A study is reported designed to test methods for studying two aspects of the work of physicians associates—use of skills and degree of independence. Methods proved feasible, and the implications of the findings are discussed.

The Physician's Associate—A Task Analysis

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Introduction

There has been much discussion about the innovative use of allied health personnel during the past decade. The concept of the physician extendor has received a great deal of publicity and interest. Many funding agencies, both public and private, are continually pondering the possibilities of investing in the development of such personnel.

In 1965, under the direction of Dr. Eugene A. Stead, Jr., Duke University initiated the first formal physician's assistant program, now called the Physician's Associate Program, and to date sixty-eight P.A.s have been graduated. The graduates of the first few classes have been studied, but these studies have been primarily oriented toward the social and psychological aspects of the P.A. role.

One of the most common questions asked about the P.A.s is "what do they do?" While there is always an answer, it is usually generalized and seldom supported by factual data concerning their functional roles and task performances. In addition to a task analysis, it seemed desirable to consider the relationship of the training to the tasks performed as graduates. A study designed to gather this type of data would provide essential feedback to the program administration based on actual utilization. It would also provide an examination of patterns of delegation for efficiency operation, and delineation of the capacities and limitations of the P.A.s.

Background

In order to fully understand the multiple ramifications of the study it is first necessary to have an understanding of the curriculum and the graduates. The training of the P.A. begins long before he enters the P.A. program. Each student is required to have at least 2,000 hours of patient care experience before matriculation. Many of the students have acquired their experience in the military setting, but others come from a variety of civilian occupations including laboratory technology, nursing, psychology, biology, etc.

The educational curriculum is 24 months in duration. The first nine months are devoted primarily to didactic work and the last 15 months are devoted to practical study in clinical settings.

While the backgrounds of the students and graduates vary extensively, the backgrounds of the P.A.s involved in this study were quite similar. All had been in the military medical service: eight in the Navy, two in the Air Force, and one in the Army.

Eleven M.D.s and eleven P.A.s participated in the study, but since one of the physicians never returned his questionnaire, the total sample includes only ten physicians. The sites studied included four private general practices in rural areas and five urban institutional settings. One of the private practices employs two P.A.s and one of the institutions employs two P.A.s. The P.A.s in private practices function both in outpatient and inpatient settings; however (with one exception), those in institutional settings function exclusively in either an outpatient *or* an inpatient setting. The institutions studied included one pre-paid group practice in Washington State, one V.A. hospital in Oklahoma, one private hospital in New York State, and one state prison hospital in North Carolina. Two of the private practices studied were in North Carolina and the other two were in Vermont.

Methodology

The detailed questionnaire used for the task analysis is a modification of the protocol of questionnaires designed by the Manpower Branch of the National Center for Health Services Research and Development. There are 368 questions which were divided into six major task categories; History Taking, Physical Examination, Laboratory Procedures, Medical Tasks, Surgical Tasks, and Other Medical Care Tasks (including administrative tasks).

The task analysis was done as a supplement to time/motion studies which were initiated in the Spring of 1970. At that time the sample sites were chosen by contacting prospective employers of the class that was to graduate in the Fall of 1970. All those who actually hired P.A.s and agreed to cooperate in the study were included in the sample. Because this number was very small, employers of previously graduated P.A.s were invited to participate in the study, and again, those who agreed were included. Since

Figure 1—Average Per cent of Tasks Performed Without Direct Supervision, Before and After Training

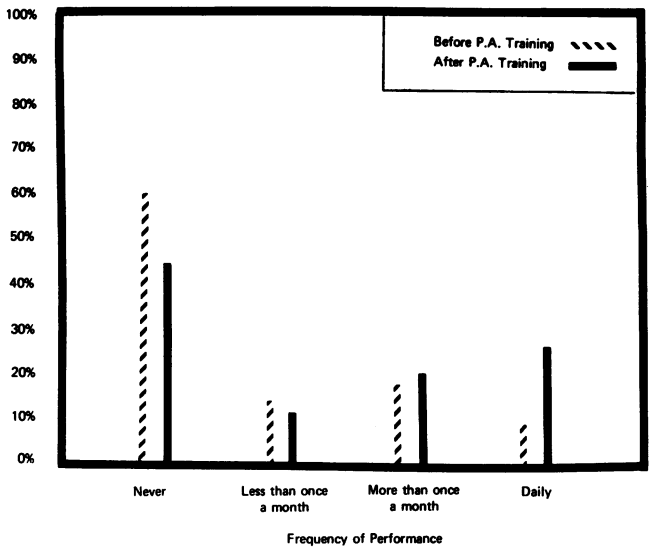
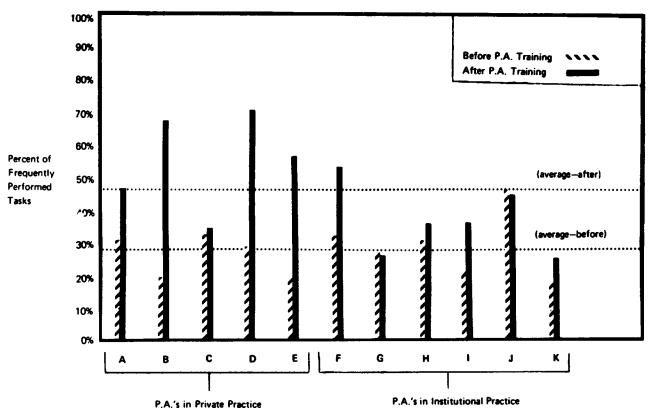


Figure 2—Per cent of Tasks Performed Frequently Without Direct Supervision, for Individual P.A.s



the available study sites were limited and it was deemed necessary to have the full cooperation of the subjects, selectivity proved unavoidable. Therefore, it should be noted that the bias of selectivity has very possibly affected the data. It should also be emphasized that major policy decisions should not be based on these data since the primary purpose of this study was to test the methodology of the analysis.

The physician questionnaire took from one to two hours to complete and the P.A. questionnaire took from two to four hours to complete because there was more to the questionnaire than just the task-related questions. The remaining data, which pertained to the sociological aspects of the setting are not included in this report.

Each study site was observed for one day. The practitioners were asked prior to the visit not to alter their routine so that the observer could get an idea of the routine daily activities. During the visit the observer distributed the questionnaire and answered any questions concerning the content and structure. The M.D. and P.A. were asked not to consult with each other on the contents of the questionnaire.

Figure 3—Per cent of Tasks Performed Frequently Without Direct Supervision, by Major Task Categories

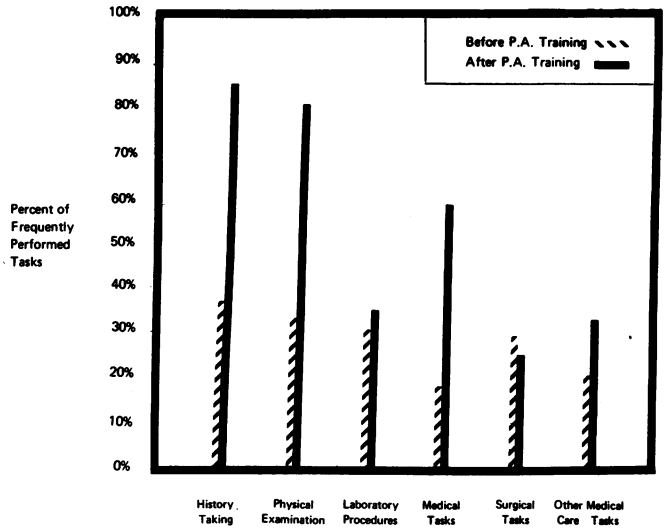
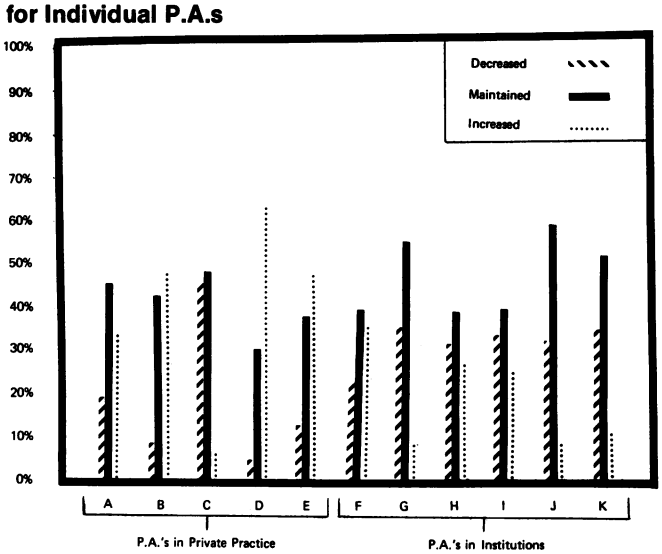


Figure 4—Per cent of Tasks Decreased, Maintained and Increased With Regard to Past Task Performance, for Individual P.A.s

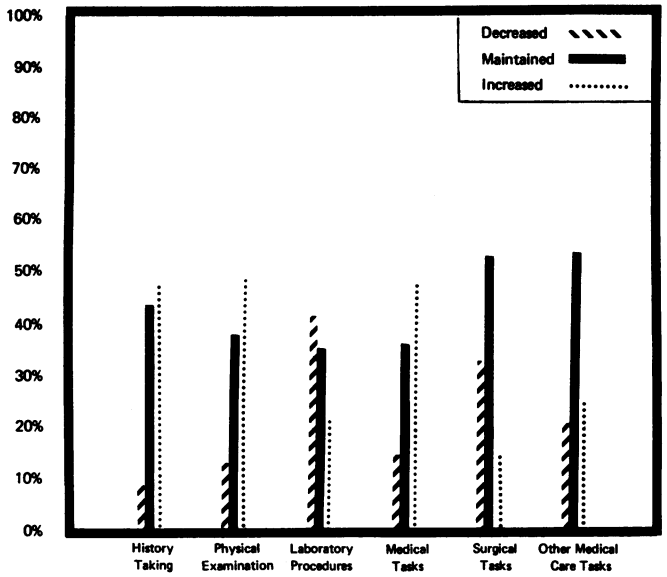


There were some interesting observations made concerning the return rate of the questionnaires. All of the physicians and P.A.s were asked if they could finish the questionnaires on the same day that they received them without interfering with their normal routine. Three physicians and two P.A.s were able to do this. All were in institutions. Only half of the questionnaires were returned within the first month after distribution, and the other half required several telephone calls and letters before they were completed and returned. Twenty-one of the twenty-two questionnaires were eventually returned.

Analysis

Because of great interest in the current utilization of the P.A. by the M.D. and the resulting productivity, it was hypothesized that if the P.A. performed his tasks without direct supervision he could be considered more productive

Figure 5—Per cent of Tasks Decreased, Maintained and Increased With Regard to Past Task Performance, for Each Major Task Category



than if he performed them with direct supervision, the rationale being that the M.D. would be free to perform other tasks in situations where he did not have to provide direct supervision. This study was not designed to explore the quality of task performance.

Each of the P.A.s was asked to indicate how often he performed each task at certain periods during his lifetime work experience. The levels of frequency included: 0-Never, 1-Less than once a month, 2-More than once a month, and 3-Daily. They assigned these values to time periods of *Before P.A. Training, During P.A. Training,* and *After P.A. Training.* Each of these categories was further divided into two parts: *With Supervision* and *Without Supervision.* Consequently, for each listed task it was necessary to mark each of the six categories using the frequency values of 0 through 3 as mentioned above. It was explained that the word "supervision" meant direct supervision where the physician was physically present for the purpose of directing the P.A. in performing a task. The category entitled *Without Supervision* included all tasks performed by the P.A. where the physician was not physically present at the time the task was performed.

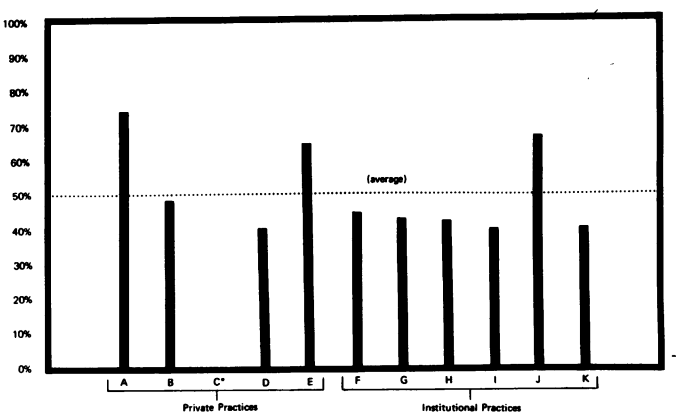
Two general categories were explored using the P.A. questionnaires. The first was concerned with the degree of independence exercised by the P.A.s as perceived by themselves. Each of the four levels of frequency were totaled in each column. These figures were totaled for all P.A.s and all task categories and averaged. Any task being done more than once a month was considered as being done frequently. Those tasks that were done frequently and without direct supervision were considered an index of independence. Those that were done frequently with direct supervision were considered an index of dependence. Only the Before Training and After Training periods were considered in this analysis since, theoretically, all of the tasks performed in the During Training period were under direct supervision.

Figure 1 illustrates the average per cent of tasks performed without direct supervision, before and after training. 46.7% of these tasks are being performed frequently as graduates as compared to 27.7% before being trained as P.A.s. Figure 2 illustrates how the individual P.A.s compare with each other in the performance of frequently unsupervised tasks. P.A.s A through E all work in private practices and P.A.s F through K work in institutions. It is interesting to note that, with one exception, all of those in private practices are above the average and again, with one exception, all those in institutions are below the average. This particular analysis implies that P.A.s employed in private practice have a greater level of independence than those employed in institutions. However, this shall be explored further by using another analytical method.

Figure 3 illustrates the percentage of tasks performed frequently without direct supervision. History taking, physical examination and medical tasks are performed much more frequently on an independent basis than are the other categories. This is not surprising since the tasks in these categories are primarily time consuming, routine tasks that bog the physician down. It seems logical that he would delegate tasks in these areas more extensively and frequently. One reason that the tasks listed under *Medical Tasks* are performed more frequently is that most of the P.A.s included in the study work for internists, and the others work for G.P.s who primarily take care of medical and pediatric problems. This also explains why those tasks listed under *Surgical Tasks* are performed less frequently. Another factor relating to the relatively high degree of independence in performing medical tasks is that, with a few exceptions, most of the clinical training of this sample group was in internal medicine.

The second analysis done on the data from the P.A. questionnaires was concerned with the frequency of task performance, comparing the Before/During Training periods with the After Training period. This analysis was done by considering each task separately. The most frequent performance in the Before/During period was compared to the most frequent performance in the After period. All those tasks in which there was no frequency change were considered "maintained." Those tasks that were performed less frequently in the After period were considered "decreased." And those which were performed more

Figure 6—Per cent of Tasks That M.D.s Expect P.A.s to Perform Without Direct Supervision, by Individual M.D.



*The questionnaire was never returned by this M.D.

frequently in the After period were considered "increased". This gave some indication of how the P.A. was being utilized with regard to his past task performance.

On the average, 45% of the tasks were maintained in frequency of performance, while 26% were decreased and 29% were increased. Figure 4 illustrates how the individual P.A.s compared with each other. Again, with one exception, those in private practices had a higher per cent of increased frequency in task performance than did those in institutional practices. Also, the fact that the per cent of decreased frequency was lower in the private practices further corroborates the observation that the P.A.'s skills are being utilized more extensively in that setting.

Figure 5 shows that the major task categories of history taking, physical examination and medical tasks have notably higher percentages in the increased frequency columns. This is consistent with the first analysis as illustrated in Figure 3. Laboratory procedures are markedly decreased. This is because there is another member of the team designated to do the laboratory procedures in all of the study sites. Another reason for the high per cent of decreased frequency in this category is that the P.A.s were required as students to perform many laboratory procedures as a learning mechanism and, naturally, are not required to do them as graduates.

The third analysis was done on the data from the physician questionnaires, concerning the physician's judgment of the P.A.'s level of responsibility and competence in the performance of each task. Each physician was asked to check one of the following categories for each task: "I have no knowledge of his ability"; "Cannot perform at all"; "Can perform under close supervision"; "Can perform under limited supervision"; "Can perform with supervisor's initiative and approval, but under his own direction"; "Can perform under his own initiative and direction"; and "Needs additional training". This analysis was done to determine the level of independence of the P.A. as perceived by the M.D.

Those tasks that the physicians felt could be performed without direct supervision, the fifth and sixth categories, were considered an index of independence. Figure 6 shows how the individual M.D.s compared in their expectations of the level of independence to be exercised by the P.A.s. Although there are two physicians in private practices with higher than average expectations and only one in institutional practice with a higher than average expectation, the difference between the two types of settings is not as notable as were the differences found in the data from the P.A. questionnaires. The physician average is higher than the P.A. average seen in Figure 6. This means that some of the P.A.s in institutional settings have lower perceptions of their own levels of independence than do their supervising physicians.

Figure 7—Per cent of Tasks That M.D.s Expect P.A.s to Perform Without Direct Supervision, by Task Category

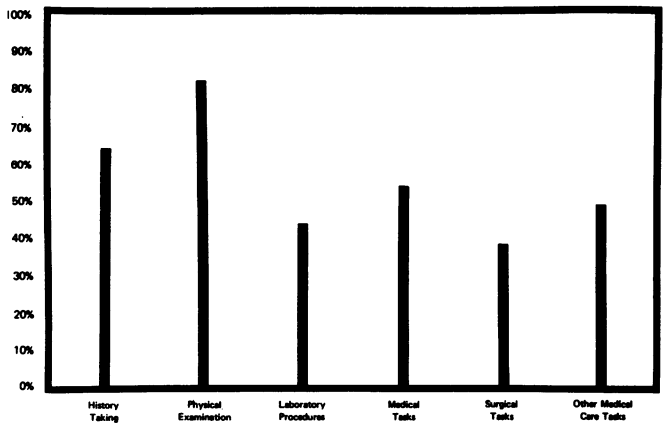


Figure 8—Level of Independence, Comparing Per cent of Tasks Frequently Performed With *Direct Supervision* to Total Number of Frequently Performed Tasks, by Individual P.A.s

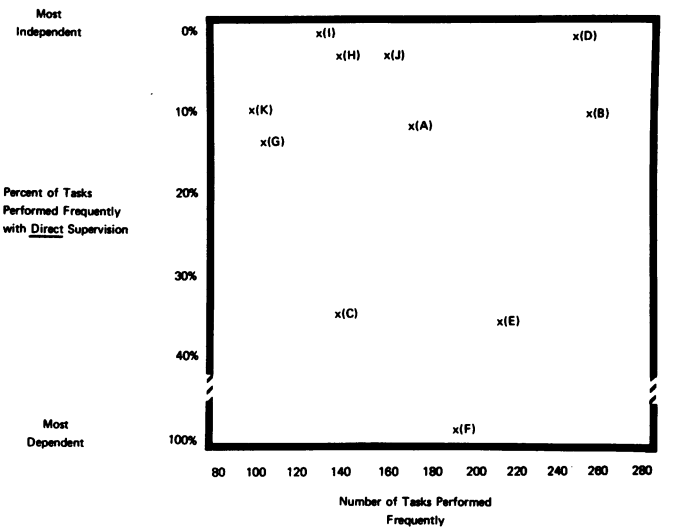


Figure 7 illustrates the percentage of tasks that the physicians expect the P.A.s to perform without direct supervision by major task categories. Again, the three highest are history taking, physical examination and medical tasks. So the physicians and the P.A.s seem to be in accord on what types of tasks are being performed on an independent basis.

The final analysis compares the findings of the first two analyses with each other. It was done as another attempt to determine the level of independence as perceived by the P.A.s themselves. This method compared the percentage of tasks performed frequently on a dependent basis to the total number of frequently performed tasks.

Figure 8 illustrates how the individual P.A.s compare when using this method of analysis. Those with the lowest per cent of tasks performed under direct supervision are considered most independent and are at the top of the scale. By this analysis, the P.A. in private practice is no more independent than the P.A. in an institution. The difference is actually in the number of tasks being performed. The private practice P.A.s perform many more tasks on a frequent basis than do those in institutions. This is not surprising since those in the institutions are in more specialized areas while those in private practices have both inpatient and outpatient duties and see a wider variety of problems.

Summary

The primary purpose of this study was to test the methods of analysis designed to explore two basic aspects of

task performance by physician's associates—utilization of skills and extent of independence (or dependence). The methods employed in this study proved to be workable. Other types of analysis could and should be done using the same data from the task questionnaire. Although it is of interest to know that this type of analysis can be applied to the performance of the P.A., it would be even more useful to test whether or not the performance of the physician can be analyzed. On the basis of this study it seems reasonable to recommend that a similar test be conducted, analyzing physician task performance. If that were to prove feasible, then a large scale study, using random and larger sample sizes, should be conducted to determine if, how, and in what tasks the P.A. relieves the physician from his traditional duties. It is further recommended that the same method be used to study other types of physician extendors so that the various types can be compared with each other. This would be of great value to those agencies considering the promotion of the various types of training programs.

At the time this article was written Mr. Braun was Research Associate, Duke University Medical Center, Durham, North Carolina 27710. Dr. Howard was Director of the Duke University Physician's Associate Program and Assistant Professor, Community Health Sciences, Duke University, and Dr. Pondy was Associate Professor, Business Administration and Community Health Sciences. This project was supported by NIH Contract No. 70-4194. This paper was presented before the Health Administration and Community Health Planning Sections of the American Public Health Association at the 99th Annual Meeting in Minneapolis, Minnesota on October 12, 1971.

Call for Abstracts for 65th Annual Meeting
Canadian Public Health Association

"Patterns of Health Delivery—Rural and Urban" is the theme for the 65th annual meeting of the Canadian Public Health Association to be held June 18-21, 1974, in St. John's, Newfoundland. Both C.P.H.A. members and nonmembers wishing to participate in the scientific sessions should submit abstracts of proposed papers. The deadline for submitting abstracts is January 15, 1974. Abstracts should be sent to Lowell W. Gerson, Ph.D., Chairman, Scientific Program Planning Committee, Faculty of Medicine, Memorial University of Newfoundland, St. John's, Newfoundland, Canada.

Ambulatory Pediatric Association to Meet

The 14th annual meeting of the Ambulatory Pediatric Association will be held April 29 and 30, 1974, at the Sheraton-Park Hotel, Washington, D. C. Abstracts are invited for consideration for presentation at the scientific sessions. Papers dealing with pediatric education and health care research in ambulatory facilities are particularly encouraged. Abstracts must be prepared in accordance with the format prescribed by the Association and must reach the Secretary postmarked no later than January 25, 1974.

For information, write: Elizabeth Hillman, M.D., Montreal Children's Hospital, 2300 Tupper Street, Montreal 108, P.Q., Canada.