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ABSTRACT

In this volume of a larger study, the Graduate Medical Education National Advisory Committee (GMENAC) reports the potential impact of nonphysician providers on physician requirements in 1990. The report has two major thrusts: (1) a description of the "state of the art" regarding what was known about nonphysician providers, and (2) recommendations as to what is desirable, as well as feasible, with respect to nonphysician providers in the different specialties. Sections include: an overview of panel's charges; a summary of work: principles and concepts, such as the definition of nonphysician health care provider: the interim report; the relationship of the nonphysician panel to the modeling process: expanded charge: and background data for the panel's recommendations. Numerous recommendations are cited such as: a careful study of requirements for nurse practitioners, physician assistants, and nurse-midwives should be undertaken as soon as possible; five percent of the normal, uncomplicated deliveries (197,600) should be delegated to nurse-midwives in 1990: and the effect of the size of the physician supply on nonphysician utilization should be studied. References and attachments are provided. (LC)

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Report of the
Graduate Medical Education National Advisory Committee

to the Secretary, Department of Health and Human Services

ED203770

Volume VI
Nonphysician
Health Care Provider
Technical Panel

HE 014 025

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The Report of the Graduate Medical Education National Advisory Committee to the Secretary, Department of Health and Human Services, consists of seven volumes:

- Volume I GMENAC Summary Report
- Volume II Modeling, Research, and Data Technical Panel
- Volume III Geographic Distribution Technical Panel
- Volume IV Financing Technical Panel
- Volume V Educational Environment Technical Panel
- Volume VI Nonphysician Health Care Providers Technical Panel
- Volume VII GMENAC Members' Commentaries and Appendix

*Report of the
Graduate Medical Education National Advisory Committee*

to the Secretary, Department of Health and Human Services

**Volume VI
Nonphysician
Health Care Provider
Technical Panel**

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September 30, 1980

The Honorable Patricia Roberts Harris
Secretary
Department of Health and Human Services
Washington, D.C. 20201

Dear Madam Secretary:

The attached Report of the Graduate Medical Education National Advisory Committee (GMENAC) is in fulfillment of the Committee's responsibilities under the Charters of April 20, 1976, and March 6, 1980.

The charge of the Committee was to advise the Secretary on the number of physicians required in each specialty to bring supply and requirements into balance, methods to improve the geographic distribution of physicians, and mechanisms to finance graduate medical education.

GMENAC significantly advanced health manpower planning in direct and indirect ways.

GMENAC introduced new scientific methodology: Two new mathematical models were developed to estimate physician supply and requirements.

GMENAC refined the data bases; figures for estimating the supply of practitioners in every specialty and subspecialty from the distribution of first-year residency positions have been developed.

GMENAC integrated the estimates of supply and requirements for physicians with nurse practitioners, physician assistants, and nurse midwives.

GMENAC introduced new concepts to clarify assessment of the geographic distribution of physicians and services; standards are proposed for designating areas as adequately served or underserved based on the unique habits of the people in the area.

GMENAC recommends that medical service revenues continue to provide the major source of funds to support graduate medical education.

GMENAC has initiated a collaboration between the private sector and the Government; the unique expertise of each achieves a level of comprehensiveness in health manpower planning not previously experienced.

GMENAC estimates a surplus of 70,000 physicians by 1990. Most specialties will have surpluses, but a few will have shortages. A balance by 1990 cannot be achieved. Until supply and requirements reach a balance in the 1990s, GMENAC recommends that the surplus be partially absorbed by expansion of residency training positions in general/family practice, general pediatrics, and general internal medicine.

Recommendations are directed at achieving five manpower goals:

1. To achieve a balance between supply and requirements of physicians in 90s, while assuring that programs to increase the representation of minority groups in medicine are advanced by programs to broaden the applicant pool with respect to socio-economic status, age, sex, and race;
2. to integrate manpower planning of physicians and nonphysician providers when their services are needed, and to facilitate the function of nonphysician providers;
3. to achieve a better geographic distribution of physicians and to establish improved mechanisms for assessing the adequacy of health services in small areas;
4. to improve specialty and geographic distribution of physicians through financing mechanisms for medical education, graduate medical education, and practice, and
5. to support research for the next phases of health manpower planning.

The Committee unanimously recommends the immediate establishment of a successor to GMENAC. Its establishment is essential to the implementation of the manpower goals and recommendations in the Report. The full GMENAC methodology must be applied to the six specialties which have not been analyzed. The requirements estimates for each of the specialties and subspecialties must be tested, monitored, and reassessed on a continuing basis. Important studies on financing, geography, and nonphysician providers should be undertaken.

September 30, 1980
Secretary Harris
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The collaborative working relationship between the private sector and the Government facilitated a congruence of interest in planning and in implementing improvements to best meet the needs of the Nation. The momentum of this collaboration should be continued without interruption.

Respectfully submitted,



Alvin R. Tarlov, M.D.
Chairman
Graduate Medical Education
National Advisory Committee

For the Committee

Enclosure: Volumes I-VII

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I. OVERVIEW OF PANEL'S CHARGES

The Nonphysician Health Care Provider (NPHCP) Technical Panel was convened to provide recommendations to the Graduate Medical Education National Advisory Committee (GMENAC) regarding the potential impact of nonphysician providers on physician requirements in 1990. The work of this Panel was closely articulated with that of the Modeling Panel, which was charged with developing physician requirements by specialty. This explicit consideration of nonphysicians as a factor affecting physician requirements broke new ground methodologically and increased the sophistication of GMENAC's final recommendations.

Initially, the NPHCP Panel was charged with identifying the nonphysician health care provider types who might have an impact on physician specialty requirements in 1990 and locating data on their roles and their current and future numbers. This information was to feed into the GMENAC modeling process which would develop numbers on physician requirements. After this component of its charge had been completed, the NPHCP Panel was given responsibility for assessing the final delegation levels which were emerging from the modeling process. The work of the Panel thus had two major thrusts:

- Describing the "state of the art" regarding what was known about nonphysician providers
- Making recommendations as to what was desirable, as well as feasible, with respect to nonphysician providers in the different specialties

The Panel members, consultants, and staff are listed on Attachment 1 at the end of this report. Two members of the Panel were also members of nonphysician professions and a number of other members had had extensive experience with these providers. Throughout its work, the Panel drew on the expertise available from the various nonphysician professional organizations. Consultants to the Panel included Department of Health and Human Services staff from the Division of Nursing and Division of Allied Health Professions of the Health Resources Administration and the National Center for Health Services Research of the Office of the Assistant Secretary for Health and members of the wider research community. Staff support was provided by the National Center for Health Services Research. Staff papers prepared at the request of the Panel are described in Attachment 2.

II. SUMMARY OF WORK

In its early work, the Nonphysician Health Care Provider (NPHCP) Panel undertook to clarify and delimit its initial charge as well as acquaint itself with the available information on nonphysician providers. An extensive literature review was undertaken, major data sources were identified, and a number of distinctions and decisions were made which set the framework for its future work.

This period culminated in its Interim Report which summarized the "state of the art" regarding the supply, functions, and acceptability of nonphysician providers in the primary care specialties as well as barriers to their utilization. Although this report did not make recommendations, its adoption signified that GMENAC was ready to recognize the role of nonphysicians and their relevance to physician manpower requirements.

Once it had been established that nonphysicians were a factor to be considered, the Panel then began to examine the actual and potential utilization of nonphysicians on a specialty-by-specialty basis. Briefing papers which synthesized the available data were prepared for the Delphi Panels. These Panels then used their expert judgments to decide what kind and how much care should be given by nonphysician health care providers. These decisions were then examined by the Modeling Panel as it developed the 1990 physician requirements. Most of the decisions regarding nonphysician providers related to delegated care--i.e., care which is carried on by nonphysicians working under the direction and supervision of a physician. The Nonphysician Panel elected to accept the decisions of the Delphi and Modeling Panels as the best judgments of what should be delegated. However, because a delegation level was proposed for a particular specialty, it did not follow that this would be GMENAC's recommendation. Such a level might not be possible in the real world of 1990, and moreover, it might not be desirable since one of the major reasons for using nonphysicians might not exist--there may not be a physician shortage in the specialty in 1990.

At this point, the charge to the NPHCP Panel was extended to include responsibility for assessing the desirability and feasibility of the delegation levels which were being proposed. Obstetrics-gynecology, adult medical care, and child medical care were identified as being in particular need of such attention, owing to the substantial delegation that was possible. The NPHCP Panel then identified criteria for making this assessment, examined the available data on nonphysician practice in these specialties, and made quantified recommendations to GMENAC in this regard.

III. PRINCIPLES AND CONCEPTS

A number of critical concepts and principles emerged during the early work of the Panel and set the framework for its future work.

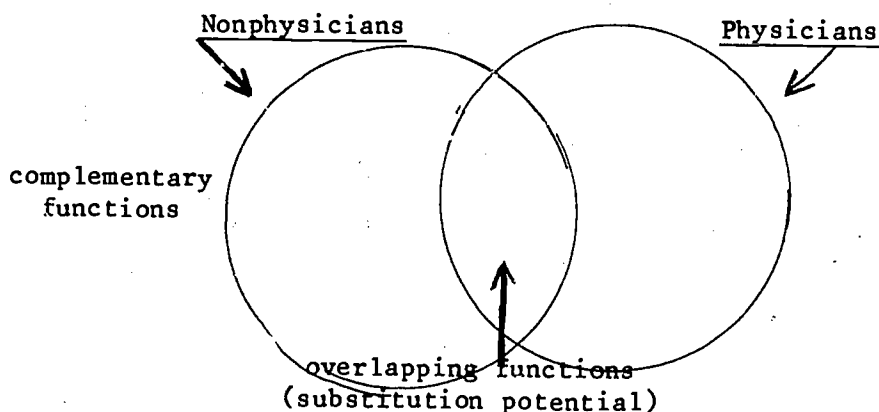
DEFINITION OF NONPHYSICIAN HEALTH CARE PROVIDER

Only those nonphysicians who directly affect the physician manpower requirement were deemed relevant to GMENAC's work. New health professionals, such as nurse practitioners (NPs) and physician's assistants (PAs), were immediately recognized as belonging to this group. Over the past decade and a half, these professions had been created to assume responsibility for some of the care usually given by physicians. Two policy reasons for this development were the perceived physician shortage and a belief that nonphysicians would be the less costly provider if both physicians and nonphysicians were capable of rendering a given service. The early focus of the Panel on NPs and PAs, who were seen as an important alternative manpower source for primary care, led to the adoption of the following definition: Nonphysician health care providers are individuals who are trained to provide services traditionally provided only by physicians. The Panel recognized that this definition was not an accurate characterization of other nonphysicians--such as optometrists and podiatrists--who may have functions in common with the physician and thereby have an impact on physician requirements. Nonetheless, the Panel accepted this as an adequate working definition, particularly for a nonphysician in primary care, since it draws attention to two critical factors.

The nonphysician is trained to provide services for which the physician is currently the usual provider, and the nonphysician of interest is one who provides physician (or medical) services rather than services which are merely ancillary to the physician's work. These two qualifications served to limit the focus of the NPHCP Panel. In stipulating that the nonphysicians be formally trained, the Panel recognized that some nonphysicians who have not been formally trained for extended roles may be providing some medical services as, for example, nurses without formal practitioner training. Calculating the contribution from this informal supply was, however, believed to be difficult, if not impossible. Moreover, these providers do not represent the same educational investment that formally trained providers do and, thus, are of less concern for policy decisions. To the extent that they are trained on the job as they are needed, they do not require advance planning. To the extent that these providers carry out tasks rather than assume responsibility for entire visits, they were taken into account in the GMENAC Model.

COMPLEMENTARY VS. SUBSTITUTE FUNCTIONS

It was recognized that the functions of nonphysician providers can be either substitutes for or complements to those of physicians. The latter, as support services, do not affect the requirement for physicians. Auxiliary personnel, such as x-ray technicians, whose role is cast entirely as a supporting one, would fall outside the Panel's purview. Even for nonphysicians who provide medical services, the Panel would not need to review the full gamut of their activities, but only those which they share with physicians. The concept of overlapping versus complementary functions is illustrated below:



Since its focus was limited to the overlapping functions, the Panel's work did not include determining the overall nonphysician requirement for 1990, since this requirement would have to take their complementary functions into account as well.

IDENTIFICATION OF RELEVANT NONPHYSICIAN PROVIDERS

The nonphysician providers who were identified as having a potential impact on physician requirements in the specialties scheduled for modeling by GMENAC were:

<u>Specialty</u>	<u>Nonphysician Health Care Providers</u>
Adult Medical Care	Physician's Assistants, Adult Nurse Practitioners, Family Nurse Practitioners
Anesthesiology	Nurse Anesthetists
Child Medical Care	Physicians's Assistants, Pediatric Nurse Practitioners, Family Nurse Practitioners, Child Health Associates

<u>Specialty</u>	<u>Nonphysician Health Care Providers</u>
Dermatology	Physician's Assistants, Nurse Practitioners
Emergency Medicine	Physician's Assistants, Nurse Practitioners
Obstetrics-Gynecology	Nurse-Midwives, Ob-Gyn Nurse Practitioners, Physician's Assistants
General Surgery, Neurosurgery, Otolaryngology, Plastic Surgery, Thoracic Surgery, Urology	Physician's Assistants
Ophthalmology	Optometrists
Orthopedic Surgery	Podiatrists, Physician's Assistants
Pathology	Medical Technologists
Physical Medicine	Physical Therapists, Occupational Therapists
Psychiatry	Clinical Psychologists, Psychiatric Social Workers, Psychiatric Nurse Clinicians
Radiology	Physician's Assistants

DEPENDENT VS. INDEPENDENT NONPHYSICIAN PROVIDERS

These nonphysician providers can be classified into two groups: (1) those who work under the supervision of the physician and are delegated selected medical responsibilities which they then have in common with the physician -- for example, nurse practitioners and physician's assistants; and (2) those who belong to a free-standing profession and who, through their own legal power, deliver care which physicians may also provide -- for example, optometrists and clinical psychologists. The contributions of the two groups were taken into account at separate points in the Modeling process.

Since they appeared to offer the greatest potential for nonphysician utilization, the Panel elected to concentrate its work in the primary care specialties. Nurse practitioners, physician's assistants, and nurse-midwives thus served as the primary focus of its work.

DEFINITIONS OF NONPHYSICIAN PROVIDERS IN PRIMARY CARE

Nurse practitioners (NPs) are registered nurses who have formal training which prepares them to have an expanded role and level of responsibility in the provision of primary health care. Their functions may include health status assessment, physical examinations, formulation of a care plan, counseling, management, referral, and coordination.* Training is typically provided in a specialty area such as family practice, pediatrics, adult, or obstetrics-gynecology.

Physician's assistants (PAs) are skilled persons qualified by academic and practical training to provide patient services under the direction and supervision of a licensed physician who is responsible for the performance of the PA (American Medical Association, 1978). They provide both illness and wellness care and their capabilities include diagnostic, management, and treatment services.

Certified nurse-midwives are licensed nurses who have been certified according to the requirements of the American College of Nurse-Midwives (ACNM). They are the only nonphysicians who are explicitly trained to manage uncomplicated normal deliveries. They also provide prenatal and postpartum care, some gynecological care, family planning services and well gynecological checkups (ACNM, 1978).

RELATIONSHIP OF THE NONPHYSICIAN TO THE PHYSICIAN

Physician accountability and physician supervision in some form are always required for nurse practitioners and physician's assistants when they are providing services traditionally given by the physician.

Although physician's assistants practice only as dependent providers, the nursing profession has traditionally been regarded as having an independent sphere of practice, owing to its unique body of nursing knowledge. Some nurses are currently engaged in independent practice, where they may provide nursing services such as teaching and counseling, home nursing, injection of medications prescribed by a physician, and blood pressure readings. Since these services are best viewed as complements to, rather than substitutes for, physician services, they do not have a direct impact on physician requirements and were outside the purview of the NPHCP Panel.

Principle

The services which have been included in the GMENAC model are medical services and, if provided by NPs or PAs, these must be done under the supervision of a physician.

* Based on description in Federal Register, 1977.

The Panel recognized that there may be considerable disagreement over whether a particular activity falls within the domain of nursing or of medicine. The content of care given in nursing practice should be studied in an attempt to more clearly differentiate the boundaries between the nursing and the medical professions. Attention should be given to the kinds of conditions seen, the services provided, outcome, and legal authority.

A nurse-midwife works under the consultation, direction, and/or supervision of a physician. The midwife is legally responsible for those functions which are within her competence. These center about the provision of uncomplicated maternity care. She identifies complications and refers these to the physician, who then takes responsibility for the patient.

The NPHCP Panel concurred with the following statement which was adopted by the Ob-Gyn Delphi Panel regarding the practice of the nurse-midwife:

Principle

Nurse-midwives should practice interdependently in a health care delivery system and with a formal written alliance with an obstetrician, or another physician, or a group of physicians who has/have a formal consultation arrangement with an obstetrician-gynecologist.

In some cases, the agreement may be with a hospital which is then responsible for providing obstetrical backup.

WHOLE-VISIT VS. TASK DELEGATION

The formally-trained nonphysician provider who provides delegated services (the NP, PA, and the nurse-midwife) is capable of seeing a significant number of patient encounters through to completion, whether they be visits or deliveries. These nonphysicians may thus serve as the principal provider, although the physician supervises, directs, or provides consultation. With informal or task delegation, the physician retains the position of principal care-giver with the nonphysician carrying out specific tasks, which are peripheral to the physician's function.

Although the work of the NPHCP Panel was focused on whole-visit delegation, and deliveries, in the case of obstetrics, GMENAC allowed for task delegation by increasing the productivity of certain physician specialists to reflect this, and the NPHCP concurred with these judgments. The NPHCP Panel believed it is likely that the two kinds of delegation--task versus whole visit--have varying effects on service accessibility and costs. Research and analysis should be undertaken to assess the comparative health system effects of task and whole-visit delegation.

ACTUAL VS. POTENTIAL DELEGATION

It was recognized that there may be a discrepancy between what nonphysician providers actually do and what they theoretically might do based on their training and skills. It was thus necessary to identify the constraints which limit their utilization and make some judgment regarding the extent to which these will prevail in the future. In order to make such a prediction, it was necessary to have some idea of what the maximum level of delegation or substitution might be. It was then necessary to determine if this was also a desirable level for delegation and, if so, develop strategies for achieving it.

A number of distinct questions were thus being posed:

- What is the actual level of delegation/substitution? (i.e., "benchmark substitutability," which the Panel undertook to describe in its Interim Report and its specialty-specific briefing papers.)
- What should be delegated? (i.e., "maximal substitutability" which reflects optimal levels based on the skills of nonphysicians and what has been achieved in certain settings.)
- How much delegation is desirable? (This would have to be answered with reference to some values as to how the health care system should look.)
- What will be delegated in 1990? (What could be expected to come about if no interventions were taken or if some interventions were taken to change the constraints and incentives affecting nonphysician practice. This question is both predictive and strategic.)

SUBSTITUTABILITY RATIOS

Since the contribution of the nonphysician provider was to be explicitly entered into the GMENAC Model, it was necessary to describe this contribution using the conceptual framework of the Model. Conditions needing care on an ambulatory basis were to be characterized by ICDA diagnoses. "Need" was to be measured in terms of the number of visits required. Information was therefore needed on the kinds of diagnoses nonphysicians manage and should manage based on their skills, as well as the proportion of visits for a particular diagnosis which might be within the nonphysician's competence. At the request of the Panel, staff undertook a survey of the literature to assess the comparability of the data available on the content of care given by physicians and that provided by nurse practitioners and physician's assistants. Few of the data items which were found were expressed in comparable categories and, thus, promised little usefulness for the task at hand.

The other data item required by the Model was a measure of nonphysician productivity relative to that of the physician, since, once the number of delegable visits had been determined, it would be necessary to calculate the number of nonphysicians needed to handle these visits or, conversely, the number of visits which could be handled by the expected supply of nonphysicians. At the time, the Panel worked closely with the Kaiser Foundation Health Services Research Center, who under contract with the Bureau of Health Manpower*, were developing substitutability ratios of nonphysicians to physicians for ambulatory primary care settings. After a comprehensive review of the literature, it was determined that nonphysicians were substitutable for physicians at a ratio of .5 - .75 to 1, when the number of visits was used as the output measure (Record et al., 1979). Since these ratios were empirically derived, they reflect the various constraints affecting the utilization of nonphysicians. They may also reflect the fact that the content of care given by nonphysicians is different from that provided by physicians; i.e., the nonphysician visit may be longer because she/he is providing other services. The Panel relied on these findings in its later work. It must be noted that a substitutability ratio does not mean that the provider types are interchangeable. Since physicians manage all kinds of visits, and only a selected few visits can be delegated, the physician in the ratio is not a real physician, but an artificial construct who provides only delegable care, as it were.

ROLE OF THE CONSUMER

The Panel acknowledged the role of the consumer in determining the utilization level of nonphysician providers and adopted the following as a guiding principle:

Principle

Patients, physicians, and nonphysician health care providers should jointly determine the extent of nonphysician health care provider involvement in care. The health care system should evolve in ways which enhance the opportunity for patients to assume a larger control of their health destinies.

*now the Bureau of Health Professions

IV. INTERIM REPORT

The work of the Panel during this early period culminated in its Interim Report which summarized the "state of the art" regarding the supply, functions, and acceptability of nonphysician providers in the primary care specialties, as well as the constraints affecting their practice. The Panel reported that nonphysicians who provide primary care are found to do so without jeopardizing quality and are generally highly accepted by patients. In some settings, their utilization was found to result in a cost savings. Restrictive State laws and regulations, exclusionary reimbursement policies, and the unwillingness of physicians to delegate were identified as constraints which might keep the delegation levels below their potential.

Although the report did not make recommendations regarding an optimal delegation level for primary care, it documented the current levels of delegation and reported the findings of the Kaiser study regarding maximal delegation, where it was reported that maximal delegation in adult medical care might be as high as 75 percent of all visits and in pediatrics, 90 percent (Record et al., 1979).

V. RELATIONSHIP OF THE NPHCP PANEL TO THE MODELING PROCESS

Once its Interim Report established that nonphysicians were a factor to be considered, the NPHCP Panel began to examine the actual and potential utilization of nonphysicians on a specialty-by-specialty basis. This work took the form of briefing papers which were provided to the Delphi Panels convened for the various specialties. These papers synthesized the available data and suggested what the potential for substitution might be. They did not, however, contain recommendations.

The Delphi Panels convened for each specialty were expected to make judgments regarding the future prevalence of conditions falling within the specialty, the need for care, the norms of care (for example, how many visits would be needed), and the kind of provider required. The results of these deliberations would then be used to calculate the specialty-specific physician requirements.

Owing to the medical nature of many of the judgments needed, the Delphi Panels were composed mainly of physicians. Representatives of nonphysician professions, were, however, included in those Panels where nonphysicians were identified as potentially affecting the physician requirement. The Obstetrics-Gynecology Panel included a nurse-midwife; the Child Medical Care Panel--a pediatric nurse practitioner and a physician's assistant; the Adult Medical Care Panel--a nurse practitioner and a physician's assistant; the Ophthalmology Panel--two optometrists; the Orthopedic Surgery Panel--a podiatrist; and the Psychiatry Panel--a clinical psychologist, a clinical social worker, and a psychiatric nurse. In addition, a consumer representative from a women's health organization participated in the Obstetrics-Gynecology Panel.

There were three points at which a Delphi Panel might take nonphysicians into consideration.

-- Once the overall service requirement for a specialty had been determined, it might be deemed appropriate that some of the requirement be handled by another kind of physician or an independently-practicing nonphysician provider (for example, care for refractive error in ophthalmology; see point A in the diagram that follows).

-- Once the workload of the specialty physician had been determined, some of these visits (or other services) might be delegated to a nonphysician provider (for example, ambulatory visits in child medical care; see point B in diagram).

-- The productivity of the specialist might be increased through task delegation to nonphysician providers (for example, as in dermatology; see point C in diagram).

Delphi Decision Process as It Relates to Nonphysicians

Service requirements ← Percent handled by:
 Independently-Practicing Nonphysician Providers (A)
 Other Physicians
 Specialty Physicians

Service units allocated to specialty physicians	--	Service units delegated to nonphysician providers such as physicians' assistants and nurse practitioners	=	remaining service requirement for specialty	(B)
				"	

specialist physicians at specified productivity level
 ↓
 (C)

Alter (increase) productivity level by task delegation to arrive at reduced specialist requirement

The approaches to nonphysicians taken by the Panels were varied. While most Panels considered nonphysician providers at at least one of the three points, some Panels, which might have allocated care to nonphysicians at Point A, took the position that the medical care requirements they were considering were the sole province of the physician and that any care which independently-practicing providers, such as podiatrists and clinical psychologists, gave was over and above this. Delphi Panels also differed in the meaning they assigned to "delegability" at Point B. The Obstetrics-Gynecology Panel, for example, when discussing the delegability of deliveries, interpreted this to mean what was feasible for 1990. Other Panels judged delegability with reference to the skills of the nonphysician.

In some instances, the decisions of the Delphi Panels appeared to underestimate the potential for delegation. For example, although the Kaiser researchers reported that maximal delegation in adult medical care might be as high as 75 percent of all visits and in pediatrics, 90 percent, the Delphi decisions regarding delegability were more conservative. Although physician's assistants are currently known to be working in a number of surgical specialties, most of the surgical Delphi Panels did not explicitly recognize the substitution potential of these providers. Despite these apparent discrepancies, the Nonphysician Panel, nonetheless, accepted the Delphi delegability judgments as definitive,

since this was the chosen methodology of GMENAC. These expert judgments, which were rendered for individual three-digit diagnostic codes, constitute an important contribution to the delegability literature. The Panel, however, recognized the need for empirically-based research on the issue of maximal delegability in the various specialties.

VI. EXPANDED CHARGE

Once the Delphi and Modeling Panels completed their recommendations, the charge to the NPHCP Panel was expanded. The Panel was now called upon to make recommendations to GMENAC regarding the delegation levels which were being proposed for obstetrics-gynecology, child medical care, and adult medical care since the Panels in these specialties had recommended that substantial quantities of services be delegated.

One of the main incentives for supporting nonphysician providers in the past had been the fact that they could be used to compensate for a physician shortage. It now appeared that there might be a physician surplus in 1990, if not before. The Panel thus faced these questions: Given a situation of adequate physician resources, what other reasons might there be for supporting nonphysician providers in these specialties? The second question related to the feasibility of the proposed delegation--if the proposed delegation level were shown to be desirable, could it be attained by 1990? This would involve identifying and weighing the factors which might limit nonphysician practice.

DESIRABILITY OF DELEGATION TO NPs, PAs, AND NURSE-MIDWIVES

The following principle was adopted by the Panel as it undertook its expanded charge.

Principle

Even in the event that there is an adequate number or a surplus of physicians in a particular specialty, the use of nonphysician providers (NPs, PAs or nurse-midwives) may be supported for one or more of the following:

1. When they increase the accessibility of services.
2. When they decrease the costs or expenditures associated with health care delivery.
3. When they are the providers of choice for some consumers.
4. When the utilization of nonphysicians increases the quality of service; i.e., services provided by a team composed of a physician and nonphysician are superior to those which a physician working alone could provide.

These criteria obviously refer to judgments as to how care should be delivered. Access to services, control of inflation, and optimization of health status had been cited in the Interim Report as national health objectives which GMENAC would observe in its recommendations.

The Panel also determined that nonphysicians may be used to provide some services in place of house staff if a reduction in the number of residents occurs.

In examining the evidence which would support delegation to nonphysician providers in the specialties under study, the NPHCP Panel found that, for the most part, while the data were not conclusive, they suggested that nonphysicians should continue to be supported, since they increase access to services, they are preferred by some consumers, and, in some cases, they may provide an alternative model of care.

The Panel considered some of the data cited to support the belief that these nonphysicians are less costly than physicians: in particular, the lower expenditures for their education and the fact that they earn lower incomes. Although the "up-front" educational costs for NPs, PAs, and nurse-midwives may be less, the Panel believed that returns in service from the investment in their education have not been demonstrated, since not enough is known about their professional longevity. Comparing incomes of two providers when the products are different appeared to be unjustified. The physician's higher income also reflects the rewards for those services which the nonphysician is not capable of providing.

How the utilization of nonphysicians affects costs to the consumer is an empirical question which has not been sufficiently studied. The answer depends upon whether the savings accomplished by employing a nonphysician at a lower salary than a physician are passed on to the consumer or retained by the institution or employing physician. Although some practices utilizing nonphysicians may offer services at lower charges than those which do not (System Sciences, 1978), this does not have to be the case. It is likely, however, that if these savings are passed on to the consumer, and they are satisfied with the care, consumer support for nonphysicians might increase.

The Panel believed that additional research and analysis with respect to the cost and expenditure issue is needed. In the meanwhile, the lack of conclusive evidence regarding their cost-effectiveness should not be a reason to withdraw support from these nonphysicians. Indeed, even if there are no demonstrable cost savings from utilizing these providers, there appear to be other reasons for supporting their continued utilization.

In using increased service accessibility as a criterion for continuing support of nonphysicians, the Panel did not take the position that this is an appropriate, or the only, solution to the problem of physician maldistribution. It merely wished to acknowledge what appears to be happening in the health care system. Whether it should happen is a philosophical issue which fell outside the Panel's charge. It may be, however, that in some communities the nonphysician will always be the indicated provider, since the population base may be inadequate to support a physician. A review of the available data in the three specialties considered by the Panel suggests that nonphysicians increase access to services by providing services in both rural areas and inner cities and by serving in the public system, which is usually left with the responsibility of caring for the unserved. It is likely that the

geographic distribution of these providers would be more favorable if laws and reimbursement policies which limit their utilization were changed.

FEASIBILITY OF DELEGATION TO PAs, NPs AND NURSE-MIDWIVES

The Panel identified the following as factors to be considered in evaluating the feasibility of the proposed delegation: the size of the nonphysician supply, legislation relating to nonphysician practice, reimbursement policies for nonphysician services, attitudes of physicians toward these providers, and the size of the physician supply, particularly an excess of physicians.

Although it is not known what occurs in the case of a physician surplus, the Panel hypothesized that the following might occur with respect to these nonphysicians:

-- Faced with a lower demand for their services, physicians would be less likely to hire an NP, PA, or nurse-midwife. The institutional demand for these nonphysicians would go down if more physicians were available for these positions.

-- Physicians might act to protect their own interests, either through the political process or as hospital staff, such that non-physician practice becomes more difficult. Physicians could have a similar impact on reimbursement policies relating to nonphysician services.

VII. BACKGROUND DATA FOR THE PANEL'S RECOMMENDATIONS

CURRENT SUPPLY

The Division of Nursing (Health Resources Administration) estimates that 16,000 nurse practitioners (NPs) have been graduated from formal training programs as of the end of 1979. No authoritative data are available on specialty distribution. Two sources which afford slightly different estimates are shown in Table 1. These have been used to generate the single estimate used by the NPHCP Panel in its work, and this is also shown in Table 1. In calculating its delegation recommendations for the various specialties, the Panel has assumed that this distribution will hold in 1990. Data on retention in the NP profession are not available. The NPHCP Panel has assumed that 75 percent of those trained as NPs are active now and will be active in 1990.* This may be an overestimate, particularly if constraints which limit NP practice continue to operate.

The Association of Physician Assistant Programs (APAP) estimates that the total PA supply, as of the beginning of 1980, is 11,000. This includes graduates of formal training programs as well as others who have qualified for and who have passed the PA certifying exam.

The present PA supply may be characterized by the specialty areas in which they provide the majority of their care. Data in this regard are available from a 1978 survey conducted by the Association of Physician Assistant Programs (APAP) and are shown in Table 2, where they are applied to the current and future supply of PAs. These data have a number of shortcomings, including a low response to the survey and an incomplete response to this data item.

Moreover, they may be of particularly limited utility for predicting future specialty distribution. Since training programs are essentially homogeneous with the overwhelming majority preparing primary care PAs, it appears as if PA participation in a specialty arises solely in response to demand. There is no reason to believe the demand from the various specialty areas will be the same in 1990 and, indeed, GMENAC may have influence on the nature of the demand through its recommendations regarding physician numbers. Nonetheless, these projections are used in the discussions that follow relating to PA participation in specialty care in 1990, since a more suitable methodology could not be devised.

In using this specialty distribution, the Panel also assumed that a significant proportion of PAs, namely 24 percent of the active supply, will be working in specialty areas where only tasks have been delegated

* This estimate is based on data in Sultz, H.A., et al., 1978 and conference with the Division of Nursing, Bureau of Health Professions, Health Resources Administration, Hyattsville, MD.

Table 1

ESTIMATED DISTRIBUTION OF NP
SUPPLY BY SPECIALTY

	Sultz Data on NP Students: Phase I and Phase III <u>1/</u> % of Total (Combined n = 2,181)	1977 Survey of NP Programs: Weston <u>2/</u> % of Total (n = 7,092)	NPHCP Panel Estimates <u>3/</u> % of Total
Family	29.5	36.7	30
Pediatrics	25.4	26.2	25
Adult	25.9	9.2 (includes geriatrics)	20
Maternity	9.9	(no category)	10 (includes family planning)
Midwifery	6.4	10.4	10
Psychiatric	1.9	0.0	5 (includes other)
Emergency	1.0	(no category)	
Family Planning (no category)		9.1	
Other	(no category)	8.4	
	100.0	100.0	100.0

SOURCES:

- 1/ Based on the distribution of total student population in 1974-75 and the population of students in 1977 who were in programs inaugurated after 1974; data presented in Sultz, H. A., Longitudinal Study of Nurse Practitioners, Phase I and Phase III, DHEW Publication Nos. (HRA) 76-43 and (HRA) 80-2, Hyattsville, Maryland, 1976 and 1980.
- 2/ Specialty distribution of graduates as reported by all NP programs, operative and inoperative, in 1977; Weston, J., survey undertaken in National Center for Health Services Research, unpublished data.
- 3/ Best estimate of the Panel after considering Sources 1 and 2.

Table 2

SPECIALTY DISTRIBUTION OF PAs (ESTIMATED)

<u>Specialty</u>	<u>% of Total</u> ^{1/}	<u>Current Active Supply (n=8,800)</u> ^{2/}	<u>1990 Active Supply</u> ^{3/} (n=20,800)
Family Practice/General Practice	56.0	4,928	11,648
General Pediatrics	3.1	273	645
General Internal Medicine	10.1	889	2,101
Internal Medicine Sub-specialties	4.8	422	998
Allergy	1.1	97	229
Cardiology	2.3	202	478
Endocrinology	.4	35	83
Gastroenterology	.2	18	42
Hematology	.3	26	62
Infectious Disease	.3	26	62
Pulmonary Medicine	.2	18	42
Dermatology	.6	53	125
Obstetrics-Gynecology	1.8	158	374
Psychiatry	.7	62	146
Surgical Specialties	9.6	845	1,997
General	3.8	334	790
Neurosurgery	.7	62	146
Ophthalmology	-	-	-
Orthopedic Surgery	2.2	194	458
Otolaryngology	.2	18	42
Plastic Surgery	.3	26	62
Thoracic	1.5	132	312
Urology	.9	79	187
All Other Specialties ^{4/}	13.3	1,170	2,766
Total	100.0	8,800	20,800

Notes

- ^{1/} Association of Physician Assistant Programs, 1978 survey data; assumes the specialty distribution of those not providing specialty information (27 percent) is similar to those who did. Specialty information was provided by 3,293 respondents and 4,497 PAs out of a universe of 7,281 responded to the survey.
- ^{2/} Derived from a total supply of 11,000 (1980 estimate) with an attrition rate of 20 percent.
- ^{3/} Based on a projected supply of 26,000 with a 20 percent attrition rate.
- ^{4/} Includes anesthesiology, emergency medicine, industrial medicine, neurology, occupational medicine, pathology/clinical pathology, physical medicine, public health and preventive medicine, radiology, and "other."

or where the delegation levels were not examined by the NPHCP Panel. These include surgical PAs, 10 percent of the total, or some 2,000 in 1990; PAs in hospital-based and prevention-oriented specialties, 13 percent or some 2,800, and small numbers in psychiatry and dermatology.

Reliable data on retention in the PA profession are also unavailable. The APAP estimates that this is currently 80 percent, and the NPHCP Panel assumed this will be the rate in 1990.

According to the American College of Nurse-Midwives (ACNM) as of the beginning of 1980, there are an estimated 2,000 nurse-midwives qualified to provide patient care in obstetrics-gynecology. These include graduates of approved U.S. nurse-midwifery programs, as well as persons trained abroad who reside in the United States.

Participation of the present supply of nurse-midwives in clinical care appears to be low, however. Only 51 percent of the 1,299 nurse-midwives who responded to a 1976 survey conducted by the ACNM reported they were in clinical practice. A third more reported they were using their midwifery training, though not in clinical practice (ACNM, 1978). The reasons for the low participation rate in clinical practice are not known but must be determined so that interventions may be taken to bring the utilization of this profession up to its appropriate level. In calculating its recommendations for delegation in obstetrics, the NPHCP Panel assumed that midwifery participation in clinical practice will increase to 70 percent by 1990.

Since the GMENAC conceptualized the requirement for general medical care by age group (i.e., adult and child), the NPHCP Panel apportioned the supply of nonphysicians who work in general or family practice between these categories. NAMCS data show that physicians in general practice provide about 82 percent of their encounters to adults and 18 percent to children, thus it was assumed that the caseloads of nonphysicians were similarly apportioned. The head count of nonphysicians in general/family practice was thus translated into adult medical care equivalents by multiplying .82, and into child care equivalents by multiplying .18. The same methodology was used for apportioning the 1990 supply. The derivation of the current and future supply of adult and child medical care nonphysicians using this methodology is shown in Table 3.

Future Supply

Estimates of the supply of PAs and nurse-midwives in 1990 were sought from their respective professional organizations. For the most part, these reflect a simple projection of the numbers being currently graduated from training programs.

Physician's Assistants--The PA professional organization (APAP) reports that 1,500 new PAs are added to the supply each year. A total supply of 26,000 is expected by 1990.

Nurse-midwifery--Presently, between 175 and 200 new nurse-midwives are graduated annually. The American College of Nurse-Midwives expects the supply to reach 4,000-5,000 by 1990, assuming a slight increase in the numbers trained each year.

Nurse practitioners--The Division of Nursing (Health Resources Administration) estimates that 2,100 new nurse practitioners are graduated from training programs each year. If this continues, the total supply will reach 39,000 as of 1990.

The projected growth in the nonphysician supply, based on the assumption that there will be neither an increase nor decrease in the numbers graduated each year, is depicted in Diagram 1 on page 25. The total numbers of all three groups will be slightly more than double the present supplies by 1990.

Table 3

CONTRIBUTION OF GENERAL/FAMILY
PRACTICE NONPHYSICIAN PROVIDERS TO ADULT AND
CHILD MEDICAL CARE: NOW AND 1990

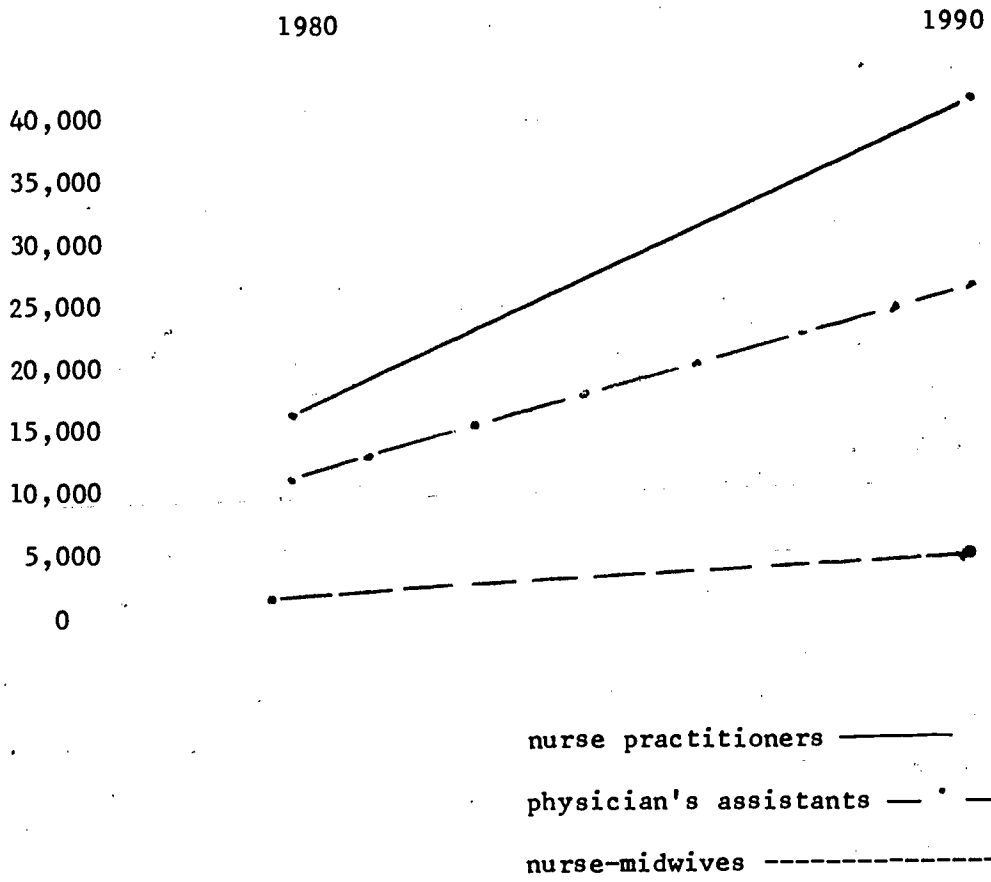
	Active Supply (Head Count)	Adult Medical Care (Equivalents) <u>2/</u>	Child Medical Care (Equivalents) <u>3/</u>
<u>Current</u>			
Family Nurse Practitioners	3,600 <u>1/</u>	2,952	648
PA's in General/ Family Practice	<u>4,928</u> <u>4/</u>	<u>4,041</u>	<u>887</u>
Total	8,528	<u>6,993</u>	<u>1,535</u>
<u>Projected for 1990</u>			
Family Nurse Practitioners	8,775 <u>5/</u>	7,196	1,579
PA's in General/ Family Practice	<u>11,648</u> <u>6/</u>	<u>9,551</u>	<u>2,097</u>
Total	20,423	<u>16,747</u>	<u>3,676</u>

Notes

- 1/ Total NP supply is 16,000; 75 percent are estimated to be active and 30 percent are family NPs.
- 2/ Head count x .82
- 3/ Head count x .18
- 4/ Total PA supply is 11,000; 80 percent are estimated as active and 56 percent are in GP/FP.
- 5/ Projected supply is 39,000; 75 percent will be active, 30 percent will be family NPs.
- 6/ Projected supply is 26,000; 80 percent will be active, 56 percent will work with family or general practice.

Diagram 1

GROWTH IN NONPHYSICIAN PROVIDER
SUPPLY: 1980 TO 1990



VIII. GENERAL RECOMMENDATIONS

Recommendation 1

A careful and thorough study of the requirements for NPs, PAs, and nurse-midwives should be undertaken as soon as possible. Special attention must be given to the effect of a physician excess on their utilization and the benefits which these providers might bring to health care delivery. (See Recommendation #12) The study should consider the full range of services which they provide, both those which are complementary to and those which are substitutes for physician services.

Recommendation 2

Until the study recommended above (#1) can be completed, the numbers of PAs, NPs, and nurse-midwives being graduated from educational programs each year should continue at their present levels. These numbers are needed to attain the delegation levels which have been deemed desirable by the GMENAC. The Committee recognizes the preliminary nature of these judgments and the need for further data. Incentives for increasing the numbers trained each year should be discontinued until it has been determined that such numbers are desirable and that they will be utilized in the system.

Although GMENAC has projected a surplus of physicians for 1990 and has recommended decreasing the numbers of physicians trained, it was felt inappropriate to recommend a reduction in the numbers of NPs, PAs, and nurse-midwives being trained without first taking into account the other services which they provide (i.e., those which are not medical services.) A change in their training levels in any direction did not appear warranted until data are available which firmly establish the effects of these providers on the health care delivery system.

Recommendation 3

Federal and nonfederal policies for funding of NP, PA and, nurse-midwifery training programs should be reassessed in light of recommendations 1 and 2.

The adequacy of the applicant pool for NP and nurse-midwifery programs is related to the numbers of nurses with R.N. or bachelor's degree training. Since there is presently a perceived shortage of such nurses, at least with regard to the numbers participating in the labor-force, the effect of this shortage on the future supply of nurse practitioners and nurse-midwives should be evaluated.

IX. QUANTIFIED RECOMMENDATIONS

OBSTETRICS-GYNECOLOGY

Delphi and Modeling Results--As a result of the Delphi Process, the Modeling Panel made the following recommendations regarding future delegation in obstetrics-gynecology:

- Nurse-midwives should handle 7 percent of all deliveries in 1990.
- One-third of all the ambulatory maternity care required by the obstetricians' low-risk patients should be delegated (6.7 million visits).
- Nurse-midwives should provide the prenatal and postpartum care for the patients they will deliver (3.9 million visits).
- Thirty-four percent of the ambulatory gynecological service requirement (14.4 million visits) should be delegated in 1990.

NPHCP Panel Deliberations--Nonphysician providers identified as having an impact on the physician manpower requirements in obstetrics-gynecology include nurse-midwives, ob-gyn nurse practitioners (including maternity, women's health, family planning and all other NPs specializing in the reproductive health care of women) and physician's assistants. The Panel estimated that these providers may currently contribute as much as 5 percent of the services presently furnished within the specialty of obstetrics-gynecology. Table 4 shows the current supply and provides the basis for this estimate. To the extent that these nonphysicians provide complementary services rather than those traditionally provided by the physician, this may be an overestimate.

Reasons for Supporting Delegation--The Nonphysician Health Care Provider (NPHCP) Panel determined that increased delegation of obstetrical and gynecological services to nonphysician providers is desirable for at least the following reasons:

1. Nurse-midwives and other nonphysician providers help alleviate the problem of geographic maldistribution of services.

Nurse-midwives are more likely than physicians to locate in small communities. Ten percent of the nurse-midwives in clinical practice are located in communities with populations under 10,000, (American College of Nurse-Midwives, 1978) while fewer than one percent of all physicians are in these locales (U.S. Dept. of HHS, Area Resource File, 1980).

Table 4a

CONTRIBUTION OF VARIOUS PROVIDERS TO SERVICES IN THE SPECIALTY OF
OBSTETRICS-GYNECOLOGY (ESTIMATED)

<u>Provider</u>	<u>Number</u>	<u>Number Expressed Physician Equivalents</u>	<u>Percent of Total Care</u>
<u>Physicians</u>			
Obstetrician-gynecologists	22,962 <u>1/</u>	22,962	95%
<u>Nonphysicians</u>			
Nurse-midwives	1,020 <u>2/</u>	510 <u>3/</u>	
Ob-Gyn Nurse Practitioners	1,200 <u>4/</u>	600 <u>3/</u>	5%
Physician's Assistants	176 <u>5/</u>	88 <u>3/</u>	
TOTAL	25,358	24,160	

Notes

- 1/ Number of obstetrician-gynecologists in patient care, including residents, 1978 A.M.A. data.
- 2/ Based on a supply of 2,000 with 51 percent in active clinical practice.
- 3/ Assumes the nonphysician is half as productive (when measured in medical visits or deliveries) as the physician.
- 4/ Based on a total NP supply of 16,000 with 10 percent specialized in ob-gyn and 75 percent of these active.
- 5/ Based on a total PA supply of 11,000 with 80 percent active and 2 percent working in obstetrics-gynecology.

Although a substantial proportion of nurse-midwives are in very large metropolitan areas, it appears as if even here many work among formerly underserved populations in the inner cities, since the majority are employed by hospitals (American College of Nurse-Midwives, 1978) and, when these are public facilities, it is likely they are serving indigent populations. Ob-gyn NPs are counted on for services in rural areas (Pragmatics, 1978) and serve in inner cities as well (Sultz et al., 1978).

2. Consumers should have the opportunity to exercise choice of provider. Some women prefer nurse-midwives for maternity care* and some consumers may prefer nonphysicians for other selected ob-gyn services. The continued availability of these providers should be assured.

The Panel recognized that to the extent consumer preference for the nurse-midwife depends upon the fact that she is also a woman, preference may change as more women enter obstetrical residencies. Similarity of sex may not be the only operative dynamic, however, and the Panel recommended that the reasons for consumers' preference for the nurse-midwife be ascertained through research. The limits of this preference should also be determined.

3. The content of care provided by nurse-midwives may be different in emphasis from that provided by physicians. It may be opportune for the midwife to spend more time with the patient than is possible for the physician. The Panel deemed it desirable that the health care system include such alternative models of care.

Feasibility of the Proposed Delegation

The NPHCP Panel identified the following as significantly affecting the delegation level which can be attained in obstetrics-gynecology by 1990:

--The size of the physician supply (an unavoidable excess is expected);

--The size of the nonphysician supply (relative to the original Modeling Panel recommendations, there was a shortfall between the expected supply and the numbers that would be required to provide the delegated care).

Recommendation 4

Until the study recommended above (#1) is completed, the numbers of nonphysician providers for obstetrics-gynecology being graduated from educational programs each year should continue at the present levels.

This means that 175-200 new nurse-midwives would continue to be produced each year, bringing the supply from 2,000 in 1980 to 4,000-5,000 in 1990. Slightly more than 200 new ob-gyn NPs will be added yearly,

* See for example, Record and Cohen, 1972.

increasing the total supply from an estimated 1,600 at present to 3,900 in 1990. The numbers active in both professions will be somewhat less. The numbers of PAs involved in ob-gyn now and in 1990 are small.

Recommendation 5

Five percent of the normal, uncomplicated deliveries (197,600) should be delegated to nurse-midwives in 1990.

This represents a reduction from the 7 percent recommended by Modeling to reflect the constraint which will be imposed by the excess of obstetricians expected in 1990.

Recommendation 6

Delegation of ambulatory visits should be adjusted to match the capabilities of the expected supply of nonphysician providers in 1990.

The delegated visits should correspond to the practice profile of the nurse-midwife, with some visits managed by other nonphysicians. Table 5 shows the supply of nonphysicians available for ob-gyn in 1990 and their expected capability.

These estimates lead to the following quantified recommendations: nurse-midwives should provide 2.8 million prenatal and postpartum visits related to the deliveries which they will manage in 1990. Instead of providing one-third of the ambulatory care for the obstetricians' low-risk patients as recommended by the Modeling Panel, nonphysicians should provide only one-fifth of this care, or 4.3 million visits. This represents 20 percent of the maternity visits accruing to the ob-gyn caseload. The delegation of gynecological visits should be reduced from 34 percent (14.4 million visits) as originally recommended by Modeling to 18 percent or 7.5 million visits. These recommendations are summarized in Table 6.

CHILD MEDICAL CARE

Delphi and Modeling Results--As a result of the Delphi process, the Modeling Panel recommended that 74 million visits in general child medical care and 3 million visits in the pediatric subspecialties (27 percent of the total ambulatory workload) be delegated to nonphysician providers in 1990.

NPHCP Panel Deliberations--Nurse practitioners and physician's assistants were identified as the general provider-types relevant to physician manpower requirements in child medical care. The following specific groups are involved: pediatric nurse practitioners, school nurse practitioners, child health associates, and other PAs who provide the majority of their care in pediatrics. In addition, family nurse

Table 5

NONPHYSICIANS AVAILABLE FOR OB-GYN IN 1990

<u>Type</u>	<u>Total Supply</u>	<u>Active Supply</u>	<u>Capability</u>
Nurse-midwife	4,000-5,000 <u>1/</u>	2,800 <u>2/</u>	197,600 deliveries and the related 2.8 million prenatal/ postpartum visits; 2.8 million additional visits <u>3/</u>
Ob-gyn nurse practitioners <u>4/</u>	3,900 <u>5/</u>	2,900 <u>6/</u>	7.8 million visits <u>7/</u>
Physician's assistants	500 <u>8/</u>	400 <u>9/</u>	1.2 million visits <u>10/</u>

Total Capability: 197,600 deliveries and 2.8 million related visits; 11.8 million additional visits

Notes

- 1/ Estimate from the American College of Nurse-Midwives (ACNM), personal communication, 1980; reflects 175-200 midwives currently graduated each year plus a slight increase.
- 2/ Based on the low end of the supply projection (4,000) in order to reflect no increase in the numbers graduated each year and 70 percent active in clinical practice. The estimate assumes the percent active in clinical practice will increase. As of 1976-77 it was 51 percent (ACNM survey data).
- 3/ Assumes that a midwife will manage 70 deliveries and 2,000 ambulatory visits per year. The average midwife who managed deliveries handled 65 in 1976-77 (ACNM survey data). It is assumed nurse-midwives will be given more opportunities to manage deliveries.
- 4/ Includes maternity, women's health, family planning and all other NPs specializing in the reproductive health care of women.
- 5/ Ob-gyn NPs are estimated at 10 percent of the total expected NP supply of 39,000 as of 1990.
- 6/ Assumes 75 percent are active.
- 7/ Productivity is estimated at 2,700 ambulatory visits per year; this is the equivalent of approximately 11 visits per day. It is at the higher end of the range of estimated productivity in the Bureau of Community Health Service's Standards for nonphysician providers in family planning.
- 8/ Based on a supply of 26,000 with 2 percent in obstetrics-gynecology.
- 9/ Assumes 80 percent are active.
- 10/ Productivity is estimated at 3,000 visits per year.

practitioners and PAs who work with general and family practitioners provide medical services to children. All of these nonphysicians, when providing delegated medical care, act under the direction and supervision of a physician.

The NPHCP Panel estimated that nonphysician providers may presently furnish as much as 7 percent of all child medical care. Table 7 provides information on the current supply and gives the basis for this estimate. To the extent that these practitioners are used to provide support rather than medical services, this may be an overestimate of their present contribution.

Table 6

NPHCP PANEL'S RECOMMENDATIONS FOR DELEGATION
IN OBSTETRICS-GYNECOLOGY IN 1990

<u>Care</u>	<u>Delegation</u>	<u>Explanation</u>
Deliveries	197,600	5% of deliveries projected for 1990.
Maternity Visits	7.1 million visits	includes 2.8 million visits related to mid-wife deliveries; 4.3 million visits provided as "shared" care (one-fifth of the obstetrician's low-risk caseload); total reflects a 20% delegation level
Gynecology	7.5 million visits	reflects an 18% delegation level

Table 7

CONTRIBUTION OF VARIOUS PROVIDERS TO GENERAL CHILD MEDICAL CARE
(ESTIMATED)

<u>Provider</u>	<u>Number</u>	<u>Child Medical Care Physician Equivalents</u>	<u>Percent of Total Care</u>
<u>Physicians</u>			
General			
Pediatricians	22,261 <u>1/</u>	22,261	93%
GP/FP Physicians	65,327 <u>2/</u>	11,759 <u>3/</u>	
<u>Nonphysicians</u>			
PAs in Pediatrics	264 <u>4/</u>	132 <u>5/</u>	7%
Pediatric NPs	3,000 <u>6/</u>	1,500 <u>5/</u>	
PAs in GP/FP	4,928 <u>7/</u>	444 <u>8/</u>	
Family NPs	3,600 <u>9/</u>	324 <u>8/</u>	
TOTAL	99,380	36,420	

Notes

- 1/ Pediatricians in patient care including residents, 1978 A.M.A. data.
- 2/ Supply active in general and family practice excluding residents and interns from A.M.A. Master File (1978) and AOA 1979 Survey.
- 3/ Assumes 18 percent of encounters in GP/FP are for children 16 and under, thus, each GP/FP physician equals a .18 child medical care physician.
- 4/ Based on current PA supply of 11,000 with 80 percent active and 3 percent specialized in pediatrics.
- 5/ Assumes the productivity of a nonphysician is .5 that of a physician.
- 6/ Based on a total supply of 16,000 as of 1979 with 25 percent trained for pediatrics and 75 percent active.
- 7/ Based on a supply of 11,000 with 80 percent active and 56 percent working in GP/FP.
- 8/ Assumes that each PA or NP in general practice is equivalent to a .18 nonphysician child care provider; each nonphysician is equivalent to .5 physicians.
- 9/ Based on an NP supply of 16,000 with 30 percent trained as family NPs; assumes 75 percent are active.

Reasons for Supporting Delegation in Child Medical Care--After considering the available data, the NPHCP Panel concluded that increased delegation in child medical care is desirable for the following reasons:

1. PAs and NPs who provide child medical care favorably affect the accessibility of services. Data suggest that more than half of the NPs who provide services to children may work in an inner city or a rural area (Sultz et al., 1978). More than 30 percent of all PAs who provide child medical care may be in communities of less than 10,000 (Association of Physician Assistant Programs, 1978).

2. Some consumers visiting health facilities or physician's offices where NPs or PAs are employed appear to prefer these providers for some child medical care services. This choice should continue to be available to the consumer. Although most of the research on consumer attitudes has been concerned with measuring acceptance, which is less positive in connotation than preference, the Panel believed it reasonable to assume that, for some consumers, nonphysicians are the preferred provider. It, however, recognized the need for research into the reasons for and limits of such preference.

3. The content of care provided by nonphysicians may be different from that given by physicians owing to an increased emphasis on patient education. Nonphysicians may also be able to spend a longer time with their patients. While the Panel recognized that many physicians are also skilled in patient education and counseling, the Panel believed that inclusion of nonphysician providers may bring a healthy variety to the health care system. The distinctive features, if any, of nonphysician care, however, must be better identified and their relationship to outcome established.

Feasibility of Delegation in 1990--The Panel identified an expected shortfall of NPs and PAs relative to the proposed delegation level as the major constraint to attaining the proposed level by 1990. Other factors which will limit the utilization of nonphysician providers include restrictive laws and regulations and nonsupportive reimbursement policy. These latter will be discussed below.

Recommendation 7

Until the study recommended above (#1) can be completed, the numbers of nonphysicians for child medical care being graduated from educational programs each year should continue at their present levels.

This means that an equivalent of some 800 nonphysicians will be added to the supply for child medical care each year. Presently the active supply is estimated at 4,800 nonphysicians. By 1990, it will have increased to 11,600.* This projection assumes the specialty distribution of NPs and PAs will continue as at present.

Recommendation 8

The number of visits delegated in child medical care should be adjusted to match the capabilities of the expected supply of nonphysicians in this area in 1990.

Using what it deemed the most reasonable assumptions in calculating the future supply and productivity of nonphysician providers in child medical care, the Panel recommended that delegation be not more than 46 million visits; or 16 percent of the total ambulatory workload. This reflects a substantial decrease from the 27 percent originally recommended by the Modeling Panel. The expected supply of nonphysicians in child medical care and their capabilities in visits are shown in Table 8.

In calculating the 1990 physician requirement for child medical care, the Modeling Panel, after concurrence from the GMENAC, reduced this delegation level slightly--to 15 percent.

ADULT MEDICAL CARE

Delphi and Modeling Results--As a result of the Delphi process, the Modeling Panel recommended delegating 189.7 million visits in general adult medical care (17 percent of the total workload) to nonphysician providers in 1990. Delegation in the internal medicine subspecialties was limited to task delegation.

NPHCP Panel Deliberations--Nurse practitioners and physician's assistants have also been identified as the nonphysician providers relevant to physician requirements for adult medical care. The following subcategories of these providers are involved: adult NPs, family NPs, PAs who work in general/family practice settings and PAs working in internal medicine or one of its subspecialties. As used here, adult NP refers to NPs trained in adult, geriatrics, college health, occupational health, critical care or medical-surgical programs. Family NP refers to an NP specialized in family, community, or rural health. The non-physician providers who work in general practice settings are assumed to furnish 82 percent of their encounters to adults, and thus are counted as .82 adult medical care nonphysician providers. Since task delegation does not have to involve formally trained nonphysician providers, the NPHCP Panel disregarded the internal medicine subspecialties in its deliberations. The PAs who currently provide the majority of their care in these areas (5 percent of the supply) were, however, counted as part of the adult medical care supply.

* In calculating the nonphysicians available for child medical care, a general practice nonphysician is counted as a .18 child medical care nonphysician. The figures shown are equivalents, not head counts.

Table 8

NONPHYSICIAN PROVIDERS AVAILABLE
FOR CHILD MEDICAL CARE IN 1990

<u>Provider</u>	<u>Estimated Active Supply in 1990</u>	<u>Capability in Visits (millions) 5/</u>
Pediatric NPs	7,300 <u>1/</u>	29.2
Family NPs	1,600 <u>2/</u>	6.4
Pediatric PAs	600 <u>3/</u>	2.4
FP/GP PAs	<u>2,100 4/</u>	<u>8.4</u>
TOTAL	11,600	46.4

Notes

- 1/ The total supply of NPs will be 39,000. It is assumed that 75 percent of those trained will be active in the profession and 25 percent will be trained for pediatrics.
- 2/ Same derivation as in note 1, with thirty percent of all NPs in family practice and each family NP equivalent to .18 pediatric NPs.
- 3/ The supply of PAs will be 26,000. Eighty percent will be active and three percent of the PA supply will work in pediatric settings.
- 4/ Same basis as estimate in note 3. Fifty-six percent of active PAs will work in general/family practice settings. A PA in such a setting is the equivalent of a .18 pediatric PA.
- 5/ Assumes a nonphysician will provide 4,000 ambulatory visits annually. This is about 60 percent of the productivity of a full-time ambulatory care pediatrician as of 1990, as estimated by the Delphi and Modeling Panels.

The NPHCP Panel estimated that these nonphysician providers may presently furnish as much as 4 percent of all adult medical care. Table 9 shows the current supply who work in adult medical care and provides the basis for this estimate. As before, the methodology assumes that non-physicians are being utilized to provide delegated medical services. To the extent that they are being underutilized and are furnishing support services rather than those typically provided by the physician, it overestimates their present contribution.

Reasons for Supporting Delegation in Adult Medical Care--The findings of the NPHCP Panel with regard to the desirability of continuing to support delegation in adult medical care were similar to those for child medical care.

PAs and NPs providing adult medical care favorably affect the accessibility of services. Nearly one-half of these NPs may be in inner city or rural areas (Sultz, H.A., et al., 1978). Nearly one-third of the PAs may be in communities of less than 10,000 (Association of Physician Assistant Programs, 1978). Although the Panel did not examine this issue in detail, nonphysicians may also be making significant contributions to the care of special populations, for example, Indians, the elderly in nursing homes, and prisoners.

Some consumers who visit medical facilities where nonphysicians are utilized appear to favor these providers for some services. Such consumer choice is desirable; however, the Panel recognized that additional documentation is needed in this regard.

As with child medical care, the care provided by nonphysicians to adults may be different from that given by physicians owing to their greater emphasis on patient education, as well as their availability for lengthier patient visits. Research attention to this issue is needed.

Feasibility of Delegation--The NPHCP Panel identified an expected shortfall of NPs and PAs relative to the proposed delegation in adult medical care as the major constraint against attaining the proposed levels by 1990. These calculations assume that the numbers of new PAs and NPs added to the supply each year will stay the same until 1990. Other factors which may limit the utilization of nonphysician providers include restrictive laws and regulations and non-supportive reimbursement policies.

Recommendation 9

Until the study recommended above (#1) can be completed, the numbers of nonphysicians for adult medical care being graduated from educational programs each year should continue at the present levels.

Table 9

CONTRIBUTION OF VARIOUS PROVIDERS TO
ADULT MEDICAL CARE (ESTIMATED)

<u>Provider</u>	<u>Number</u>	<u>Adult Medical Care Physician Equivalents</u>	<u>Percent of Total Care</u>
<u>Physicians</u>			
General Internal Medicine	42,365 <u>1/</u>	42,365	96%
Internal Medicine Subspecialties	27,697 <u>1/</u>	27,697	
General Practice/ Family Practice	65,327 <u>1/</u>	53,568 <u>2/</u>	
<u>Nonphysicians</u>			
PAs in General and Specialty Internal Medicine	1,320 <u>3/</u>	660 <u>4/</u>	
General/Family Practice PAs	4,928 <u>5/</u>	2,020 <u>6/</u>	4%
Adult NPs	2,400 <u>7/</u>	1,200 <u>4/</u>	
Family NPs	3,600 <u>8/</u>	1,476 <u>6/</u>	
<u>Total</u>	<u>147,637</u>	<u>128,986</u>	<u>100%</u>

Notes

- 1/ Physician data is active supply excluding residents from AMA master file (1978) and AOA 1979 survey.
- 2/ Assumes a physician in general/family practice is equivalent to .82 adult medical care physicians.
- 3/ Assumes 80 percent of the total supply of 11,000 are active and 15 percent of these work in settings where general or subspecialty internal medicine is provided.
- 4/ Assumes the productivity of a nonphysician, measured in visits, is one-half that of a physician.
- 5/ Assumes 80 percent of the total supply of 11,000 are active and 56 percent of these work in general and family practice.

TABLE 9, Notes continued .

- 6/ Assumes each general/family practice PA or NP is equivalent to .82 adult medical care nonphysicians and each adult medical care non-physician is equivalent to .5 adult medical care physicians.
- 7/ Assumes 20 percent of the total NP supply of 16,000 have been trained as adult practitioners and 75 percent are active.
- 8/ Assumes 30 percent of the total NP supply of 16,000 have been trained in family care and 75 percent of these are active.

Assuming that the specialty distribution of NPs and PAs will continue as at present, the equivalent of 1,851 new nonphysicians for adult medical care will be added to the supply each year. This will bring the present active supply of 10,713 adult medical care nonphysicians to an active supply of 25,700* as of 1990.

Recommendation 10

The numbers of visits delegated in adult care should be adjusted to match the capabilities of the expected supply of nonphysicians in this area in 1990.

Using what it deemed the most reasonable assumptions in calculating the future supply and productivity of these practitioners, the Panel recommended that the delegation level for adult medical care be not more than 128 million visits, or 12 percent of the projected ambulatory workload. The expected future supply and their projected capabilities are shown in Table 10.

Recommendation 11

The continued appropriateness of these specialty-specific delegation recommendations should be thoroughly and carefully reviewed within the next two to three years.

ASSUMPTIONS USED IN CALCULATING THE MATCH BETWEEN SUPPLY AND REQUIREMENTS

The quantified recommendations made by the Panel are sensitive to the supply and productivity assumptions used in calculating the match between nonphysician supply and requirements. These were as follows:

General Assumptions

- Eighty percent of those trained as PAs will work as PAs in 1990.
- Seventy-five percent of those trained as NPs will work as NPs in 1990.
- Seventy percent of those prepared as nurse-midwives will be active in clinical practice in 1990.

* In calculating the nonphysicians available for adult medical care, a general practice nonphysician is counted as a .82 adult medical care nonphysician. The figures shown are equivalents, not head counts.

Table 10

NONPHYSICIAN PROVIDERS AVAILABLE
FOR ADULT MEDICAL CARE
IN 1990

	<u>Estimated Active Supply in 1990</u>	<u>Capability in Visits (millions) ^{5/}</u>
Adult NPs	5,800 ^{1/}	29.0
Family NPs	7,200 ^{2/}	36.0
Internal Medicine PAs	3,100 ^{3/}	15.5
GP/FP PAs	<u>9,600</u> ^{4/}	<u>48.0</u>
TOTAL	25,700	128.5

Notes

- 1/ Assumes a total supply of 39,000 with 20 percent trained as adult NPs and 75 percent active.
- 2/ Assumes 30 percent of the supply will be trained as family NPs and 75 percent will be active. A family NP is equivalent to .82 adult NPs.
- 3/ Assumes a supply of 26,000 with 80 percent active and 15 percent working in internal medicine.
- 4/ Assumes that 56 percent of the active supply will be in general and family practice. Each PA in general family or family practice is counted as .82 adult PAs.
- 5/ Assumes a nonphysician provider working in adult medical care will provide 5,000 ambulatory visits per year. This is slightly more than 50 percent of the productivity of a physician providing adult ambulatory care full time in 1990, as estimated by the Delphi and Modeling Panels.

Assumptions Regarding Specialty Distribution

- Thirty percent of the NP supply will be trained for family practice.
- Twenty-five percent of the NP supply will be trained in pediatrics.
- Twenty percent of the NP supply will be trained in adult care.
- NPs specializing in reproductive health care (ob-gyn NPs) will constitute 10 percent of the total NP supply in 1990.
- Fifty-six percent of PAs will work in general/family practice in 1990.
- Fifteen percent of PAs will work in internal medicine.
- Three percent of PAs will work in pediatrics.
- Two percent will work in obstetrics-gynecology.

Productivity Assumptions

- PAs and NPs who provide care to children will manage an average of 4,000 visits a year.
- Nonphysicians who provide care to adults will manage an average of 5,000 visits a year.
- A nurse-midwife will manage 70 deliveries a year and 2,000 ambulatory visits.
- An NP working in the area of obstetrics-gynecology will have an annual productivity of 2,700 visits or about 11 visits per day.
- A PA working in obstetrics will manage 3,000 visits a year.

The estimates for pediatrics and adult medical care were derived by taking a percent (between .5 and .75) of the specialist physician's productivity as estimated by the Modeling Panel. The estimate for nurse-midwifery practice was developed in consultation with the director of a large urban midwifery program using program statistics. The estimates for the other nonphysicians in obstetrics-gynecology were derived from the Bureau of Community Health Services Standards for family planning programs. The Panel recognized that additional refinements could be made in these assumptions, particularly with respect to the relative productivity of PAs and NPs. Given the softness of all the data, however, the Panel believed that the assumptions described are adequate for the task at hand. The major data sources utilized by the Panel during its deliberations are described in Attachment 3.

RESEARCH AGENDA RELATED TO THE PANEL'S RECOMMENDATIONS

The shortcomings of the data available for evaluating the desirability of delegation and the methodological difficulties encountered in developing the Panel's specialty-specific recommendations give rise to the following research agenda.

Recommendation 12

Additional data collection, research, and analysis must be undertaken with regard to the following in order to support future medical manpower planning efforts and more accurately project future requirements for physicians, PAs, NPs, and nurse-midwives:

1. The effect of a physician excess on nonphysician utilization.
2. The geographic distribution of nonphysicians and their contribution to increased service accessibility, particularly in underserved areas.
3. The relative costs and expenditures of using nonphysicians in place of physicians for selected medical care services.
4. The limits of consumer preference for and acceptance of nonphysician providers; the reasons for such preference.
5. The distinctive features, if any, of the care given by nonphysicians and their relationship to outcome.
6. The short and long term professional longevity of nonphysician providers.
7. The specialty distribution of PAs and NPs.
8. The determinants of nurse-midwifery participation in clinical practice.
9. The optimal productivity of nonphysicians with respect to medical services, including differential productivity by provider-type (PA or NP) and by specialty of practice.

X. STRATEGIES FOR ASSURING ATTAINMENT OF THE PROPOSED DELEGATION LEVELS

Interventions are needed to assure high rates of retention in the nonphysician professions and to assure that the delegation rates projected by the GMENAC model come about. Nonphysician providers should continue to be trained only to the extent that they will be fully utilized.

The NPHCP Panel identified a number of barriers which might keep the delegation levels below their potential. They include restrictive State laws and regulations, exclusionary reimbursement policies, and the unwillingness of physicians to delegate.

LAWS AND REGULATIONS RELATING TO NONPHYSICIANS PROVIDERS

State legislation and regulations unfavorably affect NP and PA utilization when they impose restrictions which may be unnecessary. Since the individual States regulate practice, the legal climate is varied with some States more supportive than others. One State, however, still does not recognize PAs at all, therefore any practice is illegal.

The Panel believed that the regulations which have been promulgated in some States with respect to the kind of supervision required, the numbers of nonphysicians who can be supervised, and prohibited activities may be unnecessarily burdensome, and thereby serve as a disincentive to nonphysician utilization. The relationship between restrictions and the level of nonphysician utilization attained in a State was supported in a recent analysis (Weston, 1980). The Panel believed that a relaxation of the restrictions on NP and PA practice currently prevailing in some States would result in increased service accessibility, particularly in rural and other underserved areas.

Physician's Assistants (PAs)*--What would be the most prohibitive requirement--that the supervising physician be physically present when the PA is providing care--is not imposed by any State. However, the requirements are quite diverse, and in some cases quite specific (for example, continuous availability of the physician, at least by telephone; regular chart review; reasonable proximity; physician must not be more than 40 miles or 60 minutes away), and it does not appear as if their linkage to quality of care has been demonstrated. Some States specify the number of PAs a physician can supervise and most that do so limit this to one or two. The relationship of these regulations to quality of care is also not known.

* Information on the laws and regulations affecting PA and NP practice is from Miller and Byrne, 1978.

A number of States prohibit independent diagnosis and treatment by PAs requiring the PA to consult with the physician for every patient. This appears to impose an undue burden on the physician's time and detract from the productivity gains which might be expected from hiring a PA. It may also interfere with PA practice in medically underserved areas where a physician may not always be on the premises. Such a requirement confines the use of the PA to tasks rather than visits and constitutes an underutilization of the PA's skill. In a number of States the prescription of any drug by a PA is illegal. Other States provide limited powers in this regard; for example, in approved projects, according to approved protocols, or with a countersignature in 24 hours. Dispensing drugs is usually prohibited.

Nurse Practitioners (NPs)--Laws and regulations governing NP practice also vary widely among the States. The issues are essentially the same as for PAs; however, the restrictions on NP practice appear to be fewer. No State requires onsite supervision for the categories of NPs that the Panel considered, and many States are not specific about the kind of supervision required. When the requirements are specific, they are similar to those for PAs (for example, near proximity; available for consultation; review of practice). Unlike the situation with PAs, no State has imposed a maximum on the number of NPs a physician may supervise.

Most State laws and regulations do not list prohibited activities, and no State outlaws independent diagnosis and treatment, as is the case for PAs in some States. Many States, however, do prohibit or limit the prescription of drugs by NPs. Powers to dispense drugs are also limited.

Nurse-Midwives--The legislative milieu acts as a constraint on nurse-midwifery practice in two ways--generally, by not providing a secure enough basis for practice and, specifically, by imposing arbitrary limits.

The legal basis for nurse-midwifery practice may rest in a statute or regulation specific to midwifery or a statute regulating some other health profession; for example, the medical practice act, nurse practice act, physician's assistant legislation, or a general health statute. In addition, statements of interdisciplinary professional groups, though strictly speaking not legal sanctions, may be taken as providing a basis for practice in the absence of any stronger legal basis (Forman and Cooper, 1976).

Without explicit statutory support, however, it is possible that the basis for practice can be removed by a restrictive interpretation of related statutes by the Attorney General at some later date. While a statement of a multidisciplinary professional group provides a favorable climate for practice, this "gentlemen's agreement," as it were, could be revoked if the involved professionals changed their minds. Anything less than specific statutory recognition can thus be construed as a potential constraint on nurse-midwifery practice.

The number of States with statutes or regulations explicit to nurse-midwifery has increased from 16 in 1976 (Forman and Cooper, 1976) to 32 at present, according to a representative of the American College of Nurse-Midwives (personal communication). In recent years, the legal

climate has thus become increasingly more supportive of midwifery practice. The Panel supported and encouraged this growing statutory recognition.

Explicit statutory recognition, however, may adversely affect practice if unduly limiting regulations are applied. These might include restrictions such as forbidding midwives to do episiotomies or order medications, limiting the interval during which they can provide care to the immediate postnatal period, or requiring a certain number of physician visits for a nurse-midwife's patient.

In some States the relevant laws may pose hardships on nurse-midwives who wish to practice. For example, in one State, a nurse-midwife must apply to two separate agencies for licenses (Forman and Cooper, 1976). If the legal basis for practice is a statute governing some other profession, the nurse-midwife may have to meet requirements which, strictly speaking, are irrelevant to her practice.

Recommendation 13

State laws and regulations should not impose requirements for physician supervision of NPs and PAs, beyond those needed to assure quality of care.

a.) State laws and regulations should be altered as necessary such that a PA or NP working under appropriate physician supervision can independently complete a patient encounter for conditions which are deemed delegable.

b.) The States should move to provide PAs, NPs, and nurse-midwives with limited powers of prescription, taking what precautions are necessary to safeguard the quality of care including explicit protocols, formularies, and mechanisms for physician monitoring and supervision.

c.) At a minimum, PAs, NPs, and nurse-midwives should be given power to dispense drugs in those settings where not to do so would have an adverse effect on the patient's condition. Precautions as elaborated in #13b should be taken to safeguard quality of care.

d.) States with underserved rural areas, in particular, should evaluate whether the laws and regulations pertaining to nonphysician practice discourage nonphysician location in these areas.

Suggestions for Research--The existing literature should be synthesized and new studies undertaken as needed to determine the minimal adequate supervision needed to assure the quality of care provided by PAs and NPs. Research attention should be given to the optimal number of nonphysicians a physician might supervise to assure that the restrictions are imposed in this regard are no greater than are necessary to maintain

the quality of care. Attention should be paid to experiences in those States where nonphysicians have been allowed to prescribe without restriction in order to evaluate the effect on the quality of care.

REIMBURSEMENT FOR NONPHYSICIAN PROVIDER SERVICES

Difficulties with third-party reimbursement appear to impose an even more formidable constraint on nonphysician utilization. The most acute effect is perhaps on private practices or other ambulatory settings, which depend on fee-for-service reimbursement. Institutions such as hospitals and certain federally funded health centers may receive reimbursement for nonphysician services indirectly by including their salaries in the cost formula which is used to determine their "day" or their "visit" rate. The relative ease with which such cost-based reimbursement can be obtained may account for the fact that significant proportions of nonphysician providers are used in these settings.* It may also be, however, that hospitals and other institutions would have an even greater incentive to utilize these providers if the services they gave were reimbursed on a fee-for-service basis.

Many third-party payers, however, are reluctant to reimburse for medical services rendered by someone who is not a physician. The most stringent program is Medicare, which pays for nonphysician services only if they are performed under the personal and immediate supervision of a physician and they are services which are "incident to a physician's professional service." This precludes reimbursement for the ambulatory services in adult medical care which the GMENAC deemed delegable, except in certain cases as specified under the Rural Health Clinic Services Act of 1977 (PL. 95-210).

Medicaid policies vary by State with some more favorable than others. As of 1978, 21 States had explicit policies which provided for reimbursing NP and/or PA services in at least some outpatient settings (Miller and Byrne, 1978). In almost all cases, reimbursement is paid to the employer rather than the NP or PA (Miller and Byrne, 1978). In other States where there is neither a clear policy nor a contrary one, the employer may receive reimbursement, nonetheless, if the billing is done such that it appears as if the physician provided the service. The Medicaid agencies in some States go along with this practice (Miller and Byrne, 1978). This, however, requires the frequent, if not continual, presence of the physician at the practice site so it looks as if the physician is the provider. This makes it extremely difficult for NPs and PAs to serve in outlying clinics where there is no such regular physician coverage and still receive reimbursement. In some States, physicians indulging in this practice risk a fraud charge and this would be expected to act as a deterrent against the utilization of nonphysicians. The American College of Nurse-Midwives reports that all State Medicaid programs currently reimburse for nurse-midwifery services either directly or through a physician (personal communication).

*See data in Sultz et al., 1978; American College of Nurse-Midwifery, 1978; and Association of Physician Assistant Programs, 1978.

Even where State Medicaid policy is favorable toward nonphysicians, there may be some "restriction." For example, three States will only reimburse PAs and not NPs, while one State only recognizes NPs. In some States only a proportion of the physician rate is paid when a nonphysician is the provider (Miller and Byrne, 1978).

Although much attention has been paid to the inconsistency in Federal policies which, on the one hand, fund nonphysician training programs, and, on the other, restrict their practices by denying reimbursement, no substantial changes have taken place in this regard. For a variety of reasons, the Rural Health Clinic Services Act, which authorizes Medicaid and Medicare reimbursement to certified clinics for nonphysician services, has not had a high level of participation (U.S. Dept. of HEW, Physician Extenders in Rural Areas, 1979), and it, therefore, has not served as the catalyst in this area that some had hoped.

The national Blue Shield organization appears to support reimbursement for NP and PA services when these are performed under physician supervision and the billing is made by the physician (Miller and Byrne, 1978). Data are not available on the actual practices of individual Blue Shield plans, and the policies of commercial insurers have not been studied, thus the potential effect of the policies of these carriers on nonphysician utilization cannot be determined.

Direct reimbursement for PA services (i.e., paid to the PA) is nonexistent, and to NPs, rare (Miller and Byrne, 1978). The ACNM reports that the health insurance laws in four States, presently require direct or "in name" reimbursement of nurse-midwives. Four large commercial insurers--Travelers, Continental, Mutual of Omaha, and Hartford--as well as numerous smaller companies have also adopted "in name" reimbursement policies. All of these providers pay the same rate for the same service, whether it is provided by the midwife or the physician (personal communication).

"In name" reimbursement, among other things, allows a nurse-midwife to practice independently of any employer,* which may serve to increase the numbers of nurse-midwives in underserved areas where there is no potential employer. By recognizing the nurse-midwife's ability to act independently within her identified sphere of practice, direct reimbursement may also contribute to a greater sense of professional satisfaction and thereby improve retention in the profession.

According to the ACNM, the nurse-midwife's experience with Blue Shield has been less favorable. The various State plans generally do not provide direct reimbursement to nurse-midwives, and they often attempt to restrict indirect reimbursement (personal communication). Last fall Pennsylvania Blue Shield took the position that it would pay for a nurse-midwifery service only when provided in the physical presence of a physician (Health Law Project, 1979). According to the ACNM, Blue Shield

* It is assumed, consistent with the standards of her professional organization, that she will have a formal, written agreement for medical backup.

plans have also attempted to set lower fees for nurse-midwifery services than for physician services when the services are the same (personal communication).

Recommendation 14

Medicare, Medicaid, and other insurance programs should recognize and provide reimbursement for the services provided by NPs, PAs and nurse-midwives in those States where they are legally entitled to provide these services. Services of these providers should be identified as such to third-party payers and reimbursement should be made to the employing institution or physician.

Recommendation 15

The requirements for physician supervision imposed by third-party payers should be consistent with the laws and regulations governing nonphysician practice in the States.

Third-party insurers should not require the physical presence of a physician for nonphysician reimbursement, but merely require that the supervision conform to whatever is required by State law or regulation. Restrictions as to practice settings should also not be more stringent than those imposed by State law.

Suggestions for Research--Studies should be undertaken to identify how present reimbursement policies act to limit utilization of non-physicians and to identify appropriate reforms. Since cost-containment arguments have been set forth as reasons for restricting reimbursement to nonphysicians, this hypothesis should be tested against the experience in those States where reimbursement is being provided.

PHYSICIAN ACCEPTANCE

Physician nonacceptance of delegation appears to be a mixture of psychological and economic factors.*

*For a complete discussion, see U.S. Dept. of HEW, Interim Report, 1979 and U.S. Dept. of HHS, Office of the Assistant Secretary for Health, 1980.

Recommendation 16

Graduate medical education should be structured so as to give residents experience in working with PAs, NPs, and nurse-midwives such that, once in practice, they will be more disposed and better prepared to utilize these providers.

Recommendation 17

The effect of the size of the physician supply on nonphysician utilization should be studied.

OTHER CONSIDERATIONS

The contribution of PAs, NPs, and nurse-midwives to care in underserved areas has been demonstrated. The Panel believed that this contribution would be even greater if incentives were provided for service in underserved areas (primarily in the form of educational support).

Recommendation 18

NPs, PAs, and nurse-midwives should be eligible for all Federal incentive programs directed to improving the geographic accessibility of services, including the National Health Service Corps scholarship program.

XI. NPHCP PANEL RECOMMENDATIONS RELATED TO OTHER SPECIALTIES

GENERAL SURGERY, NEUROSURGERY, ORTHOPEDIC SURGERY, OTOLARYNGOLOGY,
PLASTIC SURGERY, THORACIC SURGERY, AND UROLOGY

Modeling Panel--None of these surgical specialties delegated either ambulatory or inpatient visits to nonphysician providers. Thoracic surgery was the only specialty which explicitly recognized a role for the PA as surgical assistant. Physician productivity in several of the surgical specialties was increased to reflect task delegation.

NPHCP Panel--The NPHCP Panel concurred with these recommendations. However, since 10 percent of the current PA supply reports one of these specialties as their primary area of practice, the Panel recommended that research be undertaken to determine the extent and nature of present PA involvement in surgical care and the potential for increased delegation in these specialties. The Panel considers that the substitutability of PAs for surgical residents has been demonstrated in some settings. (U.S. Dept. of HEW, Office of the Assistant Secretary for Health, 1979A.)

Recommendation 19

Consideration should be given to using PAs and NPs to provide some of the services which residents provide, should a decrease in the number of surgical residents occur.

OPHTHALMOLOGY

Modeling Panel--As a result of the Delphi and Modeling processes, 50 percent of all visits for refractive error have been allocated to optometrists in 1990. Consideration was also given to increasing the ophthalmologist's productivity to reflect task delegation to an ophthalmic assistant, although ultimately this was not done.

NPHCP Panel--Due to time constraints, the NPHCP Panel did not extensively examine the desirability and feasibility of the allocation of refractive error care. The Panel recommended that such a review be conducted in the future. The following questions were identified as bearing importantly on future consideration of this issue:

- Do optometrists in independent practices act as primary care providers for eye health; i.e., do they perform a thorough exam and refer when medical care is needed? If not, what controls could be imposed to assure that optometrists satisfactorily discharge this function?

- What are the cost differences, and to whom, when an optometrist is used as a first contact provider instead of an ophthalmologist or vice versa?
- What are the bases on which consumers select an optometrist over an ophthalmologist or vice versa for care of a vision problem?

The Panel acknowledged the substantial size of the optometric supply, which at present is nearly double that of the ophthalmologist supply.* By 1990, the supply is expected to reach 26,700 (Stambler, 1979). Attention to the full range of services furnished by those providers was outside the scope of GMENAC, thus no recommendations were made regarding the numbers of optometrists needed.

Recommendation 20

It is imperative that the size of the need for optometric services be ascertained in order to assure that the numbers being trained will not result in an oversupply. Until this study is completed, all incentives for increasing the number of optometric schools or class sizes should cease.

Attention must be paid to the effect increased usage of ophthalmic assistants would have on the need for optometrists. The comparative advantages and disadvantages of the two modes of care for refractive error (i.e., ophthalmologist and ophthalmic assistant versus optometrist) need study.

DERMATOLOGY

Modeling Panel--No visits were delegated to PAs or NPs, however, physician productivity was adjusted to reflect increased task delegation.

NPHCP Panel--The Panel concurred with this recommendation. It believed, however, that the potential for full-visit delegation to PAs or NPs in this specialty, as in many others, is a matter for future research.

PSYCHIATRY

Modeling Panel--The Delphi process in psychiatry focused only on those services which fall within the domain of psychiatrists. Any services provided by nonphysician providers such as clinical psychologists, psychiatric social workers, and psychiatric nurse clinicians are over and above those included in the GMENAC model. There were no recommendations regarding the role of nonphysician providers in psychiatry. A shortage of psychiatrists is anticipated for 1990.

*Based on data in AMA, 1979 and U.S. Dept. of HEW, Office of Health Research, Statistics, and Technology, 1979.

NPHCP Panel--The NPHCP accepted the Delphi and Modeling conclusions regarding psychiatry. However, it believed that research is needed to further document the distinction in roles between psychiatrists and nonphysician providers. Attention should be given to the kind of conditions seen in the practices of the various provider types, the interventions undertaken, and the outcomes. In addition, the following need attention: consumer attitudes toward various providers, the comparative cost of services by provider type, and the impact of the various provider types on increased service accessibility.

The Panel recognized that considerable numbers of clinical psychologists and psychiatric social workers are presently involved in providing mental health services, and both groups will grow substantially by 1990. (U.S. Dept. of HEW, Office of the Assistant Secretary for Health, 1979B.)

Recommendation 21

The national requirements for clinical psychologists, psychiatric social workers, and psychiatric nurse clinicians should be formally studied. The possibility of utilizing nonphysicians to cover a portion of the service deficit expected in 1990 due to a shortage of psychiatrists should be examined.

HOSPITAL-BASED SPECIALTIES (ANESTHESIOLOGY, EMERGENCY MEDICINE, NEUROLOGY, NUCLEAR MEDICINE, PATHOLOGY, PHYSIATRY AND RADIOLOGY) AND PREVENTIVE MEDICINE

Owing to time constraints, the Panel did not examine the roles of nonphysician providers in these specialties.

Recommendation 22

The actual and potential roles of nonphysician providers should be examined for the following specialty areas: anesthesiology, emergency medicine, neurology, nuclear medicine, pathology, physiatry, radiology, and preventive medicine.

Particular attention should be paid to the roles of nurse anesthetists in anesthesiology, doctoral-level medical technologists in pathology, occupational and physical therapists in physiatry, and physician's assistants in radiology.

PODIATRY

Modeling Panel--The Delphi process in orthopedic surgery, the medical specialty with which podiatry is most akin, was such that only services falling within the domain of orthopedic surgery were modeled. Podiatric services were considered additional to those included in the GMENAC model. The Dermatology Panel, another specialty in which some overlap might be expected, handled podiatry similarly. There were thus no recommendations with regard to podiatrists from Modeling.

NPHCP Panel--The NPHCP Panel accepted the Delphi and Modeling Panel's judgments with regard to podiatry. It, however, believed that in the future, an empirical analysis of the practices of podiatrists and the related physician specialists would better elucidate the nature and extent of any overlap in their practices. If overlap is identified, further investigation would then be needed regarding the relative quality and costs of the services of the different provider-types, consumer preference for one over the other, and the contribution of each to service accessibility.

Presently, 9,100 podiatrists are estimated to be actively involved in patient care (Based on data in Stambler, 1979). Assuming there will be little further expansion of podiatry schools, the supply will reach 12,500 by 1990 (Stambler, 1979). This represents a considerable work force as well as a large investment of public funds for training.

Recommendation 23

A study must be undertaken to determine the national need for podiatrists. Until this study is completed, incentives for new podiatry schools or increasing class size should cease.

ADDITIONAL RESEARCH AGENDA

Recommendation 24

In addition to the research agenda proposed above (#12), research and analysis are recommended in the following areas to provide additional empirical backing for future medical manpower planning efforts:

- The extent and nature of present PA involvement in surgical care and the potential for increased delegation in these specialties.
- The potential for full-visit delegation to PAs or NPs in dermatology.
- The distinction or similarity in roles between psychiatrists and clinical psychologists, psychiatric social workers, and psychiatric nurse clinicians with respect to the kinds of conditions seen, the interventions taken, and the outcomes.

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- The nature and extent of overlap in the practices of podiatrists and dermatologists and podiatrists and orthopedic surgeons.
- The desirability and feasibility of using an ophthalmologist versus an optometrist for refractive error care.
- The upper limit of delegability in the various specialties.
- The comparative health system effects of task and whole visit delegation.
- The content of care in nursing practice and its overlap with medicine; in particular, conditions seen, services given, outcomes, and legal authority.
- The efficiency and effectiveness of utilizing NPs and PAs in complementary roles to the physician as part of a team approach to health care.
- The minimal adequate supervision needed to assure quality of care provided by PAs and NPs.
- The optimal number of NPs or PAs that can be supervised by one physician.
- The health system effects, both negative and positive, of direct reimbursement to nurse-midwives.
- Identification of how present reimbursement policies act to limit utilization of NPs, PAs and nurse-midwives and the development of appropriate reforms.

ATTACHMENT 1

Nonphysician Health Care Provider Technical Panel

Committee, Staff, and Consultants: 1977-1980

<u>Committee</u>	<u>Tenure</u>
Robert B. Carbeck, M.D. (convener)	1977-80
Marilyn Aguirre (Ms.)	1977-80
RADM Stephen Barchet, MC/USN	1978-79
Mary N. Barnett, D.O.	1977
RADM J. William Cox, MC/USN	1977-78
Francis C. Hertzog, Jr., M.D.	1978-80
Myron S. Magen, D.O.	1978-80
Karen A. O'Rourke, R.N., M.S.	1980
James A. Pittman, M.D.	1977
Jeanne Spurlock, M.D.	1977-80
Margarita C. Trevino, R.N., M.S.	1980
RADM Almon C. Wilson, MC/USN	1979-80
CDR E. Lee Taylor, MC/USN (alternate)	1979-80
<u>Staff (National Center for Health Services Research)</u>	
Alfreda Dempkowski, M.P.H.	1979-80
Sampel P. Korper, Ph.D.	1977-79
Wendy Parmet	1978
Jacqueline Wallen, Ph.D.	1977-79
Mary Westcott, M.A.	1977-78
<u>Staff (Office of Graduate Medical Education)</u>	
Barbara Feller, M.A.	1978-79
<u>Consultants</u>	
Arlene Granderson, Primary Care Education Branch, Division of Medicine, Bureau of Health Professions, Health Resources Administration, Hyattsville, Maryland	
Jane Record, Ph.D., Health Services Research Center, Kaiser Foundation Hospitals, Portland, Oregon	
Margaret Sheehan, R.N., Chief, Nurse Practitioner Training, Division of Nursing, Bureau of Health Professions, Health Resources Administration, Hyattsville, Maryland	
Jerry L. Weston, Sc.D., Nurse Director, Division of Extramural Research, National Center for Health Services Research, Office of the Assistant Secretary for Health, Hyattsville, Maryland	
Carolyn Williams, Ph.D., University of North Carolina, Chapel Hill	

ATTACHMENT 2

Staff Papers Prepared at the Request of the NPHCP Panel

1,2. "Content of Care" and "Delegability"

These companion surveys of the literature were undertaken to identify available data bases and develop a conceptual framework for considering delegability. The first paper focuses on the content of care as provided by physicians; the other, on the roles of nurse practitioners and physician assistants. The purpose was to identify data categories which cut across both provider types and which could be used in assessing substitutability.

3. "Consumer Views of the Impact of Nurse-Midwives"

This paper, later published in the Journal of Ambulatory Care Management, explores the attitudes of consumers and consumer organizations toward nurse-midwives. It also examines some of the policy issues which arise when nonphysicians are counted on for service to poor populations.

4. "Nonphysician Health Care Providers; Present Status; Impact on Physician Manpower Requirements; Future Alternatives: (GMENAC Interim Report)

This paper reviews the available data on nonphysician health care providers and the constraints and incentives affecting their utilization. It also examines the delegation taking place in general and family practice, pediatrics, internal medicine, and obstetrics-gynecology. This report served as the basis for the briefing papers later prepared in these specialties.

5-17. Briefing Papers for the Delphi Panels

Individual briefing papers were prepared for the Delphi Panels in the following specialties: adult medical care, child medical care, obstetrics-gynecology, dermatology, general surgery, thoracic surgery, urology, plastic surgery, otolaryngology, ophthalmology, orthopedic surgery, psychiatry, and neurosurgery. Each discusses the actual and potential roles of nonphysicians in the specialty as well as factors affecting their utilization.

18. Desirability and Feasibility of the Proposed Delegation Levels in Obstetrics-Gynecology

This paper synthesizes the available data on the geographic distribution of nonphysicians who work in obstetrics-gynecology and considers consumer preference and cost issues as well as the characteristics of the care given by these providers. It estimates the productivity of the supply projected for 1990 and evaluates the effects of various constraints on their practice (i.e., unfavorable reimbursement policy, restrictive laws and regulation, and an excess of obstetricians). It estimates the feasibility of attaining the delegation levels proposed by the Delphi and Modeling Panels.

19. Desirability and Feasibility of the Proposed Delegation in Adult Medical Care
This paper follows the same outline as No. 18, but focuses on PAs and NPs who provide adult medical care.
20. Desirability and Feasibility of the Proposed Delegation in Child Medical Care
This paper follows the same outline as No. 18, but focuses on PAs and NPs who provide child medical care.

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ATTACHMENT 3

Data Sources on Nonphysician Health Care Providers

The following major data sources on nonphysician provider practice in primary care were utilized in developing the NPHCP Panel's quantified recommendations for obstetrics-gynecology, child medical care, and adult medical care.

Association of Physician Assistant Programs, Physician Assistant National Survey, July, 1978: Sixty-two percent (4,498) of a population of 7,281 PAs responded to this survey which collected information on items such as geographic location, practice setting, specialty, and personal and educational background. The NPHCP Panel utilized unpublished tabulations from this survey in assessing the contribution of PAs to increased service accessibility and in determining their involvement in specialty areas.

Nurse-Midwifery in the United States 1976-1977: American College of Nurse Midwives, Washington, D.C., 1978. This monograph reports the results of a 1976-77 survey of nurse-midwifery practice and is the best single source of data in this regard. Seventy-seven percent (1,213) of the U.S. nurse-midwifery population responded. Data include the proportion in clinical practice, the kinds of services provided, practice locations, and the numbers of deliveries managed.

Longitudinal Study of Nurse Practitioners, Phase I, II, III, Sultz, H. A. et al., Bureau of Health Manpower, Division of Nursing, DHEW Publication Nos. 76-43, 78-92, 80-2. Phase I conducted in 1974-75 studied existing nurse practitioner programs which had been operational as of January, 1974. Phase II provides demographic and professional data on the cohort of NPs who were students in these programs in 1974-75. Sixty-eight percent of the original participants responded to a follow-up survey conducted ½-1 year after graduation. Data are available on their participation in the profession, practice settings, geographic location, and kinds of care provided. Phase III reports a similar longitudinal survey of the students enrolled in NP programs as of 1976-77; however, only those programs started after January, 1974 are included in the study universe. Although subject to limitations, the data from the three phases of this study are perhaps the best available on the nurse practitioner profession. They were used by the NPHCP Panel in developing estimates of specialty distribution and assessing the contribution of NPs to increased service accessibility.

Record, J., et al., Provider Requirements, Cost Savings and the New Health Practitioner in Primary Care: National Estimates for 1980. Final Report. Bureau of Health Manpower, Contract No. 231-77-0077. Portland, Oregon: 1979. This research was conducted in close collaboration with the NPHCP Panel. The current delegation level in various settings is described and the upper limit of substitutability in primary care is estimated. Substitutability ratios of nonphysicians for physicians were developed in order to quantify the impact of these providers on physician requirements. An analysis of the costs and expenditures associated with physician and nonphysician training and utilization was also carried out.

The work of the NPHCP Panel also drew on numerous additional publications as well as journal articles. Considerable unpublished data were provided to Panel staff by various nonphysician organizations. The Panel wishes to acknowledge in particular the testimony provided by the American Nurses Association; the American Optometric Association; Dorothea Lang, C.N.M., M.P.H., former past president of the American College of Nurse-Midwifery; and Henry Silver, M.D., of the University of Colorado, Child Health Associate Program.

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