

The Hospital Utilization Project of Pennsylvania

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Medicare's Effects on Medical Care

A COMMUNITY APPROACH to proper use of health resources is traditional in western Pennsylvania. As far back as the 1950's concern with rising hospital costs led to dialogues at Pittsburgh between small committees of the Allegheny County Medical Society and representatives of consumer groups, such as the steel workers union, United Mine Workers of America, management of major industries, Blue Shield and Blue Cross, and commercial insurance carriers. Each group was asked two questions: what problems do you have with physicians or medical care in this area and what can the Allegheny County Medical Society do to resolve them? Naturally, these sessions were often hectic, but specific needs were identified and many difficulties resolved. More important, friendly relations were fostered which had much to do with the success of future cooperative efforts.

The multiplicity of complaints and diversity of their origin convinced the medical society leaders that each complaint should be investigated, evaluated, and corrected where possible. The society, therefore, established a Medical

Care Coordinating Committee to develop liaison with representatives of insurers, government, industry, labor, and the public. Since many problems were not confined to geographic boundaries, and some groups had interests in other counties, medical societies in the three adjacent counties, which with Allegheny form the Tenth Councilor District of the Pennsylvania Medical Society, were asked to name members to the committee.

Despite voluntary efforts to identify and resolve difficulties, hospital costs continued to mount. Three important factors seemed chiefly responsible: (a) increased use of hospitals because of better health care education and more extended insurance coverage of hospitalization by prepayment plans, (b) increased costs of hospital labor and materials, and (c) advanced techniques of medical care which necessitated more expensive equipment and added staff. Though no easy solution was apparent, public concern with rising prepayment premiums and hospital costs continued to mount. In 1958 the insurance commissioner of Pennsylvania ruled, in response to a request by Blue Cross for a rate increase, that no further increases in insurance rates would be considered unless positive measures were taken to control costs of hospital care.

Hospital Utilization Committees

Response to this adjudication was prompt. Leaders of the Allegheny County Medical Society were convinced that any method of

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evaluating hospital use was the duty and responsibility of the medical profession and that positive steps were required to demonstrate physicians' concern with the public interest. Accordingly, late in 1958, resolutions approving organization of hospital utilization review committees were passed by the four county medical societies in the tenth councilor district and by the Pennsylvania Medical Society.

By early 1959 these committees were functioning in most of the 38 hospitals in the tenth councilor district. Their purpose was to insure high-quality health care at reasonable cost, by physician evaluation and review guided by established standards, to control misuse of hospitals, and to stimulate progressive improvement in the hospital's performance. In 1959, in response to requests, a guide manual was prepared, co-sponsored by the tenth councilor district and the Hospital Council of Western Pennsylvania, and published by the local Blue Cross.

Operation of utilization review committees was by no means all smooth sailing. Medical staffs and administrators were often afraid of controls, and critical self-evaluation was sometimes resented, even though self-imposed. Fortunately, as the committees started operation, fears were allayed, and those persons in support of the program far outnumbered the critics. A serious problem persisted, however, namely the amount of time required for routine review by already overburdened physicians serving on utilization committees. It became apparent that physicians needed to be freed from some of the routine paperwork. A committee of physicians freed from the task of reviewing charts that did not require analysis could then use its time more productively in discussing utilization practices and matters needing medical judgment.

The Hospital Utilization Project

Leadership was again provided by the Allegheny County Medical Society, which with the Hospital Council of Western Pennsylvania, co-sponsored the establishment of the hospital utilization project (H.U.P.) which began operation on January 1, 1963. H.U.P. is directed by a board of directors composed of physicians,

hospital administrators, other representatives of the health professions, and representatives of industry, insurers, labor, and the public.

The project was designed to assist physicians in extending and improving the activities of utilization review committees. By electronic data processing of abstracts of medical records of all hospital discharges, H.U.P. provides comparative data to reflect length-of-stay experience in the community, and gives personal and technical assistance to utilization committees in dealing with the problems revealed.

From the outset, the community accepted the need to provide overburdened utilization committees with a tool such as H.U.P. Solicitation by leading physicians resulted in substantial contributions from more than 30 local industries, health organizations, insurers, and medical societies, who financed the project for its first 4 years. Blue Cross of Western Pennsylvania contributed the necessary staff and facilities for data processing, and additional support was given by the Hospital Planning Association of Allegheny County, the Health and Welfare Association of Allegheny County, and the Graduate School of Public Health, University of Pittsburgh.

As the project got underway, the sponsorship by both organized medicine and the community hospitals was a source of strength. To enlist the voluntary cooperation of community hospitals in the project, it was necessary to insure high-quality service. Although there has been some dissatisfaction with the project among participating hospitals, by July 1, 1966, when Medicare became effective, 35 of the 38 voluntary hospitals in the four counties around Pittsburgh were participating.

No charge was made to the hospitals for H.U.P. services before Medicare, but following its enactment all new hospitals enrolled were charged 42 cents per discharge abstract processed. On January 1, 1967, this fee was applied to all participating hospitals. No hospital has withdrawn from the project because of the fees, and at present 75 hospitals are participating. H.U.P. has recently been authorized, with the endorsement of the Pennsylvania Medical Society, to offer the service to any hospital approved by the Joint Commission on Accreditation of Hospitals (JCAH) in the State, and

exploratory meetings are now being held with hospitals in central and eastern Pennsylvania.

Methodology

In developing its methodology, H.U.P. sought to identify the patterns of care which would direct attention to practices which might be modified for groups of cases. The methodology is constantly subject to review and revision and consists of the following steps: (a) abstracting the hospital record of every discharged patient, (b) listing of cases by diagnosis and operation by automatic data processing, (c) preparing comparative statistics, (d) developing a hospital "profile," (e) performing individual care review, and (f) identifying practices and procedures which should be modified.

The abstract form has been revised four times. The information on the form was chosen to facilitate use of data as a screening device. Current experience, and observation and discussion with administrators, physicians, and record librarians indicates the desirability of including additional optional descriptive items, and these will be incorporated in a revised abstract form which is expected to be available in January 1969.

Not all the information on the abstract form, however, is required for utilization review. Electronic data processing provides each hospital with listings and summaries which are required either for internal operation or JCAH accreditation. Each month listings of diagnoses, operations, discharge analyses by service, and deaths are prepared. A semiannual index of physicians is prepared for each staff physician, listing all cases attended, diagnoses, and other pertinent information about treatment and hospitalization. Semiannually H.U.P. also compiles indexes of diagnoses and operations which meet the requirements of JCAH. The grouping of cases by primary diagnosis in the semiannual indexes permits H.U.P. to prepare reports for each participating hospital that can be compared with other hospitals. Repetition of this process at appropriate intervals provides an automatic evaluative system.

Diagnostic categories. The reports of comparative experience were designed to provide

basic data on a series of common diagnoses which reflect differences. H.U.P. expects that these reports will stimulate medical staff evaluation of utilization trends. Initially, the most common conditions or procedures in the various major hospital services were selected. From the medical service, data were supplied for acute myocardial infarction, pneumonia, diabetes (both complicated and uncomplicated), duodenal ulcer, and gastroenteritis. Appendectomy not incidental to other operative procedures, herniorrhaphy, cholecystectomy, and excision and ligation of varicose veins were selected from the surgical service.

From the obstetric-gynecologic service reports were prepared for normal uncomplicated deliveries unassisted except by episiotomy, deliveries assisted by forceps, and those performed by cesarean section, diagnostic dilation and curettage, spontaneous abortion, and hysterectomy by both vaginal and abdominal routes.

Other diagnoses selected for comparative reports were prostatectomy, hemorrhoidectomy, cataract extraction, surgically and medically treated difficulties of the lumbar and lumbosacral disks, and separate analyses of gastroenteritis, pneumonia, and herniorrhaphies in children.

The data-processing center supplies copies of the semiannual indexes of diagnoses of each member hospital to the project. From these indexes the H.U.P. statistical department prepares a series of separate length-of-stay statistical reports for each of the diagnostic categories previously mentioned. Initially, only 20 hospitals were included in each report but, beginning with the July 1967 series of reports, two separate reports were prepared; one for hospitals with more than 200 beds, and the second for hospitals with less than 200 beds. At present there are about 25 hospitals in each group.

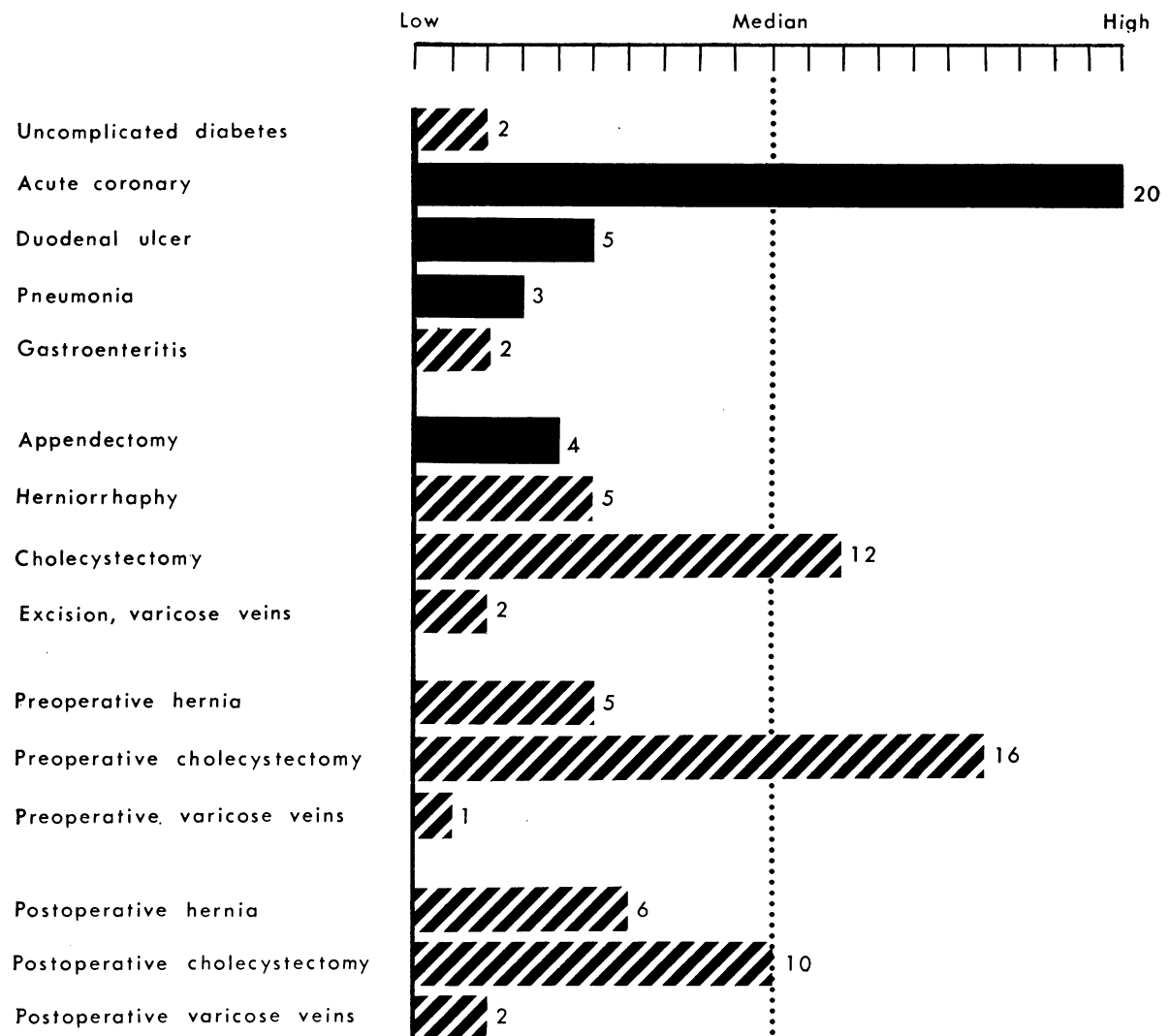
The individual statistical reports are distributed in a rotating sequence to the various services of all hospitals at weekly intervals. This distribution gives each service within a hospital time to do further studies and enables the series to be prepared and distributed over a comparatively brief time. As hospitals are ranked by name, the staff of each hospital can

evaluate its position relative to specific hospitals of similar size, clientele, and staff training.

Preparing and using the profile of specific diagnoses. After the series of statistical reports on specific diagnoses have been distributed, a profile in bar graph form (see chart) is prepared for each participating hospital. These profiles reflect relative ranking for each series of diagnoses, and separate profiles are constructed for medical-surgical services, obstetric and gynecologic services, and specialty diagnoses. These bar graphs show those diagnoses

which would appear to justify the attention of the utilization committee. The lowest rank and shortest bar on the profile indicates the shortest average stay in the hospitals in the community for the particular diagnosis. A diagonally striped bar on the profile indicates a shorter stay for that diagnosis in the 6 months reported than for the previous 6 months. The graph is broken by a vertical line indicating midposition in the ranking. An explanatory table is attached to each bar-graph profile, which gives the following data for each diagnosis for the period (see

Medical-surgical profile for "Forbes" Hospital showing ranking for length of stay among 20 hospitals, January-June 1966



NOTE: Lowest rank indicates shortest average stay for category; diagonal striping indicates shorter stay first half 1966 compared with 1965.

Length of stay in "Forbes" Hospital compared with community data for specific diseases and operations, January-June 1966

Diseases or operations	Data for "Forbes" Hospital				Data for community in days			
	Relative Rank ¹	Average stay (days)	Change 1965-66 (days)	Number cases	Shortest average stay	Longest average stay	Median average stay	Change 1965-66
Diseases:								
Diabetes, uncomplicated.....	2	9.4	-2.1	16	8.5	17.1	11.9	-0.2
Acute coronary.....	20	29.9	+5.2	15	19.5	29.9	22.4	-1.6
Duodenal ulcer.....	5	8.3	+ .4	21	6.6	11.6	9.8	+.3
Pneumonia.....	3	11.7	+2.6	24	11.2	19.2	13.6	+1.4
Gastroenteritis.....	2	4.2	-3.1	13	3.2	8.4	6.3	-.3
Operations:								
Appendectomy.....	4	5.8	+ .1	18	4.7	7.9	6.5	-.5
Herniorrhaphy.....	5	7.6	-3.3	38	6.4	14.0	8.8	-.4
Cholecystectomy.....	12	16.9	- .6	34	8.7	19.7	14.8	-.6
Excision, varicose veins.....	2	4.8	- .4	11	4.3	11.7	8.1	+.4
Preoperative care:								
Hernia.....	5	1.4	- .9	38	1.1	2.8	2.0	-----
Cholecystectomy.....	16	5.6	- .6	34	1.7	6.9	3.6	-.3
Varicose veins.....	1	1.0	- .2	11	1.0	3.1	1.9	+.1
Postoperative care:								
Hernia.....	6	6.2	-2.4	38	5.3	11.3	6.8	-.4
Cholecystectomy.....	10	11.3	-1.4	34	7.0	13.6	11.2	-.3
Varicose veins.....	2	3.8	- .2	11	3.3	10.0	6.0	+.3

¹ Lowest rank indicates shortest average stay for category among 20 area hospitals.

SOURCE: H.U.P. statistical reports, third series.

table): (a) the hospital's relative rank, (b) average length of stay in the hospital, (c) change between reported period and previous 6 months for the hospital, (d) total cases in the hospital with this diagnosis, (e) the shortest, longest, and median average stay among the community's hospitals, and (f) the community change in the equivalent periods.

The utilization committee by using this profile is able to detect deviations from the normal pattern and direct attention to the specific areas which appear to need study. The members of the committee can point to the experience of medical confreres and suggest to the hospital having difficulties that the profiles represent cases from comparable medical sources against which their own practice might be evaluated. When a hospital deviates from the norm, the utilization committee needs to study the hospital's series of cases to determine the reasons for the difference. If the difference can be attributed to medical need, the committee can feel it has fulfilled its responsibility.

Essentially, unusual utilization patterns have been found to result from one of two situations. First, long preoperative stays caused by administrative inefficiency were prevalent for rea-

sons such as lack of coordination between admitting office and operating room, unavailability of prepaid preadmission diagnostic workups, and inefficient communications within a hospital that resulted in delays in performing laboratory and X-ray studies. The second situation was the unnecessarily long postoperative and medical stays which often seemed to be governed by habit, not science.

The H.U.P. staff hopes that presentation of data showing wide variation in length-of-stay experience among the community's hospitals will be accepted as indicative of the lack of clear-cut guidelines, and that this will stimulate the staff of individual hospitals to study and evaluate discharge patterns.

Criteria

When hospital or medical staff practices which affect length of stay are examined critically, variations in quality of care are encountered. In the early operation of the project, physicians and utilization committees were reluctant to review individual cases in the specific diagnoses indicated by their particular hospital profile. However, as the concept of

utilization review became accepted, physicians became conscious of their responsibility for evaluating quality of care in hospitals. Most physicians in western Pennsylvania now seem to have a definite interest in individual case studies and appreciate their value.

As in Michigan, H.U.P. used the services of panels of experts to establish guidelines or criteria of appropriate hospital care and length of stay for about 50 different diagnostic categories, including all those contained in the project's semiannual profiles. These guidelines are not inflexible; they seek to establish norms of acceptable treatment and appropriate lengths of stay under indicated conditions.

Discussions with local committee members in all branches of medicine have indicated general acceptance. Sets of these criteria have been distributed to all participating hospitals for committee use. Based on the criteria, individual case review worksheets have been prepared for all diagnoses listed on the profiles. H.U.P. recommends to a committee that, having selected a diagnosis for review, the desired number of charts for the period to be studied be obtained from the record department. Each committee member is then asked to complete his share of the worksheets before the next meeting.

At the monthly meeting, the worksheets are used for discussion of utilization review and evaluation of quality of care. Only those charts questioned by individual reviewers are required at the general meeting. This method of combining reviews of utilization and quality of care has appeared acceptable throughout the membership of the project and has stimulated many requests from individual hospitals to provide worksheets for their specific needs.

Experience gained over the years has enabled H.U.P. to participate in reviewing the operation of institutions other than hospitals. Supported by a grant from the Health, Research and Services Foundation of Allegheny County, research is now being conducted in utilization review for rehabilitation centers, psychiatric facilities, and institutions for the mentally retarded. With the enactment of the Social Security Amendments of 1965 (P.L. 89-97), a major study of extended care facilities has also been undertaken.

Extended Care Facility Review

The community approach to utilization review was again demonstrated by the medical society's response to the Medicare requirements for extended care facilities. Aware of the lack of formal staff structure in many facilities, in August 1966 the medical advisory committee of the tenth councilor district proposed the formation of a medical society-sponsored Central Utilization Review Plan. H.U.P. was asked to devise a suitable medical abstract reporting form and sought advice and counsel from management and staffs of nursing homes, from the Blue Cross of Western Pennsylvania's research and planning staffs, and from physicians, medical record librarians, social workers, and hospital administrators.

Subsequent to these preliminary studies, a central review plan was established on January 1, 1967, co-sponsored by the tenth councilor district and Blue Cross of Western Pennsylvania, the major fiscal intermediary. Administration is supervised by the medical director of Blue Cross, and the review committee is chaired by a member of the medical advisory committee of the tenth councilor district, supported by physicians from the society who voluntarily serve on the review committees. Blue Cross supplies office space, clerical help, and the services of a public health nurse, who serves as utilization review coordinator and who provides onsite assistance in preparing reports and related utilization problems.

The central plan is available to any facility in the area of western Pennsylvania and presently about 18 are enrolled. At the time designated for review of stays of extended duration, each facility submits a completed H.U.P. abstract. The medical society's physician reviewer makes his evaluation on the basis of the information in the abstract.

When further extended care is questioned, the attending physician is consulted and the institution is invited to send a representative to the committee meeting at which a final decision will be rendered. The H.U.P. abstract is also used to report sample cases, including those of patients who have died or who have been discharged before the date for review of stays of extended duration.

A Comparative Study

Questions immediately arise as to the effectiveness of the central review plan just described. Is the reporting abstract adequate in terms of information needed? Is the description of the patient's needs and progress sufficient to permit the reviewing physician to make a valid judgment or does he need to consult the medical record? Is the utilization review so complex that it is confusing and unnecessarily time consuming?

Questions about the effectiveness of the review process itself can be raised. It is possible that merely submitting record abstracts to a central committee is not sufficient for critical utilization evaluation. Onsite inspection of records and patients, or both, may be essential, no matter how adequate the reporting abstract may seem. Comparisons should be made between decisions of extended care facility committees and those made by the central review committee.

The existence of several approved extended care facility review plans in western Pennsylvania offers an opportunity to clarify some of these issues. Recognizing this, the Public Health Service awarded the hospital utilization project a contract effective July 1, 1967, for a 1-year research program that has now been extended to July 31, 1969. The contract will enable H.U.P. to evaluate both the effectiveness of the Central Review Plan as well as other approved methods of review.

At present, this study includes 38 facilities, 26 using the medical society's Blue Cross plan and 12 using other approved methods. They have a total of about 3,000 beds. H.U.P.'s staff assistance to all participating facilities includes the services of a full-time nursing supervisor experienced in the inspection of nursing homes and part-time medical record librarians.

With its experience in computerized retrieval of hospital data, H.U.P. has designed its abstract for extended care facilities for coded reporting of information on both patient care and utilization review. Copies of abstracts completed for patients reviewed in all the various methods under study will be submitted to H.U.P. for analysis and for ultimate compilation of comparative and illustrative data,

which will be returned periodically to each participating facility. Thus this Public Health Service-supported study has two objectives that are closely interrelated: (a) the content of utilization review as conveyed by statistical data on the patients and their care and (b) the process of utilization review as practiced in the various ways permissible under the law.

Summary

For more than 10 years, western Pennsylvania has seen a logical progression of community-backed efforts to insure quality health care in ways consistent with the public interest. Efforts by medical society officers, supported by hospital administrators and others in the health care field, have provided leadership not only acceptable to the medical professions but recognized as responsible by representatives of industry, government, insurance companies, and the public.

To assist physicians in extending and improving the activities of utilization review committees, the hospital utilization project (H.U.P.) was started in 1963. H.U.P. abstracts the hospital records of every discharged patient for about 75 hospitals, using automatic data processing to list cases; prepares comparative statistics; develops hospital profiles; provides worksheets and sets of diagnostic criteria or guidelines; and identifies practices and procedures which should be modified.

Each month listings of diagnoses, operations, discharge analyses by service, and deaths are prepared. Semiannually H.U.P. compiles indexes of diagnoses, operations, and pertinent information on diagnoses and care by physicians. The individual statistical reports are distributed to all hospitals. As hospitals are ranked by name, the staff of each hospital can evaluate its position relative to specific hospitals of similar size, clientele, and staff training.

Unusual utilization patterns result from a multiplicity of factors, some of which are not within the control of either attending physician or hospital administrators. In surgical cases, prolonged preoperative stays are caused most often by lack of coordination between the admission office and operating room, unavail-

ability of prepaid outpatient diagnostic work-ups, or inefficient intrahospital communications that delay laboratory and X-ray studies. Unduly long postoperative stays or delay in discharge of medical patients are frequently the result of habit or inattention, but are also caused by lack of other appropriate health facilities, particularly for the aged.

The medical society and Blue Cross of Western Pennsylvania sponsored a central review plan to fulfill utilization review requirements for extended care facilities. The 26 participating facilities complete an H.U.P.-designed abstract for each of their patients at the time stays of extended duration are reviewed. The

medical society's physician reviewer bases his evaluation for the review committee on the information contained in the abstract.

H.U.P. is completing a comparison of several approved methods of utilization review of extended care facilities. Data on patients of the 26 facilities participating in the central review plan and patients of 12 other facilities using other methods are being analyzed.

REFERENCE

- (1) Guide to the establishment and functioning of a medical staff utilization committee. Blue Cross of Western Pennsylvania, Pittsburgh. Revised 1965.

Dosimeters for High-Level Background Radiation

Background radiation exposures to people in Kerala, India, where background levels are 10 to 15 times higher than normal mainly because the soil contains radioactive thorium, can now be measured. A method has been devised by Harry D. Youmans, Jr., and Dr. William A. Mills, of the Public Health Service's National Center for Radiological Health, under arrangements made by the Service in cooperation with authorities at the University of Kerala at Trivandrum.

Scientists at the university needed to know the extent of the radiation exposure received by Kerala residents for a proposed health study. However, the usual dosimetry methods, such as the use of film badges or ionization chambers, were unsuitable for the radiation exposure determinations.

The devices used for making the measurements—thermoluminescent dosimeters—were assembled by the Center scientists and sent to Trivandrum for distribution. Lithium fluoride, the thermoluminescent material in the dosimeters, begins to "accumulate" or integrate radiation exposure as soon as its preparation is complete. Since background radiation varies with geographic localities, altitude, and other factors, the energy absorbed by the

dosimeter before and after the intended exposure measurement is critical to the accuracy of the determination.

Twelve dosimeters were used to account for background radiation exposures accumulated during the shipment and distribution of dosimeters to people in Kerala. Four of the devices were retained in the United States, four were returned immediately upon their arrival in India to account for exposure during shipment, and four were kept in India to measure radiation near the distribution area.

Thirty-eight of the dosimeters were distributed to people in Kerala who wore them for 34 to 40 days. The exposed dosimeters were returned to the National Center for Radiological Health for analysis.

The amount of energy absorbed by the lithium fluoride is determined at readout time when the irradiated material is heated. As the temperature rises, the thermoluminescent material emits minute quantities of light, which are proportional to the amount of energy absorbed. The light is detected by readout equipment, amplified, and recorded. The recorded values then can be converted to exposure values that the dosimeter received, in this case milliroentgens per day.