

1977

Jeannette U. Swan v. Dr. Robert H. Lamb And Dr. Dennis D. Thoen : Brief of Defendant And Respondent Dr. Dennis D. Thoen

Utah Supreme Court

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Recommended Citation

Brief of Respondent, *Swan v. Lamb*, No. 14823 (Utah Supreme Court, 1977).
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IN THE SUPREME COURT OF THE STATE OF UTAH

JEANNETTE U. SWAN,

Plaintiff and
Appellant,

vs.

DR. ROBERT H. LAMB and
DR. DENNIS D. THOEN,

Defendants and
Respondents.

BRIEF OF DEFENDANT AND RESPONDENT
DR. DENNIS D. THOEN

Case No. 14823

NATURE OF THE CASE

This is an action brought by plaintiff against defendant doctors based upon alleged medical malpractice in the performance of a myelogram and spinal surgery.

DISPOSITION IN LOWER COURT

This case was tried before the Honorable Bryant H. Croft, District Judge of the Third Judicial District. Upon the conclusion of plaintiff's case, Judge Croft granted defendants' motions to dismiss that portion of plaintiff's cause of action relating to claimed negligence in the performance of medical services. The remainder of plaintiff's claim of informed consent was submitted to the jury. As to this sole issue the jury returned a verdict in favor of defendants.

RELIEF SOUGHT ON APPEAL

Defendant-respondent Dennis D. Thoen seeks affirmance of the lower court order and verdict.

STATEMENT OF FACTS

This appeal is fundamentally concerned with the legal standard to be applied in Utah medical malpractice cases. Respondents seek an affirmance of the trial court's decision that plaintiff's expert witness was not properly qualified to testify because he lacked familiarity with local community standards. Appellant, on the other hand, argues that the trial court's ruling was incorrect and that a new broader standard of admissibility of expert testimony should be adopted by this Court.

For this reason, the facts of this case are secondary to the important legal issues presented in this appeal. The facts of this case do, however, illustrate the problems involved in determining a proper medical standard and proper criteria for qualification of an expert witness. For this reason and because the facts have been presented in detail in both appellant's brief and in respondent Lamb's brief, the following Statement of Facts is directed solely to that information which is pertinent in evaluating a medical standard.

On January 17, 1974 plaintiff filed her complaint with the District Clerk alleging that defendants Dr. Robert Lamb and Dr. Dennis Thoen were negligent in the performance of orthopedic surgery and neurology respectively, that they had breached their

contract with plaintiff in failing to provide proper medical and diagnostic treatment, and that plaintiff had not been informed properly by defendants of the consequences and risks involved in the medical procedure. (R., pp. 2-5). These allegations were denied by defendant Thoen and defendant Lamb. (R., pp. 16-18; 19-21).

On September 13, 1976 a jury trial was held with the Honorable Bryant Croft presiding. Plaintiff called Dr. Robert M. Dalrymple who testified that he was a physician of internal medicine practicing at St. Mark's Hospital. (Transcript of Day 1 of Trial, p. 30---hereinafter referred to as Volume 1). Dr. Dalrymple began treating plaintiff in 1969. (Vol. 1, p. 31). It was his opinion after examining plaintiff that she was not going to become any better without surgery and that surgery was necessary or "we wouldn't have gone ahead with the surgery". (Vol. 1, p. 38).

Dr. Dalrymple testified that internal medicine is a field dealing with diseases affecting most of the organs in the body. It is a recognized medical specialty. To be "board-certified" requires a number of years of training and post-graduate work and the passing of specialized examinations. (Vol. 1, p. 50). He stated there were other recognized specialties including orthopedic surgery, neurology, and neurosurgery and that each one requires separate board-certification. (Vol. 1, p. 51).

At the time Mrs. Swan was hospitalized, Dr. Dalrymple referred the case to defendant Dr. Lamb whom he had worked with for many years and in whom he had confidence. Dr. Lamb in turn requested a neurologist be consulted. (Vol. 1, p. 60). Defendant Thoen was subsequently consulted and determined that a myelogram would be necessary. (Vol. 1, p. 61).

On cross-examination Dr. Dalrymple stated that he did not believe either Dr. Thoen or Dr. Lamb had departed from acceptable community standards of care in orthopedics or neurology. He based this conclusion on his observation of orthopedic surgeons and neurologists in the area. (Vol. 1, pp. 68-69).

On the second day of trial plaintiff called Dr. Robert H. Lamb as an adverse witness. Dr. Lamb stated that he had been practicing medicine for some 25 years after graduation from a Philadelphia medical school. (Transcript of Day 2 of Trial, p. 1--hereinafter referred to as Volume 2). Lamb stated that he was a member of the American Board of Orthopedic Surgery which conducts a national test for entrance to such board. (Vol. 2, p. 2). When asked what the standard of skill and care is for orthopedic surgeons practicing in Los Angeles, California, Dr. Lamb replied, "I've never practiced there. I know a number of orthopedists in Los Angeles, California. They are qualified board men. I don't know what the standard of care is. I don't know what the average standard of care is." (Vol. 2, p. 3).

Lamb testified that he had consulted with Dr. Thoen concerning

ing the results of a myelogram. At that time he was told by Dr. Thoen that the "opening pressure" during the myelogram was normal. (Vol. 2, p. 18). Although the hospital record did not show the opening and closing pressures, it was Lamb's opinion that neurologists in Salt Lake did not normally record opening and closing pressures on a myelogram if such pressures were normal. (Vol. 2, p. 9). Likewise, Dr. Lamb did not think it was the usual practice in Salt Lake to record the amount of fluid that is removed from a spinal canal during a myelogram. (Vol. 2, p. 20).

Dr. Lamb stated that prior to operating on plaintiff he had performed five or six other operations including the nailing of a right hip, a triple authrodesis, a patellectomy, a manipulation of a knee cap, and a bunionectomy. (Vol. 2, p. 45).

Dr. Lamb advised plaintiff of the possible complications which could arise from the surgery. At that time he made no mention of bowel and bladder possible malfunctions since he did not believe the standard of care in Salt Lake required him to advise her of this possible contingency. (Vol. 2, p. 67).

Upon cross-examination Dr. Lamb testified that orthopedic surgery is a specialized form of medicine in which surgery is performed on the back, neck, major joints and bones. He testified that he passed his orthopedic specialty certification in 1953, that recertification is not required, and that he has performed

approximately 150 back operations each year of his practice. (Vol. 2, pp. 78-79).

Dr. Lamb stated that it was his custom not to advise patients of extremely remote consequences of surgery on the assumption that such warnings may frighten people away from necessary operations. (Vol. 2, pp. 95-96). He further stated that it was a standard practice at St. Mark's Hospital and other hospitals in the community to schedule seven or eight operations in a single day in order to use maximum facilities and maintain efficiency. (Vol. 2, pp. 101-102; 115).

On the third day of trial plaintiff called Dr. Dennis Duane Thoen as an adverse witness. Dr. Thoen testified that he practiced neurology at St. Mark's Hospital, was educated at a medical school where students from all parts of the country were enrolled, and specialized in the diagnosis and medical treatment of disorders of the central and peripheral nervous system. (Transcript of Day 3 of Trial, pp. 1-4--hereinafter referred to as Volume 3). Thoen stated that neurosurgeons specialize in nerve-related surgery while neurologists are concerned with the diagnosis and treatment of neurological problems using methods other than surgery. (Vol. 3, p. 4). He stated that the standard of care for board-certified neurologists is supposed to be uniform throughout the United States. (Vol 3, p. 4). When asked if there was a standard of practice in the United States for neuro-

logists Dr. Thoen replied as follows:

I think I know what the standard of care ought to be throughout the entire country, but I am only familiar with the standard of care in three states. The practice of neurology as it ought to be is one thing. As is generally accepted in one area as opposed to another may be an entirely different thing. (Vol. 3, pp. 8-9).

Dr. Thoen stated that he was not aware of the specific practice performed at the University Medical Center concerning myelograms in 1972 but that he presumed it was similar to that practiced in St. Mark's. When asked whether the standard of practice with respect to myelograms changed materially during the last four years Dr. Thoen replied:

I don't quite know how to answer your question. You say standard of practice. You're asking me to make a judgment there. Let me say, that the method of doing myelograms has changed over the years. New procedures come into effect, new positions, new ways of injecting and so forth. They are not all accepted by all places. So, if you say "Have the methods of doing myelography changed over the years," yes, it has. When you say "standard of practice" almost every method of doing any myelography is within the standard of practice as far as I know. (Vol. 3, p. 34).

Dr. Thoen was asked by plaintiff's counsel whether the practice of leaving the radiation dye in the spine had changed in the past four years. Dr. Thoen then stated:

Not to my knowledge. It is an individualized matter. There are some instances where clinically it is imperative to leave the oil in and there are others where it doesn't make any difference, where it is the custom in this

country to take it out. In England, it is left in all the time. (Vol. 3, p. 36).

Plaintiff's counsel read excerpts from a leading book on clinical neurology which stated that normally the pantopaque dye should be removed after each operation. Dr. Thoen stated that while this principle was generally true the specific case governed depending upon the abnormality present in the spine. (Vol. 3, pp. 60-62).

On cross-examination by Mr. Christensen, counsel for Dr. Lari Dr. Thoen stated that he was a blunt person and always told patients what may happen to their bodies. He stated that in this case he told Mrs. Swan that she could very well become paralyzed either from the myelogram or the surgery or both. (Vol. 3, pp. 70-71).

Dr. Thoen stated that in even one locality there may be several techniques utilized in performing an operation. He stated that as long as one technique has not been demonstrated to be unquestionably superior to another all techniques can be ethically employed. He analogized surgery with cooking in that both skills used differing methods to arrive at the same result. (Vol. 3, pp. 71-72).

Upon cross-examination by Mr. Hansen, Dr. Thoen stated that there is a distinction between an acceptable standard of medicine and the actual practice of it. He testified that he had no personal knowledge of the practice of neurology in California. (Vol. 3, p. 73).

Dr. Thoen stated that it was absolutely necessary to leave the dye in plaintiff after the myelogram because surgery was to be performed and the dye was essential to aid the surgeon in analyzing the surgical process. Dr. Thoen testified that this type of dye is eventually absorbed into the body. (Vol. 3, p. 80).

Dr. Peter M. Rocovich was called by plaintiff as her expert witness. He stated that he resided in California, obtained a B.S. Degree from Loyal University and an M.D. Degree from the St. Louis University in 1942. (Vol. 3, p. 100). He served as a general surgeon in the United States Army from 1943 to 1946 and shortly thereafter became associated with the Loma Linda Medical College.

Dr. Rocovich testified that he was a member of the Southern California Neurosurgical Society, the American Medical College, the California Medical Association, the Los Angeles County Medical Association, and the Western States Federation of Neurological Sciences. (Vol. 3, p. 102).

Dr. Rocovich admitted that he had taken the examination for board certification in neurosurgery but had not passed it. He stated that since he subsequently became Head of the Department of Neurological Surgeons at the Queen of Angels Hospital in California he did not feel it necessary to pass the board examination. He stated that he had conducted neurological and neurosurgical clinics at the Orthopedic Hospital for 25 years and that students

came from all over the country to train under him. (Vol. 3, pp. 103-104).

Dr. Rocovich stated that he was familiar with the medical standard of care in Southern California and did not believe the standard to be any different for a board-certified neurosurgeon than a non-board-certified neurosurgeon. (Vol. 3, p. 105).

Dr. Rocovich stated he was acquainted with standards of practice outside the state of California based upon his educational background and from being a graduate of a grade A medical school where many teachers from all over the country are present. He also based any opinion on his Army experience, his practice in other large communities and medical schools and his study of current national publications. (Vol. 3, p. 107).

He testified that Salt Lake City had a very good class A medical school. He stated that both of the hospitals in which he works in California are accredited. Finally, he testified that he had performed thousands of lumbar laminectomies and over a thousand myelograms. (Vol. 3, p. 109).

The trial court sustained defendants' objections to any opinion offered by Dr. Rocovich concerning the standard of care to be applied to defendants in Salt Lake City.

After a lengthy discussion with counsel concerning the standard of care, the trial court made the following observation about Dr. Rocovich's qualifications to testify about the medical standard applicable to Utah doctors:

[I]t seems to me that before we can allow the doctor to testify to what he says the standard of care is in this community or this state, he must lay a foundation to show that he knows and how he knows what the standard of care is. And I am not satisfied that particularly a foundation is laid by testimony: "Well, I was in the Army with doctors from all over the country. I have had students from school." They come down to learn from this doctor. They don't go down there to teach him what the standard of care is in this community, and that sort of experience and that sort of practice where there is no showing of any personal contact or experience within the state of Utah, leaves me wondering does he qualify as an expert to tell us what the standard of care is in the state of Utah that we should expect from these doctors. And I have a difficult time seeing on that he does. (Vol. 3, p. 118).

During the discussion with counsel the trial court recognized the problems inherent in each of the medical standard approaches now existing in the United States. As to the "strict" local standard, the trial court regretted that there was not a panel of local doctors who could assist plaintiffs in establishing a local standard of care. (Vol. 3, p. 114).

As to the "similar locality rule" the trial court stated his concern as to what criteria would be needed to establish similarity. The trial court said:

The expert must show some knowledge, it seems to me, of the facilities of the area in question; and before he could testify, he would have to lay a foundation showing that he had some knowledge of the medical schools, the hospitals, the policy in this community to show that they are similar to the community he is familiar with in order to testify what the standard of care should be." (Transcript of Day 4 of Trial, p. 10--hereinafter referred to as Volume 4).

Finally, as to the national standard of medical practice the

trial court was apprehensive about how such a standard would be proven. The court said:

And it seems that the broader we make the standard in specialized fields, extending it to the nation or even an international field, may be the narrower becomes the source of the expert testimony to establish those standards, to whom do we look to tell us what those national standards are?" (Vol. 4, p. 11).

During the fourth day of trial proffers of proof were made by plaintiff and defendants. Plaintiff proffered the testimony of Dr. Rocovich that he would have testified that Dr. Lamb fell below the standard for orthopedic surgeons in that he failed to obtain a complete and current neurological examination prior to surgery, failed to obtain a pathology report on specimens taken from plaintiff's back, failed to decompress L-1 in the surgical process, failed to use a catheter to determine whether the canal was clear at the L-1 level, and finally caused trauma to the nerve roots at L-3 and L-4 while performing the surgery. (Vol. 4, p. 105).

Plaintiff's counsel further represented that Dr. Rocovich would have testified that Dr. Thoen failed to meet standards of neurologists because he failed to record the opening and closing pressures at the time of the myelogram, did not record the amount of fluid removed from the spine, and left the pantopaque fluid dye in plaintiff's spine following the myelogram. (Vol. 4, p. 106).

Plaintiff also offered additional proof of Dr. Rocovich's qualifications and also as to the similarity between Los Angeles and Salt Lake City with regard to medical facilities. (Vol. 4,

Defendants proffered proof as to the cross-examination and voir dire of Dr. Rocovich. Dr. Rocovich had no personal knowledge of Utah practice, had never performed surgery in Utah or observed surgery in Utah, and had no personal knowledge whatsoever concerning the standard of medical practice in Utah. Further, defendants offered to prove that Dr. Rocovich had failed to pass the National Board of Neurosurgeons test, did not belong to a single specialty society, did not receive national publications, and had never received specialty training in orthopedic surgery. (Vol. 4, pp. 20-22).

The trial court ruled that once an expert is established to be competent in a particular field of medicine it is not necessary to qualify him as to any part of the country concerning his opinion as to what risks should be communicated to a patient. For this reason, Dr. Rocovich was allowed to testify as to what he believed plaintiff should have been told before surgery. (Vol. 4, pp. 24; 47-48).

Dr. Rocovich stated to the jury that it was his opinion that plaintiff's paraplegia resulted from surgical trauma at the L-3 - L-4 level. He further testified that in probable medical certainty the trauma was caused because the nerve roots at the time of the myelogram were irritated or inflamed in some way which added to the trauma of the surgery and that the combined effect produced immediate paralysis. (Vol. 4, pp. 46-47).

On cross-examination by Dr. Thoen's counsel, Dr. Rocovich admitted that on several occasions he had had patients suffer nerve root damage after operations performed by him and also admitted that the chances of paralysis in a myelogram are remote. (Vol. 4, p. 57).

Dr. Robert Lamb was called on his own behalf and stated that paralysis is a very rare condition or complication from a decompression laminectomy surgical procedure. (Transcript of Day 5 of Trial, p. 9--hereinafter referred to as Volume 5).

Finally, Dr. Dennis Thoen was called on his own behalf and testified that in his opinion plaintiff was suffering from intermittent claudification from spinal stenosis. (Vol. 5, p. 13). Thoen stated he did not believe the dye left in plaintiff's spinal column caused any injury to her since she had no allergy to the opaque dye. (Vol. 5, p. 17).

The jury was instructed concerning the informed consent claim and returned a verdict in favor of defendants and against plaintiff. (Vol. 5, p. 37; R., p. 245).

It is from this judgment that plaintiff now appeals. (R., p. 250).

ARGUMENT

POINT I

THE TRIAL COURT WAS CORRECT IN RULING THAT UTAH CASE LAW EXCLUDED TESTIMONY FROM PLAINTIFF'S OUT-OF-STATE WITNESS WHO WAS NOT FAMILIAR WITH LOCAL STANDARDS OF MEDICAL PRACTICE.

The District Court in ruling that plaintiff's expert was not qualified to give an opinion as to the standard applicable to defendant doctors made the following observation concerning the rulings of this Court and the Utah standard of medical practice:

As I indicated to counsel in chambers, my decision is that as a District Court Judge in Utah, I am bound by the decisions of the Supreme Court of this state that I think have been established not by a large number of cases but certainly by a line of cases over a substantial number of years in which our Court has held to the local community standard.

* * *

As I see those burdens put into my own words, one is to establish by expert testimony the standard of care to be exercised by doctors in this community under our Supreme Court decisions; and, two, having so established that standard by the necessary required expert testimony, to prove that the defendant's professional knowledge did not measure up to that standard. And with respect to our Supreme Court's rules applying the standard of care used by doctors in our community and whether we define community as being city or county or state, I don't know that it matters too much. But this rule is followed by our Supreme Court in this line of cases over many years. (Vol. 4, pp. 2-3).

The trial court was correct in its interpretation of prior Utah law decided by this Court. Appellant's statement that the medical standard to be applied in the instant appeal "presents a case of first impression to the Court" is therefore erroneous. (Appellant's brief, pp. 19-20).

The first case involving medical malpractice was Baxter v. Snow, 95 Utah 199, 2 P.2d 257 (1931). In speaking of the standard of medical practice to be applied to an otologist this Court said:

To recover, the plaintiff was required affirmatively to show that the defendant in the treatment did not exercise such reasonable care, skill, and diligence as ordinarily is exercised by skilled otologists in the same vicinity in the treatment of such cases as was treated by the defendant and that want or failure of such skill or care caused the injury he complained of. 2 P.2d at 263 (Emphasis added).

This Court in Coon v. Shields, 88 Utah 75, 39 P.2d 348 (1933) specifically addressed the question of the standard of care to be applied to a surgeon. The Court rejected the idea that a national standard should be applied rather than that of "any particular community or locality". The Court noted that western communities were still cut off from the advantages of the outside world and that any rule formulated "must be applicable to all communities" in Utah and therefore the Court "cannot be governed by what might be proper in this particular case in view of the fact that the treatment occurred in a city of recognized advantages", (Salt Lake City). 30 P.2d at 351.

In Baker v. Wycoff, 95 Utah 199, 79 P.2d 77 (1938) this Court made frequent reference to the standard applicable in malpractice cases. This Court required a doctor to conform "to the standard of skill which a reasonable physician practicing in the same locality would have used". 79 P.2d at 83. This Court stated:

The burden was on the respondent to show that the doctor in his diagnosis and treatment of the employee did not exercise such reasonable care and diligence as is ordinarily exercised by physicians in the same locality. Id. at 84.

This Court then quoted with approval a Washington case which stated:

that the proper inquiry is:

Whether the treatment thus accorded was such treatment as an ordinarily skilled physician, practicing in the community in which the appellant practiced, would bring to the care of such an injury. Id. at 85.

Subsequent Utah cases are all in accord with this standard.

In Edwards v. Clark, 96 Utah 121, 83 P.2d 1021 (1938) the plaintiff was required to show "that the defendant physician did not exercise such care and diligence as is ordinarily exercised by skilled physicians doing the same type of work in the vicinity". 83 P.2d at 1030. In Fredrickson v. Maw, 119 Utah 385, 227 P.2d 772 (1951) a surgeon was held to the standard of exercising ordinary care, skill and knowledge "required of doctors in the community which he serves". 227 P.2d at 773.

In Forrest v. Eason, 123 Utah 610, 261 P.2d 178 (1953) a naturopathic physician was held to the standard of whether he had "failed to use that care exercised by skilled professional men doing like work in the vicinity". 261 P.2d at 179. A surgeon was sued in Huggins v. Hickens, 6 U.2d 233, 310 P.2d 523 (1957) where this Court held that the evidence did not justify that a "breach of a standard of care of doctors within the community" had occurred. 310 P.2d at 526. A surgeon was also a defendant in Marsh v. Pemberton, 10 U.2d 40, 347 P.2d 1108 (1959) where this Court stated "the ordinary care and skill required of a doctor in the community in which he serves must necessarily be established by expert testimony". 347 P.2d at 1110.

In the last ten years this Court has again repeatedly spoken of the local community standard. In Paull v. Zion's First National Bank, 18 U.2d 183, 417 P.2d 759 (1966) this Court stated that the defendant surgeon was held to the standard of doing the "same type of work in this vicinity" as was comparable "to that required of like practitioners within this area". 417 P.2d at 761.

Finally, the latest case decided by this Court again adheres to the local community standard. In Ficklin v. Macfarlane, 550 P.2d 1295 (Utah 1976) an internal medicine specialist was sued on the grounds of failing to inform his patients of all dangers and risks inherent in a coronary bypass operation. The Court stated that information should not be given to a patient which would cause him not to have an operation when such operation "would be considered a good medical decision and practice in the community". This Court then stated that a doctor was obligated to inform a patient of material risks as much as any other duty he had imposed upon him with regard to the treatment of the patient and that "the negligent failure to (inform the patient) in violation of the accepted practices in medical circles in the community (was) compensable." 550 P.2d at 1298 (Emphasis added).

From the preceding cases it is apparent that Utah has traditionally followed the "local vicinity" or "community" medical standard. Because of the drastic effect a change in this medical standard will have upon the practice of Utah medicine, a thorough examination must be made of the existing standard, the alternatives,

and the consequences of any such modification or change.

POINT II

A LOCALITY STANDARD MUST BE MAINTAINED IN UTAH MEDICAL MALPRACTICE CASES BECAUSE OF BOTH POLICY CONSIDERATIONS AND A VARIETY OF LOCALITY FACTORS WHICH NECESSARILY CREATE DIFFERING MEDICAL STANDARDS.

There are presently three standards applied in medical malpractice cases throughout the country. The first, adopted by Utah, is the strict locality or vicinity rule. The second is termed the "similar" locality rule. The third consists of several variations of what may be termed a "national" standard. The following is a detailed comparison of these differing standards and an analysis of the factors which dictate retention of local criteria in evaluating Utah medical malpractice.

A. The strict locality rule is still viable in Utah today.

The strict locality rule, adopted in Utah, simply states that a physician can only be held to the standard of care practiced by similarly situated physicians located in the same community or locality.

1. History and purpose of the rule.

Perhaps the earliest case recognizing the need for this standard was Leighton v. Sargent, 27 N.H. 460 (1853). The New Hampshire Supreme Court in that case stated:

By our law, a person who offers his services to the community generally, or to any individual, for employment in any professional capacity as a person of skill, contracts with his employer that he possesses that reasonable degree of learning, skill and experience which

is ordinarily possessed by the professors of the same art or science, and which is ordinarily regarded by the community, and by those conversant with that employment, as necessary and sufficient to qualify him to engage in such business. Id. at 469.

The Supreme Court of Kansas in 1870 further elaborated on the formation of the strict locality rule. In the case of Tefft v. Wilcox, 6 Kan. 46 (1870) the Court held that a physician must be measured by a standard which is ordinarily possessed by the profession, as it exists at the time, according to the opportunities and education available to the physician. The Court stated the following reasoning.

Regard is to be had to the circumstances by which the different portions of any one profession may be surrounded, as affecting the question of their proficiency in, and knowledge of advances which may be made in their particular line, and the obligation to be made up to such advance. The opportunities by reason of locality, or other circumstances, of one portion, may be many times more favorable than those of another; and the responsibilities resting upon them would be correspondingly greater.

In the smaller towns and country, those who practice medicine and surgery, though often possessing a thorough theoretical knowledge of the highest elements of the profession do not enjoy so great opportunities of daily observation and practical operations, where the elementary studies are brought into everyday use, as those have who reside in the metropolitan towns, and though just as well informed in the elements and literature of their profession, they should not be expected to exercise that high degree of skill and practical knowledge possessed by those having greater facilities for performing and witnessing operations, and who are, or may be constantly observing the various accidents and forms of disease. It will not, therefore, as a general thing, require so high a degree of knowledge to bring this class of physician up to the rule of ordinary knowledge and skill as in places where greater facilities are afforded by which higher professional knowledge is attainable. Id. at 63, 64. (Emphasis added)

The Supreme Court of Michigan in Pelky v. Palmer, 67 N.W.

561 (Mich. 1896) cautioned that the locality rule could not be used to protect incompetents. The Court said:

While a man with no skill or inconsiderable skill, should not shelter himself behind the claim that he was the only practitioner in his neighborhood, and therefore that he was possessed of the ordinary skill required, although shown to possess less of the ordinary skill to be met with in such localities, or, as the book sometimes say, in the general neighborhood, it is true that the character of the locality has an important bearing upon the degree requisite. Id. at 561.

Thus, the early courts formulated the strict locality rule to help minimize the differences between medical practices in large metropolitan areas as compared with rural communities. As the rule developed, some states chose to state these differences in terms of the opportunities for continuing medical education, for observation and practice of medical techniques, and for access to modern medical facilities and personnel. Other courts noted that the rural areas did not have the means to attract the same caliber of physicians and medical personnel as the higher-paying urban areas.

Note, 40 Fordham L. Rev., 435, 438 (1971).

2. Present practice and criticism of the strict locality rule.

Appellant, some courts, and some commentators all make the common mistake in stating that the strict locality rule has been adopted in only a small minority of American jurisdictions. See Appellant's Brief, p. 22; 41 Am.Jur., Physicians and Surgeons,

Section 87 (1942); Annotation, 37 A.L.R. 3d 420, 426; Shilkert v. Annapolis Emergency Hospital Association, 349 A.2d 245 (Md. 1975).

In truth of fact, however, an exhaustive study by respondent Thoen of medical standards utilized throughout the United States reveals that 17 states and the District of Columbia still presently apply the strict locality rule or the only somewhat broader "general neighborhood rule" in determining the standard of medical malpractice.

The following cases are representative of these states and are the current law of each state as of July, 1977. Orange v. Shannon, 224 S.2d 236 (Ala. 1969) (general neighborhood standard applied to orthopedic surgeon); Fitzmaurice v. Flynn, 356 A.2d 887 (Conn., 1975) (general neighborhood standard applied to obstetrician/gynecologist); Coleman v. Garrison, 349 A.2d 8 (Del. 1975) (community standard applied to surgeon); Staples v. Washington, 125 A.2d 322 (D.C. App. 1956) (same locality rule applied to dentist); Mann v. Sanders, 173 N.E.2d 12 (App. Ill. 1961) (locality standard applied to general physician); Shirey v. Schlemmer, 223 N.E.2d 759 (Ind. 1967) (community standard applied to orthopedic surgeons); Caldwell v. Parker, 340 S.2d 695 (L.A. 1977) (community and locality standard applied to obstetrician); Copeland v. Robertson, 112 S.2d 236 (Miss. 1959) (neighborhood standard applied to gynecological surgeon); Llera v. Wisner, 557 P.2d 805 (Mont. 1976) (community standard applied to doctor of dental surgery); Lockart v. Maclean, 36

P.2d 670 (Nev. 1961) (local community rule applied to surgeon);
Foreman v. Ver Bruggen, 398 P.2d 993 (Nev. 1965) (reaffirmation
of the Lockart locality standard); Gandara v. Wilson, 509 P.2d
1356 (N.M. App. 1973) (community standard applied to surgeon);
Eckles v. Traverse, 362 P.2d 680 (Okla. 1961) (community standard
applied to general practitioner); Getchell v. Mansfield, 489 P.2d
953 (Ore. 1971) (community standard applied to orthopedic surgeon);
Hansen v. Isaak, 19 N.W.2d 521 (S.D. 1945) (community standard ap-
plied to chiropractor); McCay v. Mitchell, 463 S.W.2d 710 (Tenn.
App. 1970) (locality standard applied to orthopedic surgeon);
Pepin v. Averill, 32 A.2d 665 (Vt. 1943) (general neighborhood
standard applied to dentist); and Stundon v. Stadnik, 469 P.2d 16
(Wyo. 1970) (surgeon); Acosta v. City of N.Y., 321 N.Y.S.2d 137 (1971).

It is interesting to note that the western states of Nevada,
Montana, New Mexico, and Wyoming adhere to the same Utah medical
standard. As will be discussed infra the geographic and population
distribution makes the locality rule in the western states an ab-
solute necessity as compared to those states with a smaller geo-
graphic area and a greater density of population.

Law Review commentators and courts adopting the national stan-
dard test have frequently criticized the strict locality rule.

See Note, 40 Fordham L. Rev. 435 (1971); Note, 14 Stanford L. Rev.
884 (1962); Comment, 60 Kentucky L.J. 209 (1971); Note, 18 DePaul
L. Rev. 328 (1968); Note, 46 N.C. L. Rev. 680 (1968); and Waltz,
"The Rise and Gradual Fall of the Locality Rule in Medical Mal-

practice Litigation," 18 DePaul L. Rev. 408 (1969); see also cases listed in Subpart C, infra. The most frequent criticism of the strict locality rule is: (1) that the standard requires a local physician to testify against a fellow physician which often makes it impossible for a plaintiff to obtain an expert witness because of the supposed "conspiracy of silence" in each community and (2) that the strict locality rule may perpetuate a substandard practice simply because it is generally accepted in that locality.

While such arguments undoubtedly are true in some communities, the assumption that all communities employ a "conspiracy of silence" or that all communities create a substandard practice is clearly fallacious. As to the supposed "conspiracy of silence" two commentators have observed a pertinent fact which is often overlooked:

The allegation by plaintiff's counsel of a "conspiracy of silence" is really an indication that they have no case. Not every medical complication is the product of negligence. The lip service paid such a contention by the courts is tantamount to holding that every red light case should have an independent witness on each side or that there is a conspiracy going on to defeat plaintiffs in red light cases. We have never seen a meritorious case against a physician want for a local expert. King and Coe, "The Wisdom of the Strict Locality Rule" 3 Baltimore L. Rev. 221 (1974) at 229, n. 54. See e.g. Bussabarger, 438 P.2d 829, 854 (Wash, 1968) (Dissenting opinion stating "As far as the plaintiff's being a victim of a conspiracy of silence in this case is concerned, I find no evidence of it in the Record.").

In Utah the skyrocketing cost of medical malpractice insurance creates a powerful incentive for Utah physicians to "sweep their own floors" by eliminating incompetent doctors who do not

ing but lower the public esteem for physicians and hike insurance premiums. Doctors who, because of malpractice verdicts, are unable to obtain insurance are more likely to abandon their practice for a safer occupation.

In addition, if there is reluctance on the part of physicians to testify against one another there are other means available which are far superior to allowing out-of-state professional medical witnesses to testify against local physicians. In several states, for example, medical panels selected from local and adjoining communities have been established to evaluate a claim and to testify if necessary if such claim proves to be valid. Prosser, W., Handbook of the Law of Torts (4th ed. 1971) at Section 32, p. 164.

Similarly, the President's Commission on Malpractice recommended the following:

The commission recommends that organized medicine and osteopathy establish an official policy encouraging members of their professions to cooperate fully in medical malpractice actions so that justice will be assured for all parties. And the commission encourages the establishment of pools from which expert witnesses can be drawn. U.S. Department of Health, Education and Welfare, Report of the Secretary's Commission on Medical Malpractice, 37 (1973).

Other states have allowed the introduction of medical books as direct evidence for a plaintiff, have liberalized the use of res ipsa loquitur, and have allowed plaintiffs extensive latitude in establishing a standard with the defendant doctors. See Note, "Medical Malpractice--Expert Testimony" 60 N.W. U. L. Rev. 834 (1966); Note, "Overcoming the 'Conspiracy of Silence': Statutory

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The use of innovative methods as discussed above also prevents the "substandard" argument voiced by opponents of the strict locality rule. Expanding the "locality" or "vicinity" to neighboring communities where physicians belong to the same county medical associations, utilize the same hospital and other medical facilities, and generally practice under the same conditions is one method of insuring that a substandard practice in one isolated community will not result. The use of medical textbooks as impeaching evidence further reduces the chance of isolated substandard practice.

Even if it is assumed that smaller communities may develop substandard practice to larger communities or even to similarly situated communities in other states the question still remains what is the alternative? Is a small town with an inadequately qualified doctor or with an inadequate hospital better off with no doctor or hospital at all? Obviously, if a rural doctor were constantly being subjected to malpractice suits because of his inability to meet other community standards he would soon withdraw or be forced to leave the practice of medicine. Such a result, is, of course, commendable if it can be assumed a new doctor will take his place. However, as will be discussed infra, many small communities are unable to find any doctor--even those of lesser ability. In the long run, then, has this small community benefited from the purging of the substandard physician? It is consequences such as this which are often overlooked by both commentators and courts in an

overzealous effort to create the highest of medical standards at the cost of those who are grateful for any medical care whatsoever.

Finally, courts and commentators seem to underestimate the intelligence of patients. If indeed a physician in a community "treats bone fractures by the application of wet grape leaves" (Appellant's Brief at 23 quoting 18 De Paul L. Rev. at 411) it is unlikely that such a physician would prosper in a community after his incompetence becomes generally known within the population. Economic realities would, therefore, eject a totally incompetent physician even from the most needy of communities.

In Utah, there is wide separation of communities, varying standards of medical care available throughout the state, and other factors making it impossible to apply even a statewide standard to all practicing physicians in Utah communities. A comprehensive analysis of Utah problems and statistics will be made in Part D of this section infra. An examination of these factors will show that the language contained in the recent liberal opinions of the states which have adopted national standards is totally inappropriate to the western part of the country in which the common medical standard often referred to is merely illusory and wishful thinking of medical optimists.

In conclusion, the strict locality rule has been functioning in Utah since the first malpractice case was filed. Allowing the trial court to decide what constitutes the "vicinity" or "community" permits a plaintiff to present a case using standards by which

the defendant's daily practice is judged by peer members of the local community.

If a defendant is from an urban Utah city such as Salt Lake it would not be an abuse of discretion to allow an Ogden doctor to testify for plaintiff. If the defendant is from Moab a doctor from Vernal would probably be qualified.

As this Court observed in the Coon case, a medical standard must be applied statewide and not to just the urban centers of the state which are not faced with the problems of rural medicine. The locality or vicinity rule assures that all physicians will be judged by a fair standard regardless of where they practice. To say that all doctors and medical personnel should be held to a universally high state or national standard would only discourage them from even attempting to face the frustrations of practice in western rural America. For these reasons, the trial court was correct in excluding testimony from plaintiff's out-of-state expert witness who was not familiar with local custom, procedure, or problems.

B. Assuming arguendo that the strict locality rule is deemed too restrictive by this Court, the "similar locality rule" should be adopted and "similarity" standards should be formulated.

Because of the criticism wielded against the strict locality rule, courts as early as 1880 developed an alternative standard which permitted a defendant to claim his locality and circumstances as a defense but also allowed a plaintiff a supposedly better opportunity to obtain expert witnesses and at the same time prevent

substandard medical practice from developing in an area. This modified rule was known as the "similar locality rule" since a defendant doctor was judged by the standard in his community of in "similarly situated communities".

1. Historical development of the similar locality rule.

The Supreme Court of Massachusetts in 1880 is generally credited with the establishment of the "similar" standard. In Small v. Howard, 120 Mass. 131 (1880) the court said:

[W]e think it was correct to rule that "He was bound to possess that skill only which physicians and surgeons of ordinary ability and skill, practicing in similar communities, with opportunities for no larger experience, ordinarily possess; and he was not bound to possess that high degree of art and skill possessed by eminent surgeons practicing in large cities, and making a specialty of the practice of surgery. Id. at 136.

The Iowa Supreme Court in 1897 relied upon the similar locality rule to prevent a substandard medical practice from developing. That court in Whitesell v. Hill, 37 L.R.A. 830 (1897) stated the following:

It seems to us that physicians or surgeons practicing in small towns or rural or sparsely populated districts are bound to possess and exercise at least the average degree of skill possessed and exercised by the profession in such localities generally. It will not do, as we think, to say that, if a surgeon or physician has exercised such a degree of skill as is ordinarily exercised in a particular locality in which he practices, it will be sufficient. There might be but few practicing in the given locality, all of whom might be quacks, ignorant pretenders to knowledge not possessed by them, and it would not do to say that, because one possessed and exercised as much skill as the others he could not be chargeable with the want of reasonable skill. Id. at 838-839.

Since its inception the similar community standard has been

adopted by a large number of states. Respondent's national survey indicates 19 states utilize this standard as to all physicians and 3 states utilize it as to general practitioners only. The following cases are representative of these jurisdictions as of July, 1977: Poulin v. Zartman, 542 P.2d 251 (Alaska 1975) (pediatrician); Kronke v. Danielson, 499 P.2d 156 (Ariz. 1972) (applicable to general practitioners only); Gambill v. Stroud, 531 S.W.2d 945 (Ark. 1976) (surgeon); Sinz v. Owens, 205 P.2d 3 (Cal. 1949) (general practitioner); Murphy v. Dyer, 409 F.2d 747 (10th Cir. 1969) (Colorado law applied to obstetrician/gynecologist); Flock v. J.C. Palumbo Fruit Company, 118 P.2d 707 (Idaho 1941) (general practitioner); Cook v. Lichtblau, 144 S.2d 312 (Fla. App. 1962) (orthopedic surgeon and anesthesiologist); Borowski v. Von Solbrig, 303 N.E.2d 146 (Ill. App. 1973) (surgeon); McGulpin v. Bessmer, 43 N.W.2d 121 (Iowa 1950) (general practitioner); Malone v. University of Kansas Medical Center, 552 P.2d 885 (Kansas 1976) (surgeon); Naccarato v. Grob, 180 N.W.2d 788 (Mich. 1970) (similar locality rule applied to general practitioners only); Larsen v. Yelle, 246 N.W.2d 841 (Minn. 1976) (similar locality standard applied to general practitioners only); Swope v. Printz, 468 S.W.2d 34 (Mo. 1971) (surgeon); Mecham v. McLeay, 227 N.W.2d 829 (Neb. 1975) (neurologist); Carrigan v. Roman Catholic Bishop, 178 A.2d 502 (N.H. 1962) (general practitioner); Dickens v. Everhart, 199 S.E.2d 440 (N.C. 1973) (general practitioner); Richardson v. Doe, 199 N.E.2d 878 (Ohio 1964) (registered nurse); Runyon v. Reid, 510 P.2d 943 (Okla.

1973) (general practitioner); Bly v. Rhoads, 222 S.E.2d 783 (Va.
1976) (obstetrician/gynecologist); Hundley v. Martinez, 158 S.E.2d
169 (W. Va. 1967) (ophthalmologist).

2. Application and criticism of the similar locality

rule.

The California Supreme Court and the California Bar authors of B.A.J.I. jury instructions have succinctly stated the similar community standard in the following jury instruction:

In performing professional services for a patient, a physician or a surgeon has the duty to have that degree of learning and skill ordinarily possessed by physicians and surgeons of good standing, practicing in the same or a similar locality and under similar circumstances. B.A.J.I. Instruction No. 6.00; Note, "Medical Malpractice: The Locality Rule in Relation to B.A.J.I. 6:00 and Sinz v. Owens", 7 U. San Fran. L. Rev., 163 (1972).

The use of the similar locality standard clearly eliminates the first alleged deficiency with the strict locality rule, i.e., the inability to obtain local expert witnesses. Under the similar locality rule a plaintiff may leave the state and obtain expert witnesses provided a sufficient foundation can be shown of the similarity in practices and communities.

The second alleged deficiency of the strict locality rule--the creation of a substandard pocket of medical care--is also eliminated since it is immaterial how many doctors practice in the defendant's locality or whether they are competent because outside doctors practicing in similar communities can testify as to what the standard should be with regard to the circumstances of such practice

and community. Gambill v. Stroud, 531 S.W.2d 945, 949 (Ark. 1976).

Critics of the similar locality rule argue that such standard is now outmoded since there is now a national standard of practice throughout the country and that rural, small-town communities should not be given any advantage in measuring standard of care over the large metropolitan areas. See e.g. Pederson v. Dumouchel, 431 P.2d 973 (Wash. 1967); Shilkret v. Annapolis Emergency Hospital Ass'n., 349 A.2d 245 (1975); see also Subpart C of this section infra. These decisions are based upon the assumption that modern communication, transportation, and increasing medical techniques have created a national standard so that medicine is essentially equal throughout the country.

It is interesting to note that such arguments are by no means new or novel and that as early as 1872 the same arguments were made concerning the modern techniques employed at that time. In Smothers v. Hanks, 34 Iowa 286 (1872) this argument was raised as follows:

But it is said that the instruction is erroneous, because it places the surgeon of the frontier village on a level with the experienced practitioner of the cities and seats of learning. As we have seen tests of experience and practice are not within the scope of the instruction. But, it is shown, that the frontier surgeon, as to theoretical knowledge, is brought by the side of his professional brother of the city. And why should he not stand there? He may in vain plead, or rather it may in vain be urged on his behalf, for, I know, frontier men of no profession will seek such protection, that his opportunities for the acquisition of professional knowledge are more limited than those of a city. In this age of books, professional periodicals,

and mails, the position wants support of facts. We may safely say that no respectable surgeon, wherever he may be, is uninformed of the progress and discoveries in his profession. Id. at 229 (Dissenting opinion) (emphasis added).

Likewise, in 1916 the Supreme Court of Minnesota also urged that standards at that time were equal to all. The Court stated:

In these days the physician or surgeon in a village like Cloquet is not hampered by lack of opportunity for advancement. Frequent meetings of medical societies, articles in the medical journals, books by acknowledged authorities, and extensive experience in hospital work put the country doctor on more equal terms with his brother. They proudly resent an imputation that he possesses less skill than the average physician or surgeon in the large cities, and we are unwilling to hold that he is to be judged only by the qualifications that others in the village or similar villages possess. Viita v. Fleming, 155 N.W. 1077 (1916) (emphasis added).

Thus, critics have always complained that medical care in all size of communities and locations should be equal and have constantly criticized any implication that such treatment is indeed not equal.

The Arkansas Supreme Court rejected an argument similar to that of appellant's that a national standard of medical care should be adopted:

One of the ideas suggested in appellants' argument is that a national standard of care should be observed. This is also unrealistic. We cannot accept that premise as a matter of law and we certainly do not take the theory that such a standard exists to be so well established that it can be judicially noticed. If it does actually exist to any extent, or in any case, then certainly it can be shown by evidence. If the medical profession recognizes that there are standard treatments which should be utilized nationwide this fact should be readily susceptible of proof under the similar locality rule, because the skill and learning should be the same and all localities would be similar. Gambill v. Stroud, 531 S.W.2d at 949.

Those courts abandoning the locality rules have done so on the assumption that the differences in community medical care which existed at the time the locality rules were formulated no longer exist today. While this may be true in certain portions of the country which are highly compact and urbanized, this is definitely not true in the sparsely populated areas of the country such as the West where the standard of care by necessity varies greatly from town to town. This fact was recognized by the Florida Appellate Court when it stated:

To the extent that certain areas may still differ significantly in these respects from the more populated urban and suburban complexes, it can be true today. Cook v. Lichtbrau, 144 S.2d 312 (Fla. App. 1962) at 314.

The difference in medical care standards is still a fact of life in western states such as Utah. The number of physicians, specialists, hospitals, laboratory equipment, emergency services, and numerous other factors to be discussed in detail infra all create substantial differences in medical care within the state. And while it is true that a doctor in Kanab cannot claim to be more careless than a doctor in Salt Lake, it cannot be said that the Kanab doctor has the same facilities available for medical treatment or the same experience as the Salt Lake doctor. See Douglas v. Bussabarger, 438 P.2d 829 at 838 where the Washington Supreme Court erroneously equates negligence with capacity in rejecting any differences between medical care in small versus large cities.

For these reasons and the specific reasons dictating a need for locality standards to be discussed infra in Part D of this section.

tion, it is essential that Utah retain either the strict locality standard or adopt the similar locality standard in order to preserve medical care in communities which, through no fault of their own, are unable to meet the high standards of metropolitan areas.

3. Formulation of a standard of "similarity"

If this Court chooses to adopt the similar locality standard it is imperative that guidelines be given to the trial courts of Utah for determining what criteria is necessary to establish "similarity". Some courts have considered socio-economic factors such as population, type of economy, size of city, and income of inhabitants. Other courts have also adopted the view that "similar" locality should be defined in terms of medical factors such as the existence of research and laboratory facilities, medical schools, teaching hospitals, modern equipment, emergency facilities, and available medical specialists. The commentators agree that this is the most logical application of the rule when measured against a major reason for its adoption, the availability of resources which would enable the physician to maintain the standard of his practice. See generally Note, 40 Fordham L. Rev. 435, 439 (1971): Note, "Medical Malpractice--Expert Testimony," 60 N.W. U. L. Rev. 834, 838 (1966): Note, "Medical Specialties and the Locality Rule", 14 Stan. L. Rev. 884, 890 (1962).

It is essential that all of these factors be considered in determining whether a community is indeed "similar". If, for example,

a community has no full-time emergency hospital operation, the length of time that a physician can be expected to arrive to treat a patient may be considerably greater than if the patient were receiving medical attention at an emergency ward. To compare this physician with one in a community having adequate emergency facilities is unfair and cannot be justified. See "Urban-Oriented Methods, Failure to Solve Rural Emergency Care Problems", Journal of the AMA, Vol. 226, No. 12 (Dec. 17, 1973).

Since many states adopted the similar locality rule as early as 1890 there have been numerous decisions interpreting whether an expert witness was indeed from a "similar" locality or community. See a digest of these opinions in Annotation, "Medical Testimony: Competency of Physician or Surgeon From One Locality to Testify, in Malpractice Case, as to Standard of Care Required of Defendant Practicing in Another Locality", 37 A.L.R.3d 420, 436-449.

The question of qualification rests largely within the discretion of the trial judge. Sinz v. Owens, 205 P.2d 3 (Cal. 1949). For example, in Murphy v. Dyer, 409 F.2d 747 (10th Cir. 1969) the Circuit Court of Appeals sustained the exclusion of testimony from a noted Washington expert in anesthesiology on the grounds that he was not familiar with the standards "employed in Colorado Springs or similar communities". On the other hand, the Tenth Circuit Court of Appeals affirmed the admission of testimony by a San Francisco doctor against a Utah practitioner on the grounds that the California doctor was familiar with practice similar to that of the Utah

community. Riley v. Layton, 329 F.2d 53 (10th Cir. 1964) (erroneously construing Utah law as the "similar" locality rule).

These cases illustrate that the trial court can determine from the experience of the expert witness and the facilities available to the expert as compared with those of the defendant doctor whether a proper foundation has been laid to establish the similar community standard. In the instant case, for example, had the trial court allowed testimony as to a similar standard he could have determined whether the facilities available in Los Angeles were comparable to the facilities and personnel available in Salt Lake and if such a comparison was valid Dr. Rocovich could then have testified presuming his own personal qualifications were sufficient.

If the strict locality rule is to be expanded the most logical step is towards the similar locality standard. However, adequate guidelines as to what factors should be examined must be formulated by this Court in order to make the standard functional and workable at the trial court level.

C. Courts which have adopted a national standard have used fallacious assumptions or assumptions inappropriate to Utah medical practice.

Appellant argues in her brief that this Court should determine that a national standard of care exists as to physicians in Utah or at least to specialists in Utah. (Appellant's brief, pp. 42-49). Such a standard is based upon fallacious assumptions made by those courts adopting a national rule and upon criteria not applicable

to a state similar to Utah.

1. Historical development of the national standard.

Probably the first state to formulate the national standard idea was New Jersey in 1953. In the case of Carbone v. Warburton, 94 A.2d 680 (N.J. 1953) the Supreme Court of New Jersey stated the following rule:

Where, as here, the witness is offered by the plaintiff in a malpractice case, his opinion must be directed to the degree of knowledge and skill which is usual in the grade of the profession which the defendant occupies and which the defendant is employed in the particular case. Id. at 683.

Thus, in Carbone, the concept of locality was not raised with respect to the standard of medical care against which defendants' actions ought to be judged or as a basis for asserting competency of the plaintiff's medical expert.

In 1968, the Massachusetts Supreme Court wrote a comprehensive opinion in Brune v. Belinkoff, 235 N.E.2d 795 (Mass. 1968) that encompassed not only medical specialists, but also general practitioners and thereby overruled the original locality rule which had been the standard in that jurisdiction since 1880. The Massachusetts Supreme Court stated the following standard:

The proper standard is whether the physician, if a general practitioner, has exercised the degree of care and skill of the average qualified practitioner taking into account the advances in the profession.

* * *

One holding himself out as a specialist should be held to the standard of care and skill of the average member of the profession practicing the specialty, tak-

ing into account the advances in the profession. And, as in the case of the general practitioner, it is permissible to consider the medical resources available to him. Id. at 798.

The Washington Supreme Court recently abolished its similar locality rule although still using geographic considerations in determining such standard. In Pederson v. Dumouchel, 431 P.2d 973, 978 (Wash. 1967) the court held that a Seattle doctor was qualified to testify against an Aberdeen doctor based upon the following standard:

A qualified medical or dental practitioner should be subject to liability, in an action for negligence, if he fails to exercise that degree of care and skill which is expected of the average practitioner in the class to which he belongs, acting in the same or similar circumstances. The standard of care is that established in an area coextensive with the medical and professional means available in those centers that are readily accessible for appropriate treatment of the patient. The instant case is a good example: plaintiff was taken almost immediately from Aberdeen to Seattle, a distance of 110 miles. Id. at 978.

The Washington court held that the locality rule had no present day vitality except that it could be considered as one of the elements to determine the degree of care and skill expected of the average practitioner of the class in which he belongs.

Since these early cases four other states have adopted some form of a national standard against all physicians. See Blair v. Eblen, 461 S.W.2d 370 (Ky. 1970); Shilkret v. Annapolis Emergency Hospital Association, 349 A.2d 245 (Md. 1975); Shier v. Freedman, 206 N.W.2d 166 (Wis. 1973); Christier v. Jeter, 445 S.W.2d 51 (Tex. App. 1969).

In addition, three states have adopted the national standard to specialists only. Naccalato v. Grob, 180 N.W.2d 788 (Mich. 1970); Christy v. Saliterman, 179 N.W.2d 288 (Minn. 1970); Kronke v. Danielson, 499 P.2d 156 (Ariz. 1972).

2. Present practice and criticism of national standard rule.

A comparison among the strict locality, similar locality and national standard tests as applied to the facts of this case illustrates how the differing standards would affect a malpractice lawsuit in Utah. Under the strict locality rule Dr. Rocovich was held by the trial court to be incompetent to testify as to the medical standard in Salt Lake City because he was not familiar with such practice from his own personal experience. While Dr. Rocovich's qualifications as a medical expert were questionable because of his failure to be board-certified this was a secondary problem which was not reached by the trial court.

Had the similar locality rule been in effect plaintiff would first have had to establish that Los Angeles and the medical facilities used by Dr. Rocovich were similar to Salt Lake City and the facilities used by defendant doctors. This would have been a decision by the trial court resting upon the evidence of similarities or dissimilarities argued by the parties. Had the trial court decided such similarity existed, the personal qualifications of Dr. Rocovich would then have had to be established by the plaintiff.

Under the liberal national standard test Dr. Rocovich would have immediately been qualified to testify once it was shown he was personally competent as an expert witness. Any dissimilarities in the practice of medicine, the facilities available to Dr. Rocovich as compared to the defendant doctors, or any other elements weighing the similarities of the two communities and practices would only be factors to be considered by the jury in deciding whether mitigating circumstances reduced the standard of care required of defendant doctors. See Brune v. Belinkoff, 235 N.E.2d 793, 798 (Mass. 1968); Blair v. Edlen, 461 S.W.2d 370, 373 (Ky. 1970).

Under the "national" standard rule the jury must weigh all of the factors necessary to determine a valid comparison between the practices of the two doctors. As will be discussed infra in Section D, this includes such considerations as adequacy of hospital facilities, availability of emergency facilities, availability of laboratories and x-ray facilities, ratio of doctors to patients, availability of specialists, access to sophisticated equipment, and numerous other factors which are necessary to evaluate whether an expert witness is in an equal position to judge the defendant doctor.

The trial court, not the jury, makes this initial determination under the locality standards. The jury need only decide whether the standard established by the expert testimony has been breached.

Which standard is best? In the instant case, for example, should a jury have to decide whether a full-time pathology laboratory operating in Dr. Rocovich's hospital but not in defendant

Thoen's or defendant Lamb's hospital was a significant factor justifying two different procedures with regard to laboratory analysis of bone fragments? Under the similar locality standard the trial court would rule as a matter of law whether such a difference precluded a valid comparison to be made--if the court found it insignificant it would allow Dr. Rocovich to testify. The national standard, however, would require the jury to make this determination in deciding if the laboratory justified a breach of the standard established by Dr. Rocovich's testimony.

Thus, the first weakness in the national standard is that it forces juries to make comparisons between communities when they are not qualified to do so and forces them to use such factors to mitigate against a standard created by an expert witness which may be so far above the defendant's medical community standard that equitably and practicably no comparison should have been allowed to even go to the jury. To say, for example, that a jury can adequately compare a general practitioner from New York with a general practitioner from Kanab, Utah and to adjust for differences in the communities is asking the impossible from a jury of laymen.

The national standard established by those courts mentioned above are geared in most cases to states having a high degree of urban population and highly sophisticated medical facilities. The state of New Jersey is a good example. Two commentators have noted this characteristic and said:

[T]his (the national standard) is explained by the fact

that New Jersey has long been a densely-populated but small urban state with much of the population within close proximity to major medical centers in New York, Philadelphia and Baltimore. Additionally, it is probable that the standard of care between communities of different sizes are similar and varying standards therefore do not exist in New Jersey as they might in less densely populated states with differing levels of access to major medical facilities. Nations and Sargent, "Medical Malpractice and the Locality Rule", 14 South Texas Law Journal, 129, 137 (1974).

The Massachusetts Supreme Court in Brune v. Belinkoff, 235

N.E.2d 793 (Mass. 1968) also noted this absence of geographic barriers in Massachusetts in obtaining quality medical care when it stated:

The defendant was a specialist practicing in New Bedford, a city of 100,000, which is slightly more than 50 miles from Boston, one of the medical centers of the nation, if not the world. This is a far cry from the country doctor in Small v. Howard, who ninety years ago was called upon to perform difficult surgery. Id. at 798.

Therefore, in states such as New Jersey, Massachusetts, Wisconsin, Minnesota, and Michigan which have high degrees of urbanization and numerous medical centers throughout the state, it may be expected that the highest degree of national skill and facilities will be available to all patients. However, as will be discussed in the following section, Utah and the western states do not have this luxury and many people in the smaller communities of the West do not have such availability to superior medical facilities and therefore the national standard cannot be made fairly applicable to doctors, hospitals, and other medical personnel practicing in these areas. The Supreme Court of Arkansas in Gambill v. Stroud,

531 S.W.2d 945 (Ark. 1976) noted the problem of the rural community when it stated:

We certainly are not unaware of the difficulties experienced by small towns and rural communities in attracting qualified physicians. A complete abolition of the locality rule would certainly add to these difficulties. Id. at 950.

Thus, while it is certainly true that modern communication, transportation, and other advanced methods have in many areas of the country eliminated differing standards of medical practice, it yet remains to be shown that such factors are sufficient to eliminate the locality standard ratified by this Court in the Coon decision in 1934.

A third reason for rejecting the national standard test is the effect such a rule may have upon localized research and development of medical discovery. As stated by two critics of this proposed rule:

The thought that medical care should be nationalized in terms of its standard is an entirely stultifying concept. Advancements in medical science occur by virtue of isolated local achievements and studies and research. The validity of these studies is tested locally and it is not until they have recognition in their locality that they may later achieve adoption and a following elsewhere. In the presence of some national standard, it is possible that such local advancement will be discouraged for fear that to step in such a direction, away from the national standard, would subject the physician to a claim of malpractice. King and Coe, "The Wisdom of the Strict Locality Rule", 3 Balt. L. Rev. 221, 223 (1974).

A fourth reason for rejecting a national standard is the false assumption that the medical profession does not diligently pursue its own controversies, and that allowing juries to decide what sti

dard of care is applicable will somehow nationally elevate the standards of the medical profession. Allowing non-local or non-similar community testimony could just as easily have the opposite effect. There being geographical deviations in medical practice, the non-local or non-similar community testimony may in many cases represent inferior practice. Confusion on the part of doctors as to which standards will be applied to them and the unfairness of exposing them to liability whatever standard they choose could be the only result. That the medical profession diligently pursues its own betterment and that it is more competent at doing so than juries of laymen is unquestionable.

This Court in Coon v. Shields, 39 P.2d 348 (Utah 1934) recognized the difference in medical practice and the incapacities of juries to decide which practice is superior. The Court in that case stated:

The practice of medicine or of surgery has not become so standardized that it is unreasonable for two doctors to have different opinions as to the proper method of treating injuries. If, then, there is reason for the existence of that difference, neither opinion can be proved erroneous by offering as proof thereof merely the other. It does not fall upon the shoulders of the judge or jury to determine whether or not there is a good and sufficient reason for the existence of such a difference; that reason is assumed to be valid when it appears from the evidence that the divisions of opinion are such that it cannot be said of any one opinion that it is generally accepted to be the right one.

* * *

We are not qualified to say that a difference should or should not exist between them. We must rely upon the doctors themselves to dispose of that controversy. When

they have concluded that Dr. Lewis is right and the others wrong, then we shall reach the same conclusion. Some of their number may never reach that conclusion, but it is more than likely that, if Dean Lewis is right in his contentions, it will not be long before a sufficient number of the doctors will agree with him and thus constitute his views as the generally accepted views upon the subject of iodine; and therefore right insofar as the law is concerned. Id. at 349-350. See also Walkenhorst v. Kesler, 92 Utah 312, 67 P.2d 654 (1936).

It is obvious that the term "national standard" is itself a misnomer. With the exception of a few areas such as fracture treatment, x-ray treatment, and cataract operations there is no "standard" of practice or procedure which is regarded as universally right or universally wrong. Annotation, 37 A.L.R.3d 420, 425. See also Douglas v. Bussabarger, 438 P.2d 829, 841 (Wash. 1968) (dissenting opinion) where the many varied theories of cause and cure of the "cauda equina syndrome" are discussed in detail.

Another erroneous assumption made by appellant and other advocates of the national standard rule is that board-certification of medical specialties establishes a nationwide standard for all physicians practicing in that specialty. This is fallacious for two reasons: first, nearly half of the specialists in the United States today according to the American Medical Association are not board-certified. As of December 31, 1974 there were 276,269 specialist physicians in the U. S. Of this number, the American Medical Association estimated a total of only 154,911 to be board-certified--or only 56 per cent of all practicing specialists. AMA Profile of Medical Practice, pp. 80-82, 87-88 (1975-1976).

Second, even as to those physicians who are board-certified there is no present requirement of recertification. Dr. Lamb, for example, was certified in 1953 as an orthopedic surgeon but was not required to be recertified since that time. (Vol. 2, p. 78). Some specialty boards were established as early as 1917 and many were established in the 1930's. AMA, Profile of Medical Practice, pp. 87-88 (1975-1976). While it is no doubt true that there are similar operating procedures and other medical techniques employed by specialists throughout the country, there is no support for the proposition that all board-certified orthopedic surgeons would perform the same surgery exactly in the same manner to the point of deviation being malpractice. Obviously, when almost half of the specialists are not even certified and those that are may have been 40 years ago it cannot be said that such certification establishes a national standard. As noted in one law review article:

The contention that National Boards and Board Certification is evidence of a national standard is an inappropriate application of Board Certification to standard of care. The various specialty Boards were created by the medical profession for the purpose of advancing the standards of medical care, not for establishing those standards. One is Board-Certified for the purpose of qualifying to set a standard. It is the physician operating in his specialty, in his own community, who sets the standard, not the National Boards. King and Coe, supra at 232.

Finally, there is the danger to the consumer public that an application of fictitious national standard will further aggravate the cost of medical care by the practice of defensive medicine. A few physicians today do certain tests and carry on certain diag-

nostic studies not because they really deem it essential to the best interest of the patient, but because they deem it essential to their protection against a potential malpractice suit. If such defensive medicine is to be proliferated by physicians being called on to adhere to some national standard, it is not unreasonable to visualize a physician doing many more tests and studies so that the cost of medical care becomes even more prohibitive. See "The Medical Malpractice Threat: A Study of Defensive Medicine", 1971 Duke L.J. 939.

In summary, therefore, the "national standard" rule is at best an illusion to the majority of the country but especially to those states such as Utah which have diverse population, geographic conditions, and all levels of sociological conditions from the smallest rural farm community to the large metropolitan areas of Salt Lake, Ogden, and Provo. If indeed conditions have so changed during the last twenty years in medical education, modern technology, and improved means of travel and communication then such factors may negate necessity of a change in the locality standards. As stated by the Arkansas Supreme Court:

If the impact is as great as they theorize then no change in the law is necessary. These factors have already elevated the degree of skill and learning ordinarily possessed and used by members of the medical profession in every locality, if that premise is correct. Gambill v. Stroud, 531 S.W.2d 945 at 950.

The national standard should be rejected for policy reasons alone. The following section will illustrate Utah must maintain a locality

standard unless we wish to blindly dream that medical care throughout this state is uniform and that all physicians and medical personnel should be judged the same regardless of their happenstance.

D. A variety of factors in Utah communities dictate retention of local criteria in evaluating medical malpractice.

The Utah strict locality rule was formulated to meet the needs of a western state. If this rule is expanded then such expansion should be in terms of the similar locality rule discussed in Section B, supra. Appellant's argument that a national medical standard now exists is unsupported by appellant and simply does not exist in the state of Utah.

Appellant throughout her brief has made numerous references to hospital statistical sources, guides to health care, medical directories, and numerous other referenced sources which were not introduced into evidence at trial. Respondent Thoen does not seriously object to such sources since the question now before this Court focuses upon a medical standard with the facts of this case being only of secondary importance. For this reason, respondent Thoen believes that this Court should have available to it a variety of information concerning facts, statistics, and other relevant data concerning medical practice in Utah and throughout the country. This Court can take judicial notice this information since it concerns the history, makeup, and general factual information of the state of Utah and the country. Section 78-25-1, Utah Code Annotated; Little Cottonwood Water Company v. Kimball, 76 Utah 243, 289 P.116 (1955);

see also, Section 78-25-6, Utah Code Annotated.)

The following factors both support the necessity for the strict locality rule and also enumerate factors which should be utilized by a trial court in determining the "similarities" of communities if this standard is made applicable to Utah medical practice. The same information will also illustrate why a national standard of medical practice should not be adopted.

1. The geographic, population distribution, weather, and other conditions vary throughout the country and throughout the state of Utah.

Before a "national" standard of medical practice could be adopted it would have to be shown that factors are uniform throughout the country. While there may be similarities in specific areas of each state to other areas in the country or to other areas within the state it cannot be said that the states are uniform as compared to one another or as compared within the counties within each state. In other words, many factors creating differences in medical care exist throughout the country.

The most obvious distinction among the states is the pure geographical size and population. Utah, for example, ranks eleventh in geographic area with a total of 84,916 square miles. The other western states of Montana, Wyoming, Colorado, New Mexico, Arizona, and Nevada are all ranked among the top ten states in geographic size. (App., Table 1). In terms of population, however, Utah is ranked thirty-sixth in the nation with the other western

states being ranked in the high thirties and forties. Utah in 1970 had 12.9 people per square mile as compared to the "national standard" states of Massachusetts with 727 people per square mile, New Jersey with 953 per square mile, and Michigan with 156 per square mile. (App., Table 3).

Commentators, courts, and appellant frequently refer to the increase in transportation ability as a factor justifying the national standard. It is interesting to note that in 1974 Utah had approximately 48,000 miles of roads constructed. This mileage is relatively low in comparison with other states with much smaller geographic areas. In addition, however, it will be noted that only 4,663 miles are classified as municipal with the remaining 43,724 classified as "rural". Of this number 24,812 miles are unsurfaced. (App., Table 2). Thus, it can be seen that Utah does not have either an extensive road system or quality roads available to all residents within the state.

Utah is unique as compared with other states. A comparison, however, of its own counties also produces diverse results. For example, Table 4 of the Appendix shows that the average number of inches of precipitation varies from a high of 20 inches in the northern mountains to a low of 8.1 inches in the Uintah Basin. This factor combined with Utah road conditions often make it impossible for travel during a portion of the year in some areas of the state.

The population within Utah counties varies greatly. Salt

Lake County, for example, according to the 1976 estimate contains 520,000 people. Daggett County, on the other hand, contains only 800 people. Between these two extremes are numerous variations of county population. (App., Table 5). Likewise, the cities within each county vary greatly in the number of inhabitants. For example, Wasatch County Soldier's Summit has a population of 14 as compared with the city of Heber having a population of 3,488. (App., Table 6).

These statistics clearly show that Utah is not comparable with the more populated states of the country and that, in fact, Utah is within itself diverse in its county population and its ability for adequate transportation.

2. The number of physicians in a geographic area is a strong factor in determining the quality of medical care.

As noted in one study:

Evidence does indicate that areas in which physician manpower is in short supply tend also to be areas in which per capita physician contacts are fewer and the average time per contact is shorter than in areas where manpower is not so limited. Evidence also suggests that physicians in physician shortage areas work longer hours than physicians in other areas and as a consequence they are characterized as being overworked. Thus, not only is the uneven distribution of physicians a fact beyond dispute, but inequities in medical care and work pressure on physicians appear to be a consequence of this fact. W. A. Rushing, Community, Physicians, and Inequality--A Sociological Study of the Maldistribution of Physicians, p. 5 (1975).

A 1974 survey indicates that the mountain states have approximately 152 physicians per 100,000 civilian population. While this

is not the low of the nation there are four other geographic areas with higher ratios.

Analyzing this distribution of physicians on a state-by-state basis shows that Utah ranks nineteenth in the physician-population ratio. Other western states are less fortunate. Wyoming ranks 44th, Nevada ranks 35th, Montana ranks 39th, Idaho ranks 46th and Colorado ranks 21st. (App., Table 8).

In addition to this nationwide maldistribution there also exists statewide maldistribution. For example, in many of the more sparsely populated states there are counties without an active physician. This compares to large metropolitan areas throughout most states which have a much higher ratio of physicians to population. (App., Table 9). As stated by one authority:

[I]n 1971 according to the American Medical Association there were 143 active non-federal physicians per 100,000 population for the nation as a whole, but in this same year there were 133 counties that had no physician and many others that had less than 50 per 100,000 population. Whereas some communities have far more than their proportionate share of physicians, other communities have far less--hence the claim that physicians are maldistributed. W. A. Rushing, Community, Physicians, and Inequality--A Sociological Study of the Maldistribution of Physicians, p. 1 (1975).

This maldistribution can easily be seen in Utah by examining the ratio of physicians to population within each county. While the state average is 1.38 physicians per 1,000 population this ratio varies from a low of .32 in Summit County to a high of 2.08 in Salt Lake County. This figure ignores the fact that in the counties of Daggett, Wayne, Piute, and Rich there were no physicians

whatsoever as of 1973. Thus, the actual range is .0 per 1,000 to 2.08. (App., Table 10).

Studies of the geographical distribution of physicians have shown that a number of variables are related to the distribution of physician manpower. These include various economic indices (per capita income, economic growth rate), size of the population, level of urbanization, physician income, cultural and recreational resources, educational level of population, age and racial composition of the population, physician background, physician specialization, and location of medical schools. W. A. Rushing, supra at p. 7.

Regardless of the causes of such maldistribution the fact remains that the quality of medical care must vary from community to community based upon this one factor alone. As noted by a health care expert:

A common complaint of many rural physicians is they don't have any time they can call their own. One doctor living in a town of 4,000 people said he had a patient load of 5,500--people who came from outside of town by the dozens. He said he had to refuse to take any more patients because when he took a man or his wife for a patient, he usually inherited the family and thus, in fact, added four or five altogether. Like many other physicians in similar circumstances, he works an average of 75 to 80 hours a week. He said he would gladly pay another physician handsomely to share the load but had been unable to find any takers. John Dunne, "The Rural Health Care Crisis--Why Rural Doctors Are Missing", Current Magazine, p. 16 (June, 1976).

It is also frequently argued by supporters of the national standard that the educational opportunities are now available equally

all physicians throughout the country. This is simply not true.

While many doctors may read copiously from a number of medical journals this does not take the place of formalized continuing education. The executive director of the Connecticut Valley Health Compact wrote the following concerning this problem:

While ample opportunities are available in the cities, often there are few or none in the small towns. This is especially true in winter, when driving may be treacherous enough to make attending sessions impractical. This dearth of mental stimulation is anathema to a conscientious physician, but many have to accept it as a fact of rural practice. In answering a recent questionnaire concerning what they felt was most needed to improve patient care, an overwhelming number of physicians with rural practices answered "continuing education courses". John B. Dunne, supra at 17.

Of course, the competency of a rural physician is affected by numerous other interrelated factors which will be discussed infra. But in any case, the isolation and maldistribution of Utah physicians in and of itself justifies community standards in medical malpractice cases.

3. Physicians throughout the country have differing opinions as to acceptable medical practices and have varying degrees of expertise.

Advocates of the national standard rule argue that most medical practice is uniform throughout the country. While there are certainly limits by which all doctors would agree that a medical standard has been breached there is a wide latitude of permissible practice where doctors throughout the country or even the state are not in agreement.

One such example is the use of the drug Chloramphenicol. The opinions of experts vary from the view that the drug should never be used to the view that it can be used quite safely and effectively. John J. King and W. Coe, "The Wisdom of the Strict Locality Rule", 3 Balt. L. Rev. 222, 230 (1974).

In this case, for example, Dr. Thoen stated that the acceptable medical practice for performing a myelogram varied greatly and yet each method was "within the standard of practice as far as I know". (Vol. 3, p. 34). Likewise, Dr. Thoen stated that leaving the dye in the spinal area varied from area to area depending upon the circumstances. (Vol. 3, p. 36).

The present controversy surrounding the drug Laetrile is a further example of this medical diversity. Some physicians support the use of such drug as a possible cancer cure. Other physicians call it nonsense and advocate its complete elimination from all markets. Some states have passed laws permitting its manufacture while other states strictly prohibit either its manufacture or use.

These examples illustrate the problems involved in utilizing testimony from other localities against local physicians. If such physicians must testify, however, then it should be shown that they are sufficiently familiar with the practices of the local defendant. Thus, a foundational requirement of the expert's knowledge as to all differences in medical opinion should be established before testimony is allowed.

Under the "national" standard test any physician can gener-

ally testify against any other physician regardless of his specialization. In such cases, the qualification of the expert witness goes only to the weight of evidence. This is another reason why the locality rule is important. A general practitioner in a small community of Utah should not have to be compared to a New York specialist. Obviously, a general practitioner can be held negligent in failing to advise a patient to obtain a specialist if one is needed. But a general practitioner who treats obstetrical patients, for instance, should not be held to the level of knowledge possessed by an obstetrician who is certified by both the American College of Surgeons and the American Board of Obstetrics. Nor should he be held to the level of care of an uncertified physician who limits his practice solely to obstetrics. The local general practitioner in such a case lacks the formal training of these specialists and does not have the time both to treat patients and also to read current medical literature on obstetrics.

A local standard insures a degree of knowledge as to the particular medical practice employed by a defendant-physician. The locality standard has traditionally separated specialists from general practitioners so that a physician is not placed at a standard which is impossible for him to achieve.

4. The availability of specialists in a community affects the quality of medical care.

Insofar as the continued need for the locality rule is concerned, considerations concerning the use and reliance on special-

ists in different geographic localities are similar to the considerations concerning the use and reliance on general practitioners by various localities in different parts of the country. In short, for the most part a medical community must function according to the skills available to it, rather than according to some higher (although admittedly better) standard of another geographical area. Medical specialty care is not available in all communities simply because of the fact that doctors trained in the various specialties have not chosen to settle in such communities. Consider the specialized area of psychiatry, for example. The majority of these practitioners are located in large urban areas such as New York, Los Angeles, San Francisco or Salt Lake City. Admittedly, there are psychiatrists in other cities. But an overwhelming number of communities do not have psychiatrists in residence and must depend on other areas for psychiatric services.

Other examples of specialists that are not available in even fairly large communities are anesthesiologists, obstetricians, ophthalmologists and otorhinolaryngologists. Anesthesia, for example, is frequently administered by physician-anesthetists who are not full-time specialists in anesthesia or by nurse-anesthetists. Eye, ear, nose, and throat problems are often cared for by general practitioners. Obstetrics is sometimes the province of the general practitioner or the general surgeon. Plastic surgeons, dermatologists, and allergists are almost always found exclusively in communities with large medical centers.

The reason for this uneven distribution of specialists is primarily economic. A certain number of patients is required to support a specialist. As a general rule, higher fees, a better standard of living and greater professional prestige are available only in the larger cities, the suburbs, and the wealthier smaller communities. It has also been found that the number of specialists increases in direct proportion to the hospital bed capacity of a community. W. A. Rushing, Community, Physicians and Inequality-- A Sociological Study of the Maldistribution of Physicians, p. 101, 121, 139 (1975).

Obviously, the fact that a small community does not have a specialist in a certain field cannot be avoided simply because of the economic realities of life. While it can be argued that a patient should always be sent to a larger community for treatment or a diagnosis, such an alternative is not always possible. Recent studies have shown that there are "geographic limits beyond which available services cannot usually be 'exported' or dispensed. As a result, the quantity of physicians' services available in a geographic area is directly related to the number of physicians available in and around the immediate area." R. Fein, "The Doctor Shortage: An Economic Diagnosis", p. 72 (1967). As noted by one rural physician:

With the surplus of beds and physicians in urban and good four-lane highways, an argument can be made that the city should provide primary as well as specialized care for the rural resident. This ignores the economic burden, the inconvenience, and the frustration of the

rural patient forced to obtain medical care in a large, urban, medical complex far from home, family, jobs, and friends. L. Gibson, "Rural Health Care: Problems and Prospects", 72 Texas Medicine 74 (March, 1976).

Thus, the availability of specialists both to general practitioners and to other specialists is a factor which mandates the use of a locality requirement.

5. The number of dentists available in the Utah geographic areas and the availability of continuing education require locality standards as applied to dental care.

The number of dentists available in local Utah counties, while not varying to the same extent as physicians, still have significant deviations. There are, for example, five counties as of 1973 which have no dentist. The number of dentists per 1,000 population ranged from a low of .16 in Sanpete County to a high of .87 in Washington County. (App., Table 10).

Because so many dental techniques and procedures have been standardized for a long period of time, dentists usually have less interest in clinical literature and continuing post-graduate education than physicians or surgeons. This tends to limit the clinical horizons of many dentists to the particular geographic community in which they practice. An additional limiting factor is insufficient means of post-graduate instructions--far fewer dental texts are published, for example, than medical texts. And drug manufacturers, although they spend large sums of money on educational projects to attract the interest of medical doctors, are not similarly inter-

ested in dentists because dentists do not prescribe their products as often as doctors do. Lastly, dental conferences and educational programs are rare, except at dental schools. Thus it is readily apparent that certain differences in the standard of available dental care will exist in different parts of the country and even within a state so as to justify continued use of the locality rule in dental malpractice cases. "Rural Health Care: In Dire Straits", Science Digest, p. 20 (Sept. 1976).

6. The availability of registered and practical nurses in an area affects the quality of medical care.

As of the latest 1972 statistical study of nurses within Utah there were a total of 4,744 registered nurses and 2,344 licensed practical nurses. Of this number, all but 686 registered nurses and 375 licensed practical nurses were employed in areas not along the metropolitan Wasatch Front. (App., Table 10). It is apparent from the distribution of these nurses shown in Table 10 that there is a wide diversity between the metropolitan area and the rural areas and within the rural areas themselves.

Most nurses prefer metropolitan areas in suburbs because of the more suitable economic attractions and better standard of living. As a result, some hospitals, despite their best efforts, cannot get adequate registered nurse coverage. They have the choice of operating with the nursing personnel available to them, reducing their operations, or not operating at all. It is thus apparent that the lack of sufficiently trained registered and prac-

tical nurses in hospitals throughout the country and throughout the state of Utah tend to create differences in the standard of care available at hospitals in many geographic localities.

7. Drastic differences in hospital facilities throughout Utah and the country create differing standards of medical care.

The availability of hospital beds within a state varies greatly across the country. According to a 1973 survey Utah had 3.7 hospital beds per 100,000 population as compared with a high in the District of Columbia with 9.6 beds. As to specialty hospitals such as nursing homes, sanitariums, convalescent homes, etc. Utah had .4 beds per 1,000 population as compared with a high of 6.0 beds in the District of Columbia. (App., Table 11). The number of nursing home facilities in Utah actually dropped from a high of 142 facilities in 1971 to a low of 119 facilities in 1973. (App. Table 12).

A breakdown of the general hospital facilities shows that the overwhelming majority of hospital beds are located in Salt Lake, Utah, and Weber Counties. The latest 1974 survey shows that of the total of 3,690 hospital beds in Utah, 2,795 are located in these three counties alone. Of the total of 34 hospitals in Utah 12 are located in these three counties. And, most importantly, of the 20 hospitals accredited by the Joint Commission of Accreditation of Hospitals, 13 are from these three counties alone. The remaining 14 hospitals throughout the remainder of the state are unaccredited. (App., Tables 13 and 14).

There are many ways in which a hospital reflects the geographical community where it is located. A large urban area or a wealthy, populous suburb will invariably have better and more modern hospitals than small towns in rural areas. The governing boards of hospitals in large cities can impose and enforce higher standards of care under the threat of discharge or of the loss of a physician's staff rights. For the most part, this stand will not lower the hospital's ability to render patient care because the better hospitals usually can secure replacements. However, this rule does not apply to small towns. In a small town, the discharge of employees can create serious staff shortages which are not readily replaced. Also, the withdrawal of staff privileges from physicians can result in the denial of hospital care to numerous patients or in a denial of adequate care after patients have been accepted by the hospital.

The quality of care a hospital can offer depends on its finances, its medical staff, its nursing staff and related personnel, and the local conditions in which the hospital must gear its operations. A medical center in a large urban area, for example, ordinarily will be far better able to receive and treat weekend emergency admissions of automobile accident victims than a small hospital in a small rural area. Unfortunately, however, while the majority of the population in this nation is urban in residence, the majority of highway fatalities are rural in occurrence. In the large city, hospital staffs are large, round-the-clock staffing is

routine, and highway catastrophes are expected at all hours. This is not the case with the small hospital. It may not have interns, residents, or house officers. It may also have to share its surgeons and radiologists with other institutions or have none at all. Thus, the quality of care rendered an accident victim is almost certain to be lower in a small, rural hospital than in a large, urban hospital. J. Waller, "Urban-Oriented Methods--Failure to Solve Rural Emergency Care Problems", 226 J.A.M.A. 1441 (Dec. 1973).

Aside from these general considerations of urban versus rural hospital care there are many specifics of hospital facilities which would influence the treatment a patient receives regardless of the area in which the hospital is located. These factors are in themselves noteworthy for a comparison of similarities between medical communities:

a. X-ray facilities

Although an x-ray department is a necessity in any hospital, x-ray facilities are not the same in all communities. On the one hand, there are the large hospitals with complete radiology service and immediate availability of trained radiologists in residence at any hour of the day or night. On the other hand, there are the many small hospitals that, although possessing diagnostic x-ray equipment, do not have a radiologist on duty at all times. Indeed, there are some hospitals that do not even have an x-ray technician continually available. These hospitals rely on a day-

time technician who is on call at any hour and an outside radiologist, or a radiology partnership, that services them and possibly other hospitals as well. In between these two extremes are those hospitals that offer continuous x-ray technician coverage but have a radiologist regularly on duty only during normal business hours. At all other times, the radiologist in these hospitals is merely on call.

Economic reasons beyond the ability of a community dictate the differing practices. A small hospital that does not have sufficient demand for x-ray services generally, or one that does not have sufficient demand for evening, night, weekend, and holiday service, will be hard-pressed to pay x-ray technicians or radiologists for continuous duty. This is not to say that any hospital can operate properly without providing adequate x-ray facilities; it cannot. However, the manner in which these services are provided may be limited by the geographic community in which the hospital is located. See John Dunne, "The Rural Health Care Crisis--Why Rural Doctors are Missing", Current Magazine, pp. 16-17 (June 1976).

b. Laboratory facilities

Some hospitals have round-the-clock complete pathology laboratory services. Most hospitals, however, do not. The better institutions can pay for the exclusive services of a regular staff pathologist during normal business hours, supplemented by some coverage by residents at other times. Many hospitals, however, have to share a pathologist with other hospitals. This results

not by choice in most cases but by sheer economic necessity.

While the use of laboratory facilities would not be crucial in most cases it nevertheless could become an important factor in determining medical malpractice. In this case, for example, plaintiff claimed negligence in the failure to submit bone samples of plaintiff's vertebrae to the pathology lab. If the defendant doctors' hospital had no such laboratory available or one which was incapable of making the test claimed necessary by plaintiff the extent of laboratory facilities would become very pertinent.

c. Availability of ambulance services.

In many instances involving accidents, the time it requires for an ambulance to respond to a call for help, the care that is given to the victim initially, and the treatment performed on the way to the hospital will often be a crucial factor for the victim's recovery. Ambulance services are a significant part, therefore, of patient care and the quality of these services can differ greatly among geographical communities.

The geographic location of the community, the weather conditions affecting such community, and the quality and training of ambulance personnel all play a factor in deciding whether emergency services are similar in any two communities. Comparing the treatment afforded a patient in a rural community with that of an urban community is unjust because of the lack of experience emergency personnel in the smaller community must necessarily incur. As

stated by one medical observer of small-town practice:

How, for example, can ambulance personnel maintain proficiency in dealing with obstetrical problems when, as one Vermont group recently reported, they had had two near deliveries, but no actual ones, in three years of operation? More important, how can the majority of Vermont's ambulance units maintain skill in handling patients with multiple trauma, or other serious conditions, when the entire squad is exposed to less than one real emergency per week? J. Waller, "Urban-Oriented Methods--Failure to Solve Rural Emergency Care Problems", 226 J.A.M.A., 1441, 1443 (Dec. 1973).

d. Emergency room facilities of a hospital also

can be an important factor in determining medical care.

A well-equipped hospital emergency room may be defined as one that is amply staffed with registered nurses, has both interns and residents available within minutes, and can rely on specialists of all types who are not only "on call" but who will respond promptly. Again, while this type of facility is common in large, urban centers, it is not common to a small, rural or semi-rural area. The "Statement of Principles to Guide Fellows" (i.e., the "national standard") of the American College of Surgeons states an emergency room patient should be seen by a physician within 15 minutes of the patient's arrival at the emergency room. This is realistic in larger cities such as Boston or Salt Lake City. It is ridiculous, however, in a Utah rural hospital that might not have a house staff. In such a case, it might be physically impossible for a physician to get from his home to the hospital in such a short period of time. Thus, while physicians everywhere should, if physically able, comply with the so-called 15-minute regulation, the standard may

be completely inapplicable to the special situation of a local community.

In order for a hospital to receive accreditation it must have an elaborate emergency service program. For the Court's convenience the requirements for this one area of accreditation are supplied in the Appendix. A brief review of these requirements shows that most rural hospitals are completely incapable of meeting such a standard. (App. Source No. 15; see also Waller, supra at p. 1445).

e. The use of recovery room facilities varies throughout the country.

The hospital recovery room was introduced several years ago as a labor-saving device for hospitals. The feeling was that post-operative patients needed special care and observation, and that this could be achieved at a lower cost and with fewer personnel if the patients were collected at a central location. Today, although the better hospitals do maintain a recovery room, the practice is not universal and many institutions function without it. Moreover, some of the hospitals which maintain such a facility operate it during certain hours only.

A properly-run recovery room demands its own equipment and a trained staff. A hospital that cannot provide these is probably better off by allowing requirements as to post-operative care to be given by the operating surgeon and anesthesiologist. The point here is simply that community standards may be different without

necessarily being lower. This is a very fine point, however, that can be very difficult to establish to a jury's satisfaction after counsel has committed himself to a chain of proof that is based on absolute use in communities throughout the country of a particular method of treating the plaintiff--in other words, to a chain of proof that is based on the existence of a national standard of care which is not practical in defendant's community.

f. The availability of a good hospital medical

library helps to determine the standard of medical practice.

A good medical library is costly. The cost is not determined by the expense of the books alone; it also includes money expended as salary for qualified personnel to index the books properly. Medical books lack good indexing and cross-referencing. This lack of proper indexing and cross-referencing makes medical research time-consuming. To reduce research time the texts, treatises, and journals must be indexed by library personnel in a card-catalog file.

Furthermore, with but few exceptions medical books do not furnish efficient supplementation service. Medical books generally are simply printed and then completely revised and republished at periodic intervals. Physicians who wish to learn about changes arising after a text is printed must therefore refer to the current periodical literature. In short, although a small law office can have a good law library, a small hospital frequently cannot afford to maintain a first-rate medical library, even though it may

have the basic textbooks and a representative supply of clinical periodicals.

g. Differences in the ability of hospital administrators affect the quality of medical care in the hospital facilities.

The chief coordinator of a general hospital is the hospital administrator. The quality of care that the hospital provides depends more on his education, training, and competency than on the training of any other single person. Ideally, the administrator is a graduate of a school of hospital administration who has worked at other hospitals before assuming his present position. Since one person cannot possibly do everything by himself, he should have at least one, and preferably two, assistant administrators with educational qualifications similar to his own. Many localities, however, are unable to obtain such personnel. J. Waller, supra at 1442.

The supply of graduate hospital administrators is less than the demand. Administrators naturally select institutions that offer the best compensation, fringe benefits, working conditions, facilities, and environment. As a result, many hospitals have to settle for administrators who are non-practicing physicians, graduates of college schools of business administration, or otherwise not particularly qualified for the job.

The administrator is the only one in a position to prevent attending physicians from making unwarranted use of the nursing staff, as by directing individual nurses to undertake responsibilities.

ties beyond their competency. Thus limitations on the competence of a hospital administrator reflect the community standard of hospital care to the extent that such limitations reveal that the community is unable to attract qualified individuals to perform properly the functions inherent in the task of hospital administration.

8. General economic considerations also create differences in medical standards.

It is, of course, irrefutable that health care must be paid for either by the patient, the government, the patient's employer, a trade union, or a charitable organization. Unless there is payment sufficient to provide the services needed, either the quality of the care must suffer or else the full extent of the services needed cannot be provided.

Thus, the ability of physicians and hospitals to pay for space and equipment needed to provide the proper care is a fact that affects greatly the standard of care available in different geographic locations. W. A. Rushing, Community, Physicians and Inequality--A Sociological Study of the Maldistribution of Physicians, 129-141 (1975).

In the diagnosis of glaucoma, for example, the electric tonometer is more efficient than a manual tonometer to measure inner ocular pressure. However, the electrical instrument is far more expensive than the manual one, and some hospitals and some physicians cannot afford to use the electrical instrument for the simple reason that the income they derive in payment for the services they

provide does not permit them to purchase one, use it, and maintain it.

9. Considerations concerning communication and transportation also vary from community to community.

Modern means of communication and transportation, despite their advancement and refinement, do not guarantee that the same standard of care will be available in different localities throughout the country. For example, although there is no locality in a state such as Minnesota that is more than an hour by air to the Mayo Clinic, this does not mean that everyone in Minnesota can secure a treatment at the Mayo Clinic within an hour's time. As stated previously, other factors also influence the travel of a patient to another area. Often the condition of the patient does not permit him to be moved with a reasonable degree of safety. Other patients have no means of paying the cost of the trip. In other situations severe weather may prevent travel altogether or else delay it for a considerable length of time.

Furthermore, even though the country is now linked by telephone communication this type of communicative ability is not an adequate substitute for actual in-person consultation. The rural doctor who must call a specialist in a large city has a distinct disadvantage over a fellow city doctor who can arrange to personally meet with the specialist and examine the records, x-rays, and other pertinent information carefully. Doctors practicing in hospitals and clinics who frequently have contact with one another

also have a much easier time in consulting on various problems than do rural doctors who must continuously try to reach the city specialist.

The above discussion graphically illustrates why Utah has maintained the strict locality rule since the inception of malpractice suits. Obviously, with the variable number of factors affecting medical care in a community it is very difficult to say that any two communities are "similar".

However, the "similarity" standard is not an impossible one to meet if the trial courts follow the guidelines used by the medical profession in establishing such similarities. The only danger lies in the failure of courts and counsel to properly evaluate all the vast multitudes of elements necessary for a valid similarity comparison to be made.

In no event, however, can it be said that a national standard of medical care should be applied to Utah defendant physicians and medical personnel. The obvious great disparity among the various states and within the state of Utah itself clearly foreclose any possibility of such an unrealistic standard.

CONCLUSION

The trial court was correct in rejecting the testimony of plaintiff's expert witness who was not familiar with local medical practice in Salt Lake City. The strict locality rule and its expansion to nearby communities has served the purpose of providing a work-

able standard for medical malpractice cases while at the same time recognizing the differences which must necessarily exist among Utah communities.

Of course, any change in the medical standard will have a severe effect upon malpractice litigation in Utah and for this reason alone any such change must be done with the greatest of caution. If, on the other hand, this Court wishes to expand the present standard it is apparent that the similar locality rule should be adopted and that strict criteria should be established as a guide to the lower courts.

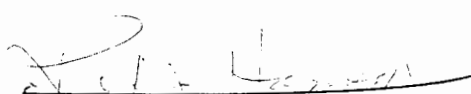
In no event, however, in light of the many diverse factors affecting a medical community should this Court give its approval to the national standard rule adopted by a minority of states. Such an adoption in Utah would have a disastrous effect upon the entire medical community.

For the preceding reasons, the present medical standard should be maintained and the decision of the trial court affirmed.

DATED this 22 day of July, 1977.

Respectfully submitted,

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A P P E N D I X

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TABLE 1

Geography and Environment

No. 303. AREA OF STATES AND OTHER AREAS: 1970

(See *Weights and Measures*, pp. x-xi. See also *Historical Statistics, Colonial Times to 1970*, series A 210-263 for land area.)

STATE OR OTHER AREA	Year of admission to statehood	Rank order	AREA					
			Total		Land ¹		Water ¹	
			Sq. mi.	Sq. km.	Sq. mi.	Sq. km.	Sq. mi.	Sq. km.
United States.....	(X)	(X)	3,615,122	9,363,166	2,536,855	6,560,454	78,267	202,712
New England.....	(X)	(X)	66,608	172,515	62,351	163,043	3,657	9,472
Maine.....	1820	39	33,215	86,027	30,920	80,083	2,295	5,944
New Hampshire.....	1788	44	9,304	24,097	9,027	23,380	277	717
Vermont.....	1791	43	9,609	24,887	9,267	24,002	342	886
Massachusetts.....	1780	45	8,257	21,366	7,826	20,269	431	1,116
Rhode Island.....	1790	50	1,214	3,144	1,049	2,717	165	427
Connecticut.....	1788	48	5,009	12,973	4,862	12,593	147	381
Middle Atlantic.....	(X)	(X)	102,745	266,110	100,318	259,824	2,427	6,286
New York.....	1788	30	46,576	120,407	47,831	123,827	1,745 [*]	4,520
New Jersey.....	1787	46	87,334	22,935	7,521	19,479	315	816
Pennsylvania.....	1787	38	46,333	117,412	44,966	116,482	367	951
East North Central.....	(X)	(X)	248,283	643,053	244,101	632,222	4,182	10,831
Ohio.....	1803	35	41,222	106,765	40,375	104,125	247	640
Indiana.....	1816	38	36,291	93,994	36,097	93,491	191	522
Illinois.....	1818	24	56,400	146,078	55,748	144,367	652	1,680
Michigan.....	1827	23	56,216	150,779	56,817	147,156	1,399	3,623
Wisconsin.....	1848	26	56,154	145,439	54,464	141,062	1,690	4,377
West North Central.....	(X)	(X)	517,247	1,339,670	507,723	1,318,003	9,524	24,467
Minnesota.....	1858	12	84,068	217,736	79,269	205,359	4,799	12,370
Iowa.....	1846	25	56,320	145,701	55,941	144,867	349	904
Missouri.....	1821	19	69,696	180,487	68,995	178,697	691	1,790
North Dakota.....	1889	17	70,665	183,022	69,273	179,417	1,392	3,605
South Dakota.....	1889	16	77,047	199,552	75,355	196,723	1,692	4,328
Nebraska.....	1867	15	77,227	200,018	76,463	198,691	744	1,927
Kansas.....	1861	14	82,264	213,064	81,737	211,826	477	1,233
South Atlantic.....	(X)	(X)	278,776	722,030	264,790	691,452	11,806	30,678
Delaware.....	1787	49	2,057	5,328	1,962	5,133	75	194
Maryland.....	1788	42	10,577	27,394	9,891	25,618	686	1,777
District of Columbia.....	(X)	(X)	67	174	61	156	6	16
Virginia.....	1789	36	40,817	105,716	39,780	103,030	1,037	2,699
West Virginia.....	1863	41	24,181	62,629	24,070	62,341	111	287
North Carolina.....	1789	28	52,586	136,198	48,798	126,387	3,788	9,811
South Carolina.....	1788	40	31,055	80,432	30,225	78,283	830	2,150
Georgia.....	1788	21	56,876	147,669	56,073	145,400	803	2,080
Florida.....	1845	22	58,560	151,670	54,090	140,073	4,470	11,577
East South Central.....	(X)	(X)	181,964	471,287	178,382	463,563	2,382	7,722
Kentucky.....	1792	37	40,395	104,623	39,650	102,694	745	1,930
Tennessee.....	1796	34	42,244	109,412	41,299	107,040	918	2,372
Alabama.....	1819	29	51,609	133,667	50,708	131,384	201	524
Mississippi.....	1817	32	47,716	123,564	47,296	122,497	420	1,098
West South Central.....	(X)	(X)	438,884	1,136,710	427,791	1,107,979	11,093	28,721
Arkansas.....	1836	27	53,104	137,539	51,945	134,538	1,159	3,002
Louisiana.....	1812	31	48,523	125,675	44,530	115,369	3,993	9,306
Oklahoma.....	1907	18	69,919	181,090	68,782	178,145	1,137	2,945
Texas.....	1845	2	267,338	692,405	262,134	678,927	5,204	13,478
Mountain.....	(X)	(X)	863,887	2,237,467	836,467	2,173,162	7,810	20,288
Montana.....	1889	4	147,138	381,087	145,587	377,070	1,551	4,017
Idaho.....	1890	13	83,557	216,413	82,677	214,133	669	1,740
Wyoming.....	1890	9	253,507	655,907	253,000	655,000	507	1,317
Colorado.....	1876	8	104,247	270,000	103,766	268,754	481	1,246
New Mexico.....	1912	5	121,666	315,115	121,412	314,457	254	658
Arizona.....	1912	6	113,900	295,024	113,417	293,750	482	1,247
Utah.....	1896	11	94,018	243,932	92,636	240,000	2,382	6,104
Nevada.....	1864	7	110,540	286,299	109,889	284,613	651	1,686
Pacific.....	(X)	(X)	916,728	2,374,326	891,972	2,310,297	24,756	64,118
Washington.....	1889	20	66,192	178,617	66,570	172,416	1,622	4,201
Oregon.....	1859	10	96,981	251,181	96,194	249,117	787	2,044
California.....	1850	3	158,693	411,013	156,361	404,975	2,332	6,040
Alaska.....	1959	1	586,412	1,518,807	566,432	1,467,659	19,960	51,748
Hawaii.....	1959	47	6,450	16,706	6,425	16,641	25	65
Other areas:								
Puerto Rico.....	(X)	(X)	3,435	8,897	3,421	8,960	14	36
American Samoa.....	(X)	(X)	76	197	76	197	—	—
Canal Zone.....	(X)	(X)	553	1,432	362	936	191	495
Guam.....	(X)	(X)	212	549	—	541	3	8
Trust Territory of the Pacific.....	(X)	(X)	8,489	21,987	717	1,857	7,772	20,129
Virgin Islands of U.S.....	(X)	(X)	132	344	132	342	1	3

¹ Represents zero. X Not applicable. ² Dry land and land temporarily or partially covered by water, as marshland, swamps, etc.; streams and canals under one-eighth statute mile wide; and lakes, reservoirs, and ponds under 40 acres of area.

³ Permanent inland water surface, such as lakes, reservoirs, and ponds having 40 acres or more of area; streams, sloughs, estuaries, and canals one-eighth of a statute mile or more in width; deeply indented embayments and sounds, and other coastal waters behind or sheltered by headlands or islands separated by less than 1 nautical mile of water; and islands having less than 40 acres of area. Excludes areas of oceans, bays, sounds, etc., lying within U.S. jurisdiction but not defined as inland water.

⁴ Year of ratification of Constitution; one of the original 13 States. ⁵ See table 4, footnotes 7, 8, and 11.

Source: U.S. Bureau of the Census, *U.S. Census of Population: 1970*, vol. 1, and *Area Measurement Reports*, series QF-20, No. 1.

TABLE 2

Road Mileage

No. 979. MUNICIPAL AND RURAL HIGHWAY MILEAGE—STATES: 1970 AND 1974

[As of December 31. For definition of municipal and rural roads, see headnote, table 978. Compiled for latest available year from reports of State authorities and planning survey data.]

STATE	Total municipal and rural, 1970	Total municipal and rural, 1974	Municipal, 1974	RURAL, 1974					
				Total	Type		Governmental control		
					Surfaced	Nonsurfaced	State ¹	Local	Federal ²
United States	3,730,082	3,815,907	637,665	3,178,153	2,452,247	725,905	706,296	2,347,709	224,148
Ala.	78,872	86,415	18,033	68,382	63,759	4,623	19,819	48,288	275
Alaska	7,272	9,848	1,502	8,346	4,602	3,654	4,904	1,786	1,670
Ariz.	42,969	52,105	7,029	45,086	15,053	29,992	5,967	21,465	17,953
Ark.	78,850	78,110	10,095	68,015	54,308	13,707	13,758	52,421	1,836
Calif.	164,136	169,616	47,374	122,242	79,474	42,768	14,272	71,416	36,554
Colo.	82,315	84,324	8,190	76,134	46,738	29,401	8,467	66,805	962
Conn.	18,407	18,853	13,377	5,476	5,419	57	1,518	3,956	-
Del.	4,892	5,180	801	4,359	4,349	10	4,339	-	-
D.C.	1,086	1,102	1,102	(X)	(X)	(X)	(X)	(X)	(X)
Fla.	89,499	96,001	26,771	71,320	38,486	32,832	12,900	67,336	1,184
Ga.	99,995	100,589	15,222	85,367	56,470	28,897	15,878	68,490	1,035
Hawaii	3,529	3,681	1,039	2,642	2,495	147	806	1,646	100
Idaho	56,049	56,514	3,284	53,230	27,892	25,338	4,778	25,291	23,161
Ill.	129,942	131,130	29,256	101,874	95,864	6,010	12,171	88,406	298
Ind.	91,011	91,406	15,851	75,555	72,478	3,082	10,219	65,276	66
Iowa	112,119	112,832	13,892	98,940	98,230	5,710	9,082	89,789	60
Kans.	133,987	134,724	11,496	123,228	90,913	32,313	10,108	113,026	94
Ky.	69,071	69,933	6,050	63,883	56,734	7,149	23,878	39,306	609
La.	52,845	54,260	11,598	42,662	30,500	12,162	14,192	28,147	323
Maine	21,356	21,544	2,563	18,981	17,638	1,343	10,952	7,881	168
Md.	26,309	27,428	4,246	23,182	23,182	50	5,027	17,774	281
Mass.	29,074	31,369	17,721	13,648	13,648	-	11,703	-	12
Mich.	114,720	118,701	19,916	98,075	87,055	16,740	8,243	87,972	2,400
Minn.	127,742	128,334	17,685	110,649	100,534	10,115	11,087	98,023	1,539
Miss.	66,782	66,550	7,222	59,728	57,867	1,861	9,786	49,723	239
Mo.	115,261	116,724	17,720	99,004	93,032	5,952	20,842	68,455	707
Mont.	78,276	78,205	2,547	75,658	43,415	32,243	6,307	59,775	9,576
Nebr.	100,445	97,798	7,016	90,782	72,755	18,027	9,838	80,365	579
Nev.	49,704	49,655	1,920	47,735	15,046	32,689	6,179	27,911	13,645
N.H.	14,823	15,156	4,994	10,262	8,182	2,080	3,066	7,054	142
N.J.	32,069	32,704	18,066	13,738	12,496	1,242	1,607	12,118	13
N.Mex.	67,326	70,198	5,221	64,977	17,305	47,672	11,728	46,417	6,832
N.Y.	106,753	107,743	51,712	56,031	33,099	22,932	11,963	44,133	35
N.C.	86,019	86,624	15,070	73,554	67,555	5,999	71,442	-	2,112
N.Dak.	106,897	106,594	3,277	102,657	67,796	34,859	6,730	94,620	1,298
Ohio	108,926	110,247	24,108	86,139	84,673	1,466	17,084	69,026	29
Ore.	107,870	108,465	15,014	93,451	69,699	23,782	11,324	81,803	34
Okl.	95,063	103,884	6,870	97,014	59,649	37,365	9,560	35,079	52,375
Pa.	115,187	114,868	24,505	90,363	76,840	13,523	42,564	46,941	558
R.I.	5,342	5,475	4,456	1,019	912	107	545	474	-
S.C.	50,726	60,631	7,134	53,493	36,208	17,285	32,530	20,408	555
S.Dak.	84,184	82,532	3,034	79,498	55,782	23,716	8,810	60,118	1,570
Tenn.	78,666	81,942	12,286	68,756	67,085	1,671	8,306	59,230	1,211
Tex.	245,532	253,795	55,306	198,489	139,086	59,403	61,943	135,819	1,027
Utah	40,440	48,387	4,663	43,724	18,912	24,812	4,834	21,287	17,908
Vt.	14,464	13,836	1,019	12,817	11,848	969	2,014	10,015	188
Wa.	61,136	62,423	9,006	52,817	31,652	1,165	49,811	895	2,121
Wash.	75,098	81,530	10,222	71,308	55,771	15,577	14,599	30,933	16,776
W.Va.	35,499	36,465	3,639	32,826	23,616	9,210	32,003	823	823
Wis.	108,232	104,720	14,776	89,944	84,501	5,443	10,763	79,113	68
Wyo.	49,656	31,857	1,364	30,493	17,019	13,474	5,936	21,480	3,077

- Represents zero. X Not applicable.

¹ Includes 28,806 miles of State park, forest, institutional, and other roads, and 2,990 miles of toll facilities that are not a part of the State or local highway system. Also includes mileage of county roads under State control in all counties of Delaware, North Carolina, and West Virginia; 10 counties in Alabama; rural boroughs in Alaska; all but 2 counties in Virginia; some county mileage in Kentucky and Nevada; farm-to-market mileage in Louisiana; and the State-old system in Maine.

² Mileage in Federal parks, forests, and reservations that are not a part of the State highway system.

Source: U.S. Federal Highway Administration, *Highway Statistics, 1974*.

SOURCE:

U. S. Dept. of Commerce, Statistical Abstract of the United States

Reproduced from the Statistical Abstract of the United States, 1975, by the Institute of Museum and Library Services Library Services and Technology Act, administered by the Utah State Library.

Machine-generated OCR, may contain errors.

TABLE 3

Geographic Distribution

DENSITY—STATES AND PUERTO RICO: 1920 TO 1970

of present area of State. Minus sign (—) denotes decrease. For composition of regions, see fig. 1, inside front cover. See by region and A 195-196 for population and density by States]

RANK				PERCENT CHANGE				POPULATION PER SQUARE MILE OF LAND AREA ¹				STATE OR OTHER AREA			
1920	1940	1960	1970	1920-1930	1930-1940	1940-1950	1950-1960	1960-1970	1920	1930	1940	1950	1960	1970	U.S.
(X)	(X)	(X)	(X)	16.2	7.3	14.6	18.6	13.3	29.9	34.7	37.2	42.6	50.6	57.5	U.S.
(CT)	(X)	(X)	(X)	16.1	4.5	9.7	12.2	9.8	183.1	210.3	219.8	241.2	273.4	300.4	Regions:
(CT)	(X)	(X)	(X)	13.4	4.0	10.8	16.1	9.6	51.1	53.1	58.8	68.6	75.2	81.7	N. East.
(CT)	(X)	(X)	(X)	14.3	10.1	12.3	16.5	14.2	37.7	43.0	47.4	53.7	62.5	71.9	N. Cen.
(CT)	(X)	(X)	(X)	33.7	16.7	40.4	38.9	24.1	5.3	7.0	8.2	11.5	16.0	19.9	South.
(CT)	(X)	(X)	(X)	10.3	3.3	10.4	12.8	12.7	119.4	129.2	132.5	147.5	164.8	188.1	West.
35	35	36	38	3.8	6.2	7.9	6.1	2.4	25.7	25.7	27.3	29.4	31.3	32.1	N.E.
41	44	45	41	5.0	5.6	8.5	13.8	21.5	49.1	51.6	54.5	59.1	67.2	81.7	Maine.
44	46	47	48	2.0	-0.1	5.2	3.2	14.0	38.6	38.6	38.7	40.7	42.0	47.9	N.H.
6	8	9	10	10.3	1.6	8.7	9.8	10.5	479.2	537.4	545.9	594.2	657.3	727.0	Vt.
38	38	39	39	13.7	3.8	11.0	8.5	10.1	566.4	649.8	674.2	748.5	819.3	922.5	Mass.
29	31	25	24	16.4	6.4	17.4	26.3	19.6	286.4	328.0	348.9	409.7	520.6	622.6	R.I.
(CT)	(X)	(X)	(X)	18.0	4.9	9.5	13.3	8.9	222.6	251.3	274.0	300.1	340.2	370.8	Conn.
1	1	1	2	21.2	7.1	10.0	13.2	8.7	217.9	252.6	281.2	306.3	350.6	381.3	M.A.
10	9	8	8	28.1	2.9	16.2	25.5	18.2	420.0	537.3	553.1	642.8	805.5	953.1	N.Y.
2	2	3	3	10.5	2.8	6.0	7.8	4.2	194.5	213.8	219.8	233.1	244.1	262.3	N.J.
(CT)	(X)	(X)	(X)	17.8	5.3	14.2	19.2	11.1	87.5	103.2	108.7	124.1	148.2	164.9	Pa.
(CT)	(X)	(X)	(X)	17.8	5.3	14.2	19.2	11.1	87.5	103.2	108.7	124.1	148.2	164.9	E.N.C.
11	12	11	11	10.5	5.8	14.8	18.5	11.4	81.3	89.4	94.7	108.7	128.8	148.9	Ohio.
3	3	4	5	17.7	3.5	10.3	13.7	10.2	115.7	136.4	141.2	155.8	180.4	199.4	Ind.
12	13	15	16	11.7	6.8	9.5	13.1	11.8	47.6	53.7	57.3	62.8	72.6	81.1	Ill.
(CT)	(X)	(X)	(X)	6.0	1.7	4.0	5.6	6.9	24.6	26.0	28.5	37.5	38.3	38.3	Mich.
17	18	18	18	4.9	8.9	9.8	14.5	11.5	29.9	32.0	34.5	37.5	43.1	48.1	Wis.
16	20	24	25	2.8	2.7	3.3	5.2	2.4	43.2	44.1	45.3	46.8	49.2	50.5	W.N.C.
9	10	13	13	6.6	4.3	4.5	9.2	8.3	49.5	52.4	54.6	57.1	62.6	67.8	Minn.
36	38	44	45	5.3	-5.7	-3.5	2.1	-2.3	9.2	9.7	9.2	8.8	9.1	8.9	Iowa.
37	37	40	44	8.8	-7.2	1.5	4.3	-2.2	8.3	9.1	8.4	8.5	9.0	8.8	Mo.
31	32	34	35	6.3	-4.5	0.7	6.5	5.1	18.9	18.9	17.2	17.3	18.4	19.4	N. Dak.
24	29	28	28	6.3	-4.3	5.8	14.3	3.1	21.6	22.9	21.9	22.2	26.6	27.5	S. Dak.
(CT)	(X)	(X)	(X)	12.9	12.9	18.8	22.6	18.1	82.0	88.8	64.4	78.0	97.7	111.9	Kan.
47	47	46	46	6.9	11.8	19.4	40.3	22.8	113.5	120.5	134.7	160.8	225.2	270.5	S.A.
28	28	21	18	12.5	11.6	28.6	32.3	26.5	145.8	165.0	184.2	227.1	312.5	396.6	Del.
(CT)	(X)	(X)	(X)	11.3	36.2	21.0	-4.8	-1.0	7.293	7.982	10.870	13.151	12.524	12.402	Md.
20	19	14	14	4.9	10.6	22.9	19.5	17.2	87.4	80.7	67.1	63.2	92.6	116.9	D.C.
27	25	30	34	18.1	10.0	5.4	-7.2	-6.2	90.9	71.8	79.0	83.3	77.2	72.5	W. Va.
14	14	12	12	23.9	12.7	12.7	12.2	11.5	52.5	64.5	72.7	82.7	93.2	104.1	N.C.
26	28	26	26	3.3	9.3	11.4	12.5	8.7	55.2	56.8	62.1	69.9	78.7	85.7	S.C.
12	14	16	15	0.4	7.4	10.3	14.5	16.4	49.3	49.7	53.4	58.9	67.8	79.0	Ga.
32	32	30	29	51.6	29.2	46.1	78.7	37.1	17.7	27.1	35.0	51.1	91.5	123.5	Fla.
(CT)	(X)	(X)	(X)	11.2	9.6	6.8	6.0	6.3	49.8	54.8	59.7	63.8	67.2	71.5	Fla.
15	16	22	23	8.2	8.8	5.5	3.2	5.9	60.2	62.2	70.9	73.9	76.2	81.2	E.S.C.
19	15	17	17	11.0	11.4	12.9	8.4	10.6	56.1	62.4	69.5	78.8	86.2	94.9	N.Y.
18	17	19	21	12.7	7.1	8.1	6.7	5.4	45.8	51.8	55.5	59.9	64.2	67.9	Tenn.
23	23	29	29	12.2	8.7	-0.2	(X)	1.8	38.8	42.4	46.1	46.1	46.0	46.9	Ala.
(CT)	(X)	(X)	(X)	18.9	7.3	11.3	16.6	14.0	23.8	28.3	30.3	33.8	39.5	45.2	Miss.
(CT)	(X)	(X)	(X)	31	32	5.8	-6.5	7.7	33.4	35.2	37.0	38.3	34.2	37.0	W.S.C.
24	24	20	19	12.8	12.5	12.5	21.4	11.8	39.6	44.6	52.3	59.4	72.2	81.0	Ark.
22	21	20	20	18.1	-2.5	-4.4	4.3	8.9	29.2	34.9	33.7	32.4	33.8	37.2	Okl.
5	6	6	4	24.9	10.1	20.2	24.2	18.9	17.8	22.1	24.3	28.3	36.4	42.7	Tenn.
(CT)	(X)	(X)	(X)	11.0	12.1	22.3	35.1	20.8	3.9	4.3	4.8	5.9	8.0	9.7	Mont.
39	39	41	43	-2.1	4.1	5.6	14.2	2.9	3.8	3.7	3.8	4.1	4.6	4.8	Idaho.
42	42	42	42	3.0	17.9	12.1	13.3	6.8	5.2	5.4	6.3	7.1	8.1	8.4	Wyo.
48	48	48	48	16.0	11.2	15.9	13.6	0.7	2.0	2.3	2.6	3.0	3.4	3.4	Colo.
33	33	33	30	10.2	8.0	10.0	32.4	28.8	9.1	18.0	10.8	12.9	16.0	21.3	N. Mex.
43	43	37	37	17.5	25.6	28.1	39.6	6.8	2.9	3.5	4.4	5.6	7.8	8.4	Ariz.
45	45	35	33	30.3	14.6	50.1	73.7	36.0	2.9	3.8	4.4	6.6	11.5	15.6	Utah.
40	40	38	36	13.0	8.4	25.2	29.3	18.9	5.5	6.2	6.7	8.4	10.8	12.9	Nev.
49	49	49	47	17.6	21.1	45.8	78.2	71.3	0.7	0.8	1.0	1.5	2.6	4.4	Nev.
(CT)	(X)	(X)	(X)	46.7	18.7	47.8	40.2	25.1	6.6	9.6	11.4	14.8	22.8	29.7	Pac.
30	30	23	22	15.5	11.3	37.0	19.9	19.4	23.3	23.3	23.9	35.6	42.9	51.2	Calif.
34	34	32	31	21.8	14.2	39.6	16.3	18.2	8.2	9.9	11.3	15.8	18.4	21.7	Oreg.
5	5	2	1	65.7	21.7	53.3	48.5	27.0	22.0	36.2	44.1	67.5	100.4	127.6	Calif.
50	50	50	50	7.7	22.3	77.4	75.8	32.8	0.1	0.1	0.1	0.2	0.4	0.5	Alaska.
46	46	43	40	43.9	14.8	18.2	26.2	21.5	39.9	57.5	66.0	78.0	95.5	119.6	Hawaii.
(CT)	(X)	(X)	(X)	18.8	21.1	18.3	6.3	15.4	379.7	451.0	546.1	645.8	686.4	792.8	P.R.

Source: U.S. Bureau of the Census, U.S. Census of Population: 1970, vol. 1.

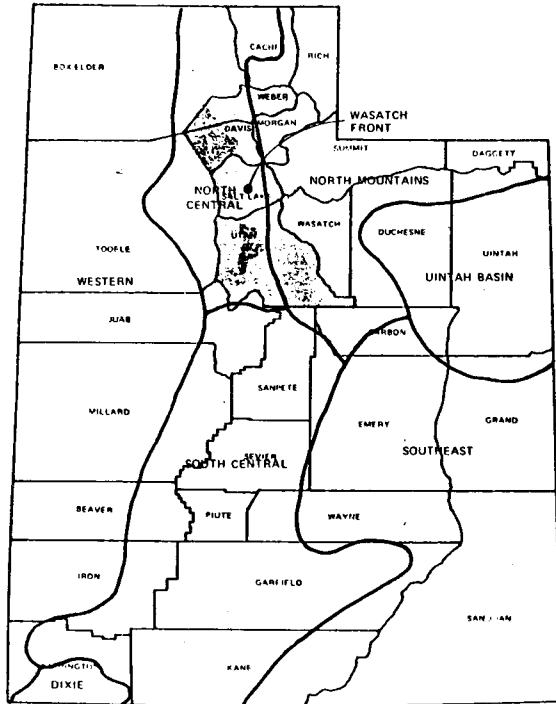
SOURCE:

U. S. Dept. of Commerce Statistical Abstract of the United States, p. 13 (1976)

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TABLE 4



Utah's Temperature and Precipitation by Climatic Division
(averages for period 1941-70)

	Degrees Fahrenheit						
	Jan.	Mar.	May	July	Sept.	Nov.	Annual
TEMPERATURE							
Western	26	38	56	74	62	37	49
North Central	27	39	58	75	64	39	50
South Central	27	37	54	70	61	38	48
North Mountains	21	30	50	65	55	32	42
Uinta Basin	17	35	56	72	60	34	46
Southeast	27	41	60	76	66	39	52
Dixie	39	49	67	83	74	48	60
PRECIPITATION							
	Measurement in inches						
Western	.6	.8	.8	.6	.5	.7	8.5
North Central	1.5	1.6	1.7	.6	.9	1.5	16.3
South Central	1.0	1.2	.9	1.0	.9	.9	12.3
North Mountains	2.2	2.1	1.5	.9	1.1	1.8	19.9
Uinta Basin	.5	.5	.7	.6	.7	.5	8.1
Southeast	.6	.6	.6	.7	.8	.6	8.7
Dixie	1.1	1.3	.5	.9	.7	.9	10.9
State	11.4						

Source: National Climatic Center, *Climatology of the United States*, No. 85, *Temperature and Precipitation for State Climatic Divisions, 1941-1970* (Ashville, North Carolina).

Utah State Department of Agriculture Climatologist, Utah State University, Logan, Utah.

TABLE 5

Utah Population
(by multi-county planning district and county)

District County	1960	1970	Preliminary July 1, 1976 estimates	Percent change 1960-70
Bear River	62,534	72,075	82,000	15.3
Box Elder	25,061	28,129	31,100	12.2
Cache	35,788	42,331	49,300	18.3
Rich	1,685	1,615	1,600	-4.2
Wasatch Front	579,244	709,441	805,400	22.5
Davis	64,760	98,028	120,000	52.9
Morgan	2,837	3,983	4,800	40.4
Salt Lake	383,035	458,607	520,000	19.7
Tooele	17,868	21,545	23,600	20.6
Weber	110,744	126,278	137,000	14.0
Mountainlands	117,972	149,518	186,000	26.7
Summit	5,673	5,879	7,000	3.6
Utah	106,991	137,776	172,000	28.8
Wasatch	5,308	5,863	7,000	10.5
Central Utah	37,245	35,288	42,700	-5.3
Juab	4,597	4,574	5,300	-0.5
Millard	7,866	6,988	8,200	-11.2
Piute	1,436	1,164	1,300	-18.9
Sanpete	11,053	10,976	13,000	-0.7
Sevier	10,565	10,103	13,200	-4.4
Wayne	1,728	1,483	1,700	-14.2
Southwestern	31,641	35,224	44,100	11.3
Beaver	4,331	3,800	4,200	-12.3
Garfield	3,577	3,157	3,500	-11.7
Iron	10,795	12,177	14,800	12.8
Kane	2,667	2,421	3,600	-9.2
Washington	10,271	13,669	18,000	33.1
Uintah Basin	19,925	20,649	29,400	3.6
Daggett	1,164	666	800	-42.8
Duchesne	7,179	7,299	11,300	1.7
Uintah	11,582	12,684	17,300	9.5
Southeastern	42,066	37,078	45,400	-11.9
Carbon	21,135	15,647	19,300	-26.0
Emery	5,546	5,137	8,000	-7.4
Grand	6,345	6,688	6,900	5.4
San Juan	9,040	9,606	11,200	6.3
State Total	890,627	1,059,273	1,235,000	18.9

Source: 1976 estimates, Utah Population Work Committee, released by Bureau of Economic and Business Research, *Utah Economic and Business Review*, Vol. 36, No. 11, November 1976.

SOURCE: U. of Utah, College of Business, Utah Facts, An Intro-
duced by the Utah State Library. Funded by digital resources from the National Digital Library Services
Library Services and Technology Act administered by the Utah State Library.
Information System, p. 14. (3/1996).
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TABLE 6

**Population of Utah Metropolitan Areas and All Incorporated
Places and Unincorporated Places of 1,000 or More
(1960-73)**

Place/area	County	1960	1970	1973	Percentage of change 1960-70	Percentage of change 1970-73
Metropolitan area (SMSA)						
Salt Lake	Salt Lake	447,795	557,635	755,800 ^a	24.5	10.5 ^a
Ogden	Weber	110,744	126,278		14.0	
Provo-Orem	Utah	106,991	137,776	161,200	28.8	17.0
Place						
Alpine	Utah	775	1,047	1,452	35.1	38.7
Altamont	Duchesne	102	129	196	26.5	51.9
Alton	Kane	116	62	80	-46.6	29.0
Amalga	Cache	198	207	224	4.5	8.2
American Fork	Utah	6,373	7,713	9,939	21.0	28.9
Annabella	Sevier	177	221	241	24.9	9.0
Antimony	Garfield	161	113	115	-29.8	1.8
Aurora	Sevier	465	493	540	6.0	9.5
Bear River	Box Elder	447	445	458	-0.4	2.9
Beaver	Beaver	1,548	1,453	1,605	-6.1	10.5
Bicknell	Wayne	366	264	283	-27.9	7.2
Bingham Canyon	Salt Lake	1,516	31	na	-98.0	na
Blanding	San Juan	1,805	2,250	2,569	24.7	14.2
Boulder	Garfield	108	93	94	-13.9	1.1
Bountiful	Davis	17,039	27,853	29,220	63.5	4.9
Brigham City	Box Elder	11,728	14,007	14,269	19.4	1.9
Cannonville	Garfield	153	113	115	-26.1	1.8
Castle Dale	Emery	617	541	599	-12.3	10.7
Castle Gate	Carbon	321	205	na	-36.1	na
Cedar City	Iron	7,543	8,946	9,867	18.6	10.3
Cedar Fort	Utah	na	188	209	na	11.2
Centerfield	Sanpete	475	419	438	-11.8	4.5
Centerville	Davis	2,361	3,268	4,335	38.4	32.6
Central	Washington	21	32	na	52.4	na
Charleston	Wasatch	223	196	219	-12.1	11.7
Circleville	Piute	478	443	435	-7.3	-1.8
Clarkston	Cache	490	420	450	-14.3	7.1
Clearfield	Davis	8,833	13,316	13,082	50.8	-1.8
Cleveland	Emery	261	244	269	-6.5	10.2
Clinton	Davis	1,025	1,768	3,081	72.5	74.3
Coalville	Summit	907	864	903	-4.7	4.5
Corinne	Box Elder	510	471	485	-7.6	3.0
Cornish	Cache	157	173	186	10.2	7.5
Cottonwood (U)	Salt Lake	na	8,431	na	na	na
Delta	Millard	1,576	1,610	1,753	2.2	8.9
Deweyville	Box Elder	265	248	256	-6.4	3.2
Dragerton (U)	Carbon	2,959	1,614	na	-45.5	na
Duchesne	Duchesne	770	1,094	2,031	42.1	85.6
Dugway (U)	Tooele	na	2,357	na	na	na
East Layton	Davis	444	763	827	71.8	8.4
East Millcreek (U)	Salt Lake	na	26,579	na	na	na
Elmo	Emery	175	141	156	-19.4	10.6
Elsmore	Sevier	483	357	390	-26.1	9.2
Elwood	Box Elder	345	294	303	-14.8	3.1

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Machine-generated OCR; may contain errors.

(Continued)

TABLE 6 Cont'd.

Place/area	County	1960	1970	1973	Percentage of change 1960-70	Percentage of change 1970-73
Emery-	Emery	326	216	241	-33.7	11.6
Enoch	Iron	na	120	132	na	10.0
Enterprise	Washington	859	844	981	-1.7	16.2
Ephraim	Sanpete	1,801	2,127	2,301	18.1	8.2
Escalante	Garfield	702	638	644	-9.1	0.9
Eureka	Juab	771	753	813	-2.3	8.0
Fairview	Sanpete	655	696	727	6.3	4.5
Farmington	Davis	1,951	2,526	2,912	29.5	15.3
Fayette	Sanpete	161	93	97	-42.2	4.3
Ferron	Emery	386	663	735	71.8	10.9
Fielding	Box Elder	270	254	262	-5.9	3.1
Fillmore	Millard	1,602	1,411	1,626	-11.9	15.2
Fountain Green	Sanpete	544	467	488	-14.2	4.5
Francis	Summit	252	268	280	6.3	4.5
Fruit Heights	Davis	175	800	867	357.1	8.4
Garden City	Rich	168	134	132	-20.2	-1.5
Garland	Box Elder	1,119	1,187	1,168	6.1	-1.6
Genola	Utah	380	424	473	11.6	11.6
Glendale	Kane	223	200	255	-10.3	27.5
Glenwood	Sevier	227	212	233	-23.5	9.9
Goshen	Utah	426	459	511	7.7	11.3
Granger-Hunter (U)	Salt Lake	na	9,029	na	na	na
Granite Park (U)	Salt Lake	na	9,573	na	na	na
Grantsville	Tooele	2,166	2,931	3,290	35.3	12.2
Green River	Emery, Grand	1,075	1,033	1,166	-3.9	12.9
Gunnison	Sanpete	1,059	1,073	1,129	1.3	5.2
Harrisville	Weber	na	603	857	na	42.1
Hatch	Garfield	198	139	141	-29.8	1.4
Heber	Wasatch	2,936	3,245	3,488	10.5	7.5
Helper	Carbon	2,459	1,964	2,020	-20.1	2.9
Henefer	Summit	408	446	467	9.3	4.7
Henrieville	Garfield	152	145	148	-4.6	2.1
Hiawatha	Carbon, Emery	439	166	185	-62.2	11.4
Hildale	Washington	na	480	557	na	16.0
Hinckley	Millard	397	400	416	0.8	4.0
Holden	Millard	388	351	365	-9.5	4.0
Holladay (U)	Salt Lake	na	23,014	na	na	na
Honeyville	Box Elder	646	640	658	-0.9	2.8
Howell	Box Elder	188	146	149	-22.3	2.1
Huntington	Emery	787	857	949	8.9	10.7
Huntsville	Weber	552	553	560	0.2	1.3
Hurricane	Washington	1,251	1,408	1,542	12.5	9.5
Hyde Park	Cache	696	1,025	1,178	47.3	14.9
Hyrum	Cache	1,728	2,340	2,797	35.4	19.5
Ivins	Washington	77	137	160	77.9	16.8
Joseph	Sevier	117	125	138	6.8	10.4
Junction	Piute	219	135	133	-38.4	-1.5
Kamas	Summit	749	806	840	7.6	4.2
Kanab	Kane	1,645	1,381	1,795	-16.0	30.0
Kanab	Iron	236	204	222	-13.6	8.8

(Continued)

TABLE 6 Cont'd.

Place/area	County	1960	1970	1973	Percentage of change 1960-70	Percentage of change 1970-73
Kanosh	Millard	499	319	331	-36.1	3.8
Kaysville	Davis	3,608	6,192	7,007	71.6	13.2
Kearns (U)	Salt Lake	17,172	17,071	na	-0.6	na
Kingston	Piute	143	114	113	-20.3	-0.9
Koocharem	Sevier	148	141	153	-4.7	8.5
Laketown	Rich	211	208	203	-1.4	-2.4
La Verkin	Washington	365	463	539	26.8	16.4
Layton	Davis	9,027	13,603	15,766	50.7	15.9
Leamington	Millard	190	112	115	-41.1	2.7
Leeds	Washington	109	151	177	38.5	17.2
Lehi	Utah	4,377	4,659	5,604	6.4	20.3
Levan	Juab	421	376	405	-10.7	7.7
Lewiston	Cache	1,336	1,244	1,351	-6.9	8.6
Lindon	Utah	1,150	1,644	2,007	43.0	22.1
Loa	Wayne	359	324	344	-9.7	6.2
Logan	Cache	18,731	22,333	22,642	19.2	1.4
Lynndyl	Millard	145	111	114	-23.4	2.7
Maeser	Uintah	929	1,248	na	34.3	na
Magna (U)	Salt Lake	6,442	5,509	na	-14.5	na
Manila	Daggett	329	226	205	-31.3	-9.3
Manti	Sanpete	1,739	1,803	1,810	3.7	0.4
Mantua	Box Elder	275	413	424	50.2	2.7
Mapleton	Utah	1,516	1,980	2,397	30.6	21.1
Marysville	Piute	354	289	283	-18.4	-2.1
Mayfield	Sanpete	329	267	279	-18.8	4.5
Meadow	Millard	244	238	246	-2.5	3.4
Mendon	Cache	345	345	372	0.0	7.8
Midvale	Salt Lake	5,802	7,840	8,190	35.1	4.5
Midway	Wasatch	713	804	893	12.8	11.1
Millford	Beaver	1,471	1,304	1,323	-11.4	1.5
Millville	Cache	364	441	473	21.2	7.3
Minersville	Beaver	580	448	462	-22.8	3.1
Moab	Grand	4,682	4,793	4,375	2.4	-8.7
Mona	Juab	347	309	331	-11.0	7.1
Monroe	Sevier	955	918	1,004	-3.9	9.4
Monticello	San Juan	1,845	1,431	1,697	-22.4	18.6
Morgan City	Morgan	1,299	1,586	1,664	22.1	4.9
Moroni	Sanpete	879	894	934	1.7	4.5
Mount Olympus (U)	Salt Lake	na	5,909	na	na	na
Mount Pleasant	Sanpete	1,572	1,516	1,642	-3.6	8.3
Murray	Salt Lake	16,806	21,206	22,635	26.2	6.7
Myton	Duchesne	329	322	489	-2.1	51.9
Nephi	Juab	2,566	2,699	2,904	5.2	7.6
New Harmony	Washington	105	78	90	-25.7	15.4
Newton	Cache	480	444	477	-7.5	7.4
Nibley	Cache	333	367	395	10.2	7.6
North Logan	Cache	741	1,405	1,540	89.6	9.6
North Ogden	Weber	2,621	5,257	6,615	100.6	25.8
North Salt Lake	Davis	1,655	2,143	2,482	29.5	15.8
Oak City	Millard	312	278	290	-10.9	4.3

(Continued)

TABLE 6 Cont'd.

Place/Area	County	1960	1970	1973	Percentage of change 1960-70	Percentage of change 1970-73
Oakley	Summit	247	265	276	7.3	4.2
Ogden	Weber	70,197	69,478	66,357	-1.0	-4.5
Onaqui	Tooele	511	541	379	5.9	-29.9
Ophir	Tooele	36	76	80	111.1	5.3
Orangeville	Emery	571	511	567	-10.5	11.0
Orderville	Kane	398	399	505	0.3	26.6
Orem	Utah	18,394	25,729	32,743	39.9	27.3
Panguitch	Garfield	1,435	1,318	1,289	-8.2	-2.2
Paradise	Cache	368	399	428	8.4	7.3
Paragonah	Iron	300	275	299	-8.3	8.7
Park City	Summit	1,366	1,193	1,366	-12.7	14.5
Parowan	Iron	1,486	1,423	1,625	-4.2	14.2
Payson	Utah	4,237	4,501	5,838	6.2	29.7
Perry	Box Elder	587	909	937	54.9	3.1
Pickleville	Rich	94	106	104	12.8	-1.9
Plain City	Weber	1,152	1,543	1,718	33.9	11.3
Pleasant Grove	Utah	4,772	5,327	6,572	11.6	23.4
Pleasant View	Weber	927	2,028	2,292	118.8	13.0
Plymouth	Box Elder	231	203	210	-12.1	3.4
Portage	Box Elder	189	144	147	-23.8	2.1
Price	Carbon	6,802	6,218	6,972	-8.6	12.1
Providence	Cache	1,189	1,608	2,167	35.2	34.8
Provo	Utah	36,047	53,131	55,654	47.4	4.7
Randolph	Rich	537	500	502	-6.9	0.4
Redmond	Sevier	413	409	444	-1.0	8.6
Richfield	Sevier	4,412	4,471	4,788	1.3	7.1
Richmond	Cache	977	1,000	1,184	2.4	18.4
Riverdale	Weber	1,848	3,704	5,148	100.4	39.0
River Heights	Cache	880	1,008	1,106	14.5	9.7
Riverton	Salt Lake	1,993	2,820	3,383	41.5	20.0
Roosevelt	Duchesne, Uintah	1,812	2,005	3,431	10.7	71.7
Roy	Weber	9,239	14,356	15,643	55.4	9.0
St. George	Washington	5,130	7,097	7,972	38.3	12.3
Salem	Utah	920	1,081	1,387	17.5	28.3
Salina	Sevier	1,618	1,494	1,595	-7.7	6.8
Salt Lake City	Salt Lake	189,454	175,885	169,234	-7.2	-3.8
Sandy City	Salt Lake	3,322	6,438	12,076	93.8	87.6
Santa Clara	Washington	291	271	316	-6.9	16.6
Santaquin	Utah	1,183	1,236	1,397	4.5	13.0
Scipio	Millard	328	264	273	-19.5	3.4
Scotfield	Carbon	158	71	77	-55.1	8.5
Sigurd	Sevier	339	291	319	-14.2	9.6
Smithfield	Cache	2,512	3,342	4,036	33.0	20.8
Snowville	Box Elder	159	174	179	9.4	2.9
Soldier Summit	Wasatch	33	13	14	-60.6	7.7
South Jordan	Salt Lake	1,354	2,942	5,167	117.3	75.6
South Ogden	Weber	7,405	9,991	10,963	34.9	9.7
South Salt Lake	Salt Lake	9,520	7,810	8,138	-18.0	4.2
South Weber	Davis	382	1,073	1,084	180.9	1.0
Spanish Fork	Utah	6,472	7,284	7,980	12.5	9.6

TABLE 6 Cont'd.

Place/area	County	1960	1970	1973	Percentage of change 1960-70	Percentage of change 1970-73
Spring City	Sanpete	463	456	477	-1.5	4.6
Springdale	Washington	248	172	200	-30.6	16.3
Springville	Utah	7,913	8,790	10,049	11.1	14.3
Sterling	Sanpete	137	144	151	5.1	4.9
Stockton	Tooele	362	469	486	29.6	3.6
Sunnyside	Carbon	1,740	485	537	-72.1	10.7
Sunset	Davis	4,235	6,268	6,516	48.0	4.0
Syracuse	Davis	1,061	1,843	2,801	73.7	52.0
Tabiona	Duchesne	167	125	191	-25.1	52.8
Tooele	Tooele	9,133	12,539	12,973	37.3	3.5
Toquerville	Washington	197	185	213	-6.1	15.1
Torrey	Wayne	128	84	90	-34.4	7.1
Tremonton	Box Elder	2,115	2,794	2,944	32.1	5.4
Trenton	Cache	448	390	419	-12.9	7.4
Tropic	Garfield	382	329	334	-13.9	1.5
Uintah	Weber	344	400	404	16.9	1.0
Vernal	Uintah	3,655	3,908	4,924	6.9	26.0
Virgin	Washington	124	119	138	-4.0	16.0
Wales	Sanpete	130	89	93	-31.5	4.5
Wallsburg	Wasatch	180	211	235	17.2	11.4
Washington	Washington	445	750	872	68.5	16.3
Washington Terrace	Weber	6,441	7,241	8,083	12.4	11.6
Wellington	Carbon	1,066	922	1,018	-13.5	10.4
Wellsville	Cache	1,106	1,267	1,422	14.6	12.2
Wendover	Tooele	609	781	812	28.2	4.0
West Bountiful	Davis	945	1,246	1,299	31.9	4.3
West Jordan	Salt Lake	3,009	4,221	9,326	40.3	120.9
West Point	Davis	599	1,020	1,069	70.3	4.8
White City (U)	Salt Lake	na	6,402	na	na	na
Willard	Box Elder	814	1,045	1,161	28.4	11.1
Woodruff	Rich	169	173	169	2.4	-2.3
Woods Cross	Davis	1,098	3,124	3,135	184.5	0.4
Yost	Box Elder	87	51	53	-41.4	3.9

na-Not available.

UI-Unincorporated.

*The Bureau of the Census has combined the Salt Lake and Ogden SMSA's to form the Salt Lake City-Ogden SMSA.

Source: U.S. Department of Commerce, Bureau of the Census (Washington, D.C.: 1970), and Bureau of the Census, *Current Population Reports*, Series P-25, No. 589 (Washington D.C.: U.S. Government Printing Office, 1975).

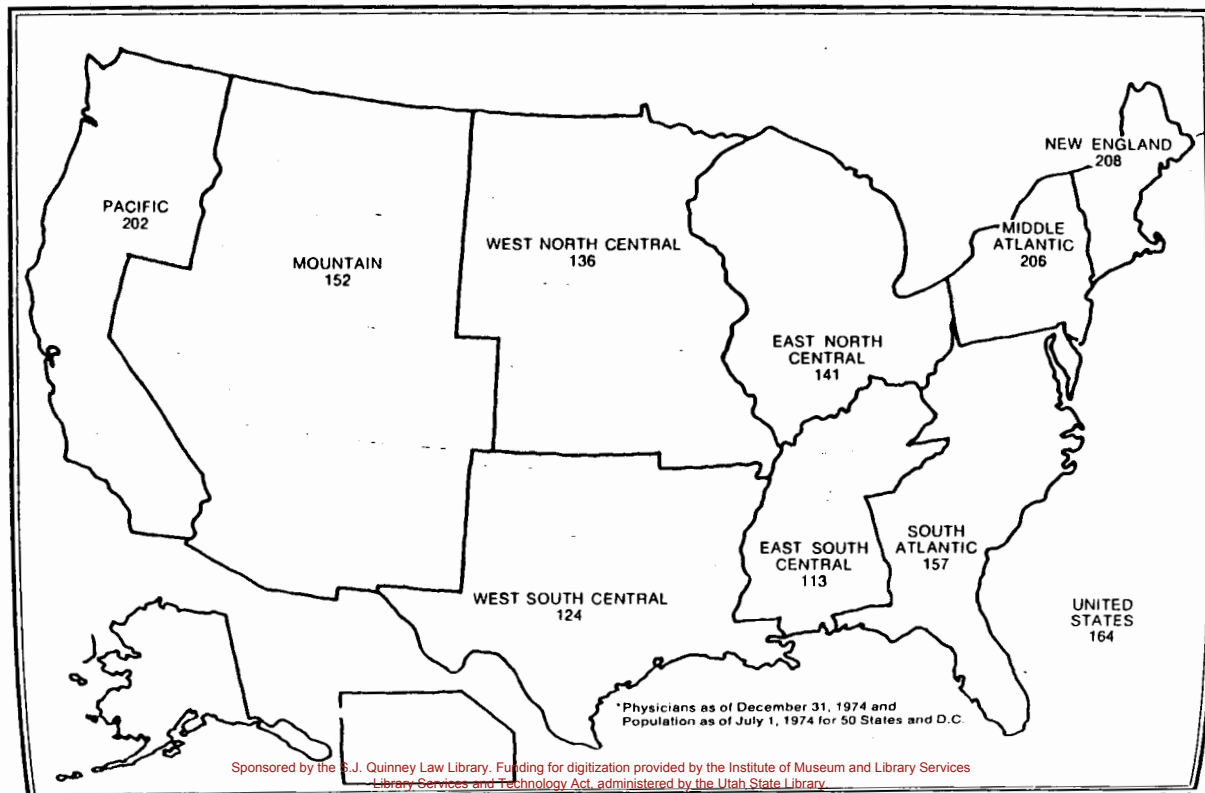
SOURCE: U. of Utah, College of Business, Utah Facts, An Introductory Handbook to the Industrial Development Information System, pp. II-14-17 (1976)

Consisted by the S. J. Quinney Law Library. Funding for digitization provided by the Utah State Library and the Utah State Archives. Original documents and transcripts are available for research at the Utah State Library.

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TABLE 7

**NUMBER OF NON-FEDERAL PHYSICIANS PER 100,000 CIVILIAN
POPULATION BY CENSUS DIVISION, December 31, 1974***



Sponsored by the S.J. Quinney Law Library. Funding for digitization provided by the Institute of Museum and Library Services Library Services and Technology Act, administered by the Utah State Library.

TABLE 8

**NON-FEDERAL PHYSICIANS, CIVILIAN POPULATION,
PHYSICIAN-POPULATION RATIOS AND RANK BY STATE**

State	Civilian Population (7-1-74)	Non-Federal Physicians (12-31-74)		Physicians Per 100,000 Population		Rank of Physician-Population Ratio by State	
		Total	Patient Care	Total	Patient Care	Total	Patient Care
Total (50 States and D.C.)*	209,689,000	342,611	276,070	163	132	—	—
Alabama	3,551,000	3,509	2,967	99	84	49	47
Alaska	311,000	302	245	97	77	49	50
Arizona	2,126,000	3,772	2,876	177	135	11	12
Arkansas	2,052,000	2,039	1,699	99	83	47	48
California	20,610,000	44,093	35,001	214	170	5	5
Colorado	2,448,000	4,488	3,645	183	149	21	8
Connecticut	3,076,000	6,646	5,282	216	172	4	4
Delaware	567,000	850	709	150	125	20	21
D.C.	714,000	3,249	2,408	455	337	1	1
Florida	8,002,000	14,275	10,368	178	130	8	18
Georgia	4,831,000	5,916	4,928	122	102	36	34
Hawaii	792,000	1,412	1,131	178	143	10	10
Idaho	793,000	802	683	101	86	46	46
Illinois	11,096,000	17,594	14,409	159	130	17	17
Indiana	5,319,000	5,919	4,962	111	93	40	40
Iowa	2,854,000	3,122	2,614	109	92	42	41
Kansas	2,240,000	2,969	2,441	133	109	27	27
Kentucky	3,321,000	3,879	3,253	117	98	38	38
Louisiana	3,733,000	4,806	4,007	129	107	31	30
Maine	1,036,000	1,342	1,071	130	103	30	33
Maryland	4,041,000	8,567	6,517	212	161	6	6
Massachusetts	5,785,000	13,226	10,228	229	177	3	3
Michigan	9,084,000	12,608	10,184	139	112	25	25
Minnesota	3,915,000	6,522	5,294	167	135	12	13
Mississippi	2,302,000	2,112	1,818	92	79	50	49
Missouri	4,752,000	6,741	5,433	142	114	24	24
Montana	729,000	814	719	112	99	39	36
Nebraska	1,531,000	1,971	1,613	129	105	32	31
Nevada	564,000	695	587	123	104	35	32
New Hampshire	803,000	1,247	1,014	155	126	18	20
New Jersey	7,300,000	12,102	9,884	166	135	14	11
New Mexico	1,107,000	1,401	1,090	127	98	33	37
New York	18,083,000	45,026	35,874	249	198	2	2
North Carolina	5,265,000	6,614	5,286	126	100	34	35
North Dakota	624,000	632	538	101	86	45	45
Ohio	10,723,000	15,383	12,938	143	121	23	22
Oklahoma	2,680,000	2,892	2,430	108	91	43	42
Oregon	2,263,000	3,736	3,038	165	134	15	15
Pennsylvania	11,824,000	19,349	15,866	164	134	16	16
Rhode Island	930,000	1,733	1,411	186	152	8	7
South Carolina	2,711,000	2,981	2,449	110	90	41	43
South Dakota	676,000	566	496	84	73	51	50
Tennessee	4,108,000	5,480	4,471	133	109	26	28
Texas	11,890,000	15,440	12,811	130	108	29	29
Utah	1,169,000	1,789	1,481	153	127	19	19
Vermont	470,000	931	697	198	148	7	9
Virginia	4,751,000	6,846	5,467	144	115	22	23
Washington	3,427,000	5,694	4,614	166	135	13	14
West Virginia	1,790,000	2,128	1,740	119	97	37	39
Wisconsin	4,565,000	6,026	5,068	132	111	28	26
Wyoming	356,000	375	315	105	88	44	44

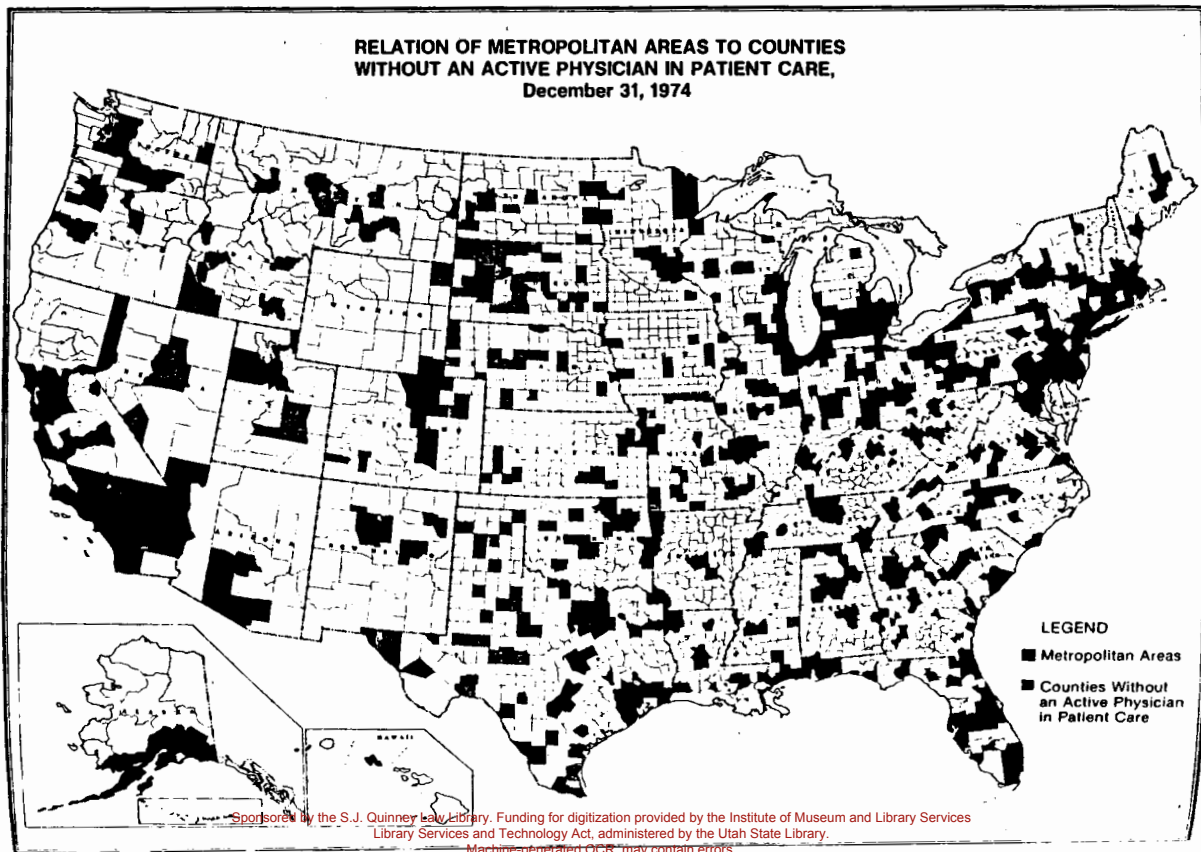
*Excludes physicians (2,996 Total Non-Federal and 2,447 Patient Care) and population in Possessions (Canal Zone, Pacific Islands, Puerto Rico, and Virgin Islands). Population total does not add due to rounding.

Source: Estimates of the Population of States: July 1, 1973 and 1974 (Advance Report). *Current Population Reports Series P-25, No. 533, October 1974.*

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SOURCE: AMA, *Physician Distribution and Medical Licensure in the U.S.*, p. 23 (1974).

TABLE 9



SOURCE: AMA, *Physician Distribution and Medical Licensure in the U.S.*, p. 26 (1974)

TABLE 10

Licensed Physicians, Dentists and Nurses
by Planning District and County
1972

District County	Physicians		Dentists		Nurses	
	Number	Per 1,000 ^a Population	Number	Per 1,000 ^a Population	RN	LPN
Bear River	63	.82	52	.67	288	73
Box Elder	19	.63	24	.79	96	39
Cache	44	.97	28	.62	186	32
Rich	0	—	0	—	6	2
Wasatch Front	1,250	1.67	491	.66	3,537	1,448
Davis	62	.57	54	.50	438	155
Morgan	3	.68	2	.45	18	4
Salt Lake	1,004	2.08	335	.69	2,294	1,041
Tooele	11	.50	7	.31	58	31
Weber	170	1.27	93	.69	729	217
Mountainlands	154	.94	91	.55	558	551
Summit	2	.32	2	.32	16	14
Utah	146	.97	85	.56	521	521
Wasatch	6	.92	4	.61	21	16
Central	21	.55	13	.34	97	62
Juab	4	.88	3	.66	11	12
Millard	5	.64	2	.25	25	13
Piute	—	—	0	—	3	2
Sarapete	6	.50	2	.16	27	25
Sevier	6	.55	6	.55	26	10
Wayne	—	—	0	—	5	0
Southwestern	30	.76	27	.69	100	68
Beaver	3	.73	2	.49	14	7
Garfield	4	1.29	1	.32	11	6
Iron	10	.75	9	.68	42	19
Kane	4	1.48	1	.37	8	5
Washington	9	.56	14	.87	25	31
Uintah Basin	10	.40	6	.24	38	25
Daggett	—	—	0	—	3	—
Duchesne	5	.51	2	.20	14	11
Uintah	5	.34	4	.27	21	14
Southeastern	24	.62	12	.31	126	117
Carbon	13	.78	7	.42	84	75
Emery	2	.38	0	—	5	16
Grand	4	.64	2	.32	11	12
San Juan	5	.46	3	.28	26	14
State Total	1,552	1.38	692	.61	4,744	2,344

^aPopulation used is the July 1, 1972 estimate of the Utah Population Work Committee.

Source: Utah Center for Health Statistics, *Utah Health Profile*, December 1973 (Salt Lake City, Utah).

SOURCE: U. of Utah, College of Business, Statistical Abstract of Utah, p. II-8 (1976).

TABLE 11

Number of hospitals, beds, and beds per 1,000 population for all hospitals, general hospitals, and specialty hospitals, by geographic region and State: United States, 1973

Geographic region and State	All hospitals			General hospitals			Specialty hospitals		
	Hospitals	Beds	Beds per 1,000 population	Hospitals	Beds	Beds per 1,000 population	Hospitals	Beds	Beds per 1,000 population
United States-----	7,438	1,449,062	6.9	6,458	1,030,432	4.9	980	418,630	1.9
Northeast-----	1,305	400,494	8.1	1,003	237,597	4.8	302	162,897	3.3
Connecticut-----	69	19,147	6.2	47	12,251	3.9	22	6,896	2.2
Delaware-----	59	7,350	7.1	35	5,674	5.5	4	1,676	1.6
Massachusetts-----	211	51,344	8.8	136	27,588	4.7	75	23,756	4.0
New Hampshire-----	35	5,604	7.0	32	3,615	4.5	3	1,989	2.5
New Jersey-----	143	49,012	6.6	111	29,539	4.0	32	19,473	2.6
New York-----	419	158,600	8.6	333	91,465	5.0	86	66,935	3.6
Pennsylvania-----	327	97,827	8.2	254	59,632	5.0	73	38,195	3.2
Rhode Island-----	22	7,997	8.2	17	5,191	5.3	5	2,806	2.8
Vermont-----	20	3,613	7.7	18	2,442	5.2	2	1,171	2.5
North Central-----	2,099	396,653	6.9	1,850	301,612	5.2	249	95,041	1.7
Illinois-----	297	75,883	6.7	255	57,976	5.1	42	17,907	1.5
Indiana-----	136	33,140	6.2	117	23,604	4.4	19	9,536	1.7
Iowa-----	153	19,986	6.8	143	17,260	5.9	10	2,726	0.9
Kansas-----	169	17,201	7.5	158	13,820	6.0	11	3,381	1.4
Michigan-----	265	53,916	5.9	232	41,764	4.9	33	12,152	1.3
Minnesota-----	193	29,613	7.5	179	23,854	6.1	14	5,759	1.4
Missouri-----	179	36,453	7.6	160	27,438	5.7	19	9,015	1.8
Nebraska-----	116	11,301	7.3	111	10,159	6.5	5	1,142	0.7
North Dakota-----	61	5,501	8.5	60	4,558	7.1	1	943	1.4
Ohio-----	253	70,900	6.6	214	51,557	4.8	39	19,343	1.8
South Dakota-----	71	6,315	9.2	68	5,599	6.7	3	1,716	2.5
Wisconsin-----	206	36,444	7.9	153	25,023	5.4	53	11,421	2.4
South-----	2,632	451,835	6.8	2,343	328,845	5.0	289	122,990	1.9
Alabama-----	151	24,937	7.0	138	18,358	5.1	13	6,579	1.8
Arkansas-----	104	11,875	5.8	101	10,851	5.3	3	1,024	0.5
Delaware-----	14	4,315	7.4	9	2,316	4.0	5	1,999	3.4
District of Columbia-----	21	11,666	15.6	16	7,150	9.6	5	4,516	6.0
Florida-----	234	50,629	6.5	214	39,394	5.1	20	11,235	1.4
Georgia-----	200	33,188	6.9	178	22,988	4.8	22	10,200	2.7
Kentucky-----	133	20,087	6.0	116	16,547	4.9	17	3,540	1.0
Louisiana-----	165	25,327	6.7	151	18,915	5.0	14	6,412	1.7
Maryland-----	80	26,166	6.4	55	14,478	3.6	25	11,688	2.8
Mississippi-----	132	17,838	7.8	126	12,459	5.4	6	5,379	2.3
North Carolina-----	168	32,974	6.2	143	22,914	4.3	25	10,060	1.9
Oklahoma-----	153	17,141	6.4	142	13,301	4.9	11	3,840	1.4
South Carolina-----	94	18,885	6.9	84	12,355	4.5	10	6,530	2.3
Tennessee-----	175	30,975	7.5	149	22,574	5.4	26	8,401	2.0
Texas-----	583	75,886	6.4	531	59,771	5.0	52	16,115	1.1
Virginia-----	134	33,522	6.9	110	23,082	4.7	24	10,440	2.1
West Virginia-----	91	16,424	9.1	80	11,392	6.3	11	5,032	2.8
West-----	1,402	200,080	5.5	1,262	162,378	4.4	140	37,702	1.0
Alaska-----	26	1,608	4.8	25	1,408	4.2	1	200	0.4
Arizona-----	83	10,891	5.2	79	9,681	4.7	4	1,210	0.5
California-----	655	111,887	5.4	583	91,593	4.4	72	20,294	0.9
Colorado-----	101	15,004	6.1	87	11,790	4.8	14	3,214	1.3
Hawaii-----	31	4,519	5.4	23	3,238	3.8	8	1,281	1.5
Idaho-----	51	3,718	4.8	48	3,333	4.3	3	385	0.5
Montana-----	69	5,707	7.9	67	4,185	5.8	2	1,522	2.1
Nevada-----	27	3,256	5.9	25	2,723	4.9	2	533	0.9
New Mexico-----	64	6,725	5.6	54	4,767	4.3	8	1,458	1.3
Oregon-----	88	12,114	5.4	80	9,347	4.2	8	2,767	1.2
Utah-----	42	4,811	4.1	39	4,240	3.7	3	571	0.4
Washington-----	134	17,554	5.1	121	14,200	4.1	13	3,354	0.9
Wyoming-----	31	2,786	7.8	29	1,873	5.3	2	913	2.5

SOURCE: Dept. of HEW, Vital and Health Statistics, Series 14-16, p. 48 (1974).

TABLE 12

No. 134. NURSING AND RELATED CARE HOMES, BY STATES: 1971 AND 1973

[Data are for places providing some form of nursing, personal, or domiciliary care; standards vary widely among States. For detailed definitions, see source. Count based on periodic surveys]

STATE	FACILITIES		BEDS (1,000)		RESIDENT PATIENTS (1,000)		STATE	FACILITIES		BEDS (1,000)		RESIDENT PATIENTS (1,000)	
	1971	1973	1971	1973	1971	1973		1971	1973	1971	1973	1971	1973
U.S.....	22,004	21,329	1,202	1,277	1,076	1,150	Miss.....	134	141	7.1	7.8	6.2	7.3
Ala.....	192	191	13.4	14.1	12.3	13.4	Mo.....	494	491	32.0	32.9	28.5	30.1
Alaska.....	8	8	7	6	5	5	Mont.....	103	104	4.5	4.6	4.1	4.4
Ans.....	82	88	5.2	6.4	4.6	5.7	Nebr.....	233	228	15.1	16.0	13.7	14.5
Ark.....	218	202	15.1	17.3	13.8	15.6	Nev.....	43	41	1.4	1.5	1.2	1.3
Calif.....	4,277	4,132	146.0	149.0	121.5	128.6	N.H.....	140	128	5.5	5.7	5.0	5.3
Colo.....	212	211	18.4	18.5	14.9	15.1	N.J.....	548	549	30.8	34.4	27.7	31.6
Conn.....	380	365	21.9	22.3	20.6	22.1	N. Mex.....	60	64	3.3	3.0	2.6	2.5
Del.....	34	36	1.9	2.2	1.7	2.1	N.Y.....	1,096	1,069	81.1	90.4	76.3	84.0
D.C.....	73	72	2.8	3.1	2.5	2.7	N.C.....	943	856	19.2	22.0	17.5	19.6
Fla.....	373	360	35.9	35.0	29.6	29.7	N. Dak.....	109	105	6.2	6.3	5.9	6.1
Ga.....	283	304	22.8	25.9	20.8	24.4	Ohio.....	1,191	1,142	50.5	63.8	53.2	58.0
Hawaii.....	132	142	2.3	2.7	2.2	2.5	Okl.....	411	378	26.9	26.1	23.8	23.5
Idaho.....	64	64	3.9	4.2	3.4	3.8	Oreg.....	311	296	17.2	17.1	16.0	15.7
Ill.....	1,046	995	66.9	75.0	61.1	67.5	Pa.....	753	781	57.7	65.1	52.5	60.1
Ind.....	522	472	32.5	31.5	29.0	28.1	R.I.....	183	158	6.5	6.4	6.1	6.0
Iowa.....	747	651	33.8	32.4	30.4	29.4	S.C.....	118	122	7.5	8.0	6.6	7.4
Kans.....	480	444	21.3	21.2	20.0	19.6	S. Dak.....	153	155	7.0	7.5	6.6	7.0
Ky.....	344	308	18.6	17.9	16.5	15.9	Tenn.....	234	233	14.3	14.2	12.2	13.0
La.....	212	193	14.6	14.7	13.3	13.8	Tex.....	937	906	70.8	73.9	60.8	65.3
Maine.....	298	331	7.4	8.1	6.8	7.6	Utah.....	142	119	4.8	4.5	4.4	4.2
Md.....	195	200	14.7	17.0	13.8	15.9	Vt.....	101	100	3.0	3.8	2.8	3.4
Mass.....	960	907	49.7	50.4	48.1	48.8	Va.....	335	340	15.7	15.7	14.1	14.0
Mich.....	562	566	43.3	47.8	40.2	42.3	Wash.....	385	377	28.6	31.0	28.2	28.1
Minn.....	503	561	41.1	42.3	38.0	38.8	W. Va.....	124	136	3.9	4.6	3.5	4.2
							Wis.....	490	503	37.6	50.5	34.0	40.4
							Wyo.....	34	34	1.7	1.9	1.6	1.7

Source: U.S. National Center for Health Statistics, *Health Resources Statistics*, annual.

SOURCE: U. S. Dept. of Commerce, *Statistical Abstract of the United States*, p. 85 (1976).

TABLE 13

STATE COUNTY	HOSPITAL AND POPULATION DATA				
	County Group	Number of Hospitals	Number of Hospital Beds	Resident Population	Income Per Capita Per Household
		December 1, 1974		December 31, 1973	----- 1973 -----

UTAH

UTAH		34	3,690	1,166,900	3,475	11,703
BEAVER	1	2	44	4,000	3,304	10,167
BOX ELDER	3	1	37	30,500	3,627	12,430
CACHE	3	1	126	45,200	2,784	9,460
CARBON	2	1	75	17,500	3,229	9,577
DAGGETT	1			800	2,433	14,600
DAVIS	7	1	74	110,400	3,339	13,211
CLICHESNE	2	1	32	10,800	2,449	8,534
EMERY	1			5,000	2,914	9,105
GARFIELD	1	1	14	3,000	3,173	10,578
GRAND	1	1	38	6,100	2,641	8,952
IRON	2	1	73	13,300	2,707	9,476
JUAB	1	1	31	4,800	2,540	7,621
KANE	1			2,900	3,431	12,438
MILLARD	1	2	54	8,000	2,499	7,997
MORGAN	1			4,400	3,038	10,282
PIUTE	1			1,200	1,797	7,187
RICH	1			2,000	2,420	9,680
SALT LAKE	7	7	1,843	453,100	3,844	12,342
SAN JUAN	2	2	63	11,400	1,963	7,993
SANPETE	2	2	46	12,400	2,546	7,517
SEVIER	2	1	40	11,800	2,940	8,895
SUMMIT	1			6,500	3,628	11,228
TGOELE	7	1	38	23,400	3,783	12,647
UINTAH	2	1	31	15,500	2,954	10,406
UTAH	6	3	429	159,900	2,865	10,855
WASATCH	1	1	40	6,500	2,847	9,738
WASHINGTON	2	1	39	16,200	2,936	9,909
WAYNE	1			1,700	2,361	8,028
WEBER	7	2	523	138,800	3,914	12,488

SOURCE: AMA, Physician Distribution and Medical Licensure in the U.S., p. 307 (1974).

TABLE 14

UTAH

AMERICAN FORK

American Fork Hospital

BOUNTIFUL

South Davis Community Hospital

CEDAR CITY

Valley View Medical Center

GRANGER

Valley West Hospital

LOGAN

Latter-Day Saints Hospital

MOAB

Allen Memorial Hospital

MONTICELLO

San Juan Hospital

MURRAY

Cottonwood Hospital

OGDEN

St. Benedict's Hospital

McKey-Dee Hospital Center

PAYSON

Payson Hospital

PRICE

Carbon Hospital

PROVO

Utah Valley Latter Day Saints Hospital

SALT LAKE CITY

Holy Cross Hospital

Latter-Day Saints Hospital

Primary Children's Medical Center

St. Mark's Hospital

Shriners Hospital for Crippled Children

University of Utah Medical Center

TOOELE

Tooele Valley Hospital

SOURCE: Joint Commission on Accreditation of Hospitals, 1974
Annual List of Accredited Facilities (1974)

SOURCE 15

Emergency Services

Principle

Adequate appraisal, and advice or initial treatment, shall be rendered to any ill or injured person who presents himself at the hospital.

STANDARD I A well-defined plan for emergency care, based on community need and on the capability of the hospital, shall exist within every hospital.

INTERPRETATION The hospital must have some procedure whereby the ill or injured person can be assessed, and either treated or referred to an appropriate facility, as indicated. Most hospitals that offer a broad range of services can provide effective care for any type of patient requiring emergency service. Hospitals that offer a partial range of services may be capable of operating a limited emergency service only, and, therefore, must arrange for the transfer or referral of certain patients to other institutions. Some hospitals may elect to refer all emergency patients. In either case, the referring hospital must institute essential life-saving measures and provide emergency procedures that will minimize aggravation of the condition during transportation. Inherent in this action is the understanding that no patient should arbitrarily be transferred if the hospital where he was initially seen has means for adequate care of his problem. The patient may not be transferred until the receiving institution has consented to accept the patient. A reasonable record of the immediate medical problem must accompany the patient.

The hospital and its medical staff should promote, and help develop, a community-based emergency plan, and should show evidence of such participation. The degree to which a hospital provides emergency care should be guided by the community plan.^{1, 2}

¹For further guidance, refer to *Emergency Medical Services: Proceedings of the Airlie Conference*. (Chicago: The American College of Surgeons and The American Academy of Orthopedic Surgeons, 1969).

²For further guidance, refer to *Developing Emergency Medical Services: Guidelines for Community Councils*. (Chicago: The American Medical Association, 1970).

STANDARD II The emergency service, when maintained, shall be well organized, properly directed, and integrated with other departments of the hospital. Staffing shall be related to the scope and nature of the needs anticipated and the services offered.

INTERPRETATION The emergency service must be well-organized and competently directed. When warranted by its activities and its degree of complexity, the emergency service should be organized as a department.^{3 4} An organizational plan must be developed that identifies the emergency service, its place in the overall hospital organizational plan, and its current relationship to other community emergency services. There should be a chief of emergency service who is a member of the active medical staff and who implements the policies and supervises the professional medical services. In the absence of such an individual, the direction of the medical services may be provided through a multidisciplinary medical staff committee, with the chairman of the committee serving as the chief of emergency service.

The hospital and the medical staff are responsible for ensuring that emergency patient care meets the general standards of care that prevail in other areas of the hospital. Service must be available twenty-four hours a day, and medical staff coverage must be adequate to ensure that an applicant for treatment will be seen within a reasonable length of time relative to his illness or injury. If laboratory procedures are indicated and ordered, due regard must be given to promptness in carrying them out. The quality of emergency care provided shall be measured as part of the hospital's patient care evaluation program.*

Acceptable methods of providing medical coverage include the use of house staff under adequate medical staff supervision, contract groups, whose members must be members of the medical staff, or by having such coverage assumed by the medical staff members. Where the medical staff has assumed the responsibility, all members shall have obligation for emergency room coverage as determined by the medical staff, each according to the limitations of his clinical competence and privileges; specialists in limited practice shall be available on an established schedule for consultation and special services in response to the needs of the emergency patient. When physicians are employed for only brief periods of medical coverage, such as evenings, weekends, or holidays, their professional and personal qualifications shall be evaluated through the established medical staff credentialing mechanism to ensure appropriate licensure, privilege delineation with approval by the governing body, and staff categorization.

There should be an adequate number of nurses for the amount and type of care to be provided. These nurses should have had special training, and must possess the necessary professional skills for the adequate performance of their duties. In hospitals providing complete emergency service, every effort should be made to assign a permanent nursing staff to the area. Hospitals providing limited emergency service should assign an adequate nursing staff that is continuously available for providing this care.

³For further guidance, refer to *Emergency Services in Hospitals*. (Chicago: The American Hospital Association, 1966).

⁴For further guidance, refer to *Emergency Department, a Handbook for the Medical Staff*. (Chicago: The American Medical Association, 1966).

*For a description of the requirements for the hospital's patient care evaluation program, see the Quality of Professional Services section of this Manual.

Cardiopulmonary resuscitative training⁵ shall be required for the physicians, nurses, and all allied health personnel who work in the emergency service.

Participation in emergency care conferences for ambulance personnel,⁶ emergency service personnel, and medical staff should be considered one of the educational responsibilities of the hospital.

STANDARD III Facilities for the emergency service shall be such as to ensure effective care of the patient.

INTERPRETATION The emergency service area should be in proximity to the emergency entrance, and be easily accessible from within the hospital. It should be separate from the surgical suite of the hospital. The receiving area for the emergency service should be kept free of obstruction at all times. The emergency service area should have adequate space, and reception, examination, treatment, and observation rooms should be provided in such numbers, sizes, and arrangements as to ensure effective care of emergency patients.⁷

In hospitals providing extensive emergency care, work areas must be large enough to accommodate the efforts of a multidisciplinary team. It is preferable that all severely traumatized patients be treated in an appropriate area apart from other patients. It is desirable that there be separate rooms for urgent, but limited, surgery and for the treatment of fractures. Because many people, with many different diseases, pass through this area, special emphasis must be placed on procedures designed to eliminate the possibility of contamination and cross-infection.

All instruments and supplies used in the emergency service should be of the same high quality as those used throughout the hospital. Suction and oxygen equipment and cardiopulmonary resuscitation units must be available and ready for use.

Standard drugs, parenteral fluids, plasma substitutes, and surgical supplies must be on hand for immediate use in the case of life-threatening problems, such as shock, hemorrhage, impaired airway, cardiac arrhythmias, convulsive disorders, lacerations, burns, snakebites, poisonings, and fractures. All resuscitation equipment and supplies, including those used for tracheal intubation, tracheostomy, ventilating bronchoscopy, intrapleural decompression, and intravenous fluid administration, must be suitable for adults, children, and infants.

Radiologic and clinical laboratory facilities should be readily available for use at all times. Whenever necessary, patients should be escorted by hospital personnel for laboratory tests and radiological services.

When possible, emergency service personnel should prepare in advance for the arrival of a critically ill or injured patient. The planned reception of patients may be enhanced by a communications system that provides information from persons at the site of an accident or disaster, or in a moving ambulance.

Rapid communication with other departments of the hospital shall be ensured.

⁵For further guidance, refer to *Emergency Resuscitation Team Manual: A Hospital Plan*. (New York: The American Heart Association, 1968).

⁶For further guidance, refer to *Standards for Emergency Ambulance Services*. (Chicago: The American College of Surgeons, 1967).

⁷For further guidance, refer to *Guidelines for Design and Function of a Hospital Emergency Department*. (Chicago: The American College of Surgeons, 1970).

This may necessitate a separate communications system connecting the emergency service and all functionally related areas, such as the blood storage area, the surgical suite, clinical laboratories, and diagnostic radiology.

STANDARD IV **Emergency patient care shall be guided by written policies and shall be supported by appropriate procedure manuals and reference material.**

INTERPRETATION There shall be written policies concerning the extent of treatment to be carried out in the emergency service. Such policies must be approved by the medical staff and by the hospital management. They should be reviewed periodically, revised as necessary, and dated to indicate the time of the last review. Written procedures should be developed that are based upon these policies. The policies and procedures should include at least the following:

- Explicit directions as to the location and storage of medications, supplies, and special equipment.
- Methods for around-the-clock procurement of equipment and drugs.
- Specification of medical staff coverage, lists of medical staff members who are on call, and lists of available special consultants.
- Instructions relative to the notification of the patient's personal physician and the transmission of relevant reports.
- Instructions relative to the disclosure of patient information. The same regulations relative to confidentiality should apply to the emergency room records as apply to other medical records.
- Plans for communication with police and local health authorities relative to accident victims and to patients whose condition, or its cause, is reportable, for example, persons having contagious diseases or victims of suspected criminal acts.
- Instructions relative to the handling of persons who are emotionally ill, under the influence of drugs or alcohol, victims of suspected criminal acts, contaminated by radioactive material,⁸ diagnosed as dead on arrival, or who have conditions requiring special instructions.
- Explanation of the disaster plan and how the emergency service is integrated into it.

Policies and procedures specifically for the medical staff shall relate to at least the following:⁹

- Medical staff obligation for emergency patient care
- Clarification of the levels of professional responsibility as related to assigned clinical privileges
- Procedures that may not be performed in the emergency area, for example, those requiring general or major regional anesthesia which should be performed only in the surgical suite

⁸For further guidance, refer to *Emergency Handling of Radiation Accident Cases*. (Washington, D.C.: United States Atomic Energy Commission, 1969).

⁹For further guidance, refer to *Management of Fractures and Soft Tissue Injuries*. (Chicago: The American College of Surgeons, 1965)

- Circumstances under which definitive care should not be provided, and the procedures to be followed in referring the patient to another institution
- Appropriate utilization of observation beds
- Circumstances that require the patient to return to the hospital for treatment, for example, when treatment is impossible to arrange otherwise
- Procedures for early transfer of severely ill or injured patients to special treatment areas within the hospital, such as the surgical suite, the intensive care unit, or the cardiac care unit
- Instructions to be given to patient and/or family in regard to follow-up care

Current toxicology reference material and antidote information shall be readily available, along with the telephone number of the regional poison control center. Charts relating to the initial treatment of burns, cardiopulmonary resuscitation, and tetanus immunization should be prominently displayed.

STANDARD V A medical record shall be kept for every patient receiving emergency service; it shall become an official hospital record.

INTERPRETATION The medical record shall contain:

- adequate patient identification;
- information concerning the time of the patient's arrival, means of arrival, and by whom transported;
- pertinent history of the injury or illness, including details relative to first aid or emergency care¹⁰ given to the patient prior to his arrival at the hospital;
- a description of significant clinical, laboratory, and roentgenologic findings;
- diagnosis and treatment given;
- the condition of the patient on discharge or transfer; and
- final disposition, including instructions given to the patient and/or his family, relative to necessary follow-up care.

The record shall be signed by the physician in attendance, who is responsible for its clinical accuracy. The emergency service should maintain a control register. The information in the register should be minimal and contain only items necessary for reference. The register should contain at least the name, date and time of arrival, and record number of each patient served. The name of those dead on arrival should be entered in the register.

The emergency room medical records should be used to evaluate regularly the quality of emergency medical care. Medical records of patients dying within 24 hours of admission to the emergency service should receive particular attention. It is desirable that the patient's emergency record be incorporated in his previous hospital record, if he has one, and that a copy be sent to his physician.

SOURCE: Joint Commission on Accreditation of Hospitals, Accreditation Manual for Hospitals, p. 69 (1976).