



Medical Care Information System of the Veterans' Administration

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ACCORDING to estimates prepared as of June 30, 1967, Armed Forces veterans number about 26 million, including some 4 million with post-Korean and Vietnam service. All but about 0.2 percent are between the ages of 20 and 85. The age distribution of this population is quadrimodal, representing the current and prior three major military conflicts. The size of the population, by period of service, is shown in table 1. About 9 percent (2,242,000) of this population, which is mostly male, is aged 65 or over. In absolute terms, the number of aged veterans will decrease through 1970. Beginning in 1972 large numbers of World War II veterans will begin to attain age 65.

The veteran population is distributed throughout all the social and economic strata. With respect to income, male veterans, as a group, enjoy somewhat higher incomes than do male nonveterans. Estimates based upon the Current Population Survey indicated in March 1966 that war-veteran families had a median income of \$8,200 in 1965. Overall, one of 12 of these families had an income of less than \$3,000. Veterans and their families constitute about half of the U.S. population (1).

Federal Medical Care for Veterans

Although Medicare and Medicaid are terms which refer to new programs, generally equivalent medical care services have been available to veterans for more than 50 years. When World War I was ending, Congress passed legislation

which entitled veterans with service-connected disabilities to hospital and outpatient care. Thereafter, entitlement was broadened and presently provides (according to various entitlements based on the relation of disability to military service) hospital care, posthospital outpatient care, and nursing home care. Domiciliary care as a present Federal program, and one benefit provided also by many States, may be traced back to 1867, and in various forms even to the colonial period.

At present (fiscal year 1967) the components of the Federal program for providing medical care to veterans involve some 150,000 staff. Each day an average of about 160,000 patients receives some kind of medical care under Veterans' Administration auspices. The annual cost for this care is \$1.2 billion.

A total of 166 Federal hospitals provide care for veterans. On June 30, 1967, there were 113,000 beds in use, about half of which were for psychiatric care and the remainder for medical and surgical patients. About 625,000 patients were admitted during the year to Veterans' Administration hospitals. In addition, 30,000 were admitted, as VA patients, to other Federal, State, and voluntary hospitals. Other inpatient care programs include nursing home care in VA units and reimbursable care in com-

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munity nursing homes. There is also a provision for assistance to defray cost of care for veteran patients in nursing homes operated by the States.

The 63 nursing homes operated by the Veterans' Administration, in which there is no limit to length of stay, have almost 3,400 patients. Also, about 3,200 veteran patients are receiving reimbursable care in hundreds of community nursing homes, in which stay is limited to 6 months after one episode of VA hospital care. The number of veteran patients in all the nursing homes where the cost of care is borne or assisted by the Veterans' Administration is now about 8,200.

There is an extensive outpatient program which is based generally on the VA hospitals, but which also includes a fee-for-service component referred to as Home Town Medical Care. In fiscal year 1967 about 5 million patients visited VA clinics and 1.2 million visited private physicians or clinics that were reimbursed on a fee-for-service basis. (An outpatient visit in the VA system is defined as the physical presence of a patient on 1 day in an outpatient department. During this day he may receive one or more physician or physician-directed services.)

In addition to the patient care function, the Veterans' Administration undertakes extensive training of health care personnel in many categories, and it has an important medical research program.

Not part organizationally of the medical care programs are those which provide compensation to veterans for certain service-incurred disabilities as well as pensions for those veterans who because of nonservice-related disabilities are unable to earn minimum incomes. Pension recipients are generally the older veterans. Another program provides a burial allowance. This allowance requires proof of death, most often in the form of a copy of the death certificate. Consequently, certain program evaluations which involve longitudinal study of patient cohorts and their survival are facilitated.

VA Medical Care Information System

The information system of the Veterans' Administration was developed originally for use in the operation of veterans' medical programs.

Table 1. Estimated number of living veterans, June 30, 1967

Period of service	Number (thousands)	Age		Years since last mode
		Average	Mode	
Post-Korean and				
Vietnam-----	4, 100	27	27	-----
Korea-----	4, 600	35	36	9
World War II-----	14, 900	47	45	9
World War I-----	2, 000	72	72	27

It was structured almost solely as a descriptive system. It was used to make operating decisions on the distribution of resources and to contribute to a progressive system of accountability—from the VA hospital to the Central Office and then to higher levels in the Executive Branch and to the Congress. The system had public relations value.

Initially the system was based on a model which overlooked the fact that the nation possessed other medical care facilities. It provided, for example, no data concerning the extent to which veterans chose to obtain medical services from sources other than the Federal program. It made few demands upon external data systems for information concerning the veteran population, or veterans' medical care needs. Updating of the system to make it responsive to more than the needs of current administration was started about 16 years ago, and changes in content and reporting methods have been made regularly.

Although the Veterans' Administration has an automated payroll system, which makes available useful data concerning resource input, and an extensive cost accounting system, the following observations are limited to those parts of the information system, both internal and external, which relate to patients and patient services. The present internal patient and patient services information system is almost completely automated at all points subsequent to the accumulation of reportable data. Research is underway on source-data automation at one VA hospital, where an attempt is being made to develop an intrahospital automated information and control system.

The patient information system is directed actively toward service planning in addition to

evaluation of current operations. Projections of future VA patient loads are necessary, and they require a measurement of the impact of the Federal medical care programs for veterans on the total need of that population. This is being done against the background of a continuously expanding data base which is beginning to provide information on medical care received by veterans from all sources.

The decennial census has made available information on migration, income, and institutional use, among other data. It also provides check points for a regular series of veteran population estimates prepared by the Reports and Statistics Service of the VA Controller. These provide varying degrees of detail concerning the veteran population down to the county level. The National Center for Health Statistics of the Public Health Service has included a veteran status question in the National Health Interview Survey from which most valuable published (2, 3) and unpublished data on the health status of veterans and their use of medical care programs are available. The American Hospital Association, the American Osteopathic Hospital Association, and the National Institutes of Mental Health have actively cooperated in a series of surveys each fifth year to determine the current use by veterans of hospitals in the United States (4).

The eligibility of veterans for medical services provided by the Veterans' Administration generally varies according to whether the need is for care of service-connected or of nonservice-connected disability. Briefly, if a veteran requires medical services for a service-connected disability, and seeks care for it from the Veterans' Administration, he is a prime beneficiary for any needed service; if the veteran has no service-connected disability, his entitlement for VA medical services is initially limited to inpatient care upon his certification of inability to defray costs elsewhere.

At all times it is the veteran's choice as to whether he comes to the Veterans' Administration or goes elsewhere for care. Consequently, projection of patient loads which may be directed at the Veterans' Administration requires a large component of demographic data concerning the veteran population and veteran patients. This must not only indicate the veteran

patient loads under VA auspices and those receiving care under other jurisdictions, but must identify these patient loads in terms of diagnosis, age, income, distance from place of residence to place of care, and other variables which may account for the choice and be important determinants of need for care wherever it may be provided.

Decision must also be reached as to the placement of inpatient and outpatient medical care capacity. In addition to the data requirements already mentioned, this decision requires information on population movement. For two large subgroups of veterans (who comprise about two-thirds of the daily hospital patient census), those receiving compensation for service-incurred disabilities and those receiving pension principally because of age-related, nonservice-connected disability, rather specific migration data will become available from the data systems developed for the purposes of the related benefit programs. For the remaining veteran population, there are the migration estimates based on data from the decennial census, the current population surveys, and demographic work done in many universities and public and private planning organizations. Information is also obtained from the Department of Defense to provide at least the initial residence and certain characteristics of new veterans.

Another planning need calls for the evaluation of the results of modes of treatment or of the experiences of special patient groups. Such evaluation is facilitated by the followup of a patient through many episodes of medical care extending over many years and into many VA hospital records. The veteran's claim number is a unique identifier for each patient seen by the Veterans' Administration. This number is carried on all his records and, although the system is not devoid of error, it provides a basis for assembling data necessary to observe many major medical events occurring during a man's lifetime and the circumstances concerning his death. As mentioned earlier, the burial allowance program almost always results in the availability of a death certificate. As a consequence of this benefit, the Veterans' Administration ultimately is advised of about 95 percent of all deaths among veterans.

Figure 1. Sample data segment used

REPORT FOR PERIOD ENDING: 196

STATION NO.										SEGMENT NO.	
((2	8							3	

VA HOSPITAL INPATIENT ACTIVITY SEGMENT

GENERAL HOSPITALS AND GENERAL DIVISIONS OF CONSOLIDATED HOSPITALS TO REPORT:

CODE	BED SECTION
36	Medicine NP - TB
40	TB
41	Non-TB Pulmonary Disease
42	Intermediate
35	Other Medical
37	Neurology
38	Physical Medicine and Rehabilitation
43	Spinal Cord Injury
44	Intermediate
39	Surgery
34	Psychiatry

GAINS										DEATHS					
ADMISSIONS					TRANSFERS IN (3)	CHANGES IN BED SECTION (+) (4)	BED OCCUPANTS (5)			ABSENT BED OCCUPANTS (6)					
READMISSIONS WITHIN 6 MONTHS (1)	ALL OTHER ADMISSIONS (2)														
					-										

PATIENT DAYS OF CARE					PASS DAYS (16)	PATIENTS IN PHC STATUS - END OF PERIOD (17)	PATIENTS IN RESEARCH STATUS - END OF PERIOD (18)
TOTAL (14)		ON INTENSIVE CARE UNITS (15)					

FOR SEGMENT 334 ONLY AT PSYCHIATRIC HOSPITALS

PSYCHIATRIC MEDICALLY INFIRM					
PATIENTS REMAINING - END OF PERIOD (26)			PASS DAYS (27)		

Survival studies generally are facilitated when the search for the fact of survival or death is limited to some 5 percent of a cohort. In fact, a recently published Public Health Service study on mortality among uranium miners made use of this capacity. It is also used in studies in progress of the survival of patients with spinal cord injuries as well as in other efforts.

Major Components of the System

Generally, two major components of the information system are available for managing and planning the veterans' medical programs: (a) the automated management information

system (AMIS); and (b) the individual patient record.

AMIS. This computerized system can receive and manipulate almost 6,000 different patient or patient services data items which are input directly from each VA hospital. The data items are organized into about 35 different subject matter groups. However, no hospital is ever required to submit data for any one reporting period in anywhere near the volume indicated. Submission frequencies vary. Many hospitals do not have certain types of patients or services to report.

A sample data block or segment is shown in figure 1. This is a generalized data segment

by Veterans' Administration hospitals

CODE SHEET TO BE USED BY:

**PSYCHIATRIC HOSPITALS AND PSYCHIATRIC DIVISIONS
OF CONSOLIDATED HOSPITALS TO REPORT:**

<u>CODE</u>	<u>BED SECTION</u>
34	Psychiatry
36	Medicine NP-TB
35	Other Medical
37	Neurology
38	Physical Medicine and Rehabilitation
39	Surgery

LOSSES					PATIENTS REMAINING - END OF PERIOD				
DISCHARGES		TRANSFERS OUT (9)	CHANGES IN BED SECTION (-) (10)	BED OCCUPANTS (11)	ON TRIAL VISIT (12)	ON AUTHORIZED OR UNAUTHOR- IZED LEAVE ... (13)			
TO POST HOSPITAL CARE (7)	OTHER (8)								

BED STATUS - END OF PERIOD			ON WAITING LIST - END OF PERIOD						
OPERATING BEDS (19)	UNUSED BEDS (20)	OVER- CAPACITY BEDS (21)	FOR NON-SERVICE-CONNECTED CONDITION		FOR SERVICE- CONNECTED CONDITION (25)				
			IN HOSPITAL (22)	NOT IN HOSPITAL					
				ON W/L 3 MOS. OR MORE (23)	ON W/L LESS THAN 3 MOS. (24)				

which is used by general hospitals for 11 different subunits or services and by psychiatric hospitals for six different subunits or services. All data segments are transmitted by wire, over a Government network, into a computer center in Austin, Tex.

The symbol ((and the digit 2 in the upper left corner identify AMIS messages to the data processing center, which receives other message traffic as well. The digits which follow identify the transmitting hospital and the subject matter of the message. The messages are not dated. The computer programs are written to expect segments from certain hospitals at specific times. If a numbered segment is received at an unex-

pected time, it is rejected by a computer-generated outgoing message. If an expected segment is not received by a cutoff date, a query is generated.

The data fields in the body of the message are organized in blocks of 10 digits which are not related to the subject matter of a message. The horizontal marks are called phase checks. Incoming teletype data are organized in a string of digits, beginning with the symbol ((, and blocked by phase checks. The string is sorted back into the cells (27 in this example) of the original message by reference to the first data position after each phase check. If zero data occur for 10 successive digit positions between

any two phase checks, the teletype transmission of two consecutive dashes is interpreted as "dash, 10 zeros, dash."

The reported data may be audited within this automated system. The severity of the audit is a function of the need for accurate data and the cost of rejecting or querying a message. Some audits may expose the latest data to a comparison, plus or minus a percentage of an appropriate prior period or episode. Certain data may be audited by comparing them with others in the same matrix.

From our experience during the first 4 years with this system we learned that we did not, in fact, adequately use data auditing. Too often an unusable data block appears only at the time output reports become available. Additional audit criteria will be devised with a view to the fact that increasing traffic also tends to generate increases in data errors. For example, line voltage variations introduce random digit errors; there are lost messages and those with inverted digit sequences. There is the matter of nonresponse or delayed response to audit messages.

The data bank generated from the messages of any period is designed to be built up and provide a calendared series of reports. Certain critical data items for a month are available at the VA Central Office in Washington on the fifth or sixth workday of the next month. Other information becomes available on magnetic tape in sequence thereafter.

The subject matter covered by AMIS is summarized in table 2 according to activity or program. Almost all of the reportable data items have been defined so that they represent a total of subordinate elements. For example, field 11 in figure 1, "Patients Remaining—End of Period—Bed Occupants," involves a report of all resident patients on a reportable bed section regardless of sex, duration of stay, or any other variable. Obviously this preclassified data system, as would any other, imposes certain constraints on use.

The automated system has demonstrated to us the effect of poor definition more directly than ever was the case before its advent. The speed with which data become available and the odd results which may appear when different

elements of the data bank are interrelated have led to increased effort toward developing definitions which are correlated with the data-gathering power of respondents.

We have found it incorrect to view the elements of this information system solely as institutional reports. The knowledge of how to report what information is an individual acquisition. Consequently, although interpretation and use of data proceed at an institutional level and for the entire community of hospitals, data acquisition and training proceeds at the level of individual staff members.

So far, AMIS has been principally a management tool of the Veterans' Administration Central Office. Although there has been feedback from the computer center to all hospitals, the nature of the feedback has not been very satisfactory. Too often these feedbacks have not represented much more than an orderly re-assembly of information which had been reported into the data banks. In some areas we have solved, reasonably, the problem of using the data bank to develop levels of program expectancy for the entire community of VA hospitals. But we are, so far, not able to provide as successfully the same prospective data to each hospital. At the Central Office, we have the beginning of an exception-reporting system which identifies circumstances requiring fol-

Table 2. Subject content of Veterans' Administration automated management information system, May 1967

Activity or program	Segments	Data fields
Applications for institutional care and inpatient movement.....	25	602
Outpatient activities:		
General data on patient visits.....	3	123
Mental hygiene clinics.....	1	52
Surgical loads and deaths.....	2	82
Dental care.....	7	392
Food service.....	2	49
Ancillary medical programs:		
Pathology.....	33	1,453
Prosthetic programs.....	7	245
Pharmacy.....	1	50
Radiology.....	5	193
Social work.....	3	144
Nursing services:		
Staff and patient characteristics....	4	239
Administrative activities.....	13	528
All other.....	32	1,700
Total.....	138	5,852

Figure 2. Routing list for outpatients at the Veterans' Administration Hospital, Washington, D.C.

(Name)

A. STATION NUMBER (1-7)							B. DATE OF VISIT		
8	5	2	5	6			MONTH (8-9)	DAY (10-11)	YR. (12)
C. BIRTH YEAR (13-14)							D. CLAIM NO. (15-24)		
E. PERIOD OF SERVICE (25) (Check one box only)									
Korean		0		<input type="checkbox"/>		Peacetime			
WWI		1		<input type="checkbox"/>		Pre-Korean		4 <input type="checkbox"/>	
WWII		2		<input type="checkbox"/>		Post-Korean		5 <input type="checkbox"/>	
Spanish American War		3		<input type="checkbox"/>					
F. PURPOSE OF VISIT (26) (Check one box only)									
Comp. & Pens.		1		<input type="checkbox"/>		Research		6 <input type="checkbox"/>	
Outpatient - SC		2		<input type="checkbox"/>		Pre-bed care		7 <input type="checkbox"/>	
10 - P - 10		3		<input type="checkbox"/>		Trial visit		8 <input type="checkbox"/>	
Insurance		4		<input type="checkbox"/>		Aid & Attendance VA 6060(A)(7)(C)		A <input type="checkbox"/>	
PHC - NSC		5		<input type="checkbox"/>		Miscellaneous		B <input type="checkbox"/>	
Dental (Do not use when adjunct to medical condition)		9		<input type="checkbox"/>		Day Hospital		C <input type="checkbox"/>	
G. PHYSICIANS VISITED									
Each physician who sees a patient will enter an "X" in the first available box under NUMBER on the line designated for his service.									
COST CENTER	SERVICE	NUMBER						CARD COL.	
201	Medical	1	2	3	4	5	6	(27)	
202	Surgical	1	2	3	4	5	6	(28)	
203	Psychiatry	1	2	3	4	5	6	(29)	
261	MHC	1	2	3	4	5	6	(30)	
	Other	1	2	3	4	5	6	(31)	
REMARKS									

H. ROUTING (32-51)									
ROUTING OR TIME	ROOM OR WARD NO.	CLINIC (Check when visit completed)	CODE						
		MENTAL HYGIENE CLINIC	10						
		DAY TREATMENT CENTER	11						
		DENTAL (Any dental visit)	12						
		ALLERGY	20						
		ANTICOAGULATION	21						
		ATHEROSCLEROSIS	22						
		AUDIOLOGY	23						
		CARDIOLOGY	24						
		DERMATOLOGY	25						
		ENT	26						
		EYE (OPHTHALMOLOGY)	27						
		EYE (PLASTIC)	28						
		GASTROINTESTINAL	29						
		HEMATOLOGY	30						
		HYPERTENSION	31						
		LABORATORY	32						
		MEDICAL (GENERAL)	33						
		METABOLIC ENDOCRINE	34						
		NEUROLOGY	35						
		NEUROSURGERY	36						
		NURSING	37						
		ORTHOPEDIC	38						
		PM&R	39						
		PHARMACY	40						
		PSYCHIATRY	41						
		PSYCHOLOGY	42						
		PULMONARY	43						
		RADIOISOTOPE	44						
		RENAL	45						
		RHEUMATOLOGY	46						
		SOCIAL WORK SERVICE	47						
		SPEECH	48						
		SURGICAL (GENERAL)	49						
		TUMOR (ONCOLOGY)	50						
		UROLOGY (GU)	51						
		X-RAY	52						
		OTHER	53						
(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)	
(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	

VA FORM 10-2875
JUN 1965

OUTPATIENT ROUTING LIST

SUPERSEDES VA FORM 10-2875, APR 1964,
WHICH WILL NOT BE USED.

426615

lowup. However, this is not shared equally with our hospitals.

The individual patient record. AMIS operates in parallel with another patient data system in which information is relatively unclassified. We believe that in a medical care program an element of the information system must exist to provide individual patient data—even if it is a sample system.

At present, a coded record is introduced into a data processing center, other than the one which operates AMIS, at the time of each discharge from hospital care. Soon this will also be the case for patients leaving all inpatient care programs. Since large parts of the VA inpatient medical care program are directed toward patients whose stay is long, a patient census, based upon a sample of patients, is taken annually.

The individual patient record (discharge and census) identifies the veteran patients according to pertinent demographic variables such as age, sex, residence, marital status, and eligibility; it provides details concerning surgical procedures performed, diagnoses which were established during care, and duration of stay. One extremely useful aspect of the individual patient record system is that it uniquely identifies each patient by his veteran's claim number each time he appears for medical services. During the past several years the patient's social security number, which is also used for indexing hospital records, has been added.

Many of the patient data items reported by our hospitals into AMIS are values which may be obtained by summarization of individual patient statistical records. We plan to move progressively in this direction. There are cost benefits associated with eliminating what amounts to double reporting. Also important is the release from dependence upon many of the preclassified data rubrics in AMIS; if those now in the system continue to be needed, they may be obtained. If a replacement is needed, or some expansion of any rubric required, these may be obtained by computer instruction rather than dissemination of new definitions and data acquisition instructions to all of the hospitals. The data in many of the data cells in figure 1 may be derived from an individual patient statistical record.

In the move toward use of computers we have gone somewhat the other way in attempting to identify our outpatient loads. Figure 2 is the document used to route patients through the clinics of the outpatient service in a VA hospital. This routing list is specifically for station 85256 (upper left corner), the outpatient department of the Veterans' Administration Hospital in Washington, D.C. It identifies (in sections A through F), the patient, the date of his visit, his veteran's claim number, age, the administrative purpose of his visit, and his period of military service. Section H indicates the clinics he attended in the outpatient department on 1 day. This document, in its entirety, represents one visit. A summary of the data provided by section G is used for cost distributions. The master stencils of the routing list on which hospitals type their particular outpatient clinic units, and data common to all hospitals, are reproduced locally in needed quantities to avoid stockpiling forms. The stencil was prepared prior to the time post-Korean military service provided veterans with the medical care benefits of wartime service.

Until 1966 each of these routing lists was converted into a punched card from which data were derived on patient visits, number of different patients according to age or period of service, and certain patient characteristics. Since that time, we have been counting the routing lists to determine the number of visits according to each purpose of visit. These simple counts are the first data needed for management purposes. They are made at each hospital and are reported into AMIS by wire, using a code sheet system of the type shown in figure 1. Only a sample of the routing lists is used to derive service patterns, age distributions, frequency of service, duration of care, number of different patients, and other pertinent information requiring individual patient statistical records as a source.

The individual patient information system and its manipulation by automated data processing methods has enabled us to gain an understanding of the veterans' medical program in ways not otherwise available. This is particularly so when data from the system are associated with the data sources and surveys, other than those of the Veterans' Administration, re-

ferred to earlier. The system makes it possible to observe the changing patient traffic patterns in a way not possible at any single hospital. The use of different VA hospitals by veterans residing in the same area may be measured according to many combinations of patient characteristics and hospital service capacity.

The new national highway network may change hospital use patterns. As new roads come into use, entirely new patterns of self-referral may develop. We are watching, for example, to see whether the bridge-tunnel from Cape Charles across the lower Chesapeake Bay to Norfolk, Va., will result in changing traffic patterns for patients.

Discussion

The Medicare program, under which an increasing number of hospital patients are being transferred to nursing homes, is having an effect on the patient load of veterans aged 65 or over. The effect is quite variable around the country, and the computerized system should enable us not only to identify the areas of different effects, but to observe regional trends as well. An indication of the extent of use of facilities may be derived from periodic examinations of veteran-specific and county-of-residence-specific hospital use rates. Certain estimates of these rates can be obtained with the data system. However, although we know that the veteran community consists of about 26 million persons and are aware of many of its characteristics, we are not able to enumerate that part of this community which uses Veterans' Administration medical programs. In other words, our information systems provide only the numerators of the fractions which directly represent the probabilities of seeking and receiving VA medical services.

Although we have successfully prepared estimates for some components of the veteran patient load by assuming that the error due to this lack of knowledge was slight, or by assuming that the proportionate mix in the population of those who would or would not seek VA care remained constant over relatively short intervals, we have had to extend our information base. We have sought information from the broader community concerning the extent to which veterans seek hospital care away from the Federal program. The attempt to obtain

veteran-specific data from other record systems is hampered by the fact that veteran status is not commonly used as a demographic indicator. We were critical of our information system because for many years it did not recognize the place of the Veterans' Administration in the surrounding medical community. However, our experiences lead us to wonder whether medical care planning in the surrounding community considers properly the Federal program's contribution.

The surveys of veterans' use of hospitals described earlier indicate that on any one day about one of each two veterans in a U.S. hospital (excluding those under VA care for service-connected disabilities) was a VA patient. The National Health Interview Survey results indicate that, for short term general hospital care only, one of each six veteran-patients discharged had received care in a VA general hospital.

The variations by age and by family income are substantial. The greatest proportions of participants in Federal programs for veterans are older persons and those with lower incomes.

As I mentioned earlier, we can match patients' records by using the veterans' claim numbers. We have built up, since 1957, a "longitudinal file" containing a record of each hospital episode under VA auspices for a sample of veterans. The possibilities for the use of patient cohorts to provide additional dimensions to our information system is a matter for the future.

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