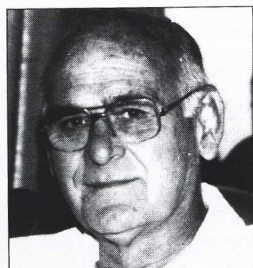


Listing clinical problems in a teaching practice –

its value for the peer review of inter-doctor variation



Curriculum Vitae

Ronald Ingle was born in China, the son of a Baptist missionary who was Professor of Surgery at Cheeloo University (the first to translate Gray's Anatomy into Chinese). He graduated in Britain. In 1958 after five years in the Royal Air Force, firstly as a Station MO in Malaya, then in surgery in the UK, he joined the USPG Anglican missionary society and was sent to All Saints' Hospital in the Transkei to join Dr Pauline Marshall. They married in 1960 and remained at All Saints' until 1976. He went to the new Transkei's Department of Health to be the first Chief MO for Primary Care and subsequently Deputy Secretary for Health. In 1985, after three years as a Tuberculosis Office in the Eastern Cape, he joined the Department of Family Medicine at Medunsa. Now, partially retired, he continues to supervise research in the Family Medicine Masters programme. He has held offices in the Transkei and Ciskei Association of Mission Hospitals, the Consultative Committee for South African Medicine Missions, the Transkei and Ciskei Research Society and the South African National Council for Health Education

Summary

Lists of common problems in general practice are used to describe its content, to guide vocational training, to revise undergraduate curricula and as a basis for developing quality assurance. We studied the lists of 43 doctors working in a university practice with the same practice population over three years. Comparisons showed marked systematic variation in the lists of individual doctors. Providing such information is the beginning of debate for audit and quality assurance purposes. Such variation modifies the setting of valid norms for practice surveillance..

Introduction

Lists of common problems in general practice are used to substantiate our experience of its content, to guide vocational training and, hopefully, to bring about undergraduate curriculum revision. The validity of these as descriptions of the practice population

Clinical problem

The description of one aspect of a patient's illness commonly known as the diagnosis.

Problem assessment

The identification of a problem, as specific and justifiable as available information allows, made at each consultation in order to achieve an effective management plan. Such an assessment may not be the final diagnosis

Problem-encounter.

Each problem identified in the course of a consultation is counted as one problem-encounter.

Problem-episode

A number of encounters of the same problem for one patient constitute a problem-episode.

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and their usefulness as descriptions of the community (Weingarten's¹ "epidemiological community") is usually untested.

We would like to add to the experiences of De Villiers et al^{2,3} and Erasmus recently published in this journal. Disease description has always played a prominent part in accounting for medical activity. Today audit becomes more sophisticated. We may be wary of potential pitfalls in audit but feel on safer ground with morbidity profiles. We report on an analysis of clinical problems encountered in the teaching Practices of the Department of Family Medicine, Medunsa between 1991 and 1993. What were the commonest clinical problems encountered by the Practice as a whole? How much do such lists for individual doctors differ? Was the collecting and interpretation of the clinical problem profile as straightforward as it seemed?

Describing clinical problems

A clinical problem is the description of one of several aspects of a patient's illness, and is commonly known as the diagnosis. (Hereafter clinical problems will be referred to as problems.) During one consultation one or more problems may be identified and each counted as a problem-encounter. The number of problem-encounters for a patient's problem from the first to the last encounter constitute one problem-episode. A list of problems which is episode-based is not distorted by numbers of attendances.

Quality primary care depends on a quality management plan for each consultation. Problem assessment is but a means to that end. This is why the practice of primary care calls for as specific but justifiable a problem assessment as possible in each consultation, which is more disciplined than a listing of differential diagnoses. Many problem assessments are likely to advance in specificity towards a final diagnosis from the first consultation onwards. This presents an analytic problem.

From the perspective of morbidity the final diagnosis is the best description of the clinical component of a patient's episode of illness. From this perspective one illness-episode is one problem-episode.

From the perspective of management and problem-oriented learning each problem-assessment makes a specific planning demand. The details for managing undifferentiated problems are different from but as important as the details for managing differentiated problems. From this perspective in retrospect one illness-episode may comprise more than one problem-episode. For example a patient, on first encounter, may be found to have elevated blood pressure, which subsequently is assessed to be moderate Hypertension. From the perspective of morbidity this is clearly one problem-episode. From the perspective of management Elevated Blood pressure without Hypertension (ICPC K85) is different from Uncomplicated Hypertension (ICPC K86). The difference is captured as two problem-episodes.

At its present stage of development Harvest (our computer software program) can elicit management-perspective problem-episodes; it is these that are reported.

The practice setting

The Medunsa/Ga-Rankuwa Hospital complex is next to Ga-Rankuwa, between Pretoria to the south-east and Soshanguve, Mabopane and Winterveld to the north. As a founding department of Medunsa the Department of Family Medicine had to accept for its establishment the medical posts customarily identified with the Casualty Department of a provincial hospital, in this case Ga-Rankuwa. Thus it was denied community-based practice. To create circumstances more conducive to general rather casualty department practice the Department, whilst remaining responsible for Casualty Department services, moved the "general OPD" part of that work to con-

Is a list of common problems in a general practice a true description of the community?

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verted staff-quarters.

Patients not requiring accident or emergency attention and not already referred to specialist departments were diverted to the Practices of Family Medicine during daytime on weekdays. Most of them had been referred by Clinics, General Practitioners, and industries in the region. The age-group and sex profile of the practice population (each patient counting once) is shown in Figure 1.

The fact that this Practice comprises a relatively large number of general practitioners and trainees working with the same practice population provides an exceptional potential for comparing doctors' performances. How generalisable information about the practice population may be is a separate issue.

METHOD

The database

The database had been created by the Harvest Patient Information System software which has been developed by

the Department for routine use to assist Practice management and, inter alia, to produce analyses of consultations (practice descriptors) for peer review purposes.

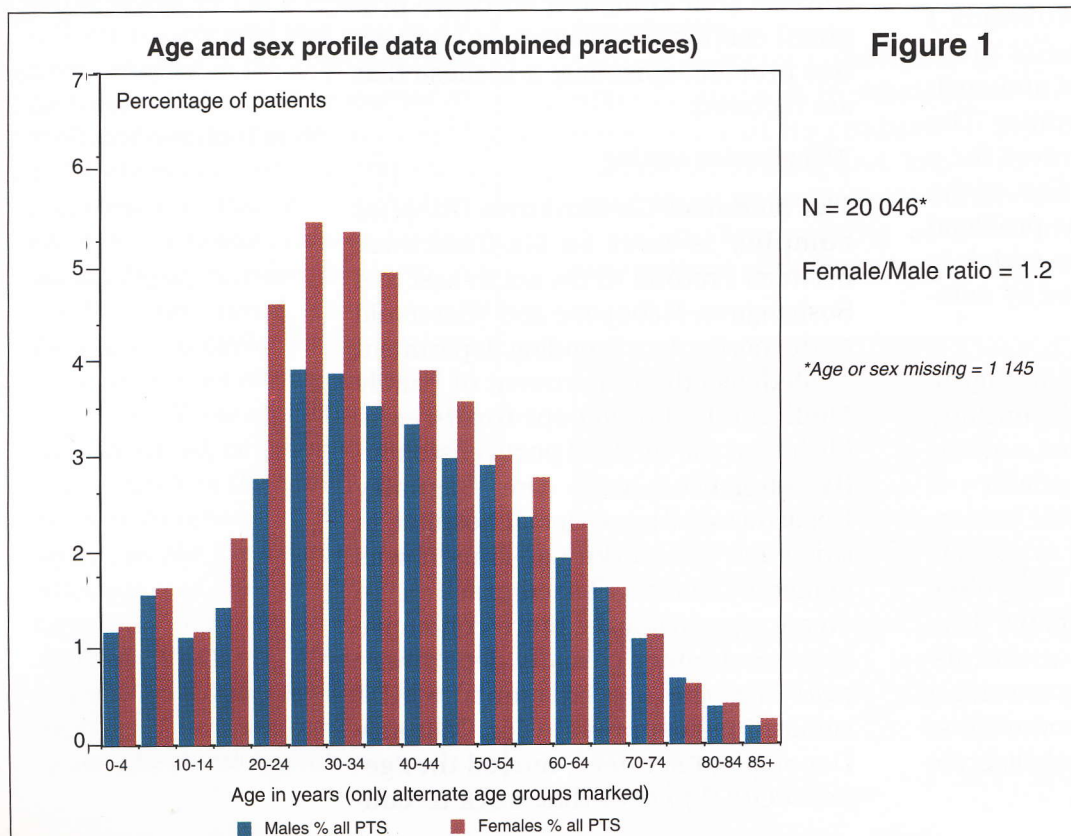
Encoding procedure

Problem codes are entered by doctors themselves either onto handwritten Encounter Forms or directly into Psion Organisers (electronic data capturing) which can upload into the Practice PC. Encounter Forms have two code-fields per patient and six code-fields per problem and may take as little as 15 seconds per problem-encounter to complete. For easy reference the various codes appear on two A4 sheets inside a polythene sleeve.

Use of the International Classification of Primary Care (ICPC)⁴

A cluster of only 215 of ICPC's codes were in use, plus 6 extended codes for locally commoner conditions like Pterygium and Bilharzia. The cluster is intended to cover 95% of problems encountered and facilitates encoding.

A clinical problem is the description of one of several aspects of a patient's illness.



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The ICPC 99 code for each of its organ-system Chapters (sometimes referred to as the *ragbag* code) is also used for problems for which an ICPC code exists but is not in this cluster. Hence 99-code frequencies cannot be compared outside our Practice. Some ICPC Component 1 (Reason for Encounter) Codes were used as problem assessment codes. This is in line with ICPC practice reported for the Transition Project.^{5,6}

Table 1: Six doctors' frequencies of Codes 99 (all Chapters combined)

Doctor	Total No. of problem-episodes	Frequency of Codes 99
1	1936	12,5%
2	2561	6,6%
3	2202	3,0%
4	3478	7,1%
5	2322	10,1%
6	4568	10,1%
Ave of 6 Drs	2845	8,3%
Ave of all Drs	1198	7,5%

Analytic method

Harvest's standard menu-driven analysis was used to produce episode-based frequency lists of clinical problems encountered by a) all doctors combined and b) some doctors individually during the three year period from 1 January 1991 to 31 December 1993. Problems occurring with a frequency of 1% or more were selected. By calculating 95% confidence intervals for these estimates the selection included problems with a 95% probability of so occurring, but which otherwise might not have appeared.

RESULTS

The database comprised 81 686 problem-encounters from about 94% of consultations (unpublished observations). This means that 6% of Practice attendances were not recorded by doctors on their Encounter Forms. The aver-

age number of problems identified per encounter was 1,26. It produced 51 494 problem-episodes for the 43 doctors. The individual analyses for six doctors who had the most (about 2000 or more) problem-encounters during the study period were selected. Four of the doctors are senior members of the Department. Two were registrars following the full-time Masters course.

Codes 99 (Table I)

The proportion of problem-episodes classified as 99 over all ICPC Chapters and over all doctors was 7,5%. The average for the six doctors over all Chapters was 8,3%. Table I also shows how many problem-episodes were analysed for each of these doctors.

The practice list (Table II)

The overall list of 22 problem-episodes with a frequency of at least 1% is shown in Table II (over the page). In other words the upper 95% confidence limit was 1,0% or more.

The six doctors' lists (Table III)

There were 43 other problems which one or more of the six doctors encountered with a 95% probability of 1% frequency and which were not on the Practice List. In other words the upper 95% confidence limit was 1,0% or more. For each problem the number of doctors reporting with this frequency is also shown in Table III.

Problem-episodes uniquely diagnosed (Table IV)

Stricter and more discriminative criteria were applied to these six doctors' Lists. The lists were searched for problems with a 95% probability of occurring with a frequency of at least 1, 2 or 3%. Cut-off frequencies which isolated one doctor for each problem are shown in Table IV. Thus the only doctor with a frequency for Depressive Disorder (P76) over 3% was Doctor 5,

Don't take doctors' perceptions of a population morbidity pattern for granted - doctors differ!

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Table II: Problem-episodes with frequency at least 1% (95% probability)
N = 51 494

ICPC Code and description	% All episodes	95% Confidence interval		
K86 Uncomplicated hypertension	6,8	6,58	to	7,02
T90 Diabetes mellitus	4,6	4,42	to	4,78
R05 Cough	3,2	3,05	to	3,35
A62 Filling forms/certificates	3	2,85	to	3,15
K85 Elevated BP (without hypertension)	3	2,85	to	3,15
R74 Urti/head cold/pharyngitis	2,7	2,56	to	2,84
K87 HPT with target organ involvement	2,2	2,07	to	2,33
R96 Asthma	2,1	1,98	to	2,22
D87 Indigestion/dyspepsia/gastritis/duod'its	2	1,88	to	2,12
N01 Headache (excluding sinus/migraine)	2	1,88	to	2,12
P76 Depressive disorder	1,8	1,68	to	1,92
R70 Pulmonary tuberculosis (all stages)	1,8	1,68	to	1,92
L04 Chest symptoms/complaints	1,6	1,49	to	1,71
T82 Obesity (BMI more than 30)	1,5	1,39	to	1,61
L02 Back symptoms/complaints	1,4	1,30	to	1,50
X74 Pelvic inflammatory disease	1,4	1,30	to	1,50
U71 Cystitis/other UTI (excluding urethritis)	1,3	1,20	to	1,40
N88 Epilepsy (all types)	1,2	1,10	to	1,30
D02 Stomach ache/stomach pain	1,1	1,01	to	1,19
L03 Low back complaints without radiation	1,1	1,01	to	1,19
N02 Tension headache	1	0,91	to	1,09
R95 Emphysema/COAD	1	0,91	to	1,09

whose frequency was 4,2% (95% CI 3,3 to 5,0)(twice that of any other doctor). Muscle pain/ Fibrositis (L18) was assessed by Doctor 4 with frequency 3,2% (95% CI 2,5 to 4,0) (twice as often as any other doctor).

DISCUSSION

Few problems were experienced with a frequency exceeding 5%. The Transition Project reported few diagnostic classes exceeding 50/1000 patients/year in frequency.⁶ Over short periods of analysis, such as 6 months, qualifying the imprecision of estimates with confidence intervals still leaves many candidates for the last places in an average Top Ten or Twenty approach.

From the doctor's perspective the frequency with which problems may expect to be encountered is a more useful determinant. In fact the size of this database has increased the precision of the estimates to the point where a frequency of 1% has reduced

the Practice List to 23 problems! Notice, in Table II, the precision of the last estimate on the list.

But Harvest's perspective is doctor-performance. A purpose of peer-reviewing discrepancies between the Lists of individual doctors is to discuss diagnostic perceptions and criteria. In the analysis of a database of this size random variation is diminished and underlying systematic variation between doctors emerges. To establish and separate frequencies of 1% and 2% requires at least 2000 denominator events. Hence the potential, for some purposes, of aggregating data from solo practices for analysis.

Using a limited number of ICPC Codes has not affected the content of the Practice List. Encoding by doctors themselves increases the reliability of the data. The overall transcription error rate from Doctors' Encounter Forms into the Computer in 1991 was 0,6% (95% CI 0,28 to 1,1) which is commendably low (unpublished observa-

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tions). It is important for doctors participating in peer review to have such confidence in the database. To report a profile by ICPC Chapters is of limited value. The variety of problems contained in Chapters is too wide to serve the purpose of problem-oriented learning, and does not distinguish the problems of a generalist from those that will involve a specialist.

All patient information systems need a lot of maintenance. This includes ongoing training and familiarisation with available codes and their usage. Regular peer review is the most constructive way of achieving this. In 1991 the incidence of 99coding over all Chapters was 7,1%. For 35% of these a specific code had been available on the current problem-code list. In 1992 the incidence was 5,5% and a specific code had been available for 23%. (unpublished observations).

There are examples in this study, which can only be identified by insider review, of the distortion of problem lists by "specialisation" in the Practice. The commonest problem (4,4%) on Doctor 1's List was Pulmonary Tuberculosis (R70). Doctor 5's unique frequency for Infertility (W15), above 1%, reflected a special interest in it.

CONCLUSIONS

Doctors vary in making assessments and encoding them. The validity of doctors' perceptions of practice population morbidity should not be taken for granted.

Providing summary data is the beginning of debate for audit and quality assurance purposes. Care is needed to recognise the reliability and precision of estimates. Systematic variation between doctors, such as demonstrated in this study, complicates Top Twenty descriptions of the morbidity-profile of practice populations. Such variation should modify the popularity of profiles in planning circles and the setting of valid

Table III: Problem-episodes with 95% probability of 1% frequency diagnosed among six doctors but not appearing in the practice list, and the number of doctors diagnosing each

ICPC code and description	Doctors diagnosing
A01 Pain: generalised/unspecified	2
A30 Medical examination (complete)	1
B80 Iron deficiency anaemia	4
B82 Anaemia other/unspecified	3
D01 Generalised abdominal pain/cramps	2
D12 Constipation.....	2
D70 Infectious diarrhoea/dysentery	1
D82 Dental caries	1
D83 Dis mouth/tongue/lips.....	1
F71 Allergic conjunctivitis.....	2
F92 Cataract	1
H71 Otitis media/myringitis	1
K04 Palpitations/awareness of heartbeat	1
K77 Heart failure.....	5
K81 Heart murmurs NEC	1
K84 Other disease of heart including arrhythmias	1
L01 Neck symptoms/complain (excluding headache).....	1
L08 Shoulder symptoms/complaints.....	5
L15 Knee symptoms/complaints.....	2
L17 Painful feet.....	3
L20 Symptoms multiple/unspecified joints	3
L90 Osteoarthritis of knee.....	4
N07 Seizures/febrile convulsions.....	1
P08 Inhibition/loss sexual fulfilment.....	2
P15 Chronic alcohol abuse.....	1
P72 Schizophrenia	1
P74 Anxiety disorder.....	1
R76 Tonsillitis acute	2
R78 Acute bronchitis/bronchiolitis.....	3
R81 Pneumonia	1
R91 Chronic bronchitis/bronchiectasis.....	1
S10 Boil/carbuncle/cellulitis local/abscess	2
S74 Fungus infections.....	2
U06 Blood in urine	2
V33 HIV test.....	1
W15 Complaints of infertility	5
W78 Pregnancy confirmed.....	4
X05 Menstruation scanty/absent.....	1
X37 Pap smear.....	3
X73 Urogenital trichomonas (proven)	1
X82 Rape/alleged rape.....	1
X84 Vaginitis/vulvitis NOS	2
X98 Other STD female NEC (including ulcers).....	1

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Table IV: Problem-episodes uniquely diagnosed among six doctors at three levels of frequency, and the doctors concerned identified by their number

ICPC code and description	Frequency at or above these cut-points (95% probability)		
	1%	2%	3%
B80 Iron deficiency anaemia.....	3		
D02 Stomach ache/stomach pain	5		
K77 Heart failure	5		
L02 Back symptoms/complaints	1		
L04 Chest symptoms/complaints.....	4		
L08 Shoulder symptoms/complaints	6		
L15 Knee symptoms/complaints	5		
L18 Muscle pain/fibrositis.....	2		
N01 Headache (excluding sinus/migraine)	3		
P76 Depressive disorder	5		
R78 Acute bronchitis/bronchiolitis	1		
U06 Blood in urine.....	3		
X37 Pap smear	3		
X74 Pelvic inflammatory disease	2		
W15 Complaints of infertility.....	5		

norms for practice surveillance, for example by medical aid societies.

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