

An Integrated System For The Recording and Retrieval Of Medical Data in a Primary Care Setting

Part 3: The Diagnostic Index-E-Book

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The diagnostic index-E-book is a device to record and retrieve morbidity data. A classification of diseases with a diagnostic code is required for its use. An accompanying age-sex register is necessary to standardize the morbidity data. The index can be used to expand capabilities of office management, assessment

of postgraduate educational needs, outreach, audit, and research. Significant morbidity data can be produced by pooling diagnostic information from the practices of many physicians. An example of this capability is reported whereby the 30 most common problems were identified in 12 separate practices of family physicians.

A diagnostic index is a device used to record information on cohorts of patients who have the same morbid conditions. The index may take different forms. Hospitals often use index cards, which are filed under the appropriate code number of the classification of diseases being used.

We have adopted and modified the E-book which was developed in England¹. It is used together with the Metcalfe Modification of the R.C.G.P. Classification of Disease as described previously².

Methods

The E-book is housed in a loose-leaf binder containing three-inch by five-inch sheets of paper filed in an overlapping or shingled manner as illustrated in figure 1.

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Figure 1

There are one or more sheets for each diagnostic rubric or code number. After each patient encounter, the physician determines the diagnosis and records the appropriate diagnostic code numbers on an encounter form. Clerks record the following information onto the sheet or sheets in the index which correspond to those code numbers or rubrics:

DATE	SEX	SURNAME	FIRST NAME	DATE OF BIRTH	DISPOSITION CODES													
					1	2	3	4	5	6	7	8	9	10				
1 2 73	N	DUHART	LEY	2 12 54	0 6 5	2												Herbers
1 10 73	O	MOHR	ERNEST	7 14 16	C-2													Wack
1 10 73	N	JACOB	FRANK	4 4 87	C-6	2												Ris
1 18 73	N	DERMODY	WILLIAM	2 27 16	0 7 1	2												Wack
1 19 73	N	SCHULTZ	ARNO	9 4 14	C 3 7	2												James
1 22 73	N	HARRINGA	PAUL	7 21 42	C 3 7	3												Bartley
1 29 73	N	LA VAGUE	ROBT.	9 24 24	C 1 6	2												Lammie
1 29 73	O	OSTERBERG	HERMAN	5 5 05	C 4 5	1												Smith
1 30 73	O	CONRARDY	HERBERT	6 9 23	C 3 1													Ward
2 1 73	N	MITCHELL	FRANK	3 2 33	0 6 6													Ward

Figure 2

date of encounter, patient's name, episode type*, date of birth, disposition code** and physician's name (figure 2).

If multiple diagnoses are made, the same information is recorded on the appropriate sheet for each diagnosis. Diagnoses of chronic conditions such as diabetes mellitus and pyelonephritis are recorded only one time for each patient. Diagnoses which are acute or recurrent, such as otitis media and pharyngitis, are recorded as often as they occur. Each sheet of paper is lined and has room for ten entries on each side. By convention, males are recorded on the front and females on the reverse side. The E-book slips are removed from the loose leaf binder and placed in a holding binder (figure 3) after an appropriate interval — in our case, six months.

Application of Diagnostic Index

The prevalence of chronic conditions, such as hypertension, can rapidly be determined in one's own practice by

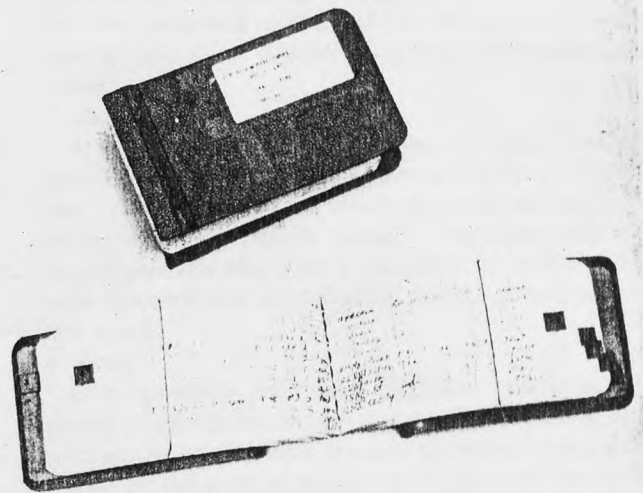


Figure 3

* Episode type — diagnoses newly made at that visit are recorded as new (N). Those that had been made by a previous physician and were still existent are recorded as old (O).
 ** Disposition code — 1-Discharged, 2-Return Check-Dr., 3-Return Check-Nurse, 4-Refer, 5-Admit Acute Hospital, 6-Admit Extended Care Facility, 7-Admit Nursing Home, 8-Admit Elsewhere, 9-Consultation-IMP.

counting the number of completed sheets corresponding to that code number and multiplying by 20. Incidence can be calculated by reference to the dates that the diagnoses were made. An age-sex analysis is easily made by checking the recorded dates of birth. The diagnostic index will have less meaning in any practice if it is not accompanied by an age-sex register as previously described³. We strongly recommend that both techniques be employed together.

The diagnostic index is compatible with computer programs. Diagnostic data from encounter forms is keypunched onto 80 column IBM cards and stored on magnetic tape. Diagnoses are linked to patient files that have been previously established in the computerized age-sex register. Our programs are written to retrieve information in the following manner:

1. Total number of each diagnosis.
2. Analysis of diagnoses by age, sex and census tract.
3. Analysis of total patient population by age, sex and census tract.
4. Analysis of diagnosis by cases per thousand of all of the above indices.
5. All of the above indices by individual physician's practice and by total patient population.

We are currently recording diagnostic information on ap-

proximately 60,000 patients drawn from the practices of several family physicians⁴. An age-sex analysis of that population is given in Table I.

Morbidity data of the thirty most common problems is listed in Table II.

Additional Uses of Diagnostic Index

The value of the diagnostic index is readily apparent as a research tool for both retrospective and prospective studies. There are several additional uses of the diagnostic index:

1. Office Management

A protocol for following patients with chronic diseases, such as hypertension or obesity, can be developed so that nurse-practitioners or similar physician expanders can take partial responsibility for these patients. The index enables one to determine the prevalence of these diseases in the practice. The physician may then assess his need for paramedical personnel in a rational manner.

2. Postgraduate Education

The physician can determine the nature of morbidity seen in his practice accurately. He may wish to direct his postgraduate courses accordingly. He may even consult his index prior to a course and take the charts of his most perplexing patients with him to receive additional consultation.

3. Outreach

After the University Group Diabetes Study was published, some physicians may have wished to discontinue oral hypoglycemic agents which they had previously prescribed for their diabetic patients. The diagnostic index would give the physician a complete list of his patients with diabetes and would allow him to accomplish this task easily.

4. Audit

One can assess one's own diagnostic criteria or therapeutic efficiency by review of a cohort of patient charts with any given diagnosis. It is also possible to have a consultant do the audit as an educational device. Our faculty uses this technique to audit the practices of our graduates.

Although office practices have generally not been audited for quality of care, audit of patients' charts is becoming a standard practice in many hospitals. It is likely

TABLE I

Age-Sex Analysis of Patient Population

Age in Years	Male	Female
0-4	2,957	2,824
5-9	3,533	3,311
10-14	3,341	2,981
15-24	5,244	6,789
25-34	3,810	5,445
35-44	2,777	3,433
45-54	2,356	2,928
55-64	1,790	1,986
65+	1,629	2,285
	27,437	31,982
Total Study Population—59,419		

TABLE II

Morbidity in Cases Per 1000 30 Most Common Problems

R.C.G.P. Code No.		Male	Female	Both
242A, 242B	Pharyngitis Including Streptococcal	77.7	72.0	74.6
483	Lacerations, Contusions, Abrasions	50.8	29.1	37.4
240	Common Cold	33.1	36.7	35.0
101	Obesity	23.9	42.4	33.8
183	Acute Otitis Media	35.7	30.2	32.7
218	Hypertension	27.1	35.4	31.5
130, 135	Anxiety State With or Without Somatic Complaints	20.2	35.6	28.5
247	Acute Bronchitis	25.2	21.9	23.4
480	Strains and Sprains	26.0	17.2	21.3
241	Febrile Cold	17.9	19.8	18.9
243	Acute Sinusitis	13.2	17.6	15.6
134	Depression	6.9	21.6	14.8
335	Vaginitis	—	23.6	12.7
306	Abdominal Pain	10.5	14.5	12.3
091	Diabetes Mellitus	11.5	12.6	12.1
313	Acute Cystitis	2.2	20.1	11.8
370, 371, 372	Cellulitis and Abscess	12.9	10.6	11.6
85, 257	Hayfever and Allergic Rhinitis	11.9	11.1	11.5
407, 425	Back Pain	10.4	10.9	10.7
406	Osteoarthritis	7.2	13.5	10.6
245	Epidemic Influenza	10.2	9.6	9.8
380	Contact Dermatitis	9.1	8.5	9.0
352A	Normal Pregnancy	—	16.1	8.7
246	Pneumonia	9.1	8.2	8.6
25	Warts	8.3	8.4	8.3
182	Otitis Externa	8.0	6.8	7.4
303	Diarrhea and/or Vomiting	6.9	7.7	7.3
454	Headache	5.0	8.9	7.1
086	Bronchial Asthma	7.9	6.1	6.9
187	Wax in Ear	7.0	6.0	6.4

that audit will be extended to primary care settings in the future.

The diagnostic index is a simple device that can easily be introduced and utilized in a busy primary care practice. It can broaden the outlook of the physician and heighten his interest in his patients.

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ERRATUM

The following references were inadvertently omitted and should have accompanied Part 2 of this series, "Classification of Diseases," published in Vol. 1, No. 1, *The Journal of Family Practice*, May 1974. Ed.

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