Restatement (Second) of Torts Section 324A: An Innovative Theory of Recovery for Patients Injured Through Use or Misuse of Health Care Information Services, 14 J. Marshall J. Computer & Info. L. 73 (1995)

Lisa L. Dahm

RESTATEMENT (SECOND) OF TORTS SECTION 324A: AN INNOVATIVE THEORY OF RECOVERY FOR PATIENTS INJURED THROUGH USE OR MISUSE OF HEALTH CARE INFORMATION SYSTEMS

by LISA L. DAHM[†]

> But computers were different, and working with them could be a humiliating experience. They were never wrong. It was as simple as that. Even when it took weeks to find the source of some problem, even when the program was checked a dozen times by as many different people, even when the whole staff was slowly coming to the conclusion that for once, the computer circuitry had fouled up—it always turned out, in the end, to be a human error. . . . Always.[1]

I. HYPOTHETICAL[2]

After completing his evening rounds, the physician stopped by the nursing station to order 30 milligrams of pain medication to be administered to his patient as needed. Unfortunately, the ward clerk did not have time to enter the order into the computer until almost midnight and

---

1. MICHAEL CRICHTON, THE TERMINAL MAN, 98 (1972).
2. The following hypothetical is intentionally vague. Such a situation could occur in a hospital or other health care facility, giving rise to a tort cause of action by the injured patient against the vendor of the computer software. Proving that the vendor's employee's actions or the vendor's software actually caused the injury, however, is extremely difficult. This hypothetical is designed to illustrate only a potential theory of recovery for the injured patient to allege. There is no guarantee that this theory of recovery will be a winner.

for some reason, the system refused to accept the clerk's input. The hospital's information services support personnel left at 8:00 p.m., so the clerk called the on-call vendor support representative on the toll-free telephone line. The vendor representative dialed into the hospital's computer and, using the remote diagnostic capabilities of the system, called up the clerk's input screen. He then stepped the clerk through the process of entering the order. Somehow, either because the support representative gave improper instructions to the clerk or because the support representative actually entered the dosage incorrectly, the final computer-stored order indicated that the patient should receive a dosage of 300 milligrams. The night nurse who administered the medication failed to question the dosage. Later that morning, the patient died from the overdose. When the patient's family was notified of the cause of death, they consulted with their attorney and ultimately filed suit against all parties involved—the nurse, the physician, the hospital, and the hospital's computer software vendor. However, in its contract with the hospital, the vendor had included an indemnification clause which effectively eliminated any liability on its part to the patient. The court rendered partial summary judgment in favor of the vendor.[3]

---

3. Although intentionally vague, this hypothetical is structured to raise a question of liability on the part of the hospital's computer software vendor. There are, however, several additional possible fact situations in which the vendor's software might play a part, but only remotely, negating any vendor liability. Examples of similar hypotheticals in which the patient would probably not have a cause of action under § 324A against the vendor include the following:

(1) The ward clerk mistakenly entered the quantity as 300 milligrams. In this situation, the conduct that caused the patient's injury is traceable directly to the negligence of the ward clerk. The support representative might have provided information about the particular entry screen to use, but the erroneous data was entered by the hospital's employee. The vendor's software performed as designed.

(2) The nurse who verified the order failed to question the inflated dosage. Although clerical employees enter physician orders in large health care facilities, most Order Communications systems require that the order be verified or checked on the system by a clinician prior to processing the order and routing it to the appropriate department for action. This edit feature decreases the number of erroneous orders and risk to the patients. *See infra* note 188.

(3) The night nurse failed to question the dosage even though in her experience she had never known such a large dosage of this particular medication to be prescribed or that this particular medication would never have been prescribed for this particular patient. Computers take much of the administrative drudgery of treating patients out of the hands of clinicians, but in today's health care industry, computers are only tools that help the clinician be more efficient and less tied to paper. *See infra* notes 16 and text accompanying notes 45-48; Diane B. Lawrence, *Strict Liability Computer Software and Medicine: Public Policy At The Crossroads*, 23 TORT & INS. L.J. 1, 2-5 (1987). In medicine, computers are most commonly used as a library; a means to store medical records information. *Id.* at 3. However, "[t]he computer is also a valuable tool in the diagnosis and treatment of disease [because] it can perform and analyze tests, diagnose problems, and help to administer specific medical treatments." *Id.* Even where the computer is used "as a valuable tool," it

II. INTRODUCTION

In the "real world," the fact pattern used in this hypothetical has not yet occurred.[4] Attorneys for patients and their families have yet to file suit against an information systems vendor for injury directly or indirectly caused by a vendor's software.[5] The "deep pockets" of the physi-

---

should not be used to supplant the clinician's professional judgment. *See* William A. Knaus, M.D. et al., *The APACHE III Prognostic System: Risk Prediction Of Hospital Mortality For Critically Ill Hospitalized Adults*, 100 CHEST 1619, 1630-31 (Dec. 1991). Thus, the nurse administering the medication might have performed negligently.

(4) A power failure occurred just as the dosage was being entered, causing the error. Because the software performed as designed and the dosage was properly entered, the patient's most likely target would be the power company.

4. After exhaustive research the author failed to discover any similar fact situations or even cases in which the injured patient actually sued a health care information systems vendor for injuries resulting from a situation similar to the one described.

5. *See supra* note 4. Individuals have alleged injury resulting from the use or misuse of computer programs, but none of the suits were against the computer manufacturer whose program caused the injury; the suits were filed against the user of the computer software. Additionally, none of the individuals was a patient in a hospital or other health care facility.

For example, in *Messinger v. United States*, taxpayers sued the Internal Revenue Service for violating their privacy. 769 F. Supp. 935, 936 (D. Md. 1991). On December 29, 1988, the IRS computer generated a notice to the Messingers stating $7,469 of income reported by employers, banks, and other payors was not listed on the Messingers' 1986 federal income tax return. *Id.* at 935. The Messingers responded with letters of explanation to the IRS, and subsequently filed a petition with the Tax Court for redetermination of their alleged deficiency. *Id.* at 936. Despite the Messingers' attempts to resolve the dispute, the IRS sent out notices to forty-one institutions instructing them to withhold the Messingers' interest and dividends for unpaid taxes. *Id.* The Messingers then filed suit against the IRS claiming that the issuance of the notices violated statutory disclosure provisions. *Id.* The court held that the Messingers failed to make an affirmative showing of negligence, and that disclosure that results from computer error is not unauthorized disclosure that rises to the level of negligence. *Id.* at 940.

In *State v. Perkins*, a computer error caused the release from custody of a fugitive who had jumped bond twice. 713 S.W.2d 689, 690 (Tenn. Crim. App. 1986). Perkins was finally apprehended, and he claimed that his constitutional right to a speedy trial had been prejudiced by a delay of over five years. *Id.* at 691. The court found no negligence on the part of the state that the computer had malfunctioned, stating that Perkins appeared in court as ordered, "the computer would not have had to have been relied upon" and the error would have never occurred. *Id.*

In *Pompeii Estates, Inc. v. Consolidated Edison Co. of New York, Inc.*, the electricity at a newly constructed but unoccupied house was wrongfully terminated. 397 N.Y.S.2d 577, 577-78 (N.Y. Civ. Ct. 1977). Consolidated Edison's computer had created two bills to the address although the manual file on the account clearly indicated that the house was unoccupied. *Id.* Terminating the electricity caused the pipes to freeze and break, resulting in significant water damage. *Id.* at 578. The court found Consolidated Edison liable to the builder stating, "while the computer is a useful instrument, it cannot serve as a shield to relieve Consolidated Edison of its obligation to exercise reasonable care when terminating service. . . . Computers can only issue mandatory instructions they are not programmed to exercise discretion." *Id.* at 580.

cian, the health care facility, and more recently, the registered nurse[6] have traditionally provided recovery for any injury and suffering to the patient and his family.[7] Further, until the mid-1980s, information systems in a patient care setting were relatively scarce,[8] so the likelihood of a patient's injury being traced to patient care software would have been equally rare.[9] The future, however, will tell a different story. Radical changes in the composition of the "deep pockets" will undoubtedly occur

---

Finally, a woman who underwent routine surgery in a hospital "was administered pain relief by a computerized dispensing machine. Unfortunately, the system mistakenly instructed hospital staff to pump more than 500 milligrams of pain-relieving drugs into [her] body, and within thirty minutes of the successful completion of the operation, she went into a coma. Five days later, she was pronounced brain dead." TOM FORESTER & PERRY MORRISON, COMPUTER ETHICS, 163 (2d ed. 1994). The woman's attorney filed "a damages suit against the hospital for incorrect and irresponsible use of a medical expert system." *Id.* (citations omitted).

6. Traditionally, nurses have been employees of hospitals or physician clinics. Susan E. Baker, Note, *The Nurse Practitioner in Malpractice Actions: Standard of Care and Theory of Liability*, 2 HEALTH MATRIX 325, 344 (1992). Since nurses were not paid high salaries and carried no malpractice insurance, any suit brought against only the nurse was unlikely to compensate the victim for injuries he suffered. *Id.* Today, however, nurses can and do carry malpractice insurance of their own. *Id.* In addition, if they are employees of a hospital or clinic facility, that institution's insurance coverage is extended to them. *Id. See also* Robin E. Margolis, *Coordination of Medical Malpractice Insurance Benefits: Circuits Ponder Who Pays?*, 10 No. 1 HEALTHSPAN 16 (1993) (discussing an Eighth Circuit case involving a nurse who was employed by a large hospital system but who was required to carry her own liability insurance as a condition of her employment).

7. Paul C. Weiler, *The Case For No-Fault Medical Liability*, 52 MD. L. REV. 908, 914 (1993). "The average malpractice verdict is three times the size of motor vehicle verdicts, and twice the size of products and governmental liability verdicts, *after* adjusting for the age of the victim and severity of injury." *Id.* (emphasis in the original). Unfortunately, however, the costs of liability for medical malpractice are ultimately borne by the patients; the physician's malpractice insurance carrier pays the jury verdicts and increases malpractice premiums to cover its losses. *Id.* at 915. The physician, in order to cover the increases in his malpractice premium passes the increases along to his patients in terms of higher prices for services rendered. *Id.* Professor Weiler was the original architect of the Harvard Medical Practice Study in New York which compared a no-fault medical liability model with the present malpractice insurance system. *Id.* at 912, 925. The results of the study were that most citizens could purchase no-fault liability insurance for approximately the same amount of money that they are spending on the malpractice insurance system. *Id.* at 925. An additional benefit of such a system is the reduction in emotional stress on the part of physicians and patients resulting from litigation costs and "unnecessary and excessive defensive medicine." *Id.*

8. *See infra* text accompanying notes 50-58.

9. The hypothetical is premised on the hospital having a computerized Order Communications system. This specialized patient care module did not emerge until the 1970s. Sheldon Dorenfest, *Creating A "Top 100" HIS Firm: The Lessons Of History*, HEALTHCARE INFORMATICS, June 1994, at 49, 50. Only large hospitals were initially able to justify the acquisition of patient cares software, a trend which continues today. *See* Ernst & Young, *The Status And Trends Of Information Systems In The Health Care Industry*, Presentation to Sentara Health System (Jan. 1990) (on file with the author).

as a result of health care reform;[10] the physician, the health care facility, and the nurse will no longer be the only source for monetary damages.[11] Advances in information technology and increasing utilization of technology and software in the patient care setting raise the issue of clinical liability for health care information systems vendors.[12]

In the 1970s, financial applications dominated the hospital information systems industry.[13] Clinically-oriented applications, including labo-

---

10. "Health care reform" is the term that most people associate with the Clinton administration's proposed changes to the health care delivery system. *See infra* note 27. The term is still in use today even though the proposed changes to the health care industry were defeated in Congress. *See, e.g.,* Bill Mintz, *Congress To Revisit Health Care Reform Issue,* THE HOUSTON CHRONICLE, Jan. 25, 1995, at B1; Sandy Lutz, *For Real Reform, Watch The States,* MODERN HEALTHCARE, Jan. 23, 1995, at 31. "Health care reform" initiatives such as proposed Medicare/Medicaid cuts still exist. Ann Reilly Dowd, *Son Of Health Care,* FORTUNE, Oct. 31, 1994, at 16. *See also* Lutz, *supra,* at 23. "Healthcare [sic] reform didn't die in Washington. It just shifted to the states in the form of Medicaid reform." *Id.*

11. Cost containment, an increase in the number of managed care organizations, and an increase in the number of patients covered by managed care organizations are major trends in the industry. *See* Semiannual Forecast, *Hot & Cold Industries For 1995,* FORTUNE, Jan. 16, 1995, at 74, 76. *See also* Jane Baird, *The Benefits Of Networking,* THE HOUSTON CHRONICLE, Jan. 22, 1995, at 1E-4E. Rather than focusing on curing the patient, there is significant discounting of health care services to encourage employers and individuals to "buy into our plan. Under many managed-care plans, prices for services are being set 30 percent to 50 percent below the level[s] . . . traditionally charged." William H. Cunningham, *Managed Care Making Teaching Hospitals Sick,* HOUSTON CHRONICLE, Aug. 17, 1994, at 33A. The end result, however, may be a competitive market that ultimately drives itself into bankruptcy. Layoffs of health care professionals abound since human resources costs are still the easiest to identify and eliminate. Less money is paid for services rendered, and where there is little or no change in the delivery of the care, expenses quickly account for most, if not all, of the profit. Today's hospital is a potential candidate for merger or acquisition and the physician who refuses to "join" the managed care ranks may see his patient base eroding as more and more employers select managed care organizations to provide care for their employees at a discounted rate. *See* Baird, *supra* at 4E.

InterStudy, a Minnesota-based managed care research organization reports that "[e]rollment in pure HMOs climbed to 42.3 million as of January 1, 1994, from 38.4 million as of Jan. 1, 1993. Membership in point-of-service, or open-ended, HMOs grew 32.9% to 2.8 million from 2.1 million as of Jan. 1, 1994. Total enrollment in the nations 543 HMOs grew to 45.1 million." INTERSTUDY, *For The Record,* MODERN HEALTHCARE, Aug. 29, 1994, at 16.

However, although managed care has advantages, the larger academic medical centers are likely to feel deleterious side effects. Cunningham, *supra,* at 33A. Patients will be required to receive care from their insurance plan's network of provider so academic medical centers will lose their support base for education and research. *Id.* No longer will institutions be allowed to shift costs from indigent, uninsured patients to those who are insured. *Id.*

12. This author chooses to use the term "information systems" in lieu of "computer" to distinguish between a combination of application software and the computer hardware and the computer itself. Section III presents definitions of the technical terms to assist the reader in navigating through the technological aspects of this Comment.

13. Dorenfest, *supra* note 9, at 49.

ratory and pharmacy, began to emerge in the 1980s.[14] "Seemingly overnight, the health care industry has become focused on the patient and the technological opportunities to enhance patient care delivery."[15] Although this technology increases the health care provider's ability to save lives, patients are exposed to new and different forms of potential injury from the technology's use and misuse.[16] Nonetheless, health care information systems ("HCIS") vendors continue to use standardized contracts which "exclude all implied and express warranties, in part through the insertion of integration clauses; to disclaim special, indirect and consequential damages; and to set caps on total liabilities under the contracts."[17] Yet, the same vendors advertise and offer support services supplied by staffs of "health care professionals," including physicians, nurses, laboratory and radiology technicians, and pharmacists who make up a large percentage of each vendor's research and development, marketing, support, training, and installation personnel.[18] Computer manufacturers who market their systems outside the health care industry make similar claims and disclaimers, but despite this inherent conflict, courts have failed to find contractual disclaimers unconscionable.[19] If a

---

14. Dorenfest, *supra* note 9, at 72.

15. Teresa J. Jacobsen, RN, MS, *Guest Editor's Introduction*, 7 No. 4 HEALTHCARE INFO. & MGMT. SYS. SOC., Fall 1993, at 3. In 1993, more money was spent on patient care systems than any other hospital information systems application even though expenditures for patient accounting systems were at their lowest level since 1981. *For the Record: News and Views*, 5 No. 7 HIMSS NEWS, July 1994, at 8.

16. James N. Godes, *Developing A New Set Of Liability Rules For A New Generation Of Technology: Assessing Liability For Computer-Related Injuries In The Health Care Field*, 7 COMPUTER/LAW JOURNAL 517, 517 (1987). Computers are "invaluable tools to health care providers in preserving health and extending meaningful life," but when they are used in patient care, "physical harm may result from software error." Lawrence, *supra* note 3, at 1-2. "Computers are being used in more complicated areas where the consequences of a malfunction can be both devastating and deadly." Patrick T. Miyaki, *Computer Software Defects: Should Computer Software Manufacturers Be Held Strictly Liable For Computer Software Defects?*, 8 SANTA CLARA COMPUTER & HIGH TECH. L.J. 121, 121 (1992).

17. Liane A. Schleifer, *Damage Awards And Computer Systems — Trends*, 35 EMORY L.J. 255, 259 (1986). Despite the change from predominantly financially-oriented systems to clinical systems, most HCIS vendors contracts have remained unchanged.

18. In the mid-1980s, Unisys Health Care Services ran ads in most of the hospital trade journals claiming hospitals that purchased a Unisys system would have access to "the most complete hospital staff outside a hospital." *See generally* advertisements in COMPUTERS IN HEALTHCARE, HEALTHCARE INFORMATICS, MODERN HEALTHCARE (1986, 1987) (on file with the author). IDX Corporation, one of the primary providers of physician industry software, advertises "our Customer Support Representatives share years of medical office experience providing firsthand knowledge for you and your staff." IDX Marketing Brochure, 1991 (on file with the author). This type of language is standard in marketing brochures of health care software vendors.

19. *See* Schleifer, *supra* note 17, at 255. The number of cases involving computers in 1990 was double that in 1989, but despite the increase in computer litigation, courts still have little understanding of the technology involved and the contracts that are litigated

patient's injury motivated the health care facility to sue its HCIS vendor, it is likely that the courts would not deviate from prior holdings. On the other hand, injury to a patient might result in a finding of unconscionability, thereby motivating vendors to update their contracts.

It is possible that neither the patient nor the attorney actually knows that an information system caused the error or, if there are multiple systems installed, which one was responsible. Alternatively, the attorney may believe the individual caregivers or the hospital are more likely targets for the plaintiff patient.[20] Even so, a patient has multiple theories of recovery against the HCIS vendor for a direct or indirect injury resulting from some error involving the information system. The patient can sue as a third party beneficiary of the contract between the health care facility and the HCIS vendor, since the contracting parties' intent is that the third party benefit.[21] In addition, if the injury suffered by the patient is the direct result of an error in the software and the court finds the software to be a "product," the patient can bring a strict product liability action against the HCIS vendor.[22] The focus of this Comment, however, is on an unusual and untried theory of recovery;[23] one alleging a breach of section 324A of the RESTATEMENT (SECOND) OF TORTS ("RESTATEMENT") by the information systems vendor.

Section 324A provides in essence that "one who undertakes . . . for consideration, to render services to another which he should recognize as necessary for the protection of a third person . . . is subject to liability to the third person for physical harm."[24] HCIS vendors provide application

---

rarely accurately represent the nature of the relationship between the parties. Diane W. Savage, *Performance Warranties In Computer Contracts*, 8 No. 12 COMPUTER LAW. 32, 32 (Dec. 1991).

20. Thomas G. Wolpert, *Product Liability And Software Implicated In Personal Injury*, 60 DEF. COUNS. J. 519, 522-23 (1993).

21. Alliance Imaging, Inc. v. Picker Int'l, Inc., 1993 WL 76209, *2 (E.D. Pa. 1993) *quoting* Spires v. Hanover Ins. Co., 70 A.2d 828 (Pa. 1950).

22. *See* RESTATEMENT (SECOND) OF TORTS § 402A (1965). *See infra* note 89 and text accompanying notes 229-39.

23. This theory has not been applied in the information technology industry, but it has been relatively untried in any industry. The cases alleging liability under § 324A are rare, and the most recent extensions have been to corporations and the environment. *See infra* notes 78, 86, 106-109 and accompanying text.

24. Restatement section 324A provides:
   One who undertakes, gratuitously or for consideration, to render services to another which he should recognize as necessary for the protection of a third person. . ., is subject to liability to the third person for physical harm resulting from his failure to exercise reasonable care to protect his undertaking, if
       (a) his failure to exercise reasonable care increases the risk of such harm, or
       (b) he has undertaken to perform a duty owed by the other to the third person, or
       (c) the harm is suffered because of reliance of the other or the third person upon the undertaking.

software to hospitals and other health care facilities for a price. Their claims that the application software will enable the health care facility to "streamline operations, improve productivity and financial viability, and assist in the delivery of quality patient care"[25] indicate each HCIS vendor's awareness that the health care facility will use application software for the patient's benefit.[26] If the patient is injured and the cause of that injury can be traced to the HCIS vendor,[27] the HCIS vendor could be subject to liability if any of the three subsections of section 324A apply.[28] Where the facts are similar to those presented in the hypothetical, a patient potentially has a cause of action under section 324A against an HCIS vendor.[29]

Whether a patient should be allowed to recover damages from an HCIS vendor under section 324A, though, is more a question of conflicting public policies than cause of action viability. On the one hand, the basic theory of tort law is that wrongs must be remedied:[30] if a patient is injured, he should be compensated for that injury. As the health care

---

RESTATEMENT (SECOND) OF TORTS § 324A (1965).

25. IDX Marketing Brochure, 1991 (on file with the author). This is a direct quotation from one vendor's marketing brochure, but virtually every health care information systems vendor has similar language in its brochure. Health Systems Design explains that their state-of-the-art managed care information system is "[d]eveloped by our industry experts." Health Systems Design advertisement, MODERN HEALTHCARE, Sept. 12, 1994.

26. "Protect" is defined as "to cover or shield from injury or destruction." WEBSTER'S SEVENTH NEW COLLEGIATE DICTIONARY 685 (3d ed. 1969). Since one of the main goals of a health care facility is to provide services and quality patient care to patients to make them well, a health care facility's goal is to "protect" third persons. See RESTATEMENT § 324A. Comment (d) provides an illustration:

> [A] managing agent who takes charge of a building for the owner, and agrees with him to keep it in proper repair, assumes the responsibility of performing the owner's duty to others in that respect. He is therefore subject to liability if his negligent failure to repair results in injury to an invitee upon the premises who falls upon a defective stairway, or to a pedestrian in the street who is hurt by a falling sing. Such liability is in addition to that which he may have to the person to whom he has agreed to render the services.

RESTATEMENT (SECOND) OF TORTS § 324A cmt. d (1965).

27. If the injury is a direct result of an employee of the HCIS vendor providing erroneous instructions or entering erroneous data, the two possibilities presented in the hypothetical, or if the injury is caused by an error in the application software, the HCIS vendor might be liable to the patient for his injury.

28. The three subsections of § 324A provide that the HCIS vendor will be liable if:
(a) his failure to exercise reasonable care increases the risk of . . . harm, or
(b) he has undertaken to perform a duty owed by the [health care facility] to the [patient], or
(c) the harm is suffered because of reliance of the [health care facility] or the [patient] upon the undertaking.

RESTATEMENT (SECOND) OF TORTS § 324A (1965).

29. See infra text accompanying notes 157-60, 173-76, 187-88, 194-98, 205-09.

30. See Godes, supra note 16, at 523.

delivery system continues to evolve,[31] additional "deep pockets" will appear.[32] New entities will be available to share responsibility for compensating the patient for wrong suffered.[33] The HCIS vendor, similar to a manufacturer in many ways, is likely to be one of these new entities. On the other hand, without some cap on the potential jury verdicts likely to ensue, a verdict in favor of the patient will likely eliminate the majority of HCIS vendors and chill technological advances that are critical to the public's general health and well-being.[34] Should courts allow one patient to recover from an HCIS vendor to preserve the "Wrong Equals Remedy" theory of tort law at the potential expense and destruction of an entire segment of the industry whose demise would significantly and negatively affect all future patients?[35]

31. *See infra* note 33 and accompanying text.
32. *See supra* notes 6, 7 and accompanying text.
33. *See supra* notes 10-11. President Clinton's Health Security Act was introduced by Sen. Mitchell and Rep. Gephardt. Marshall B. Kapp, *Medical Malpractice Reform As Part Of Health Care Reform 1994 Version*, 68-MAY FLA. B.J. 28, 30 (1994). The proposed national system of managed competition would provide universal coverage paid for primarily by employers although some consumer contributions would be required. *Id.* In terms of malpractice reform, all health plans would be required to adopt alternative dispute resolution methods such as arbitration, mediation, and settlement prior to proceeding to trial. *Id.* Malpractice claims would be certified by experts and plaintiff's attorneys' contingency fees would be capped at a maximum of one-third of any recovery. *Id.* "[F]ederal funding of state demonstration projects on the feasibility of enterprise liability . . . would make the sponsoring health care entity (e.g., hospital, health maintenance organization, preferred provider organization), rather than the individual health professional solely liable for tort damages." *Id.* Unfortunately, President Clinton's plan "omits any reference to a cap or limit on malpractice recoveries by plaintiffs." *Id.*

Other plans do address limits on malpractice recoveries. The Managed Competition Act and the Affordable Health Care Now Act each limit noneconomic damages to $250,000 and directs punitive damages awards to the state. *Id.* The report produced by the Senate GOP Task Force on Health Care includes a cap of $250,000 on noneconomic damages and payment of half of the punitive damages awarded to the state. *Id.* at 31.

For a general discussion of tort reform and actions taken by states over the last four years, *see generally,* David W. Feeder II, Comment, *When Your Doctor Says, "You Have Nothing To Worry About," Don't Be So Sure: The Effect of Fabio v. Bellomo On Medical Malpractice Actions In Minnesota.* 78 MINN. L. REV. 943, 948-54 (1994); Hans A. Linde, Lecture before Monsanto Corp., *in Courts And Torts: "Public Policy" Without Public Politics?*, 28 VAL. U.L. REV. 821, 838-40 (1994).

34. *See infra* notes 250, 252, 269, 273 and accompanying text.
35. Ultimately, the question of whether recovery under § 324A should be allowed becomes which of two equally important public policies should prevail: the right of the individual to recover for injury versus the need of business to develop and provide technology that will benefit society as a whole. *See infra* notes 228, 250-52 and accompanying text. Assume two patients at the same health care facility suffered injury and that causation could be traced to the HCIS vendor. Assume further that each patient sued the HCIS vendor and that the jury awarded punitive damages such that the HCIS vendor went out of business. Although the individual patients would recover for their injuries, other users of that HCIS vendor's software would be harmed because software support would no longer be

Since no patient has yet sued an HCIS vendor under any theory, there is no guiding case law on which to base an answer. Section 324A offers a potential theory of recovery by a patient whose injury is traced to the HCIS vendor's system. Nonetheless, due to the myriad of intervening or superseding causes that might shield the vendor from liability, success would have to be determined on a case-by-case basis. Rather than predict the likely outcome of any one patient's case, this Comment offers a balanced review of the reasons for and against recovery under section 324A. Section III of this Comment reviews the terminology specific to the computer industry and the types of disclaimers HCIS vendors include in their contracts. Attorneys who routinely negotiate contracts on behalf of health care facilities or HCIS vendors will find this section particularly beneficial. Section IV examines section 324A and its application in five cases and then analyzes section 324A, focusing on how it might apply in a health care setting. This section will be of interest to HCIS vendors and to plaintiff's attorneys whose clients suffer injury as patients in a health care facility.[36] Finally, Section V discusses the public policies for and against the application of section 324A to cases similar to the hypothetical presented at the beginning of this Comment. Mediators, arbitrators, and judges, faced with a similar fact pattern, will be better prepared to weigh the conflicting public policies involved.

III.   COMPUTER INDUSTRY TERMINOLOGY AND CONTRACTS

A.   COMPUTER TERMINOLOGY

An information system is comprised of several components: hardware, software, and personnel. "Hardware is the part of the [system] that can be seen and felt."[37] Hardware includes one or more central processing units ("CPU"), memory, storage, and peripherals such as

---

available. If there were problems with those users' systems, the clinicians and patients who relied on those systems would be harmed but unable to recover from the HCIS vendor. Other HCIS vendors, recognizing that they could be found liable if they had problems with their system might determine that it would be better to eliminate software services (putting them at a distinct disadvantage competitively), purchase insurance (significantly increasing the cost of their product thereby negatively impacting sales), or cease doing business. If the majority of HCIS vendors determined the cost of staying in business and assuming the associated risks was too great, that segment of the industry would slow down or cease altogether. The result would be fewer technological advances for the benefit of other patients and clinicians and ultimately an inefficient system (pen and paper) with greater risks of injury to patients.

36. Again, this author cautions that recovery under § 324A is not guaranteed. Nonetheless, § 324A has been so rarely alleged that use by a plaintiff might catch his opponent by surprise.

37. Kerry M.L. Smith, Comment, *Suing the Provider Of Computer Software: How Courts Are Applying U.C.C. Article Two, Strict Tort Liability, And Professional Malpractice*, 24 WILLAMETTE L. REV. 743, 744 (1988). *See also* Advent Sys. Ltd. v. Unisys Corp., 925

printers and terminals.[38] However, just as a car is useless without an engine and a driver, hardware is useless without software and an operator.[39]

Software (or a computer program) is "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result."[40] Basically, "software tells computers what to do and how to do it."[41] There are two main types of software: operating systems and application software.[42] The operating system controls the hardware; it enables the CPU to "know" how much memory it has, how much storage, and what kind of peripheral devices are attached. The operating system also functions as the liaison between the user and the

---

F.2d 670, 674 (3d Cir. 1991). "Hardware is the computer machinery, its electronic circuitry and peripheral items such as keyboards, readers, scanners and printers.") *Id.*

For an excellent review of the history of computers and software, *see* Leonard D. DuBoff, *Introduction to Computer Law*, 14 HASTINGS COMM. & ENT. L.J. 215 (1992). According to Professor DuBoff, the abacus was the first computer. *Id.* at 216. It was improved upon in the late-1600s, first with the development of logarithms and then "Napier's bones," essentially "a multiplication table with movable parts." *Id.* Professor DuBoff claims that, until it was replaced by the electronic calculator, the slide rule was "a very popular 'personal computer' because of its accuracy, portability, and low cost." *Id.* at 217. The first "true" computer was created by Charles Babbage in 1822 and called the "Difference Engine." *Id.* Babbage followed this creation with the "Analytical Engine" (the world's first digital computer) that permitted "conditional jumping" from one set of instructions to another alternate set of instructions based on the result of comparing two values. *Id.* at 217-18. The "Analytical Engine" also permitted the use of punched cards for input and instructions similar to the modern programming loop and subroutine. *Id.* at 218.

Modern hardware technology is currently in its fourth generation. The four generations are: (1) vacuum tubes; (2) transistors; (3) printed circuits; and (4) integrated circuits. *Id.* at 219. ENIAC "was the first all-purpose, all-electronic computing machine" with thousands of vacuum tubes and a failure rate of one tube every seven seconds. *Id.* at 220. Bell Labs in New Jersey spear-headed the development of the second generation of computers in the 1960's. *Id.* The 1970's brought computers based on integrated circuits which allowed further miniaturization, faster and more efficient operation, and lower costs. *Id.* For the first time, small and medium-sized businesses were able to purchase computers. *Id.* at 220-21. Technology continued to improve rapidly, and the 1980's saw the emergence of computers using large-scale and very large-scale integrated circuits ("LSIC" and "VLSIC"). *Id.* at 221. Newly manufactured computers are continually made smaller, more powerful, more user-friendly, and less costly.

38.   Peter W. Hohenhaus, *An Introductory Perspective On Computer Law: Is It, Should It Be, and How Do We Best Develop It As, A Separate Discipline?*, 1991 WL 330761, § B2 (April 1991) (published exclusively on Westlaw).

39.   Smith, *supra* note 37, at 744.

40.   Hohenhaus, *supra* note 38 *quoting* the Copyright Act of 1976, as amended, 17 U.S.C. §101.

41.   Smith, *supra* note 37, at 744. *See also* Advent Sys. Ltd. v. Unisys Corp., 925 F.2d 670, 674 (3d Cir. 1991) Software is both the medium that stores input and output data and the computer programs which, when "transposed onto a medium compatible with the computer's needs . . . becomes software." *Id.*

42.   Hohenhaus, *supra* note 38, at § B1.1.

application software. Application software is that which "enables the user to perform specific business, statistical, mathematical, scientific, recordkeeping, or recreational functions."[43] The hypothetical addresses the use or misuse of application software by the HCIS vendor.[44]

The most recent development in information technology is artificial intelligence.[45] Definitions of artificial intelligence abound, and are divided into two different categories: "one . . . attempts to shed light on the nature of human intelligence by simulating it or components of it, with the eventual aim of replicating it (or even surpassing it); the other . . . attempts to build expert systems that exhibit intelligent behavior regardless of their resemblance to human intelligence."[46] An expert sys-

---

43. Hohenhaus, *supra* note 38, at § B1.2. Software programs are referred to as "code" and one finds both "source code" and "object code" programs. *Id.* "Source code" is the set of instructions that the computer programmer writes. *Id.* Unfortunately, the computer is unable to read the "source code" so it must be translated (compiled) into "object code" which the computer can read. *Id.*

Software is created in a series of steps. Lawrence, *supra* note 3, at 6. "First, the user describe[s] the functions to be performed or the problems to be solved by the computer." *Id.* Then, "[a]lgorithms [which are] sets of rules for getting a specific output from a specific input" are created then coded into instructions for the computer in a "machine-readable form." *Id.* The instructions are then tested to determine if the routines are working properly and whether there are any errors or bugs, a process known as "debugging." *Id.* In reality, "development of a computer program is a continuous process rather than a single act." *Id.*

44. *See infra* note 60. In the hypothetical, the patient's injury was not caused by improperly designed software, nor was it a result of a software "bug." *See infra* notes 62-64 and accompanying text. Rather, using remote diagnostics, the HCIS vendor's support representative accessed the input screen and either input data the clerk told him to enter or provided instructions as to the entry of the data by the clerk while the representative watched the figures display on his remote monitor.

45. DuBoff, *supra* note 37, at 221.

46. FORESTER & MORRISON, *supra* note 5, at 164. The second branch of research is concerned with the development of tools that assist human beings in complex tasks. FORESTER & MORRISON, *supra* note 5, at 164. One such tool is a computer program called APACHE — Acute Physiology and Chronic Health Evaluation. This program predicts an intensive care patient's chances of dying in the hospital with 95 percent accuracy using a database of almost 18,000 patients and input of 27 factors per patient per day. Evan I. Schwartz & James B. Treece, *Smart Programs Go To Work*, BUS. WK., Mar. 2, 1992, at 97-99. *See also* David Brown, *Computers' 'Second Opinions' Help Guide Medical Treatment*, THE WASH. POST, Jan. 1, 1992 at A1. The physicians who developed APACHE urge users and the public to realize that what the data base does is remember "far more than what is in any one physician's experience" in an unbiased way. David Brown, *Medical Computer With A Godlike Role*, THE SAN FRANCISCO CHRONICLE, Feb. 9, 1992, at SUNDAY PUNCH p. 4. In addition, and just as important, the system helps the attending physician determine whether treatment is making a difference. *Id.*

The major concern shared by many critics is that the information provided by APACHE will be misused to slash expenses. Robert S. Boyd, *Will You Live Or Die? Ask The Computer*, HOUSTON CHRONICLE, Nov. 25, 1994, at A5. Under intense pressures from government agencies and insurance companies to cut costs, those patients who are "pre-

tem is a program that uses the knowledge base of experts from which to draw inferences that are "equal to or exceed . . . the quality of similar inferences made by human experts."[47] To date, only one "true" expert system is installed in a health care facility.[48]

Once acquired, information systems are "implemented." "Implementation" includes installing the hardware, loading the operating system and application software onto the hardware, and training the users how to use the system. A "turnkey installation," common in the health care industry, "is intended to describe a self-sufficient system [on] which the purchaser need only 'turn the key' to commence operation."[49]

B. HEALTH CARE INFORMATION SYSTEMS CONTRACTS

In the early days of computer systems, health care facilities bought hardware and then used in-house programmers to write basic software applications that assisted in operating the business. As computer manufacturers became more attuned to the needs of customers, several of them began to develop application software in addition to operating system software to help assure continued growth in hardware sales. In 1969, the major computer hardware companies, IBM, Burroughs, and NCR, supplied most of the health care software purchased by the industry.[50] In that same year, the current leading HCIS software supplier,

---

dicted" to die in a few days or weeks will be targets. *Id.* The Society for Critical Care Medicine recently published guidelines for deciding who should be admitted to a hospital's Intensive Care Unit. ("ICU") *Id.* Under these guidelines, "patients with very poor prognoses and little likelihood of benefit should not be admitted." *Id.* Some members of the committed that wrote the guidelines have been advocating for the right to refuse to pay for expensive care when such care might be futile. *Id.* On the other hand, other health care providers see systems such as APACHE as ways for payors to "substitute clinical decision rules — based on statistical analysis of past outcomes — for clinical judgment." *Id.*

One other potential complication is the use of the information by individuals to determine their own right to die. Oregon recently became "the only place in the world where it will be legal for doctors to help patients end their lives." Timothy Egan, *Suicide Law To Bring Death And More*, HOUSTON CHRONICLE, Nov. 25, 1994, at A1. Could a physician, using a system like APACHE, determine and convey the statistical probability of survival to his patient, thereby leading to the patient's decision to commit suicide? Uncertainty abounds in this area; "the Oregon Medical Association found no consensus among its members" although the majority were "troubled by the definition of terminally ill." *Id.* at A30. According to the Oregon physicians, many patients, given only six months to live, actually live longer. *Id.* Patients who commit suicide might be "hasten[ing] the end of a life that might have found additional meaning and time—and even a remote chance of a miracle cure." *Id.*

47. FORESTER & MORRISON, *supra* note 5, at 173.

48. To this author's knowledge, only one "expert system" is installed in a hospital setting, the 3M HELP system at LDS Hospital in Salt Lake City, Utah. *See also infra* notes 255 and 268.

49. Diversified Graphics, Ltd. v. Groves, 868 F.2d 293, 297 (8th Cir. 1989).

50. Dorenfest, *supra* note 9, at 49.

SMS Corporation, was formed.[51] Over the past twenty-five years, vendors offering health care software solutions have entered, merged, and disappeared from the market.[52] Whereas financial applications[53] offered on shared services predominated in the early 1970s, by the end of that decade, in-house turnkey systems were emerging.[54] Health care facilities[55] now direct the majority of their information systems acquisitions

---

51. Dorenfest, *supra* note 9, at 49. SMS's revenues have increased from $100 million in 1980 to $501.3 million in 1993. *Id.* at 50, 52. Several HCIS vendors entered the marketplace at about the same time as SMS (HBO & Company, McDonnell Douglas, and IDX are three examples.) These vendors sold hardware in addition to their software, but they did not manufacture the computer hardware. Rather, they "teamed up" with one or more of the computer manufacturers (usually IBM or Digital Equipment Company) and re-marketed the particular hardware configuration that had been purchased at a discount from the computer manufacturer or brought the computer manufacturer's representative into the deal at an appropriate time.

52. Dorenfest, *supra* note 9, at 49-50. SMS, the largest HCIS vendor, planned to acquire GTE Health Systems no later than early October 1994. John Morrissey, *Vendors Buy Their Way Into Market*, MODERN HEALTHCARE, Aug. 29, 1994, at 24. The acquisition was completed on September 30, 1994. The second and third largest HCIS vendors in 1980, McDonnell Douglas and Technicon, have both been purchased by other firms, First Data Corporation and Alltel/Systematics respectively. Dorenfest, *supra* note 9, at 50. HBO & Company, the fourth largest vendor in 1980 with revenues of $29 million, is the second largest vendor today with revenues of $237.1 million. *Id.* at 50, 52. HBO & Company recently acquired IBAX (formerly Spectrum, Baxter Healthcare, and JS Data, Dynamic Control, and Omega) and Unisys Health Care Services. John Morrissey, *Vendor Consolidations Can Slash High Cost Of Selling*, MODERN HEALTHCARE, June 6, 1994, at 38. National Data Communications, Pentamation, and General Electric, members of the top twenty health care vendors in 1980, are no longer in business. Dorenfest, *supra* note 9, at 50.

53. Examples of health care financial applications include modules such as Patient Accounting, Billing and Accounts Receivable, Accounts Payable, Payroll, General Ledger, Budgeting, Medical Records Tracking, Case Mix Analysis, and Statistical Reporting and Trend Analysis.

54. Dorenfest, *supra* note 9, at 50. In the early 1980s, patient care applications including laboratory and pharmacy modules, were offered in addition to the financial applications. *Id.*

55. While the HCIS vendor community has undergone radical changes since the early 1960s, the changes in the types and operations of health care facilities has been no less significant. Primarily in response to the Prospective Payment System, hospitals in the 1980s began expanding to encompass ambulatory services beyond the typical outpatient clinics. Home health organizations, day surgery centers, and ambulatory care centers were acquired or developed as joint ventures. The recent watchword is "merger mania" as hospitals and hospital chains and other health care providers join together. "According to MODERN HEALTHCARE estimates, more than 100 hospital mergers and acquisitions have been announced this year." Jay Greene, *Merger Monopolies*, MODERN HEALTHCARE, Dec. 5, 1994, at 38, 39. Chronicling the history of the largest health care organization provides a glimpse into mergers that are as commonplace today as business meetings.

In 1988, three hospitals in El Paso were acquired to form the beginning of Columbia/HCA Healthcare Corp., currently a $15 billion giant in the industry. Sandy Lutz & Jay Greene, *Columbia/HCA Nabs Healthtrust*, MODERN HEALTHCARE, Oct. 10, 1994, at 2, 3. In

efforts on purchasing patient care systems to augment their financial systems.[56] What the health care facility buys has changed as well. Twenty years ago, at least ninety percent of a facility's total investment went to the hardware portion of the sale and only ten percent or less to the software and services portion.[57] Today, the same facility will spend forty to sixty percent of its total investment on the services and software

---

December 1988, Columbia entered the Miami market, purchasing Victoria Hospital which, in 1993, merged into Cedars Medical Center. *Id.* In April 1990, Columbia and Medical Care America, the nation's largest surgery center chain, entered into a joint venture, and one month later, Columbia merged with Smith Laboratories and became a public company. *Id.* In July 1990, Columbia purchased HEI Corp. in Houston. *Id.* Two years later, Columbia bought Basic American Medical, and less than one year later, agreed to merge with Galen Health Care, the spin-off of Humana. *Id.* In 1994, Columbia merged with HCA, making the resulting organization the nation's largest private hospital chain. *Id.* In October 1994, Healthtrust's board agreed to be acquired by Columbia/HCA, bringing the resulting company's total worth to $15 billion. *Id.*

    Every week, trade journals and newspapers publish news of new affiliations and acquisitions. Although most are not of the magnitude of the Columbia/HCA story, each underscores the drastic changes the industry is experiencing.

    56. Examples of patient care modules include Order Communications and Results Reporting, Pharmacy, Laboratory, Radiology, Nursing Documentation, Care Plans, Patient and Resource Scheduling, and Patient Acuity. *See also supra* note 15.

    In 1993, expenditures for patient care systems were $1.5 billion and those for patient accounting, declining again for the third consecutive year, were $950 million — the lowest since 1981. *Market Trends For 1993*, HEALTHCARE INFORMATICS, July 1994, at 35. Laboratory systems expenditures grew approximately 16 percent from 1992 to $775 million. *Id.*

    Vendors can either develop new patient care systems, acquire other vendors that offer one or more specialized patient care product, or acquire software rights from vendors seeking divestment of assets. In many instances, costs to completely develop, document, maintain, and support a new software program are significantly higher than acquiring the technology, so the latter two options are more attractive. Recently, a Houston-based health care information systems vendor, Community Health Computing Corporation, acquired all rights to LifeSpan, "a computer-based patient record system now under development in Atlanta." *Local Firm Buys On-Line Medical Records System*, HOUSTON CHRONICLE, Aug. 8, 1994, at D1. Within the last year, HBO & Company, in order to expand its product offering to include systems for managed care, purchased the software package of a managed care vendor and is currently developing interfaces between its primary product offerings and the new product. In the early 1980s, Burroughs Corporation (now Unisys Corporation) acquired the rights to a release of Continental's Pharmakon (pharmacy system) which was modified to interface with its product offering to large hospitals.

    57. When the author sold systems to hospitals and clinics as a sales representative for a major computer manufacturer in 1976, a total hospital information system for a small hospital (under 150 beds) cost approximately $80,000. Of that cost, only $5,000 was for software and training. A large hospital's system (for hospitals over 400 beds) would cost $6 million, $500,000 of that amount would be for software and services. Of interest also is that the hardware configuration for the $75,000 system included 32 KB of main memory and 5 MB of hard disk space. Today's personal computers typically come configured with at least 4 to 8 MB of memory and a minimum of 120 MB of hard disk space, yet they sell for less than $2,500!

portion.[58]

Over the past twenty-five years, HCIS systems have changed from those that consist primarily of financial applications to those that are oriented more heavily toward clinical applications. At the same time, HCIS vendors have placed increasing emphasis on the service and support of the software by the "health care professionals" on the HCIS vendor's staff. Despite these two major shifts, the contract that is presented to the health care facility for signature has remained relatively constant—the contract still favors the vendor.[59] During contract negotiations, the vendor attempts to limit its liability for problems resulting from the use or misuse of its system while the health care facility tries to circumvent such limitations.[60] In reality, "[t]he parties' economic and business goals should determine the type of contract that binds them and, as a consequence, the law governing the interpretation of the agreement."[61]

---

58. Over the last five years, this author has assisted hospitals and clinics in selecting information systems. For a small hospital (under 150 beds), the average acquisition cost ranges from $750,000 to $2.5 million depending on the software modules ordered. The rough breakdown of the prices are as follows:

	$750,000 System	$2,500,000 System
Hardware:	$ 350,000	$ 1,000,000
Software:	$ 200,000	$ 750,000
Telecommunications:	$ 75,000	$ 150,000
Implementation/Training:	$ 125,000	$ 600,000

A large hospital (over 400 beds) spends several million dollars to purchase a total information system. For example, Digital Equipment Corporation just signed a $27 million order to upgrade the U.S. Department of Veterans Affairs computers (for hardware only) used to run the patient databases and hospital information systems applications. *DEC Wins $27 Million Order*, HEALTHCARE INFORMATICS, July 1994, at 28. According to a Chicago-based health care consulting firm, "a basic system, including the extra demands for implementation and ongoing support for clinical systems, runs at least $1 million." John Morrissey, *Cost Can Be Hefty For Adequate Computer Coverage*, MODERN HEALTHCARE, Oct. 10, 1994, at 42. Adding advanced patient-care capabilities will cost $3 million to as much as $4 million. *Id.*

59. Vincent Ciotti & Bill Bogutski, *10 Commandments: Negotiating HIS Contracts*, HEALTHCARE INFORMATICS, July 1994, at 18.

60. Herbert J. Hammond, *Limiting And Dealing With Liability In Software Contracts*, 9 No. 6 COMPUTER LAW. 22, 22 (1992). "The potential of software to injure an individual, a business, indeed an entire nation in today's business and technological environment is increasingly evident. Accordingly, a vendor's potential liability for improperly designed software, unless limited, knows almost no bounds." *Id.* Whereas the hypothetical presents two specific areas in which the HCIS vendor would attempt to limit liability, during contract negotiations, the HCIS vendor would most likely prefer to limit all areas of liability.

61. S. Revelle Gwyn & Alan T. Rogers, *Negotiating And Litigating Computer Contracts: Selected Issues*, 53 ALA. LAW. 404, 404 (1992). *See also* Stephen L. Poe & Teresa L. Conover, Legal Development, *Pulling The Plug: The Use and Legality Of Technology-Based Remedies By Vendors In Software Contracts*, 56 ALB. L. REV. 609, 610 (1993) "The rights and remedies available to a software vendor generally will be determined by the terms of the contract and the body of law applicable to the transaction." *Id.*

Commentators agree that computers are basically unreliable: "failures in computer system development and use are not just commonplace: more often than not, they are the rule."[62] One vendor's corporate counsel claims that information systems are still not as reliable as washing machines or automobiles and that they are constantly being improved by enhancements to both the software and the hardware components.[63] Since software is so complex, "it is virtually impossible to prevent some defects (called "bugs") from showing up in programs, even when the software has been on the market for several years."[64] Thus, of major concern to the health care facility and its attorney are the warranty and indemnity clauses in the HCIS vendor's contract although many other provisions in the same contract may additionally expand or limit these clauses.[65]

---

62. FORESTER & MORRISON, *supra* note 5, at 106. "Reliability [of] a computer system [is] the probability that it will not fail during a given period of operation under given conditions." *Id.* "When used in medical care, there is always the risk of physical injury because it is impossible to develop a program that can be applied to all persons in all circumstances." Lawrence, *supra* note 3, at 18.

63. Edward F. Langs, *User-Vendor Litigation From The Vendor's Point Of View*, 280 PLI/PAT 577, 580 (1985). Langs continues with three reasons justifying his contention that information systems are unreliable: (1) Software programs are never bug-free; (2) Since information systems buyers purchase maintenance and support services from the vendor, their actions acknowledge that downtime is expected; and (3) Industry specifications express maximum capabilities rather than actual expectations or experiences. *Id.* at 580-81.

64. G. Gervaise Davis III, *Special Problems Involving Software Warranties And Indemnities For Mass-Distributed Software*, 191 PLI/PAT 597, 604 (1984). *See also* Hammond, *supra* note 60, at 22. "Writing error-free software is virtually impossible — especially within the time available for testing under marketplace constraints.". *Id.* Langs, *supra* note 63, at 616. "Perhaps the most notable differences are the concept of software and the state of the art as technology continues to develop; some downtime and software bugs are expected." *Id.* Lawrence, *supra* note 3, at 7 ("[N]o amount of testing can guarantee that all the 'bugs' in the program have been found."); Wolpert, *supra* note 20, at 523. "[A]ll commercially significant software has defects." *Id.*

65. Davis, *supra* note 64, at 605. Davis provides the following checklist of provisions that should be included in a software license agreement:
  • Definition of terms used
  • Detailed specifications for the program (in exhibits)
  • Details of target equipment configuration
  • Delivery, testing and acceptance provisions
  • Grant and scope of license
  • Term and limitations on use and reproduction
  • Sublicensing and transfer limitations
  • Price or royalty provisions
  • Accounting and audit rights
  • Sales and property tax liability
  • Trade secret acknowledgement [sic]
  • Title to original software and owner representations
  • Ownership of modifications, enhancements and additions

Previous suits against information systems vendors for defectively-designed software allege one or more of the following causes of action: breach of contract,[66] breach of warranty,[67] misrepresentation,[68] fraud,[69] computer malpractice,[70] and even strict liability.[71] Contractual liability is based on a breach of either the express warranties or the implied warranties in the contract.[72] For relief to be granted under Article 2 of the

---

- Source code inclusion/exclusion and protection
- Training and documentation involved
- Protection of trademarks, tradenames and copyrights
- Software maintenance obligations and term
- Vendor warranty obligations and scope
- Vendor limitations on liability assumed
- Vendor indemnity to licensee as to non-infringement
- Most favored nation and first refusal clauses
- Best efforts versus reasonable efforts provisions
- Arbitration versus court litigation
- Limitations on attorney fees and scope of disputes
- Assignment limitations, especially as to subsidiaries
- Standard contract boilerplate — merger, law, etc.

Id. at 600. Davis explains that although one contract contains all the above provisions, "the coverage of each of these provisions will differ, depending on the level of distribution, the nature of the software, and the amounts of money involved." *Id.* Davis also cautions software vendor lawyers that most judges and fact finders "have little or no experience in these matters, and lack of provision for some of these issues may result in disaster." *Id.*

66. *See* Hammond, *supra* note 60, at 22; Godes, *supra* note 16, at 525.

67. Hammond, *supra* note 60, at 22.

68. Hammond, *supra* note 60, at 23. In those states that recognize negligent misrepresentation as a viable cause of action, neither proof of intent to deceive nor knowledge of the falsity of representations is required as an element of the plaintiff's case in chief. *Id.*

69. Hammond, *supra* note 60, at 23. Hammond explains that contract liability limitations will be ineffective against a successful claim of fraud in the inducement. *Id. See also* Glovatorium, Inc. v. NCR Corp., 684 F.2d 658, 659 (9th Cir. 1982); Lawrence, *supra* note 3, at 9-11; Godes, *supra* note 16, at 517.

70. Data Processing Serv., Inc. v. L.H. Smith Oil Corp., 492 N.E.2d 314, 319-20 (Ind. Ct. App. 1986) (finding services from those who contract to develop computer programming to be analogous to those of a lawyer or physician). *See generally* Sue G. Graziano, *Computer Malpractice — A New Tort On The Horizon?*, 17 RUTGERS COMPUTER & TECH. L.J. 177 (1991). *But see* Invacare Corp. v. Sperry Corp., 612 F. Supp. 448, 453 (N.D. Ohio 1984) (finding failure of computer vendor to perform at a level of ordinary care is simple negligence in a business setting, not computer malpractice); Chatlos Sys., Inc. v. National Cash Register Corp., 479 F. Supp. 738, 741 n.1 (D.N.J. 1979) (declining to create the new tort of computer malpractice); Wolpert, *supra* note 20, at 531 (stating unlikely that tort of "programmer malpractice" will be recognized since complex software is more similar to complex machinery and courts do not apply "designer malpractice" in actions involving such complex equipment).

71. *See* Godes, *supra* note 16, at 517; Lawrence, *supra* note 3, at 2; Wolpert, *supra* note 20, at 522.

72. Hammond, *supra* note 60, at 22. Express warranties are those that become part of the basis of the bargain and include those that are explicitly set forth in the contract as well as statements made by the vendor in oral presentations or marketing literature. *Id.*

Uniform Commercial Code ("UCC"), however, the software in question must be considered a "good"[73] rather than a "service," because the UCC does not specifically mention software.[74] Courts apply several tests to determine whether software is a "good," the most common being the Dominant Purpose or Predominant Factor Test.[75] Under the Dominant Purpose Test, the software in question is usually found to be a "good" so the UCC is applicable.[76] Given that software is considered a "good," the

---

The two implied warranties are the warranty of merchantability and the warranty of fitness for a particular purpose. *Id.* Since most software buyers rely heavily on the vendor's recommendations and advice during the sales cycle, the warranty of fitness for a particular purpose can be a significant source of liability. *Id.*

73. Poe & Conover, *supra* note 61, at 611 (expressing that courts consider the dominant purpose of the contract to determine whether software will be considered a "good"); Gwyn & Rogers, *supra* note 61, at 405 (computer software is a "good" when both services and goods are included in the contract); Hammond, *supra* note 60, at 22 (stating that courts have found that software is a "good" especially when it is bundled with the sale of computer hardware); Smith, *supra* note 37, at 747-48 (determination of software as a "good" is based on the transfer of property rather than the physical properties of the item transferred); Lawrence B. Levy & Susan Y. Bell, *Software Product Liability: Understanding And Minimizing The Risks*, 5 HIGH TECH. L.J. 1, 2 (1990) (stating "sales of goods, but not. . . services, are subject to the damages and warranty provisions of the Uniform Commercial Code"). "A sale of an 'off the shelf' computer program is a sale of goods, but a contract for a custom software program is a service." PETER B. MAGGS et al., COMPUTER LAW: CASES — COMMENTS — QUESTIONS 353 (West 1992).

74. *Advent Sys.*, 925 F.2d at 675. *See also* MAGGS, *supra* note 73, at 353. Articles 2 and 2A of the Uniform Commercial Code apply to goods but both exclude services. *Id.*

75. Poe & Conover, *supra* note 61, at 611. In cases involving sale of both hardware and software, courts attempt to determine if the buyer's purpose in contracting with the vendor was to purchase goods (hardware) or standard software (sometimes considered a good) or customized software (usually considered a service). If the contract contains more "goods" than "services," the buyer's dominant purpose in signing the contract was to purchase "goods" and the UCC applies. *Advent Sys.*, 925 F.2d at 676 (considering "the purpose or essence of the contract."); RRX Indus., Inc. v. Lab-Con, Inc., 772 F.2d 543, 546 (9th Cir. 1985) (stating that "[i]n determining whether a contract is one of sale or to provide services we look to the essence of the agreement."); Triangle Underwriters, Inc. v. Honeywell, Inc., 604 F.2d 737, 743 (2d Cir. 1979) (holding that a contract is one for "goods" or "sale" when the sale of items predominates). *See also* Poe & Conover, *supra* note 61, at 612 (finding that "courts examine both the terms of the contract and the business environment in which it was made [ ] to determine the agreement's essence."); Smith, *supra* note 37, at 748 (finding that the "predominant factor test is the most common means of determining whether Article 2 applies to a mixed contract.").

76. Hammond, *supra* note 60, at 24. In some cases, the court will rely on the UCC by analogy if the UCC is not strictly applicable. *Id.* at 22. One commentator concludes that courts apply the UCC to software contracts for the following reasons: (1) provisions of the UCC simplify and clarify transactions that would otherwise be confusing; (2) most businesses are familiar with the UCC so application of its provisions would be predictable; (3) the UCC's fairness and reasonableness would benefit those unfamiliar with its provisions; and (4) all parties involved in the contracting process would be protected from surprise and uncertainty resulting from any ambiguity regarding the governing law. Smith, *supra* note 37, at 754-55.

HCIS vendor is free to, and usually does, disclaim all express and implied warranties on its software under the contract.[77] Courts enforce these disclaimers so long as they are conspicuous and are not unconscionable.[78] Factors that courts consider in determining unconscionability include the length of the negotiation process, the extent of the buyer's deliberations prior to signing the contract, the experience of the parties in negotiating the contract, and the buyer's freedom to refuse to buy.[79] If the court finds the vendor knew of the defect before the transaction, its disclaimers will be unconscionable per se.[80]

The HCIS vendor's contract typically also contains limitations on contractual damages.[81] These limitations provisions may be paired with

---

77. Hammond, *supra* note 60 at 24. UCC § 2-316 provides for a reasonable disclaimer of warranties but requires they be conspicuous. U.C.C. § 2-316(1) (1989).

A typical warranty disclaimer is as follows:

EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Langs, *supra* note 63, at 595.

Cosmotronic Software Unlimited's "plain English" disclaimers are easy to understand, but they are no less favorable to the vendor. FORESTER & MORRISON, *supra* note 5, at 119.

78. In *Mesa Business Equip. v. Ultimate Southern California, Inc.*, Mesa purchased a "computer system for use in its office supply business." 931 F.2d 60, 1991 WL 66272, *1 (9th Cir. 1991) (unpublished opinion). After receiving bids from several companies, Mesa chose the Ultimate system and signed multiple contracts for "hardware, peripheral equipment, software, and maintenance." *Id.* Ultimate's contracts included disclaimers for incidental and consequential damages as well as express and implied warranties not specifically provided for in the agreement. *Id.* The warranty disclaimer included in the contract provided: "The warranties set forth herein are in lieu of all other warranties, express or implied, arising out of or in connection with any program (or the use or performance thereof), including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose." *Id* at *3. The court held that this disclaimer was not conspicuous, thus it should have been found unconscionable under the UCC. *Id.* In this instance, the court found it to be effective because Mesa was actually aware of the disclaimer. *Id. Cf.* Sierra Diesel Injection Serv., Inc. v. Burroughs Corp., Inc., 874 F.2d 653, 657-59 (9th Cir. 1989) (holding that warranty disclaimer clauses in the printed form hardware and software contracts were not conspicuous and did not waive either the express warranty or the implied warranties). *See also* Langs, *supra* note 63, at 597.

79. *Mesa Business Equip.*, 931 F.2d 60, 1991 WL 66272 at *6.

80. Hammond, *supra* note 60, at 29 n.52.

81. A liquidated damages clause, an agreement to alternate remedies such as return of the defective software and repayment of the purchase price, or repair and replacement of the defective software are examples of provisions the vendor will use to limit its damages for breach of warranty. Hammond, *supra* note 60, at 24. Vendors will also attempt to limit liability for consequential and incidental damages in express provisions in the contract. *Id. See also* Gwyn & Rogers, *supra* note 61, at 407-10.

Despite a contractual damage limitation clause, an arbitrator awarded $850,000 in direct damages to St. Luke's Hospital. St. Luke's Hosp. v. SMS Computer Sys., Inc., 785 F. Supp. 1243, 1245 (E.D. Mich. 1991). SMS contended that the award was "far in excess of the parties' agreed upon limitation, including an amount of consequential damages which

an indemnity clause requiring that the purchaser "indemnify and hold harmless and defend the vendor against any and all claims, losses, damages, causes of action, suits and liability of every kind."[82] Since the HCIS vendor can successfully limit contractual remedies, the party filing a claim against the HCIS vendor is forced to look to tort law as a potential basis of liability.[83]

There is no privity[84] between the injured patient and the HCIS vendor that provides software and services to the health care facility, but such is not required in a tort cause of action. Parties can assert many typical tort claims against vendors of information systems,[85] but vendor liability is most often found in actions based on fraud in the inducement.[86] While one court has recognized the tort of computer malpractice,[87] others have failed to embrace the concept.[88] As yet, although

---

the parties had expressly agreed to exclude." *Id.* On appeal, the court remanded the case to the arbitrator for clarification holding that when a damage limitation provision is "specifically incorporated into the arbitration agreement, the arbitrator is under a duty to set out the reasons for such action or, at a minimum, expressly recognizing that he is refusing to enforce the provision." St. Luke's Hosp. v. SMS Computer Sys., Inc., 995 F.2d 1067, 1993 WL 188457, *9 (6th Cir. 1993).

82. Language from a recently negotiated contract (on file with the author) between a major HCIS vendor and a hospital purchaser. *See also* Davis, *supra* note 64, at 601. Given the explicit indemnification language in an HCIS vendor's contract, rarely would the HCIS vendor be brought into a suit between a patient and the health care facility even is such was possible. *See id.* The facility would first have to know the HCIS vendor was partially or fully responsible for the patient's injury and then, upon reviewing the contract and seeing the indemnification provision, the facility would have to consciously decide to ignore it. Davis explains that indemnity from claims by third parties "presents serious business judgment decisions for both the licensor and the licensee because of the scope of possible claims." *Id.* "The licensor has potentially unlimited exposure to claims of all kinds [including tort], and must either negotiate away its liability, limit it, or insure against it, where this is possible." *Id. See also infra* note 236.

83. Hammond, *supra* note 60, at 22.

84. Privity is the "[d]erivative interest founded on, or growing out of, contract." BLACK'S LAW DICTIONARY 1199 (6th ed. 1990). In order for the patient to be in privity with the HCIS vendor, the patient would have to be a party to the contract between the HCIS vendor and the health care facility.

85. Examples of typical tort claims "include fraud and misrepresentation, fraud in the inducement, negligent misrepresentation, professional malpractice, negligent design, deceptive trade practices and strict liability." Hammond, *supra* note 60, at 23.

86. Hammond, *supra* note 60, at 23. In *Glovatorium*, Glovatorium purchased an information system from NCR on the basis of seeing a demonstration and talking to the NCR representatives. Glovatorium, Inc. v. NCR Corp., 684 F.2d 658, 660 (9th Cir. 1982). The court held that NCR's failure to perform a promise (only a small portion of the software contracted for by Glovatorium was installed) was fraudulent conduct and upheld the jury's award of compensatory and punitive damages. *Id.* at 661, 663-64.

87. *See* Data Processing Serv., Inc. v. L.H. Smith Oil Corp., 492 N.E.2d 314, 319-20 (Ind. Ct. App. 1986). Data Processing Services (DPS), a custom computer programming company, orally agreed to develop computer software for Smith Oil's IBM systems. *Id.* at 316. The court found DPS to have provided services rather than a "good" to Smith Oil

proposed by commentators, no plaintiff has prevailed under a theory of strict liability under section 402A of the RESTATEMENT.[89] Tort liability of

---

distinguishing the "skill and knowledge of the programmer . . . being purchased" from "the device[ ] by which this skill and knowledge is placed into the buyer's computer." *Id.* at 318-19. The court stated, "Those who hold themselves out to the world as possessing skill and qualifications in their respective trades or professions impliedly represent they possess the skill and will exhibit the diligence ordinarily possessed by well informed [sic] members of the trade or profession." *Id.* It held those "principles appl[ied] with equal force to those who contract to develop computer programming." *Id.* at 320. "Negligence means a failure to act as a reasonable person would under the same circumstances, whereas malpractice is a failure to demonstrate the minimum level of competence required by a profession." FOR-ESTER & MORRISON, *supra* note 5, at 178. *See* Graziano, *supra* note 70 (discussing generally computer malpractice).

88. *See* Invacare Corp. v. Sperry Corp., 612 F. Supp 448, 453 (N.D. Ohio 1984) Personnel in the computer industry should be held to the ordinary standard of care in their profession just as machinists, electricians, carpenters, blacksmiths, and plumbers. *Id.* "Invacare simply alleges negligence in a business setting. This does not give rise to a new tort of 'computer malpractice.'" *Id.* Chatlos Sys., Inc. v. National Cash Register, 479 F. Supp. 738, 741, n.1 (D.N.J. 1979) (court declined to create the new tort of "computer malpractice").

89. Section 402A of the Restatement (Second) of Torts provides:

1. One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
    (a) the seller is engaged in the business of selling such a product, and
    (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
2. The rule stated in Subsection (1) applies although
    (a) the seller has exercised all possible care in the preparation and sale of his product, and
    (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

RESTATEMENT (SECOND) OF TORTS § 402A (1965).

Patients injured by excessive radiation from seeds of radioactive Iodine-125 after the seeds were implanted in doses erroneously calculated by a computer software program sued the manufacturer of the seeds asserting a products liability cause of action under § 402A. Jones v. Minnesota Mining and Mfg. Co., 669 P.2d 744, 745-46 (N.M. Ct. App. 1983). The trial court awarded summary judgment in favor of 3M on the products liability claim, but this was reversed by the appellate court. *Id.* at 752. The appellate court held 3M's inadequate warning to inadequately trained physicians raised issues of disputed facts, thus summary judgment was improper. *Id.* at 756 (Lopez, J. specially concurring).

In *Chatlos Systems*, the plaintiff failed to mention strict liability in its pleadings, but did mention strict liability in a post-trial memorandum. *Chatlos*, 479 F. Supp. at 741. In a footnote, the court determined it was unnecessary to rule explicitly on plaintiff's assertion. *Id.* at 741, n.1.

"The most serious barrier to the application of strict liability to software is the question whether software is a product." Wolpert, *supra* note 20, at 520. *See also supra* notes 73-77 and accompanying text. In most cases, software and services account for more than fifty percent of the total contract amount, so courts are most likely to find the HCIS vendor's software a "service," not a "product" for purposes of strict liability. *See supra* note 57-58. *See also,* Miyaki, *supra* note 16, at 1299-37 (stating that a product must be in defective condition unreasonably dangerous to user or consumer and computer software manufacturers thoroughly test software before release so applying Section 402A is difficult); Smith,

the HCIS vendor by virtue of section 324A of the RESTATEMENT offers perhaps the only logical theory for recovery.

IV. RESTATEMENT SECTION 324A AND ITS APPLICATION

A. RESTATEMENT SECTION 324A — INTERPRETATION

At common law, courts applied the Good Samaritan doctrine and imposed liability on a party who voluntarily performed, but failed to exercise reasonable care while performing the duty owed by another to a third party.[90] "The liability principles outlined in section 324A are an application of Justice Cardozo's classic statement that '[i]t is ancient learning that one who assumes to act, even though gratuitously, may thereby become subject to the duty of acting carefully, if he acts at all.'"[91] Section 324A provides:

> One who undertakes, gratuitously or for consideration, to render services to another which he should recognize as necessary for the protection of a third person or his things, is subject to liability to the third person for physical harm resulting from his failure to exercise reasonable care to protect[92] [sic] his undertaking.[93]

Not all forms of undertaking, however, make the actor subject to liability. The three subsections of section 324A[94] outline more specifically the individual circumstances under which liability ensues. Liability results if any one of the three subsections applies regardless of whether the actor is acting under a contract or a gratuitous agreement.[95] Section 324A(a) requires that the party undertaking the services (the actor) not

---

supra note 37, at 755-59 (courts should review policy reasons to determine whether to expand "product" under Section 402A to include non-chattels). *Cf.* Joseph P. Zammit, *Tort Liability For Mishandling Data*, 322 PLI/PAT 429, 436-38 (1991) (strict liability may be too harsh and have a chilling effect on software developers); Lawrence, *supra* note 3, at 11-18 (computer software is incapable of being made safe for use due to present state of human knowledge so strict liability generally precluded).

90. Annette T. Crawley, Note, *Environmental Auditing And The "Good Samaritan" Doctrine: Implications For Parent Corporations*, 28 GA. L. REV. 223, 232 (1993).

91. Heinrich v. Goodyear Tire & Rubber Co., 532 F. Supp. 1348, 1353 (D. Md. 1982) (citation omitted).

92. "The published text of Section 324A uses the word 'protect' rather than the word perform. Such was apparently a typographical error." *Id.* at 1351 n.5 *citing* Hill v. United States Fidelity & Guar. Co., 428 F.2d 112, 115 n.5 (5th Cir. 1970).

93. RESTATEMENT §324A.

94. The three subsections of § 324A provide that the HCIS vendor will be liable if:
(a) his failure to exercise reasonable care increases the risk of . . . harm, or
(b) he has undertaken to perform a duty owed by the [health care facility] to the [patient], or
(c) the harm is suffered because of reliance of the [health care facility] or the [patient] upon the undertaking.
RESTATEMENT (SECOND) OF TORTS § 324A (1965).

95. *Id.* at cmt. c.

perform negligently thereby increasing the level of risk to the third party beyond that which initially existed.[96] Section 324A(b) addresses whether the actor "affirmatively undertook to perform a duty owed by the [first party] to a third party."[97] This clause is commonly applied in cases where the actor is an employee or independent contractor and the negligent performance of duties by these individuals creates or increases a risk of harm to third persons.[98] Courts require the actor to "supplant, not supplement" the duty owed by the first party to the third.[99] Finally, section 324A(c) involves the extent to which either the first or the third party relies upon the actions of the actor.[100] If the actor voluntarily assumes a duty owed by the first party to a third party and performance of that duty results in harm to the third party, either the injured party or the first party must have relied upon the first party's assumption of duty.[101]

---

96. Crawley, *supra* note 90, at 237. "[A]ctions that affirmatively increase the risk to third parties may create liability under the Good Samaritan doctrine." *Id.* at 239. *See also* Canipe v. National Loss Control Serv. Corp., 736 F.2d 1055, 1062 (5th Cir. 1984). "Subsection [a] requires some change in the conditions that increases the risk of harm to the plaintiff over the level of risk that existed before the defendant became involved" *Id.* Patentas v. United States, 687 F.2d 707, 717 (3d Cir. 1982). An "'increased risk' means some physical change to the environment or some other material alteration of circumstances". *Id.*

97. Crawley, *supra* note 90, at 242.

98. RESTATEMENT (SECOND) OF TORTS § 324A cmt. c (1965).

99. *See, e.g.*, Ricci v. Quality Bakers of Am. Coop., Inc. 556 F. Supp. 716, 721 (D. Del. 1983). "A plaintiff must establish that the one who undertook a duty to inspect supplanted and not merely supplemented another's duty to inspect." *Id.* Heinrich v. Goodyear Tire & Rubber Co., 532 F. Supp. 1348, 1355 (D. Md. 1982). "Liability under § 324A(b) arises in the workplace setting only if the actor's undertaking was intended to be in lieu of, rather than as a supplement to, the employer's own duty of care to the employees." *Id.* Blessing v. United States, 447 F. Supp. 1160, 1194 (E.D. Pa. 1978) (stating that "the United States would be liable to plaintiffs only if by undertaking to make inspections at plaintiffs' workplaces OSHA actually undertook not merely to supplement the employers' own safety inspections, but rather to supplant those inspections").

See also Crawley, *supra* note 90, at 260; N. Stevenson Jennette, III, *Providing Safety Services To Subsidiaries: A Liability Trap For Parent Corporations*, 1990 DET. C.L. REV. 713, 717 (1990) (liability "occurs whenever a subsidiary corporation delegates to the parent corporation 'any particular part' of the duty a subsidiary corporation owes its employee").

100. RESTATEMENT (SECOND) OF TORTS § 324A cmt. e (1965). If either the health care facility or the patient relies on the HCIS vendor and the patient is injured (in the limited situations posed by the hypothetical), the patient's injuries are attributable to the HCIS vendor's negligence as fully as if the HCIS vendor had created the risk. *Id.*

101. Crawley, *supra* note 90, at 255. Section 324A(c) comment (e) provides:

The actor is also subject to liability to a third person where the harm is suffered because of the reliance of the other for whom he undertakes to render the services, or of the third person himself, upon his undertaking. This is true whether or not the negligence of the actor has created any new risk or increased an existing one. Where the reliance of the other, or of the third person, has induced him to forgo other remedies or precautions against such a risk, the harm results from the negligence as fully as if the actor had created the risk.

B.   APPLICATION OF SECTION 324A BY THE COURTS TO CONTRACTS INVOLVING SAFETY INSPECTIONS

Because section 324A of the RESTATEMENT is rarely used as a theory of recovery, little case law exists to provide guidance for its analysis and application. State courts, faced with cases involving section 324A, have either adopted it outright or analogize it to the Good Samaritan doctrine.[102] Even where section 324A has not been specifically adopted, its application is obvious in situations where one company performs safety inspections on the equipment of another. The following cases exemplify well-reasoned analysis and application of section 324A although not all involve patients or health care facilities.

In *Seay v. Travelers Indemnity Company*, Travelers voluntarily inspected the boilers of Gaston Episcopal Hospital, its insured.[103] Sometime after the inspection, one of the boilers' safety valves discharged scalding water on an employee causing his death.[104] The widow of the employee brought suit against Travelers, claiming that the insurance company had negligently inspected the boilers and the trial court granted summary judgment in favor of Travelers.[105] The critical issue on appeal was whether Texas recognized a duty that flowed from this voluntary action by Travelers on behalf of the hospital to the hospital employees.[106] In order for Mrs. Seay to establish liability under 324A, she first had to show that Travelers undertook to render services to Gas-

---

RESTATEMENT (SECOND) OF TORTS § 324A cmt. e (1965). *See also Ricci*, 556 F. Supp. at 721. "To impose liability under Section 324A(c), there must be proof of actual reliance on a contractual undertaking or representations by the defendant that resulted in acts or omissions by the party relying on the defendant's undertaking." *Id.* (citation omitted).

102. Crawley, *supra* note 90, at 232. States that have adopted § 324A include Alabama, Georgia, Illinois, Minnesota, Wisconsin. *Heinrich*, 532 F. Supp. at 1353 n.8 (citing cases). Tennessee has also adopted § 324A. Canipe v. National Loss Control Serv. Corp., 736 F.2d 1055, 1062 (5th Cir. 1984) *citing* Johnson v. Oman Constr. Co, 519 S.W.2d 782 (Tenn. 1975). So have Kentucky and Mississippi. *Canipe*, 736 F.2d at 1060 n.7 *citing* cases. Neither the Maryland Supreme Court, the North Carolina Supreme Court, nor the Texas Supreme Court have ruled on adoption of § 324A, but appellate courts in all three states have held that each respective supreme court would. Seay v. Travelers Indem. Co., 730 S.W.2d 774, 777 (Tex. Ct. App. 1987). "The adoption of section 323 necessarily implies the validity of section 324A as Texas law." *Id. Heinrich*, 532 F. Supp at 1353 nn. 8-9 *citing* appellate level cases from North Carolina and Maryland.

103. *Seay*, 730 S.W.2d at 775.

104. *Id.* Mr. Seay was performing maintenance work on one of the inspected boilers at the time of the accident. *Id.*

105. *Id.* Travelers moved for summary judgment, arguing that it had no duty to Mr. Seay and so summary judgment was proper as a matter of law. *Id.* The trial court granted Travelers motion. *Id.*

106. *Id.* Mrs. Seay was able to raise issues of fact regarding a breach of the duty that Travelers undertook. *Id.*

ton.[107] Mrs. Seay then had to show at least one of the subsections of 324A applied: (a) that Travelers had performed negligently, and their performance had increased the risk of harm to Mr. Seay; (b) that Travelers undertook a duty that Gaston owed to Mr. Seay; or (c) that the harm suffered by Mr. Seay was the result of either his or Gaston's reliance on the services that Travelers rendered to Gaston.[108]

The Dallas Court of Appeals found, contrary to Travelers' arguments, that Travelers had undertaken to render services to the hospital.[109] Further, the court found section 324A liability resulted from both subsection (b) and subsection (c).[110] In accordance with subsection (b), the evidence showed that Travelers' inspection reports and deposition testimony of one of its safety engineers clearly indicated that "one purpose of [Travelers' inspections] was to increase the safety of boilers for those employees of its insureds who, like [Mr. Seay], worked near them."[111] Reliance under subsection (c) was evident because Gaston's administrator relied on Travelers to advise the hospital of the condition of the boilers and whether changes or modifications were required.[112]

The Fifth Circuit held similarly in *Canipe v. National Loss Control Service Corporation*.[113] Here, the corporation provided safety inspections under a contract rather than performing them voluntarily; National Loss Control contracted with Mr. Canipe's employer, Kraft, Inc. to provide both safety inspections and accident-prevention services at the plant in which Mr. Canipe worked.[114] Mr. Canipe was pulled into a flake

---

107. *Seay*, 730 S.W.2d at 778. The only theory of recovery that Mrs. Seay alleged was that of under § 324A. *Id.* at 775-76. Travelers argued that it did not undertake to render services to the hospital because the sole purpose behind the safety inspections was to determine whether the boilers were an insurable risk and in compliance with a state statute. *Id.* According to Travelers, "it was rendering a service for itself, and with regard to the second purpose, it was rendering a service for the State." *Id.*

108. *Id.* at 778. Neither Travelers nor Gaston contested any fact issue as to the first subsection of § 324A, so the court considered only the second and third subsections. *Id.* at 779-80. In considering subsection (b), Travelers first argued that the hospital owed no duty to Mr. Seay that Travelers undertook to perform. *Id.* at 780. In addition, Travelers contended that it had no specific knowledge of any safety standards required by the state statute and, even if it had the knowledge, Travelers had no power to enforce the hospital's compliance with the statute. *Id.* The court did not agree. *Id.*

109. *Id.* at 779. According to the court, Travelers undertook to render services to the hospital because the safety inspections directly promoted the hospital's interests in the safety of its boilers. *Id.*

110. *Id.* at 779-80.

111. *Seay*, 730 S.W.2d at 779.

112. *Id.* at 780.

113. 736 F.2d 1055 (5th Cir. 1984).

114. *Id.* at 1057. National Loss Control contracts with companies for the express purpose of helping them improve their workplace safety. *Id.* The contract between Kraft and National Loss Control was national in scope so it established only the general framework

roll machine while cleaning it and his right arm was amputated.[115] He sought recovery under section 324A and, alternatively, as a third-party beneficiary of the contract.[116]

The court ascertained the scope of National Loss Control's undertaking to determine the scope of its duty using a two-step test prior to examining whether one or more of the conditions of section 324A applied.[117] First, as in *Seay*, Mr. Canipe had to prove that National Loss had provided services for Kraft that National Loss Control recognized as necessary for Mr. Canipe's protection.[118] In addition, this court required Mr. Canipe to show that National Loss Control performed negligently and its negligence was the proximate cause of injury.[119]

The court held National Loss Control's contract obligated it to inspect for violations of OSHA regulations, and there was evidence in the record of both the company's negligence in performing these obligations and that OSHA violations caused Mr. Canipe's injury.[120] Analyzing the facts under section 324A, the court found subsection (a) to be inapplicable,[121] but found both subsections (b) and (c) to apply.[122] Kraft had dele-

---

for the services to be provided. *Id.* The primary purpose of the contract was to set hourly rates for National Loss Control's scope of services. *Id.*

115. *Id.* at 1058. Mr. Canipe stated that he had been taught to clean the machine while it was functioning. Canipe v. National Loss Control Serv. Corp., 566 F. Supp. 521, 523 (N.D. Miss. 1983).

116. *Canipe*, 736 F.2d at 1058. The trial court granted summary judgment in favor of National Loss, but the appellate court reversed. *Id.* at 1057. Because of the reversal, the appellate court held it "unnecessary to address the correctness of the court's holding on the breach-of-contract [sic] argument." *Id.* at 1058 n.4.

117. *Id.* at 1061. In order to determine whether National Loss Control performed its undertaking negligently, the court first ascertained the scope of the undertaking which determined the scope of National Loss Control's duty. *Id.* It was the scope of the undertaking that was in dispute; Canipe argued that National Loss Control "contracted to inspect and evaluate work practices and procedures" and that they were negligent in not recognizing the unsafe nature of the cleaning procedure. *Id.* National Loss Control argued that its contract with Kraft provided only a general framework of the services it would provide to the particular plants. *Id.* at 1057.

118. *Id.* at 1061.

119. *Id.* According to the court, there was at least a genuine issue as to National Loss Control's negligent performance in the deposition testimony of two inspectors and an expert safety engineer regarding a number of physical hazards in the machine that Mr. Canipe had been cleaning when the accident occurred. *Id.* at 1061. *See also* Ralph G. Wellington & Vance G. Camisa, *The Trade Association And Product Safety Standards: Of Good Samaritan And Liability*, 35 WAYNE L. REV. 37, 45 (1988). "Merely establishing a duty, however, is not sufficient to impose liability. Proximate cause must also be shown." *Id.*

120. *Canipe*, 736 F.2d at 1061.

121. *Id.* at 1062. Under subsection (a), Mr. Canipe had to show National Loss Control performed negligently, and that performance increased the risk of harm to Mr. Canipe. In other words, subsection (a) "requires some change in conditions that increases the risk of harm to the plaintiff over the level of risk that existed before the defendant became in-

gated part of its duty to discover and remedy unsafe conditions through the contract with National Loss Control for safety inspections and accident-prevention services.[123] Similarly, Kraft had delegated part of its own safety program to National Loss Control and relied on that company to provide reports of OSHA violations.[124] Thus, the Fifth Circuit held section 324A to be applicable, reversing the trial court's finding of summary judgment in favor of National Loss Control.[125]

C. APPLICATION OF SECTION 324A TO THE REMOTE PLAINTIFF

Whereas liability under section 324A of the party that contracts to or voluntarily performs safety inspections for a customer is readily ascertainable because of the customer's reliance on the services and reports, such is not the case when the contract between the two parties does not specifically involve a safety issue. Despite this limitation, courts have found remote plaintiffs "foreseeable" and allowed recovery under section 324A.

In *Hill v. James Walker Memorial Hospital*, Mrs. Hill was a paying patient who fell into a bathtub when a rat ran across her feet.[126] She suffered injuries which she alleged were proximately caused by the hospital's negligence "in allowing the presence of rats on its premises" and Orkin Exterminating Company's negligence for failing to rid the premises of rats.[127] The Fourth Circuit surmised that the reason for the trial court's summary judgment in favor of Orkin was lack of privity between Orkin and Mrs. Hill.[128] Privity, however, is not required in negligence suits brought against manufacturers.[129] The Fourth Circuit held that

---

volved." *Id.* However, "[a] failure to detect a hazardous condition does not by itself implicate subsection (a)." *Id.*

122. *Id.* at 1064.

123. *Id.* at 1063.

124. *Canipe*, 736 F.2d at 1063. Even though Kraft's reliance on National Loss Control was partial (Kraft maintained parts of its own safety program), the court found such to be sufficient to trigger subsection (c). *Id.*

125. *Id.* at 1064.

126. Hill v. James Walker Memorial Hosp., 407 F.2d 1036, 1038 (4th Cir. 1969).

127. *Id.* The hospital asserted the defense of charitable immunity, but it did not apply in this case because the hospital's insurance protected its trust funds against an adverse judgment. *Id.* at 1040. Had the court allowed the defense, the hospital's insurer would have been the beneficiary of the immunity defense, not the hospital. *Id.*

128. *Id.* at 1040. Mrs. Hill was not suing Orkin for breach of warranty. Had she been, lack of privity would have been an issue. *Id.* Orkin also argued that it was entitled to an extension of the hospital's charitable immunity, but not only was this defense unavailable to the hospital, it is a defense that can be asserted only by charitable institutions. *Id.* at 1042.

129. *Id.* at 1041. *See also* Wolpert, *supra* note 20, at 522. "All damages flowing proximately from the tortious conduct are recoverable . . . and privity is irrelevant." *Id.*

Orkin owed a duty to Mrs. Hill under section 324A(b).[130] The hospital had a "legal duty to exercise reasonable care in regard to the safety of its patients, and that under its contract with Orkin, the latter had undertaken to perform a certain aspect of this duty in the hospital's behalf."[131]

Physicians also have a legal duty to their patients which arises once the physician-patient relationship is established. Nonetheless, physicians may be found liable to a third party under section 324A even if the physician-patient relationship does not exist. In *DiMarco v. Lynch Homes—Chester County, Inc.*, Janet Viscichini, a blood technician, went to the Lynch Home to take a blood sample from one of the residents who was a carrier of hepatitis.[132] During the procedure, Ms. Viscichini was accidentally punctured by the needle, and she immediately sought medical treatment from two physicians.[133] One month afterwards, Ms. Viscichini was diagnosed as suffering from hepatitis B and four months later, her boyfriend, Mr. DiMarco, was diagnosed with the same disease.[134] Mr. DiMarco then brought suit against the physicians for failing to advise Ms. Viscichini of her ability to transmit her communicable disease.[135]

The trial court dismissed the complaint with prejudice for lack of privity between Mr. DiMarco and the physicians.[136] Mr. DiMarco appealed citing section 324A, and the cause was remanded for trial.[137] To prevail under section 324A, Mr. DiMarco had to establish that the physicians undertook to render services they recognized as necessary for his protection as a foreseeable third party.[138] The Pennsylvania Supreme Court extended the duty owed by a physician to his patient to those "within the foreseeable orbit of risk of harm" and found that 324A(b) applied.[139] The physicians' duty to provide care to Ms. Viscichini included

---

130. *Hill*, 407 F.2d at 1041-42.

131. *Id.* at 1042.

132. DiMarco v. Lynch Homes — Chester County, Inc., 583 A.2d 422, 423 (Pa. 1990).

133. *Id.* Ms. Viscichini's physicians advised her that if she showed no symptoms of hepatitis within the next six weeks, she would not have been infected, but neither told her to refrain from sexual relations for any period of time. *Id.* Nonetheless, she waited until eight weeks after the exposure to resume sexual relations with her boyfriend, Joseph DiMarco, remaining symptom-free during those eight weeks. *Id.*

134. *Id.*

135. *Id.* Like Orkin, the physicians alleged no privity between them and Mr. DiMarco. *Id.* The trial court did suggest that, had Ms. Viscichini and Mr. DiMarco been married, the physicians' duty to Ms. Viscichini would have extended to include Mr. DiMarco. *Id.*

136. *DiMarco*, 583 A.2d at 423. "The trial court suggested, however, that a duty may be owed under these facts where the patient and third party are married." *Id.*

137. *Id.* at 424.

138. RESTATEMENT (SECOND) OF TORTS § 324A (1965).

139. *DiMarco*, 583 A.2d at 424 (citation omitted). The court held that physicians who render services that they recognize are necessary for the protection of a third party's health

Mr. DiMarco's protection.[140]

If the defendant has no reason to foresee that his actions are necessary for the protection of the third party, he will not be liable.[141] The class of foreseeable third parties, however, can be quite large and quite remote as evidenced by the holding of *Long v. District of Columbia*.[142] Mrs. Long's husband was killed in a traffic accident at an intersection where the traffic signals were nonfunctional.[143] She brought a wrongful death action against the District of Columbia and the Potomac Electric Power Company ("PEPCO"), parties to a contract concerning the maintenance of traffic signals in the District of Columbia.[144] PEPCO claimed that if it failed to maintain traffic lights as provided in the contract and this failure caused an injury to an automobile passenger, PEPCO could be successfully sued by the District under a breach of contract theory, but not by the injured passenger in tort.[145] The District of Columbia Circuit Court of Appeals, however, held that PEPCO entered into a contract to perform services within its field of expertise and therefore assumed a duty to the traveling public as foreseeable plaintiffs for injuries caused by its failure to perform the maintenance services with reasonable care,[146] a holding of liability consonant with that under section

---

or if they provide erroneous advice to the patient that ultimately harms a third party, the third party has a cause of action against the physician. *Id.*

140. *Id.* This court likened a physician who fails to properly inform his patient about a communicable disease that could spread to friends and family to a hacker who unleashes a virus on a computer system that spreads from computer to computer destroying programs. *Id.* at 425.

141. Purnell v. United States, 1987 WL 11212, *3 (E.D. Pa. 1987) (unpublished opinion).

142. 820 F.2d 409 (D.C. Cir. 1987).

143. *Id.* at 410. Several individuals and the police reported the outage of the traffic signals at that particular intersection in the thirty hours preceding Mr. Long's death. *Id.* at 411. Mr. Long was killed at 4:00 in the morning. *Id.*

144. *Id.* at 410-11. Under the contract, PEPCO assumed responsibility for repairs to traffic signal control equipment and incoming cables during evenings, weekends, and holidays. *Id.* at 411. If PEPCO had difficulty performing its duties under the contract, it was to notify the District's on-call mechanic. *Id.*

145. *Id.* at 417. PEPCO urged that its duty was to the District, not to Mrs. Long or the public. *Id.* at 417. Further, PEPCO argued that even if it owed such a duty, none of its employees had breached that duty. *Id.*

146. *Long*, 820 F.2d at 418. PEPCO argued that it had not breached its contract with the District because it attempted to repair the signals and then, as allowed by the terms of the contract, "had referred intractable problems relating to such equipment to the District." *Id.* at 419. Since there had been no breach of contract, PEPCO could not have breached its duty to the public. *Id.* The District of Columbia Circuit court found that a jury could have inferred from the evidence that either the malfunction was a result of a problem for which PEPCO had full contractual responsibility to repair, or that PEPCO's attempts to repair were insufficient, or that PEPCO had failed to notify the District in a timely manner. *Id.* at 410.

324A.[147]

D. PROPOSED APPLICATION OF SECTION 324A IN A PATIENT CARE SETTING

Virtually every hospital larger than 100 beds is using some automated information system to support its operations.[148] While most hospitals have automated financial applications, the presence of installed clinical applications is directly proportional to the size of the hospital.[149] Changes in the health care industry have fostered an industry focus on automating clinical systems[150] resulting in an increase of the number of patient care applications acquired from HCIS vendors.

Although the HCIS vendor's contract has not undergone any significant changes as a result of the focus on clinical systems, health care organizations are becoming more sophisticated in contracting for information systems.[151] Rather than concentrating purely on the bottom

---

147. *Id.* at 418-19. According to the District of Columbia Circuit, a reasonable jury, therefore, could have found that "PEPCO breached its contract with the District and thereby breached a duty owed to members of the traveling public." *Id.* at 419.

148. Solutions International, *Hospital Information Systems Review And Industry Trends,* Presentation to Board of Directors of Trinity Medical Center of Brenham, Texas (Dec. 20, 1993) (on file with the author). Ninety-nine percent of the hospitals having 100 to 300 beds are automated and 100 percent of those over 300 beds are automated. *Id.*

149. Ernst & Young, *The Status And Trends Of Information Systems In The Health Care Industry,* Presentation to Sentara Health System (Jan. 1990) (on file with the author). In hospitals with 300 to 500 beds, 66 percent have installed automated laboratory systems, 70 percent have installed automated pharmacy systems, and 67 percent have installed order communications and results reporting. *Id.* In hospitals over 500 beds, 80 percent have installed automated laboratory systems, 75 percent have installed automated pharmacy systems, and 62 percent have installed order communications and results reporting. *Id.*

150. George Levesque, *1994 HIMSS/Hewlett Packard Leadership Survey Results,* HEALTHCARE INFORMATICS, July 1994, at 45. To the question, "In a market driven by cost containment, what is the most important force driving increased computerization in health care?" the responses were as follows:

Movement to managed care	25%
Outcomes data requests	24%
Movement to health care networks	17%
Pressure to simplify administrative processes	15%
Clinician demands to computerize	10%
Pressure for higher quality patient care	8%

Id. at 45. Of these, the majority relate to systems involving clinical applications. The clinical applications associated with the movement to managed care include: clinical protocols, 11%; case management, 16%; point of care computing, 11%; and clinical data repositories, 24%. *Id.* at 47.

Experts say "technology will dramatically change how health care is delivered." Marybeth Burke, *Technology Acquisition: Trends In Imaging,* HOSPITALS, Nov. 5, 1991, 26 at 29. Medically-oriented technology such as laparoscopes, endoscopes, and catheters will shift surgeries to outpatient settings and advances in gene therapy will lead to progress in wound healing and recovery of the immune system. *Id.*

151. Burke, *supra* note 150, at 29.

line price as they did prior to the mid-1980s, many of today's health care managers are "pursuing favorable terms for service, maintenance and add-ons that generate future savings."[152] In its quest for new customers, the HCIS vendor usually emphasizes service in addition to systems that "can help your organization improve patient care and achieve better outcomes."[153] Thus, from a marketing and support standpoint, the HCIS vendor is acutely aware that its system will be used for the benefit of the patient.

One of the HCIS vendor services that has been a natural outgrowth of advances in technology is modem support;[154] it is this technology that provides the basis for the opening hypothetical. Modem technology allows the HCIS vendor to actually access each individual customer's system and assist the on-site operator in inputting data when necessary or, at a minimum, monitor the on-site operator's entry. Whereas use of modem technology has a positive impact on the customer's perception of the level of support provided by the HCIS vendor,[155] such technological abilities can expose the HCIS vendor to liability under section 324A. If the HCIS vendor assists in the input of patient care data like it did in entering the physician order described in the scenario at the beginning of this paper, that assistance, although necessary and positive for the hospital, may expose the HCIS vendor to liability under section 324A.[156]

---

152. Burke, *supra* note 150, at 29.

153. 3M Health Care advertisement, HEALTHCARE INFORMATICS, July 1994, at 27 (on file with the author).

154. For the price of a modem and telephone line charges, modem support allows the vendor to access the software at the customer's site for the purposes of examining and testing the software, assisting the operator in completing input to the system. Not only is there benefit to the customer in terms of faster response and resolution of problems by the HCIS vendor, but a great deal of the HCIS vendor's administrative costs are decreased or eliminated by such a service. A modem connection with the customer gives the HCIS vendor the options of sending new releases, enhancements, or "bug fixes" to the customer's computer. Media costs, therefore, are virtually eliminated and the time-consuming labor required to copy release and program patches is significantly diminished.

155. The author managed a health care customer support center for a large computer manufacturer. The center provided on-site and telephone support to approximately 400 users across the United States. Although ultimately problem resolution is the key indicator of user satisfaction, vendor responsiveness is also critical. Customers who were able to speak directly with an analyst within one hour of their telephone call consistently complemented the center on its responsiveness. Customers who had to wait more than twenty-four hours for a problem resolution were, understandably, less satisfied. Customers were less likely to complain about a problem that could not be immediately resolved so long as support representatives were readily available. Use of advanced technology tools such as remote diagnostics or automated problem resolution software to assist in diagnosing the problem usually facilitated the recovery process.

156. Liability might also arise due to a breach in the confidentiality of a patient's medical record, a topic well-documented, but beyond the scope of this paper. *See, e.g.,* Hippocratic Oath ("And whatsoever I shall see or hear in the course of my profession . . . if it be

In order for the hypothetical patient's family to recover from the HCIS vendor under section 324A, the family must first establish that the HCIS vendor undertook to render services to the hospital.[157] Obviously, if the hospital and HCIS vendor have a signed services agreement,[158]

---

what should not be published abroad, I will never divulge, holding such things to be holy secrets."); The Federal Privacy of Medical Information Act, H.R. 5935, 96th Cong., 1st Sess. (1979) and 2d Sess. (1980) (bill addressing patient access rights and confidentiality proposed in 1979 and 1980); Robin E. Margolis, Medical Records, *Computerizing Medical Records: Is Uniform Federal Law Needed To Guard Patients' Privacy?*, 11 No. 1 HEALTHSPAN 15 (1994); Terri F. Arnold, Note, *Let Technology Counteract Technology: Protecting The Medical Record In The Computer Age*, 15 HASTINGS COMM. & ENT. L.J. 455 (1993); E. Donald Shapiro & Michele L. Weinberg, *DNA Data Banking: The Dangerous Erosion Of Privacy*, 38 CLEV. ST. L. REV. 455 (1990); Wendy E. Parmet, Comment, *Public Health Protection And The Privacy Of Medical Records*, 16 HARV. C.R.-C.L. L. REV. 265 (1981); MARK A. HALL & IRA M. ELLMAN, HEALTH CARE LAW AND ETHICS, 376-89 (West 1990).

One of the most critical (and criticized) issues of health care reform is privacy. Health care reform bills usually provide that health care information can only be disclosed in limited situations and then only so far as "necessary to accomplish the purpose for which the information is disclosed." *Analysis of the Mitchell Bill*, ACTION KIT FOR HOSPITAL LAW, Aug. 1994, at 3. The Mitchell Bill proposes that safeguards be established "to insure the integrity and safety of health information in accordance with regulations and also account for disclosures," but the administrative cost of those safeguards is likely to exceed $1 billion. *Id.* at 4.

A March 1994 study by the Chicago-based law firm, Gordon & Glickson P.C., emphasizes that concerns regarding patient record privacy are realistic. Of 1,840 hospitals contacted, 260 responded to the survey. GORDON & GLICKSON P.C., *Computer-Based Patient Record Privacy Survey*, March 1994, at 2 (on file with the author). Written policies on the use of patient records and basic security restrictions, such as passwords to the database, are established in most hospitals. *Id.* at 3. Many hospitals also require their employees and outside consultants to sign confidentiality agreements. *Id.* at 4. Where the hospitals' protection of patient data is weak, however, is in cases of terminated employees whose access to the system may extend for as long as twenty-four hours after termination. *Id.* In addition, many hospitals have inadequate protection in their contract with the HCIS vendor. *Id.* at 5. Finally, forty-three percent of the hospitals surveyed restrict the type of patient data that can be printed, and only forty-three percent are able to track who is accessing sensitive data. *Id.* at 6. According to Gordon & Glickson P.C., "many hospitals could be doing more to protect sensitive patient information" to "insur[e] public confidence in the health care system's ability to maintain patient confidentiality" and to "protect[ ] the hospital from unnecessary legal and business risks." *Id.*

157. "One who undertakes . . . to render services to another which he should recognize as necessary for the protection of a third person." RESTATEMENT (SECOND) OF TORTS § 324A (1965). The first portion of § 324A establishes the duty of the HCIS vendor through the hospital to the patient.

158. Health care information systems vendors usually present several contracts: one for the licensing of the software; one for the on-going maintenance of the software; one for the computer equipment; and one for the on-going maintenance of the equipment. If the vendor does not provide the hardware or maintenance thereon, these two contracts will be presented by the hardware vendor and incorporated by reference in the software license agreement. A separate contract for implementation may be presented or the vendor may incorporate implementation services (and training and documentation) in the software license agreement or the on-going software maintenance contract.

there is no problem establishing this threshold requirement for section 324A liability. Like PEPCO in *Long v. District of Columbia*,[159] the HCIS vendor will claim its duty is only to the hospital and will argue that it has fulfilled its contractual obligations. However, in the hypothetical, the HCIS vendor's support representative either assisted the hospital clerk in entering the order or entered the order himself. Just as PEPCO was found to owe a duty to the traveling public, the HCIS vendor would likely owe a duty to all the hospital's patients. If, on the other hand, the hospital's employee had entered the wrong dosage, proof that the HCIS vendor's actions were negligent or that they were the proximate cause of the patient's injury would be difficult since the HCIS vendor would claim the support representative was not ultimately responsible for the errone-ous dosage entered. Even if a court was to find some level of fault on the part of the support representative, the HCIS vendor would disavow all responsibility for the accuracy of the order, relying on the shield provided by the limitation of liability provisions in its contract.[160]

A court evaluates several factors to determine whether a vendor's limitation of liability provision is valid. First, the court considers the sophistication of the parties and whether either party was represented by counsel during the negotiation of the contract.[161] In transactions be-tween businesses, vendors are successful in contracting for no or ex-tremely limited liability.[162] Second, the court will likely find the parties agreed on the allocation of risk in a limitation of liability provision if the provision includes "a statement that the parties have agreed that the

---

159. 820 F.2d 409 (D.C. Cir. 1987). *See supra* notes 142-47 and accompanying text.

160. "Historically, commercial enterprises have been able to limit the extent of their warranties in the consumer market so long as the product was not one involving human injuries or inherently dangerous products." Davis, *supra* note 64, at 605. Many HCIS ven-dors include language to the effect that the vendor is not involved in the practice of medicine and that the software is not a substitute for competent medical professionals. The contract may further stipulate that the licensee agrees and understands this limita-tion. Others include language that explicitly disclaims "consequential, exemplary, or inci-dental damages, even if [licensor] has been advised of the possibility of such damages." *Id.* at 619. *See also* Savage, *supra* note 19, at 36. "The most frequently used limitation of liability is an exclusion of consequential and incidental damages, which frequently is ac-companied by an absolute cap on the supplier's liability to the amounts received by it pur-suant to the agreement." *Id.*

161. Wayne Memorial Hosp., Inc. v. Electronic Data Sys. Corp., 1990 U.S. Dist. LEXIS 18331, *10 (E.D. N.C. 1990).

162. Davis, *supra* note 64, at 603. *See* Gwyn & Rogers, *supra* note 61 at 408 ("Courts give commercial contracts (and the parties' intentions that those agreements embody) sub-stantial deference, particularly those involving sophisticated businesses." *Id. See also* Alli-ance Imaging, Inc. v. Picker Int'l, Inc., 1993 WL 76209, *4 (E.D. Pa. 1993) ("excluding liability for special, indirect, and consequential damages in a commercial setting are gener-ally valid and enforceable"). Gross negligence on the part of the vendor can, however, void the limitation of damages clause. Orthopedic & Sports Injury Clinic v. Wang Lab., Inc. 922 F.2d 220, 224 (5th Cir. 1991).

disclaimer of consequential damages (and any other limitations of liability included in the agreement) will survive even if the limited remedy is struck."[163] However, if injury occurs to one not a party to the contract, the court will not allow a party to the contract to negate its duty to the third party "merely by including exculpatory and indemnification language."[164] Finally, courts consider whether to invalidate the provision as unconscionable.[165] A provision is unconscionable if there is a "showing of 'an absence of meaningful choice on the part of one of the parties together with contract terms which are unreasonably favorable to the other party.'"[166]

If the hospital has minimal computer expertise and there was little or no negotiation of the contract,[167] the court might be persuaded to invalidate the limitation of liability provisions on the basis that the jury

---

163. Savage, *supra* note 19, at 36. *See also supra* notes 81-83 and accompanying text.

164. Dowling v. American Dist. Tel. Co., 1988 WL 93939, *5 (N.D. Ill. 1988). In *Dowling*, Mr. Dowling, a night watchman employed by McKesson suffered third degree burns over much of his body. *Id.* at *2. Mr. Dowling, noticing that some equipment was not working properly, attempted to switch a machine over to a new supply tank. *Id.* After switching tanks and finding the equipment still inoperable, Mr. Dowling opened the product valve on the machine to see if it was clogged and was splashed with toluene. *Id.* He was overcome by the fumes and fell unconscious on his way to the safety shower. *Id.*

McKesson had a contract with ADT for a security system. *Id.* at *1. Under the system, a McKesson employee would turn the key switch on an hourly basis, transmitting a signal to ADT. *Id.* at *1. If the hourly signal was not transmitted, ADT would call a designated McKesson representative. *Id.* at *1. ADT also provided a back-up service in the event its employee was unsuccessful in contacting the McKesson representative; it would immediately dispatch an investigator to the premises. *Id.* at *1. On the night Mr. Dowling was injured, the ADT operator tried several times for over two and one-half hours to contact a McKesson representative and an ADT investigator never went to the premises. *Id.* at *2. Mr. Dowling was not discovered until the next morning. *Id.* at *2.

The court held ADT never agreed to take charge of the plant and provide or insure a safe workplace because the security system it supplied was limited. *Id.* at *8. The court found the indemnification and exculpatory contract clauses in the ADT-McKesson contract further support that McKesson did not delegate and ADT did not assume a duty to McKesson employees. *Id.* at *8.

165. "Any clause purporting to limit the remedial provisions in an unconscionable manner is subject to deletion." U.C.C. § 2-719, cmt. 1 (1989). *See also* Chatlos Sys., Inc. v. National Cash Register Corp., 635 F.2d 1081, 1086 n.4 (3d Cir. 1980).

166. Walter Raczynski Prod. Design v. International Business Machines Corp., 1993 WL 282722, *13 (N.D. Ill. 1993) (citations omitted). If the buyer is unsophisticated and has relied significantly on the vendor's advice, a court may find disclaimers unconscionable. Hammond, *supra* note 50, at 26. *But see* Langs, *supra* note 63, at 601. "The courts have often found that contract clauses which exclude consequential damages for computer failure of performance are . . . not unconscionable." *Id.* The time spent in negotiating the contract so that it genuinely reflects the intentions of the hospital and the HCIS vendor will be a good indicator of unconscionability. *See* Gwyn & Rogers, *supra* note 61, at 408.

167. Unfortunately, many hospitals do not negotiate information systems contracts, but sign the boilerplate language presented by the vendor which, of course, favors the vendor. Many find the small type and legal-looking print intimidating, preferring to acquiesce

could infer existence of a duty that extended from the HCIS vendor to the hospital's patients.[168] Otherwise, the court will hold the provision valid as one negotiated by the hospital as a business entity, assuming the hospital is a sophisticated buyer that had ample opportunity to negotiate the contract and minimize its own risk. In reality, the hospital and its counsel might never have considered the likelihood of such a risk.

That the HCIS vendor's support representative actually accessed the hospital's system is some evidence that the hospital is unsophisticated or at least has little computer expertise.[169] The hospital will argue that its unsophistication, the clerk's need for vendor support, and the support representative's contractual obligation to provide that assistance with or on behalf of the clerk evidence the HCIS vendor's responsibility for the erroneous dosage. In the opening hypothetical, since the HCIS vendor's support representative was responsible for the entry of the incorrect dosage and the patient died, a jury will likely infer that the HCIS vendor negligently performed. Thus, the court might invalidate the limitation of liability even though the injury was to a third party not a party to the contract.[170] Once the threshold elements of duty and causation are established,[171] the patient's family need only show that one of the three conditions stated in section 324A applies.

1. *Increased Risk of Harm - Section 324A(a)*

Increased risk of harm means "some change to the environment or some other material alteration of circumstances."[172] Even in early cases alleging liability under section 324A(a), courts were reluctant to find a defendant liable.[173] Within the meaning of section 324A(a), the support

---

rather than scrutinize—even when a total information system costs hundreds of thousands of dollars. Ciotti & Bogutski, *supra* note 59, at 18.

168. *See* Long v. District of Columbia, 820 F.2d 409, 419 (D.C. Cir. 1987); *see also* notes 142-47 and accompanying text.

169. In the hypothetical, the hospital clerk was unable to enter the order and there was no on-site support available; it is also assumed that there was no hardware error. The hospital clerk simply did not know how to enter the order.

170. "[P]rovisions of [a] contract which would exempt one of the parties from the consequences of its own negligence [are] void as against . . . public policy for the reasons that such a provision would foster negligence in the performance of a contract and not deter it." Gwyn & Rogers, *supra* note 61, at 409 *quoting* Alabama Great S. R.R. Co. v. Sumter Plywood, 359 So.2d 1140, 1145 (Ala. 1978).

171. "One who undertakes . . . to render services to another which he should recognize as necessary for the protection of a third person . . . is subject to liability to the third person for physical harm resulting from his failure to exercise reasonable care to protect his undertaking . . . ." RESTATEMENT (SECOND) OF TORTS § 324A (1965).

172. Patentas v. United States, 687 F.2d 707, 717 (3d. Cir. 1982) *citing* RESTATEMENT § 324A, cmt. (c) illus. 1.

173. *See Patentas*, 687 F.2d at 717 (finding that "appellants have not made adequate allegations or offers of proof of increased risk of harm and cannot go forward under

representative's guidance of the ward clerk's entry of the physician order in the introductory scenario would have to increase the likelihood of harm to the patient. In reality, HCIS vendors design their support services to minimize, not increase the risk of harm resulting from the use of the system by untrained or inexpert users. Therefore, unless the support representative intentionally misdirects the clerk to enter the wrong quantity, finding the HCIS vendor liable under section 324A(a) is not likely to occur. Further, such a finding would subject the HCIS vendor to an "unpredictable number of suits filed by an unpredictable number of persons."[174] Because recovery under subsection (a) is improbable in most situations, and meeting the requirements of either subsection (b) or subsection (c) will suffice to find for the plaintiff, this Comment focuses on the potential applicability of subsections (b) and (c).

2. *Voluntary Undertaking of Another's Duty - Section 324A(b)*

Under the second subsection of section 324A, the HCIS vendor must affirmatively undertake a duty owed by the hospital to the patient.[175] Some courts require a complete undertaking of the direct and primary duty before finding section 324A(b) applicable.[176] In *Blessing v. United States*,[177] a Pennsylvania district court interpreted section 324A(b) to cover only those situations in which "one undertakes to perform for the other the legal duty itself."[178] "Where the actor's undertaking only parallels the activities required by a duty of another without being an undertaking in substitution for it, section 324A(b) does not apply."[179]

---

§ 324A(a)"); Davis v. Liberty Mut. Ins. Co., 525 F.2d 1204, 1207 (5th Cir. 1976) (finding "no serious contention that any act or omission . . . actually increased the likelihood of harm"); Evans v. Liberty Mut. Ins. Co., 398 F.2d 665, 667 (3d Cir. 1968) (holding defendant to no legal duty or contractual obligation to inspect plant and primary safety responsibility remained with plaintiff's employer); Ricci v. Quality Bakers of Am. Coop., Inc., 556 F. Supp. 716, 720 (D. Del. 1983). In *Ricci*, a lid on a conveyor system jammed and caused injury to plaintiff, but nothing in the record suggested the defendant altered the system so to increase the risk. *Id.*

174. DiMarco v. Lynch Homes — Chester County, Inc., 583 A.2d 422, 427 n.3 (Pa. 1990) (Flaherty, J., dissenting).

175. Subsection (b) of § 324A provides: "(b) he has undertaken to perform a duty owed by the other to the third person." RESTATEMENT (SECOND) OF TORTS § 324A (b) (1965).

176. Wellington & Camisa, *supra* note 119, at 53. *See also* Heinrich v. Goodyear Tire and Rubber Co., 532 F. Supp. 1348, 1355 (D. Md. 1982). "Liability under section 324A(b) arises in the workplace setting only if the actor's undertaking was intended to be in lieu of, rather than as a supplement to, the employer's own duty of care to the employees." *Id.*

177. 447 F. Supp. 1160, 1193-94 (E.D. Pa. 1978). Although the actor could assume duties of his own to third persons under increased risk of harm (§ 324A(a)) or reliance (§ 324A(c)), the court failed to impose duties and liabilities of the other party on the actor. *Id.*

178. *Id.* at 1194.

179. *Id.* at 1195.

Similarly, in *Davis v. Liberty Mutual Insurance Company*,[180] the Fifth Circuit found no evidence that a workmen's compensation insurer undertook to perform a duty owed by the employer to the employee when the insurer occasionally sent representatives to assist in conducting plant inspections and make recommendations for safety improvements.[181] Rather, the court found that the employer used any recommendations from the insurer to fulfill its own duty to provide a safe workplace.[182]

In *Santillo v. Chambersburg Engineering Company*,[183] the *Blessing* court applied a less stringent standard than it had just seven years previously. National Loss Control Services Corporation contracted with plaintiff's employer to perform safety inspections of the employer's plant.[184] The Pennsylvania district court held that National Loss Control's partial undertaking of the employer's duty to provide a safe workplace was sufficient to establish liability under section 324A(b).[185] Similarly, the *Canipe* court, applying the same relaxed standard, held "liability under section 324A(b) may result if an employer has delegated any part of its duty to discover and remedy unsafe working conditions."[186]

In each of the above four cases, the injured third party was an employee claiming his injury was proximately caused by the negligence of the company performing safety inspections under a contract to the employee's employer. The patient's family's claim in the hypothetical is somewhat different. First, the patient's family would be less likely to know of the HCIS vendor and whether the HCIS vendor's conduct proxi-

---

180. 525 F.2d 1204, 1207-08 (5th Cir. 1976).

181. *Id.*

182. *Id.* at 1208.

183. 603 F. Supp. 211 (E.D. Pa. 1985), *appeal dismissed*, 802 F.2d 447 (3d Cir. 1985), *aff'd*, 802 F.2d 448 (3d Cir. 1986). In *Santillo*, the court noted that *Blessing* and *Canipe* relied on the same cases yet reached "diametrically opposed conclusions." *Id.* at 215 n.1. The court attributed its holding in *Blessing* (imposing a more stringent standard) to differences in the fact situations of each case. *Id.* In *Blessing*, the plaintiff "sought to impose liability upon the United States based on an allegedly negligent inspection conducted by members of the Occupational Safety and Health Administration." *Id.*

184. *Id.* at 212-13. National Loss Control Services Corporation is the same defendant that Mr. Canipe sued. Canipe v. National Loss Control Serv Corp., 736 F.2d 1055 (5th Cir. 1984).

185. *Id.* at 214. In his deposition, the safety inspector stated National Loss Control was retained to evaluate the employer's safety program, to identify strong points and weak points in that program, and to assist management in developing a more effective safety program. *Id.* Since safety concerns involve consideration of the well-being and protection of employees, the court said it would be "disingenous [sic] to conclude . . . that the performance of a safety evaluation would not foreseeably give rise to concerns regarding the safety and protection of third parties." *Id.*

186. Canipe v. National Loss Control Serv. Corp., 736 F.2d 1055, 1063 (5th Cir. 1984). *See* notes 113-25 and accompanying text.

mately caused the patient's injury. If a case with facts similar to those in the hypothetical does arise, courts are likely to be split on whether the HCIS vendor's actions must completely or only partially assume the ward clerk's duty to enter the correct order information on the patient.[187] Factors a court might consider in determining whether the HCIS vendor's assumption of duty was complete or partial include: whether the clerk remained on-line with the support representative and followed the support representative's instructions; whether the support representative actually input the data; and whether the error could have been detected after its entry but before injury to the patient occurred (during order verification or medication administration).[188]

Second, although no HCIS vendor has defined its support services as "safety inspections," when the HCIS vendor agrees to furnish the hospital on-going support, "bug fixes," and enhancements to the software, delivery of those services, construed liberally, is a safety inspection of sorts.[189] Part of the HCIS vendor's support staff provides on-going support of the software.[190] In addition to telephone or modem support, some HCIS vendors offer audit services as an additional category of on-going support services, and all have a quality control group to perform on-going

---

187. The HCIS vendor would never be expected to assume the entire duty of the hospital to the patient and provide the patient with care, shelter and food. Although a safety inspector is required to inspect a particular piece of machinery in a facility, his inspection does not obligate the inspection company to operate or even maintain the equipment.

188. Most Order Communication and Results Reporting modules offer a verification process in which orders input into the system can be automatically verified in a batch or individually verified by an authorized employee such as a registered nurse or physician. Only verified orders will actually be sent to the appropriate department for execution, so order verification provides yet another edit for accidental and erroneous entry.

This author recently discussed HCIS vendor liability with a HCIS salesman who was considering a position with a robotics firm specializing in robots for hospital pharmacies. These robots are interfaced to the hospital's computer such that when orders are entered on the nursing stations or at the patient's bedside, the robot receives and fills it. The robot moves freely within the pharmacy selecting the appropriate medication and packaging it in a unit dose to be administered to the patient. A label is generated and placed on the medication. The labeled medication is then taken to the patient's floor and administered by the floor nurse to the patient as directed. The majority of patients in a hospital are unfamiliar with automation of this complexity, thus the typical victim of a medication error in this setting would have a great deal of difficulty determining at which step the error occurred and who was primarily responsible for the patient's injury. An overdose might result from one or more of the following critical points: the clerk entering the wrong information; a computer malfunction; improper coding of the interface between the computer and the robot; misinterpretation of the information by the robot; incorrect selection or packaging of the medication or dosage.

189. Offering comprehensive support services gives the HCIS vendor a competitive advantage in marketing its product.

190. See supra notes 154-55, 158 and accompanying text. In addition to modem support, customer-related responsibilities of the support staff include training, implementation support, and documentation.

software review, correction, and enhancements.[191]

Audit services are analogous to the type of safety inspection services that have subjected companies to liability to employees under section 324A(b). Contractually, the HCIS vendor will agree to visit the health care facility on a regular basis to review software, operations, and procedures and provide an oral or written report to management identifying areas requiring enhancement or modification.[192] The facility benefits from on-site analysis and recommendations from the vendor; the HCIS vendor benefits from an open line of communication with its customers.

The HCIS vendor's support staff also includes a quality control group. Unlike the equipment safety inspectors in the cases above who must go to the employer's premises to inspect the equipment covered by the contract or the audit services team who must go to the health care facility, the HCIS vendor's quality control group is not required to leave their offices to perform similar inspections of the software. Similarly, like the safety inspectors who cannot be expected to identify every potential equipment problem during an inspection, the HCIS vendor's quality control group cannot completely test the myriad combinations in a complex software program and identify every potential bug.[193]

The competitive advantage that the HCIS vendor gains by offering audit services and using a quality control group may be cost prohibitive if courts analogize these services to a "safety inspection." Given their past holdings, the *Blessing* and *Davis* courts would probably not extend the liability under section 324A(b) to the HCIS vendor since they are more likely to interpret the HCIS vendor's audit service as one which supplements, not supplants the "inspections" of the hospital. These courts would consider the hospital responsible for the management and control of the system during the remaining and major part of the year. The *Santillo* and *Canipe* courts, however, would likely find the HCIS vendor's partial assumption sufficient to extend liability under section 324A(b).

3. *Reliance - Section 324A(c)*

Under section 324A(c), the HCIS vendor is subject to liability to the patient if either the health care facility or the patient relies on the HCIS vendor's undertaking.[194] "This is true whether or not the negligence of

---

191. Miyaki, *supra* note 16, at 130. The HCIS vendor's quality control group, usually part of the support staff, is responsible for identifying errors in the software and may be responsible for testing software, monitoring the *alpha*- and *beta*-sites, and reviewing and approving (and sometimes authoring) user documentation.

192. Health care facilities with little or no computer expertise or a small information systems staff are willing to pay for this type of support.

193. Miyaki, *supra* note 16, at 131.

194. *See* RESTATEMENT (SECOND) OF TORTS § 342A cmt. c (1965).

the [HCIS vendor] has created any new risk or increased an existing one."[195] So long as the patient or the health care facility has foregone other remedies or precautions against such a risk, the injury results from the HCIS vendor's actions as if the vendor had created the risk.[196] Since the patient may be unaware of the specific software used by the health care facility and would have little or no appreciation for the services the HCIS vendor supplies to this particular facility, only in rare situations will this condition apply because of the patient's reliance. However, most health care facilities rely significantly on the HCIS vendor for support, and this reliance is the one most likely to trigger the HCIS vendor's liability to an injured patient.

In a suit alleging liability under section 324A(c), the plaintiff is usually not the "victim" of misplaced reliance on the actor; he is not usually the one "lull[ed] . . . into a false sense of security" based on the actor's conduct.[197] Even a partial reliance on an actor's undertaking of services owed by the first party to a third party will suffice to trigger section 324A(c).[198] In *Canipe*, the court found the reliance element of subsection (c) satisfied because Kraft relied on National Loss Control's safety inspections and neglected or reduced its own safety program.[199] The court determined that a reasonable jury could infer that Kraft delegated part of its duty to National Loss Control to identify OSHA violations at its plant, and thereby relied on National Loss Control to identify those violations.[200] In *Davis*, however, there was no evidence that the employer had relied on its insurance company for inspections such that it neglected its own safety programs, thus the court refused to impose liability on the basis of section 324A(c).[201]

Health care facilities contract for support services with HCIS vendors to gain the benefit of the vendor's knowledge and expertise regarding the software program and to minimize the number and required

---

195. *Id.*

196. *Id.*

197. Jennette, *supra* note 99, at 718.

198. Canipe v. National Loss Control Serv. Corp., 736 F.2d 1055, 1063 (5th Cir. 1984).

199. *Id. See also* Heinrich v. Goodyear Tire and Rubber Co., 532 F. Supp 1348 (D. Md. 1982). In *Heinrich*, an employee sued only its employer's parent corporation for damages resulting from an "occupational disease" contracted while working in the plant. *Id.* at 1350. The occupational disease that Mr. Heinrich contracted was caused by chemicals and other products that Goodyear supplied to Kelly-Springfield Tire Company (Kelly), the subsidiary company that employed Mr. Heinrich. *Id.* at 1350-51. Neither party moved to join Kelly as a party defendant; such joinder would destroy complete diversity. *Id.* The court found the parent faced liability because its subsidiary had relied on the parent's information and services "such that [the subsidiary] lessened or omitted taking, its own safety measures regarding the chemicals." *Id.* at 1356.

200. *Canipe*, 736 F.2d at 1063.

201. Davis v. Liberty Mut. Ins. Co., 525 F.2d 1204, 1208 (5th Cir. 1976).

expertise of their own employees. The smaller a health care facility, the less likely it is that the facility's personnel will be capable of making changes to the software programs.[202] Indeed, many HCIS vendors limit or completely restrict access to source code in the contract,[203] and virtually all include a provision that relieves the vendor of responsibility for the software if anyone other than the vendor makes the modifications.[204] In situations where the patient is injured because of a bug in the software and the health care facility does not have the resources to fix the bug, reliance by the health care facility on the vendor is a matter of fact.[205]

In the opening hypothetical, the hospital's information support personnel were unavailable for support after 8:00 p.m. The hospital could have staffed the information system on a twenty-four hour basis, but it did not.[206] Instead, the hospital relied on the HCIS vendor for support at times when the hospital's staff was unavailable. The HCIS vendor, by virtue of its support representative's actions, assumed the duty of the hospital's clerk when it either directed the clerk through the operation, monitoring his input, or when the support representative actually entered the data. The HCIS vendor's argument that it did not assume the hospital's duty would have been stronger had the support representative

---

202. HCIS vendors that use personal computer networks or a minicomputer-based environment rarely provide source code (that which the programmer changes to make a modification to the software) to their customers. Necessary changes pursuant to government regulations are made by the HCIS vendor. The typical health care facility purchasing a system from one of these HCIS vendors will not have programmers on staff to make modifications. This class of customer has no option but to rely on the HCIS vendor for changes and bug fixes. The HCIS vendor may choose to limit source code access for mainframe-based software, but the reason for this limitation is to protect the intellectual property itself. *See* Davis, *supra* note 64, at 625-27. For the most part, large mainframe-based health care facilities have a large staff of information systems specialists, some of whom are programmers and competent to make changes and modifications to the software.

203. Access to source code through an escrow arrangement may be part of a final negotiated contract so that the customer is protected in the event the HCIS vendor should cease doing business or become bankrupt. Davis, *supra* note 64, at 625-27.

204. A standard contract provision may provide, "[i]n the event that Customer makes any programming changes to the Software, all of [vendor's] warranties shall become null and void." Recent contract between a multi-hospital system and an HCIS vendor.

205. In the hypothetical, the patient's injury was not caused by a bug in the software. Nonetheless, in evaluating whether the hospital relied on the HCIS vendor, a court is likely to consider the hospital's inability to make changes to the software one indication of the hospital's reliance on the HCIS vendor. The less self-sufficient the hospital in controlling its information system, the more reliance on the HCIS vendor the court is likely to find.

206. Staffing an information system department on a twenty-four hour basis can be impossible for some facilities with a limited budget; the cost of human resources to provide round the clock support is significantly greater than the minimal additional capital equipment that would be required. In addition smaller the facilities have fewer transactions to process so the respective cost per transaction is much higher than that in larger facilities.

referred the clerk to a manual showing the data entry steps.[207] In the hypothetical, both the ward clerk and the hospital relied on the support representative to help enter the order for the patient, the hospital "neglecting or reducing" its own staff of support representatives in reliance on the vendor and triggering section 324A(c).

If a patient in a health care setting brings a cause of action under section 324A against an HCIS vendor he must first establish that the HCIS vendor undertook to render services to the health care facility that impacted his protection and second, that the injuries he sustained were proximately caused by the undertaking.[208] Usually, the HCIS vendor's actions will not have increased the risk of harm to the patient so liability will not be imposed under subsection (a). Depending on whether the court follows the *Davis* and *Blessing* line of cases or the *Santillo* and *Canipe* line of cases, the HCIS vendor's actions will either only supplement or completely supplant those of the health care facility. In accordance with a strict reading of subsection (b) and the existing case law, only when the HCIS vendor's actions supplant those of the health care facility will liability be imposed under subsection (b). However, given the reasons underlying the contract for services and support between the health care facility and the HCIS vendor, the health care facility's reliance on the HCIS vendor's undertaking is obvious. So long as this reliance caused the health care facility to forgo precautions against such a risk, the harm that results from the HCIS vendor's action is negligence "as fully as if the actor had created the risk"[209] and the court will likely impose liability on the HCIS vendor under subsection (c).

V.   PUBLIC POLICY REASONS FOR AND AGAINST LIABILITY UNDER SECTION 324A

In certain situations, such as the one proposed in the hypothetical, HCIS vendors can be sued under section 324A by patients who suffer injury from the use or misuse of the HCIS vendor's information system. As yet, there are no patient cases advancing this theory of recovery. The author predicts that it is only a matter of time, however, before a claim is

---

207. Most HCIS vendors provide complete documentation on their software product in addition to on-site and off-site training. Sometimes, however, the documentation is not current with the release of the program installed in the facility due to corrections, changes, or enhancements that have occurred since the documentation was published. In addition, some HCIS vendors prohibit the health care facility from making copies of the documentation to distribute to the users in the facility fearing the documentation will find its way into the hands of the competition. (One major HCIS vendor prohibits the use of copies of its display screens in articles prepared by physicians for publication to protect its screen flows as trade secrets.)

208. *See* RESTATEMENT (SECOND) OF TORTS § 324A (1965).

209. RESTATEMENT (SECOND) OF TORTS § 324A cmt. c (1965).

made. Tort reform[210] and continuing efforts to contain health care costs[211] are forcing physicians and health care facilities closer and closer to break-even operations. Although insurance companies assure that the "deep pockets" of these targets of malpractice actions still make viable defendants,[212] plaintiffs and their attorneys can potentially look to the big business behind the health care providers—the HCIS vendor—as a new "deep pocket." Because advances in information technology continue to bring the software and computer closer and closer to the patient,[213] this new target is more and more appealing.

A. AVOIDANCE OF LIABILITY UNDER SECTION 324A

Using a Sixth Circuit case, *Rick v. RLC Corp.*,[214] one commentator offers guidance on how to avoid liability under section 324A to parent corporations that negligently provide safety services to its subsidiaries.[215] In situations like the one presented in the hypothetical where the

---

210. In the early 1990s, the Bush administration took up the cause of medical malpractice reform. Weiler, *supra* note 7, at 909. Despite the scrutiny by the government and independent investigations, there are significantly more torts occurring in the medical care system than there are tort claims being filed. *Id.* at 912. *See also supra* note 7.

211. Recognizing the need for cost containment in the health care industry, the government developed the Prospective Payment System ("PPS") applicable to Medicare patients. Rather than reimbursing hospitals on a fee-for-service basis, the patient's diagnosis became the basis for reimbursement. The hospital received a fixed amount for any patient admitted with Diagnosis X, regardless of the actual services rendered to the patient. If the hospital was able to treat and discharge the patient for less than the reimbursement amount associated with the diagnosis, the hospital made a profit on that patient. If, however, it cost the hospital more to treat and discharge the patient, then the hospital suffered a loss.

212. *See supra* note 11.

213. One of the most interesting advances in technology involves DNA profiling or DNA mapping. For an excellent review of the science and the impact on privacy issues, *see* Shapiro & Weinberg, *supra* note 156. Automation and sharing of medical records are concerns of virtually every health care professional seeing a growth in the number of managed care patients requiring services. Issues of confidentiality have been raised, but not yet answered. *See* Arnold, *supra* note 156. *See also* GORDON & GLICKSON P.C., *supra* note 156, at 3-6. Computer security, once a bother to the operator who had to remember whether a password had changed since the last time he used the terminal, is now a primary concern of any information systems purchaser. Ernst & Young estimates that businesses lose over $1 billion a year to hackers and other high-tech criminals. R.T., *Computer Security: New Ways To Keep Hackers Out*, FORTUNE, Dec. 16, 1991, at 14. A new mode of computer security involves biometrics, going "beyond passwords (what you know) and tokens (what you have) to biological features (what you are)." *Id.* Four examples of biometric identifications are voice I.D., retinal I.D., fingerprint I.D., and lip prints. *Id.* The fastest growing technology in the industry, however, is development of telecommunications that link providers and business, allowing data to be shared across networks. Confidentiality of information continues to be the biggest concern for participants in integrated community networks.

214. 725 F.2d 684 (6th Cir. 1984) (not recommended for full-text publication).

215. Jennette, *supra* note 99, at 718-21.

HCIS vendor is potentially liable under section 324A, analogous application of these steps to avoid liability may be beneficial. First, the parent corporation should not contract to provide safety services.[216] Obviously, this is impossible in the HCIS vendor situation because competition and non-expert customers are the reasons for the contracts in the first place.

Second, "the parent corporation should not independently inspect the operation or review the maintenance records of the subsidiary plant, investigate accidents, or review accident reports."[217] Unfortunately, this is precisely what the HCIS vendor's audit services team does during its review of the health care facility's information system and staff. The HCIS vendor probably will involve members of the health care facility's staff in its review of computer operations and procedures, but most will not involve the facility's staff in compiling the oral or written report to the facility's management. In addition, the HCIS vendor's telephone service[218] is the health care facility's first line of defense if a problem arises with either the software or the computer. The support representatives "investigate accidents" such as a program or function within a program that is inoperable as a result of human error, a problem in the environment, or an act of God. Finally, negotiated HCIS vendors' contracts usually include a step-by-step process for reporting errors or problems with the system that the customer must follow.[219] Typically, the health care facility must complete a "trouble" or "problem" report form and submit it with any supporting documentation to the HCIS vendor.[220] This trouble report is similar to an accident report, and the HCIS vendor's support staff, by reviewing these forms, might as easily be reviewing accident reports.

Just as the parent corporation should avoid accident investigations,

---

216. Jennette, *supra* note 99, at 719.

217. Jennette, *supra* note 99, at 720.

218. Some HCIS vendors offer telephone consultation to the health care facility as a part of the contract for software support. Whether the telephone consultation is via a toll-free line or whether the health care facility must pay for long distance charges depends on the HCIS vendor.

219. In a recently negotiated contract between a major HCIS vendor and a large multi-hospital system (on file with the author), the three page section entitled "DISPUTE AND ISSUE RESOLUTION PROCESS" covers problems that arise during and subsequent to the installation. An additional three pages of the contract addresses specific instances of software and personnel problems encountered in the "SERVICE LETTER; SOFTWARE INSTALLATION PLAN; INSTALLATION TESTING." This particular HCIS vendor has a separate contract with an accompanying three-ring binder for the specific support organization procedures and policies, one of which is the process for reporting problems with the software.

220. The facility's trouble report is strikingly similar to an accident report, and the HCIS vendor's staff must review it to diagnose the problem. In addition, when an HCIS vendor's staff is asked to provide on-site support for severe system downtime or major system operation problems, the HCIS vendor is essentially investigating an accident.

it should also avoid post-accident analysis.[221] Most HCIS vendors that offer telephone assistance to their customers do, indeed, review numbers of calls and types of problems reported by the customer. Many times, analysis of these calls and problems will result in recommendations from the central support group to the local support group or account managers that additional training of the health care facility's personnel is required, that additional hardware or software is necessary, or that the health care facility might benefit from additional on-site support services such as a system audit.

"Third, the parent corporation should not represent to the subsidiary corporation that the former is making safety inspections in order to relieve the latter of its safety responsibility."[222] Fortunately for the HCIS vendor who offers system audits, the written and oral descriptions of these services usually comply with the precautions listed in this third recommendation. A great deal of time and energy is spent by the HCIS vendor during system implementation in fostering independence in the health care facility's staff. Obviously, the more independent the customer, the less reliance on the HCIS vendor, thus the fewer support resources the HCIS vendor must allocate to the individual customer. In addition, system audits occur infrequently, usually only once or twice a year, unlike safety inspections which might occur as often as once a month. However, facilities with inexperienced information systems staffs are more likely to delay hiring and even training, recognizing that the HCIS vendor's support organization can provide needed resources for a fraction of the cost.

The HCIS vendor usually sells his system audit and support services on the basis that such services will alert the health care facility to problems with the system or the policies and procedures of the organization. This is directly contrary to the fourth precaution; "the parent corporation should not represent that its safety inspections are for the purpose of 'alerting' the subsidiary corporation, or the subsidiary employees, to safety hazards."[223] Although the HCIS vendor makes no such representations to the patients of the health care facility, patient reliance on the vendor's undertaking, as discussed above, is not necessary to support a finding of liability under section 324A(c).[224] The health care facility's reliance alone is sufficient.

---

221. Jennette, *supra* note 99, at 720. The *Canipe* trial court was influenced by National Loss Control's included an analysis of previous accidents in the Kraft plant for the purpose of determining loss patterns for concentrated study. Canipe v. National Loss Control Service Corp., 566 F. Supp. 521, 525 (N.D. Miss. 1983), *modified*, 736 F.2d 1055 (5th Cir. 1984).

222. Jennette, *supra* note 99, at 720-21.

223. Jennette, *supra* note 99, at 721.

224. *See supra* notes 194-209 and accompanying text.

Finally, "the parent corporation should state in writing that the purpose of its safety inspections . . . is simply to reduce the parent corporation's insurance costs."[225] The HCIS vendor, unless it owned, managed, or operated a health care facility, would not be in a position to make such a promise.[226] Nonetheless, the services the HCIS vendor offers and provides its customers directly conflict with the other factors that would allow escape from section 324A liability: the HCIS vendor's support services are similar to safety inspections;[227] the HCIS support staff's review of trouble reports and system audits are, for the most part, independent of the health care facility's involvement; the health care facility might minimize its own personnel and operations, relying on the support services of the HCIS vendor to supplement operations and alert the facility's management to any critical issues that arise.

B. PUBLIC POLICY REASONS SUPPORTING HCIS VENDOR LIABILITY

The policy reasons in favor of imposing liability on the HCIS vendor under section 324A are similar to those imposed on any manufacturer for releasing a defective product into the stream of commerce: defects in the software can cause personal injury; the cost of repairing the injury can be best borne by the software manufacturer; liability under the theory of computer malpractice may be limited; and privity is not required.[228]

The primary goal of tort law is to provide compensation for injury.[229] When the court is presented with a poor, injured victim and a corporate manufacturer, "the victim should be compensated by the manufacturer [who] is better able to accept financial responsibility for, and to guard against, the loss."[230] "The [software vendor] has entered into the business of supplying products which may injure persons or property, and . . . those who purchase such goods are forced to rely upon the [software vendor's] undertaking."[231] The software vendor implicitly represents that

---

225. Jennette, *supra* note 99, at 721.

226. Even the large health care facilities who have developed their own systems, preferring to remain completely independent of a HCIS vendor, would not have occasion to be affected by this provision since the developers of the software are employees of the health care facility.

227. *See supra* text accompanying notes 191-93.

228. *See infra* note 231 and accompanying text.

229. Godes, *supra* note 16, at 523.

230. Godes, *supra* note 16, at 523.

231. Miyaki, *supra* note 16, at 130. Section 402A of the Restatement (Second) of Torts, applies to "one who sells." RESTATEMENT (SECOND) OF TORTS § 402A (1965). "One who sells" has been broadly defined as "any person engaged in the business of selling products for use or consumption." *Id.* at cmt. f. Since the HCIS vendor is creating and developing software to sell, the HCIS vendor may be considered "one who sells" for purposes of § 402A. Miyaki, *supra*, at 130. The government continues to impose regulations on health care facilities that make information technology a virtual requirement. In 1996, the Joint Com-

its "product" is safe when it places the product in the market[232] even though defects in software used in a health care setting can cause personal injury.[233] Because the health care facility, the caregivers, and, ultimately the patient will rely on the software, the HCIS vendor should be held accountable for putting this "product" on the market.[234]

Shifting the risk of loss from the consumer to the manufacturer allows the burden to be dispersed across society rather than on any single individual.[235] Usually, the manufacturer can purchase liability insurance and pass the cost of the insurance onto the other users of the product.[236] Most HCIS vendors, however, disclaim liability in their contract with the customer rather than purchase insurance coverage on their software.[237] The costs of insurance coverage on HCIS software, if such coverage could be purchased, would be significant because of the poten-

---

mission on Accreditation of Healthcare Organizations ("JCAHO") will require any health care organization to comply with the Information Management Standard for accreditation. *See generally* American Hospital Association and The Joint Commission on Accreditation of Healthcare Organizations, *The Joint Commission's 1994 Accreditation Manual for Hospitals: Management of Information and the Indicator Measurement System*, Nov. 11, 1993.

The Information Management Standard's stated intent is that the provider organization treat information as a critical resource to be effectively and efficiently managed. The standard is a reformulation of new requirements and a reformulation of existing information management requirements (such as for medical records or the library) previously scattered throughout the JCAHO accreditation manual. The standard reflects the JCAHO's efforts to shift its reviews from a departmental orientation to an examination of key organizational processes.

John P. Glaser, Ph.D, FHIMSS, *Introduction: Living With The JCAHO's IM Initiatives*, 8 NO. 2 J. HEALTHCARE INFO. & MGMT. SYS. SOC., Spring 1994, at 3. Further description of the standard and its impact on the health care industry is beyond the scope of this Comment. The aforementioned Journal and Manual are quite comprehensive.

232. Miyaki, *supra* note 16 at 138-39. Imposition of liability would encourage software vendors to be careful, since, like manufacturers who are in the best position to assure the safety of their products, the software vendor is in the best position to detect and correct problems with its software. *Id.* at 140-41. *But see supra* notes 62-65, 73-77 and accompanying text. If the software is determined to be a "service" and not a "good," strict liability cannot be imposed. *See* RESTATEMENT § 402A.

233. Miyaki, *supra* note 16, at 137. When health care facilities originally purchased software, its use was restricted primarily to financial applications, hence defects tended to result in economic loss to the facility rather than personal injury to a patient. *See id.* Today, however, with the emphasis on using software to assist the caregiver and the facility in providing patient care, the risk of personal injury to a patient is much greater.

234. Miyaki, *supra* note 16, at 130.

235. Miyaki, *supra* note 16, at 137.

236. *Id.* "Liability insurance does not represent insurance against the unknown." *Id.* at 138. For a risk to be insurable, it must be capable of being identified and the duration of the risk must be fixed and determinable. *Id.*

237. *See* Miyaki, *supra* note 16, at 137. Difficulty in identifying all risks and the potentially unlimited duration of exposure due to the infinite combinations of data and instructions which might cause the system to crash makes securing insurance coverage on HCIS vendor software price prohibitive. *Id.* at 138. Davis discusses availability of insurance cov-

tial human risk involved.[238] Further, the number of health care facili-
ties is decreasing and only a portion of the HCIS vendors sell to
particular portions of the marketplace; the HCIS vendor could distribute
its costs, but the financial burden on individual customers would not be
equally borne.[239] Facilities that acquired HCIS software that included a
component representing the cost of premiums would then disperse their
costs across society, passing on the increase to patients, unfortunately
contributing to the upward spiral of health care costs.

An injured patient may also be unable to prove the HCIS vendor is
liable under a negligence theory because he faces the daunting burden of
showing a lack of due care in the software design or manufacture[240] and
a breach of a specific standard of care. "If a person has special knowl-
edge, skill or intelligence, that person must act consistent with such abil-
ity."[241] When he falls below this standard and another is injured, the
injured plaintiff may invoke the common law negligence action of mal-

---

erage for software vendors' products, but the software being insured is that sold by dealers
and distributors, not HCIS vendors. *See* Davis, *supra* note 64, at 602-03.

Even if insurance on vendor software was relatively inexpensive, unlike most manu-
facturers, the HCIS marketplace is decreasing, not increasing. There are less than 7000
acute care hospitals in the United States. Solutions International, *supra* note 148. These
hospitals are further divided according to bed sizes, and most HCIS vendors target hospi-
tals of only a certain bed size to deliver the maximum performance for the price. Even the
number of physicians groups is limited, and vendors in this industry also define their tar-
get market by the number of physicians in a group. Given the current "merger mania" in
the health care industry, the number of hospitals and clinics is decreasing, not increasing.
See supra note 55. In addition to this shrinking market, hospitals and clinics do not replace
their information systems every few years. Although additional peripheral equipment and
add-on software applications might be added to an existing system, replacing the total sys-
tems environment occurs on the average of once every seven years. This further restricts
the potential market for products.

Since insurance premiums on a large HCIS system are likely to be significant because
of the potential risk involved and there are a limited number of potential buyers for each
HCIS vendor's system, the ultimate increase in product cost to the health care facility
might prevent its acquisition of a system. If fewer and fewer systems were sold because
they were price prohibitive, the HCIS vendor community would eventually disappear.

238. *See* Miyaki, *supra* note 16, at 138. "[F]or a risk to be insurable, the risk must be (1)
specified or, at least capable of being identified, and (2) the duration of the risk must be
fixed and able to be determined." *Id.* Unfortunately, acquiring insurance on software
might be difficult because all the sequencing combinations cannot be tested prior to releas-
ing the software, the extent of the risk cannot be identified, and the duration of the risk is
not fixed because the specific combination of commands might never arise. *Id.* "[I]f prod-
ucts liability insurance were available to computer software manufacturers, the price
would be extremely high for complex programs [like those marketed by HCIS vendors] be-
cause the gravity of injury is so great." *Id.*

239. *See supra* note 237.

240. *See* Miyaki, *supra* note 16, at 139. The negligence that caused the patient's injury
might not even be that of the HCIS vendor — it might be that of a third party.

241. Smith, *supra* note 37, at 759.

practice.[242] Nonetheless, courts have been reluctant to recognize the tort of "computer malpractice" for several reasons.[243] It is difficult to pinpoint who the actual software developer is and there is no agreement as to the standard of care.[244] Because there is no agreement as to the proper standard of care, it is difficult to show a breach of that standard.[245] Demonstrating that the actual injury resulted from an error in the software may also prove elusive.[246] Finally, if the software is designed specifically for a particular user, the software developer's affirmative defense is that the specifications provided were incomplete or in error.[247] The injured patient carries a less onerous burden of proof in an action under section 324A,[248] whereas establishing the elements of negligence or computer malpractice against an HCIS vendor can be quite difficult.

Lastly, the extension of liability under section 324A avoids the privity requirement of the UCC. In *Hill* and *DiMarco*, both defendants raised lack of privity as a defense, both were granted summary judgment

---

242. Smith, *supra* note 37, at 759. *See also* Graziano, *supra* note 70, at 177-78. "Determination of professional malpractice involves recognition of a duty under the higher professional standard of care, a departure from that standard by the practitioner, and a determination as to whether the departure was the proximate or legal cause of the injury." *Id.* at 178.

243. *See* Chatlos Sys., Inc. v. National Cash Register Corp., 479 F. Supp. 738, 740 n.1 (D. N.J. 1979), *modified* 635 F.2d 1081 (3d Cir. 1980). *Cf.* Diversified Graphics, Ltd. v. Groves, 868 F.2d 293, 295-96 (8th Cir. 1989) (holding information systems consultants to a professional standard of care); Data Processing Serv., Inc. v. L.H. Smith Oil Corp., 492 N.E.2d 314, 319-20 (Ind. Ct. App. 1986) (analogizing services of computer programmer more analogous to those of a lawyer or physician).

244. Lawrence, *supra* note 3, at 8. The computer profession is not regulated by the state, nor are there definitive licensing or education requirements or any self-regulating bodies. *See* Zammit, *supra* note 89, at 434. *See also* FORESTER & MORRISON, *supra* note 5, at 16-19. The profession "had neither the time nor the organizational capability to establish a binding set of moral rules or ethics" and the practice of computing "goes on outside the profession — this is an open field, with unfenced boundaries." *Id.* at 16-17.

245. Lawrence, *supra* note 3, at 8.

246. Lawrence, *supra* note 3, at 9. "Injury may result from computer use even though the software was correct. Malfunction of a computer part, an electrical surge, or incorrect data input, all can cause the computer to fail." *Id.* More complex systems, especially those with multiple software packages purchased from different HCIS vendors or those systems that are highly integrated or interfaced, would complicate pinpointing exactly which software package or groups of packages actually caused the injuries.

247. Lawrence, *supra* note 3, at 9.

248. Once the patient identifies the proper HCIS vendor whose actions caused the injury, the patient need only show that one of the three subsections of §324A applies. *See* RESTATEMENT (SECOND) OF TORTS § 324A (1965). The patient need not show *he* relied on the HCIS vendor's undertaking; it is sufficient that *the health care facility* relied. *See id.* (emphasis added).

at the trial court level, and both lost under section 324A.[249]

Recovery under section 324A may be the only available means of re-covering from the HCIS vendor whose product causes injury. Compensa-tion for personal injury resulting from defects in the software should be borne by the HCIS vendor whose software caused the injury, especially because the HCIS vendor is in a better position to spread the cost of the injury across its customers. In addition, unless the contract specifically identifies the patient as a third party beneficiary, recovery from the HCIS vendor for personal injury will be impossible under the UCC. The privity requirement of the UCC also prevents recovery by a third party to the contract, and courts for the most part have not recognized the tort of computer malpractice. For these reasons, and to compensate the individ-ual patient who is injured, the HCIS vendor should be held liable under section 324A.

C.   POLICY REASONS AGAINST IMPOSING LIABILITY ON THE HCIS VENDOR

Just as there are valid policy reasons for finding the HCIS vendor liable under section 324A, there are equally compelling reasons to avoid imposing liability. First, and most important, finding the HCIS vendor liable to the injured patient will likely slow development of new systems and increase costs to current buyers.[250] Second, determining the extent of the HCIS vendor's liability will be difficult.[251] Finally, imposing liabil-

---

249. *See* DiMarco v. Lynch Homes — Chester County, Inc., 583 A.2d 422, 425 (Pa. 1990) (ruling that "this Court has not hesitated to find that lack of privity does not bar a third party from maintaining a cause of action against a professional"); Hill v. James Walker Memorial Hosp., 407 F.2d 1036, 1040 (4th Cir. 1969) (stating that the defense of lack of privity is unavailable).

250. Schleifer, *supra* note 17, at 289. Computer manufacturers argue that the market has not yet demanded changes that force the manufacturer to spend more time and money on reliability, but waiting for market demand may be too late to prevent injury to a patient resulting from a software defect. *See id.* "[D]evelopers may decline to put new software on the market." Lawrence, *supra* note 3, at 15. "[T]he costs of the products which continue to be produced and marketed may become prohibitively expensive so as to price the product above the reach of those who need it most." *Id.* "[R]esearch and development of vital new medical technologies may be inhibited." *Id.*

251. Miyaki, *supra* note 16, at 142. The HCIS vendor's software might include a bug that caused the injury. *See supra* notes 61-64 and accompanying text. Patient care software programs are typically complex, and tracing a reported problem to determine its source can take hours, even when a patient's life hangs in the balance and each second is critical. Further, liability to the patient due to the HCIS vendor's actions may be inappro-priate. In a situation similar to that presented in the hypothetical but where extent of the HCIS vendor's involvement is not evident, the injury could have been caused by any number of different factors: the hospital ward clerk could have entered the erroneous dos-age; a power failure or surge could have caused the error; the nurse who administered the medication should have questioned the excessive dosage; the patient might have died even

ity on the HCIS vendor will have a chilling effect on the development, release, and availability of software and hardware and will ultimately adversely affect the public's health and welfare.[252]

HCIS vendors, fearing liability, might refuse to release software or even leave existing technology in the market. Information technology in the health care field continues to improve and advance at a rapid pace. Computers that use sophisticated software programs can recognize life-threatening patterns, act as patient monitors, and serve three critical treatment-oriented functions: surveillance, analysis, and response.[253]

Information systems are currently used in the diagnosis and treatment of disease, enabling the physician or technician to perform a high volume of transactions simultaneously with a high level of accuracy and reliability.[254] Mycin is an expert system used to assist practitioners in infectious diseases.[255] Physicians depend on APACHE III to assist in

---

if the medication had not been administered from a combination of other different or unrelated factors.

252. Lawrence, *supra* note 3, at 15. Research and development of potentially life-saving computer software would be discouraged. Miyaki, *supra* note 16, at 143. "Strict products liability would have more than a 'chilling' effect upon computer software manufacturers, it would have a 'freezing' effect." *Id.* In a recent Ninth Circuit case, the court stated in dicta that computer software might be considered a "product" and therefore subject to product liability law. Winter v. G.P. Putnam's Sons, 938 F.2d 1033, 1036 (9th Cir. 1991). Reacting to the court's ruling, The Rutter Group pulled its family law advisory programs off the market to avoid potential liability, clearly evidencing the chilling effect that the threat of strict liability can have on computer vendors. *Ruling's Dicta Causes Uproar*, 47 NAT'L. L.J. No. 3 (July 29, 1991).

253. Lawrence, *supra* note 3, at 5.

> The surveillance function consists of measuring and recording specific physiological signals such as heart rhythms, blood pressure, respiration rate, or temperature. The analytical function evaluates the data collected from surveillance against specific criteria and provides an overview of the patient's status. The response function triggers the need for medical intervention.

Id.

254. Lawrence, *supra* note 3, at 3.

255. Like most expert systems, Mycin is a collection of rules, extracted from experts in infectious diseases, in the form of IF . . . THEN statements:

> IF the infection requiring therapy is meningitis,
>   AND the type of infection is fungal,
>   AND organisms were not seen on the stain of the culture,
>   AND the patient is not a compromised host,
>   AND the patient has been in a region where coccidiomycoses are endemic,
>   AND the race of the patient is black or Asian or Indian,
>   AND the cryptococcal antigen in the csf was not positive,
> THEN there is suggestive evidence that the cryptococcus is not one of the organisms that might be causing the infection.

FORESTER & MORRISON, *supra* note 5, at 173-74.

Difficulties in creating expert systems for the health care industry are that there are an infinite number of circumstances that may be encountered with each individual patient, a physicians cannot express in a logical sequence his actions, and medical decisions usually

monitoring and treating patients in the ICU.[256] Computers in the clinical laboratory identify specimens, measure and dispense reagents, agitate mixtures, and determine test results.[257] Computerized Axial Tomography ("CAT" scan), unlike conventional x-rays, presents a cross-section view of the body complete with quantitative information on soft tissues.[258] A CAT scan is non-invasive, yet through computer software provides what would be impossible by any other presently available method.[259]

Over the last decade the Clinical Data Repository ("CDR") has become a reality.[260] Manual completion and storage of medical records is cumbersome at best: the clinician is presented with a chronological history of the patient in no particular order and with little or no summary or trend data. Further, in cases involving multiple clinicians, only one can review the medical record at a time. Today, with medical records on the computer and the availability of a CDR, clinicians determine which patient's history to review first, which tests are most critical for each patient, and have access to summary and trend data on each patient at the touch of a key.[261] Further, advances in networking and telecommunication, together with the CDR, allow simultaneous access of any single patient record by any number of clinicians.[262]

At a minimum, the threat of potential liability under section 324A might cause the HCIS vendor to conduct additional, but nonessential product testing or review, thereby preventing the immediate release of enhanced and new technologies that might benefit all patients. If the

---

embody value judgments concerning the desired and different outcomes. Lawrence, *supra* note 3, at 7.

256. *See supra* note 46.

257. Lawrence, *supra* note 3, at 3.

258. Lawrence, *supra* note 3, at 4.

259. Lawrence, *supra* note 3, at 4.

260. Randy Golob, *Securing A Bridge To The CPR: Clinical Data Repositories*, HEALTH-CARE INFORMATICS, Feb. 1994, at 50. The CDR provides a means of accessing information on a patient or a set of patients. *Id.* at 52. It provides the clinician with the ability to assess clinical outcomes and to use care protocols, important in the management of the health care delivery process. *Id.*

261. Although the costs of providing enough workstations throughout a 300-bed hospital so that clinicians can and will utilize the patient record stored on the information system range from $350,000 to $1 million or more at a minimum, many hospitals are demanding and documenting paybacks for their expenditures. John Morrissey, *Workstations That Work*, MODERN HEALTHCARE, Oct. 10, 1994, at 40-41. Brigham and Women's Hospital in Boston reports a savings of "$600,000 in charges a year for one drug." *Id.* at 40. Clinicians use the workstations to "enter orders, receive results and begin to tap into comprehensive databases of information leading to better and more cost-effective medicine." *Id.*

262. Morrissey, *supra* note 261, at 44. The paper chart can only be in one place at a time; "in the medical records department or under the arm of one physician somewhere in the building." *Id.*

HCIS vendor must release only perfect software or hardware, its testing must anticipate and include every possible combination of circumstances that would be encountered with each individual patient;[263] testing would never end. To protect themselves from liability for injuries caused by "imperfect" software or hardware, HCIS vendors would attempt to purchase product liability insurance[264] and would be forced to price their products prohibitively high to cover its cost. Having to add a risk-based cost component to cover product liability insurance would place the cost of software outside the reach of the majority of willing buyers[265] and restrict vital technology to only the very few and very wealthy.

The second policy reason against imposing liability under section 324A is that the extent of liability may be difficult to determine and the HCIS vendor may not be liable.[266] The hypothetical advances two specific instances in which the HCIS vendor's actions justify imposing liability, but where the injury is caused by a factor or individual outside the HCIS vendor's control, liability should not be imposed. If the injury occurs because of a bug in the software, liability probably should not attach to the HCIS vendor since releasing "perfect" software is impossible.[267] Similarly liability should not be imposed if the error results from a power surge or failure since such acts of God are not within the control of the HCIS vendor. If the ward clerk inputs the wrong dosage but the software works "perfectly," the HCIS vendor cannot be held responsible for the clerk's human error.[268] If the nurse who administers the medication fails to question the dosage and administers the medication anyway,

---

263. Miyaki, *supra* note 16, at 7. No amount of testing can guarantee that all the bugs in the software have been discovered; releasing a perfect medical software program is an unattainable goal. *Id.*

264. *See supra* notes 235-37 and accompanying text.

265. *See supra* notes 238-39 and accompanying text.

266. Miyaki, *supra* note 16, at 142.

267. *See supra* note 263 and accompanying text.

268. Where an expert system that is designed specifically to eliminate human error is installed, an injured patient may argue that the designer should be held at least partially liable for the harm caused by the system's failure to detect the human errors it was designed to prevent. The difficulties in developing such a system, however, include being unable to define a logical sequence of the accompanying medical reasoning and the absence of a specific answer. Lawrence, *supra* note 13, at 7. The clinician uses value judgments based on experience, educated guesses, and intuition to make his decisions. *Id.* In addition, the uniqueness of the individual patient's desires and reactions creates essentially unlimited possible outcomes. *Id.* To the author's knowledge, only one system professes to address the prevention of human error is installed in a hospital setting: the 3M HELP system at LDS Hospital in Salt Lake City, Utah. Reports from clinicians who use this system mention the system's ability to "catch" medication errors such as the one in the hypothetical scenario. Upon entry of a dosage outside the normal range for a particular patient, based on previous prescriptions for similar patients with similar symptoms and diagnoses, the HELP system alerts the user with an audible alarm and an error message requesting verification of the dosage. Nonetheless, marketing representatives of the HELP

that intervening negligence should absolve the HCIS vendor. Lastly, the patient's death might occur regardless of the medication error due to his debilitated condition. Intervening or superseding events should shield the HCIS vendor from liability and fault of another should absolve the HCIS vendor.

Finally, the impact of subjecting the HCIS vendor to liability could be harmful to the public's health and welfare.[269] Although 1993 gross revenues of the ten largest HCIS vendors are in the hundreds of millions of dollars, 1993 gross revenues of ninety of the top one hundred are less than $100 million and forty-one of the top one hundred had gross revenues of less than $10 million.[270] A single jury verdict in favor of the injured patient could easily put the majority of HCIS vendors out of business.[271] Many HCIS vendors would cease developing products that exposed them to such risk.[272] Additionally, products currently in the marketplace that are critical to preventing, diagnosing, or treating disease might be withdrawn to escape the risk of going out of business.[273] Thus, benefits from the technology would be unavailable to patients who might be injured by human error that might not have occurred but for the unavailability of technology. More patients might suffer from the absence of technology than from defects or problems with existing and emerging technology.

Information technology in the health care setting is beneficial to the patient's well-being. Very few instances of injury to patients have been traced to a software product or its HCIS vendor.[274] Imposing liability for

---

system state that its purpose is not to replace the physician's medical judgment. Likewise, the creators of APACHE make the same claim. *See supra* note 46 and accompanying text.

269. Lawrence, *supra* note 3, at 15 ("[T]hese results will have far-reaching detrimental effects on the public's health and welfare.").

270. Dorenfest, *supra* note 9, at 52-68.

271. Weiler, *supra* note 7, at 914. Juries that are convinced that a patient has received negligent treatment tend to award very large damage awards. *Id.* "The average malpractice verdict is three times the size of motor vehicle verdicts, and twice the size of products and governmental liability verdicts, *after* adjusting for the age of the victim and severity of injury." *Id.* Jury awards for negligence can be over $50 million. *Id.* at 914 n.32.

272. *See* Stephanie Losee, *Closing The Innovation Gap*, FORTUNE, Dec. 2, 1991, at 56 (asserting that "'[w]e're losing our creative edge. American industry is on the decline because U.S. managers are too concerned about protecting short-term earnings to innovate'"). Many HCIS vendors are bottom-line oriented, but new creations in a high risk field are anything but inexpensive! In addition, pricing current software beyond the reach of the market to accommodate an insurance cost component would make selling the software virtually impossible. Unable to sell, the HCIS vendor would have less money for research and development so development of new software and technology would slow down and eventually cease altogether.

273. Lawrence, *supra* note 3, at 15. *See also* Miyaki, *supra* note 16, at 143. "[M]any [HCIS vendors] would discontinue 'cutting edge' ventures, since one defect in the computer software may plunge the [HCIS vendor] into bankruptcy." *Id.*

274. Wolpert, *supra* note 20, at 531.

software defects on the HCIS vendor under section 324A would inhibit further development of needed technology, cause current products to be withdrawn from the marketplace, drive some HCIS vendors from the marketplace and force others to increase their product prices beyond the reach of the willing buyer. For these policy reasons, liability under section 324A should not be imposed.

VI.   CONCLUSION

Injuries resulting from defects in software programs are still relatively rare, but will increase as health care facilities continue to implement information technology designed for patient care. Today, the patient who suffers harm in a health care setting looks to his direct caregivers and the facility for compensation, usually under a negligence theory of malpractice. As proliferation of information technology in the patient care arena continues, patients will attempt to include the HCIS vendor supplying that technology in claims for injuries suffered. An injured patient who establishes the threshold elements of duty and causation has a viable cause of action under RESTATEMENT (SECOND) OF TORTS section 324A against the HCIS vendor for the harm he suffered. The patient must first establish that the HCIS vendor undertook to render services to the health care facility and that the HCIS vendor's performance caused the patient's injury. Next, the patient must show that one of three subsections of section 324A applies: (a) the HCIS vendor's negligent conduct increased the patient's risk of harm: (b) the HCIS vendor voluntarily undertook a duty that the health care facility owed the patient; or (c) either the patient or the health care facility detrimentally relied on the HCIS vendor's undertaking.

HCIS vendors advertise that their systems will help improve patient care and organizational productivity and profitability. They hire physicians, nurses, radiologists, pharmacists, and other health care professionals to design, program, and support their products. Further, telephone support and on-line services in the form of remote computer diagnostics make the HCIS vendor "only a phone call away" from their customers. Yet the typical HCIS vendor contract still disclaims all warranties and limits the vendor's liability in the event of injury to a patient the system is designed and purchased to benefit.

There are several compelling policy reasons why liability should be imposed. Severe personal injury can result from the use or misuse of information technology in a health care setting and the injured patient should be compensated for the harm suffered. The HCIS vendor is in the best position to detect and prevent problems with its software and should be responsible for the product it releases into the stream of commerce. In addition, the HCIS vendor is in the best position to compensate the pa-

tient for injuries resulting from defective information technology. Recovery under a computer malpractice theory may be limited, and privity between the patient and the HCIS vendor is not required under section 324A.

Just as there are strong reasons to impose liability, however, there are three compelling reasons why recovery under section 324A should not be allowed. First, the threat of liability could inhibit research and development efforts on current and future technologies, significantly increase the cost of current products to cover the cost of liability insurance, and even result in withdrawal of products from the marketplace. In addition, determining the extent of the HCIS vendor's liability is difficult, if not impossible due to intervening factors and individual patient reactions in the health care setting. Finally, a single jury verdict in favor of the injured patient could result in the demise of most of the HCIS vendors and ultimately adversely affect society.

Section 324A of the RESTATEMENT (SECOND) OF TORTS offers a potential theory of recovery to a patient who is injured by the use or misuse of an HCIS vendor's technology. There will always be strong policy reasons for imposing liability against the HCIS vendor and there will just as often be equally strong policy reasons against imposing liability. Establishing a "bright-line" rule defining when a patient can recover where the only common facts between the individual cases are that there is one patient, one health care facility, and one HCIS vendor is arbitrary at best. Each patient's case under section 324A will be unique, and must be considered independently. Information and access to it will be the key to health care facility and patient survival in the near future as a new health care delivery system emerges. Strict HCIS vendor liability could destroy an invaluable segment of the health care industry and with it, the ultimate benefits from advances in information technology. Only in rare cases, such as those involving intentional or negligent acts by the HCIS vendor's employee that harm the patient or where the HCIS vendor exhibits blatant disregard for the general health and well-being of the public, should courts allow a patient to recover from an HCIS vendor under section 324A, a little-used, but extremely powerful theory of recovery.