Regulating Health Professionals: A Review of the Empirical Literature

GARY L. GAUMER

Abt Associates, Inc., Cambridge, Mass.

AS PART OF THE SEARCH FOR AN EFFECTIVE APPROACH to health care cost-containment, existing systems for regulating health professionals are being scrutinized. The federalized system of control mechanisms for credentialing, together with the procedures of accreditation, institutional rationing of practice privileges, peer review, malpractice actions, and the like, supplies a complex and often redundant array of regulations. These devices are manipulated by several federal agencies, each of the 50 states, professional groups, and several private organizations. These regulations are perceived by many to be a significant barrier to ongoing efforts to encourage cost-containment through more widespread use of competitive incentives in the health care industry.

Health manpower regulations govern the locations and settings within which professionals can work and the activities of professionals in the course of their practice. The justification for these controls is the belief that the public interest will best be served if poorly trained, incompetent, and unethical people are kept from practicing. If these regulations are effective, they will ensure the patients' safe treatment by prohibiting some people from pursuing careers and will appropriately modify the behavior of practicing professionals. An unfortunate by-

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product, however, is that regulations limit the numbers, mobility, and activities of practices and professionals. Thus the cost-effectiveness of health delivery systems may be undermined by curtailing the availability of services for some consumers and distorting the incomes, fees, and career mobility of practicing professionals.

United States public policy regarding the stringency of health manpower regulations has shifted in tandem with evolving market circumstances and health policy objectives. Initially, the Constitution delegated responsibility for public activities relating to health professional control to the states in the form of police powers over activities that might threaten the public health and safety. Beginning early in the nineteenth century, a growing population and an expanding frontier increased the demand for medical services beyond the capacity of the existing supply of practitioners. The arguments made at the time for opening up the medical (and legal) professions are now familiar:

- Professionals had sufficiently complicated the process of delivering health care that individuals could not effectively present cases of malpractice before the courts, nor could they acquire the information they needed to care properly for themselves.
- The professional societies had become monopolies in restraint of trade, retarding new developments in health care and restricting entry of those desiring to practice in unorthodox ways.
- The professional societies were fostering a system of medical care that delivered services only to the wealthy and checked the entry of the lower classes into the medical occupations.

The result was a relaxed attitude of states about licensure policy and a significant increase in the number of practicing physicians in the 1870s. In turn, medical societies began to rekindle enthusiasm for rigid state licensure statutes. After the Flexner Report (1910) (medicine) and the Gies Report (1926) (dentistry), both documenting the need for higher quality training and practice, the situation had come full circle: undergraduate medical and dental education became even more scientific, and the professional aspects of training came under the purview of the postgraduate experience. Upgrading the scientific content of professional health education led to the formulation of new occupations and the development of specialties within professions. This trend has continued, resulting in increased specialization and

even more opportunities for professionals themselves to control competence through postgraduate review mechanisms—a process complicated by a need for credentialing a larger number of professions that are fragmented by specialities.

Several fundamental issues must be resolved if the refinements being made in health manpower regulatory policy are to be consonant with the public interest:

- How can the regulatory system be restructured so as to relieve some of the cost and access problems without compromising competency standards?
- How can the regulatory system be made more responsive to the public interest and the interests of all health professionals as opposed to the interests of members of select occupations?
- How can manpower regulations be structured so as to promote competency throughout the duration of professional practice without being unduly burdensome and counterproductive?
- How can the regulatory system be restructured so as to minimize frictions between occupations and allow employers to benefit from the most effective staffing patterns?

These issues evidence a need to incorporate broad policy objectives of cost-effectiveness and equity into the regulatory mission of ensuring professional competency. Reinforcing this need is a body of literature that establishes a strong linkage between the stringency of competency control mechanisms and the availability of services and overall health care costs.

Credentialing

Credentialing is a generic term that refers to several procedures designed to legitimize the roles of health professionals. The most important operational differences among the various credentialing mechanisms—which include registration, certification, and licensure—are the source of legitimacy or information, the rigor of entry screening, and the mechanisms for securing compliance.

Controversy over the appropriateness of different forms of credentialing centers on three issues:

- Do the barriers to occupational entry impose identifiable burdens on access, fees, and service delivery productivity?
- Do states with less restrictive rules suffer adverse health and safety effects?
- If licensing is needed, how can exclusionary burdens be minimized through changes in the structure of the practice act and in the process of administration?

Exclusionary Effects of Credentialing on Occupational Freedom of Choice

One of the principal burdens tight regulation places on occupational entry relates to the aspiring professional's freedom of occupational choice. Supreme Court rulings characterize freedom of occupational choice as an "inalienable right"[1] and the "most precious liberty that man possesses."[2] Yet, in granting what amounts to a monopoly franchise, the licensure act forbids practice by those who are unlicensed and protects the earning power of those with the education and moral stature necessary to become licensed. The exclusionary burden of licensure falls on those who are capable of performing all or part of the licensed tasks in a given state, but who are, for reasons of incompetency or variation from accepted ethical norms, unable to obtain a license and are, therefore, precluded from exercising their right to freedom of occupational choice.

Practice acts delineate career opportunities in two ways. For a particular profession, the practice act specifies the range or scope of tasks that can be performed. By specifying entry requirements, the licensure process also establishes the terms on which movement from one occupation to another can occur. This movement requires the prescribed training for entry into the "higher-level" occupation. Unless its statutory scope of practice is wide, a licensed profession affords little vertical career development.

Groups of health professions have actively sought the legitimacy provided from credentialing. The proliferation of licensed professions has come, in part, as a result of rapidly changing technology, constantly

[1] *Butcher's Union Co. v. Crescent City Co.*, 111 U.S. 746, 762 (1884).
[2] *Bersky v. Board of Regents of New York*, 347 U.S. 442, 472 (1954).

creating new needs for skills, specialties, and subspecialties. With licensure, and the legitimacy it provides, comes balkanization of the health care work force—that is, distinct groups of professionals, each with prescribed job duties. Ironically, boundaries used to define a scope of practice and a limit to encroachment of other workers also limit career mobility of persons in the profession (Curran 1970). Indeed, the proliferation of credentialed professions in health care has created widespread conflict as professionals seek to assume new responsibilities as they acquire experience. According to Greenfield (1969, 101), interoccupational conflict, largely over licensing arrangements, causes

> . . . jurisdictional disputes between contiguous groups such as the LPN, [licensed practical nurse] and RN [registered nurse], the medical technicians and technologists, and even the RN and MD. These interoccupational disputes . . . not only are the source of friction among workers but are also the cause of malutilization of hospital manpower.

Frech (1974, 128) refers to licensure as "the main weapon in each jurisdictional joust." In discussing the effects of the licensure of Child Health Associates in Colorado, Curran (1970) argues that the specificity with which permissible tasks must be stated in the licensure act will result in fewer, rather than more, opportunities for professionals to assume significant new duties.

The research on the potential for safe expansion of the roles of some medical, dental, and inpatient nursing professionals shows that present role limitations may be unnecessarily rigid. For medical and nursing practitioners, an excellent review by Sox (1979) shows that nurse practitioners and other mid-level personnel competently provide many services restricted by law to physicians. For dental professionals, there are similar findings regarding auxiliary staff who are less expensive than dentists (Abramowitz 1966; Abramowitz and Berg 1973; Hammons and Jamison 1967, 1968, 1971; Lotzkar, Johnson, and Thompson 1971; Pelton, Bethart, and Goller 1972; Pelton et al. 1973; Soricelli 1971; Milgrom 1978; Dolan and Milgrom 1980).

In spite of the limits on occupational freedom, legal scholars feel that the courts will continue to defer to the states' constitutional authority rather than substitute their own judgment with regard to the appropriate level of consumer protection. In one scholar's words, "It is more likely that a reviewing court would view a licensing

restriction as a permissible exercise of state regulation of health and safety rather than as an interference with a constitutionally protected right" (MacBridge 1974). The courts have regularly upheld the states' authority to license occupations, however exclusionary the effects. In the words of Justice Black:

> [The Court is not] concerned . . . with the wisdom, need, or appropriateness of the [licensing] legislation. Legislative bodies may have broad scope to experiment with economic problems, and this Court does not sit to subject the state to intolerable supervision.[3]

While courts continue to uphold statutory actions by state legislatures, there are instances where ethical prohibitions fostered by state licensing bodies have been reversed. The basis for these court and FTC actions has been concern about perverse impacts on the marketplace and the consumer, rather than concern about restrictions on freedom of occupational choice. These actions are discussed below, after the review of the accumulated evidence on market impacts of exclusionary practices.

Exclusionary Effects of Licensure on Provider Incomes, Fees, and Health Care Costs

The restrictions that credentialing imposes on occupational freedom of choice, in turn, affect the locational patterns and supply of professionals. A large number of studies have been done that measure the consequences of locational barriers imposed by licensure on fee levels and health care costs.

The findings of studies that examine the effect of licensing stringency on the incomes of dentists suggest that mobility barriers created by licensure work to increase the earning power of dentists in restrictive states. Most studies use the stringency of reciprocity rules as an indicator of restrictiveness. Holen (1965), for example, found that dental incomes are higher in states with restrictive use of reciprocity agreements. Maurizi (1974) and Conrad and Emerson (1981) discovered that dental board testing standards and reciprocity arrangements protect the incomes of dentists. These studies and one by Benham, Maurizi, and Reder (1968) all suggest that dentists tend to locate where there

[3] *Ferguson v. Skrupa*, 83 U.S. 1028 (1963).

is potential for high income, except when reciprocity prohibits them from doing so. A study of dentist and dental hygienist mobility patterns by Conrad and Dolan (1980) showed that reciprocity rules limit the migration of professions into restrictive states. A study by Boulier (1974) provides evidence that the level of difficulty of state exams is adjusted as a means of protecting dental incomes, a finding confirmed by the Benham, Maurizi, and Reder (1968) study.

Stringent licensure of dentists in some states creates significant burdens on consumers in those states who are patients and must pay higher bills, as well as on consumers who have reduced access to dental providers. Using state-level data, one study found that fees are about 15 percent higher in states where entry is limited by the absence of reciprocity agreements (Shepard 1978). In a study using data from individual dentists, it was found that fees were only 5 to 10 percent higher in states with limited reciprocity agreements (House 1979). Shepard (1978) estimates that licensing regulations increased the bill for dental care in the United States during 1976 by $700 million because the existing stock of dentists were unable to move freely between states. Recent attempts to standardize testing for dentists across regions (Regional Dental Testing Boards) should markedly reduce the mobility barriers and diminish the effects cited above.

The consequences of interstate differences in licensing practices are not as striking for physicians as they are for dentists. While there is evidence of correlation between the stringency of the licensing process (measured by state board examination failure rates) and physicians' incomes, there is strong evidence of physician movement into high-income areas in spite of stringent licensing practices (Benham, Maurizi, and Reder 1968). In another study comparing physicians with dentists, the effect of restrictive reciprocity practices in a state was a significant predictor of higher physician incomes, although by not as much as was the case for dental incomes (Holen 1965). The association between income and failure rate may indicate an effort, unsuccessful in the case of physicians, to restrict entry. It may also mean that high-income areas are more likely to attract applicants who are less likely to pass.

These findings are not surprising given the fact that the interstate variations in the degree of stringency of licensure practices is smaller for physicians than for dentists. Moreover, the use of similar exams and extensive reciprocity agreements for physicians limits the opportunities for boards' arbitrary restriction of entry into the states.

There is evidence that state medical boards do exercise control over the number of practitioners in the way they license foreign medical graduates (FMGs). A study by Butter (1976) shows that procedures used by state boards to weight components of the standardized licensing exam provide an opportunity to vary the standards for licensure—in this case, with the result of high failure rates for FMGs in some states. The study did not find any evidence that high failure rates in some states were explained by the lesser competence of their applicants. In another study, the failure rate of FMGs on these exams was more highly correlated with visa status and country of origin than with other factors (such as the training institution) that are more likely to be associated with competence (Butter 1976).

Several studies of the economic effects of interstate variation in licensure stringency for nurses are in disagreement about the consequences for incomes and manpower availability. Monheit (1975) concludes that mandatory nurse licensure for RNs has a positive impact on RN wages and RN employment relative to LPNs. That is, requiring employers to use only licensed nurses appears to result in a restrictive influence on the use of non-RNs and a positive influence on RN wages, presumably because the requirement shrinks the supply of available nurses. In another recent study of nurses and other hospital employees, the stringency of licensure was found to have significant positive effects on wages for RNs, LPNs, and medical technologists in restrictive states (Sloan and Steinwald 1980); wages for RNs are 2 to 3 percent higher, LPN wages are 5 to 6 percent higher, and medical technologist wages are about 13 percent higher than in non-restrictive states. This study did not examine the effects of licensure on staffing mix, but the substantial effects on wages likely have corollary and suppressive effects on employment levels. Contradicting these results, Dusansky and Walsh (1979) found that the geographic variation in nurse employment levels is not due to mandatory licensure, nor do they find any subsidiary influence of state licensure policy on RN wages or employment levels, relative to LPNs. The location of training opportunities and the factors associated with labor force participation rates (e.g., husband's earnings) and the demand for employment (e.g., hospital revenues) were found to be most explanatory of variations in employment patterns.

The work by Sloan and Steinwald indicating large wage effects is probably more valid than that of Dusansky and Walsh. Sloan and Steinwald were able to control for the effects of many extraneous

influences on hospitals' staffing behaviors. Taken together, the Sloan-Steinwald and Monheit findings show a fairly dramatic pattern of effects on hospital wages and employment patterns. Whether higher wages in states with restrictive licensure is accompanied by higher quality nursing care is not known.

Patterns of restrictive entry requirements and higher fees are beginning to emerge for other health professions. In optometry, studies of examination prices and quality have shown that occupational entry restrictiveness are associated with higher fees and no improvement in the thoroughness of exams (Haas-Wilson 1984). In a study of clinical laboratory personnel, White (1979) notes that the exclusionary effects of licensure on fees, incomes, and supply also exist, and can be expected to increase in importance over time. This phenomenon occurs because the number of "grandfathered" personnel exempted from initial compliance decreases over time with their relocation and retirement. The author also notes evidence of the impacts of licensure on laboratory personnel in the forms of reduced employment and higher wages.

The uniformity of findings in the literature on the exclusionary effects of licensure is also reflected in studies on nonhealth professionals. Rayack and Stevens (1975, iii) analyze 12 occupations in 3 states, with data for a number of years on employment and pass/fail rates on exams. They conclude that "the examination process is used to insulate from competition those already licensed."

To summarize, the specific findings about the exclusionary effects of stringent practices for licensing health professionals are the following:

- Interstate differences in licensure stringency inhibit mobility of professionals, driving up fees and incumbent incomes in the most restrictive states.
- Interstate differences in licensure stringency have had adverse effects on the staffing mix and wage levels in dental and inpatient settings.
- Liberalization of reciprocity rules and/or use of national testing would eliminate interstate barriers to mobility and would bring fees and incomes down in the most restrictive states.
- The effects of licensure, however stringent, as contrasted with certification or other nonlicensure credentialing alternatives, are not known and are difficult to study.
- The effects of licensure stringency on health professionals other

than physicians, dentists, nurses, optometrists, and laboratory personnel have not been studied. The consistent findings in professions that have been studied are probably generalizable to other professions that have national job markets—e.g., where job search and employer search are regularly conducted on a national rather than a localized basis.

Practice Act Limitations, Career Mobility, and Health Delivery Productivity

Limitations on the scope of practice of licensed personnel may preclude some options for deploying professionals in the most cost-effective fashion. These problems arise because of explicit limits on numbers of aides (as in some dental practice acts) or because lower level (and less expensive) staff are precluded from performing certain tasks. Staffing-mix rigidities due to licensing may increase the cost of services from health care enterprises and may, correspondingly, limit the opportunities for professionals to assume new responsibilities on the basis of their experience.

The effects of practice-act limitations on the efficiency of health care delivery have been shown to be present in dental care, but the issue has yet to be studied carefully for outpatient and inpatient medical settings. A study of dental service delivery by Conrad and Emerson (1981) indicates that delegation of responsibility to dental hygienists is definitely impeded by state practice acts. They conclude that regulations governing the number of hygienists per dentist result in higher dental fees. A General Accounting Office study (1980) also concluded that expanded use of auxiliary staff would improve dental practice productivity. Work by Lipscomb and Scheffler (1975) indicated that practice revenue might be doubled in a solo dental practice by hiring one auxiliary professional.

For ambulatory medical settings, the evidence is not very compelling. Reinhardt (1970) found considerable opportunity for physicians to employ cost-effectively more aides; however, he does not suggest that the shortfall in productivity is due to licensure restrictions.

There is evidence that liberalization of statutory prohibitions against task delegation in dental and ambulatory settings will not be sufficient to prompt staffing-mix changes. Reinhardt's work (1970) is indicative of this concern, as are survey results for dentists (Cohen 1978; McKenzie

and Born 1973; Leske and Leverett 1976) and for physicians (Lawrence et al. 1977). These surveys show that only about one-third of practitioners would hire an extender, though many approve of the idea in theory. There is a uniform view across all surveys that, without practitioners' exposure to auxiliaries, possibly through a joint training experience, the auxiliaries' employability would not increase.

The effects of licensure on staffing mix for inpatient settings has not been studied carefully. A study of RN/LPN substitution in hospitals (Dusansky and Walsh 1979, 17) found clear evidence that "mandatory licensure does not appear to play a significant inhibitive role in hospital substitution among auxiliary personnel. There is only a slight suggestion that mandatory licensure plays a role in hospital substitution between LPNs and attendants." The study by Sloan and Steinwald (1980) found that wages are higher in restrictive states, suggesting that staffing mix is probably affected, although this problem is not explicitly addressed. Monheit's research (1975) showed that employment levels of RNs relative to LPNs is altered through licensure, but he did not attempt a study of more general patterns of substitution or of the cost-effectiveness of staffing patterns. No other studies were found that examined the effect of licensure on staffing patterns in acute hospital settings. One study of staffing patterns in state mental hospitals (Windham et al. 1978) found that restrictive licensure policies toward FMGs caused institutions to rely more heavily on supervisory, licensed physicians. There was evidence of higher costs when FMGs were subject to strict licensure, though no evidence of concurrent, higher quality patient care was found.

Ethical Prohibitions in Credentialing

In addition to stipulating limits on the scope of practice and the range of delegating authority, licensing acts often include other constraints to ensure ethical behavior. The vast majority of license revocations stem not from incompetence but from violations of these precepts. Many of these requirements for licensure are simply invasive; others, such as advertising bans, may limit the operation of competitive forces. (An example of the former is the application form for the now-defunct character reference program, designed by the American Association of Dental Examiners. On the last page of the questionnaire, there was a notarized statement whereby the applicant waived rights to

denial, confrontation, or rebuttal of any information given to the examiners, and released from liability anyone supplying such data, whether true or false.) These restrictions are vestiges of the objective of maintaining credibility for professions in the eyes of the public. Professional codes often prohibit advertising, limit name identification on products, discourage public evaluation of professional work, and place limits on public indications of the price and quality of services provided. Indeed, the professional ethical standards endeavor to mask any indicators that might show professionals to be engaged in commerce.

Studies of the effects of prohibitions on advertising show that withholding information from consumers will cause the range of prices across sellers to widen and the average of these prices to increase (Stigler 1961, 1968; Nelson 1970; Maurizi 1976). Several studies of optometric goods and services show that prices are much higher in states that restrict advertising. Benham, using 1963 data, found that the price of eyeglasses in states that permitted advertising was about $7.50 lower than in the others, although the savings for the glasses *plus* examination was only about $4.50. However, when the "most" and "least" restrictive states were compared, the differentials widened markedly to $19 and $21, respectively. Benham (1972, 344–45) concludes:

> . . . advertising restrictions in this market increase the prices paid by 25 percent to more than 100 percent. Furthermore, these estimates are likely to understate the total savings to consumers occasioned by advertising, since the search process itself is less expensive when information is more readily and cheaply available.

Optometry has continued to be a fertile area for study due to the wide variation in regulatory restrictions across states. In their initial work, Feldman and Begun (1978) found that both price and quality of eye exams are higher in restrictive states. Lifting the ban on advertising would have the effect of cutting price by 10 percent, although visit length and the amount of capital available would diminish. Extending this analysis, Begun and Feldman (1981) conclude that the combined effects of advertising, employment and branch office restrictions, and continuing education requirements have raised examination prices by 31.6 percent. The advertising restriction alone accounts for an 11 percent price increase. The national income transfer favoring optometry which is created by these regulations is estimated

to be $139.5 million annually. Recent studies by the Federal Trade Commission (FTC) (1980) and Haas-Wilson (1984), using 1978 data, also show that restrictions on advertising and business practices will increase price. These studies used data from several hundred visits to optometrists across the country (where vision care needs were known in advance by the investigators). Quality of the visit was measured by thoroughness of the exam, accuracy of the prescription, and accuracy of the eyeglass lenses. The FTC analysis showed that commercially permissive regulations, in general, and advertising, in particular, tend to reduce prices. Using the same data and adjusting for quality of service and products, Haas-Wilson (1984) finds that elimination of regulatory restrictions in optometry would be associated with a 20 to 25 percent reduction in eyeglass prices, holding other aspects of regulation constant. Neither advertising nor other regulatory policies tend to affect quality levels.

A study by the FTC of veterinary services indicates that restrictions on advertising cause consumers to pay more for routine services (Smith, Teply, and Folsom 1978). A survey was done in 1978 at 216 small animal practices in six large cities. Employing the data on price dispersions for dog spays, the authors calculate that consumers pay an excess of $12 million per year over what they might have paid had no price dispersion existed. They suggest that the "savings from the other routine services is even higher." They do not, however, measure the fraction of the price dispersion due to prohibition of advertising; rather, they contend that advertising restrictions create most, if not all, of the price dispersion and that consumers would realize a substantial savings if advertising were permitted.

A study of advertising restrictions for retail prescription drugs showed that prices are 5 percent higher in restrictive states (Cady 1975). Quality indicators such as availability of credit, home delivery, and waiting-area services were about the same regardless of advertising, though expanded emergency services were more prevalent and family drug monitoring was lower in the states permitting advertising. For prescription drugs, recent work by Leffler (1981) shows that advertising and promotion of new drugs has beneficial effects on the rate of adoption of therapeutically important drugs and tends to make pricing in the drug family more competitive.

A study of the effects of advertising in dentistry shows that liberalization of some states' advertising laws has had a negative effect

on dental incomes (Conrad and Emerson 1981). The research shows that prices advertised for dentures by dentists were often below those being charged by denturists.

The Supreme Court has taken notice of these research findings on the economic effects of advertising prohibitions. Referring to the findings of Benham (1972) about optometric markets, Justice Blackmun wrote, in a landmark case:

> Although it is true that the effect of advertising on the price of services has not been demonstrated, there is revealing evidence with regard to products; where consumers have the benefit of price advertising, retail prices are often dramatically lower than they would be without advertising.[4]

With reference to the impact of this posture on professionalism, Blackmun said:

> (We) find the postulated connection between advertising and the erosion of true professionalism to be severely strained. At its core, the argument presumes that attorneys must conceal from themselves and their clients the real-life fact that lawyers earn their livelihood at the bar. . . . Since the belief that lawyers are somehow "above" trade has become an anachronism, the historical foundation for the advertising restraint has crumbled.

Only two significant court actions have occurred, both supporting the right of professionals to advertise. In the cases of *Bates v. State Bar of Arizona*[5] (lawyers) and *Virginia Pharmacy Board v. Virginia Consumer Council*[6] (pharmacists), price advertising was upheld as a form of free speech as protected under the First Amendment. While both decisions were narrow, failing to clarify issues of nonprice advertising and nonprint media, the FTC has been more aggressive, ordering organized medicine and dentistry to cease attempts to limit advertising among members (Bloom and Stiff 1980). These procompetitive actions have probably encouraged the rapid growth in nontraditional commercial

[4] *Bates v. State Bar of Arizona,* 97 U.S. 2961 (1977).
[5] *Ibid.*
[6] 425 U.S. 748 (1976).

medical practices such as urgent-care clinics in shopping center locations, though no research has yet documented this linkage.

The FTC and court actions have also caused professions to consider recourse potentially available through the *Parker v. Brown*[7] doctrine. This important precedent allows trade restrictions approved by states to be exempt from antitrust liability. The earlier decisions of *Goldfarb v. Virginia Bar*[8] and *National Society of Professional Engineers v. United States*[9] established that professions are not exempt from federal antitrust prohibitions or actions that restrict competition. Consequently, professions might lobby for statutory restrictions on advertising as a way to avoid the federal directives (Heitler 1982). Clearly, the sovereignty of professionals to advertise (as an expression of free speech) and the sovereignty of states to enact legislation which protects the public create a potentially important area of constitutional conflict over advertising and other commercial practices for the health professions.

The research findings on the consequences of ethical prohibitions support the view that the public interest is not being served through continuation of all of these restrictions. However, these research findings cannot necessarily be generalized to cases where advertising is prohibited for nonroutine, highly technical services. In such instances, there is still reason to believe, despite the lack of supporting research, that advertising would not aid comparison shopping by consumers and may, therefore, not further serve the public interest. However, there is certainly no research supporting the view that prohibitions of commercial practices and advertising would benefit the public. It is likely that these kinds of restrictions will serve as a barrier to realizing the gains in economy sought by firms and public programs as they attempt to insert "price sensitivity" into their health insurance policies through the additions of copayments and other forms of cost-sharing.

Effects of Credentialing Practices on the Quality of Care

Because the existing systems of licensure have not eliminated professional judgment errors and careless practice, there are those who would argue

[7] 198 U.S. 795 (1961).
[8] 421 U.S. 773 (1975).
[9] 98 U.S. 1355 (1978).

for more stringent regulatory practices. While there have not been many useful studies of the impact of licensure or other credentialing mechanisms on the quality of services provided, large bodies of research point to the fact that the existing systems of regulation have not eliminated mistakes or poor judgment by providers.

One study indicated that 5 percent of America's doctors are unfit to practice (Derbyshire 1975). Other studies have indicated that between 29 and 62 percent of patients receiving hospital care are victims of serious errors in medical management, resulting in preventable deaths or invalid diagnoses (Trussell 1962), and that between 8 and 22 percent of obstetric patients receive deficient care (Payne and Lyons 1972). A study of medical records in two hospitals revealed that 7.5 percent of all cases indicated physician-inflicted injury (Pocincki, Dogger, and Schwartz 1973). The assessments of physicians' ambulatory care performance is even worse; between 61 and 65 percent of well-care patients received deficient care during their visits to physicians (Payne and Lyons 1972).

Physicians are not the only licensed professionals described by such findings; others simply are not studied as often. A study of the quality of laboratory practices at the Center for Disease Control indicated that slides made from Pap smears containing highly suspicious evidence of carcinoma were missed 30 percent of the time by technicians. Even more disheartening, when this same test was given to pathologists, they missed the suspected carcinomas 37 percent of the time (LaMotte 1976).

This sort of evidence is not intended to disparage the professionals being studied, for it is certain that some of the norms used in these tests to define levels of inadequate performance are quite rigorous. Moreover, health care management is often characterized by uncertainty. Nonetheless, this evidence provides grist for those who wish to perpetuate and even toughen the control mechanisms on health professionals. Second, and more important, the evidence indicates that the current competency control systems are not sufficient to eliminate errors in judgment, obsolete practices, and undisciplined, careless practice. To some observers, this suggests that our mechanisms of control need overhaul, that there may be undue emphasis on the quality of resources and on tests of competence and too little emphasis on actual patient outcomes. Others go so far as to suggest that lifting controls altogether would not lessen the frequency of such findings, but, indeed, might

actually cause the level of competence to rise in response to market pressure (Friedman 1962).

Studies in optometry suggest that regulation does not enhance quality, though it may reduce the price consumers must pay to upgrade quality of service. Studies using data collected by the FTC show no significant effects of licensing restrictiveness on quality of services provided (Haas-Wilson 1984). Here, quality of service was measured by a scale for thoroughness of the optometric exam. Licensing rigor was measured by the failure rate on entry exams. Though suggestive, more work using better quality measures available in the FTC data (accuracy of prescriptions, accuracy of lenses) would be more definitive. Begun and Feldman (1981), using length of exam and number of procedures as measures of quality, find evidence that regulation may prompt more competition on the basis of quality.

Studies of the determinants of the quality of care delivered by physicians support the view that general licensure is not as conducive to quality control as more specific licensure. In a carefully controlled study in Hawaii, Payne and Lyons (1972) found the quality of ambulatory and inpatient care to be better when rendered by a specialist or other physician with extensive experience in treating similar cases. Studies of presurgical screening mechanisms show that surgical recommendations of specialists are overturned in peer review less often than those of nonspecialists (Poggio et al. 1981). These findings confirm the common-sense notion that experience and additional training make a difference.

The effects of licensing on provider mobility and fees point to an adverse corollary effect on quality of life for residents of restrictive states; by excluding manpower from the state and driving up the fees of incumbent practitioners, restrictive states deprive some consumers of services. Thus, the consequences of restrictive state-licensure policy will be to force some consumers to forego services altogether. This deleterious effect on access and the health status of the population has not been documented by research. These effects should be stronger in dentistry than in medicine, for two reasons. First, the exclusionary consequences of state licensure were found to be more pronounced for dentistry. Second, dental care consumption is much more sensitive to fee variation than is medical care, for which insurance coverage is much more common.

An indirect way of asking if licensure ensures competence and high-quality services is indicated by those studies investigating whether

the quality of care would be impaired if tasks were performed by people not meeting the criteria for licensure. Many studies on both the medical and dental professions have been done, all of which show that the quality of care would not suffer if licensure policies were selectively liberalized allowing mid-level practitioners to perform some tasks now reserved only for dentists or physicians. (Sox [1979] reviews the medical literature. For dentistry, see Abramowitz [1966] Abramowitz and Berg [1973]; Hammons and Jamison [1967, 1968, 1971]; Lotzkar, Johnson, and Thompson [1971]; Pelton et al. [1972, 1973]; Soricelli [1971]; and Dolan and Milgrom [1980].) Studies of dental mechanics (denturists) in Canada are indicative of the general thrust of most findings. Hammons and Jamison (1967) found that carefully selected high school graduates could be trained to do most basic dental procedures at a level of competence at least as great as that achieved by dental students in their final year of study. The possibility of paying lower prices (fees) to less intensively trained providers would improve access by more of the population, and thereby contribute positively to the population's general dental health status.

Ensuring Competence

Evidence of the efficacy of mechanisms used within the licensing process to control competence offers corroborating evidence that licensing practices do little to increase the quality of professional practice. For example, according to a survey of deans and professors of dentistry, 49 percent of the deans and 39 percent of the professors believed that licensing boards do not accurately assess the practice competence of applicants (American Dental Association 1972). The research points to several reasons for such findings. First, licensure criteria are heavily based on considerations other than practice performance, namely, on a test of student performance; that is, the standard for competence is the assimilation of the concepts and scientific content of the educational program. Performance in the treatment of clients is not part of the screening protocol, nor is performance subsequent to the initial credentialing an area of concern. At issue here is the "validity" of the test used to screen licensing applicants; the inadequacy of a test of the performance of a student as a predictor of practice performance (Williamson, Alexander, and Miller 1976).

This issue is actually only a glimpse at a larger problem, that of

developing a consistent set of interlocking relationships among curriculum content, credentialing, and subsequent practice performance. Within the federal government, studies are under way to identify the functional or task content of professional practices with the hope that both curricula and credentialing practices can ultimately be made more conformable with the actual practice requirements.

The efficacy of licensure practices to regulate competence is further undermined by a reluctance to enforce compliance in cases of identified incompetence. Medical boards in many states do not even specify incompetence as grounds for disciplinary action. In a study by the staff of the Senate Subcommittee on Health of the Committee on Labor and Public Welfare in 1976, it was noted that only 12 physicians in the entire nation lost licenses during 1975 because of incompetence or malfeasance. The reluctance of licensing bodies to impose sanctions gives rise to skepticism as to whether the licensing function provides any useful incentives for, or represents any effective control over, competence at all.

One contemporary licensing tool that is used to promote continuing or lifetime competence is mandatory continuing education. The use of continuing education is expanding, but without any hard evidence of its efficacy in promoting competence. In California alone, 40,000 physicians participated in continuing education activities in 1978 for a total of 9.6 million credit hours. In response to physician recognition award (PRA) standards used in many states for licensing, certification, or membership in medical societies, an estimated annual expenditure of $3 billion is made; the expenses are, of course, eventually passed on to consumers, who reap an uncertain benefit in terms of quality. For example, states often allow courses in office management and estate planning, and Ohio gives credit for reading medical journals or appearing on television shows.

In studies of the effectiveness of continuing education activities, researchers conclude that courses without specific behavior-changing objectives are not useful. The objectives can be generally based (determined by the educators) or problem-specific (determined through identification of dissatisfactions with provider behavior). Early work by Peterson et al. (1956) demonstrated that, judging by observers' findings on the practitioner at work, education had no effect. In a statewide study of voluntary programs available to all Kansas physicians

for a period of 10 years (1956–1965), the investigators found that 7 percent of all MDs consumed half the continuing education credit awarded. More important, there was no relation between credits awarded in obstetric and pediatric courses and perinatal death rates (Lewis and Hassanein 1970). Recent graduates were, unfortunately, found to be higher users than the older physicians. In an earlier study of 41 Kansas physicians and 1,093 of their patients, the authors found no evidence of behavior change among those attending continuing education activities. They did find, however, that the more competent physicians were more likely to enroll in the courses (Roney and Roark 1967).

Kane and Bailey (1971) note in their study of an "objectiveless" course in early cancer detection that physicians were not encouraged to make sufficient use of Pap smears. They emphasize that, had the course focused specifically on getting physicians to do more of these screening tests, results might have improved. Inui, Yourtee, and Williamson (1976), in an evaluation of a very focused continuing education situation (designed to increase patient compliance with physician orders about hypertension), found favorable responses of the physicians and of their patients. However, in a recent random study covering problems confronted in a general practice (Sibley et al. 1982), no overall impact of the educational program was observed on quality of patient care. The educational program did have favorable effects on the subset of issues that were *not* preferred study areas by the participating physicians. The investigators conclude that mandatory programs of continuing education that allow MDs to choose their areas of study are both burdensome and fruitless.

In dentistry, a study to teach four-handed dentistry was shown to be quite successful in altering specific behaviors; in fact, the authors noted on poststudy site visits a tendency on the part of dentists to "modify" course concepts to "fit" their practice (Chambers et al. 1976). Work by Condon (1971, 1972) shows that objective-oriented, specially designed in-service training programs altered the behavior of nurses. In a thoughtful review of the issues in continuing education, Dixson (1977) notes that useful courses must not only focus on specific objectives to alter behaviors but must also use carefully selected behavior-modifying objectives. Suitable objectives are those that are either patient outcomes or are known to be related to patient outcomes.

The tendencies we note from these studies are that the "best"

practitioners are most prone to enroll in voluntary programs but that, no matter who enrolls, it is difficult to change behavior back at the office. Similar findings have been found for dentistry (Long 1969; Ryan 1971; Gessner 1973). These studies also show that, if continuing activities are focused on specific provider deficiencies, the likelihood of favorable results is increased. Brown and Uhl (1970) argue persuasively that a focus on physician-specific needs, identified through audit, will produce the largest changes in behavior.

It should not be concluded that the efficacy of continuing education has always been thought to rest on behavioral change in practice behavior or in patient outcomes. Many course sponsors believe that changes in attitude, pre/posttesting proficiencies, and assessment of the quality of the course itself are suitable guides to the effectiveness of courses. A survey of such activities in nursing by Forni and Overman (1974) showed that of 18 educational projects, 14 were evaluated on the basis of some form of "happiness" index. Most of this nonoutcome sentiment has disappeared, at least in medicine, following the study done on the "Dr. Fox Lecture" (Naftulin, Ware, and Donelly 1973), where it was shown that participants rated a course highly on each of a number of features, even though the material was specifically designed to be void of logic and relevance and contrary to truth, and the teacher was a trained actor. Clearly, an educational experience cannot be judged on the basis of how well it is received by the participants (Chambers et al. 1976). Studies by McGuire et al. (1964) offer less visceral, more scientific evidence of the failure of subjective opinion to proxy behavioral change. They found that courses favorably received did not prompt the desired changes in patient care behavior.

This literature suggests that, if credentialing is to be relied upon to ensure competence, both the initial and subsequent performance checks must better link actual practice behavior to the content of educational processes and to the performance measures used in the credentialing process. Clearly, a credentialing system based on "competence" rather than "evidence of being able to be competent" offers more hope for ensuring quality care. The idea of pegging continuing education to areas where there is evidence of chronic incompetence is an appealing one; it puts educational resources where they do the most good for patients, and it signals a possible break in the tradition of basing licensure on structural factors such as educational achievement and test-taking ability.

The Effects of Other Regulatory Mechanisms

A variety of mechanisms other than credentialing presently control aspects of practicing behavior and manpower distribution and indirectly influence the competence of professionals and the costs of care. They include:

- accreditation of training institutions;
- granting of hospital admitting privileges;
- third-party reimbursement privileges;
- review by professional review organizations; and
- threats of malpractice actions.

The practice for accrediting educational programs represents the most binding constraint on the availability of professionals and on their levels of practice competence. No research exists on the consequences of stringent accreditation for the quality of care, though much has been written about the link between the tightening of these controls (as was done early in this century) and the growth of specialization and consequent growth in professional control of practice through specialty boards (Stevens 1971).

Strengthened accreditation policies had an immediate effect on medical education following the Flexner (1910) (medical) and Gies (1926) (dental) proposals for reform. For example, following the Flexner report the number of medical schools dropped from more than 130 to about 78, where it remained until the 1970s; the number of graduates per year fell from over 4,000 to about 3,000 (Frech 1974). (For blacks the reforms were clearly a source of discrimination; the number of predominantly black medical schools fell from 7 to 2 and the percentage of blacks in the physician population also fell. For females the discriminatory effects were similar. The proportion of physicians that were female fell from its peak in 1910, and even the absolute number of female physicians fell.)

An opportunity for measuring the effect of stringent accreditation on professional availability is indicated in the research demonstrating the high economic value of an admission to health professional schools. Theorists note that the restrictions on admission to professional schools are a potentially more binding constraint on availability than any other type of control. Building on this notion, studies have measured

the economic consequences of an admission to the highly competitive professional schools. The income earning potential of physicians and dentists, when compared to that of other professionals for whom accreditation is not as important, suggests that the admission itself (like a taxi medallion or an FCC license) has an economic value. In both medicine (Sloan 1970) and dentistry (Maurizi 1974), the returns on professional training are about twice as high as the returns on alternative professional training, suggesting the presence of restrictive monopoly privileges accruing to the fortunate few who are admitted. Mennemeyer (1978) has estimated that physicians and dentists earn rates of return on their educations (discounted at 4 percent) which are respectively 44 percent and 24 percent higher than the rate of return earned by Ph.D.s in the life and physical sciences. Dresch (1981) estimates that the economic value of the "acceptance" to medical school is equivalent to an annual annuity of $4,000 over a 47-year period.

Hospital practice privileges offer a legally acceptable and often stringent check on the competence of professionals to perform some specialized tasks. It is well documented that hospitals have restricted the growth and legitimacy of some health professionals by not extending admitting privileges to podiatrists, midwives, chiropractors, clinical psychologists, and others (Pollard and Leibenluft 1981). Even for physicians, many institutions reserve the right of conferring certain privileges on practitioners who meet standards of competence higher than those required for licensure. Legal precedent allows such restrictions. In *Ferrante v. City of New York*,[10] the New York Supreme Court held that the city hospitals could limit the practice of surgery to board-certified surgeons. A similar ruling was made in the case of *Dade County v. Trombly*.[11] One reason why hospitals are inclined to adopt higher standards than are required for licensure is that they are liable for negligence, not only of their employees but of their practicing physicians as well. In the precedent-setting case of *Darling v. Charleston Community Hospital*,[12] the opinion stated:

[10] 17 N.Y. 616 (1964).
[11] 104 Fla. 606 (1958).
[12] 86 U.S. 1204 (1966).

> The Standards for Hospital Accreditation, the state licensing regulations and the defendant's bylaws, demonstrate that the medical profession and other responsible authorities regard it as both desirable and feasible that a hospital assume certain responsibilities for the care of the patient.

Most hospitals do limit the privileges of general practitioners (Rayack 1967). Patient outcome studies by Payne and Lyons (1972) support the restrictions of certain types of privileges (surgical) to only board-certified or board-eligible practitioners. The practice of restricting practice privileges to "certified specialists" does, of course, enhance the role of the certifying boards in the regulatory process. Specialty certification per se has no bearing on occupational freedom in the eyes of the state.

Like hospitals, third-party payers often have more restrictive standards of competence than does the state. While licensure is always a necessary prerequisite to eligibility for reimbursement, third-party payers often determine practitioners' eligibility to care for their subscribers and, more important, refuse to reimburse them for certain types of services under the terms of the contract. Public payers, such as Medicare and Medicaid, certify the adequacy of institutional providers and also determine the eligibility of individuals to receive reimbursement. With their authority to withhold reimbursement, third parties, including government, have ultimate control over the attractiveness of health careers. The research showing earning potential as a determinant of availability of professionals also suggests that, as the scope of insured services increases, third-party control over professional standards increases as well.

Professions have sought control of third-party reimbursement policy. Langwell and Moore (1982) review the research on profession control of third-party reimbursement policy. They conclude that evidence on physician control of Blue Shield plans and dentist control of Delta dental plans is ambiguous on the issue of provider control of fee levels. For physicians, there is some evidence that professional control of membership on Blue Shield boards has contributed to payment of higher fees (Kass and Pautler 1979).

Recent changes in hospital reimbursement policy by Medicare can be expected to have pronounced effects on physician practices within institutions. Under the new prospective-payment system, the hospital

is paid a fixed price for each type of patient. The hospital is at financial risk for the level and mix of hospital services prescribed by the admitting physician, including excessive laboratory testing and unnecessarily long lengths of stay. Consequently, hospitals will have little recourse but to become more aggressive in their scrutiny of physician behavior. Some admitting physicians will lose privileges as a result. The degree of hospital "leverage" will also increase as physician supply increases and competition for privileges intensifies. Interestingly, such regulation by hospitals is not necessarily related to competency, but related instead to the cost-effectiveness of physician practice patterns.

Organized peer review has been found to be influential in reducing hospital costs, but little evidence exists that the professional review organization (PRO) mechanism will improve competence. Little is known about the effectiveness of this control mechanism; however, some evidence exists which suggests that hospital expenditures have been reduced as a result of elimination of unnecessary testing and excessively long periods of hospitalization (Institute of Medicine 1976; Brook, Williams, and Ralph 1978; Health Care Financing Administration 1979).

No research has been done to determine the value of PRO review to clinical competence per se and only recently has research begun on the effects of experimental PRO monitoring of behavior in ambulatory settings. The study by Brook, Williams, and Ralph (1978) of the experimental medical care review organization (EMCRO) program in New Mexico, a precursor of PRO, showed that organized peer review did reduce the number of unnecessary injections. In a study of PRO activities in long-term care settings, researchers were not able to confirm that PRO activities increased the quality of care; however, they were optimistic that they had the potential for identifying deficiencies in care (Rand Corporation 1979). On balance, there is little in the extant research to suggest that organized peer review, whether of the PRO or other forms, can be relied upon to control the level of competence in professional practice.

Malpractice actions represent a limited and ex post facto method of seeking redress of incompetent actions of professionals. Malpractice is essentially a mechanism of client recourse for damages caused by professionals who do not exercise reasonable and customary care in their actions. Its use reflects the inadequacy of other mechanisms of

competence control. "What seems clear is that malpractice suits are a symptom rather than a cure of the current malaise of state regulation [of competence]" (Blair and Rubin 1980). These authors argue that the growing use of this final enforcer of competence is the result of heightened consumer litigiousness, higher expectations of professional performance, the impersonality of professional service delivery, a breakdown in professional screening and discipline due to the growth in the number of practicing professionals, and ambitions of malpractice lawyers.

Even though malpractice represents a final screen on competence, studies by the Commission on Medical Malpractice (1973) found that only about 6 percent of physician-inflicted injuries eventually resulted in a suit. There is also reason to believe that reliance on malpractice to regulate quality will increase costs to the extent that its threat warrants expensive insurance coverage and creates defensive practices by practitioners, which tend to feed the cost spiral. Greenwald and Mueller (1978) find that rising risks of malpractice actions have caused increases in physician and hospital costs which exceed the increases in malpractice premiums. Their findings are consistent with the survey finding that more than half of United States physicians believe they practice defensive medicine (Commission on Medical Malpractice 1973). Not only is reliance on malpractice an expensive form of regulation but there are risks that defensive medicine may actually be harmful to the public.

> Forty years ago . . . malpractice resulting from an injury caused by improper therapy was almost an impossibility, since most therapies were placebos. . . . Today . . . unfortunately, new therapies are also capable of producing serious iatrogenic disease (Brook, Brutoco, and Williams 1975, 1209).

It does appear that malpractice, despite its perceived prevalence, is a poor substitute for other competence-control mechanisms, and that reliance upon it is ill-advised and may promote overuse of costly "defensive" services.

Proposals are beginning to be heard in Congress, which, if enacted, would dramatically reduce the financial risk of medical incompetence. Medicare beneficiaries would be precluded from collecting any punitive damages from physicians who participate (those who accept assignment)

in the Medicare program. If enacted, this proposal would, among other things, dilute financial incentives inherent in malpractice threats to maintain competence.

Summary and Implications

Research evidence does not inspire confidence that the wide-ranging systems for regulating health professionals have served the public interest. Though researchers have not been able to observe the consequences of a totally unregulated environment, observation of *incremental* variations in regulatory practices generally supports the view that tighter controls do not lead to improvements in quality of service. The research is quite clear that restrictive practices invariably contribute to higher fees and practitioner incomes, thereby benefiting the protected professional groups at the public's expense. This evidence of self-serving regulation is particularly compelling for advertising and other ethical prohibitions, which limit competition and cause markedly higher fees without evidence of improving quality.

The public health of citizens may well be harmed by severe regulatory restrictions limiting citizen access to services. Research suggests two mechanisms which may restrict access. First, there is accumulating evidence that exclusionary practices may prohibit capable and experienced persons from practicing, thereby restricting the supply of available professionals. Second, artificially elevated fees will preclude access to some persons for whom ability to pay is a problem. No doubt price rationing is more of a problem for services that are not frequently insured, like optometric and dental services.

The available research does not suggest that existing systems of regulation have effectively controlled initial or subsequent competency of professionals. Each of the noncredentialing controls on professional manpower is predicated on a useful but insufficient set of concepts for ensuring competence. Peer review of deficiencies and malpractice sanctions are useful in very limited ways to control competence once professionals are already in practice, but they provide no guarantee of initial competence. Accreditation of training institutions, on the other hand, can be employed to control the level and types of educational experiences of aspiring professionals, but this form of regulation fails to monitor actual practice behavior. Controls used by third-party insurers may be motivated (and distorted) by financial considerations.

Control of hospital practice privileges can be based on direct observation, yet many professionals do not need to exercise such privileges in order to care for their clients.

Credentialing regulations, then, seem, in theory, to be the most comprehensive set of mechanisms for monitoring both initial and subsequent competence. Yet, the research on credentialing shows that: contemporary credentialing procedures may not be reliably screening actual practice competence; they certainly are not effective in ensuring lifetime competence; and the current practice of credentialing can have undesirable consequences for access and health care costs.

In addition to the liberalizing actions taken by the courts and the FTC, many states have begun to reform their credentialing practices, with the general aim of making regulation more accountable to broad public interests and less responsive to the narrow interests of particular professions.

While reforms have tended to focus on relieving deleterious economic side effects of credentialing practices, the presumption of need to regulate competency remains. Little has been done to make credentialing practices more reliable in ensuring practice competence. One proposal being made to improve competency is mandatory relicensure. Mandatory relicensure at regular intervals focuses on lifetime (rather than initial) competence. The research offers three pertinent findings relating to the value of systems of relicensure. First, the research on competence and quality of care indicates that professional obsolescence is a real concern. There is a need for augmenting the knowledge base and clinical skills as technology changes and as encounters with particular case problems and clinical tools become less frequent as a result of specialization. Second, the literature advises that implementation by states of more obtrusive systems of credentialing offers the potential for even wider interstate disparity in stringency. These variations have consistently been shown to hamper professional mobility across states and to place access, fee, and health care cost burdens on residents in the most restrictive states. Third, the research shows that current credentialing methods for assessing patient care competence (initial or periodic) are not reliable and that current techniques for disseminating new skills are not effective in altering actual behavior. The only demonstrably reliable way to monitor continued competence and remedy deficiencies is through the use of "output monitoring" and corresponding deficiency-oriented training. For these reasons, standards for relicensure

are not likely to be effective in relieving the inadequacies of current licensing practices.

As noted above, most refinements in credentialing attempt to make regulators more accountable to public interests by granting regulatory authority to a board or agency. The most popular and politically acceptable change has been the use of sunset provisions for licensing boards. This attempt to extract accountability through periodic scrutiny has been employed in 35 states. Clearly, the purpose here is to regulate the regulators. Attempts to make licensing boards accountable for their actions, rather than assuming accountability because of their composition, may encourage higher rates of sanctions and possibly more evaluative research. However, there is no evidence to suggest that this form of scrutiny will constitute anything more than a resource allocation tool for state budgeting purposes. For sunset provisions to contribute the appropriate incentives, it will be essential to stipulate achievement of public objectives of accessible and cost-effective services as criteria to be met in the sunset performance evaluation. While the notion of accountability is laudable, the problems of measurement of board effectiveness on dimensions of access, cost, and quality are likely to be prohibitively large.

The second type of refinement that is being proposed for credentialing systems is an alteration of the structure of the licensing agency. One such approach is to change the locus of the licensing function to a state regulatory agency, providing a better opportunity for integrating the manpower and cost policies of the state into the competence control process. The problems of proliferation of credentialing, coordination of tasks across professions, and the continued threats of board control by the professions can be addressed through creation of a centralized administrative body within the state vested with legislative authority to license by regulation, rather than by statute. States such as California, Michigan, Virginia, and Minnesota have implemented such systems. Another variation of this approach is to group related professions together on boards, while continuing to license them separately (for example, physicians, physician assistants, and nurse practitioners). This administrative change will shift the disputes over roles and responsibilities from the legislature to the board.

A recent proposal by Cohen (1980) would attempt to combine some of the best features of these reforms. Fundamental to this proposal is the belief, overwhelmingly supported in the literature, that the public

interest will continue to be compromised in favor of professional interests as long as boards are dominated by professions. He argues:

> Expectations [of public accountability] are ephemeral as long as the professions continue to dominate the boards. Health care delivery has become so complex and politicized that virtually *any* decision coming before these gatekeepers can have enormous impact on matters of quality, access, distribution and the cost of health care (Cohen 1980, 303).

The proposal includes a board for each cluster of professions to be regulated by the state. The board would be composed of persons having no self-interest in the professions being regulated, but would have statutory responsibility for formally consulting with members of the various professions, who can contribute necessary technical opinions. At present, the only forum for the public and other interested professions to comment on decision making is the legislature. Even in states like Minnesota, which have a centralized agency to administer credentialing activities, there is no provision for internalizing commentary from other related professions.

No research has been done on the "performance" of these new statutes or proposals in achieving the objectives noted above. There seems to be no indication that such systems will eliminate state disparities in licensing stringency or in the lifetime competence of professionals. Both of these factors were noted in the research as important to the efficacy of regulation. These systems, however, may help to make the license-granting process more rational, in that the central agency may become a forum for internalizing state manpower planning concerns, interoccupational conflicts, and service delivery productivity losses. The California statute is notable in its encouragement of "experiments" in education and delivery for members of new professions. This promises to be a liberalizing force in times of expanding technologies—one that welds education, practice, and regulation into a more coherent package.

While the ideal solution to problems caused (or not solved) by existing regulatory systems is not obvious, federal reforms of the exclusionary aspects of credentialing and those provisions relating to ethical prohibitions do seem essential if the current policies to contain health care costs are to succeed. Based heavily on incentives for patients and payers to engage in comparison shopping, these

procompetitive policies will necessitate the development of information about the range of market options. Without ready access to information, the policies will fail to exploit fully the opportunities for cost-containment. Fortuitously, large increases are expected in supplies of medical manpower. The pressure on fees, incomes, and admitting privileges that can be expected to occur has a potential for significant (favorable) impact on health care costs and access to services. Through reforms of the exclusionary and self-serving aspects of credentialing, these regulations will better serve the public interest in providing cost-effective and accessible health care services.

References

Abramowitz, J. 1966. Expanded Functions for Dental Assistants: A Preliminary Study. *Journal of the American Dental Association* 72:386–91.

Abramowitz, J., and L.E. Berg. 1973. A Four-Year Study of the Utilization of Dental Assistants with Expanded Functions. *Journal of the American Dental Association* 87:623–35.

American Dental Association. 1972. Survey of Attitudes on Dental Licensing Procedures. *Journal of the American Dental Association* 85 (Dec.):1269–1304.

Begun, J., and R. Feldman. 1981. *A Social and Economic Analysis of Professional Regulation in Optometry*. Research Report Series, DHHS PHS81-3295. National Center for Health Services Research, April.

Benham, L. 1972. The Effects of Advertising on the Price of Eyeglasses. *Journal of Law and Economics* 12 (Oct.):337–52.

Benham, L., A. Maurizi, and M. Reder. 1968. Migration, Location and Remuneration of Medical Personnel: Physicians and Dentists. *Review of Economics and Statistics* 50 (Aug.):332–47.

Blair, R.D., and S. Rubin. 1980. *Regulating the Professions*. Lexington, Mass.: D.C. Heath.

Bloom, P., and R. Stiff. 1980. Advertising and the Health Care Professions. *Journal of Health Politics, Policy, and Law* 4(4):642–56.

Boulier, B.L. 1974. Two Essays in the Economics of Dentistry: A Production Function for Dental Services and An Examination of the Effects of Licensure. Ph.D. diss., Princeton University.

Brook, R., R. Brutoco, and K. Williams. 1975. The Relationship between Medical Malpractice and Quality of Care. *Duke Law Journal* 6:1197–1231.

Brook, R., K. N. Williams, and J. E. Ralph. 1978. Controlling the Use and Cost of Medical Services: The New Mexico Experimental Medical Case Review Organization. *Medical Care* 16(9 suppl.):1–76.

Brown, C., and H. Uhl. 1970. Mandatory Continuing Education—Sense or Nonsense? *Journal of the American Medical Association* 213:1660–68.

Butter, I. 1976. *Foreign Medical Graduates: A Comparative Study of State Licensure Policies.* NTIS PB 265 233. Hyattsville, Md.: National Center for Health Services Research.

Cady, J. 1975. *Drugs on the Market.* Lexington, Mass.: D.C. Heath.

Chambers, D.W., D. Hamilton, L. McCormick, and D. Swendeman. 1976. An Investigation of Behavioral Change in Continuing Dental Education. *Journal of Dental Education* 40:546–51.

Cohen, H. 1980. On Professional Power and Conflict of Interest: State Licensing Boards on Trial. *Journal of Health Politics, Policy, and Law* 5(2):291–303.

Cohen, L.A. 1978. Some Variables Affecting Dentists' Desire to Use Expanded Duty Dental Auxiliaries. *Journal of the American Dental Association* 97:970–77.

Commission on Medical Malpractice. 1973. *Medical Malpractice.* DHEW 73-88. Washington.

Condon, S.M.B. 1971. Teaching the Teachers. *Nursing Outlook* 19: 804–6.

———. 1972. Inservice Education; Impact on Patient Care. *Journal of Continuing Education in Nursing* 3:34–38.

Conrad, D.A., and A. Dolan. 1980. *The Assessment of Anti-Trust Actions Affecting Dentistry.* Seattle: University of Washington, Center for Health Services Research.

Conrad, D.A., and M.L. Emerson. 1981. State Dental Practice Acts: Implications for Competition. *Journal of Health Politics, Policy, and Law* 5:610–30.

Curran, W.J. 1970. Health Services Manpower Roadblocks: Legislative Measures to Facilitate the Development of Allied Health Manpower Roles. Paper presented to the American Public Health Association, Houston, October 26.

Derbyshire, R.C. 1975. Out of the Licensure Jungle at Last? *Connecticut Medicine* 39:185–88.

Dixson, J.K. 1977. Methodological Considerations in Evaluation of Continuing Education in the Health Professions. Paper presented at the American Educational Research Association, New York, April 4.

Dolan, A., and P. Milgrom. 1980. Why Not an Independent Practice for Dental Hygienists? *Women and Health* 5(2):31–48.

Dresch, S.P. 1981. Marginal Wage Rates, Hours of Work, and Returns to Physician Training and Specialization. In *Issues in Physician Reimbursement,* ed. N.T. Greenspan, 165–200. HCFA 03121. Washington: Department of Health and Human Services, Health Care Financing Administration.

Dusansky, R., and J. Walsh. 1979. The Impact of Mandatory Licensure on Wages, Employment, and Location: The Case of Nurses. Paper presented at the International Atlantic Economic Conference, February.

Federal Trade Commission. 1979. *Consent Order, in the Matter of California Medical Association.* Washington.

———. 1980. *State Restrictions on Vision Care Providers; The Effects On Consumers.* Washington.

Feldman, R., and J. Begun. 1978. The Effects of Advertising Restrictions; Lessons from Optometry. *Journal of Human Resources* 13:247–63.

Flexner, A. 1910. *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching.* Bulletin #4. New York: Carnegie Foundation.

Forni, P.R., and R.T. Overman. 1974. Does Continuing Education Have an Effect on the Practice of Nursing? *Journal of Continuing Education in Nursing* 5:44–51.

Frech, H.E. 1974. Occupational Licensure and Health Care Productivity: The Issues and the Literature. In *Health Manpower and Productivity,* ed. J. Rafferty, 119–39. Lexington, Mass.: D.C. Heath.

Friedman, M. 1962. *Capitalism and Freedom.* Chicago: University of Chicago Press.

General Accounting Office. 1980. *Increased Use of Expanded Function Dental Auxilliaries Would Benefit Consumers, Dentists, and Taxpayers.* HRA 80-51. Washington.

Gessner, P.K. 1973. Evaluation of Instruction. *Science* 80:566–70.

Gies, W. J. 1926. *Dental Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching.* Bulletin #19. New York: Carnegie Foundation.

Greenfield, H.I. 1969. *Allied Health Manpower: Trends and Prospects.* New York: Columbia University Press.

Greenwald, B., and M. Mueller. 1978. Medical Malpractice and Medical Costs. In *Economics of Medical Malpractice,* ed. S. Rottenberg, 65–86. New York: American Enterprise Institute.

Haas-Wilson, D. 1984. Asymmetric Information, Regulation, and Quality Adjusted Prices: The Case of Optometry. (Unpublished dissertation research, University of California, Berkeley.)

Hammons, P.E., and H.C. Jamison. 1967. Expanded Functions for Dental Auxiliaries. *Journal of the American Dental Association* 75:658–72.

———. 1968. Increasing the Productivity of Dental Auxiliaries. *American College Dentists Journal* 35:154–60.

———. 1971. Quality of Service Provided by Dental Therapists in an Experimental Program at the University of Alabama. *Journal of the American Dental Association* 82:1060–66.

Health Care Financing Administration. 1979. *PSRO 1979 Program Evaluation.* HCFA 03041. Baltimore, Md.: Office of Research, Demonstrations, and Statistics, Health Care Financing Administration.

Heitler, G. 1982. Antitrust, Restraint of Trade, and Unfair Business Practices; Impact on Physicians. *Journal of Legal Medicine* 3(3):443–60.

Holen, A. 1965. Effects of Professional Licensing Arrangements on Interstate Labor Mobility and Resource Allocation. *Journal of Political Economy* 73:492–98.

House, D. 1979. Regulation in the Market for Dental Care; Implications of a Full Price Clearing Mechanism. Paper presented at the Eastern Economic Association, Boston, May.

Institute of Medicine. 1976. *Assessing Quality in Health Care.* Washington: National Academy of Sciences.

Inui, T.S., E.L. Yourtee, and J.W. Williamson. 1976. Improved Outcomes in Hypertension after Physician Tutorials. *Annals of Internal Medicine* 84:646–51.

Kane, R., and R. Q. Bailey. 1971. Evaluation of a Postgraduate Educational Programme in Early Cancer Detection. *British Journal of Medical Education* 5:134–37.

Kass, D.I., and P.A. Pautler. 1979. Physician Control of Blue Shield Plans. Washington: Federal Trade Commission, Bureau of Economics.

LaMotte, L. 1976. Personal communication. In *Validation by Performance Measures, Conference on Extending the Validity of Certification,* March 24. Chicago: American Board of Medical Specialties.

Langwell, K.M., and S.F. Moore. 1982. A Synthesis of Research on Competition in the Financing and Delivery of Health Services. Hyattsville, Md.: National Center for Health Services Research.

Lawrence, R., G. DeFriese, S. Putnam, C. Pickard, A. Cyr, and S. Whiteside. 1977. Physician Receptivity to Nurse Practitioners. *Medical Care* 15:298–310.

Leffler, K.B. 1981. Persuasion or Information? The Economics of Prescription Drug Advertising. *Journal of Law and Economics* 24 (1):45–74.

Leske, G.S., and D.H. Leverett. 1976. Variables Affecting Attitudes of Dentists toward the Use of EFDAs. *Journal of Dental Education* 40(2):79–85.

Lewis, C.E., and R. Hassanein, 1976. Continuing Medical Education: An Epidemiologic Evaluation. *New England Journal of Medicine* 282:254–59.

Lipscomb, J., and R. Scheffler. 1975. Impact of Expanded Duty Assistants on Cost and Productivity in Dental Care Delivery. *Health Services Research* 10:14–35.

Long, L.D. 1969. The Evaluation of Continuing Education Efforts. *American Journal of Public Health* 59:967–73.

Lotzkar, S., D.W. Johnson, and M.B. Thompson. 1971. Experimental Program in Expanded Functions for Dental Assistants: Phase 3 Experiments with Dental Teams. *Journal of the American Dental Association* 82:1067–81.

MacBridge, O.E. 1974. Restrictive Licensing of Dental Paraprofessionals. *Yale Law Journal* 83:806–26.

Maurizi, A. 1974. Occupational Licensing and the Public Interest. *Journal of Political Economy* 82:399–413.

———. 1976. The Effect of Law against Price Advertising: The Case of Retail Gasoline. *Western Economic Journal* 10:386–87.

McGuire, C., R.E. Hurley, D. Babbott, and J.S. Butterworth. 1964. Auscultatory Skill: Gain and Retention after Intensive Instruction. *Journal of Medical Education* 39:120–31.

McKenzie, N., and D. Born. 1973. Dentists' Attitudes toward Expanded Duty Auxiliaries. *Journal of the American Dental Association* 86:1001–8.

Mennemeyer, S. 1978. Really Great Returns to Medical Education? *Journal of Human Resources* 13:75–90.

Milgrom, P. 1978. *Regulation and the Quality of Dental Care.* Germantown, Md.: Aspen Systems Corp.

Monheit, A. 1975. An Economic Analysis of State Licensing of Nursing Labor. Ph.D. diss., City University of New York.

Naftulin, D.H., J.E. Ware, and F.A. Donnelly. 1973. The Doctor Fox Lecture: A Paradigm of Educational Seduction. *Journal of Medical Education* 48:630–35.

Nelson, P. 1970. Information and Consumer Behavior. *Journal of Political Economy* 78:311–29.

Payne, B.C., and T.F. Lyons. 1972. *Method of Evaluation and Improving Personal Medical Care Quality: Office Care Study for Hawaii Medical Association.* Ann Arbor: University of Michigan School of Medicine.

Pelton, W.J., H. Bethart, and K.S. Goller. 1972. The Ability of Dental Therapists to Perform Oral Prophylaxis. *Journal of the American Dental Association* 84:611–15.

Pelton, W.J., G.A. Overstreet, O.H. Embry, and J.B. Dilworth. 1973. Economic Implications of Adding One Therapist to a Practice. *Journal of the American Dental Association* 86:1301–9.

Peterson, O.L., L.P. Andrews, R.S. Spain, et al. 1956. An Analytical Study of North Carolina General Practice. *Journal of Medical Education* 31:1–165.

Pocincki, L.S., S. Dogger, and B. Schwartz. 1973. The Incidence of Iatrogenic Injuries. In *Report of the Secretary's Commission on Medical Malpractice.* U.S. Department of Health, Education and Welfare. Washington.

Poggio, E., R. Kronick, H. Goldberg, and K. Calore. 1981. Second Surgical Opinion Programs; An Investigation of Mandatory and Voluntary Alternatives. Cambridge, Mass.: Abt Associates.

Pollard, M.R. and R.F. Leibenluft. 1981. *Antitrust and the Health Professions: Policy Planning Issues Paper.* Washington: Federal Trade Commission.

Rand Corporation. 1979. *Ten Demonstration Projects in PSRO Long-term Care Review.* Santa Monica.

Rayack, E. 1967. *Professional Power and American Medicine.* New York: World.

Rayack, E., and R. Stevens. 1975. *An Economic Analysis of Occupational Licensing.* NTIS PB 258664. Kingston: University of Rhode Island Press.

Reinhardt, U. 1970. An Economic Analysis of Physician Practices. Ph.D. diss., Yale University.

Roney, J.G., and G.M. Roark. 1967. *Continuing Education of Physicians in Kansas: An Exploratory End-Result Study.* Menlo Park, Calif.: Stanford Research Institute.

Ryan, R.M. 1971. Continuing Education Research. In *Social Sciences and Dentistry: A Critical Bibliography,* ed. N.D. Richards and L.K. Cohen, 181–94. The Hague: A. Sijthoff.

Shepard, L. 1978. Licensing Restrictions and the Cost of Dental Care. *Journal of Law and Economics* 21:187–201.

Sibley, J., D. Sackett, V. Neufeld, B. Gerrard, K. Rudnick, and W. Fraser. 1982. A Randomized Trial of Continuing Medical Education. *New England Journal of Medicine* 306(9):511–15.

Sloan, F.A. 1970. Lifetime Earnings and Physician's Choice of Specialty. *Industrial and Labor Relations Review* 24:47–56.

Sloan, F.A., and B. Steinwald. 1980. *Hospital Labor Markets.* Lexington, Mass.: D.C. Heath.

Smith, F.K., L.L. Teply, and R.H. Folsom. 1978. *Staff Report on Advertising of Veterinary Goods and Services.* Denver: Federal Trade Commission, Denver Regional Office.

Soricelli, D.A. 1971. Practical Experience in Peer Review Controlling

Quality in the Delivery of Dental Care. *American Journal of Public Health* 61(10):2046–56.

Sox, H.C. 1979. Quality of Patient Care by Nurse Practitioners and Physician's Assistants: A Ten-Year Perspective. *Annals of Internal Medicine* 91:459–68.

Stevens, R. 1971. *American Medicine and the Public Interest.* New Haven: Yale University Press.

Stigler, G.J. 1961. The Economics of Information. *Journal of Political Economy* 69:213–25.

———. 1968. *The Organization of Industry.* Homewood, Ill.: Irwin.

Trussell, R.E. 1962. *The Quantity, Quality and Costs of Medical and Hospital Care Secured by a Sample of Teamster Families in the New York Area.* New York: Columbia University Press.

White, W.D. 1979. *Public Health and Private Gain: The Economics of Licensing Clinical Laboratory Personnel.* Chicago: Maaroufa.

Williamson, J.W., M. Alexander, and G.E. Miller. 1976. Continuing Education and Patient Care Research: Physician Response to Screening Test Results. *Journal of the American Medical Association* 201:118–22.

Windham, S., D.C. Jackson, K.A. Howard, J.C. Fisher, et al. 1978. Evaluation of the Use of Foreign Medical Graduates in State Mental Hospitals. Cambridge, Mass.: Abt Associates.

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Address correspondence to: Gary L. Gaumer, Ph.D., Senior Economist, Abt Associates Inc., 55 Wheeler St., Cambridge, MA 02138.