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MEDICAL PHYSICS AS A SPECIALTY --
CAREER STRUCTURE AND PROMOTION PROSPECTS
IN MEDICAL PHYSICS IN THE UNITED STATES

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Several types of career structures for medical physicists exist in the United States. These can be classified to a reasonable degree into three groupings, based upon the institutional affiliation of the physicist. Such institutions are: (1) private hospitals or clinics unaffiliated with a medical school or university; (2) county, state, or federal governmental institutions such as Veterans' Administration hospitals, United States Public Health Services hospitals, National Institutes of Health, or state radiation control units; (3) university medical schools or affiliated hospitals.

1) Private Hospitals or Clinics

Careers in a private hospital or clinic are usually not highly structured. For example, an individual may retain the same title throughout his career. (There are very few private hospitals with departments of medical physics.) In some situations a medical physicist may serve as a part-time consultant to a number of such hospitals and clinics. When this is the case, the physicist is only loosely affiliated with any one hospital, and therefore need not be included in the usual hierarchy of an advancement or promotion system.

The medical physicist who chooses a career in which he serves many hospitals finds that he has little or no time for research, but, if he likes hard work, the financial rewards are indeed great.

The physicist who works full time at essentially one private clinic may actually be a full or junior partner with the physician staff, and thus share in the financial gains or losses of the enterprise. At the present time not very many physicists work full time at community hospitals, although the trends in employment indicate that an increasing number of positions are being created for medical physicists at the community hospital level. This situation may in turn bring about a more structured career and promotion arrangement in the future.

2) Governmental Institutions

The typical career for medical physicists employed in county, state, or federal governmental institutions is within a civil service system. The civil service system of the different states, counties, and cities are not identical, but there are certain similarities in all of them. If we consider the federal civil service, however, the same system is used for

almost all branches of the federal government. The Veterans' Administration; National Institutes of Health including the National Cancer Institutes of Health; the civilian component of the Armed Forces; the Public Health Service, and others are included. There are 18 grades, ranging from a low of GS-1 to a high of GS-18. In each grade, except for a few of the higher grades, there are ten steps. Figure 1 shows the salaries for these grades and steps as of January 1972. Promotions are more or less automatic. For example, if one enters the system at step 1, he will advance to step 2 after one year of service. He will then advance to step 3 after another year. Advancement from steps 3 to 4, 4 to 5, or 5 to 6 takes two years per step. Advancement to each succeeding step above 6 takes three years. A person entering the system with a bachelor's degree but no previous experience starts at the GS-5 grade, step 1; with a Master's degree, he enters at GS-9 to GS-11. Rewards are greater for persons with the Ph.D. degree, who enter at the GS-11 to GS-12 level. If such a person has had previous experience, and other qualifications such as scientific publications, patents, certifications and additional course work, he is graded for these and placed in a grade and step appropriate to his background. When a person performs his duties in an extraordinary way, he may jump a step. On occasion, a person is known to jump a whole grade for some particularly outstanding achievement. The GS-13 grade is the start of the executive level in Civil Service. Positions within the Civil Service system are considered long term and stable except in unusual economic situations.

3) University Medical Schools or Affiliated Hospitals

A career in a university medical school or a hospital affiliated with a university may be either professional or academic, and a given school may have both types of structure. The professional titles may be "physicist" or "scientist", "associate physicist", and finally "senior physicist". These positions seldom are considered tenure positions, but in actual practice they may be treated as such. Since the source of funding of medical physicists is predominantly from institutional funds (hard money) and not so often from government contracts or grants (soft money), the medical physicist generally has more security in his job than have physicists in

other fields.⁽¹⁾ The medical physicist in the professional category as distinguished from the academic category, usually does not have the responsibility for teaching graduate students in medical physics, although he does teach medical residents. In addition, the academic requirements for such positions are not as stringent.

The lowest academic ranks in a typical university in the United States is that of instructor. The next steps are assistant professor, associate professor, and finally professor. The position of chairman of a department or head of a section is considered an administrative position, rather than an academic one. In some universities it is not usual for a department chairman to hold the position for a given, fixed period. In addition to the four academic ranks listed above, the larger universities may have lecturers, research associates (with rank of instructor, assistant professor, etc.) and clinical instructors, clinical assistant professor (associate professor or professor). Neither these academic ranks nor those of instructor and assistant professor are tenured positions, tenure being usually reserved for associate professors and professors.

Promotions from one rank to the next are far from automatic. Advancement to associate professor and professor involves approval not only from a department, but also from others in the medical school. It is standard practice that opinions of peers from outside the institution are also sought. Thus, it is very important for the individual to attend scientific meetings and to present papers, as well as to publish his findings in the scientific journals. In general, the medical physicist with an academic position is expected to teach and to do research at a higher level than the medical physicist with a professional appointment.

1. Lawrence H. Lanzl, Financial Support for Medical Physics. Quarterly Bulletin of the American Association of Physicists in Medicine, March 1972. (In press)

FIGURE 1

GS	GENERAL SCHEDULE - 5 U.S.C. 5332(a)										Amt. of Step Incr.
	1	2	3	4	5	6	7	8	9	10	
1	\$4564	\$4716	\$4868	\$5020	\$5172	\$5324	\$5476	\$5628	\$5780	\$5932	152
2	5166	5338	5510	5682	5854	6026	6198	6370	6542	6714	172
3	5828	6022	6216	6410	6604	6798	6992	7186	7380	7574	194
4	6544	6762	6980	7198	7416	7634	7852	8070	8288	8506	218
5	7319	7563	7807	8051	8295	8539	8783	9027	9271	9515	244
6	8153	8425	8697	8969	9241	9513	9785	10057	10329	10601	272
7	9053	9355	9657	9959	10261	10563	10865	11167	11469	11771	302
8	10013	10347	10681	11015	11349	11683	12017	12351	12685	13019	334
9	11046	11414	11782	12150	12518	12886	13254	13622	13990	14358	368
10	12151	12556	12961	13366	13771	14176	14581	14986	15391	15796	405
11	13309	13753	14197	14641	15085	15529	15973	16417	16861	17305	444
12	15866	16395	16924	17453	17982	18511	19040	19569	20098	20627	529
13	18737	19362	19987	20612	21237	21862	22487	23112	23737	24362	625
14	21960	22692	23424	24156	24888	25620	26352	27084	27816	28548	732
15	25583	26436	27289	28142	28995	29848	30701	31554	32407	33260	853
16	29678	30667	31656	32645	33634	34623	35612*	36601*	37590*		939
17	34335	35480	36625*	37770*	38915*	General Schedule -- Effective January 9, 1972 Office of Personnel -- Veterans Administration					
18	39693*										

*The salary for employees at these rates is limited by 5 U.S.C. 5308 to the rate for level V of the Executive Schedule (\$36,000 as of the effective date of this salary adjustment).