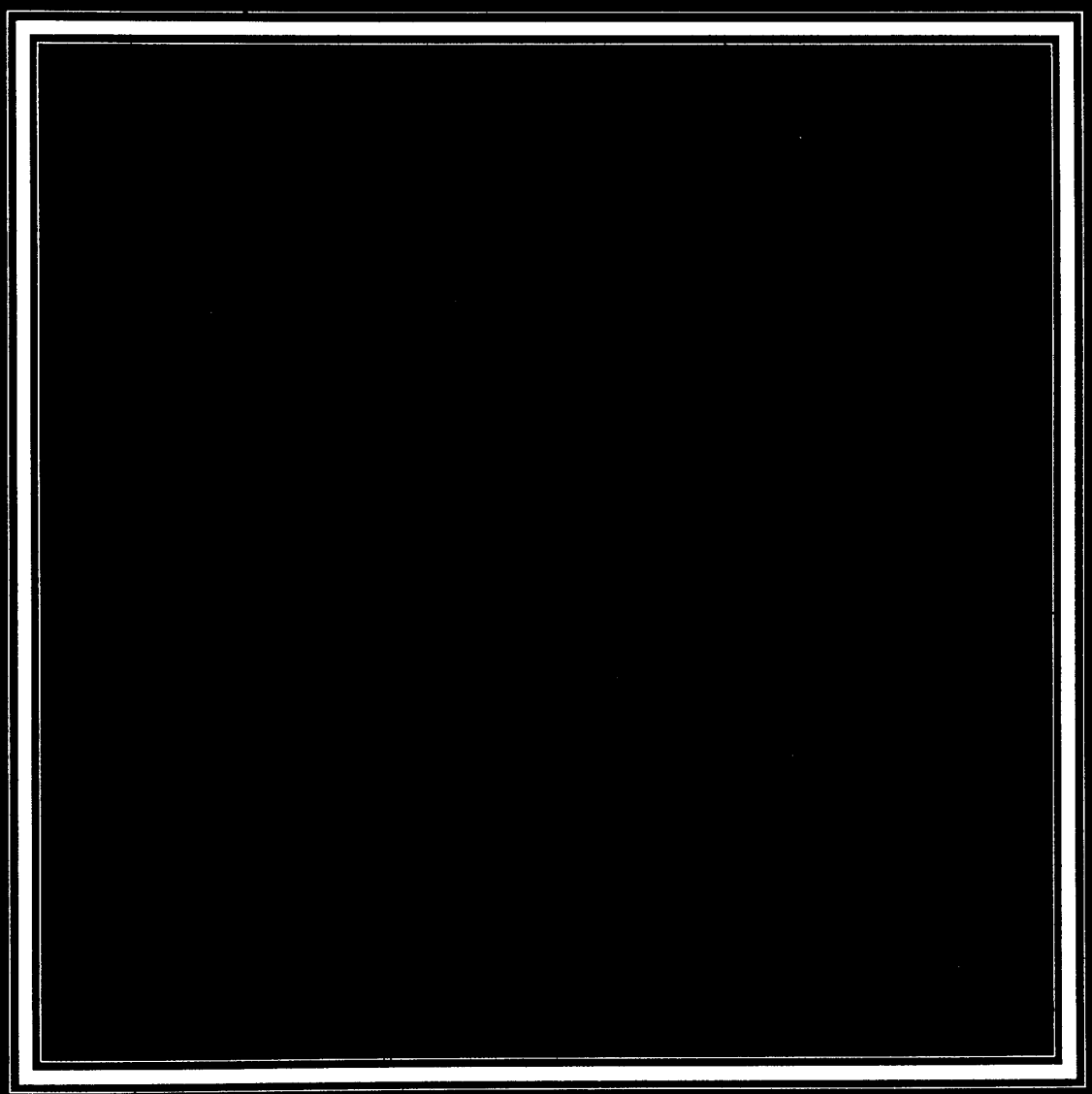
The New Health Practitioners in America



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The New Health Practitioners in America

a comparative study

Barry L Reedy MB MRCGP DObst RCOG
senior lecturer in the organisation of health care
Medical Care Research Unit, University of Newcastle upon Tyne

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Preamble and acknowledgments

Whilst in general practice I became interested in the problems and issues of delegating medical and related work to nurses and the consequent extension of their clinical capacities. At the time (the middle and late 1960s) a number of experiments of this kind were being reported from individual practices and the 'team' concept was beginning to emerge in which the delegation of work from one professional member to another and autonomous clinical or case work activity by members were being debated.

I became aware that not dissimilar issues were being discussed in America when, in 1973, I acted as tutor to the annual exchange of students between the King's Fund and the Duke Endowment in North Carolina.[18] Whilst at Duke University, I was introduced to the training and work of nurse practitioners and physician's assistants, and it occurred to me that here there might be some similarity with problems of our own in the disposition of resources for nursing and related activities in the community.

Our subsequent research on nurses and nursing in general practices in England during 1974 and 1975 suggested that some of the GP-employed nurses in particular were working with a degree of autonomy approaching that of the new health practitioners in America.[38] Our survey also suggested that some GPs had been training lay assistants to do technical work which was reminiscent of that of physician's assistants – a development which Lisbeth Hockey had foreseen in 1972.[22]

When the King's Fund invited me again to accompany the annual exchange in 1976, this time to the University of North Carolina at Chapel Hill, I felt that the opportunity should be used to make a more extensive enquiry into aspects of the training and activities of nurse practitioners and physician's assistants, in the belief that this might contribute specific insights in the interpretation of our own data as well as to a more general understanding of the problems of the team in Britain.

On this second visit I spent almost five weeks at three sites in the eastern USA in April and May, 1976. During the first week, I was the guest of the School of Health Services at Johns Hopkins University in Baltimore and visited the University of Maryland. During the next four weeks, I accompanied the King's Fund course, for the first three at the University of North Carolina (in collaboration with Duke University) and, finally, for one week in Washington where we visited government organisations, federal and related health agencies and national medical and nursing institutions. With only one week available at the beginning before joining the King's Fund course, I limited myself to visiting the two schools in Baltimore, where a range of training programmes for new health practitioners was represented. I had also recently reviewed an evaluation of nurse practitioner programmes by the assistant dean of the School of Health Services, Doris Storms.[37,46] Both she and the dean, Dr Malcolm Peterson, extended a very cordial invitation to visit them and a glance at the details of the programme they arranged for me (Appendix A, page 41) will show the extent of their generosity and hospitality and their wish to enable me to see as much as possible in the time available. Sir George Godber kindly recommended my visit to the nurse practitioner programme at the University of Maryland where its director, Dr William Spicer Jr, and his staff made me most welcome and gave me a great deal of their time and information. Thus, I was able to concentrate in some depth on programmes for new health practitioners in two states, Maryland and North Carolina.

My intention was to explore and describe the new health practitioner phenomenon, and my information was acquired by a range of methods short of the formal survey but including semistructured interviews, documentary research in statistical, descriptive and legislative material, and site visits. There was also the didactic input in the classroom at the University of North Carolina (and previously at Duke University) and this report draws on all these sources.

It would be impossible to mention all my informants by name and any who are omitted should not assume either forgetfulness or discourtesy – merely lack of opportunity. All my hosts in America were interested and interesting and I met only with courtesy and willingness to help. I was never aware that any of them withheld information on sensitive issues and this alone would have made my trip worthwhile. I am extremely indebted to them for their tolerance, generosity, friendliness and hospitality.

I owe my first thanks to Frank Reeves for giving me the incomparable opportunity of making two visits to the USA and to the King's Fund for paying my expenses. I am equally grateful to the Education Foundation Board of the Royal College of General Practitioners who made an additional grant for my visit to Baltimore and for permission to publish a report which was written for the Board. The Department of Health and Social Security and the University of Newcastle upon Tyne kindly granted me the necessary study leave. Both visits were greatly enhanced by the company and support of my fellow tutors, Margaret Hamilton and Maurice Cuming, who worked much harder than I did.

Although they had many other commitments, Malcolm Peterson, Archie Golden, Donald Fisher, Michael Hamilton and James Quick took time and trouble to comment constructively on the manuscript and their advice was invaluable. Nevertheless, I remain entirely responsible for the accuracy of the text and for my opinions and conclusions.

Finally, my secretary Freda Bolam takes all the credit for a flawless typescript produced with her usual good humour, patience and efficiency.

BLR
1978

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Introduction

The use of 'new health practitioners' (NHP) is a recent development in the medical care system of the USA and the term covers two generically distinct kinds of worker, the physician's assistant (PA) and the nurse practitioner (NP). Many variations of these terms are listed and the nomenclature is very confusing.[12] Nevertheless, a nurse practitioner, whatever the prefix, has always qualified as a nurse in the first place before specialising as a nurse practitioner, and more than two-thirds of NPs have a baccalaureate, master's or doctor's degree. As expected from the very small proportion of men who are nurses in the USA (fewer than 3 per cent), NPs are almost always women. PAs, on the other hand, are very rarely nurses although they are usually required to have health-related experience before admission to a training programme. At first they were all men but now about one quarter are women. Many other contrasts will emerge between the two groups as this report unfolds, but perhaps the most telling is the difference in the means by which the activities of each are legitimated. Nurse practitioners are 'certified' (or in some states 'licensed' – the difference is one of effective duration) to practise as NPs by an amendment of the Nurse Practice Act of the state, whereas PAs are certified to practise by an amendment of the Medical Practice Act of the state; this crucial difference gives considerable insight into the origins and affiliations of the two groups.

The term 'new health practitioner' has, in addition, its own significance as betokening a changing emphasis in attitudes to the content of care. Used adjectivally, the word 'health' now has a wider meaning than 'medical' in the USA, and the distinction is important because nurse practitioners in particular have become responsible for the health maintenance and rehabilitation aspects of care which are abjured by many doctors as being low status activities compared with their 'medical' function of diagnosing and treating disease.

It is only ten years or so since the physician's assistant and nurse practitioner first appeared and this is too short a time to weigh their full significance, still less to be certain of their future. As with many innovations in health services, they seem to have sprung at first from isolated and peripheral initiatives which sought to remedy a deficiency which was perceived in local health services. Subsequently the remedy was found to be exportable, thus arguing that the deficiency was more widespread than had been generally appreciated. The emergence of the new health practitioners is most usually attributed to a number of problems which were manifestly affecting the distribution of doctors throughout the USA during the 1950s and 1960s. These appeared to be associated with deficiencies in the provision of certain kinds of health services and inequities in the distribution of all services among the population, but other influences can be traced as affecting the development of programmes for new health practitioners apart from the salving of the professional conscience. Their origin was multifactorial although a shortage of primary care physicians is claimed to have been the most important factor, particularly in rural and central urban areas. A summary of the historical development of the system of medical care in America is needed for a better appreciation of the problems which by the mid-1960s could no longer be ignored by the professions concerned.

1 The development of medical services in the USA

The first medical schools in America were founded at the University of Pennsylvania, in 1765, and soon after in Boston and New York, with a training based on apprenticeship. In 1810 an alternative appeared, the first of the privately owned, profit-making medical schools whose abbreviated curricula and easily-bought diplomas resulted in the establishment of more than 400 of them during the remainder of the century. They were unattached to any university but provided medical training (often derisory) and a qualification for the general practice of frontier medicine amongst a population which was still expanding into the rural hinterland. At the time there were no means for controlling the standards of professional training and practice, and the beginnings of a movement towards the licensure of physicians disintegrated during the administration of President Andrew Jackson (1829–1837) who, as a near-illiterate frontiersman himself, was intolerant of privilege and monopoly and strongly opposed to any confluence of power which would have resulted from the institutionalisation of a professional class.

No fundamental alteration occurred in the system until the 1900s when perceptible changes in hospital medicine coincided with general scientific discoveries and developments. A pioneering role in these changes is ascribed to the Johns Hopkins Medical Institutions in Baltimore – where ironically, the first proprietary medical school had been set up a century earlier. The famous quartet of Osler, Welch, Halsted and Kelly were each pioneers in his own field but Osler is singled out for his introduction of medical teaching at the bedside of the patient. Unfortunately, Osler's ethic of patient-centred medicine conflicted fundamentally with that of Welch, the pathologist-scientist, and this polarisation between the patient as an individual or as an object for detached scientific investigation was further emphasised by personal antipathy between the two men. Americans believe that Osler's eventual move to Oxford gave considerable impetus to the reification of investigative medicine as the paradigm of American practice.

Meanwhile, generalist medicine in the USA suffered a major reversal at a time when general practice in Britain was becoming stabilised by enactment as a first-line national medical service. In 1910, the Carnegie Commission on Higher Education, through the Rockefeller Foundation, commissioned Abraham Flexner's celebrated survey of the medical schools in the USA.[15] He visited all that existed at the time – about 200 – and described them minutely. His revelations totally discredited the proprietary schools which closed progressively until, by the late 1920s, only 60 medical schools remained, all university-based and non-proprietary. By then a revulsion against generalism had taken hold of the profession. Family practice fell into disrepute and began to disappear. The ethos of specialism became all-pervading and the status of specialists was confirmed during the Second World War by their frequent appointment to high military rank. The scientific ideal was enshrined in the post-war proliferation of the National Institutes of Health, and the prestige of both giving and receiving benefactions for medical research all over the country reinforced the ideal. In the wake of the Flexner report, the American Medical Association became progressively absorbed with the problems of licensure and accreditation. It assumed (correctly) that the system of medical care was developing to the satisfaction and benefit of the medical profession but appeared to ignore that this was not necessarily to the benefit of the American people.

In fact, the problems of obtaining medical care had begun to be apparent to the people as early as the 1930s, when the disappearance of any form of training for general practice and the virtual refusal of graduates to go into family medicine were already depleting the number of general practitioners. The number of 'physicians in general practice' is recorded as having fallen from 76 per cent of all physicians in 1940 to 36 per cent in 1965.[6] Not only was there a growing shortage of general practitioners, but there were signs of a maldistribution of those that remained and who preferred to practise, if anywhere, in affluent suburbs or in downtown premises. The beginnings and subsequent development of the popular awareness of the health care crisis are documented by Jonas[28], who quotes the *Final Report of the Committee on the Costs of Medical Care*, made as early as 1932: 'At the present time, many persons do not receive service which is adequate either in quantity or quality and the costs of service are inequitably distributed . . .'[9] The same complaints are made today, but much more generally and vehemently, and the complex patterns of change in the distribution

of doctors which partly underlie them (and which also relate to the main theme of this report) are best explained numerically.

2 Epidemiology of the maldistribution of medical services

There are three points of nomenclature which should be clarified.

1 The term 'physician' applies not only to those qualified MD but also to the small number of 'osteopathic physicians' who are qualified DO (doctor of osteopathy). In 1973, there were 338 100 MDs in active practice in the USA and approximately 15 200 DOs – 4 per cent of the total of 353 300 physicians.* Unless otherwise specified, DOs will be omitted from the following tables.

2 A small number of active MDs (26 800, or 8 per cent of the total) were employed by the federal government in prison services, Veterans Administration, Indian health services and elsewhere. These are also omitted from tables. Their number is diminishing by 2 per cent a year.

3 Owing to the absence of a formal boundary between the hospital and the physician's 'office' in the USA, the generic term 'office-based practice' is used to describe that part of their work which contains the element of primary care. Within this category, the term 'general practice' means just that, but most of the physicians involved in primary care are now classified by their 'primary specialty'. They are most commonly trained in paediatrics, internal medicine or obstetrics and gynaecology (OBGYN) and usually practise in groups with other specialists.

Of the total of 338 100 active physicians in 1973, only 8 per cent were women – a much smaller proportion than in Britain. On the other hand, in 1974–75, 22 per cent of those enrolling in medical schools were women. Only 1.5 per cent of physicians were black, although blacks formed about 12 per cent of the American population in 1973.

The number of all active physicians has increased progressively by an average 2.5 per cent a year between 1968 and 1970, and 2.9 per cent a year between 1970 and 1973. The ratio of active physicians to population in 1972 was, thus, 1:574. This is lower than that in the USSR but higher than in any other country, including England and Wales (1:894 in 1971); India (1:4820) and Nigeria (1:43 500) may be cited as examples. Thus, by international standards there is no overall shortage of physicians in the USA.

Table 1 (page 12) shows how the proportion of office-based physicians changed between 1968 and 1973.

It seems that the number of generic family practitioners or generalists was diminishing but the number of office-based physicians was being increased by those specialising in internal medicine, paediatrics or OBGYN, part or all of whose work is in primary care.

These data seem to be reassuring, but the real problem is that this apparently adequate number of physicians is seriously maldistributed, not only between states but also within them. In 1973, three states – New York, Pennsylvania and California – contained 39 per cent of the full-time hospital physicians, 34 per cent of all interns and residents and 30 per cent of all office-based physicians in the USA. The state with the highest (and still increasing) ratio of physicians to population was New York (1:432) although the District of Columbia could boast of 1:241 – also increasing. At the other end of the scale were South Dakota, a very rural state, with 1:1343, and Alaska with 1:1174. The ratio in South Dakota decreased between 1968 and 1973.

Most of the visit which this report describes was spent in North Carolina, and the microcosm of intra-state maldistribution will be exemplified by data mainly acquired whilst in Chapel Hill and Durham, NC.

In 1968, North Carolina – a predominantly rural state – was relatively under-doctored with a physician-population ratio of 1:1012. Only 19 other states had a lower ratio. Moreover, the doctors were distributed very unevenly within the 100 counties which comprise the state. Table 2 (page 12) compares the proportions of physicians and population in metropolitan and rural counties. The physician-population ratio in the metropolitan counties was similar to that in England and Wales in 1971 but with very few general practitioners. The rural counties had a serious shortage of physicians of all kinds.

At that time too, 20 per cent of general practitioners in

*Unless stated otherwise, the figures throughout this report are taken from the DHEW publication *Health United States, 1975*.[48]

TABLE 1 Changes in office-based, non-federal physicians 1968-1973

	1968	1970	1973
All office-based physicians	181 000	189 000	199 000
General practice	55 000	53 000	50 000
Other full-time primary specialty	126 000	136 600	149 000

TABLE 2 Physicians and population in North Carolina in 1968

	Proportion of population	Proportion of physicians	Proportion in general practice	Physician: population ratio
6 metropolitan counties	26%	43%	13%	1:784
30 rural and 29 semi-rural counties	33%	21%	50%	1:2024

Source: Personal communication from E Harvey Estes Jr MD, 1973.

TABLE 3 Infant mortality in two counties in North Carolina in 1971

	Guilford County	Buncombe County	USA
Rates per 1000 live births			
White population	16.6	25.8	17.1
Non-white population	31.6	47.4	28.5
Total	21.4	28.5	19.1

Source: Selected vital statistics for 1971 of Guilford County Health Department, Health Education Division, Durham NC, and *Health United States, 1975*.[48]

the state were aged over 70 and some remained who had qualified in the proprietary schools. The position had changed in various ways since 1968. By 1973, the physician-population ratio had increased to 1:886 for the state as a whole but estimates two years later showed that in the 30 rural counties, the physician-population ratio was even lower than in 1968, having fallen from 1:2913 to 1:2941.

The link between a shortage of physicians and the health of a population is tenuous, but physician shortage is one aspect of economic and social problems which notoriously affect vital statistics. It is therefore revealing to look at infant mortality figures in two very different counties in North Carolina and these are shown in Table 3.

Guilford is a metropolitan county with a very active public health department and a population of nearly 300 000, 77 per cent of which is white. Buncombe is in the Appalachian Mountains and has a higher predominance of whites (91 per cent) in its population of about 150 000. Nevertheless, it lies in a remote and rural area where communities are isolated and many of the people are indigent. It is areas of this kind which so badly lack traditional health care and indeed there is little to attract physicians, or even the general run of nurses and other health care personnel. This is not peculiar to North Carolina; many states have similar problems, perhaps more notably in the south-east and central USA than elsewhere. Despite the figures in Table 3, the infant mortality rate in the USA as a whole has, of course, fallen steadily, from 26.0 in 1960 to 17.7 in 1973, giving the USA fifteenth place in the international league.

Public awareness and apprehension about the complex entanglement of poverty, inequity and lack of care were focused during the early 1960s by books such as Harrington's *The Other America*[20] and television documentaries by Ed Murrow and others. The collective conscience found its expression at the highest level in President Kennedy's 'War on Poverty', the Migration and Refugee Assistance Act (1962)[50] and the Economic Opportunity Act (1964)[49] amongst others; but some more subtle forces were also at work. Americans are very close to their politicians, both state and federal, and more particularly so in the rural areas. The politicians in their turn carry weight in the medical schools – in 1973, the federal government owned 60 per cent of the assets of all the medical schools in the USA – and a recent resurgence of family practice may owe more to the pressures exerted by influential citizens who found themselves without their family doctor than to any other single force. Out of 44 federal enactments relating to health between 1963 and 1973, eleven concerned the training, deployment or regulation of the health professions, suggesting a high level of concern.

The effect of these and other initiatives has been a marked change in family practice since 1969, when one half of the 300 residencies held vacant for intending general practitioners remained unfilled. The American Academy of Family Physicians and the American Board of Family Practice (founded in 1966) negotiated specialist status for family practitioners, and by 1973 ten state legislatures had dictated the creation of departments of family practice, mostly in state universities. In 1975 there were 3720 residents in family practice programmes where five years earlier there had been only 265.* In the same year there were no fewer than 65 763 applications for 8461 intern and residency programmes offering training in the primary care specialties. During the following year, 66 per cent of all medical graduates in the USA entered training in one of the primary care specialties.[1]

This is no less than a volte-face by the medical profession, but in fact less orthodox initiatives had already begun to improve first contact facilities in a number of states. Of those involving physicians, perhaps the most important were the 400 National Health Service Corps scholarships created by President Kennedy, together with the coercion of medical graduates into under-doctored areas as a condition of exemption from the draft. These programmes now look like becoming effete, but apparently far more spontaneous and engendering an interest disproportionate to the numbers involved has been the emergence of the non-physician new health practitioners who constitute the American experience of what is now almost a worldwide phenomenon – albeit at a number of very different levels of sophistication.

*From a mimeograph, 1976, department of family medicine, University of Wisconsin.

3 Non-physician autonomous practitioners

As elsewhere, there is a range of health practitioners in the USA who work independently of physicians. Some of these have long been recognised as professionals (for example, dentists, optometrists and podiatrists) and are classified by Wardwell as 'limited' practitioners[51]; that is, their competence to practise applies only to one part of the body. Osteopaths and chiropractors, so-called 'marginal' practitioners, might treat the whole body but by methods traditionally unacceptable to physicians. This position is not immutable, however, and for some groups of practitioners, changes in attitudes, knowledge and techniques may lead to their eventual acceptance by the orthodox medical profession. This has happened with osteopaths in the USA; such a process of 'professionalisation' resulted in their fusion with the physicians in the mid-1960s. Pharmacy (another 'whole body' profession) has been developing competitively on both sides of the Atlantic. Rachel Booth, director of the primary care nurse practitioner programme at the University of Maryland, described the anticoagulation clinic staffed entirely by pharmacists in the university hospital in Baltimore in collaboration with the physicians.

At the other end of the scale are 'community health aides', indigenous health workers in poor (which usually means 'black') areas who work as home visitors, health educators and cultural liaison officers in the neighbourhood health centres created by the Office of Economic Opportunity. Their work resembles that of community health assistants in many other parts of the world, and their short training and limited expertise carry no threat for the physician concerned about his autonomy.

In the USA, the 'shaman', or native medicine man, still has a place in the care of Indian minorities whose health status, despite or perhaps because of their segregation into reservations, is even worse than that of the blacks. The US Public Health Service is nominally responsible for the Indians but it too has its staffing and other organisational problems and in North Carolina its intervention appears to be ineffective. The University of North Carolina took the initiative in introducing the medicine men on the Cherokee reservation to the main elements of scientific medicine and particularly its preventive and health education aspects. Two days spent on the reservation with a shaman, Hawk Littlejohn, left a very vivid impression of the effectiveness of this dovetailing of traditional and modern practice. His training in medicine was much less formal than that of a physician's assistant, nor was he specifically accountable to any physician, but he appeared to be fully competent for an intermediate level of primary diagnosis and treatment before referral and had the great advantage of privileged status and universal entrée to the households in his own tribe.

The new health practitioners with whom we are concerned – the generic physician's assistant (PA) and nurse practitioner (NP) – do not seem to fit any of these models. As Flahault points out, they are distinguished from other (lower) levels of health aides by a prolonged general education followed by at least two years of technical training and often much more.[14] The point of departure for nurse practitioners is a qualification in their own right as nurses – professionals who are in nearly every way already autonomous and independent of physicians although often perceived as being subservient to them. Physician's assistants, on the other hand, were created *de novo* by the physicians themselves. It is very unusual for them to have prior qualifications which would allow them clinical autonomy in the same way as nurses, and they remain essentially dependent on their employing physician.

The extent to which new health practitioners are dependent or independent of the physician has been categorised hierarchically by the terms 'physician's assistant', 'physician extender' and 'physician surrogate' (or 'substitute'). Particularly in hospital practice, the PA would tend to correspond with the first and second of these descriptions, whilst the nurse practitioner already has the right to act as a self-sustaining health care system, and would do so in an isolated area. The same has been true to some extent in the rural and mountainous areas of Britain since historical times. The term 'physician extender' covers the overlap between the most and least dependent positions for the new health practitioners, but the nurses dislike it and Loretta Ford suggests 'co-practitioner' as a less equivocal description.[17]

4 Beginnings of the new health practitioners

Both groups of new health practitioners appeared more or less simultaneously but in two different places in the USA in the mid-1960s. Perhaps the history of nursing in America was conducive to the emergence of another clinical specialty among the nurses but there was also a precedent in the Kentucky Frontier Nursing Service[39] – the most often quoted of several movements between the two world wars to provide community nurse-midwife services.

Its founder, Mary Breckinridge, qualified as a nurse in New York but received her midwifery training in England before starting her service in 1925 in a sparsely settled mountainous area with few physicians and a large indigent population. She remained independent of the public health service and sent her employees to England to be trained as midwives until it was possible to establish a graduate school of midwifery at Hyden, Kentucky, in 1939. Her nurses, travelling on horseback, worked from a number of rural outposts and the service became famous for its management of the particular health problems of an isolated mountain region – problems and conditions similar to those found in many parts of America today.

There was no such charismatic precedent for the physician's assistant, but those who instituted the first training programme for PAs in 1966 may have been aware of the existence of health aides in parts of Central and South America and probably of the 'feldsher' in the USSR – although Sidel did not visit the USSR until 1967 nor publish his classic papers until 1968.[42] However, there is an earlier American reference to the role of physician's assistant which illuminates its initiation and subsequent affiliations.

In 1961 at an American Medical Association conference on medical education, Hudson claimed that the growing technical sophistication of hospital medicine threatened to occupy 'attending' physicians to the detriment of their office practice in the community.[26] Apart from using junior staff and 'more reliance . . . being put on nurses', he suggested the creation of a new group of assistants to doctors from 'non-medical, non-nursing personnel'. Technicians already performed many of the tasks in service departments as well as starting transfusions, and Hudson proposed extending the work of technicians to inpatient departments, operating room and emergency ward, quoting the experience gained by the armed forces in training and using corpsmen for similar work.

> 'The role of such an assistant would . . . be carefully delineated. It would be assigned by the physician who assumed moral and legal responsibility for the assistant's acts. The assistant could not be expected to exercise medical judgement but he might well develop considerable technical skill which could be a source of satisfaction to him.'[26]

Activities envisaged for these assistants included lumbar puncture, intubation, catheterisation, assisting at operations and suturing.

This proposal might almost have been a blueprint for the physician's assistant, but a foretaste of problems to come was given by Hudson's informal soundings of nurses from which he was able to infer that 'nursing (sic) would not find the proposal of a medicine-nursing hybrid consistent with their present goals for nurse education'.

The issue was brought home when in 1966, Dr Eugene Stead, at that time chairman of the department of medicine at Duke University, became aware of the problems in providing adequate health care in rural North Carolina. He perceived that action was needed to create a general assistant for the rural physicians, preferably in less time than it would have taken to train and deploy additional physicians, and he first approached the nurses with 'hybridization' in mind. His approach was rejected on the grounds that the hospital nurses were experiencing a staffing crisis of their own; but there is also a belief, mentioned by Philip Bonnet in Baltimore amongst others, that the senior nurses at Duke rejected the suggestion because they felt it was professionally compromising. This would not be surprising because it typifies subsequent developments between the institutions representing nurses and PAs nationally, and is a feeling also expressed by senior nurses in Britain.

The Duke programme began in 1966 by recruiting and training for two years just three ex-forces hospital corpsmen. By 1970, the school was graduating 40 PAs annually, and similar programmes had developed

elsewhere, mainly in the south-east of the USA – although they varied in aims, methods and duration. Dr Donald Fisher, executive director of the Association of Physician Assistant Programs, believed that 1972 was a crucial year. From 1965 only twelve PA programmes had been instituted and had produced a mere 200 graduates. In 1971 and 1972, federal legislation stimulated considerable development of PA programmes by providing fiscal support, and the national medical institutions (including the American College of Surgeons, American Academy of Pediatrics and American Academy of Family Physicians) began to develop criteria for accrediting programmes and a certification examination which would satisfy the licensing requirements being formulated for PAs in a number of states.

By 1974, the AMA had accredited 48 training programmes, located in 30 states and a further six states had passed legislation sanctioning the work of PAs under the supervision of physicians.[40] Partly owing to problems of definition and of differentiation between recognised PAs and the different grades of technician, notably in hospitals, it is still difficult to know how many PAs there are. The Department of Health, Education and Welfare recorded 900 physician's assistants and 200 surgeon's assistants in their statistics for 1973, whilst Sadler, Sadler and Bliss predicted that with more than 1000 PAs being produced annually, their number should have reached 3000 by September, 1975[40] – an estimate with which Dr Michael Hamilton, director of the PA programme at Duke University Medical Center, agreed.

The development of the nurse practitioner, although easily located formally in 1965 by the first programme to be described[44], has a more diffuse origin which is part of the particular way in which the nursing profession itself evolved in the USA. University courses of education for nursing with a qualifying baccalaureate, together with the first professional chairs in nursing, became established early in the century. In New York, Columbia University instituted master's and doctoral degrees for nurses and the first PhD in nursing was awarded – appropriately enough – to one of Mary Breckinridge's frontier nurses. By 1960 there were 504 000 registered nurses (RN – roughly equivalent to SRN in England) and 206 000 licensed practical nurses (LPN – equivalent to SEN in England but with a shorter training). Of the RNs, under 5000 (1 per cent) had an associate or baccalaureate degree. Ten years later, in 1970, the number of nurses with degrees had increased to nearly 25 000 – 3.4 per cent of the total 722 000 RNs, and an increasing proportion had higher degrees. Presumably nursing was obtaining academic advantage by receiving women who were finding difficulty in obtaining admission to medical schools. Changes in nursing itself were inevitable, and the 'hierarchisation' by administrative specialisation which now characterises British nursing was matched in American hospitals by the establishment of a hierarchy in clinical nursing, expressed by designations such as 'nurse clinician' and 'clinical nurse specialist' – appointments for which a degree is often a requirement. It appears that a majority of the nurses in the early NP programmes possessed postgraduate degrees, and their innovative activities would be consonant with their high level of professional and career ambition. These qualifications would also tend to create intellectual parity with the physicians, thus forming a strong base for NPs to negotiate or assume co-practitioner status.

During the 1950s, the content of nursing in ambulatory and community settings appears to have been even more circumscribed than it was in Britain, and it was 1963 when the idea of extending nurses' activities into paediatric care began to be debated.[43] Even so, the level of intervention was limited to counselling, health education and charting infant development. By 1965, a nurse-physician *détente* was being debated in a journal in the context of another scheme for involving nurses in paediatric care.[35] Two years later a more far-reaching programme was reported by Silver and his colleagues and is generally considered to have been a milestone in the development of the nurse practitioner.[44] Working from the department of paediatrics and the school of nursing at the University of Colorado, Denver, they aimed to provide first contact facilities, preventive services and well-child care in the locality. These were based on child health stations set up in low-income communities and the term 'paediatric nurse practitioner' (usually abbreviated to PNP) was coined to describe the nurses responsible for this work. The description shows that these nurses were largely independent of physicians, although exchanging referrals with them, and it is clear that the programme depended for its establishment and success on a singularly egalitarian collaboration between its nurse and physician protagonists.

Later in the same year, Lewis and Resnick described their use for two years of nurses as the main source of continuing care for adults with chronic diseases in a hospital clinic.[33] Some aspects of the nurses' work were evaluated and, in particular, the patients' responses to it were studied. The term 'adult nurse practitioner' (ANP) seems to have grown out of this description and is now widely used for similar activities.

Since then, the training of nurse practitioners has been applied in a variety of settings and the generic name becomes prefixed by 'family' (FNP), 'industrial', 'geriatric', 'school', 'obstetrical' and so on, but most NPs are in paediatric, adult or family care.

Although steps are being taken to create one, there is still no national register of nurse practitioners and their number is unknown. On the basis of a tour of NP schools, Rachel Booth estimated that in 1975 there were about 135 training programmes and about 5000 NPs in practice, with a projected increase by 1978 to 7500. Loretta Ford is less conservative in her estimate that in 1974 there were already 143 training programmes of which 55 were for paediatric NPs.[17] Of all NPs trained, it was believed that only 9 per cent were not practising, whereas amongst nurses generally 45 per cent were not

practising. She also lists the factors which appear mainly to have contributed to the development of the new health practitioner movement as a whole during the 1960s and these will be a useful summary of this aspect of the discussion so far.

1 increasing dissatisfaction and criticism of the health care system together with rising demands for services

2 the movement to attack poverty and deprivation

3 social consciousness of women's rights and the rights of minority groups

4 the increasing value attached to positive health

5 escalating costs of episodic and catastrophic illness

6 physicians overworked and unevenly distributed

7 the process of professionalisation amongst nurses

8 the availability of ex-forces medical corpsmen

These cannot be ranked by importance, but the physicians often seem to be the prime movers in developing each kind of programme and it is already possible to see that there might be differences in personal and professional attributes between NPs and PAs. It also reflects some aspects of the dichotomy in the community nursing services in the UK between nurses employed by area health authorities and those employed by general practitioners.

Although various justifications have served to start local programmes for training NHPs, in virtually every case a physician has been a prime mover. In the PA programmes, in which a nursing influence is rarely discernible, the emphasis originally given by Hudson appears to predominate – that the PA is created as an assistant to the physician and remains essentially under his control.[26] The ethos seems to be that, for whatever purposes, 'the physician needs help'. In programmes for NPs, the emphasis is on partnership and a colleague relation between nurses and physicians, and the services which develop are often directed towards non-acute care – health maintenance and illness prevention – and are located in poor communities. They may be based, as in Maryland, on preliminary surveys of need. In short, their ethos seems to be that 'people need care'. The results of the two approaches might be the same but there is always the suspicion that physicians, left alone, are selective in their objectives, being conditioned by the training they received (amongst other constraints) before there was any awareness of the wider problems of communities.

In the community health services in Britain there are nurses who choose to be employed by physicians (the general practitioners) and a proportion of their work consists of performing clinical investigations and carrying out low status treatments such as ear-syringing. They are effectively subscribing to the belief that 'the physician needs help', and in so doing have in the past incurred the disapproval of the official nursing organisations. Other nurses choose to be employed by health authorities and, whether as bedside nurses or health visitors, have traditionally been involved in basic caring and in some forms of health maintenance and illness prevention. These nurses would seem to subscribe to the view that 'people need care', but in Britain the tradition of giving this care independently of the physician has begun to give way to a more collaborative mode of working during the last decade or so.

5 The physician's assistant

As training programmes developed in the wake of that at Duke University, the nomenclature of this group of NHPs soon became confused by the use of terms such as 'physician's associate' and 'physician's aide'. The distinction between them appears to have been semantic rather than real and with the development of accreditation for PA training programmes and a standard examination, there is now less diversity. Only nine of the 40 programmes listed by Sadler, Sadler and Bliss[40] retain the title 'physician's associate' or, as at Johns Hopkins, 'health associate'.

There is one distinctive type called 'Medex' which originated in Washington State in 1968.[45] Seven training programmes are listed nationally by Sadler, Sadler and Bliss, but they too may be diminishing in number. Medex programmes train PAs specifically to work with solo practitioners or small medical groups in rural areas. They are matched before their training with a potential physician-employer who then becomes their preceptor and after three to six months' didactic instruction they undergo nine to twelve months' clinical training in the preceptor's practice. This participation by the future employer also familiarises him with the role of his Medex, which is claimed to increase the likelihood of an enduring relationship between them. Thus, where other PA programmes train a fixed number of graduates to compete in a free market for appointments with physicians in a wide range of settings, Medex programmes train an exact number of PAs, each 'tailored' to his/her own physician. The point has been taken in other NHP programmes and potential future employers are sometimes involved in the selection and training of both PAs and NPs.

Whilst Sadler, Sadler and Bliss succinctly define new health practitioners as 'health care professionals trained to perform functions formerly done only by the physician', more detailed definitions of the PA's role have had to be made for legal and training purposes. According to the AMA, 'The physician's assistant is a skilled person qualified by academic and practical training to provide patient service [sic] *under the supervision and direction of a licensed physician who is responsible for the performance of that assistant*'.* The last phrase is emphasised because it contains the kernel of the PA's legal and professional status, and differentiates him from the nurse practitioner. The requirement for supervision of the PA by his employing physician is specified in the legislation of all the states in which PAs can be employed (30 in 1974) and is tightly regulated to prevent PAs setting up in independent practice. Their job is to collect data through a medical history, general physical examination and routine laboratory tests in order to work up and present cases to their employing physician who has the prerogative of deciding the diagnosis. After experience in practice many PAs diagnose and prescribe for minor illnesses without immediate reference to their physician, but the good PA is the one who knows his own limits and can judge correctly when to refer a patient to the physician. On the basis of 'standing orders' PAs may provide emergency care and manage chronic medical conditions. In many states they have a limited formulary and in some, but not all, states their prescriptions must be countersigned by a physician. A typical schedule of the preparations prescribable by a child health associate in Colorado is given in Appendix B (page 43) whilst Appendix C (page 45) lists the tasks which may be performed by an assistant to the primary care physician in California. Complementary to this is the job description for the assistant to a hospital physician in a federal Veterans Administration hospital (Appendix D, page 47) whose responsibilities are not dissimilar to those of interns or, in Britain, house officers. There are similar descriptions for PAs who are assistants to surgeons and other specialists.

The techniques of medical history-taking and physical examination, together with an appreciation of the use of a wide range of laboratory tests, are fundamental in the training of all NHPs. Americans regard this as the only way in which any health professional who deals with patients can obtain the data needed to make decisions. PA students seem to have no difficulty with these skills, but nurses in training as NPs appear to be different. Those in the Yale-New Haven NP programme, evaluated by Doris Storms, found history-taking and physical examination more threatening to their internalised concepts of the nurse's role than any other aspect of their training.[46] There are hints that nurses in Britain would have the same sort of difficulty, but the author is now convinced that it is neither wise nor fair

*Quoted in Sadler, Sadler and Bliss.[40] The present author's italics.

to ask community nurses (whether employed by health authorities or GPs) to be responsible for first contacts with patients in lieu of the GP, without training which includes these basic informational skills.

Although effective supervision is required from the physician, it need not always be face-to-face; it may be difficult or impossible in rural and mountainous areas, and in the Pacific islands where a Medex programme based on the University of Hawaii provides much of the health care. Undoubtedly PAs working under these conditions are *ipso facto* more autonomous but some control can be exerted either by means of protocols (standing orders) or by the more rigid device of the clinical algorithm. Electronic technology also allows speech and visual contact at any distance as well as on-line transmission of data from clinical investigations. Even communication by satellite between physicians and PAs has been reported from Alaska.[27] Thus the mechanisms for controlling PAs, although sometimes attenuated, are never absent.

Characteristics, education and employment of physician's assistants

The Association of Physician Assistant Programs (APAP) was formed in 1972 and its executive director, Dr Donald Fisher, has been a major influence in establishing standards and the means for accrediting training programmes. The development of a satisfactory national certifying examination for PAs led to the formation in 1974 of the National Commission on Certification of Physician's Assistants which notifies successful candidates to state licensing authorities. By 1976, a total of 49 member programmes of APAP had been accredited by the AMA's Council on Medical Education and recognised by the state board of medical examiners in most states.

Dr Fisher has also studied the demographic and social characteristics of PAs, using a national sample of nearly 1500 PA students and graduates.[13] His data showed that the typical PA was a white married man, 30 years old at graduation. At first all PAs were ex-medical corpsmen, but the decline in the American military commitment overseas was accompanied by an increasing number of women – about 25 per cent in 1974 – and of racial minorities as physician's assistants. All PAs have at least a high school diploma and 38 per cent has a baccalaureate or higher degree before admission to training. Over 90 per cent has had prior experience in health-related occupations, two-thirds for three years or more when most of them were corpsmen (52 per cent) or medical technicians (10 per cent). A few registered nurses (8 per cent) are also accepted for training, perhaps applying either because there is no NP training school conveniently placed or because they are seeking an education which is not stereotyped by nursing tradition.

Of the respondents who had qualified as PAs, 77 per cent was employed by primary care physicians, mainly in small towns. The remaining 29 per cent was employed in public medical institutions and metropolitan hospitals as assistants to specialists. Most had remained with the physicians who had first employed them and were working a 48-hour week at an annual salary, after three years of employment, of between $15 000 and $20 000. Much higher salaries are available in 'frontier' areas such as Alaska.

It is not easy to appreciate the pecuniary and fiscal arrangements for new health practitioners. In general, the same fee seems to be charged to patients for services rendered either by PAs or by NPs as that charged for the services of the physician. I questioned various members of the public who had experienced this and, despite their unstinting appreciation of the care they had received, all of them rather begrudged paying a full fee for what they saw as care by a 'physician substitute'. Medicare and Medicaid statutes originally confined reimbursements to services rendered personally by physicians, but in 1972 the Senate Finance Committee allowed a number of experimental projects as pilot schemes in reimbursement under Medicare legislation for services performed by 'assistants to physicians'. Physicians who act as preceptors and, subsequently, as employers for Medex graduates are often single-handed and work on a fee-for-service basis. Some Medex programmes subsidise the physician's income during the first few years after employment of the Medex graduate until he has attracted an additional clientele.

Nationally, PA programmes receive 300 applications on average for every 35 places, but the programme at Duke University receives over 500 applications annually for the two-year course. From these only 40 applicants are selected. In 1976, their students were somewhat younger (26.3 years) than the national average and had longer previous health care experience (4.3 years), whilst 90 per cent already held a degree. Only 39 per cent had been medical corpsmen and an increasing proportion (one-third) were women.

Most PA training programmes consist of an initial didactic phase, covering basic sciences and lasting an average of nine months, and rotating clinical internships for 15 months, including a preceptorship in a family practice. Two years is now the standard duration for programmes affiliated to APAP, but many institutions provide a preliminary year or a similar device which enables PA students to gain a baccalaureate or equivalent degree as well as their certification as PAs. At the School of Health Services at Johns Hopkins University, the health associate programme, which trains an approximate equivalent to the physician's associate at Duke, is regarded as forming the third and fourth year of baccalaureate education and applicants are required to have had a minimum of two years' college work prior to enrolment.

At Duke University the didactic curriculum is devoted to

courses in anatomy, laboratory procedures, physiology, clinical chemistry, medicine, pharmacology, microbiology, human pathology, animal surgery and radiology. Illustrative schedules for anatomy and microbiology are reproduced as Appendix E1 and 2 (pages 49–50). The clinical curriculum (Appendix E3, page 51) is divided into six required clinical rotations followed by a choice of four out of 35 elective rotations. The former consist of inpatient medicine, surgical outpatients and emergencies, general paediatrics, obstetrics and gynaecology, outpatient medicine and primary care medicine in a selected practice. Amongst the stated objectives for primary care rotations (Appendix E4, pages 52–56) relatively little stress appears to be placed upon the problem-oriented approach to the data acquired by the PA but, in fact, all the programmes known to the author, whether for PAs or for NPs, teach and regard the use of POMR as a basic skill comparable with history-taking and physical examination.

The School of Health Services at Johns Hopkins University began its programmes in 1972 at the inception of the school itself. Of the three programmes, that for nurse practitioners is described later. There is also a two-year health assistant programme based on a local community college whose objective is to train assistants for primary care physicians practising in the State of Maryland. Whilst they are capable of a wide range of data-gathering and treatment activities, the health assistants at Johns Hopkins do not possess the ability of the health associates (see below) for synthesising the data into a diagnosis and plan of management, and close supervision of the assistant by the employing physician is of the essence.

The health associate programme, based in the School of Health Services itself, is oriented towards primary care. Its classes of 35 are smaller than those at Duke and there is a much higher proportion of women – 68 per cent on average. Comparing the syllabus with that at Duke University, there appears to be a more formalised emphasis on health maintenance and the care of the 'whole family', together with a declared consciousness of psychological problems. The course begins with basic and advanced human biology organised around the life stages and accompanied by experience with inpatients. During the second semester, students consider clinical topics such as allergy, accident, skin, diabetes, headaches, nutrition, psychosis and senescence, and outpatient and community experience is introduced at this stage.

Amongst the objectives set for graduates here is that of 'maintaining contact and *rapport* with community leaders and organizers', which the author assumed was originally associated with the nature of practice in the predominantly black ghetto communities which characterise Baltimore. The students also acquire practical experience in a health maintenance organisation (HMO) in the neighbourhood, the East Baltimore Plan; this resembles a British health centre but with a major involvement of local community leadership. The author spent some hours here sitting in with Leo Fichling, family health practitioner, and Willie Mae Clay, health associate, and watched them good-humouredly and expertly carry out routine supervision on a succession of patients, nearly all of whom had major pathologies. Diabetes, malignant hypertension, cor pulmonale due to haemosiderosis, inactive pulmonary tuberculosis, and yet more malignant hypertension, followed in succession. They were clearly accustomed to and expert at all the standard techniques of physical examination, and the author entirely agreed with Leo Fichling's ophthalmoscopic assessment of new fundus changes in a diabetic patient. This opportunity for personal observation here and in other clinics confirmed the view expressed by others that both PAs and NPs are able to create a sympathetic relationship with patients in middle and lower income groups who would find the traditional physician antipathetic – a difficulty not unknown in Britain.

To enable PA students to meet tuition and living expenses, which can be as high as $8000 a year, bursaries are available through the school from federal monies according to need – as provided by the Comprehensive Health Manpower Training Act of 1971. At Johns Hopkins, about two-thirds of students receive such awards. To qualify for this support, training programmes have to meet three conditions – training must be mainly for primary care in outpatient departments and emergency rooms as well as general practice; graduates must be placed mainly in under-served areas, and students must be recruited from under-served areas, minority groups and women. Table 4 (page 24) suggests that at least the second of these requirements is being met if judged only by the crude division between rural and urban communities.

Although there is a somewhat higher proportion of PAs in metropolitan counties, it must be remembered that any city in the USA with a population greater than 150 000 has, *ipso facto*, a central ghetto with poor whites and blacks and it is fair to assume that most of the urban PAs are practising in HMOs and similar health facilities in these ghettos. A more detailed analysis of the location of the 163 PAs who are in practice, having graduated from Duke since 1965, shows that more than two-thirds are practising in private offices and outpatient departments, and that more than half are in practices in the south and south-east – the most medically under-served areas – and predominantly in North Carolina and Florida.* At present it seems that the new health practitioners, and specifically the physician's assistants, are actually serving the purposes for which they were created.

In a prolonged discussion, arranged by Dr Michael

*From an unpublished paper, *An Overview of the Physician's Associate Program*, Duke University Medical Center, 1976.

Hamilton, three of his final-year PA students at Duke University illustrated many aspects of their stereotype. One had been a medical corpsman in the USAF and had learnt to take medical histories and examine patients during his service. On discharge he took a bachelor's degree in biology and, because he was then too old for medical school, had applied and was accepted for training as a PA. One of the women, Mary Quinn, had been a medical technician and applied to the PA school in order to extend her work with patients which she had found so rewarding. The other, Jo Leslie, graduated in 1972 in history and political science and then accompanied her husband during his postgraduate year at Oxford. By enrolling as a nursing auxiliary for six months at the Radcliffe Infirmary, she not only found her metier in the care of patients but also became an admirer of the National Health Service. On returning to the USA, she found she was too old for admission to medical school and enrolled instead in the PA school at Duke University.

All three were conscious of the insecurity of being part of a new and, in a sense, artificially created profession already potentially threatened by government expansion of training for family physicians. On the other hand, they appreciated being in at the start with an opportunity to influence the development of their profession. They appeared very conscious of their dependence on physicians and were apprehensive about finding an informed and liberal physician to employ them and supervise their work. They believed that having less responsibility than physicians might allow them more control over their personal commitments and they saw a lesser degree of autonomy as beneficial in this sense. This question of responsibility seemed crucial – they remarked on the value of being able to control their level of function. One said 'You can grow as far as you want and then stop when you want' – an application of the 'Peter principle' for which there is covert allowance made also among physicians in Britain and no doubt elsewhere.

Doris Storms observed in a conversation that PAs training at Johns Hopkins were basically non-competitive and did not wish for sole responsibility. They were unlikely to be medical innovators but, on the other hand, were very conscious of their responsibilities to society and tended to be social activists. A Duke student remarked 'PAs don't work for money, their satisfactions are from working with people and they don't have to be on a professional pedestal'. It remains to be seen how this idealism fares in their admittedly somewhat uncertain future, or whether the ineluctable process of professionalisation will lead to even closer identification with their physician-employers and the gradual erosion of those ideals.

TABLE 4 Distribution of physician's assistants and Medex by counties in 1972

Classification of counties by population	Proportion of total US resident population	Proportion of total (non-federal) physicians	Proportion of total PAs and Medex
Non-metropolitan (10 000–50 000)	25%	13%	43%
Metropolitan (51 000–5 000 000)	75%	87%	57%

Source: Unpublished paper by R M Scheffler, *The Status of the Physician's Assistants and Medex,* University of North Carolina, Chapel Hill, 1976.

6 The nurse practitioner

There is little wonder that some American nurses seize the opportunity to develop the range and depth of their activities. We have tended to see nurses in Britain as being subservient to doctors, at least until recently, but by comparison American nurses seem to have less power and a far more subordinate relationship with doctors, by whom they appear to be dominated. The matter is complex and can be argued at length but the flavour of the debate is given by the following extract from a review of a textbook of sociology for nurses.[19]

> 'The book notes, but does not challenge, the current inequitable practices among professionals such as the dominance of male physicians over female nurses . . . the authors actually glamorize and elaborate the traditional roles of nurses as supportive, compassionate and dedicated professionals who serve as physician's helpers. This approach serves to perpetuate the subordinate role of nurses and sexual stereotyping without encouraging critical analysis of either problems or solutions for women in the health professions.'

The language may seem reactionary but the author's observations on both visits to the USA suggest that 'dominance' is not too strong a word, and Lisbeth Hockey has recently drawn attention to conservative and chauvinistic attitudes in Britain towards the conflict between the professional roles and feminine roles of nurses.[23]

Traditional sources of community nursing care in America appear to show the stultifying effects of this dilemma. Apart from privately-owned visiting nurse associations, the nurses employed by the US Public Health Service are the main providers of home care as well as maternity and child welfare, but the services provided by its 39 000 registered nurses (5 per cent of all RNs in the USA in 1972) and their aides are extremely unevenly distributed. The US Public Health Service began to expand in the early 1900s with essential services and programmes mainly for the poor and for special groups such as seamen. By the 1940s schools of public health had been established and, in theory, health departments at state, county and city level everywhere. There are some outstanding departments, such as the one at Greensboro in Guilford County, NC, but apart from these there seems to have been a decline in local services ever since. The prestige of departments is low, and public health physicians are said to be elderly and out of date. At federal level, the public health service division of DHEW produced a major report to Congress on the nation's health services in 1975[48], as required by the Public Health Act of 1973, and this also coincided with some radical changes in the division's administrative structure and an increase in the federal budget for public health, indicating a new initiative. Officials of the division admit nevertheless that their connections with local public health agencies are still tenuous, with no direct control over state and county organisations.

Seen from the other end, a family nurse practitioner at the Prospect Hill Clinic in North Carolina told the author that she had forsaken public health nursing because she found it too bureaucratic and isolated from contact with other kinds of health professional. Instructions to visit a patient at home came to her impersonally as a written order and with a minimum of information which she was usually unable to amplify by direct contact with the physician responsible. She was never involved in acute care and the few public health physicians were too remote to allow a colleague relationship to develop.

Kinlein adds to these difficulties the problems of intellectual stultification ('A nurse doesn't need to know that!'), timidity (the use of a set of activities and procedures taught with the main object of avoiding mistakes), and complete subordination to the directions of the physician.[31] Her solution was to set up in office practice by herself, and in the USA there were in 1972 the same number of private nurses as public health nurses – 39 000.

It is not surprising that since training programmes for nurse practitioners began to appear ten years ago, carrying the promise of a more rewarding professional role[33], there appears to have been no shortage of applicants for training although only about 5000 nurses have qualified as NPs so far.

The nomenclature for nurse practitioners is almost as confused as that for physician's assistants and, as Bartel points out, there is in addition a tendency for nurses working in some specialties to adopt the title

without having undergone recognised training to become certified in the generic skills of the nurse practitioner.[5] Some programmes for NPs substitute for the word 'practitioner' the same terms as those used by PAs to describe a hierarchy of relationships with the physician (for example, 'associate'), but the stem is further qualified by words describing a clinical specialty, such as 'school' or 'family'. This is not yet a feature of the PA nomenclature and may imply different stages in the evolution of the two professions.

There is much less empirical information about NPs than about PAs, but Sadler, Sadler and Bliss give some details about 128 programmes listed by the American Nurses' Association in 1974.[40] Of these, 74 (58 per cent) led to certification and the remainder to a master's degree. All programmes required entrants to be at least registered nurses (RN) but among certificate programmes the requirement for entrants to have had college tuition and previous experience in health care was very variable, although up to two years of the latter was often specified. Programmes for master's degrees, on the other hand, invariably required a bachelor of science in nursing (BSN) or its equivalent before entry. Their graduates are titled 'nurse clinician' and tend to be more specialised than certificated NPs.

The duration of programmes also varied considerably between ten weeks and two years for certification (average eight months) but were longer – between one and two years – for master's degrees.

At Johns Hopkins, separate programmes for adult NPs and paediatric NPs each last for one year and accept only ten to 15 students in each programme. Before admission, entrants must be licensed RNs with guarantees, first of being employed in an appropriate setting, and second of having a physician as preceptor – conditions similar to those of Medex except that, in general, NPs are usually employed by an institution such as a clinic, health maintenance organisation, school, industry or health department. NPs are less often employed by physicians, except in rural areas, and in this respect they differ from PAs.

These two programmes consist of an initial four months of didactic instruction with concurrent clinical experience in an outpatient department, followed by eight months in the setting of their future employment, working with instruction and support from their precepting physician. In fact, all the teaching of NPs is done either by physicians or other nurse practitioners.

The curriculum for each programme emphasises expansion of the nurse's experience and knowledge together with the development of overall responsibility for comprehensive *health* care for children or adults. As with PAs, the NPs are taught to take a complete medical history in which social, economic and environmental data are emphasised, followed by physical examination and laboratory data, all to be synthesised and presented in POMR form. Elements of care are stressed which were not so evident in the curricula of the PA programmes.* The NPs must demonstrate their ability to 'share responsibility with administrative, medical, nursing and other personnel for patient-care services' and also their 'capacity to act as liaison with other health agencies and workers'. Further emphasis is given to developing interpersonal skills, obtaining a mental health history, recognising specific psychopathologies, and undertaking counselling with an awareness of the socio-cultural patterns affecting illness. A section on health maintenance procedures leads to a statement of overall emphasis on the importance of 'wellness' as their main ethos. There is a strong resemblance between the NPs in these programmes and British health visitors, with the exception that the former appear to have knowledge and skills which would give them a much wider data base and, therefore, a greater capacity for intervention.

The stress on 'wellness' also emphasises another distinction between NPs and PAs proposed by Loretta Ford – that by identifying themselves with the physician, PAs are oriented towards a 'disease' model of their function, whereas NPs support a 'health' model.[17] The first of these must always be subordinate to the physician's role whilst the second is complementary to his function and gives the possessor greater potential for autonomy.

At the University of Maryland, the primary care nurse practitioner programme differed very little from those at Johns Hopkins in criteria for admission, course content and duration, although the nurses' commitment to care on a personal and continuing basis was made more explicit by specifying the long-term supervision of conditions such as diabetes, obesity, asthma and hypertension.

The deficiencies in health care are not confined to peripheral primary care facilities. Storms evaluated two NP programmes which were established in a medically well-staffed metropolitan teaching hospital in order to provide aspects of care which were being neglected there.[46] In its medical clinics the rapid turnover of interns, residents and students compromised the management of patients with chronic illnesses, and adult NPs were introduced in order to give continuity to their care. In the paediatric clinic, the problem was slightly different and paediatric NPs provided preventive and counselling services as well as following up problems such as lead-poisoning – all activities which the medical staff and students tended to ignore.

In 1971 the University of North Carolina began a programme for training family nurse practitioners to work primarily in the under-served rural areas of the state – thus complementing the PA programme at Duke University. A study of the 110 FNPs who had completed

*Seen by the author.

or were about to complete the course in early 1976 showed that classes had an average of 14 students (range 7–20).* The small sample of class sizes in this study and elsewhere suggests that although there are more NP than PA programmes nationally, the NP classes are smaller on average. If so, this may be appropriate in view of the stress engendered by role conflict amongst NP students early in their training. Bartel gives a most sensitive and insightful account of her subjective experience[5], whilst Doris Storms' observation of the students has led her to believe that six may be the optimum size for a class of NPs. It is evidently no light matter to impose 'medical' skills on traditionally trained nurses.

Fifty-two (47 per cent) of the FNPs from the Chapel Hill programme were practising or about to practise in North Carolina, and more than half were in rural populations of fewer than 10 000 people. Whether they were practising in North Carolina or elsewhere, 60 per cent of the FNP graduates was in community health centres, 17 per cent in solo or group practices and the remainder was employed in institutions such as hospitals, county health departments and schools.

The salaries of those FNPs already employed ranged from $9000 to $15 000 a year; average $12 000. Salaries were higher in urban than in rural areas but were still below the average for PAs (see page 22) although presumably rising with age and experience. In contrast to the PA students, the NPs in training in Baltimore and North Carolina had the whole of their tuition fees met as part of the funding of the programmes by the division of nursing of DHEW.

From her experience in evaluating training programmes, Doris Storms elaborated on the need for supporting NPs during their training. Involving the early graduates in subsequent programmes gave the students a role model which helped them to develop their capacities and adjust to their new orientation. Again echoing the Medex principle, she believed that physicians intending to precept for NPs must be involved in their training and should meet colleagues who had worked with NPs, so that the education of the preceptor would proceed in parallel to that of the nurses. The idea of shared learning to engender team work is beginning to appear in Britain[21]; it will be essential for the development of collaborative work between health professions in the future.[36]

Mrs Storms was another one to emphasise the fundamental importance of history-taking, physical examination and the use of POMR, but observed that one of the main problems was to find clinical teachers who could transmit the core content of specialties at exactly the right level. Psychiatrists seemed the least able in this respect, and the best teachers on the whole were residents. She observed that NPs do not displace bedside nurses – their activities are complementary and it is important to let them work out their relationships together while caring for the patients they share.

*From *Feedback Report (No. 1)*, Family Nurse Practitioner Program, School of Nursing, University of North Carolina, Chapel Hill, 1976.

7 Prospect Hill Clinic

Prospect Hill is a small rural community 30 miles north of the University of North Carolina at Chapel Hill, nearing the border with Virginia. The clinic occupied a bungalow to which was attached a collection of prefabricated huts and static caravans and, in company with a dilapidated village store and a colonial-style house in poor repair, it lay at a country crossroads at which very little seemed to be happening. Dr E V Kuenssberg visited the clinic in 1974 and some of the data in his report supplement the following information and observations.[32]

The community of about 2500 people, nearly half of them children, is scattered and predominantly black and poor. The main occupation is farming, and tobacco is the most valuable crop. The only GP died in 1959 and, typically, could not be replaced; first level care being obtained from a town ten miles away to which there was no public transport. The clinic was established in 1971 with federal money as part of the movement to redistribute and extend primary care services in North Carolina.

At the University of North Carolina the medical and nursing faculties collaborated to create the family nurse practitioner programme already described (page 26). Dr Glenn Pickard became the preceptor for the Prospect Hill Clinic and among the first nurses he recruited for training were some of the four who are now responsible for the clinic. Dr Pickard planned to recruit nurses who were already living in the community; this aim is common to many NP programmes and has obvious relevance to ensuring continuity in the provision of care. From 1970 he was successful in finding nurses who wanted to be trained as NPs, having suffered, in some cases, the frustrations of working for the public health service. He regards active recruitment by the doctor as being more satisfactory than application by a nurse to practise in a rural area on her own initiative. In most rural clinics, the NPs are linked with a general practitioner in the nearest town for supervision and access to hospital facilities, but at Prospect Hill Dr Pickard himself acts as the visiting and supervising internist and has three colleagues in paediatrics, psychiatry and OBGYN who visit the clinic at least weekly, acting as consultants for the NPs. They also accept patients for admission to hospital when requested by the NPs.

The clinic is open eight hours a day, five days a week and the NPs form a rota for emergency cover by telephone. They are paid by the clinic's board of directors, but fees are charged to patients and are payable by cash, insurance, Medicare or Medicaid. Each FNP has her own assignment of families – still a tradition in rural areas. The FNPs handle about 70 per cent of the cases entirely by themselves, whilst some of the 30 per cent referred to the physicians are really only referred to receive their blessing!

Control for legal and professional purposes is nominally by clinical protocols or standing orders. These are used during the nurses' training and are organised mainly around presenting symptoms and signs, so that the nurses quickly memorise the features of common complaints and then, in practice, largely dispense with the protocols. Nevertheless, they must still write in their clinical notes the number of the protocol which has been used for each problem encountered at that consultation, and the precepting physician initials these notes on his visits to the clinic in order to legitimise the nurses' actions. A set of about 100 standard protocols is kept for consultation in the clinic[24], together with some which are specially designed for patients with rare conditions. A protocol may list the drugs which can be used in treatment and the NPs have a limited formulary from which they can prescribe these drugs themselves. A similar formulary for one kind of physician's assistant has been reproduced as Appendix B, page 43.

The range of knowledge of nurse practitioners together with its application to their case load is illustrated in Appendices F–I showing questions set in a mid-term examination during training (Appendix F, page 57), the cases dealt with by a Prospect Hill FNP during a three month period (Appendix G, page 59), two examples of clinical protocols (Appendix H, page 61) and a clinical record (Appendix I, page 65).

The last was taken at random from a filing cabinet and is reproduced, omitting all identifications of the people involved, by kind permission of the clinic director. Three aspects of it seem noteworthy – the high standard of examination, recording and decision-making displayed; the logic which POMR brings to the clinical process as practised by new health practitioners; and

the value attached to adult health maintenance – clearly not lip-service in this case.

Appendix G shows that apart from the 'miscellaneous' category, referrals to the precepting physicians were predominantly in the psychogenic and genito-urinary categories, together with injuries, whilst the common acute infections, well-child care and iron-deficiency anaemia gave rise to fewest referrals. It should be remembered that in 1972 the FNPs had only recently qualified and the number and kind of referrals to the physicians may have changed since then.

Appendix H shows how typical protocols are formulated, there being very little which is mandatory or restrictive about them, whereas an algorithm confines its user to a series of decisions based on alternatives – almost like a pre-coded research questionnaire. These may be suitable for the less intellectually able NHPs but are impossibly stultifying for nurse practitioners and the majority of physician's assistants. Rachel Booth and others reject both approaches as 'mindless', and claim that they prefer to educate their NPs properly and then support their decisions, whether right or wrong.

The author spent some time talking to Betty Compton, a married white nurse practitioner in her thirties with one child and a husband who was a farmer in the neighbourhood. She had been a public health nurse but had given it up in disillusion, becoming inactive as a nurse until Dr Pickard persuaded her to enrol in the FNP programme at the University of North Carolina. She works for 40 hours in a four-day week. Bedside nursing never really appealed to her and, although she would go back to hospital if circumstances dictated, she felt that if she had to leave the clinic she would be most likely to return to her family and farming – her other 'big priority'. After five years or so she now feels that she is on top of her work in the clinic and might find it tedious were it not relieved by her management and teaching responsibilities and her special interest in counselling teenagers.

In discussing the nurse practitioner movement in general, she was by no means the first person to suggest that the nurses had been forced to develop in this way as a defensive response to the physician's assistants. There is a widespread feeling amongst nurses that PAs are fundamentally 'anti-nurse' but they also accept that the PA movement was generated partly by the failure of the nurses to grapple with the health care dilemma themselves. There is certainly no lack of evidence of tensions between the two and the creation of enabling legislation for new health practitioners has tended to act as a focus for these tensions.

8 Licensure, regulation and relationships

Effective regulation of the medical profession in America is vitually a post-war achievement. When the trends in malpractice litigation are added to consciousness of their historical difficulties, it is understandable if the Americans have been preoccupied with the need to regulate the new health practitioners effectively. The matter is more complex than in Britain because regulation is the concern of each state, although licensure granted in one state becomes reciprocal in most other states.

Licensure by a state permits independent practice and is usually permanent, but certification is a different process by which a non-governmental agency recognises for a limited period an individual who has met specified criteria, usually in the form of a certifying examination. For PAs certification became established nationally when in 1973 the National Board of Medical Examiners and the AMA instituted an annual qualifying examination which was acceptable to all the states involved and agreed on criteria for accrediting training programmes. In the 20 states with enabling legislation, certification then entitles the PA to 'registration' by the state for practice. Both must be renewed (usually annually) by satisfying the requirement of the National Commission on the Certification of Physician's Assistants for a specified period of continuing medical education.

Nurse practitioners, on the other hand, are already independently licensed and registered as nurses before being trained for an extended role; they would see it as quite inappropriate to need subsequent certification through the same mechanisms as those set up for their PAs by the physicians. In fact, as Doris Storms pointed out, the few nurses who choose to go through PA programmes risk being treated as outcasts by other nurses. The following quotation from the ANA makes it clear why.

> 'If a nurse chooses to become a physician's assistant, the nurse is inherently dependent on the physician for the delineation of the scope of practice and performs delegated tasks under the direction and supervision of the physician.'[2]

This language is heard about the nurses who become employed by GPs in Britain but here the crux of the matter is made more explicit – it is considered unprofessional for nurses to work in an employee-employer relationship with a physician.

For both kinds of NHPs, the crucial question is how much autonomy they should enjoy in relation to the physician, their other professional colleagues and the organisation they work in – are they to be dependent, independent or interdependent, the last reflecting the development of the team concept?

Estes describes the dilemma which faced the creators of the first PA programmes.[11] Quite apart from political problems, if the PA were to be made independent of the physician, legislation would have to specify minutely the role and tasks of the PA. Not only would independence be unacceptable to the medical profession (let alone the nurses) but there is some evidence that it would be against the preferences of the physician's assistants themselves. By selecting the dependent mode of practice for PAs, in which the physician remains responsible for diagnosis and prescription (and ultimately, in law, responsible for all his assistant's acts), all that was needed were amendments to the Medical Practice Act of the state. The paradoxical outcome, as Estes points out, is that dependance on the physician results in fewer restrictions for the PAs than independence.

The position is less easily defined for nurse practitioners. Their RN qualification (or its degree equivalent) allows them to make nursing decisions and then to prescribe and carry out nursing treatments independently of the physician, but the question for NPs is whether their new functions come within the scope of the Nurse Practice Act of the state without the need for amendment.

It is said that most of the Nurse Practice Acts in the USA were vaguely worded and out of date when the issues about nurse practitioners began to be debated.[41] They tended to focus on health counselling, health teaching and health maintenance in the way of extended functions, none of which can be said to hold the slightest possibility of an action for malpraxis, for instance – which adds support to the charge of timidity. Moreover, the ANA's existing definition of nursing ended with the words '. . . none of the above shall include the authority to diagnose or prescribe'.[2]

There are really three problems.

1 In order to work with NHPs, physicians may need statutory authority to delegate some of their functions. (There are states – for example, Missouri – where PAs are still not legally recognised and the Medical Practice Act forbids physicians to delegate their practice to anyone.)

2 In order to work with physicians, PAs need the authority to diagnose and treat and this, too, is most appropriately achieved by amending the Medical Practice Act.

3 Nurse practitioners may need an amendment of the state's Nurse Practice Act in order to work in an extended capacity involving something more than nursing diagnosis and treatment.

By 1975, 37 states had passed enabling legislation for physician's assistants. This was of two kinds. The earlier and now less frequently enacted was the general delegatory statute which amended the Medical Practice Act of the state to allow PAs to work under the supervision of a physician and to allow the physician to delegate to the PA at his own discretion. This was felt by many to give too much discretion to the physician and 29 of the 37 states with legislation have enacted regulatory authority statutes. These permit the physicians to delegate to PAs but put the onus for supervising arrangements in individual practices on to the state's Board of Medical Examiners, thus allowing control of the physician to be exercised by his professional colleagues rather than the legislature.

Some statutes require regular reports to be made to the legislature and some specify that a maximum of only one or two PAs may be employed by any one physician. Eighteen states prohibit PAs from practising other professions, for example, optometry, chiropractice, dentistry and pharmacy. Appendix J (page 67), an extract from the regulations enacted in Maryland in 1975, gives some idea of the constraints imposed on physicians and their assistants and of the degree of control exerted by the state's responsible authority.

As late as 1975, 18 of the 54 states and provinces had Nurse Practice Acts which still prohibited nurses from diagnosing and treating illness and these were mainly in rural and mountainous areas. Fifteen states had no new legislation but their existing Nurse Practice Acts did not mention or prohibit medical diagnosis and treatment. Idaho was the first state to enact legislation which allowed nurses to extend their roles; this was in 1971, several years after the comparable legislation for PAs. By 1975, a further 20 states had followed suit, including New York and South Dakota which have, respectively, the highest and lowest ratios of physicians to population in the country.

In Maryland, amendments were made to the existing Nurse Practice Act in 1974 and 1975 (the Medical Practice Act had been amended three years earlier to allow physicians to delegate) and these gave regulatory authority to the State Board of Examiners of Nurses. One clause states

> '. . . the practice of nursing includes both independent nursing functions and delegated medical functions and [these] may be performed autonomously or in collaboration with other health team members, or may be delegated by the registered nurses to other nursing personnel.'

The extent to which collaboration can be achieved between the nursing and medical professions is also suggested by a preparatory clause in the Act.

> 'The practice of registered nursing means . . . the performance of additional acts requiring formal education and clinical experience . . . which are recognized jointly by the medical and nursing professions as proper to be performed by nurses licensed under this title . . .'

Insurance for professional liability is a serious business in the USA and some people feared that the NHPs might attract litigation. At Duke University a single policy covers all students and staff of the university and its schools and, after qualification, PAs and their employers pay a relatively small addition to the physician's existing premium.

The fear of litigation appears to have been groundless so far and Dr Fisher, executive director of APAP, knew of no malpraxis claims against NHPs or their employers during the past ten years. A study by Kehrer showed that very little is added to physicians' insurance premiums when they employ or use NHPs[30], and it is obvious that the insurers have been more sanguine than the doctors. There is no doubt that NHPs are generally very well accepted by patients and all the studies both in Britain and the USA are unanimous about this, beginning with Lewis and Resnik who included an evaluation of relationships in their original description.[33] As Andrus says, 'Patient acceptance of nurse practitioners and physician's assistants has been so favorable that it is no longer an issue.'[4]

This cordiality does not, however, extend to relationships between the PAs, the physicians and the nurses. More than a quarter of the book by Sadler, Sadler and Bliss – the standard work on the physician's assistant – is devoted to an analysis of the nursing institutions' attitudes towards the PA movement.[40] Any emerging profession must be inherently insecure, particularly if it has been in some sense created rather than evolving, but the PAs' obsession with the response of the nursing profession certainly appears to have been justified by the nurses' dicta. The ANA's statement of 1976[2] has already been referred to but the altercation began with an earlier statement in 1971[3] in which the ANA vigorously rejected any identity between nurse practitioners and physician's assistants. The nurse was

claimed as the pre-eminent and natural collaborator with the physician and the physicians were reproached for breaching a relationship begun at the turn of the century.

> 'None of these assistants are . . . substitutes for nurses, since nursing practice is more than performance of delegated medical nursing activities. Neither are these assistants acceptable substitutes for physicians. This development is of concern to the nursing profession. Physician's assistants working in a setting where nursing practice is an essential element of health care present problems that flow from the legal and ethical relationships between physicians and nurses. Therefore nurses and physicians together must clarify the situation.'

The implication of unfaithfulness on the part of physicians strangely echoes an outburst of feeling in the previous year by a British nurse who reproved hospital doctors and administrators in the UK in a paper entitled *The Eternal Triangle*.[34] It is possible that threats to the nurse-physician relationship evoke a common response and that this relationship is a very fundamental one, unaffected by cultural dissimilarities.

More pragmatically, the ANA felt that it had

> '. . . a stake in the economic status of the emerging physician's assistant . . . In establishing the relationships between salaries of nurses and those of physician's assistants, the differences in their responsibilities, preparation and experience should be taken into account.'[3]

Here the ANA might be handling a two-edged sword, but if there is such a difference in average salary between the PAs and NPs, the nurses' concern appears to be justified and it would be a potent source of ill-feeling.

At local level, the amendment of state Medical Practice Acts has produced the expected conflicts with nursing interests, notably in New York.[40] State medical societies (roughly equivalent to BMA divisions) have often had a major hand in amending legislation and it is indicative that the Medex programme in North Dakota appears to have been established after consulting only medical but not nursing organisations in the state.[7]

Although many anecdotes and ideas are in circulation about the relationships between nurses and PAs, the author was never aware of any tensions during visits to clinics where both were working. These may have been too well hidden but it is equally likely that in practice the protagonists create a harmonious division of their functional roles whilst the conflicts are expressed at institutional level. Unfortunately for the PAs, the nurses are advantaged as of right in this sense and, through their institutions, in the long run have more power politically.

They may be aided by the knowledge that despite formal support for the PA concept from the AMA and other medical bodies, in practice PAs are accepted only by a minority of physicians and are used by even fewer. Archie Golden at Johns Hopkins guessed that 50 per cent of physicians was sceptical or hostile to PAs, and one of them was certainly Dr Richard Palmer, then president-elect of the AMA, whose personal view it was that the PA movement is a stop-gap and not a permanency. Loretta Ford observes that PAs may, in the long run, offer the physicians '. . . more competition than co-operation and more challenge than collaboration'.[17] She continues

> 'Moreover, the nurse's role, while unique, is complementary to and not in competition with the role of the physician. The nurse's philosophical commitment and education preparation promotes collegiality, not dependency.'

For the majority of physicians this is a persuasive claim and in Britain the matter appears to have been settled already. Nevertheless, analysis of the American dilemma has illuminated some not very dissimilar problems in the British system of health and medical care in the community, and this report concludes by reviewing some of these issues.

9 Commentary and interpretation

It would be rash to attempt a comparison between the British and American systems of care without a very full understanding of their historical, social and economic differences. Nevertheless, observation of the new health practitioner phenomenon seems to illuminate some of the issues between the various health professionals working in the community in Britain.

In the first place, the model of innovation in health services appears to be the same, thus giving a common basis for comparison. In both countries the development of a functional inter-relationship between physicians and other health professionals – nurses, midwives, health visitors, social workers or physician's assistants – has been preceded by the establishment in a few places of short-term demonstration projects with selected workers. The initiative always comes from the periphery and is at first only observed by the professional institutions and government. Descriptions of these experiments are published and there is a lull whilst the problems are defined and digested by the second wave of innovators. The next and crucial stages are the provision of special funds and changes in legislation or terms of service. For the GPs employing nurses in Britain, these were accomplished in 1966 as part of a larger deal with the government and with little real opposition from the nursing profession who have had their own innovations in community nursing to preoccupy them since the 1960s. In the USA, the introduction by physicians of a new professional (the word is used in its general, not definitional, sense) has not only led to hostility from nurses and other physicians but must also be compromised even in the short term by vagaries of funding and the need for piecemeal legislation, state by state.

This analogy between the American PA and the nurse employed by the GP in Britain may seem facile, but when examined and related to the other professional functions within the archetypal four-element system of health care[28], it is possible to construct a theoretical model which accommodates the majority of professional roles in the community.

To do this we return to the distinction suggested earlier in this report between the two orientations of health care personnel – 'the physician needs help' and 'people need care'. These are not mutually exclusive – on the contrary, they reinforce each other and the second may as easily be approached through the first. Nevertheless, it is traditional in Britain that the general practitioner in his surgery must do everything for himself. This tradition dies hard and its dying is not helped by the suspicion of other members of the team that by attempting to delegate to them the GP is adding to his power. On the contrary, their training creates certain expectations amongst health professionals about each other's roles, and in Britain doctors have been educated to accept the nurse as their main legitimate source of help in clinical work, thus precluding – outside the hospitals – any other source of technical assistance. Americans are in no doubt that physicians need assistants. Lucy Conant, dean of nursing at the University of North Carolina, observes that

> 'In nursing we have licensed practical nurses, nursing assistants, nursing aides and . . . dentists have dental hygienists and dental assistants. Certainly, physicians need all the help they can get.'[10]

The tradition of cooperation between primary care physicians and nurses appears to be much stronger in Britain than in the USA. This may be attributed in part to the centralisation of power in a small number of nursing institutions in the UK and, until recently, their non-academic (and therefore non-competitive) 'caring' orientation, reinforced by the strong tradition of domiciliary nursing. In contrast, American nursing appears to be politically dispersed and with a shorter history and negligible domiciliary capacity. Under these circumstances the choices of an assistant made by the primary care physicians in each country are likely to be different.

At one end of the spectrum of the health-care system in the community is the bedside nurse – the model of her profession, universally appealing and acclaimed. Home nursing is probably more highly developed in Britain than anywhere and apart from their other activities, the nurses are probably nearest to the least prestigious element of the system of health care – rehabilitation. (There is effectively no intervention in the community by the professions supplementary to medicine, whose responsibility for formal programmes of rehabilitation is confined virtually to the hospitals.) In America, by contrast, home nursing appears to be almost vestigial –

for reasons which are intrinsic to the American culture. Recently there appears to have been a movement by home nurses in Britain towards the more technically-oriented work carried out by GP-employed nurses in surgeries and health centres[36], but without further empirical information the full significance of this trend cannot be assessed. However, it is probable that some of their activities lie in systematic screening, surveillance and immunisation, and in these they share with the health visitors the remaining elements of the health care system – health maintenance and illness prevention. Health visitors in particular resemble the family, adult and paediatric nurse practitioners in America although the capacities of the latter are necessarily enhanced by their superior data-gathering abilities.

The model illustrated on page 37 seeks to relate ideation and function amongst community health professionals in the form of a spectrum of commitment.

The model is capable of being tested empirically and data already exist which will validate some of its elements – although that is not the purpose of this report. The contrasts and comparisons it makes between approximate equivalents in the USA and Britain arise entirely from the opportunity to observe the system in the USA at first hand. There the polarities are more marked and this clarified the British system and gave it a perspective which is more difficult to discern from close at hand.

The vertical divisions illustrated in the figure are in fact artificial and transparent because people may move within the spectrum of health care activities during their careers. Neither are the divisions necessarily related to the location of health care activities – surgery, home, other institutions. Confusion about the source of employment of British nurses working in the community is avoided by not mentioning GPs and area health authorities, and the issue is, in any case, largely irrelevant in this instance.

In the USA, the occupational types would be more extremely oriented towards the left of the model. By virtue of their specialised training, non-nursing status and statutory affiliations, the physician's assistants are likely to be even more committed to 'the physician needs help' than treatment-room nurses in Britain. At the other end of the spectrum, home nursing appears to have far less importance and effect than in Britain. There is evidence of a movement towards the left end of the spectrum on the part of British nurses too, but this may be the effect of a process such as professionalisation rather than conversion to the belief that 'the physician needs help'.

The terms 'instrumental' and 'expressive' used in the lowest row of the model indicate orientations to people and are borrowed by sociologists from analyses of interactions in group psychotherapy. Instrumentalism is characterised by a leaning towards task performance and positive intervention in relationships and is thought of as a masculine attribute, whilst expressiveness is concerned with feelings, empathy and emotional preferences, thus stressing the supposedly feminine quality of enhancing relationships between people. The use of these concepts reinforces the model but might be difficult to demonstrate experimentally.

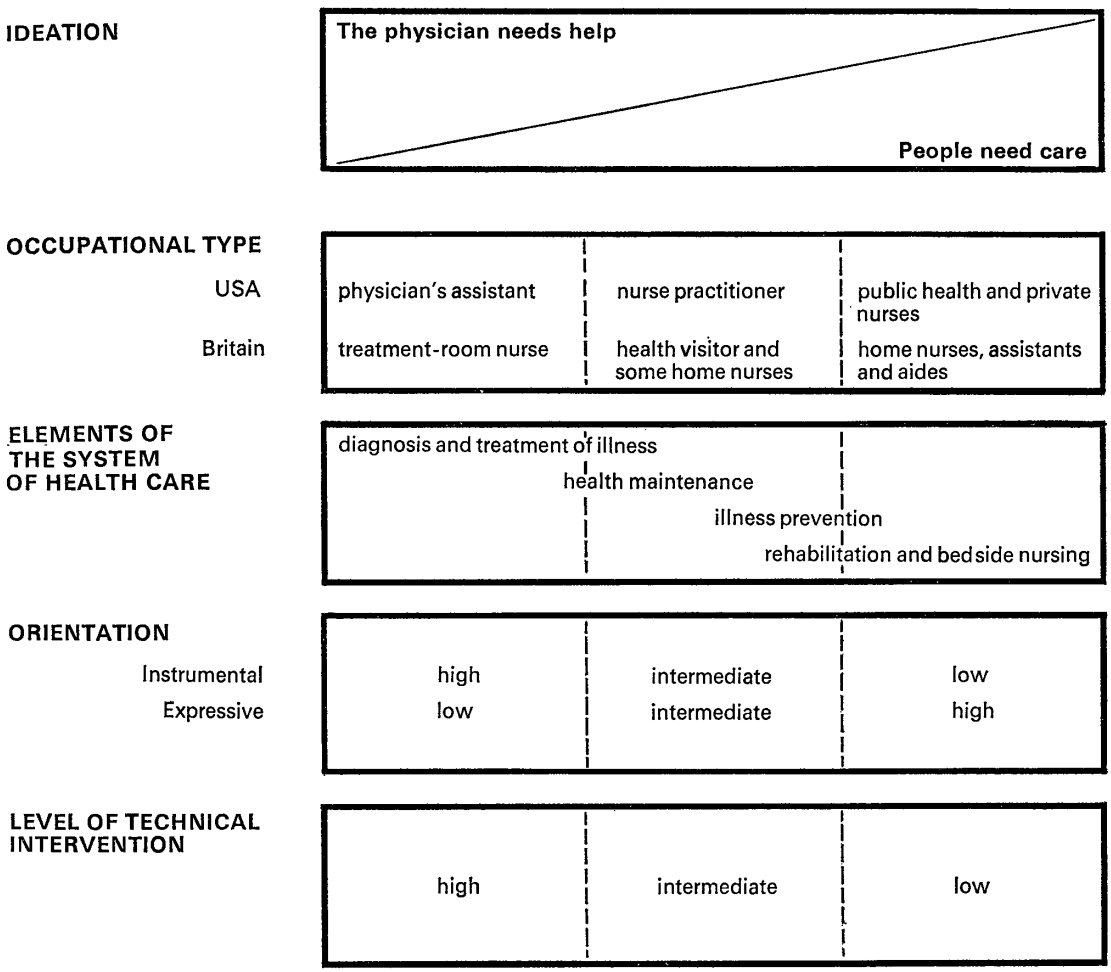
The question naturally arises as to whether there are already people in Britain whose work is akin to the new health practitioners in the USA or whether there might be a place for them in the future.

It is true that in British hospitals there is a number of grades of technicians in various specialties but none of them approaches the level of sophistication of specialist physician's and surgeon's assistants in American hospitals who most resemble the British junior house officer. Experiments have been reported from one hospital in Britain in which an assistant was trained to take preliminary medical histories in an outpatient department[25], but again this seems to have been relatively unsophisticated even though she was called a 'physician's assistant'. From general practice there is only anecdotal information about the employment of school-leavers who are trained by the GPs to carry out technical tasks – including plastering, dressings and venepuncture. These appear to have been quite independent of the not uncommon arrangement whereby secretaries and receptionists do minor ad hoc work in the treatment room.

In British hospitals, nurses are known to enjoy a high level of autonomy and clinical activity, particularly in special units, but the issues involved do not seem to have been studied. On the other hand, there are cogent demands by nurses for a much higher degree of clinical autonomy in the community health services[16], and June Clark recently added some very strong arguments to the discussion about autonomous responsibility for nurses in oral contraceptive clinics.[8] Nurses using clinical skills apparently indistinguishable from those of American nurse practitioners are reported to be taking equivalent responsibilities in health maintenance projects[47] and other special schemes in Britain, and male nurses are reputed to have been trained for medical work on oil rigs. The medical and health care problems of inner cities require a new and unconventional approach and the precedents for this are to be found amongst the new health practitioners working in the ghettos of American cities.

This brief survey merely suggests that there are present and potential future indications (albeit limited ones) for the British equivalent of the new health practitioners, but it must be clear by now that this author believes that in Britain only the nurse practitioner could survive. Even if the special conditions existed which made the creation of the physician's assistant possible in America, British nursing is too powerful as a profession to allow his equivalent to emerge. The doctors, too, have shown intense dislike in the past of any figure resembling the feldsher in Eastern Europe (although their use of the

FIGURE Ideation and function amongst health care professionals in the community



German form – 'Feldscher' – may have been evidence of xenophobia as well as professional pride) and it may be significant that all the initiatives in Britain appear to have been by women.

At present the single greatest deterrent to the development of such a role by British nurses is their lack of training in the systematic collection of comprehensive data about their patients. In 1975, the World Health Organization observed

> '. . . nurses still do not have the knowledge or the skills necessary to carry out a routine physical examination [and this] was considered to constitute a major constraint to the development of the nursing role in primary health care.'[52]

I suspect that mystique rather than objectivity is the mainstay of the so-called 'nursing history' which nurses say they are taught to extract from their patients but, in any case, they are surely not compromised by including nursing data in a more exhaustive history and examination. Second only to the principle of shared training for all health care staff[36], the greatest encouragement to commitment in a health team must surely come from the use by all its members of a common language and data base expressed through the logic of problem orientation. In this light, no member of the team is professionally compromised by exercising technical skills – venepuncture, cardiography, endoscopy and so on – if the object is to contribute to a set of data which all members can share and debate.

More specifically, it should be mandatory for any nurse asked by a GP to undertake primary contact or any similarly autonomous activity, to be able to take a systematic history and perform a selective examination of the relevant systems before synthesising the problems

and taking any action. This assertion sidesteps the issue of whether and to what extent this kind of activity for nurses is needed in Britain. Nevertheless, without these new skills, the role of nurses in the community will not develop and might even be reversed when a sufficiently serious error becomes a *cause célèbre*.

The future of the NHP movement in America has its relevance in Britain too. An informed guess cannot be resisted. The indications are that the American physician's assistant is not yet secure and some programmes have been closed when their funds ran out. Federal support appears to be still on an experimental basis and mechanisms for reimbursement of services rendered by PAs are not yet regularised. Despite official support from the AMA, many physicians are hostile or indifferent to PAs and, except in Medex programmes, it is rumoured that there is sometimes serious difficulty in placing graduates. The role of the nursing lobby in delaying federal legislation can only be conjectured but its public declarations have not been favourable.

Perhaps the most threatening development is the sudden enormous increase in the number of physicians entering family practice and related training posts. If serious competition develops between physicians and PAs it would seem that only the latter can lose. If the worst comes to the worst and all training programmes for PAs should fail, there is still a means for eventually absorbing the existing PAs into the main body of American physicians, the precedent having been set in the 1960s by the assimilation of the osteopaths.

Nurse practitioners appear to be far more secure. Even when acting as clinical specialists they continue to occupy the third corner of the triadic relationship between nurse, doctor and patient which appears to be so fundamental in medicine. They also have the good fortune to be well-established and female, and to have specialised predominantly in those elements of the health care system which American physicians are always likely to regard as low in status and prestige and which may also be less rewarding financially. The main problem for nurse practitioners seems to be the danger as momentum fades of becoming reabsorbed within the body of generic nursing and of being neutralised by its far greater numbers and inherent conservatism.

In Britain it is presumably the isolation of community nurses from hospital influences which has so far preserved an effective domiciliary service. General practitioners have been similarly isolated in the past and may thus, in part, have contributed to this stability. Unfortunately for those who value this domiciliary capacity, medicine itself develops continuously and thus defeats tradition, and in the community its developments need changes in attitudes and forms of organisation if the patients are to benefit. The introduction of auxiliaries and aides into community as well as hospital nursing may still enable us to have bedside care at home, but what will happen to the nurses who are thus displaced? They are already increasingly working in the treatment rooms of health centres and group practice premises away from the bedside and if they are not to be dominated by the GPs or (as they believe) compromised by doing 'technical' work with patients, they must develop and use a new kind of expertise within the health team. It is at this point that the training and skills of new health practitioners in America become of more than academic interest. Perhaps their experience could offer British nurses a new perspective and a deeper involvement with the other members of the health care teams of the future.

Abbreviations

AAFP	American Academy of Family Physicians
ABFP	American Board of Family Practice
AMA	American Medical Association
ANA	American Nurses' Association
ANP	adult nurse practitioner
APAP	Association of Physician Assistant Programs
BMA	British Medical Association
BSN	bachelor of science in nursing
CHA	child health associate
CNS	clinical nurse specialist
DHEW	Department of Health, Education and Welfare
DO	doctor of osteopathy
FHP	family health practitioner
FNP	family nurse practitioner
GP	general practitioner
HMO	health maintenance organisation
LPN	licensed practical nurse (USA)
NC	nurse clinician *and* North Carolina
NHP	new health practitioner
NP	nurse practitioner
OBGYN	obstetrics and gynaecology
PA	physician's assistant
PNP	paediatric nurse practitioner
POMR	problem-oriented medical record
RGN	registered general nurse (Scotland)
RN	registered nurse (USA)
SEN	state enrolled nurse (UK)
SRN	state registered nurse (England and Wales)
VA	Veterans Administration

APPENDIX A ITINERARY

JOHNS HOPKINS UNIVERSITY, BALTIMORE

School of Health Services, Office of Health Manpower Studies

Discussions with

Malcolm Peterson, dean
Archie Golden, director, health associate program
Mark Gross, administrative director, health assistant program
Jan Hagen, instructor, health associate program
Jan Hankin, assistant professor
David Levine, associate professor
Laura Morlock, senior research associate
Kate Morton, dean for primary care education
Francois Nguyen, assistant professor
Stuart Oken, assistant professor
Mac Richards, principal research scientist
Doris L Storms, research scientist

Visits to

Johns Hopkins Hospital pediatric and adult medical ambulatory clinics

Jane Ball, pediatric nurse practitioner
Becky Winslow, co-director, adult nurse practitioner program

Broadway-Orleans Clinic

Anne Audet, adult nurse practitioner
Carol Wood, adult nurse practitioner

East Baltimore Medical Plan

Ira Morris, medical director
Willie Mae Clay, health associate
Leo Fichling, family health practitioner
Mary Sue Mulcahy, health associate
Brenda Thompson, family health practitioner

School of Hygiene

Discussion with

Professor Philip Bonnet, chairman, department of health care organization

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, BALTIMORE

Discussions with

William Spicer Jr, director, office for coordination of primary care programs
Rachel Z Booth, director, primary care nurse practitioner program

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE, CHAPEL HILL, NC

Lectures and seminars attended as part of the King's Fund–Duke Endowment course

Medical manpower in the United States – Harvey Estes Jr, chairman and professor, department of community health sciences, Duke University
Nursing in the United States – Ruby Wilson, dean, school of nursing, University of North Carolina
Problems in rural health care delivery – Donald Madison, director, rural practice project, State of North Carolina
Rural health clinics in North Carolina – James Bernstein, chief, office of health services, State of North Carolina
Education for the health professions
Sally Schafer, school of nursing, Duke University
Mike Schwartz, assistant administrative director, Duke University Medical Center
Thomas Vaughn, physician's associate (pharmacist), Duke University

Discussions with

Michael Hamilton, director, physician's associate program, Duke University Medical Center
Jo Leslie, Mary Quinn } physician's associate students

Visits to

Prospect Hill Clinic

Glenn Pickard, associate professor of medicine, University of North Carolina School of Medicine
Betty Compton, family nurse practitioner

The Pickens Clinic

Michael Hamilton
Kathy Severns, adult nurse practitioner

WASHINGTON DC

Discussions with

Donald Fisher, executive director, Association of Physician Assistant Programs

APPENDIX B PREPARATIONS PRESCRIBABLE BY A CHILD HEALTH ASSOCIATE*

a A child health associate may prescribe drugs, except narcotic drugs, which have been approved by the board for prescription by child health associates. The board may approve drugs from the following categories for prescription by child health associates upon the recommendation of an advisory committee appointed by the board, consisting of a board member, a member of the department of pharmacology of the University of Colorado Medical Center, a practicing pediatrician, a licensed pharmacist, and a faculty member of the University of Colorado child health associate program.

b Proprietary and nonprescription drugs.

c Specific drugs from the following categories of drugs for which a prescription is required

immunologic agents
vitamins and dietary supplements
topical and oral decongestants
oral laxatives and drugs affecting fecal consistency
oral or rectal antipyretics
oral nonnarcotic antitussives
oral expectorants
oral antihistaminics
oral emetics in an emergency
local anti-infective agents
local antifungal agents
local adrenal corticosteroids
other agents for treatment of local skin conditions
oral or rectal antiemetics
oral antidiarrheal agents
oral hematinic agents
injectible epinephrine, in an emergency
diagnostic agents to determine the presence of various diseases
antibiotics
chemotherapeutic agents.

*Under the Colorado Child Health Associate Bill, 1969.

APPENDIX C TASKS PERFORMABLE BY AN ASSISTANT TO THE PRIMARY CARE PHYSICIAN*

An assistant to the primary care physician should be able to perform, under the responsibility and supervision of the primary care physician, selected diagnostic and therapeutic tasks in each of the five major clinical disciplines (medicine, surgery, pediatrics, psychiatry, and obstetrics).

Specifically and by way of limitation, an assistant to the primary care physician should be able to

a Take a complete, detailed and accurate history; perform a complete physical examination, when appropriate, excluding pelvic and endoscopic examination; and record and present pertinent data in a manner meaningful to the primary care physician.

b Perform and/or assist in the performance of the following routine laboratory and screening techniques

the drawing of venous blood and the routine examination of the blood
catheterization and the routine urinalysis
nasogastric intubation and gastric lavage
the collection of and the examination of the stool
the taking of cultures
the performance and reading of skin tests
the performance of pulmonary function tests excluding endoscopic procedures
the performance of tonometry
the performance of audiometry
the taking of EKG tracings.

c Perform the following routine therapeutic procedures

injections
immunizations
debridement, suture, and care of superficial wounds
debridement of minor superficial burns
removal of foreign bodies from the skin
removal of sutures
removal of impacted cerumen
subcutaneous local anesthesia, excluding any nerve blocks
anterior nasal packing for epistaxis
strapping, casting, and splinting of sprains
removal of cast
application of traction
application of physical therapy modalities
incision and drainage of superficial skin infections.

d Recognize and evaluate situations which call for immediate attention of the primary care physician and institute, when necessary, treatment procedures essential for the life of the patient.

e Instruct and counsel patients regarding matters pertaining to their physical and mental health, such as diets, social habits, family

*Under the California Board of Medical Examiners Regulations on the Physician's Assistant, 1971.

planning, normal growth and development, aging and understanding of and long term management of their disease.

f Assist the primary care physician in the hospital setting by arranging hospital admissions under the immediate direction of said physician; by accompanying the primary care physician in his rounds and recording physician's patient progress notes; by accurately and appropriately transcribing and/or executing specific orders at the direction of the primary care physician; by compiling and recording detailed narrative case summaries; by completing forms pertinent to the patient's medical record.

g Assist the primary care physician in the office in the ordering of drugs and supplies, in the keeping of records, and in the upkeep of equipment.

h Assist the primary care physician in providing services to patients requiring continuing care (home, nursing home, extended care facilities, etc) including the review of treatment and therapy plans.

i Facilitate the primary care physician's referral of patients to the appropriate health facilities, agencies and resources of the community.

An assistant to the primary care physician should have an understanding of the socioeconomics of medicine, of the roles of various health personnel, and of the ethics and laws under which medicine is practiced and governed.

In addition to the tasks performable listed herein an assistant to the primary care physician may be permitted to perform under supervision of the primary care physician such other tasks except those expressly excluded herein in which adequate training and proficiency can be demonstrated in a manner satisfactory to the board.

APPENDIX D JOB DESCRIPTION OF PA ON MUSKOGEE VA HOSPITAL MEDICAL SERVICE*

Principal Duties and Responsibilities

Professional The incumbent must be a graduate of an approved program for Physician's Assistants and duly registered by the American Academy of Physicians' Assistants and perform all of the following duties

1 Performs initial history and physical evaluations and 2507s on new inpatients and outpatients, establishes presumptive diagnoses, establishes general work-up of patients by ordering appropriate laboratory studies, performs routine incisions and drainages, wound care and debridement, nasogastric intubations, gastric analysis, lumbar punctures, sutures lacerations, etc, the majority of which are performed directly or indirectly under physician supervision.

2 Performs diagnostic tests such as insulin and IV glucose tolerance tests and tolbutamide tests, tissue biopsies, lumbar punctures, paracentesis, thoracentesis, and other procedures in consultation with the physician.

3 Places indwelling arterial catheters and performs the necessary blood gas analysis.

4 Starts whole blood.

5 Starts IV solutions.

6 Administers emergency medications.

7 Manages cardiac arrest patients until attending physician is present.

8 Manages acute respiratory failure until attending physician is present.

9 Manages life endangering traumatic injuries until the attending physician is present.

10 Administers intravenous medications when necessary.

11 Assists the physician in planning, organizing, and delivering orderly medical management programs for patients under his care.

12 Arranges consultations and sees that patients are correctly scheduled for special tests.

13 Is available on call to any area in the hospital during his tour of duty to assist in any emergent patient care situation that may arise.

14 Is thoroughly familiar with all current diagnostic, therapeutic, clinical, and medical management techniques.

*Reproduced from New Health Practitioners edited by Robert L Kane.[29]

APPENDIX E DOCUMENTS FROM DUKE UNIVERSITY PHYSICIAN'S ASSOCIATE PROGRAM*

1 DIDACTIC CURRICULUM FOR ANATOMY

PROGRAM	Physician's Associate	TERM	Fall 1975
COURSE	Basic Human Anatomy		
COORDINATOR	Charles Blake PhD	DEPARTMENT	Anatomy

EDUCATIONAL GOAL

To provide a solid background for the student in understanding human morphology and the fundamental relationships among the neurologic, musculoskeletal, cardiovascular, gastrointestinal, respiratory, renal and reproductive systems

GENERAL LEARNING OBJECTIVES

On completion of ANA 101, the PA student will be able

1 to explain morphological differentiation in terms of the typical body segment

2 to identify and describe functions of major muscles of the

- a head, face and neck
- b thorax
- c arm, forearm and hand
- d abdomen
- e thigh, leg and foot

3 to identify and describe functions of major organs of the

- a thorax - lungs, heart
- b abdomen, viscera
- c male urogenital system
- d female urogenital system

4 to identify and describe main arterial and neuronal supply to muscles and organs, systems covered in 2 and 3

5 to differentiate between the structural and functional relationships of the somatic and autonomic nervous system

6 to identify and describe function of cranial nerves

7 to trace the flow of blood through cranial vessels of the brain

8 to explain the structural and functional relationship of the male and female sexual orgasm in terms of neural pathways

9 to relate clinical and surgical case studies to the anatomical structures involved.

*Reproduced by kind permission of Dr Michael Hamilton, director, Physician's Associate Program, Duke University Medical Center.

2 DIDACTIC CURRICULUM FOR MICROBIOLOGY

PROGRAM	Physician's Associate	TERM Spring 1976
COURSE	Introductory Microbiology	
COORDINATOR	Suydam Osterhout MD PhD	DEPARTMENT Microbiology

EDUCATIONAL GOAL

To present microbiology to the student from the standpoint of historical background, clinical presentation, methods of diagnosis, mechanisms of pathogenicity, treatment, epidemiology and prevention

GENERAL LEARNING OBJECTIVES

Upon completion of MIC 101, the PA student will be able

1 To describe the most likely cause of microbial

a skin infection
b upper respiratory tract infection
c urinary tract infection
d gastrointestinal infection
e male and female reproductive tract infection
f nervous system infection

2 To describe the best way to demonstrate the microbial etiology, signs, symptoms, and natural history of microbial infections presented in MIC 101

3 To describe advantages and disadvantages of antibiotics, antifungals and vaccines used in treatment of pathogens presented in MIC 101

4 To construct treatment and prevention plan for microbial infections presented in MIC 101

5 To relate geographical, social and economical norms to the spread of infectious diseases and their prevention.

3 CLINICAL CURRICULUM 1975-1976

The clinical practicum phase of the curriculum consist of 32 weeks of required rotations, 16 weeks of elective rotations, and 10 weeks of 'externship' in primary care. It is expected that during this phase of training, the student will develop into a capable and competent assistant for the physician by applying knowledge, skills and attitudes learned in his/her pre-clinical education to the care of patients.

Clinical experiences gained in this phase of the curriculum are not intended as an end point in the students' education, but rather as a means to provide the basic clinical education upon which to continue to develop in the profession. Only by becoming a life-long learner can the student remain a valuable resource to the physician and the patient.

The following are required rotations

Course No	Clinical Title	Weeks	Course Credits
MED 150	inpatient medicine	8	2
SUR 151	surgical outpatient and emergency	8	2
PED 150	general pediatrics	8(4)	2(1)
OBG 150	obstetrics and gynecology	8(4)	2(1)
MED 151	outpatient medicine	8(4)	2(1)
CHS 180	primary care medicine	10	(Extern)

The following are elective rotations

CHS 151	family medicine	8	2
CHS 152	rehabilitation	4	1
CHS 153	occupational medicine	4	1
CHS 191	independent study	4	1
MED 152	intensive care	4	1
MED 153	cardiology	8(4)	2(1)
MED 154	cardiovascular laboratory	4	1
MED 155	endocrinology	8(4)	2(1)
MED 156	gastroentology	8(4)	2(1)
MED 157	hematology	4	1
MED 158	hyperbaric medicine	4	1
MED 159	allergy and respiratory	4	1
MED 160	nephrology	8(4)	1
MED 161	neurology	8(4)	1
MED 162	rheumatology	8(4)	1
MED 163	dermatology	4	1
OBG 151	office gynecology	4	1
PED 150	ophthalmology	8	1
PED 151	pediatrics outpatient	8(4)	2(1)
PED 152	intensive care	4	1
PED 153	pediatric chest and allergy	8(4)	2(1)
PED 154	full term nursery	8(4)	2(1)
PED 155	clinical research unit	4	1
SUR 150	general surgery	8	2
SUR 152	intensive care	4	1
SUR 153	cardiothoracic	4	1
SUR 154	cardiopulmonary bypass	4	1
SUR 155	acute care unit	4	1
SUR 156	otolaryngology	8(4)	2(1)
SUR 157	plastic surgery	8(4)	2(1)
SUR 158	plastic dressing room	4	1
SUR 159	anatomy	4	1
SUR 160	urology	8(4)	2(1)
SUR 161	orthopedics	8	2
PSY 150	general psychiatry	8(4)	2(1)

4 OBJECTIVES FOR PRIMARY CARE ROTATIONS

I Locations

community practices

II Teaching Staff

community physicians

III Characteristics

Primary care providers, by definition, render 'first line' medical services, and therefore often afford access for the patient into the health care system. Accordingly, primary care providers often serve as coordinator for the patient's overall health plan, including both illness care and health maintenance services.

Students should be attentive to the following goals of primary health care

1 to provide entry, screening, and referral, as necessary

2 to identify and treat common problems

3 to cooperate in the follow-up care of patients under specialty treatment

4 to establish health maintenance programs, including
  a routine screening for presymptomatic disease
  b identification of psychosocial, behavioral and environmental factors which may be injurious to health

5 to utilize community support agencies as appropriate

6 to promote health education and encourage active and informed participation by the patient in his/her own health care.

Primary care is by nature broad in spectrum and holistic in approach. It is hoped that this rotation will help integrate the student's clinical skills and facilitate a methodical approach to problem solving, providing the basis for continued learning.

IV General Objectives

A History The PA will be able to elicit, present and record a complete medical history appropriate to the age and sex of the patient, including infants and pre-school age children, pre-adolescents, adolescents, menstruating women, post-menopausal women and adult men.

The PA will be able to elicit, present and record a problem specific history relative to the following systems

HEENT
respiratory
cardiovascular
gastrointestinal
urinary
reproductive
endocrine
musculoskeletal
neurologic
psychologic
hematopoietic

B Physical The PA will be able to perform, report and record a complete physical exam, appropriate to the age and sex of the patient.

The PA will be able to perform a limited and appropriate physical exam for the problems related to the following systems

HEENT
respiratory
cardiovascular
gastrointestinal
urinary
reproductive
endocrine
musculoskeletal
neurologic
hematopoietic
metabolic (fluid and electrolyte)

C Lab Skills The PA will be able to perform, interpret and record the following procedures

hematocrit
WBC count
WBC differential
urinalysis and microscopic
gram stain
acid fast stain
occult fecal blood
pinworm prep
wet mount
vision screening
audiometry
tonometry (Schiotz)

The PA will be able to obtain and prepare the following laboratory specimens

blood by fingerstick
blood by venipuncture
clean catch urine
sputum
stool for occult blood, parasites
swabs for culture from skin and all body cavities
cervical PAP smear

The PA will be able to obtain an EKG on pediatric and adult patients.

D Laboratory Evaluation For the following tests, the PA will be able to discriminate normal and abnormal findings, and discuss the significance of these findings

Hematology – hmct, hgb, WBC count, diff
sed rate
serum iron, iron binding capacity
serum folate
prothrombin time
Lee-White clotting time

Chemistries – blood sugar
BUN, creatinine
uric acid
cholesterol
direct and indirect bilirubin
enzymes – SGOT, SGPT, LDH, CPK, alk phos, acid phos
calcium
phosphorous
serum protein
serum acetone
thyroid function tests
electrolytes – Na, K, Cl, CO_2

Serology – pregnancy test
mono test, heterophile agglutination
direct and indirect Coombs
ASO titre
RPR, FTA

urinalysis and microscopic
throat and nasal cultures
urine cultures
gram stain
pulmonary function (FEC, VC)

EKG – normal
sinus tachycardia, bradycardia
A-V block
atrial tachyarrhythmias
ventricular tachyarrhythmias
premature contractions
acute injury pattern
myocardial ischemia
old infarct pattern
RBBB
LBBB
hyper-hypokalemia
ventricular hypertrophy
digitalis effect

X-rays – chest (CHF, pneumonia, pneumothorax, hydrothorax, tumours)
abdomen (obstruction, masses, free air)
extremity fractures

E Communication Using the problem-oriented format, the PA will be able to

1 clearly and concisely write a complete history and physical

2 clearly and concisely record a progress note

3 clearly and concisely record a problem-specific exam

4 write a problem list

5 write a plan of management consistent with the student's fund of knowledge

6 present an oral summary of the patient's examination

F Treatment objectives

1 Psychomotor The PA will be able to

a perform the following – intramuscular injection
intradermal injection
subcutaneous injection
intravenous injection

b administer O_2

c administer IPPB

d insert and remove NG tube

e catheterize male and female bladder

f assist in emergency cardiopulmonary resuscitation

g institute an immunization schedule

h remove an IUD under supervision

2 Affective The PA will be able to

a assess the ability of the patient or those responsible for the patient to follow treatment plans

b counsel the patient or responsible person concerning the nature and prognosis of the defined problems

c provide emotional support in an endless variety of situations

3 Cognitive see next section

G Problem-oriented objectives

1 The PA will be knowledgable about certain common problems affecting pediatric and male and female adult patients.

The PA will refer immediately all problems requiring physician intervention or about which there are any questions concerning accuracy of the data base, prognosis or management.

The PA will also be alert for prospective problems deriving from the age, sex, familial pattern and socioeconomic environment of the patient.

Given patients with the problems listed, the PA will be able to

a obtain a pertinent data base

b indicate a correct impression for most patients

c state and/or implement a plan of management

d assess appropriate follow-up measures and frequency of follow-up

e counsel patients concerning problem and management to encourage compliance

2 Problems

Although some of these problems may not remain at the primary care level, they may well present at the primary care level, and the student should therefore have some familiarity with them.

Acute

conjunctivitis
ocular, nasal foreign body
otitis media, supp., serous
otitis externa
sinusitis
epistaxis
allergic rhinitis
URI, viral
strep pharyngitis
infectious mono
croup
laryngitis
dental caries
impetigo
vomiting
battered child
diarrhea
abdominal pain
constipation
hepatitis
cholecystitis
intestinal parasites
urinary tract infections
prostatitis
vaginitis
acute bronchitis, bronchiolitis
pneumonia
pleurisy
rubella
rubeola
roseola
mumps
chickenpox
scarlet fever
rashes, infectious, allergic
enuresis
menstrual disturbances
venereal disease
hematuria
renal calculus
breast mass
headache
anemia
seizures
orthopedic trauma
lacerations

Acute Emergent

meningitis
acute upper GI bleed
myocardial infarct
TIA
diabetic ketoacidosis
thrombophlebitis
acute abdomen
ectopic pregnancy
poison ingestion
extensive first/second degree burns
third degree burns
acute airway obstruction
seizures
pulmonary edema
high fever, over 105
cardiac arrest
anaphylaxis

Chronic

essential hypertension
congestive heart failure
angina
hyperlipidemia
cerebral vascular insuff.
peripheral vascular insuff.
obesity
chronic bronchitis
emphysema
asthma
diabetes
osteoarthritis
rheumatoid arthritis
thyroid disfunction
chronic renal failure

Counselling

family planning
unwanted pregnancy
sexual and marital health
anxiety with somatization
depression
alcoholism
infant feeding
normal child development
child behavioral problems
learning problems

APPENDIX F QUESTIONS SELECTED FROM A MID-TERM EXAMINATION FOR PAEDIATRIC NURSE PRACTITIONER STUDENTS AT JOHNS HOPKINS UNIVERSITY*

1 Draw and label a diagram of the anatomical structures seen on funduscopic examination.

2 On auscultation of the heart, where is the best place to listen to hear the closing of each valve?

3 A two-year-old comes to see you for a nursery school physical examination. He begins to scream when his temperature is taken and continues throughout the history and physical exam. On examination you find the tympanic membranes are red. How would you proceed?

4 Give three factors which might contribute to nutritional anemia in a toddler.

5 Define macule; wheal; pustule; lichenification.

6 Name four things that would alert you to seek medical consultation in the examination of the abdomen of an eight-year-old child.

7 Develop an immunization plan and give your rationale for a seven-year-old whose immunization record is unobtainable and does not know what he has received. Describe what you would do on this visit and plan for follow-up.

8 On examining the chest and lungs of a breathless 12-year-old child, give two things you would be looking for on each of: inspection, palpation, percussion, auscultation.

9 You are planning a program for the early detection of specific learning disabilities in children in kindergarten and the first grade. Name five characteristics or 'cues' you might be looking for to identify these children.

10 Give three cases in which live attenuated measles vaccine may be contra-indicated or in which special precautions should be taken.

11 Describe how to elicit the following newborn reflexes and what the normal response is: asymmetrical tonic neck, rooting, stepping (placing).

12 Give two techniques used by a PNP in screening for strabismus and specifically what would you be looking for?

*Reproduced by kind permission of Dr Malcolm Peterson, dean, School of Health Services, Johns Hopkins University.

APPENDIX G TWO HUNDRED AND SEVENTY CASES SEEN BY ONE FAMILY NURSE PRACTITIONER AT PROSPECT HILL CLINIC DURING 12 WEEKS BETWEEN SEPTEMBER AND DECEMBER 1972*

Problem		Number of cases	(percentage of total)	cases requiring consultation with physician	(percentage of cases requiring consultation with physician)
Respiratory infections		99	(36.6)	18	(18.2)
otitis media	45				
URTI	30				
pharyngitis	18				
croup, cervical adenitis, pneumonitis	6				
Well-child care		42	(15.6)	2	(4.8)
Psychogenic		24	(8.9)	12	(50.0)
abdominal pain	12				
behaviour/emotional	11				
encopresis	1				
Allergic		20	(7.4)	7	(35.0)
bronchial asthma	8				
atopic dermatitis	6				
urticaria	2				
allergic rhinitis	2				
drug eruption	1				
desensitisation	1				
Injuries and bites		19	(7.0)	11	(58.0)
Dermatological (non-allergy)		14	(5.2)	5	(35.7)
impetigo	10				
furunculosis	3				
tinea versicolor	1				
Gastroenteritis		13	(4.8)	2	(15.4)
Genito-urinary		9	(3.3)	8	(88.8)
enuresis	3				
urinary tract infection	2				
other	4				
Haematologic		5	(1.9)	1	(20.0)
iron deficiency anaemia	5				
Miscellaneous		25	(9.3)	14	(56.0)
Total		270	(100.0)	80	(29.6)

*Adapted from the report by Dr E V Kuenssberg.[32]

APPENDIX H PROTOCOLS USED BY PAEDIATRIC NURSE PRACTITIONERS AT JOHNS HOPKINS HOSPITAL*

1 SHORT STATURE

Definition

Any child whose height is consistently below the third percentile on the growth chart. An erratic growth curve may suggest other problems.

Classification

Normal

a genetic or familial

b delay in maturation – growth spurt at a late age

Abnormal

a primary (cellular) uncorrectable – dwarfism, fetal infection and mental retardation

b secondary correctable

1 nutritional – poor eating, malabsorption

2 metabolic – endocrine problems (hypothyroidism) renal tubular acidosis

3 precocious sex syndromes (early closure of epiphysis)

4 cardiac disease

5 chronic infections

6 psychosocial deprivation

c IUGR – normally affects only early stages of development

History

1 complete birth history

2 family history including heights of parents, grandparents, true siblings, aunts and uncles

3 maturational history of family members – for example late onset of puberty

4 history of emotionally disturbing factors in home environment

5 evidence of growth – change of clothes size, shoe size

6 growth history with documentation of previous heights and weights

Physical Exam

routine work-up

Tests Performed

CBC
UA and UC

Consultation

Check with MD for discussion of differential diagnosis and further work-up

*Reproduced by kind permission of Dr Malcolm Peterson, dean, School of Health Services.

Treatment — dependent on etiology

Teaching — vast majority familial reassurance

Follow-up — to include periodic measurements

2 OBESITY

Definition

Older children – 20 per cent over ideal body weight for height and body build

Infants – examine and compare height and weight growth curves

Classification

Exogenous obesity – caloric intake exceeds basic BMR needs

a accounts for over 95 per cent of obese children or adolescents

b characterized by poor eating habits – frequent snacking, skip meals, night eaters, high fat and carbohydrate intake

c often long-standing weight problem

d positive family history for obesity

e decreased energy expenditure – sedentary habits, prolonged bedrest due to illness

f normal or advanced growth and development

g unremarkable history and physical exam

h seven times more prevalent in lower socioeconomic groups

Endogenous obesity – less than 1 per cent of obesity caused by rare and unusual problems

History

1 past medical history – to include approximate onset of obesity, any previous weight reduction therapy

2 complete review of systems

3 family history – to include obesity in family members or any endocrinopathy. Is there a positive family history for heart disease, hypertension or CVAs?

4 social history – in relationships with peers, siblings and parents, school performance, behavior problems

5 growth and development history – previous heights and weights, activity, menstrual history

6 dietary history – quality of meals in household, snacking habits, participation in school lunch program, food likes and dislikes, 24 hour food intake history

7 ascertain motivational level of parents and patient regarding obesity

8 recognition of problem by parent and/or child

Physical Exam — complete

Tests Performed	as indicated by findings
Consultation	1 with MD – if growth and development is abnormal or endocrinopathy found
	2 with nutritionist – if indicated by PNP
	3 for psychological services – if indicated by PNP
	4 consider referring for group counseling
Treatment	dependent on etiology
Teaching	1 general nutrition
	2 provide well-balanced weight reduction plan – avoid low protein diets in growing children and adolescents
	3 make sure patient and family realize that weight reduction will not be rapid or dramatic
	4 educate patient regarding impact obesity has on later health
Follow-up	1 every two-four weeks as indicated by PNP
	2 daily food intake sheets helpful in determining patient's understanding of diet

APPENDIX I CLINICAL RECORD MADE BY A FAMILY NURSE PRACTITIONER

(Date) 1976 Weight 273 lbs BP 150/88

Mrs———————— returns today for routine follow-up

Problem 1 Hemorrhoids
SUBJ Asymptomatic

Problem 2 GU infection
SUBJ Asymptomatic

Problem 3 Hypertension
SUBJ Asymptomatic. Continues on Hydrochlorothiazide 50 mgs 1 bid
OBJ Blood pressure as above. Neck veins are flat at 30 degrees
Chest: clear. Cor: normal sinus rhythm. No gallop
Extremities: no edema
ASSESS Stable
PLAN P^O VII D Lab: none. Treatment: continue present medication

Problem 4 Obesity
SUBJ Has been making slight effort at trying to reduce weight
OBJ Weight down 10 pounds

Problem 5 Seborrhea
SUBJ Asymptomatic. Continues to use Sebulex once per week
OBJ Not examined
ASSESS Symptomatic improvement
PLAN PSO III B Lab: none. Treatment: continue Sebulex at least once per week

Problem 6 Arthritis
SUBJ Continues to complain of pain and stiffness in her knees. Stiffness occurs after sitting, or standing for long periods of time. Has been taking enteric coated aspirin with minimal relief of symptoms. This is patient's major complaint today.
OBJ Crepitus bilaterally in both knees. No erythema. No fluid
ASSESS Probable osteoarthritis in knees
PLAN PSO X E. Lab: none. Treatment: Trial of Motrin 1 qid

Adult health maintenance. Needs biannual breast check and pap smear.
LMP March 1973 There has been no vaginal bleeding. Patient does self breast exam every month
OBJ Pendulous, symmetrical breasts. No palpable masses.
Pelvic: unchanged
ASSESS Normal exam.
PLAN PSO. Lab: pap smear. Repeat breast check and pap in six months

Return to clinic in three months or prn.

.04 RESPONSIBILITY OF PHYSICIAN OR FACILITY

A When a physician or facility, and a registered physician's assistant have agreed to the latter's employment, the two parties shall provide the Board with written notice of employment no less than 10 days before the physician's assistant begins his or her duties. The notice shall be accompanied by a complete resume of the duties to be delegated to the physician's assistant and the nature and extent of the supervisory relationship which will exist between the physician and the physician's assistant, or the physicians in a facility and the physician's assistant.

B Similar notice shall be given to the Board by the physician or the facility within 10 days of termination of employment.

C A physician may not employ more than two physician's assistants in his non-institutional practice.

D Guidelines for facility employers of physician's assistants shall be proposed by the facility and submitted to the Board for approval in each instance.

.05 LIMITATIONS UPON DELEGATION

A No physician may delegate the ultimate responsibility for diagnosis or therapy.

B Notwithstanding any provisions herein contained, a physician may not delegate the duty of independently prescribing or dispensing drugs.

.06 PHYSICIAN'S RESPONSIBILITY TO PATIENT NOT TO BE LIMITED BY DELEGATION

When the Board approves a physician's assistant's application in whole or in part, that approval shall not relieve the physician from his primary responsibility for the care and treatment of the patient. Medical services rendered to a patient by a physician's assistant shall be, with respect to the obligation of the physician, the same as if such services had been rendered directly by the physician to the patient.

.07 FEES

The Board shall establish fees for application, examination, registration, and re-registration of physician's assistants.

.08 IDENTIFICATION OF THE PHYSICIAN'S ASSISTANT

A The physician's assistant shall wear a tag or badge, with lettering clearly visible to the patient, bearing his name and the title 'Registered Physician's Assistant'. The badge shall not contain the designations 'DR', 'MD', 'Doctor', 'DO', 'DC' or 'PA'.

*Extract from regulations concerning delegation of duties by a licensed physician, adopted by the Department of Health and Mental Hygiene, State of Maryland, 16 May 1975.

B The Board shall maintain a registry of registered physician's assistants which shall be made available to physicians, medical facilities, and others requesting it.

C The registered physician's assistant may not list his name in any telephone directory or other directory intended for public use utilizing the title 'Physician's Assistant'.

.09 PENALTY FOR VIOLATION

A A physician who delegates duties that constitute the practice of medicine to a person other than a licensed physician in a manner not in accordance with these regulations shall be, upon finding thereof, guilty of unprofessional conduct. The finding shall be evidence of professional incompetence, and practice of medicine with an unlicensed person.

B Any physician's assistant who acts in a manner inconsistent with or in violation of the regulations shall be subject to prosecution for violation of Art. 42 122, Annotated Code, Maryland.

.10 SEVERABILITY

The intent of this Board is that if any section, subsection, sentence, clause, or provision of the regulations is held invalid, the remainder of the regulations may not be affected, and to this end the provisions of these regulations are severable.

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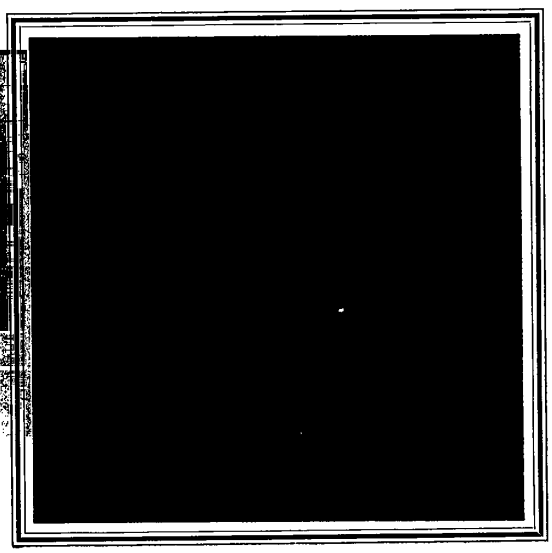

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