% of its assets, retaining only 10% of its assets in the parent for the purpose of maintaining its nonprofit status); see also Leonard D. Schaeffer, *Health Plan Conversions: The View From Blue Cross of California*, HEALTH AFF., Winter 1996, at 183, 183 (discussing changes in the health care industry leading to the conversion of health care institutions from nonprofit to for-profit status). For an interesting series of articles exploring the trend of hospital and health plan conversions, see generally HEALTH AFF., Mar.-Apr. 1997.

the context of telemedicine and integrated delivery health plans. Part Two summarizes the history of telemedicine, its increasing breadth of application and opportunity and promise for the future. Part Three reviews traditional negligence principles and precedents and demonstrates how they might be applied when a telemedicine interaction results in negligence and harm to the patient. Part Four discusses evolving theories of shared liability applicable to health plans and managed care entities. Finally, Part Five demonstrates how shared liability theories will be applied to situations involving telemedicine technologies.

II. TELEMEDICINE: HISTORY, PRESENT APPLICATIONS AND FUTURE PROMISE

Telemedicine's "simple, but serviceable" definition is the use of telecommunication to diagnose and treat a patient.⁹ Telemedicine encompasses a panoply of technologies and communication modalities that allow health care providers to connect with, examine, counsel and advise patients about treatment options.¹⁰ These include teleradiology and other teleimaging diagnostics,¹¹ telesurgery and robotics,¹² video and Internet/e-mail conferencing,¹³ transmission of electrocardiographic and other physiological data by telephone, telecommunications, or Internet lines¹⁴ and

⁹ See *Testimony on VA Health Care and Communication and Information Technologies Before the Subcomm. on Oversight and Investigations of the House Comm. on Veterans' Affairs*, 102d Cong. (1994) (statement of Dr. Donald A.B. Lindberg, Director, National Library of Medicine), available in 1994 WL 377915 [hereinafter Statement of Dr. Lindberg].

¹⁰ For general definitions of telemedicine, see William G. Weissert & Susan Silberman, *Health Care on the Information Highway: The Politics of Telemedicine*, 2 TELEMEDICINE J. 1, 1 (1996) (providing both a narrow and broad definition of telemedicine, and concluding that however it is defined, the technology "offers great potential to improve access to care for those removed by distance and circumstances from major tertiary-care centers"); Kathleen M. Vyborny, *Legal and Political Issues Facing Telemedicine*, 5 ANN. HEALTH L. 61, 69-73 (1996) (defining telemedicine as "us[ing] a conduit to transmit patient information over distances to permit the physician to practice medicine from a remote location").

¹¹ Teleradiology, the transmission of radiographic images, is the most commonly used and well-developed of telemedicine applications. See Jim Grigsby et al., *Effects and Effectiveness of Telemedicine*, HEALTH CARE FIN. REV., Fall 1995, at 115, 115. This is due in part to the fact that radiologists traditionally have not had a personal doctor-patient relationship with the patients receiving their services. See *id.* As such, some of the larger, more regionalized applications of telemedicine have been in radiology. See Lewis S. Carey, *Teleradiology: Part of a Comprehensive Telehealth System*, 23 RADIOLOGIC CLINICS N. AM. 357, 361 (1985); Solomon Batnitsky et al., *Teleradiology: An Assessment*, RADIOLOGY, Oct. 1990, at 11.

¹² For example, one recent study focusing on the feasibility of telerobotic-assisted surgery found that an experienced operating team using a robotic system controlled by a surgeon at a remote site was able to perform a variety of surgical procedures without any adverse complications. See Louis R. Kavoussi et al., *Telerobotic Assisted Laparoscopic Surgery: Initial Laboratory and Clinical Experience*, 44 UROLOGY 15, 16 (1994). In another study, brain surgery is performed with the use of a computerized, articulated, localizing "arm." See Robert J. Maciunas et al., *A Universal System for Interactive Image-Directed Neurosurgery*, 58 STEREOTACTIC FUNCTIONAL NEUROSURGERY 108, 108-09 (1992). The arm carries stereotactic surgical equipment that allows it to hone in on the operative site, guided by the surgeon and computer data of diagnostic studies and scans. See *id.* at 109.

¹³ See Tom Ferguson, *Digital Doctoring—Opportunities and Challenges in Electronic Patient-Physician Communications*, 280 JAMA 1361, 1361-62 (1998); see also Hiroshi Nagata & Hiroshi Mizushima, *A Remote Collaboration System for Telemedicine Using the Internet*, 4 J. TELEMEDICINE & TELE CARE 89, 89 (1998) (describing a still-image telemedicine system developed by the authors that allows collaboration between two or more client computers located anywhere on the Internet); Massafumi Ohki et al., *A Remote Conference System for Image Diagnosis on the World-Wide Web*, 169 AM. J. ROENTGENOLOGY 627, 627 (1997) (describing a web-based system that both transmits radiographic images and allows simultaneous consultation with remote radiology specialists).

¹⁴ For example, electronic stethoscopes may be used to allow more than one physician to

"telehealth" education via the Internet and cable television.¹⁵ Although many of these examples rely on relatively recent communications technologies, telemedicine escaped the bounds of the simple telephone call at least thirty years ago and has already acquired an impressive history.

A. FOUND IN SPACE: THE HISTORY OF MODERN TELEMEDICINE

Although isolated telemedicine experiments date back to the early 1960s,¹⁶ telemedicine began with the space program. One of the National Aeronautics and Space Administration's (NASA) pivotal concerns was the medical monitoring of astronauts.¹⁷ This concern began with the earliest Mercury and Gemini flights, developed through the Apollo Moon Program and continues today with space shuttle and MIR missions.¹⁸ NASA's scientists created telemetric technologies that allowed the long-distance measurement and transmission of physiological data through space.¹⁹

While refining the use of telemetry in space, NASA facilitated the terrestrial

auscultate the heart simultaneously. See Raymond L.H. Murphy et al., *Accuracy of Cardiac Auscultation by Microwave*, 63 CHEST 578, 580 (1973). Similarly, electrocardiograms and echocardiograms have been successfully transmitted using telephone and facsimile lines to allow remote evaluation. See Walter L. Sobczyk et al., *Transtelephonic Echocardiography: Successful Use in a Tertiary Pediatric Referral Center*, 122 J. PEDIATRICS S84, S87 (1993); Charles A. Bertrand et al., *Effectiveness of the Fax Electrocardiogram*, 74 AM. J. CARDIOLOGY 294, 294 (1994).

¹⁵ See Gerhard Brauer, *Telehealth: The Delayed Revolution in Health Care*, 18 MED. PROGRESS THROUGH TECH. 151, 152-54 (1992) (discussing telehealth and teleducation applications). Distance medical education has been used with great success for a number of years at the University of Washington School of Medicine. See M. Roy Schwarz et al., *Communications Satellites in Health Education and Health Care Provision: The WWAMI Experience*, 250 JAMA 636, 636-37 (1983). The University of Washington's medical center was part of the WWAMI Rural Telemedicine Network demonstration project, designed to study the utility of telemedicine consultation by a tertiary care medical school facility to health care providers and patients in six remote towns. See *WWAMI Rural Telemedicine Network—Welcome to the WWAMI Rural Telemedicine Network*, (visited Mar. 30, 1999) <<http://www.fammed.washington.edu/telemed/intro.html>>. The WWAMI project involved participants in five states: Washington, Wyoming, Alaska, Montana and Idaho. See *id.* In particular, the WWAMI program allowed medical students to do a portion of their education and clinical clerkships in their home states, with teleconnections to the faculty and central university medical center. See Schwarz et al., *supra*, at 636-37; *University of Washington School of Medicine—WWAMI Program* (visited Mar. 30, 1999) <http://www-world.cac.washington.edu/medical/som/students/som_uwsomaa.html>. Community health education has also been furthered by use of electronic media, including the Internet and other online databases. See Katie Hafner, *Can the Internet Cure the Common Cold*, N.Y. TIMES, July 9, 1998, at D1. For example, there are over 10,000 medical and health-related sites on the Internet. See *id.* For a discussion about the rise of computer-based patient and physician education tools, see generally Jennifer A. Gilbert, *Patient Education in the Computer Age*, HEALTH DATA MGMT., May, 1998, at 90, available in WESTLAW, BAMP database; P. Robert Hubbs et al., *Medical Information on the Internet*, 280 JAMA 1363 (1998).

¹⁶ One early telemedicine program funded by the National Institutes of Mental Health connected an isolated state mental health facility with the University of Nebraska Medical Center, allowing for two-way, televised group therapy. See Cecil L. Wittson & Reba Benschoter, *Two Way Television: Helping the Medical Center Reach Out*, 129 AM. J. PSYCHIATRY 136, 136-38 (1972). Another program, initiated after an airplane crash at Boston's Logan Airport, connected airport medical personnel to Massachusetts General Hospital and allowed for transmission of x-rays and consultation. See Raymond L.H. Murphy & Kenneth T. Bird, *Telediagnosis: A New Community Resource*, 64 AM. J. PUB. HEALTH 113, 114 (1974).

¹⁷ See Charles R. Doarn et al., *Applications of Telemedicine in the United States Space Program*, 4 TELEMEDICINE J. 19, 19-20 (1998).

¹⁸ See *id.* at 19-21.

¹⁹ See *id.* at 20-21. Telemetry is the process of measuring the distance from an object to an observer. See WEBSTER'S NEW COLLEGIATE DICTIONARY 1189 (1979).

use of this and other telemedicine technologies domestically and internationally.²⁰ In the mid-1970s, NASA entered into a collaborative venture with the Indian Health Service and the Papago Indian Tribe.²¹ This project borrowed technology from the space program that enabled mobile health unit practitioners to telecommunicate with, and transfer data to, specialists at a distant public health hospital.²² The program's evaluation concluded that mobile health workers delivered a comparable quality of care as would have been supplied through an on-site consultation.²³ In Alaska, a similar program used NASA satellites to supply a consistent method of voice communication and linkage by which local health aides and nonphysician providers could access information and consult with physicians.²⁴

In recent years, the space program fortified and enhanced satellite technology and capacity.²⁵ Government and disaster management organizations have used the satellite-based communication system to provide medical aid and coordinate relief efforts in cases of natural disaster²⁶ and war.²⁷ In the 1990s NASA inaugurated the "spacebridge" to Moscow, an international telemedicine project that included specialist consultation in a variety of disciplines, medical education opportunities for physicians from Russia and the United States, and emergency medical services coordination and consultation.²⁸ The newest iteration of the spacebridge project has incorporated implements in computer technologies and networks to diversify and enhance the exchange of medical information and consultation.²⁹ The new spacebridge to Russia provides for the encoding of medical information and patient tests in digital files that are then transmitted over the Internet and discussed in videoconferencing sessions.³⁰ The spacebridge allows physicians in Moscow to teleconference with faculty from several tertiary care centers in the United States.³¹

With the ping-ponging of signals around the globe commonplace, satellite communication technology is becoming available and financially accessible to the private sector.³² In addition, the explosion of advances in computer technology,

²⁰ See Doarn et al., *supra* note 17, at 21-27.

²¹ See *id.* at 21-22.

²² The project, named as the Space Technology Applied to Rural Papago Advanced Health Care, was a large-scale telemedicine project operated on the Papago Indian Reservation. See *id.* at 22-23. Although the health care providers, both physicians and physician assistants, were beset by equipment difficulties, the project was heralded for improving access to health care for a population that had previously had to travel great distances for health care services. See Michael Fuchs, *Provider Attitudes Toward STARPAHC: A Telemedicine Project on the Papago Reservation*, 17 *MED. CARE* 59, 64-66 (1979).

²³ See Fuchs, *supra* note 22, at 66 (Table 1).

²⁴ See Doarn et al., *supra* note 17, at 22.

²⁵ See V. Garshnek, *Applications of Space Communications Technology to Critical Human Needs: Rescue, Disaster Relief, and Remote Medical Assistance*, 8 *SPACE COMM.* 311, 311-12 (1991).

²⁶ See, e.g., Doarn et al., *supra* note 17, at 23 (discussing the early use of satellite telemedicine to facilitate disaster relief in the wake of earthquakes in Mexico City and Armenia); Garshnek, *supra* note 25, at 314 (same).

²⁷ See, e.g., Dean E. Calcagni et al., *Operation Joint Endeavor in Bosnia: Telemedicine Systems and Case Reports*, 2 *TELEMEDICINE J.* 211, 211-15 (1996) (discussing the early application of telemedicine by the United States military in Bosnia).

²⁸ See Doarn et al., *supra* note 17, at 23-26.

²⁹ See *id.* at 26.

³⁰ See *id.* at 26-27.

³¹ See *id.* at 27.

³² See, e.g., Stacey Swatek Huie, Note, *Facilitating Telemedicine: Reconciling National Access with State Licensing Laws*, 18 *HASTINGS COMM. & ENT. L.J.* 377, 382 (1996) (describing a 1994 demonstration of a privately financed satellite telemedicine system).

including the transformation of the Internet, has exponentially increased telemedicine applications in terms of variety, speed and capacity.³³ Audio, video, images and data beam instantaneously from site to site; furthermore, transmissions can be stored and forwarded without degradation.³⁴ As familiarity with the technology grows, a broader cross-section of both providers and patients is interested and willing to use it to facilitate health care interactions.³⁵ Finally, the technology dovetails nicely with the increasing regionalization and integration of health care systems.³⁶

B. TELEMEDICINE TODAY

Telemedicine is no longer limited to transmission of hazy images and telemetry data from the remote, isolated Alaskan village or orbiting spacecraft. Highly sophisticated communication and computer systems provide high-resolution images,³⁷ "crunch" complex data,³⁸ have analytic, even artificial intelligence, capacity,³⁹ and allow access to real-time, delayed and stored information.⁴⁰

Telemedicine is becoming an integral part of health care delivery in diverse settings.⁴¹ It is breaking down boundaries between different types of health care providers, revolutionizing rural health care delivery, improving and facilitating care

³³ See *id.* at 379-80.

³⁴ See *id.* at 380.

³⁵ See Bashshur, *supra* note 3, at 29; see also TELEMEDICINE: A GUIDE TO ASSESSING TELECOMMUNICATIONS IN HEALTH CARE 55-61 (Marilyn J. Field ed. 1996) (listing the types of telemedicine technology that are available and problems in their application); Sandy Campbell, *Will Telemedicine Become as Common as the Stethoscope?*, HEALTH CARE STRATEGIC MGMT., Apr. 1, 1997, available in 1997 WL 9416615 (indicating that about 25% of providers are now using telemedicine technologies); Diane Bloom et al., *The Acceptability of Telemedicine Among Healthcare Providers and Rural Patients*, TELEMEDICINE TODAY, May-June 1996, at 5, 5-6 (summarizing positive responses of both patients and providers to interactive video telemedicine).

³⁶ See Grobman, *supra* note 5, at 31. Managed care has been referred to as the "turbocharger" for telemedicine because the technology is seen as a way to improve service and cut costs. See *Special Report, Managed Care Could Create a Technology Boom*, HEALTH DATA MGMT., July 19, 1995, available in 1995 WL 14387753.

³⁷ See generally Dave Warner et al., *Telemedicine and Distributed Medical Intelligence*, 2 TELEMEDICINE J. 295 (1996) (describing a telemedicine program that uses telemedical and health information technologies, including virtual reality simulations and hands-free, voice-operated tediagnostic tools, to improve patient care).

³⁸ For example, one such application is a system that "understands" natural language information regarding diagnoses and identifies and encodes the information in digital format for use in data analysis. See Michael L. Gundersen, *Development and Evaluation of a Computerized Admission Diagnoses Encoding System*, 29 COMPUTERS & BIOMEDICAL RES. 351, 352 (1996).

³⁹ See *A Generation of Health Care Applications*, HEALTH DATA MGMT., Apr. 1, 1996, available in 1996 WL 9609552.

⁴⁰ See PHYSICIAN INSURERS ASS'N OF AMERICA, TELEMEDICINE—A MEDICAL LIABILITY WHITE PAPER 1-2 (1998) (describing real-time consultations and store-and-forward technologies).

⁴¹ As telemedicine evolves, its definition is marked by increasing diversity of application. See Deborah R. Dakins & Kathy Kincade, *The Best in the U.S.: Programs of Excellence 1997*, TELEMEDICINE & TELEHEALTH NETWORKS, Dec. 1, 1997, available in 1997 WL 15536265. For example, telepathology, telecardiology and teleradiology have all been added to the telemedicine lexicon. See Grigsby et al., *supra* note 11, at 115. Moreover, these applications are being deployed globally. See *Overseas Consulting, Telefetal Monitoring Service Emerge*, TELEMEDICINE & VIRTUAL REALITY, Apr. 1998, at 48. Indeed, proponents argue that, although telemedicine was initially seen as an enabling technology, it is now being recognized as having applicability to the entire health care delivery system. See *Electronic Commerce and Healthcare: Hearing before the Subcomm. on Health and Environment of the House Comm. on Commerce*, 105th Cong. (1998), available in 1998 WL 296419 (statement of Jay H. Sanders, President and Chief Operating Officer, The Global Telemedicine Group).

for underserved and difficult to manage populations and enhancing discourse between patients and providers. There is also a growing telehealth movement.

A large health care system, Allina Health System, based in Minneapolis, uses physician extenders to triage patients presenting with emergency conditions.⁴² Using telemedicine, these first-line providers consult with specialty physicians, treat patients more quickly and coordinate care more efficiently.⁴³ It uses telemedicine technology to facilitate specialty consultations, medical education, medical information storage and transmittal and administrative efficiency.⁴⁴

The University of North Carolina (UNC) uses telemedicine technology to provide pediatric cardiology consultations to neonates in hospitals in its area, thereby avoiding delays in patient care that occurred when echocardiograms were sent to UNC for review.⁴⁵ Previously, such subspecialty care was often unavailable to patients without easy access to an urban, usually university-based, medical center.⁴⁶ Now, with telemedicine, one subspecialist can serve several hospitals and locales, providing teleconsultations to patients without ever leaving the university medical center.⁴⁷ Recently, UNC broadened the scope of its program by entering into an agreement with the University of Chile to provide neonatal cardiac evaluations by telemedicine for Chilean newborns.⁴⁸

A number of telemedicine programs have been designed to focus on the needs of patients in rural America.⁴⁹ This population is sparsely distributed over large geographic areas, with little or no public transit.⁵⁰ Moreover, large populations of elderly, who are more likely to have health problems and transportation difficulties, live in rural areas.⁵¹ The need for telemedicine in the rural setting is compounded by the scarcity of rural health care facilities and providers.⁵² Telemedicine is a way providers can serve this traditionally underserved population.⁵³ Implementation of telemedicine technologies in rural settings is just beginning,⁵⁴ but recent incentives,

⁴² See Dakins & Kincade, *supra* note 41. Allina Health System has replaced local emergency physicians with specially trained physician assistants in its rural hospital emergency departments. See *id.*

⁴³ See *id.* Allina operated 27 linked urban and rural telemedicine sites in 1997, and expects the number of these networks to grow in the future. See *id.*

⁴⁴ See *id.* (discussing Allina's investment and deployment of telemedicine throughout its health plan and constituents); see also Laura Meckler, *Pushing Ahead with Telemedicine: Minnesota Company Sees Profit*, ASSOCIATED PRESS, Apr. 25, 1996, available in 1996 WL 4422369.

⁴⁵ See Dakins & Kincade, *supra* note 41.

⁴⁶ See Michael S. Sparer, *Laboratories and the Health Care Marketplace: The Limits of State Workforce Policy*, 22 J. HEALTH POL. POL'Y & LAW 789, 802-06 (1997) (discussing the geographic maldistribution of specialty care).

⁴⁷ See Dakins & Kincade, note 41.

⁴⁸ See *id.*

⁴⁹ See Carole L. Mintzer et al., *Program Activity in the Second Year of the Rural Telemedicine Grant Program, Part 1*, TELEMEDICINE TODAY, Oct. 1997, at 35, 35 (summarizing the activities of 13 rural telemedicine networks funded by federal grants).

⁵⁰ See Howard Vincent, *Rural Health Care: The Drive to Survive the 21st Century*, TELECONFERENCE, Jan.-Feb. 1996, at 9-10.

⁵¹ See Sheldon Weisgrau, *Issues in Rural Health: Access, Hospitals, and Reform*, HEALTH CARE FIN. REV., Fall 1995, at 1, 1-2 (1995).

⁵² See Daniel McCarthy, *The Virtual Health Economy: Telemedicine and the Supply of Primary Care Physicians in Rural America*, 21 AM. J. LAW & MED. 111, 111 (1995).

⁵³ See *id.* at 112.

⁵⁴ For example, one recent study showed that two-thirds of rural facilities surveyed were using only teleradiology. See Andrea Hassol et al., *Rural Applications of Telemedicine*, 3 TELEMEDICINE J. 215, 215 (1997). Of the programs pursuing other clinical applications, 67% had been using telemedicine for two years or less. See *id.* at 216. The most common applications were radiology,

notably the availability of reimbursement under Medicare, are expected to spur the use of telemedicine in rural areas.⁵⁵ Additionally, investment in rural telemedicine is boosted by managed care IDs that seek to increase their service areas and market share.⁵⁶

Prison inmates are another underserved population receiving the benefits of telemedicine programs. Numerous prisons have adopted telemedicine to deliver care to this difficult to manage population.⁵⁷ Using interactive video and consultation, doctors deliver care more rapidly.⁵⁸ Moreover, prisoners appear satisfied with the care received, and early studies indicate that the programs are cost efficient.⁵⁹

Home health agencies and providers also use interactive video links to enhance care for home-bound patients.⁶⁰ This growing segment of the health care industry, and contributor to increasing costs, previously depended on nurses and other providers to visit physically and care for the patients in their homes.⁶¹ However, with the advent of telecommunications, medical technology and computer devices, many providers now offer services without a visit.⁶² Using telemedicine technology, video visits and monitoring of vital signs can be accomplished electronically, medication compliance can be verified and patient education can be enhanced.⁶³ Telemedicine is also cost effective because it eliminates providers' costly travel time.⁶⁴ In addition, patients are empowered through their interaction with the physician rather than merely receiving treatment.⁶⁵

The advent and global availability of the Internet produced an explosion of the telehealth movement. The Internet is replete with medical information at every level of sophistication.⁶⁶ Digital models and virtual humans allow students to study and research anatomy, physiology and pathology.⁶⁷ Patients and providers can access

cardiology and orthopedics. *See id.* at 219 (Table 3).

⁵⁵ *See* Balanced Budget Act of 1997, Pub. L. No. 105-33, § 4206(a), 111 Stat. 337, 337-76.

⁵⁶ *See* Dakins & Kincade, *supra* note 41 (discussing Allina's efforts in rural telemedicine emergency services and consultations); *see also* Grobman, *supra* note 5, at 31 (discussing managed care's use of telemedicine to expand into rural areas).

⁵⁷ *See* Terry Wheeler, *Stars and Bars: Corrections-Based Telemedicine Programs Top Most-Active List*, TELEMEDICINE TODAY, June 1998, at 38, 38-39 (profiling several prison telemedicine programs).

⁵⁸ *See* Robert M. Brecht et al., *The University of Texas Medical Branch—Texas Department of Criminal Justice Telemedicine Project: Findings from the First Year of Operation*, 2 TELEMEDICINE J. 25, 25-26 (1996) (discussing Texas's extensive prison telemedicine program).

⁵⁹ In the Texas prison telemedicine project, for example, 1,715 consults occurred over a one-year period. *See id.* at 29 (Table 1). Ninety-five percent of the telemedicine consults saved one or more trips to University of Texas Medical Branch for outpatient specialty appointments. *See id.* at 31. User surveys indicated a high degree of satisfaction on the part of patients, presenters and specialty consultants. *See id.* at 32.

⁶⁰ *See* Ilene Warner, *Telemedicine in Home Health Care: The Current Status of Practice*, HOME HEALTH CARE MGMT. & PRAC., Feb. 1998, at 62, 62-63.

⁶¹ *See id.* at 65; Bill Siwicki, *Home Care Market Offers Telemedicine Opportunities*, HEALTH DATA MGMT., May 1, 1996, available in 1996 WL 9609664.

⁶² *See* Ilene Warner, *Telemedicine Applications of Home Health Care*, 3 J. TELEMEDICINE & TELE CARE 65, 65-66 (Supp. 1 1997).

⁶³ *See Technology Update: Telemonitoring Systems for Home Healthcare Believer Ranks Growing as Equipment Comes to Market*, HOME HEALTH BUS. REP., Jan. 1995, at 10, 10-12.

⁶⁴ *See* Siwicki, *supra* note 61.

⁶⁵ *See id.*

⁶⁶ *See* Nancy Ann Jeffrey, *A Little Knowledge . . . Doctors are Suddenly Swamped with Patients Who Think They Know a Lot More Than They Actually Do*, WALL ST. J., Oct. 19, 1998, at R8.

⁶⁷ *See* National Library of Medicine, *The Visible Human Project* (visited Mar. 30, 1999) <http://www.nlm.nih.gov/research/visible/visible_human.html>.

scientific peer journal articles,⁶⁸ government documents relating to health care issues⁶⁹ and extensive disease-related information provided by advocacy groups.⁷⁰ A vibrant network of chat groups for patients, their family and friends exists as well.⁷¹ These groups empower patients to learn about and manage their afflictions, facilitate the exchange of information among patients similarly afflicted and even enable them to discuss cases with physicians and obtain referrals online.⁷²

C. REDEFINING TELEMEDICINE TO ENSURE ITS FUTURE

As telemedicine applications broaden and diversify, the "simple, but serviceable"⁷³ definition of the past requires some retooling.⁷⁴ This redefinition process clarifies both the characteristics and the functional attributes of modern telemedicine. The baseline characteristics of telemedicine include: the geographic separation between the provider and patient during the clinical encounter or between two providers collaborating on the patient's behalf; the use of telecommunication or computer technology to enable, facilitate or enhance the interactions between the parties; the development of protocols and normative standards to replace those of the traditional face-to-face contact; and sufficient staffing and infrastructure to support the telemedicine technology.⁷⁵ One leading proponent of telemedicine has identified three functional areas in this growing field: (1) decision-making aids, (2) remote sensing and (3) collaborative arrangements for the management of patients at a distance.⁷⁶

Decision-making aids encompass many of the information resources available electronically⁷⁷ as well as computer systems and programs that apply the information to a specific patient's symptom complex and history.⁷⁸ This artificial intelligence type of searching and analysis is further linked to expert physicians around the world who can then consult about the patient after receiving images of the patient's

⁶⁸ See generally William R. Hersh & David H. Hickman, *How Well Do Physicians Use Electronic Information Retrieval Systems?: A Framework for Investigation and Systematic Review*, 280 JAMA 1347 (1998) (examining the various electronic databases and their use, concluding that they are, as yet, poorly utilized); David L. Sackett & Sharon E. Strauss, *Finding and Applying Evidence During Clinical Rounds: The "Evidence Cart"*, 280 JAMA 1336 (1998) (discussing the utility of providing doctors with a portable cart loaded with computers, CD-ROMs and electronic databases, all of which enable doctors to have easy access to relevant medical information to be used in clinical decision making).

⁶⁹ For example, documents published by the Department of Health and Human Services (HHS) can be accessed through <<http://www.hhs.gov>>.

⁷⁰ See Jeffrey, *supra* note 66, at R8 (reporting on the proliferation of information many patients find on the Internet, and how some of these patients trust medical information obtained from a web site or chat room more than they trust their own physicians' advice for treatment).

⁷¹ See *id.*; William M. Bulkeley, *E-mail Medicine: Untested Treatments, Cures Find Stronghold in On-line Services*, WALL ST. J., Feb. 27, 1995, at A1.

⁷² See Stephen M. Borowitz & Jeremy C. Wyatt, *The Origin, Content, and Workload of E-mail Consultations*, 280 JAMA 1321, 1321 (1998) (documenting e-mail consultation requests from all over the world to a pediatric gastroenterology group at a children's medical center); Bulkeley, *supra* note 71, at A1.

⁷³ See Statement of Dr. Lindberg, *supra* note 9.

⁷⁴ See Rashid L. Bashshur, *On the Definition and Evaluation of Telemedicine*, 1 TELEMEDICINE J. 19, 20-21 (1995) (discussing the need for a redefinition of telemedicine).

⁷⁵ See *id.* at 21.

⁷⁶ See Statement of Dr. Lindberg, *supra* note 9.

⁷⁷ See *id.*; see also Dereck L. Hunt et al., *Effects of Computer-Based Clinical Decision Support Systems on Physician Performance and Patient Outcomes*, 280 JAMA 1339, 1340 (1998) (describing available electronic databases).

⁷⁸ See Statement of Dr. Lindberg, *supra* note 9.

physically visible abnormalities, test results and diagnostic studies by high-speed Internet connections.⁷⁹

Remote sensing builds on the early telemedicine transmission of electrocardiogram and pacemaker signals over the telephone lines.⁸⁰ However, the sophistication of the diagnostic-testing modalities is compounded by the sophistication of the communications and computer capabilities.⁸¹ Complex images are transmitted in computerized digital format,⁸² compared with a library of similar images and then subjected to expert review if necessary and desired.⁸³

The advances made in remote-sensing capabilities promote collaborative patient management, the third functional attribute of telemedicine.⁸⁴ Interactive video workstations allow doctors to collaborate and diagnose from a distance.⁸⁵ One study allowed physicians to view patients with Parkinson's disease, a degenerative neurologic disease that impairs mobility, thereby allowing physicians to provide proper assessment and care to patients outside of a metropolitan area without requiring them to travel to the physicians' offices.⁸⁶ Collaboration among physicians is enhanced by efforts to link diverse sources of information and expertise in an integrated fashion to provide greater collaborative possibilities.⁸⁷

Armed with a broader and more encompassing definition, promoters of telemedicine have redesigned its window of opportunity, and telemedicine is now poised to become an integral part of the health care industry rather than merely an interesting but limited curiosity.⁸⁸ The opportunity for telemedicine's expansion comes at a perilous time. The health care industry is besieged by relentless, often well reasoned complaints that it is too costly, provides inadequate access and fails to deliver a consistent and satisfying quality of care.⁸⁹ For telemedicine to flourish and achieve a place in a competitive market, its promoters will have to demonstrate that it can improve access, cost and quality.⁹⁰

Perhaps the greatest strength of telemedicine lies in its ability to conquer distance in both geographical and temporal terms. Capitalizing on this strength, Congress has supplied incentives to enhance telemedicine access for two largely underserved populations: rural communities and the elderly.⁹¹ There is a risk that

⁷⁹ See *id.*

⁸⁰ See *id.*

⁸¹ See *id.*

⁸² Indeed, one Veterans' Administration hospital has converted entirely to digital radiology—its radiology center is "filmless." See *id.*

⁸³ See *id.*

⁸⁴ See *id.*

⁸⁵ See *id.*

⁸⁶ See Jean P. Hubble et al., *Interactive Video Conferencing: A Means of Providing Interim Care to Parkinson's Disease Patients*, 8 MOVEMENT DISORDERS 380, 381-82 (1993).

⁸⁷ For example, the National Library of Medicine funds the Integrated Advance Information Management Systems Program, which seeks to link key clinical, educational and research databases and systems, and make them accessible to users. See Statement of Dr. Lindberg, *supra* note 9.

⁸⁸ See Rashid L. Bashshur, *Telemedicine Effects: Cost, Quality and Access*, 19 J. MED. SYS. 81, 82 (1995). Rashid Bashshur, who has written extensively on telemedicine, argues that the first generation of telemedicine projects generated interest, but little impact, because the projects were too limited in design and lacked sufficient time for users to gain familiarity with the technology and to build institutional commitment. See *id.* at 83. As a result, the projects of the 1970s generally expired and were not continued or evolved into ongoing enterprises. See *id.*

⁸⁹ See *id.* at 89.

⁹⁰ See *id.* at 82.

⁹¹ Section 4206 of the Balanced Budget Act of 1997 (BBA) directs the Secretary HHS to provide Medicare reimbursement for the use of telemedicine in rural areas with a shortage of health

by removing geographic barriers, telemedicine will succeed in unleashing an unrealized demand for health care services from those previously unable to obtain access.⁹² Although this would satisfy the policy aim of improved access, it may also result in an increased volume of health care services and a net increase in cost.⁹³ Such cost increases could slow the continued growth and stature of telemedicine.

In addition to cost concerns, telemedicine raises quality-of-care questions.⁹⁴ There is a potential that patients will be inadvertently harmed by providers and telemedicine systems.⁹⁵ Such harm may result from negligence by telemedicine providers who, like in-person interaction, may fail to deliver care that meets recognized and accepted standards.⁹⁶ Many more providers will be involved in the patient's care.⁹⁷ This trend could potentially lead to confusion as to who is accountable for individual medical decisions as well as the overall care of the patient. Alternatively, the harm could result from malfunctions or a poorly designed technology or communication network.⁹⁸ Any of these scenarios would result in potential liability under the well-established tenets of medical malpractice law.

III. APPLICATION OF TRADITIONAL MEDICAL MALPRACTICE PRINCIPLES TO TELEMEDICINE

The traditional medical negligence doctrine requires that the plaintiff-patient prove that the defendant-provider had a duty toward and implicit contract with the plaintiff as a result of an established physician-patient relationship.⁹⁹ The plaintiff must then prove, generally by a preponderance of evidence, that the defendant breached this duty by failing to conform to the accepted standard of care and that, as a direct result of the breach, the plaintiff sustained harm with ascertainable damages.¹⁰⁰ Telemedicine challenges this doctrine by reconfiguring the physician-patient relationship and the duty that flows from that relationship. In addition, telemedicine may qualitatively change the standard of care.

professionals by no later than January 1, 1999. See Pub. L. No. 105-33, § 4206(a), 111 Stat. 377, 377-78 (1997). This was a significant concession by the federal government, which had long spurned reimbursement for provider patient interactions that did not involve face-to-face contact. The new measure is not without limitations. Payments are to be shared among the practitioners, with the total cost not to exceed the reimbursement for a traditional consultant visit. See *id.* § 4206(b)(1). In addition, there is no reimbursement for line or facility charges. See *id.* § 4206(b)(2). The Telecommunications Act of 1996, and the subsequent Federal Communications Commission Universal Services Order of May 8, 1997, also provided funds for telecommunication discounts to be used by rural health care facilities. See 47 U.S.C. § 254(h)(1)(a) (1997); Universal Service Order, 62 Fed. Reg. 32,862, 32,898 (1997). Moreover, BBA section 4207 creates a new four-year telemedicine pilot program for management of diabetes mellitus—a common disease of the elderly. See § 4207, 111 Stat. at 379.

⁹² See Bashshur, *supra* note 88, at 87.

⁹³ See *id.* at 87-88.

⁹⁴ Despite many well reasoned efforts, the definition of quality of care and its measurement have bedeviled health policy scholars and analysts for many years. See Avedis Donabedian, *The Quality of Care; How Can It Be Assessed?*, 260 JAMA 1743, 1748 (1988). At present, quality appears to be measured by either outcomes analyses or patient satisfaction measurements. See Paul M. Ellwood, *Shattuck Lecture—Outcomes Management: A Technology of Patient Experience*, 318 NEW ENG. J. MED. 1549, 1551-52 (1997).

⁹⁵ See Bashshur, *supra* note 88, at 90.

⁹⁶ See *id.*

⁹⁷ See *id.* at 85-86.

⁹⁸ See *id.* at 84-85 (citing technological failures in the first generation of telemedicine systems).

⁹⁹ See BARRY R. FURROW ET AL., HEALTH LAW § 6-1, at 234-36 (1995).

¹⁰⁰ See *id.* § 6-2, at 237-39.

A. TELEMEDICINE: RECONFIGURING THE PHYSICIAN-PATIENT RELATIONSHIP

In the traditional medical negligence case, the plaintiff must establish the existence of a physician-patient relationship.¹⁰¹ Typically, the alleged negligence occurred within the temporal boundaries of an episode of care delivered by an identified physician.¹⁰² Furthermore, any additional consultations with specialists occurred in a sequential pattern, each occupying a distinct quantum of patient and provider time.¹⁰³ However, in the case of a telemedicine interaction, the temporal boundaries are more fluid.¹⁰⁴ Moreover, the intervention may involve multiple physicians and consultants simultaneously,¹⁰⁵ or involve stored and forwarded images and data that the primary or secondary providers review at a later, undefined time.¹⁰⁶ Thus, telemedicine presents the opportunity for the courts to recast the physician/provider-patient relationship and the duties that flow from it more flexibly.

It is likely that two lines of case law that involve nuances in the physician/provider-patient relationship will guide the courts accommodating the challenges raised by telemedicine. The first line of cases involves telephone calls between the physician and the patient that allegedly resulted in negligent diagnosis or treatment advice to the patient. The second line of cases involves a consultant or secondary health care provider whose advice resulted in or contributed to the allegedly negligent care.

1. Use of Telecommunications to Initiate the Physician-Patient Relationship

The telephone enables patients to access physicians directly and provides an instrument by which an implicit contract can be initiated.¹⁰⁷ However, to form a contract, the physician must agree to undertake the care of the patient.¹⁰⁸ Absent this agreement, the physician has assumed no duty toward the patient.¹⁰⁹ Thus, the content of the interaction during the initiation of the contract must show that the physician has undertaken the responsibility to care for the patient for this episode of illness and that the patient has relied on that representation.¹¹⁰

In the context of telephone communications, a patient's call to a physician to request or schedule an appointment does not necessarily result in the formation of a contract and the creation of a physician-patient relationship.¹¹¹ The physician may

¹⁰¹ See *id.* § 6-1, at 234.

¹⁰² See *Weaver v. University of Mich. Bd. of Regents*, 506 N.W.2d 264, 265-66 (Mich. Ct. App. 1993) (outlining the plaintiff's care by a number of physicians over time).

¹⁰³ See *id.*

¹⁰⁴ See *Ostbye & Hurlen*, *supra* note 4.

¹⁰⁵ See *Doarn et al.*, *supra* note 17, at 24-25.

¹⁰⁶ See *Ostbye & Hurlen*, *supra* note 4.

¹⁰⁷ See *Weaver*, 506 N.W.2d at 267-68.

¹⁰⁸ See *Ricks v. Budge*, 64 P.2d 208, 211 (Utah 1937).

¹⁰⁹ The no-duty concept harkens back to the classic case of *Hurley v. Eddingfield*, 59 N.E. 1058 (Ind. 1901) (holding that a physician had no duty to come to the aid of a seriously ill patient even though the physician was the patient's family doctor). For a modern day application, see *Salas v. Gamboa*, 760 S.W.2d 838 (Tex. 1988). In this case, the father of a newborn delivered at home sought care for the distressed infant at a nearby pediatrician's office. See *id.* at 839. Unaware of the infant's distress, the pediatrician declined to see the patient and directed the father and infant to a nearby hospital. See *id.* The court held that no implicit contract arose between the parties and that the physician had no duty to undertake the care of the patient. See *id.* at 838.

¹¹⁰ Once a physician has agreed to provide care, he is compelled to continue care to its natural conclusion. See *Ricks*, 64 P.2d at 211.

¹¹¹ See *Weaver*, 506 N.W.2d at 266 (holding that "a telephone call merely to schedule an appointment with a provider of medical services does not by itself establish a physician-patient

decline to accept the patient¹¹² or, alternatively, the patient may fail to fulfill his role in forming the alleged contract.¹¹³

However, if in the course of making the appointment over the telephone, the physician indicates to the patient that the physician has indeed agreed to provide care for the instant episode of illness and the patient reasonably assumes that care is forthcoming and relies on that assumption by ceasing further efforts to obtain care for the condition, then a relationship giving rise to a duty will have been formed. In *Lyons v. Grether*,¹¹⁴ for example, a patient requested an appointment with a specialist physician for care of a specific complaint related to the physician's particular practice area.¹¹⁵ Relying on the assurance that the physician would see her, the patient arrived at his office with her child and guide dog at the appointed time.¹¹⁶ The physician refused to see her unless she left her guide dog outside.¹¹⁷ Concerned for the safety and security of the dog, she insisted the dog remain with her.¹¹⁸ Thereon, the physician reneged on his agreement to see her and evicted her from the office.¹¹⁹ In overruling the trial court's grant of demurrer in favor of the defendant, the Virginia Supreme Court held that, because the plaintiff's appointment was made concerning a specific ailment within the physician's specialty, the scheduling of the appointment possibly amounted to a consensual transaction that resulted in the formation of a physician-patient relationship and gave rise to a duty on the part of the physician to provide the necessary medical services.¹²⁰

Similarly, in *Bienz v. Central Suffolk Hospital*,¹²¹ the court held that a telephone conversation, in which a physician provided advice on which the patient relied, could constitute a physician-patient relationship and give rise to a duty on the part of the health care provider.¹²² Other courts, however, have indicated that if a patient fails to rely on medical advice provided over the telephone, the mere fact that a physician conversed with the patient on the telephone and listened to a recital of

relationship where the caller has no ongoing physician-patient relationship with the provider and does not seek or obtain medical advice during the conversation").

¹¹² See, e.g., *Childers v. Frye*, 158 S.E. 744, 746 (N.C. 1931) (holding that a physician who declined to assume the care of a motor vehicle accident victim because the victim appeared intoxicated was not bound to render medical services); *Childs v. Weis*, 440 S.W.2d 104, 107 (Tex. Civ. App. 1969) (finding that no relationship existed where a doctor, contacted via telephone about an emergency room patient, told the emergency room staff to have the patient contact her own doctor in another city).

¹¹³ For example, in *Miller v. Sullivan*, a dentist experiencing back pain, shortness of breath and other symptoms called a physician friend and related his complaints over the phone. See 625 N.Y.S.2d 102, 103 (App. Div. 1995). The physician urged the dentist to come to the physician's office immediately for evaluation. See *id.* at 104. The dentist disregarded this advice; instead, he finished seeing his scheduled patients and then proceeded to the physician's office, where he suffered a cardiac arrest moments after arrival. See *id.* Finding in favor of the defendant-physician, the court held that the physician-patient relationship had not been formed because the plaintiff had disregarded the preliminary advice offered over the telephone. See *id.*

¹¹⁴ 239 S.E.2d 103 (Va. 1977). The *Lyons* court held that "[w]hether a physician-patient relationship is created is a question of fact, turning upon a determination [of] whether the patient entrusted his treatment to the physician and [whether] the physician accepted the case." *Id.* at 105.

¹¹⁵ See *id.*

¹¹⁶ See *id.* at 104.

¹¹⁷ See *id.*

¹¹⁸ See *id.*

¹¹⁹ See *id.*

¹²⁰ See *id.* at 105.

¹²¹ 557 N.Y.S.2d 139 (1990).

¹²² See *id.* (holding that whether a physician-patient relationship existed in such a context is a question for the jury to decide).

symptoms is not sufficient to establish a physician-patient relationship.¹²³

In summary, a number of factors must be present to form a physician-patient relationship based on telephone contact. The physician must agree, directly or indirectly, to see or counsel the patient.¹²⁴ The content of the interaction must include some evaluation, even if only rudimentary, by the physician as to the patient's complaint.¹²⁵ Finally, the patient must rely on the physician's determination, however preliminary that evaluation might have been.¹²⁶

Applying these principles to modern telemedicine, it seems likely that when a physician enters into a dialogue with a patient using telecommunication technologies, complies with a patient's request for evaluation and proffers medical advice that the patient then relies on, a provider-patient relationship, replete with duties and responsibilities, is formed. Such principles would apply to an e-mail consultation in which a physician responded with advice on which the patient relied. A recent study published in the *Journal of the American Medical Association* reported that when a fictitious "patient" solicited e-mail advice from 58 physicians about a skin complaint, 50% responded and 59% of these explicitly suggested a diagnosis to the patient.¹²⁷ Had the patient relied on any one of the diagnoses, the formation of a relationship would be complete.¹²⁸ Moreover, if the online diagnosis was in error or falsely reassuring and as a result the patient sustained harm, the patient would likely have a viable negligence action against the e-mail physician.¹²⁹

Telemedicine transactions are, by design, not limited to the traditional primary care attending physician-single patient model of care. Instead, many providers may engage in communication with the patient that is variable at best, and indiscernible at worst. The virtual world has an unlimited supply of consultants.

2. Consultant Liability: Which Virtual Consultants Have a Duty to the Patient?

Although telemedicine has not yet generated any reported case law, existing case law provides substantial clues as to the potential liability of telemedicine

¹²³ For example, in *Clanton v. Von Haam*, a patient with severe back pain called a physician she had previously seen for other ailments. 340 S.E.2d 627, 628 (Ga. Ct. App. 1986). The physician listened to her complaints but refused to see her that evening, instead agreeing to see her in the morning if her pain persisted. *See id.* The court held that, although a patient might have relied on this advice, the plaintiff in this case had not relied on the physician's telephone conversation, had indeed interpreted the conversation as a refusal to see her and was not dissuaded from continuing to seek care from another provider. *See id.* at 630-31; *see also* *Miller v. Sullivan*, 625 N.Y.S.2d 102, 104 (App. Div. 1995) (holding that to find a physician-patient relationship existed where a physician gave medical advice over the telephone, the plaintiff must show "that it was foreseeable that the prospective patient would rely on the advice and that the prospective patient did in fact rely on the advice").

¹²⁴ *See, e.g.,* *Bovara v. St. Francis Hosp.*, 700 N.E.2d 143, 145 (Ill. App. Ct. 1998).

¹²⁵ *See, e.g.,* *Bienz*, 557 N.Y.S.2d at 139-40 (holding that whether a physician-patient relationship was created by a telephone call made for the purpose of initiating treatment was a question of fact for the jury to decide); *Weaver v. University of Mich. Bd. of Regents*, 506 N.W.2d 264, 266 (Mich. Ct. App. 1993) (holding that a single telephone call, without any effort to obtain medical advice during the conversation, was insufficient to create a physician-patient relationship).

¹²⁶ *See, e.g.,* *Clanton*, 340 S.E.2d at 629-30 (requiring a showing of reliance on the medical advice of the physicians by the patients to their detriment in order to sustain claims of medical malpractice).

¹²⁷ *See* Gunther Eysenbach & Thomas L. Diepgen, *Responses to Unsolicited Patient E-mail Requests for Medical Advice on the World Wide Web*, 280 JAMA 1333, 1334 (1998).

¹²⁸ *See* *Clanton*, 340 S.E.2d at 629-30.

¹²⁹ *See* Alissa R. Spielberg, *On Call and Online: Sociohistorical, Legal and Ethical Implications of E-mail for the Patient-Physician Relationship*, 280 JAMA 1353, 1357 (1998) (explaining that e-mail from a physician to a patient constitutes part of that patient's medical record and should be retained for medical as well as legal reasons).

consultants. Any single telemedicine encounter may involve several consultants who may communicate among themselves, with the primary physician or with the patient.¹³⁰ Some of these communications will be in real-time, some will be delayed, stored and forwarded for a later collaborative consultation, but most will be a combination of the two.¹³¹ The question then is, What will determine which consultations relate sufficiently to the patient and confer a duty on the consulted provider? Once again, parallels to existing case law may help predict the likelihood of future telemedicine liability.

Specialty consultation falls into two general categories: (1) formal consultation when the primary attending physician refers the patient or their records to the consultant for review and advice as to management of the instant illness resulting in a relationship between the consultant and the patient; and (2) informal consultation when the primary attending physician discusses the patient and his history and condition with other physicians or consultants with no resulting relationship between the patient and the consultant. In the former case, the primary attending physician generally seeks specialty guidance to diagnose or manage the patient's care and usually will follow the consultant's advice.¹³² In the extreme, the consulting physician will supervise the attending physician and the attending physician will be virtually compelled to follow the suggestions of the supervising consultant.¹³³ More generally, in formal consultations, the consultant establishes a relationship with the patient and has a duty to that patient, even if the consultant and patient have never met in a face-to-face interaction.¹³⁴ In this category of "formal" consultations, the patient is aware of, and consents to, the consultation and usually is billed for the service.¹³⁵ For example, in *Walters v. Rinker*,¹³⁶ a patient brought a malpractice action against a pathologist who had examined a mass removed from the patient's leg.¹³⁷ The pathologist diagnosed the mass as benign, but the patient later found out that the mass was cancerous.¹³⁸ The pathologist argued that because he did not examine, see, treat or prescribe medication for the patient, the requisite physician-patient relationship had not been formed.¹³⁹ The court, however, held that a consensual physician-patient relationship existed between the pathologist and the

¹³⁰ See *supra* Part II.B (describing the telemedicine technology).

¹³¹ See *supra* notes 37-40 and accompanying text.

¹³² See, e.g., *Bovara v. St. Francis Hosp.*, 700 N.E.2d 143, 147 (Ill. App. Ct. 1998). In *Bovara*, a cardiologist based his decision to prescribe an angioplasty procedure entirely on the recommendation of the cardiac interventionists who interpreted the patient's angiogram. See *id.*

¹³³ For example, in *Baker v. Story*, a resident performing a surgical procedure asked the supervising neurosurgeon whether he (the resident) was about to cut the correct anatomical structure. See 621 S.W.2d 639, 640 (Tex. App. 1981). The neurosurgeon assured the resident that he was correct and the resident followed the direction. See *id.* Unfortunately, the neurosurgeon's judgment was incorrect and the patient sustained injuries. See *id.* Ultimately, the appellate court recognized that the neurosurgeon could be held liable because he was the supervising physician and remanded the case to the lower court for trial. See *id.* at 645-46. Note, however, that physicians who merely proctor other physicians for peer review and credentialing processes are not considered supervisors. See *Clarke v. Hock*, 219 Cal. Rptr. 845, 851 (Ct. App. 1985) (holding that by proctoring, a physician did not establish a relationship with the proctoree's patient).

¹³⁴ See *Bovara*, 700 N.E.2d at 149 (reversing a trial court's holding that cardiac interventionists owed no duty to an angioplasty patient whom they had not met, but whose medical record they had discussed).

¹³⁵ See *id.*

¹³⁶ 520 N.E. 2d 468 (Ind. Ct. App. 1988).

¹³⁷ See *id.* at 470.

¹³⁸ See *id.*

¹³⁹ See *id.* at 471.

patient because the issue was not who contracted for the service, but whether the service was performed with the express or implied consent of the patient and rendered on behalf of the patient.¹⁴⁰ Courts regularly apply similar analyses in malpractice actions brought against radiologists who frequently also have not met the patients for whom they provide consultation.¹⁴¹

Specialist consultation may result in a physician-patient relationship with tangential or no contact. In one recent case, *Bovara v. St. Francis Hospital*,¹⁴² a patient with previously diagnosed heart disease consulted a cardiologist to evaluate his heart condition and the potential for corrective coronary angioplasty.¹⁴³ The patient already had a coronary angiogram taken elsewhere following a heart attack and presented the film to the cardiologist.¹⁴⁴ The cardiologist readily disclosed to the patient that he was unskilled in interpreting angiograms and recommended that a cardiac interventionist specialist interpret the film.¹⁴⁵ The cardiologist then referred the patient's angiogram to two cardiac interventionists for review.¹⁴⁶ The primary cardiologist received a verbal message from the consultants' office confirming that a review of the film suggested that the patient was a candidate for angioplasty.¹⁴⁷ The doctor transmitted this information to the patient who chose to undergo the angioplasty, but unfortunately died during the procedure.¹⁴⁸

The consulting cardiac interventionists who evaluated the angiogram argued that their opinion was essentially casual, because they never met the patient nor reviewed the patient's history and medical records.¹⁴⁹ Furthermore, they never billed the patient for his evaluation.¹⁵⁰ Nevertheless, the court held that genuine issue of material fact existed as to whether the consultants provided medical service to the patient, thus making summary judgment inappropriate.¹⁵¹ The court found that the consultants' opinion had been documented by the primary cardiologist in the patient's chart, that the opinion materially affected the primary physician's advice to the patient and, moreover, that the surgeons who performed the angioplasty had relied on the cardiac consultants' determination in agreeing to perform the fateful procedure.¹⁵²

The *Bovara* court distinguished the consultation in that case from that in *Reynolds v. Decatur Memorial Hospital*.¹⁵³ In *Reynolds*, a pediatrician in the midst

¹⁴⁰ See *id.* at 472; see also *Dougherty v. Gifford*, 826 S.W.2d 668, 675 (Tex. App. 1992) (holding that a consensual physician-patient relationship exists when services are contracted with the express or implied consent of the patient or for the patient's benefit).

¹⁴¹ See, e.g., *Phillips v. Good Samaritan Hosp.*, 416 N.E.2d 646, 649 (Ohio Ct. App. 1979).

¹⁴² 700 N.E.2d 143 (Ill. App. Ct. 1998).

¹⁴³ See *id.* at 144.

¹⁴⁴ See *id.* at 145.

¹⁴⁵ See *id.*

¹⁴⁶ See *id.* The primary cardiologist testified that he did not know how to read the angiogram and relied on the opinion of the cardiac interventionist consultants in counseling the patient as to treatment options. See *id.*

¹⁴⁷ See *id.*

¹⁴⁸ See *id.* at 146.

¹⁴⁹ See *id.* at 145.

¹⁵⁰ See *id.* at 146.

¹⁵¹ See *id.* at 149.

¹⁵² See *id.* at 147-48.

¹⁵³ 660 N.E.2d 235 (Ill. App. Ct. 1996). For a discussion of how the facts of *Bovara* and *Reynolds* differ, see 700 N.E.2d at 147 (finding that unlike the physician consultant in *Reynolds*, who merely suggested a test and did not assume responsibility for portion of the patient's diagnosis or treatment, the cardiac interventionists in *Bovara* reviewed and interpreted the test results).

of examining a child telephoned a more senior physician at home and asked for his advice.¹⁵⁴ The senior physician suggested that the examining physician perform a certain test.¹⁵⁵ The examining physician completed her evaluation of the child, including the test suggested by the second physician.¹⁵⁶ Nevertheless, the examining pediatrician misdiagnosed the child.¹⁵⁷ In this case, because the second physician only gave an informal opinion, had not been asked to see the patient, did not review tests, directly order laboratory or other studies and did not bill the patient,¹⁵⁸ the court held that the consultation amounted to "nothing more than [an] answer [to] inquiry from a colleague."¹⁵⁹

The *Reynolds* case exemplifies the second category of cases hinging on the relationship between consultants and patients. This category of specialty consulting generally encompasses a vast number and variety of interactions between physicians discussing management of patient complaints and illnesses in which the consultation is more informal. Such curbside consultations generally involve a presentation of the patient's history, recitation of the diagnostic test results obtained to date and discussion of potential avenues of treatment for this patient and others with similar symptom complexes.¹⁶⁰ In these cases, the patient's identity may be unknown to the specialist, the patient does not know about the consultation and the specialist colleague does not bill for his advice.¹⁶¹ Such informal consultations fail to result in the establishment of a relationship between the consultant and the patient.¹⁶²

The division between these two types of consultations is not always easy to discern. For example, in *McKinney v. Schlatter*,¹⁶³ a patient arrived at the emergency room with complaints of chest and abdominal pain.¹⁶⁴ The emergency room physician evaluated the patient and consulted the hospital's cardiologist by telephone.¹⁶⁵ The emergency physician apprised the cardiologist of the patient's history, cardiogram and other test results, and the cardiologist recommended additional tests.¹⁶⁶ Based on the results of these tests, the cardiologist determined that the patient's complaints were gastrointestinal and not cardiovascular in etiology.¹⁶⁷ The emergency physician then discharged the patient, who died a few

¹⁵⁴ See *Reynolds*, 660 N.E.2d at 237. The senior physician was not serving in a supervisory capacity with respect to the pediatrician. See *id.* at 237-38.

¹⁵⁵ See *id.* at 237.

¹⁵⁶ See *id.*

¹⁵⁷ See *id.*

¹⁵⁸ See *id.*

¹⁵⁹ See *id.* at 239.

¹⁶⁰ See *id.* at 237.

¹⁶¹ For example, in *Hill by Burston v. Kokosky*, a physician who was telephoned by a colleague and provided an informal opinion on a patient at the request of the colleague was found to have no relationship with the patient. See 463 N.W.2d 265, 268 (Mich. Ct. App. 1990). The court reasoned that the consulted physician did not even know the name of the patient and was not asked to consult on her care. See *id.* at 267. The consultant's only role was in discussing the patient's case with the colleague who called him. See *id.* The attending physician was free to use or discard the information because the consultant was not serving in any supervisory or consulting capacity. See *id.*

¹⁶² See, e.g., *Oliver v. Brock*, 342 So. 2d 1, 4 (Ala. 1976) (holding that a telephone discussion between the attending physician and consultant, in which advice was solicited casually and the patient's condition was only generally described by the attending physician, did not create a physician-patient relationship between the consultant and the patient).

¹⁶³ 692 N.E.2d 1045 (Ohio 1997).

¹⁶⁴ See *id.* at 1046.

¹⁶⁵ See *id.*

¹⁶⁶ See *id.*

¹⁶⁷ See *id.*

hours later from a dissecting aortic aneurysm.¹⁶⁸ Distinguishing this case from *Reynolds*, the *McKinney* court noted that the cardiologist actually participated in the diagnosis of the patient's condition, played a material role in prescribing the course of treatment that the emergency room physician gave to the patient and was on-call for emergency cardiovascular cases.¹⁶⁹ Thus, the cardiologist had a duty to the hospital, staff or patient for whose benefit he was on-call.¹⁷⁰

Conversely, the court in *Oja v. Kin*¹⁷¹ found no duty on the part of an on-call consultant, concluding that on-call status alone was insufficient to create a duty to a patient who was a third-party to the contract between the on-call consultant and the hospital.¹⁷² In *Oja*, the emergency physician caring for a patient with a gunshot wound to the jaw called the specialist surgeon on-call for advice on the case.¹⁷³ The on-call doctor refused to consult on the patient, stating that he himself was ill and unable to come to the hospital.¹⁷⁴ He urged the emergency room physician to call another doctor.¹⁷⁵ During the conversation, the on-call physician did not provide any care, treatment or advice with respect to the patient's condition.¹⁷⁶ As such, the court held that on-call status alone does not give rise to a duty on the part of the on-call physician.¹⁷⁷

Clearly, telemedicine will exponentially increase the opportunity for consultations. Moreover, it is likely that the dividing line between the two types of consultations will increasingly blur, making the distinction between the informal consultation, where no physician-patient relationship is formed, and the more substantive consultation like that in *Bovara* and *Walters*, progressively more difficult to discern.

With the enhanced ability to transmit records and diagnostic images and to engage in interactive videoconferencing, barriers of time and distance will be removed. This will facilitate the easy transmission of more information to consultants, most likely prompting more formal consultations and decreasing the likelihood of the casual, informal curbside consult. For example, had video conferencing been available, the pediatrician in the *Reynolds* case might have asked her older colleague to observe the sick child as well as asked the laboratory to transmit the test results to both of them. Either of these telemedicine techniques might have alerted the senior physician to the correct diagnosis and stimulated greater involvement of the consultant in the patient's care. This would have increased the court's likelihood of finding that the consultant had formed a relationship with the patient and did indeed have a duty to the patient.¹⁷⁸

¹⁶⁸ See *id.* at 1047.

¹⁶⁹ See *id.*

¹⁷⁰ See *id.* at 1049-50.

¹⁷¹ 581 N.W.2d 739 (Mich. 1998).

¹⁷² See *id.* at 744; see also *Pope v. St. John*, 901 S.W.2d 420, 424 (Tex. 1995) (holding that an on-call physician's telephone advice that the patient be transferred to another hospital did not give rise to a physician-patient relationship).

¹⁷³ See *Oja*, 581 N.W.2d at 741.

¹⁷⁴ See *id.*

¹⁷⁵ See *id.*

¹⁷⁶ See *id.*

¹⁷⁷ See *id.* at 744.

¹⁷⁸ Several criteria indicate whether a relationship between a consultant and patient is formed, including whether the consultant has met and examined the patient, reviewed the patient's records, was informed of the patient's name or billed the patient for services rendered. See *Reynolds v. Decatur Mem'l Hosp.*, 660 N.E.2d 235, 239 (Ill. App. Ct. 1996). However, it is not necessary that all of these factors be present for a court to find that a relationship was formed. See Phyllis Forester Granade, *Medical Malpractice Issues Related to the Use of Telemedicine: An Analysis of the Ways in Which*

B. TELEMEDICINE'S IMPACT ON THE STANDARD OF CARE

Once it is established that a relationship exists between the provider and the patient sufficient to give rise to a duty, the patient-plaintiff in a negligence suit must prove that the physician breached the standard of care.¹⁷⁹

Historically, courts have applied the "locality" rule in determining the proper standard of care.¹⁸⁰ Under this standard, the physician or other provider must abide by the standard of care in the local geographic area.¹⁸¹ The size of this geographic area, once quite circumscribed and particularized,¹⁸² gradually became more generic, and the standard evolved into the "same or similar locality" rule.¹⁸³ Jurisdictions employing the locality rule concept have referred to it as the "community" standard¹⁸⁴ or the "general neighborhood" standard.¹⁸⁵ Other jurisdictions have, on the other hand, denoted the entire state as the relevant area from which to base the standard.¹⁸⁶ However, the trend over the last several decades has been toward creating a uniform, or national, standard especially with respect to specialists.¹⁸⁷

Courts have already alluded to telecommunications effects on the standard of care. For example, in *Shilkret v. Annapolis Emergency Hospital Association*,¹⁸⁸ the court held that because modern communications, information conduits and transportation improved access to current medical and scientific information, the standard of care should reflect this accessibility to state of the art knowledge.¹⁸⁹ Similarly, numerous courts have noted that medical schools, post-graduate residencies and the professional board examinations have standardized the education

Telemedicine Affects the Principles of Medical Malpractice, 73 N.D. L. REV. 65, 69 (1997).

¹⁷⁹ See W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 32, at 174 (5th ed. 1984).

¹⁸⁰ See *Robbins v. Footer*, 553 F.2d 123, 127-28 (D.C. Cir. 1977).

¹⁸¹ See *id.* at 128. Specifically, the locality rule prescribed that the physician had a duty to exercise the same degree of skill and care ordinarily employed by other members of the profession practicing under similar circumstances in the same locality. See *id.* This standard accommodated the wide variation in information access, facilities and experience between urban and rural communities and the difficulties of establishing a standard that could be adopted and applied in such widely divergent circumstances. See *id.* However, adherence to the rule sometimes effectively immunized doctors who were the only practitioners in a locality and allowed doctors isolated in small communities to lapse into a lower standard or care, undeterred by risk of liability. See *id.*

¹⁸² See, e.g., *Livengood v. Howard*, 295 N.E.2d 736 (Ill. 1973) (holding an otolaryngologist to the standard of ear, nose and throat care in Peoria, Illinois).

¹⁸³ See *Robbins*, 553 F.2d at 128. This expanded version of the locality standard holds physicians to the standard of care and skill "in the same or a similar locality, under the same or similar circumstances." See *Quintal v. Laurel Grove Hosp.*, 397 P.2d 161, 164 (Cal. 1964).

¹⁸⁴ See *Granade*, *supra* note 178, at 75.

¹⁸⁵ See *Fitzmaurice v. Flynn*, 256 A.2d 887, 891 (Conn. 1975). The defendant in *Fitzmaurice* argued that the "general neighborhood" dictated that the relevant area was the town or city in which the care had been provided. See *id.* at 891-92. The court ultimately rejected this construction, concluding that the "general neighborhood" was the entire state of Connecticut. See *id.* at 892.

¹⁸⁶ See *id.* at 892; *Vasquez v. Markin*, 731 P.2d 510, 516 (Wash. 1986).

¹⁸⁷ See *Sheeley v. Mem'l Hosp.*, 710 A.2d 161, 167 (R.I. 1998) (finding that a specialist who is a board-certified obstetrician was presumptively qualified to render an opinion in a case involving another obstetrician). In endorsing a national standard of care, the *Sheeley* court stated that:

[a]ccordingly, we join the growing number of jurisdictions that have repudiated the "same or similar" communities test in favor of a national standard and hold that a physician is under a duty to use the degree of care and skill that is expected of a reasonably competent practitioner in the same class to which he or she belongs, acting in the same or similar circumstances.

Id.

¹⁸⁸ 349 A.2d 245 (Md. 1975).

¹⁸⁹ See *id.* at 252.

and training of physicians.¹⁹⁰ Thus, few justifications exist for following the more variable locality standards of care.¹⁹¹

Telemedicine will provide physicians in all geographic areas with the opportunity to obtain consultations from specialists, have diagnostic tests and data reviewed at state-of-the-art tertiary care centers and have the patient "examined" by another provider for a second opinion.¹⁹² Telemedicine potentially can conquer distance in an instant. Differences between services available to providers and patients in different geographic areas should further evaporate, resulting in greater pervasiveness of a single standard of care.¹⁹³

Telemedicine may affect the standard of care by elevating the standard in such a way that *not* having telemedical capacity is in fact substandard. Once a new technology becomes available to medical practitioners, it rapidly becomes the accepted standard. For example, in *Washington v. Washington Hospital Center*,¹⁹⁴ a patient suffered brain damage from a misplaced endotracheal tube during elective surgery.¹⁹⁵ The patient alleged that if the anesthesiology team had a carbon dioxide monitor available to them, the injury could have been averted.¹⁹⁶ The testimony revealed that such monitors were a relatively new innovation; indeed, in August of 1986, a journal article discussed their use at Harvard Medical School and deemed the monitors an "emerging standard."¹⁹⁷ By November 1987, when the adverse event occurred, the monitors had become the standard of care.¹⁹⁸ Today, these and other anesthesia safeguards are universal.¹⁹⁹

Over time, the telemedicine modalities and techniques may enjoy the same widespread adoption. In the future, failure to obtain a subspecialty consultation or definitive reading of a complex image or data set may violate the standard of care when it is readily available using telemedicine technology.

If the telemedicine technology of any or all types does become the standard, there will be a duty to maintain it in good working condition and to use it appropriately.²⁰⁰ Thus, liability could exist as a double-edged sword: liability for failing to install a technology that is now "standard" and liability for any malfunction or misuse of the technology that results in harm to the patient. The record documenting the telemedicine interaction may be more revealing than traditional

¹⁹⁰ See *id.* (citing developments in other jurisdictions).

¹⁹¹ See *id.*

¹⁹² See P. Loula et al., *Distributed Clinical Neurophysiology*, 3 J. TELEMEDICINE & TELE CARE 89, 90 (1997) (describing telemedicine consultation forums in which neurophysiologist clinicians can obtain a second opinion using interactive data and video consultations or using data-only consultations).

¹⁹³ Over half of the jurisdictions have adopted the national standard with respect to specialist standard of care. See Jay M. Zitter, Annotation, *State of Care Owed to Patient by Medical Specialist as Determined by Local, "Like Community," State, National, or Other Standards*, 18 A.L.R. 4th 603, 607, 614 (1981 & 1998 Supp.).

¹⁹⁴ 579 A.2d 177 (D.C. 1990). For a similar illustration, see also *Crites v. Pietilia*, 826 S.W.2d 175 (Tex. App. 1992) (discussing use of fetal monitoring, rather than merely ascertaining fetal heartbeat, to evaluate a pregnant woman who sustained injuries from a car accident).

¹⁹⁵ See *Washington Hosp. Ctr.*, 579 A.2d at 180.

¹⁹⁶ See *id.*

¹⁹⁷ See *id.* at 182.

¹⁹⁸ See *id.* at 183.

¹⁹⁹ See Frances H. Miller, *Medical Discipline in the Twenty-First Century: Are Purchasers the Answer?*, 60 LAW & CONTEMP. PROBS. 31, 44 (1997).

²⁰⁰ There is already concern that telemedicine has some risks as a result of a continuing shortage of network professionals and unreliability of the Internet network, especially for video and voice applications. See Monua Janah, *Health Care by Cisco*, INFOR. WK., Feb. 23, 1998, at 116, available in 1998 WL 2358723.

medical records and may further sharpen the edges of the liability sword.²⁰¹

C. TECHNOLOGY FAILURE

When a physician fails to use a piece of equipment in a reasonable and diligent manner, he will be liable for the harm caused to the patient, even if the hospital or health care facility owns the equipment. In *Mafhouz v. Xanar*,²⁰² for example, while a dermatologic surgeon used a laser to remove a lesion, the patient suffered a burn.²⁰³ The court held that, although the physician had no duty to inspect the equipment prior to the surgery, he did have a duty to stop the surgery on experiencing technical difficulties and to ascertain the problem and correct it if possible.²⁰⁴ Similarly, courts have found physicians and other providers liable for the misuse of electrosurgical equipment,²⁰⁵ anesthesia equipment²⁰⁶ and fetal monitoring equipment.²⁰⁷

Moreover, the liability for technology failures is apt to be shared among all involved parties. In *Anderson v. Somberg*,²⁰⁸ a neurosurgeon used a metal instrument in the course of a patient's back surgery.²⁰⁹ A small piece of the instrument broke off, necessitating a second surgery to recover the fragment.²¹⁰ In this case, the plaintiff sued not only the physician, but also the hospital and the instrument's manufacturer and distributor.²¹¹ The plaintiff claimed that the physician had negligently caused the metal instrument to break and that the hospital negligently maintained and inspected the instrument.²¹² The plaintiff also sued the instrument's distributor and manufacturer on the basis of warranty and strict liability theories,

²⁰¹ See Jay H. Sanders & Rashid L. Bashshur, *Challenges to the Implementation of Telemedicine*, 1 *TELEMEDICINE J.* 115, 120 (1995) (discussing the effect of telemedicine on the standard of care and the impact of an objective record detailing medical interventions).

²⁰² 646 So. 2d 1152 (La. Ct. App. 1994).

²⁰³ See *id.* at 1156.

²⁰⁴ See *id.* at 1160.

²⁰⁵ Such liability may be in the form of a lawsuit alleging simple negligence or negligence based on the theory of *res ipsa loquitur*. See, e.g., *Shepardson v. Consolidated Med. Equip., Inc.*, 714 A.2d 1181 (R.I. 1998) (finding the hospital, surgeon and manufacturer negligent for a burn sustained by a three-year-old patient from malfunctioning electrocautery); *Wiles v. Myerly*, 210 N.W.2d 619 (Iowa 1973) (involving a patient who successfully sued a surgeon, anesthesiologist and hospital based on *res ipsa loquitur* after sustaining burns from the negligent use of electrocautery during prolonged surgical procedure).

²⁰⁶ See, e.g., *supra* notes 194-98 and accompanying notes (discussing *Washington v. Washington Hosp. Ctr.*, 579 A.2d 177 (D.C. 1990)).

²⁰⁷ See, e.g., *Carey v. Lovett*, 622 A.2d 1279 (N.J. 1993). In this case, a pregnant woman with a high-risk pregnancy was admitted to the hospital with uncontrolled diabetes. See *id.* at 1282. The hospital staff failed to detect fetal heart sounds using two different devices on multiple occasions. See *id.* at 1283. Believing the fetus to be dead, the providers made no effort to stop the premature labor. See *id.* Shortly thereafter, a premature live infant was born. See *id.* The infant subsequently succumbed to complications of premature birth. See *id.* A malpractice lawsuit brought by the infant's parents resulted in a two million dollar judgment. See *id.* at 1282. The New Jersey Supreme Court, however, set aside the original award and remanded the matter back to the trial court for further determination. See *id.* at 1292.

²⁰⁸ 386 A.2d 413 (N.J. Super. Ct. App. Div. 1978) [hereinafter *Anderson II*]. This case affirmed the jury's verdict from the second trial of plaintiff's case, which dismissed the plaintiff's claims against the physician and the hospital, but found the instrument's manufacturer and distributor liable to the plaintiff. See *id.* at 415.

²⁰⁹ See *id.* at 415-16.

²¹⁰ See *id.* at 415.

²¹¹ See *id.*

²¹² See *Anderson v. Somberg*, 338 A.2d 1, 3 (N.J. 1975) [hereinafter *Anderson I*].

respectively.²¹³ The initial trial resulted in a jury verdict in favor of the defendants, which was later overturned by both of the state's appellate courts.²¹⁴ In affirming the intermediate appellate court's decision to grant the plaintiff a new trial, the New Jersey Supreme Court noted that at least one of the defendants is liable for the plaintiff's injury.²¹⁵

In the context of telemedicine, it is possible that a physician or other provider, lacking experience with the new technology or technique, may fail to use it in an optimal fashion or may even misread the pertinent data, information or image because of unfamiliarity with the system capabilities. Such oversight may lead to liability for misuse. Ultimately, telemedicine functions as a tool, in some ways no different from earlier generations of medical tools. It will require skill and practice for the individual physician to use it adeptly.

Additionally, telemedicine technologies may suffer intermittent failures or unreliability.²¹⁶ For example, many telecommunications systems depend on satellites.²¹⁷ A malfunctioning or broken satellite link would disrupt the telemedicine intervention. Signals may jumble, resulting in degradation and misreading of the important and pertinent medical data used in making a critical patient care decision.²¹⁸ Internet transmissions might be stymied by an event on the Internet.²¹⁹ Clearly, ample safeguards and back-up systems must be in place to ensure reliability and avoid liability.

IV. IDS LIABILITY: NEW TWISTS ON THEORIES OF INSTITUTIONAL LIABILITY

Telemedicine and its promise are premised on the growing ability to share information, to promote communication and to facilitate the connections between patients and providers.²²⁰ However, telemedicine requires an infrastructure that can support the technology.²²¹ That infrastructure will not be found in the isolated practitioner's office. Rather, telemedicine systems will necessarily be a part of larger entities, most likely the integrated health plans that are currently enveloping hospital and provider practices within their corporate walls.²²² Already, such IDSs

²¹³ See *id.*

²¹⁴ See *Anderson II*, 386 A.2d at 415.

²¹⁵ See *Anderson I*, 338 A.2d at 4. At the close of the second trial, the jury returned a verdict for the plaintiff against the instrument's manufacturer and distributor. See *Anderson II*, 386 A.2d at 415. Moreover, the trial judge also ordered the manufacturer to indemnify the distributor for its liabilities arising from the plaintiff's case. See *id.* These dispositions were affirmed on appeal. See *id.* at 421. Similar manufacturing liability claims have resulted from cases of equipment failure. See, e.g., *Airco, Inc. v. Simmons First Nat'l Bank*, 638 S.W.2d 660 (Ark. 1982) (finding manufacturers of an artificial breathing machine liable for its malfunction); *Kennedy v. McKesson Co.*, 448 N.E.2d 1332 (N.Y. 1983) (upholding a claim by a dentist against the manufacturer of anesthetic equipment when the dentist's patient died allegedly as a result of the equipment's malfunctioning).

²¹⁶ See Janah, *supra* note 200, at 116.

²¹⁷ See Doarn et al., *supra* note 17, at 21-27; Schwarz et al., *supra* note 15, at 637-39.

²¹⁸ Indeed, such misreading of verbal signals is common even absent high technology communication. For example, in *Bovara v. St. Francis Hospital*, a telephone call from the consultant's office, the content of which was disputed, led the primary cardiologist to recommend the fateful surgery for the patient. See 700 N.E.2d 143, 145-46 (Ill. App. Ct. 1998).

²¹⁹ The unreliability of Internet communication capability has already resulted in consideration of cell-based technologies, which are considered more reliable. See Janah, *supra* note 200, at 116.

²²⁰ See Bashshur, *supra* note 74, at 21-22; Janah, *supra* note 200, at 116.

²²¹ See Bashshur, *supra* note 74, at 21.

²²² See Rhonda L. Rundle, *Tenet and MedPartners Agree to Form Health Network in Southern*

have eagerly embraced telemedicine as a means by which to realize efficiencies, to increase market share and to contain costs.²²³ As IDSs adopt telemedicine, they provide a new layer of potential defendants and also offer an additional set of liability theories for aggrieved plaintiffs.

The "coming of the corporation"²²⁴ and IDSs²²⁵ increase the likelihood of the individual health care provider or physician sharing the defense table. Hospitals and health plans regularly share in the liability for negligence under several theories of vicarious and direct liability.²²⁶ Most of these theories were first applied in the context of hospital liability,²²⁷ but more recently have been used as a basis for lawsuits against health maintenance organizations (HMO) and other IDSs.²²⁸ As Part V explains, these theories will be applicable to negligence and harm that can occur as a result of a telemedicine encounter.

A. VICARIOUS LIABILITY

Under theories of vicarious liability, courts find the principal responsible for any negligence committed by the agent while the agent acts on the principal's behalf.²²⁹ Courts derive the liability of the principal from his role as the supervisor or employer of the agent.²³⁰ This derivative liability may apply to both employees and nonemployees of health care enterprises on the theories of respondeat superior and ostensible agency, respectively.²³¹

Courts first applied the theory of respondeat superior to hospitals in the classic case of *Bing v. Thunig*,²³² in which the court deemed the continued exemption of hospitals from liability as "out of tune with the life around us, at variance with modern day needs and with concepts of justice and fair dealing."²³³ The *Bing* court held that hospitals, whether charitable or not, should be responsible for negligence

California, WALL ST. J., Apr. 10, 1997, at B4 (describing the formation of a health care network including 33 hospitals and more than 4,000 physicians, an arrangement that is "one of the most visible examples so far of how major health-care players are attempting to create big integrated networks that take advantage of economies of scale to gain market share").

²²³ See Campbell, *supra* note 35.

²²⁴ See generally PAUL STARR, *THE SOCIAL TRANSFORMATION OF AMERICAN MEDICINE* 440-49 (1982) (discussing the transformation of American health care into a corporate structure).

²²⁵ See Robinson, *supra* note 5, at 156.

²²⁶ See Barbara Noah, *The Managed Care Dilemma: Can Theories of Tort Liability Adapt to the Realities of Cost Containment?*, 48 MERCER L. REV. 1219, 1231 (1997).

²²⁷ Until the middle of this century, hospitals regularly escaped liability for malpractice that occurred within their walls because they enjoyed charitable immunity. See *Pierce v. Yakima Valley Mem'l Hosp.*, 260 P.2d 765, 773 (Wash. 1953). This immunity harkened back to the traditional charitable bases on which most hospitals had been founded and maintained. See *id.* at 762. As hospitals became entrepreneurial and sophisticated corporate entities, this immunity eroded. See *id.* at 770. Even after the demise of charitable immunity, hospitals escaped liability by virtue of the fact that the physicians were viewed as independent contractors who used the hospital only as a "workshop" and "borrowed" the servants (nurses and other hospital employees) within. See William Trail & Susan Kelley-Claybrook, *Hospital Liability and the Staff Privileges Dilemma*, 37 BAYLOR L. REV. 315, 322 (1985). As the proverbial "captain of the ship," liability for negligence generally rested with the physician. See *Van Hook v. Anderson*, 824 P.2d 509, 514 (Wash. Ct. App. 1992).

²²⁸ See Noah, *supra* note 226, at 1232.

²²⁹ See *id.* at 1237.

²³⁰ See KEETON ET AL., *supra* note 179, at 500 § 69.

²³¹ See Noah, *supra* note 226, at 1237-38.

²³² 143 N.E.2d 3 (N.Y. 1957).

²³³ *Id.* at 9.

committed by their employees acting within the scope of their employment.²³⁴ Later courts also have refused to absolve hospitals from liability for their employees based on the assertion that the employees were under the direction of the independent contractor physician, thus eviscerating the so-called "captain of the ship" argument.²³⁵

Courts have applied the theory of respondeat superior frequently as hospital and health plans have increasingly employed physicians and other health care providers directly, rather than merely contracting with the independent providers.²³⁶ Today, plaintiffs routinely name hospitals and health plans as defendants and courts have held them responsible for negligence committed by their employees under the theory of respondeat superior.²³⁷

Even without an employer-employee relationship between the hospital or health plan and the allegedly negligent provider, vicarious liability may attach to the entity by virtue of the theory of ostensible agency.²³⁸ The theory of ostensible or apparent agency provides that even if the negligent provider is *not* an employee, the hospital or health plan may be vicariously liable if the patient reasonably believed that the provider was an employee of the entity.²³⁹ In recent years, courts have applied this theory flexibly to hospitals.²⁴⁰ It has also been successfully used to find HMOs and other IDSs liable.²⁴¹ HMOs that contract with a network or panel of pro-

²³⁴ See *id.* at 8.

²³⁵ See generally *Van Hook v. Anderson*, 824 P.2d 509 (Wash. Ct. App. 1992) (discussing and rejecting the "captain of the ship" doctrine).

²³⁶ See *Trail & Kelley-Claybrook*, *supra* 227 at 317; see also *supra* note 6 and accompanying text (discussing solo practitioners becoming employed by or engaged in contractual partnerships with one or more integrated managed care plans). In the past, physicians contracted with hospitals for clinical privileges and held the status of independent contractors. See Richard L. Griffith & Jordan M. Parker, *With Malice Toward None: The Metamorphosis of Statutory and Common Law Protections for Physicians in Negligent Credentialing Litigation*, 22 TEX. TECH. L. REV. 157, 161 (1991). This arrangement is still common. See *id.* at 162 (stating that physicians remain legally designated as independent contractors). However, an increasing number of physicians are now "hospital based" and have entered salaried, employment contracts with hospitals. See ARTHUR F. SOUTHWICK, *THE LAW OF HOSPITAL AND HEALTH CARE ADMINISTRATION* 546 (2d ed. 1988) (citing the increase in "the number and frequency of salaried arrangements" between physicians and hospitals as one factor encouraging courts to expand the applicability of respondeat superior in the health care setting). Similarly, with the movement away from traditional indemnity and Blue Cross plans, health plans have largely converted to managed care plans which either employ or selectively contract with a credentialed subset of physicians. See BARRY R. FURROW ET AL., *HEALTH LAW CASES, MATERIALS AND PROBLEMS* 454-56 (3d ed. 1997).

²³⁷ See, e.g., *Van Hook*, 824 P.2d at 509 (holding the hospital liable for the negligence of its employee nurses); *Sloan v. Metropolitan Health Council of Indianapolis, Inc.*, 516 N.E.2d 1104 (Ind. Ct. App. 1987) (holding a health maintenance organization (HMO) liable under the theory of respondeat superior for the negligence of an employee-physician).

²³⁸ See *Noah*, *supra* note 226, at 1240 & n.101.

²³⁹ See *id.* An early application of the ostensible agency doctrine appears in *Grewe v. Mount Clemens Hospital*, 273 N.W.2d 429 (Mich. 1978). Since then, it has been applied in numerous cases and its definitional qualities have been fleshed out. See, e.g., *Jackson v. Power*, 743 P.2d 1376 (Alaska 1987) (discussing the application of ostensible agency to a hospital that had contracted with an independent group of emergency physicians to serve in the hospital's emergency department); *Clark v. Southview*, 628 N.E.2d 46 (Ohio 1994) (holding a hospital liable under ostensible agency theory for the negligence of an emergency physician who was an independent contractor).

²⁴⁰ For example, in *Kashishian v. Port*, a hospital was found liable, under the theory of ostensible agency, for negligence committed by an independent, but on-call cardiologist, called in to see an inpatient by the attending physician. See 481 N.W.2d 277, 278 (Wis. 1992). The court held that ostensible agency theory can apply even in this scenario because the patient reasonably believed that the cardiologist was a hospital employee. See *id.* at 278.

²⁴¹ See *Boyd v. Albert Einstein Med. Ctr.*, 547 A.2d 1229, 1234-35 (Pa. Super. Ct. 1988). This

viders²⁴² may share in malpractice liability on grounds that the HMO held out the provider such that the patient would reasonably assume that the plan physician was an employee.²⁴³

B. DIRECT LIABILITY

In addition to vicarious liability, courts may find hospitals and IDSs liable for negligence using more direct theories of liability.²⁴⁴ These include the theories of nondelegable duty, corporate negligence and, arguably, liability for defectively designed health care programs.

Courts have used the concept of a nondelegable duty to hold hospitals liable for injuries that befall patients when patients sought certain services unique to the hospital.²⁴⁵ For example, in *Jackson v. Power*,²⁴⁶ doctors in an emergency department evaluated a trauma victim for multiple injuries.²⁴⁷ An injury to his kidneys went undetected and the patient sustained permanent damage.²⁴⁸ The plaintiff alleged that the hospital, which did not employ the physician, nevertheless should share in liability for the negligence because the hospital assumed a duty to provide emergency care that it could not shift to an independent contractor physician.²⁴⁹ Although not often invoked by courts, the theory of nondelegable duty paves the way for corporate negligence, a multifaceted form of direct liability for health care enterprises.²⁵⁰

Courts first applied corporate negligence to a health care context in the seminal case of *Darling v. Charleston Community Memorial Hospital*.²⁵¹ In *Darling*, a

success has been tempered somewhat by federal preemption, pursuant to the Employee Retirement Income Security Act of 1974 (ERISA), of cases in which the IDS represents a self-funded employee benefit plan. See, e.g., *Ricci v. Goberman*, 840 F. Supp. 316, 317-18 (D.N.J. 1993) (holding that ERISA preempts an employee's claim that her HMO was vicariously liable for the actions of an employed physician).

²⁴² Such HMOs are often referred to as open panel HMOs. See FURROW ET AL., *supra* note 236, at 528. The HMO may create a panel or network of physicians by contracting with individual, unaffiliated physicians, or with a group of physicians who have joined together in an individual practice association (IPA) or preferred provider organization. See *id.* at 521-22.

²⁴³ See *Boyd*, 547 A.2d at 1234-35; *Schleier v. Kaiser Found. Health Plan of Mid-Atlantic States, Inc.*, 876 F.2d 174, 177-78 (D.C. Cir. 1989). But see *Raglin v. HMO Illinois*, 595 N.E.2d 153, 158 (Ill. App. Ct. 1992) (holding that an IPA is not vicariously liable for physician negligence); *Chase v. Independent Practice Ass'n*, 583 N.E.2d 251, 253 (Mass. App. Ct. 1991) (declining to hold an HMO liable on the grounds that there was insufficient evidence to show that the HMO exerted control over the providers).

²⁴⁴ See Noah *supra* note 226, at 1233. As in the case of vicarious liability, such lawsuits may be preempted by ERISA. See *Kuhl v. Lincoln Nat'l Health Plan*, 999 F.2d 298, 303 (8th Cir. 1993). Recently, however, ERISA preemption has begun to erode especially with respect to claims asserting that the actions of the health plan were part and parcel of the negligent medical care delivered to the patient. See *Dukes v. U.S. Healthcare, Inc.*, 57 F.3d 350, 351-52 (3d Cir. 1995).

²⁴⁵ See, e.g., *Simmons v. Tuomey Reg'l Med. Ctr.*, 498 S.E.2d 408, 410-11 (S.C. Ct. App. 1998) (holding that "a hospital's duty to its emergency room patients to provide competent medical care" is so important to the community that the duty is incapable of being delegated). Nondelegable duty is an established exception to the general rule that employers are not liable for the actions of an independent contractor. See KEETON ET AL., *supra* note 179, § 71.

²⁴⁶ 743 P.2d 1376 (Alaska 1987).

²⁴⁷ See *id.* at 1377.

²⁴⁸ See *id.*

²⁴⁹ See *id.* at 1382.

²⁵⁰ See *Thompson v. Nason*, 591 A.2d 703, 707 (Pa. 1991) (noting that liability based on the theory of corporate negligence gives rise to a nondelegable duty that the hospital owes to its patients).

²⁵¹ 211 N.E.2d 253 (Ill. 1965).

doctor improperly casted a patient's broken leg resulting in amputation.²⁵² Although the hospital argued that the liability belonged only to the physician, the court held that although the hospital is not an insurer against the negligence of its physician, it does have a duty to institute procedures and peer review to guard against an incompetent physician or incompetent care rendered within its walls.²⁵³ The *Darling* court was one of the first to discard the traditional hospital defenses and find that the hospital has an affirmative responsibility for what goes on within its walls.²⁵⁴

Since the *Darling* case, the concept of hospital corporate negligence has substantially broadened and enhanced hospitals' duty to ensure the safety and quality of the care delivered within their facilities.²⁵⁵ The court in *Thompson v. Nason*²⁵⁶ summarized the theory of corporate negligence. In this case, the plaintiff was severely injured in an auto accident and argued that, in addition to the physician's negligence, the hospital breached its duty to provide her with a proper standard of care.²⁵⁷ The court noted that a hospital's duty may be classified into four categories.²⁵⁸ First, hospitals have a duty to use reasonable care in the maintenance of safe and adequate facilities and equipment.²⁵⁹ Second, hospitals are responsible for the selection and retention of the physicians allowed to practice in their facilities.²⁶⁰ Third, the hospital must monitor and oversee the clinical practice of those who practice within their walls.²⁶¹ Finally, the hospital must formulate, adopt and enforce adequate rules and policies to ensure quality care for patients.²⁶² Corporate negligence is now a well-recognized theory of liability that courts apply to hospitals and health care facilities.²⁶³

Plaintiffs also use the theory of corporate negligence to sue HMOs and other IDSs.²⁶⁴ In *McClellan v. Health Maintenance Organization of Pennsylvania*,²⁶⁵ the court recognized that an HMO could be negligent for the selection of its plan's physicians.²⁶⁶ Most recently, in *Shannon v. McNulty*,²⁶⁷ the court stated:

²⁵² See *id.* at 256.

²⁵³ See *id.*

²⁵⁴ See *Thompson*, 591 A.2d at 707 (citing *Darling v. Charleston Community Memorial Hospital* as one of the first cases in the evolution of corporate negligence claims against hospitals).

²⁵⁵ See generally Trail & Kelley-Claybrook, *supra* note 227, at 322-27 (discussing the hospital's duty to ensure care for their patients).

²⁵⁶ 591 A.2d at 703 (Pa. 1991).

²⁵⁷ See *id.* at 705.

²⁵⁸ See *id.* at 707.

²⁵⁹ See *id.*

²⁶⁰ See *id.*

²⁶¹ See *id.*

²⁶² See *id.*

²⁶³ See, e.g., *Fridena v. Evans*, 622 P.2d 463 (Ariz. 1980) (accepting the doctrine of corporate liability and applying it in the context of a hospital's negligent supervision of a physician); *Elam v. College Park Hosp.*, 183 Cal. Rptr. 156 (Ct. App. 1982) (holding that, under the doctrine of corporate negligence, a hospital is liable to a patient for the negligent conduct of independent physicians and surgeons who, "as members of the medical staff, avail themselves of the hospital facilities"); *Corleto v. Shore Mem'l Hosp.*, 350 A.2d 534 (N.J. 1975) (holding that a hospital could be held directly liable for giving staff privileges to an incompetent physician and for failing to remove a known incompetent doctor from performing hospital duties when problems became obvious).

²⁶⁴ See, e.g., *Petrovich v. Share Health Plan of Ill., Inc.*, 696 N.E.2d 356 (Ill. App. Ct. 1998); *Raglin v. HMO Ill., Inc.*, 595 N.E.2d 153 (Ill. App. Ct. 1992); *Dunn v. Praiss*, 656 A.2d 413 (N.J. 1994).

²⁶⁵ 604 A.2d 1053 (Pa. Super. Ct. 1992).

²⁶⁶ See *id.* at 1059. The *McClellan* court found it unnecessary to apply the doctrine of corporate negligence to the IPA model health plans, largely because they were subject to a similar duty under the *Restatement of Torts*. See *id.* at 1059. However, the court did hold that IPA-model HMOs were subject to the credentialing and rule-making responsibilities. See *id.*

²⁶⁷ 718 A.2d 828 (Pa. Super. Ct. 1998). In this case, a pregnant woman called her HMO and her

Where the HMO is providing health care services rather than merely providing money to pay for services[,] their conduct should be subject to scrutiny. We see no reason why the duties applicable to hospitals should not be equally applied to an HMO when that HMO is performing the same or similar functions as a hospital. When a benefits provider, be it an insurer or a managed care organization, interjects itself into the rendering of medical decisions affecting a subscriber's care[,] it must do so in a medically reasonable manner Accordingly we now make explicit that which was implicit in *McClellan* and find that HMOs may . . . be held corporately liable for a breach of any of the *Thompson* duties.²⁶⁸

In addition to the duties imposed on HMOs and IDSs as a result of corporate negligence, a specter of liability exists for poorly designed managed care systems. This theory of liability received a great deal of attention in the aftermath of *Wickline v. State of California*,²⁶⁹ a case involving a patient who sued the state Medicaid program alleging that an early hospital discharge at the behest of the Medicaid plan's concurrent review program harmed her.²⁷⁰ Although the court did not render a judgment for the plaintiff, the court stated in dicta that "third party payors of health care services can be held legally accountable when medically inappropriate decisions result from *defects in the design or implementation* of cost-containment mechanisms" ²⁷¹ Although commentators hailed *Wickline* as a harbinger of a new basis for managed care and payer liability, it has not resulted in a significant line of cases.²⁷² However, in the context of telemedicine, "defects in design" could take on a new meaning and be more fruitful in terms of producing case law.

V. VICARIOUS AND DIRECT LIABILITY THEORIES: A HYPOTHETICAL APPLICATION TO TELEMEDICINE

IDSs are rapidly adopting telemedicine as a means by which to realize efficiencies, to link their constituent hospitals, health care facilities and providers, to expand operations, to contain costs and to produce more marketable health plan products.²⁷³ Indeed, many argue that managed care is the primary health care industry-driver of telemedicine.²⁷⁴ However, as telemedicine becomes more deeply

HMO obstetrician when she began to experience pain she felt might indicate pre-term labor. *See id.* at 832. For several days, she was reassured that she was not experiencing labor, although no definitive exam or test was performed. *See id.* As the patient became progressively more uncomfortable, her calls to the physician and HMO were repeatedly and curtly rebuffed. *See id.* Finally, she was directed to the hospital where she delivered a premature infant who died shortly after birth because of extreme prematurity. *See id.*

²⁶⁸ *Id.* at 835-36.

²⁶⁹ 239 Cal. Rptr. 810 (Ct. App. 1986).

²⁷⁰ *See id.* at 814-15.

²⁷¹ *Id.* at 819 (emphasis added).

²⁷² *See* Brian P. Battaglia, *The Shift Toward Managed Care and Emerging Liability Claims Arising from Utilization Management and Financial Incentive Arrangements Between Health Care Provider and Payers*, 19 U. ARK. LITTLE ROCK L.J. 155, 196 (1997).

²⁷³ *See* Campbell, *supra* note 35.

²⁷⁴ *See id.* This is compounded by the national effort to develop the electronic information infrastructure. *See id.*; *see also* *Special Report: Managed Care Could Create a Technology Boom*, HEALTH DATA MGMT., July 19, 1995, available in 1995 WL 14387753 (noting that the competitive, quickly developing, digital communications industry is beginning to target the health care sector—a development that could lead to reduced prices associated with the purchase of telemedicine equipment

embedded in health care delivery, the layers of potential liability begin to stack up, as is clear when one parses through some of the more common telemedicine applications.

Several IDSs have seized on telemedicine as a cost-efficient way in which to triage and treat emergency patients in rural areas. For example, small rural hospitals with telemedicine capacity currently staff their emergency departments with physician extenders (advanced nurse practitioners, physician assistants or specially trained registered nurses) rather than emergency physicians.²⁷⁵ The physician extender performs an initial evaluation of the patient and faxes the evaluation and any diagnostic test results to the telemedicine emergency physician.²⁷⁶ The patient, physician extender and emergency physician then engage in a two-way, interactive videoconferencing.²⁷⁷ The physician and physician extender discuss the diagnosis with the patient, prescribe treatment and discharge the patient.²⁷⁸

Suppose, however, a slightly different scenario. In the course of the interactive videoconference, the physician extender and the physician agree that a specialty consult is indicated. The physician then contacts the specialist on the Internet, describes the patient's history, faxes the history and sends the x-ray images and test results over the computer to the specialist.²⁷⁹ Unbeknown to the sender, one x-ray transmission is damaged due to a data link problem, but the specialist is not concerned because the rest of the data points clearly to a certain diagnosis. The emergency physician receives the opinion of the specialist on e-mail a short time later. The emergency physician telephones the rural hospital, discusses the specialist's suggestions and diagnosis, prescribes treatment consistent with the specialist's suggestions and discharges the waiting patient. The entire encounter took two hours, not an inordinate amount of time given the specialist consultation. The hypothetical patient and providers are pleased, but only temporarily.

Unfortunately, the diagnosis is incorrect, which results in erroneous treatment that harms the patient. The vital clue to the real diagnosis was present on the x-ray that was damaged in electronic transit. In the above scenario, the physician extender, the emergency physician and the specialist have all developed a relationship with the patient.²⁸⁰ Indeed, one could argue that the emergency physician's relationship with the patient is particularly compelling, because he acted both as consultant and as the supervisor of the physician extender.²⁸¹ The specialist will not be able to allege that his consultation was merely a curbside opinion to an inquiring colleague.²⁸² Indeed,

as competition in the health care sector increases).

²⁷⁵ See Dakins & Kincade, *supra* note 41 (discussing Allina's telemedicine program for rural emergency health care services).

²⁷⁶ See Vera Tweed, *The Brave New Reality of Telemedicine*, BUS. & HEALTH, Sept. 1, 1998, at 34, available in 1998 WL 13573164 (describing the use of physician extenders and telemedicine to deliver rural emergency care in Minnesota); Dave Swartz, *The Saint Francis Emergency Room Telemedicine System: Marriage of Technology and Business Models*, TELEMEDICINE TODAY, Aug. 1997, at 28, 28-29 (describing similar systems in Oklahoma).

²⁷⁷ See Tweed, *supra* note 276, at 34.

²⁷⁸ See *id.*

²⁷⁹ This is the typical method by which specialist consultations are provided in telemedicine systems. See *id.*

²⁸⁰ See *supra* Part III.A.1 (discussing factors that establish a physician-patient relationship during a telephone conversation).

²⁸¹ See *supra* Part III.A.2 (discussing factors leading to the establishment of a relationship between a consultant and patient).

²⁸² See *supra* notes 132-62 and accompanying text (differentiating between formal and casual consultations).

telemedicine would essentially make this defense virtually useless. With the easy transmission of data and images, and equally easy interactive consultation capacity, the specialist will be hard pressed to argue that his opinion was informal.

In addition to the direct liability of the individual providers, the rural hospital will be liable for the negligence under the theory of respondeat superior. It employs the physician extender.²⁸³ The emergency physician and specialist have arguably been held out to the patient by both the IDS and the rural hospital in such a way that a reasonable patient would assume them to be employees of either entity. Thus the theory of ostensible agency could be used to allege that the IDS and/or the hospital is vicariously liable.²⁸⁴

Theories of direct liability will also lead to the liability of the IDS and/or hospital in this telemedicine scenario. Under the theory of corporate negligence, hospitals and doctors are responsible for the selection of and monitoring of the providers who practice within the walls of the plan, even if they are corporate rather than physical walls.²⁸⁵ The patient could allege that the plan or hospital had failed in this respect because a physician extender is not sufficiently skilled to evaluate emergency patients independently,²⁸⁶ with only a telemedicine link. The patient could allege that the rural hospital's duty to have an on-site physician is a nondelegable duty, consistent with its licensure as an acute care hospital.²⁸⁷ Under a theory of corporate negligence, the aggrieved patient could allege that the IDS had a duty to provide safe and reliable equipment, and that, in this case, the apparent transmission problem is evidence of this failure.²⁸⁸ Finally, the patient could assail the system, arguing that it is defectively designed and that because the IDS imposes the system on the patient, it should be liable for this defect in design.²⁸⁹ Possible defects may include the way providers have been aligned or the IDS's process for emergency care and consultation. Alternatively the plaintiff could cite the IDS's de facto decision to risk a system error by failing to install safeguards and redundancies into the telemedicine program.²⁹⁰ Using this theory, the plaintiff could also bring a successful action against the manufacturer of the telecommunications system.²⁹¹

Moreover, as this hypothetical case illustrates, the care received by the telemedicine patient is essentially seamless. The providers are linked, not only by the telemedicine technology, but also by their incorporation within the IDS. The liability, although likely to be shared by all involved, would fall squarely on the shoulders of the IDS that has employed or selectively contracted with the providers, purchased, maintained and "sold" its telemedicine capacity, and designed the system and health plan product incorporating it all.

²⁸³ See *supra* notes 236–37 and accompanying text (discussing application of the theory of respondeat superior).

²⁸⁴ See *supra* notes 238–43 and accompanying text (discussing ostensible agency theory).

²⁸⁵ See *supra* Part IV.B (discussing direct liability theory).

²⁸⁶ The allegation in such a case would be improper selection and credentialing of a health care organization's medical staff.

²⁸⁷ See *supra* notes 245–50 and accompanying text (discussing nondelegable duty theory).

²⁸⁸ See *supra* Part III.B–C (discussing liability premised on a failure to provide appropriate technology or to use the technology properly).

²⁸⁹ See *supra* note 271 and accompanying text (discussing "design defect" liability).

²⁹⁰ See *Washington v. Washington Hosp. Ctr.*, 579 A.2d 177, 180 (D.C. 1990) (predicating a negligence claim against a hospital on its failure to install a carbon dioxide monitor in the operating room to assist its surgeons in determining whether the patient had sufficient oxygen during surgery).

²⁹¹ See *supra* note 215 (discussing claims based on manufacturer liability).

VI. CONCLUSION

Although telemedicine has much to offer IDSs in terms of the efficient use of expensive providers, cost effectively providing services to rural and underserved markets, enhancing quality and containing costs, it also exposes IDSs to more medical malpractice liability.

It will be easier, using telemedicine technology, for the providers to establish a relationship with patients requesting service. As evidenced by the recent study of the fictitious patient requesting advice using e-mail, physicians and other providers may be willing to provide tentative diagnosis over the Internet.²⁹² Providers may soon see this as a time-effective way to deal with many patient complaints. It will be difficult for an IDS to monitor and control the use—or abuse—of telemedicine by its providers and subscribers. Nevertheless, negligence and liability for resulting patient harms will reflect back on the IDS's plan providing the telemedicine program.

Telemedicine will make the connection between the integrated delivery health plan and its providers more apparent to the patient, and virtually unrefutable by the health plan. Using the IDSs' telemedicine program, patients will reasonably believe that the providers that are "served up" are employees or agents of an IDS, facilitating allegations of vicarious liability.

Moreover, if the telemedicine programs instituted by IDSs are poorly designed in either a technological or administrative context, they may be directly liable under theories of corporate negligence or even design defect claims. As the selectors of both the providers and the technologies, IDSs offer a seamless health plan product to their subscribers—a veritable safety net of health care. The health plan's liability for faulty selection and monitoring of providers is well developed. With investment into telemedicine, the health plan assumes responsibility for selection and ongoing maintenance of a complex technological system, with a substantial infrastructure, that knows no boundaries. As such, telemedicine presents abundant liability risks that will, in time and future litigation, be balanced against the benefits it provides.

²⁹² See Eysenbach & Dieppen, *supra* note 127, at 1334–35.