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The Information Explosion and the Interpretation Gap

This issue of the *Bulletin* contains two articles which provide information about cancer of the cervix, a disease which affects approximately two women out of every hundred. The cervix is the second commonest site of cancer in women, so that its study is unquestionably important. The communication of information about it is therefore vital, for the treatment which the patient receives depends largely on the physician's knowledge of the current views on all aspects of this disease.

Both the papers by Doctors Kinsman and Irwin are important in this respect. The former is welcome because a physician in a partly rural, partly urban area has taken the trouble to put on paper his own experiences, which means that he has not only attempted to crystallize his clinical impressions (which may or may not be correct) but he has also submitted them to the scrutiny of his colleagues. The other paper is significant because it raises a most important point, namely that one of the sources of controversy in medicine stems from the misinterpretation and misapplication of data, in this instance about the etiology of cancer of the cervix. These two papers, then, discuss certain aspects of this common disease; the "consumer", the reader, now has to assess their significance.

In medicine, as in so many other walks of life in which there are mixtures of art and science, of personal experience and the impersonal, automated collection of data, there are real problems in their interpretation of information. This situation is likely to worsen rather than improve because certain explosions—of population, of scientific and medical knowledge, a good example of which is the proliferation of medical journals—only widen already yawning gaps, whether they relate to credibility, the generations, or the whole field of communication and its reception. A most stimulating and provocative discussion of the situation

as it relates to medical journals was presented a few years ago by Schor and Karten¹; their findings and conclusions are worth consideration. Their main finding was that even respected medical journals contained a high proportion of papers which drew conclusions of questionable validity: at most 25% of the communications, according to them, were valid in this respect. They then raised the question of the probable effect on the practice of medicine resulting from the publication in medical journals of such a great amount of questionable material, especially in view of the rapid and wide dissemination of inaccurate information in this computer age.

People in glass houses should not throw stones, perhaps: certainly the editorial staff of the *Bulletin* will heed these points. It is perhaps more important for all who practise medicine to appreciate the need to be ever more questioning and critical of the variegated pieces of information with which they are bombarded. It is important not only from a theoretical standpoint, but also because in medicine the interpretation of etiological theories or recommended methods of treatment may have profound practical consequences for our patients over a span of many years. While journals such as the *Bulletin* recognize the need to disseminate information, the final responsibility for the correct interpretation of this information lies on the shoulders of the reader. For this reason the article entitled "Some origins of controversy in medicine" to be found herein merits close and serious consideration, as a stimulus to our own understanding of an approach to closing the gap between the information we receive and the interpretation we put upon it. We will learn from it ourselves; but in the end, of course, it will be not ourselves primarily who will benefit but the patients we treat. □

D.A.E.S.

1. Schor, S. and Karten, I.: Statistical Evaluation of Medical Journal Manuscripts. *Jour. Amer. Med. Ass.*, 195: 1123, 1966.

Poverty

"The poor always ye have with you"—John, 12: 8.

The Canadian Medical Association, in April 1970, presented a Brief to the Special Senate Committee on Poverty.¹ This was one of many interesting contributions; one of particular interest concerning the Nova Scotian scene was the brief prepared by the Institute of Public Affairs at Dalhousie University,² which should be considered required reading for all who have the good fortune to have ready access to the good things of our affluent society. There are of course also many more emotional, but well-documented studies of poverty, such as that of Michael Harrington³ in U.S.A. and Ian Adams' recent account of poverty in our own country⁴. These, together with drier reports like those of the Dominion Bureau of Statistics and the Economic Council of Canada, take different approaches to the uncomfortable question of poverty: but they all point to the fact that one Canadian out of three has the misfortune to live below the poverty line, behind the poverty wall.

"The poor always ye have with you": but here and now, in Canada, a country which boasts a standard of living second or third in the world, the fact is that the poor are not only with us, they are with us in increasing numbers. We in Nova Scotia are well aware of this; depending on the particular definition of poverty used, between 30 and 40% of Nova Scotians are poor. Further, a cold statistic such as this hides the fact that in some groups—the Indians, Blacks, the aged, families with household heads who are women with young children, those without employment, and especially the rural non-farm resident—the incidence of poverty is in fact much greater; in one study of three rural non-farm communities, for example, virtually 100% of the families had *total* annual incomes under \$3,000.

What, one may ask, does this have to do with the daily affairs of the medical profession? This is a valid question, and the answer which we, as members of the profession give, either by word or deed, must have significance in today's medicare and medicated society, in which the issues of living rather than existing, are important. Gone are the days when our efforts were chiefly directed to eradication of microbes; now the emphasis is on the view of health as a state of complete physical, mental, and social well-being, rather than the absence of disease. The answer to the question posed here is worth considering at more than just one's convenience.

As physicians, we are well aware of the relationship between health and disease; it has been so well documented that a plethora of data (not to say 'an embarrassment of riches') is available which would gainsay any denial of this basic premise. Facts such as these are

well-known: that the employed poor lose more working days from illness than do those earning higher incomes; that in some poor areas the number of mentally-retarded children is increasing, that in some of the dark areas of this continent the infant mortality rate for those of Negro origin has actually increased as much as 29% while the rate for whites in the same region has dropped by 33%; *how does one react to them?* Studies have indicated that there is a clear relationship between poverty and mortality in adults too; in one study, keeping racial factors constant, for white areas, there was a 15% difference in crude mortality rates between the poor and non-poor, while considering the non-whites, the difference was almost 50%. The figures for Canada are similar. Thus, more health defects have been detected among multiproblem families earning low or marginal incomes than among those receiving higher incomes; also, taking the infant mortality rate of all Canada in 1968 to be 21 per 1,000 live births, the figures for Indians and Eskimos are as high as 49 and 89. The infant mortality rate is a sensitive index of the success or failure of a society: is there not something disturbing in the fact that while we in Canada, worshipping that magical ikon "GNP", have such a high overall living standard, our infant mortality rate is well down the list about a dozen countries having superior statistics.

Prime Minister Mackenzie King said in 1948 that "The preservation of health and strength of its population is surely the best of all guarantees of a nation's power, of its progress and of its prosperity. Our greatest national asset is the health and well being of our people". This appears to be a straight-forward statement, and certainly one of the malignant consequences of poverty is the drain on the economy, taking into account the \$800,000,000 charged to federal budget directly related to the problems of poverty, in the form of welfare and other transfer payments. This is why research into the economic, social, medical, and psychological, as well as political aspects of poverty should be a matter of urgency.

While statements such as Mackenzie King's are acceptable as platitudes of politicians, they are not acceptable if one is seriously considering the ways in which poverty must be combated. The complex causes of poverty must be understood, particularly the multifaceted interaction between the individual and society. Our tendency is to look upon poverty as a problem of individuals, rather than the result of the various situations which the structure, organization, and aims of society create for its citizens. An understanding of the real issues involved is essential before one can empathize with the poor, and be concerned about our

responsibility to this section of the population. It is the nature of our society, in Canada, and in the Maritimes especially, which is responsible for the fact that poverty is so serious in the Maritimes, where one half the rural wage earners and one quarter the urban were recently found to have annual incomes of less than \$2,000.

In this connection, the C.M.A. brief contained a most significant quotation :

"Disease is largely a removable evil. It continues to afflict humanity, not only because of incomplete knowledge of its causes and lack of individual and public hygiene, but also because it is extensively fostered by harsh economic and industrial conditions and by wretched housing in congested communities. These conditions and consequently the diseases which spring from them can be removed by better social organization. *No duty of society, acting through its governmental agencies, is paramount to this obligation to attack the removable causes of disease.*"¹

This awareness of the obligation to treat and eradicate environmental disease is a clear indication that the medical profession is concerned, certainly about the

effects of poverty which relate to health and disease. There is an indication, too, that the delivery of health services to the poor, who are often geographically isolated and who cannot afford private transport, is thought to be important. It is encouraging to see signs of a readiness in this province to attack the socio-political structure, so that the problems of the poor can be alleviated; the formation of the North Preston Clinic near Dartmouth and the plans being formulated by medical students to create a community clinic in Halifax are indices of the concern shown by some members of the medical profession on Nova Scotia. The medical profession has a proud tradition of caring for the sick, be they rich or poor. Nova Scotia has, too, a proud tradition in this land of ours. It would indeed be a fine aim of the Medical Society to combine its natural sense of responsibility in community affairs with its considerable knowledge and potential power and influence, and thus to assist actively in the removal from Nova Scotia of this scourge of society. The aim is high; but as Galbraith has said, "Poverty can be made to disappear".⁵ □

D.A.E.S.

¹ Canadian Medical Association. Brief to Special Senate Committee on Poverty, April 1970.

² Institute of Public Affairs, Dalhousie University. Brief for Special Committee on Poverty, Senate of Canada. Halifax, N.S., November 1969.

Harrington, M.: The Other America - New York, MacMillan, 1963.

³ Adams, I.: The Poverty Wall - Toronto, McClelland and Stewart, 1970.

⁵ Galbraith, K.: Quoted in "A Socio-Economic Study and Recommendations". Institute of Public Affairs, Dalhousie University, 1965.

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THE MEDICAL SOCIETY OF NOVA SCOTIA

117th Annual Meeting and 6th Meeting of Council

The 117th Annual Meeting of the Medical Society of Nova Scotia and the 6th Meeting of Council will take place in the Lord Nelson Hotel. The first session of Council will commence on Thursday morning, November 27th, at 9:00 a.m. with the final session of the Annual Meeting scheduled to terminate approximately 2:30, Saturday, November 28th. The Annual Meeting of the Medical Society will be preceded and followed by meetings of the Executive Committee.

The 44th Dalhousie Refresher Course will commence Tuesday morning, November 24th. These sessions are designated as the Scientific Program of the Annual Meeting of the Medical Society of Nova Scotia.

The Medical Society's President's Reception, Banquet and Ball will take place at the Lord Nelson Hotel Friday evening, November 27th, at which time Dr. J. F. L. Woodbury will be installed as President of the Society.

Further details on the Annual Meeting of the Society and the Dalhousie Refresher Course will be promulgated as they are finalized. However, it is not too early to begin planning for your attendance at these very important events. □

D.D.P.

THE 44TH DALHOUSIE REFRESHER COURSE

From Monday November 23, to Thursday November 26 inclusive, the Dalhousie Refresher Course will be conducted at the Sir Charles Tupper Medical Building, and in the affiliated teaching hospitals. In comparison to 1969, there will be more small group clinics, four modified grand rounds, two major lectures featuring guest speakers, and a special half-day presentation by members of the Dalhousie Class of 1955. The popular Socratic Luncheons will continue.

Again this year these sessions are the Scientific Programme of the Annual Meeting of the Medical Society of Nova Scotia. The Medical Alumni Banquet and Ball will be held on Wednesday evening, and the Medical Society Banquet and Ball on Friday evening.

The John Stewart Memorial Lecture will be delivered by Dr. Julius R. Krevins, Professor of Medicine (Haematology), John Hopkins, and a visiting lecturer in neurosurgery will be Dr. F. P. Morley of the University of Toronto.

Further details from Dr. R. L. Ozere, Chairman, Dalhousie Refresher Course Committee, Division of Continuing Medical Education, Dalhousie University, Halifax, N.S. □

L.C.S.

EXHIBITORS AT ANNUAL MEETING

THE MEDICAL SOCIETY OF NOVA SCOTIA extends a warm welcome to the Exhibitors and their Representatives who will be participating in the Annual Meeting of the Society this coming November. Ample provision is being made in scheduling the business sessions to permit all members to visit the exhibits and discuss developments with the representatives. Representatives will be joining members at the social events, thus providing additional opportunities to renew and make new acquaintances. The Society's appreciation is extended to the following Exhibitors.

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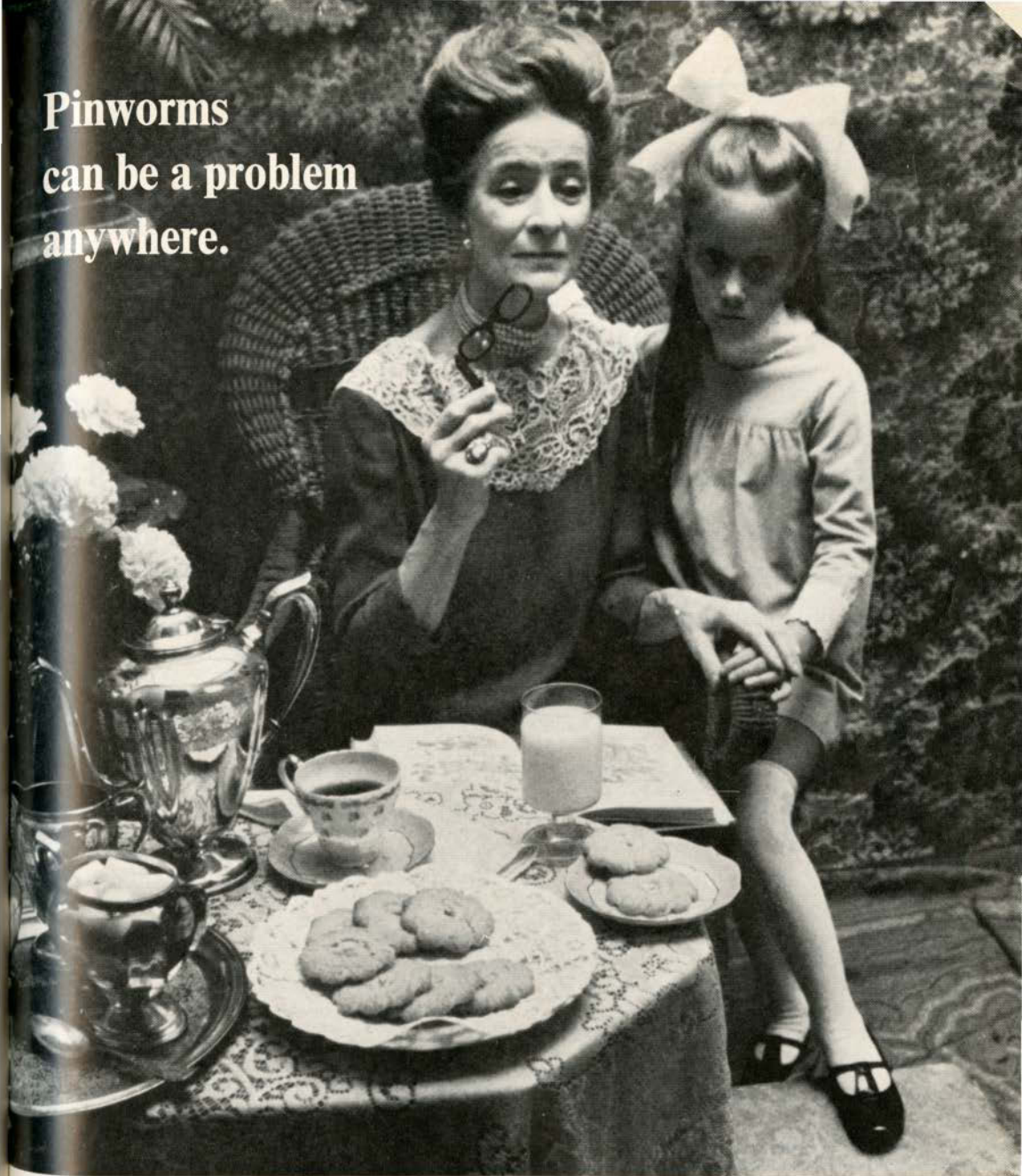
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and we may conclude that the marital partners of uncircumcised husbands have a fairly high risk of developing carcinoma of the cervix, relative to wives of circumcised men.

The second of these four papers appeared in October 1958 and bore the rather long title: "Validity of Determining Circumcision Status by Questionnaire, as Related to Epidemiological Studies of Cancer of the Cervix".³ In their introduction, Lilienfeld and Graham referred to the retrospective study of Wynder *et al.*, in which those authors had hinted at their difficulties in obtaining a valid history of the husband's circumcision status, pointing out that in 10% of the interviews the patients had been unable to give the circumcision status of their husbands. As an indirect check of the data obtained, they had interviewed a number of male patients in the same hospitals, and had found the frequency of circumcision among them essentially the same as that reported by the interviewed women for their husbands.

To ascertain whether the interview approach is a valid method for determining circumcision status, Lilienfeld and Graham collected data from 192 male patients admitted consecutively to the Roswell Park Memorial Institute. Before admission, each patient completed a questionnaire covering a wide variety of data for epidemiological studies, and one question concerned circumcision status. All patients were subsequently examined by physicians who had no access to these questionnaires, but who had been requested specifically to record whether or not each patient was circumcised. The results from this study are given in Table II.

TABLE II

Comparison of Patients' Statements With Subsequent Examination Findings Concerning Circumcision Status

Examination Findings	Statements of Patients		Totals
	Circumcised	Not Circumcised	
Circumcised	37	47	84
Not Circumcised	19	89	108
Totals:	56	136	192

Table II shows that of the 84 patients whom the physicians found to be circumcised, 47 had stated they were not circumcised, while of the 108 patients found uncircumcised, 19 had stated that they were. Since it is likely that a woman's statement concerning circumcision status would probably be more inaccurate than that of her husband and therefore result in even greater errors in classification, Lilienfeld and Graham concluded that in order to test the relationship between cervical cancer and circumcision, it is essential for circumcision status to be obtained by physical examination of the husband.

The possibility of misleading effects due to misclassification evidently troubled Lilienfeld for in July 1962 in collaboration with Diamond, the third paper in this series appeared under the title: "Effects of Errors in Classification and Diagnosis, in Various Types of

Epidemiological Studies".⁴ From the results in Table II, they computed two conditional probabilities:

- 1) the probability that a man who states he is circumcised will have his statement confirmed by examination, which is $37/56 = 0.661$, and
- 2) the probability that a man who states he is not circumcised will have his statement disproved, which is $47/136 = 0.346$.

Applying these computed probabilities to "correct" the data in Table I, Diamond and Lilienfeld estimated that the "true" percentages are those shown in Table III.

TABLE III

Derived True Percentages of Circumcised and Uncircumcised Husbands Among Patients with Cancer of the Cervix and Controls

Cases		Controls	
5 x .661 =	3.3	14 x .661 =	9.3
95 x .346 =	32.9	86 x .346 =	29.8
"true" % circumcised	36.2		39.1
"true" % uncircumcised	63.8		60.9

By subtracting each derived "true" percentage circumcised total from 100%, the two resulting "true" percentage uncircumcised totals will give rise to a new 2 x 2 table, from which the relative risk is:

$$\text{Relative risk} = \frac{63.8 \times 39.1}{60.9 \times 36.2} = 1.13$$

This virtually eliminates the difference in risk between women with and without circumcised husbands relative to the development or non-development of cervical cancer, as reported by Wynder *et al.*

Diamond and Lilienfeld concluded that the observed difference reported by Wynder *et al.* which gave rise to a relative risk of significant magnitude, could well be the result (in whole or in part) of the misclassification of the characteristic in question. They pointed out however that this conclusion was not consistent with the opinion generally held by most statisticians, that misclassification tends to decrease true differences, a working rule accepted by most epidemiologists. They suggested that further studies would be necessary to discover ways to prevent errors of this kind in future.

A stern rebuke was not long in coming, for in November 1962, Newell wrote a paper entitled: "Errors in the Interpretation of Errors in Epidemiology".⁵ In his very first sentence, he wrote: "In their paper... Diamond and Lilienfeld perpetuate a common error in the analysis of false-positives and false-negatives". Then he continued: "Since in so doing they appear to disprove a well-known statistical result that misclassification tends to decrease true differences, a note in refutation is called for".

If a patient, having a particular condition on examination (i.e. a true positive), has previously been reported free from it, then he is called a "false-negative". Similarly, if he is found free from a condition which he reportedly has, then he is called a "false-positive". In other words, the population "at risk" of being misclassified as "false-negatives" are those persons who truly

have the condition, while those "at risk" of being misclassified as "false-positives" will be those truly free from the condition. Any other definitions for "false-positives" and "false-negatives" will lead to errors in interpretation. Some investigators wrongly conclude that the number of "false-positives" is solely a reflection on the screening procedure employed (or perhaps on the manner it is applied), overlooking the importance of the prevalence of the condition in the population being tested.

Diamond and Lilienfeld did not use these definitions of false-negatives and false-positives; instead, they used the reported status to derive probabilities which *not being independent of the true prevalence, cannot be transferred to another study, where the true prevalence rate may be quite different.* Expressed another way, their ratio of false positives to the total number of persons who screen positive is *not* the rate of false positive errors but rather the effect of that rate, combined with the prevalence of the condition in the population being tested. As developed mathematically in the Appendix, the true prevalence rates in each of the two studies differ so considerably that the data from one cannot be used to "correct" the other.

When discussing these studies, Jerome Cornfield told us that after reading the draft copy of the Diamond and Lilienfeld paper, he advised his friend Abe Lilienfeld not to publish the paper but that the latter would not listen to him. As mentioned above, the original paper was written by Wynder *et al.* One of the "et als." was Cornfield!

APPENDIX

The importance of correct definitions of "false-positives" and "false-negatives" is not in the interpretation of an original investigation (where the true status of each individual will be subsequently verified by further examinations) but rather in the interpretation of any later studies, where we know only the reported status. The results of a pilot investigation can be shown in a typical 2 x 2 table as follows:

		Reported Status		
		Positive	Negative	Total
True Status (on examination)	positive	a	b	n ₁
	negative	c	d	n ₂
Totals:		n ₃	n ₄	N

Referring first to the marginal totals, n₃ and n₄ represent the numbers of persons reported to be positive and negative respectively, whereas n₁ and n₂ represent the numbers of confirmed positives and negatives respectively, with N the grand total. Then considering the four cells, a represents the number of persons with the condition who have been correctly identified as positive, while d represents the persons free from the condition and correctly identified as negative. Of n₁ true positives, b are reported as negative, giving a false-negative rate of b/n₁ = β. Similarly, c are reported as

positive, giving a false-positive rate of c/n₂ = α. For those readers familiar with the use of α and β in Type I and Type II Errors in hypothesis testing, certain resemblances are apparent.

We should now ask two questions. First, "can we make use of these rates (α and β) calculated from data gathered from our pilot study, to assist us to interpret data from a subsequent large-scale survey?" and secondly (of even greater importance), "can we verify that these rates will be applicable?"

Suppose we have completed a large-scale investigation and know only the total population surveyed and the number of persons reported as positive. To determine the number truly positive (the true prevalence), we can build up the missing information in a table as follows:

		Reported Status		
		Positive	Negative	Total
True Status	Positive	n ₃ - α(N - n ₅)	βn ₅	n ₅
	negative	α(N - n ₅)		N - n ₅
Totals:		n ₃	n ₄ = N - n ₃	N

The steps are as follows:

- 1) initially, the table contains only the data N, n₃, and n₄.
- 2) enter n₅ as the required but unknown number of true cases and by subtraction, N - n₅ will be the unknown number of true negatives.
- 3) applying the false-negative rate to the number of true cases, βn₅ will then be the number of false-negatives.
- 4) likewise, α(N - n₅) is the number of false-positives.
- 5) by subtraction, the number of correctly-identified positives is n₃ - α(N - n₅).
- 6) finally by adding the top row, we obtain:

$$n_5 = n_3 - \alpha(N - n_5) + \beta n_5 \quad \text{which can be simplified}$$

$$= \frac{n_3 - \alpha N}{1 - \alpha - \beta}$$

giving the number of true cases, and we have answered the first of our two questions.

Now to verify whether or not these rates are applicable to the subsequent large-scale survey, we should note from this equation that the *reported prevalence rate*

$$\frac{n_3}{N} = \frac{n_5 + \alpha(N - n_5 - \beta n_5)}{N} \quad \text{which can also be simplified}$$

$$= \alpha + \frac{(1 - \alpha - \beta) n_5}{N}$$

Suppose the true prevalence rate is 100%, so that there are no false-positives (i.e. α = 0). Then a proportion β of the cases will be reported as negative, leaving a reported prevalence rate of 1 - β. Similarly if the true prevalence rate is 0%, then a proportion α will be reported as positive, giving a reported prevalence rate

of α . Therefore, the reported prevalence rate from any survey must always lie between α and $1 - \beta$. However, should the observed prevalence rate from a subsequent study be found to lie outside these limits calculated from the false-positive and false-negative rates obtained from the pilot investigation, then they cannot be used to assist us to determine the number of true positives. We have now answered the second of our two questions.

From Lilienfeld and Graham's original investigation, 47 of the 84 circumcised patients said that they were not circumcised, giving a false-negative rate β of 56.0%, while of the 108 who were not circumcised, 19 had previously claimed that they were, giving a false-positive rate α of 17.6%. One should note further that the reported prevalence rate is $56/192 = 29.2\%$, which does lie between $\alpha = 17.6\%$ and $1 - \beta = 44.0\%$.

Diamond and Lilienfeld attempted to use these data to "correct" the Wynder *et al.* study, in which the cases and controls had stated percentages circumcised of 5% and 14%, respectively. However since neither of these

figures lie within the range $\alpha = 17.6\%$ to $1 - \beta = 44.0\%$, then the data from one study are *not* applicable to the other. Even if the true proportions circumcised in the Wynder *et al.* study had been 0% then (apart from sampling variations), 17.6% should have reported themselves as circumcised, had the data from the Lilienfeld study been applicable. Obviously then, the true prevalence rates of these two surveyed groups differ so considerably that the data from one study cannot be used to interpret the other. □

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Memorandum

The Dangers of Skimmed Milk in the Treatment of Infants and Children with Diarrhea and Vomiting*

The practice of using skimmed milk, particularly if boiled, in the home treatment of infants and children with diarrheal disease is a potentially dangerous one, for it may lead to hypernatremia. The custom of boiling the milk dates back to pre-pasteurization days, when outbreaks of diarrhea and/or vomiting were frequently due to the contamination of unrefrigerated milk with enteric pathogens. More recently, it has been widely believed that boiling rendered the milk protein more digestible by denaturing it, but there does not seem to be any real evidence to support this belief. Although bacterial contamination of milk ceased to be a public health problem long ago in North America, many physicians continue to recommend the administration of boiled skimmed milk to such infants.

Hypernatremic dehydration is more dangerous to infants and children than is isotonic or hypotonic dehydration, and the relationship between high solute feedings such as undiluted milk to the development of hypernatremia is well documented in the medical literature.¹ Berenberg and associates² have shown recently that the boiling of 8 oz. of skim milk for 15 minutes in a 6-inch pan will double the sodium con-

centration of the milk, and the boiling of the same quantity of milk for 12 minutes in a 9-inch pan will triple the original sodium concentration of the milk, in either case resulting in extremely hypernatremic solutions.

In all paediatric hospitals (including the Izaak Walton Killam Hospital), infants and children have been seen suffering from severe hypernatremia, sometimes with neurological complications, traceable to the feeding at home of boiled skimmed milk for treatment of diarrheal disease.

There are other reasons why milk, even in dilute form, may be less than ideal for the initial treatment of infants and children with diarrhea and/or vomiting. If it is to be used, it is probably safest to avoid boiling and to dilute the milk with an equal volume of water, adding sugar. Salt should never be added. Sugar and water, soft drinks and small frequent amounts of sweetened fruit juice probably constitute the safest forms of oral replacement therapy at home for youngsters with losses due to diarrhea and vomiting. □

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1. Colle, E., Ayoub, E., and Raile, R.: Hypertonic dehydration (hypernatremia): The Role of Feedings High in Solute. *Pediatrics*, 22: 5, 1958.
2. Berenberg, W., Mandell, F., and Fellers, F. X.: Hazards of Skimmed Milk Unboiled and Boiled. *Pediatrics*, 44: 734, 1969.

*A statement prepared by Dr. R. B. Goldbloom, Professor and Head, Department of Paediatrics, Dalhousie University and Izaak Walton Killam Hospital for Children, Halifax, N.S., and endorsed by members of the Department of Paediatrics, Izaak Walton Killam Hospital for Children, Halifax, N.S.

The Pap Smear—Value in General Practice

P. E. Kinsman, M.D., C.M.
Wolfville, N.S.

Summary: *A two-year survey of pap smears in a rural-suburban practice is reported. The incidence of reports falling into Classes III and IV was found to be 1.1%. The value of this technique as a preventive and diagnostic procedure is stressed.*

The cytological examination of exudative material from the uterine cervix provides a method for the early detection of changes which indicate impending or existing malignant change of the cervix. The "pap smear" has provided doctors with a highly effective preventive and diagnostic procedure comparable in importance to the advances from the discovery of penicillin and other antimicrobial drugs. By the early detection of pre-malignant or malignant lesions of the cervix, the general practitioner can fulfill yet another responsibility to the community in the broad field of Family Practice.

In the rural and suburban areas of Nova Scotia the family practitioner, through diagnosis, is the first line of defense against disease, and this is especially true in the prevention of cancer of the cervix. Studies have proven that early detection of changes in the cervical cells can reduce the morbidity and death rate in women from carcinoma of the cervix. Vigorous encouragement of women to have regular examinations and smears done must become a part of the family physician's efforts toward total health care supervision in the community, especially where gynecological specialists are not in practice.

This paper deals with the results of two consecutive years of cytological examination with additional information obtained from the "pap smear" reports.

Material and methods

The specimens were obtained from women representing random sampling of both rural and town population in a community of Wolfville, Nova Scotia. The women from whom specimens were obtained were from all socio-economic levels of society. The examinations were carried out for the following reasons:

- i. preliminary to, or routine yearly examinations for, birth control management, and as part of routine physical examinations;

- ii. because of gynaecological symptoms;
- iii. as part of pre- and post-natal care;
- iv. upon suggestion and request of the physician;
- v. upon request of the patient;
- vi. as part of a new patient assessment examination.

By being constantly aware of the "pap smear" status of the female patients at each office visit, the practitioner can avoid missing annual "pap smear" examinations.

Results

Table 1 lists the number of smear specimens obtained in each of the two years of the study and the class distribution of the pathological reports. In addition, the prevalence of trichomonas vaginalis infection is shown.

Table 2 shows the age groups from which "pap smears" specimens were obtained. The positive smear reports came from specimens taken from women in the 30-45 year age group; however there is an almost equal distribution between total smear exams in the under 30 and over 30 age groups.

The whole picture regarding the treatment of women who were found to have Class III or Class IV pap smear reports is set forth in Table 3. This includes age, the treatment, and the pathological diagnosis. 9 patients were discovered to be in Class III or IV, from a total of 759 smear specimens reported (an incidence of 1.1%).

Of the nine women treated because of Class III and IV pap smear reports, three were found to have carcinoma-in-situ of the cervix, while six others were found to have changes which could be pre-malignant dysplasia.

TABLE 1

Period	Total Number of Smear Specimens Reported	Class I	Class II	Class III	Class IV	Trichomonas Vaginalis Infection	Non-Specific Inflammation
Sept. 1967- Sept. 1968	349	21	325	3	0	36	176
Sept. 1968- Sept. 1969	410	19	385	5	1	1	344

Conclusion

It seems essential that the family physician today advise that all women in his practice should have annual pap smears. By helping existing public health and public-spirited women's organizations to advance awareness of the beneficial potential available through this examination, he can encourage women in his community to have these examinations.

TABLE 2

Year	Age 14-25	Age 25-30	Age 30-40	Age 40 & over	Total
Sept. 1967- Sept. 1968	90	52	79	128	349
Sept. 1968- Sept. 1969	152	64	98	97	410
	242	116	177	225	759

TABLE 3
Analysis of Patients in Class III and IV

Case	Age	Class Pap Smear	Diagnostic Procedure	The Treatment	Pathological Diagnosis
1	42	III	Cone Biopsy Carcinoma in situ	Abdominal Hysterectomy (because of uterine fibroids)	Uterine fibroids abnormal, cervical mucosa removed
2	35	III	Pap smear	Cone Biopsy cervix	Carcinoma in situ, removed with margin of unaffected mucosa
3	33	III	Pap smear	Cone Biopsy cervix	Carcinoma in situ (complete excision)
4	39	III	Pap smear only	Abdominal Hysterectomy	Chronic cervicitis, squamous dysplasia, not amounting to carcinoma in situ
5	63	III	Cone Biopsy (Pathologist uncertain of cytological diagnosis)	Vaginal Hysterectomy	Proliferative endometrium and chronic cervicitis, no evidence of malignancy
6	36	III	Pap smear only	Abdominal Hysterectomy	Chronic cervicitis, squamous dysplasia, not malignant
7	30	III	Pap smear only	Abdominal Hysterectomy	Squamous dysplasia with dyskaryosis of cervix uteri
8	42	III	Pap smear change from Class II to Class III in six months	Amputation of cervix	Chronic cervicitis with squamous dysplasia
9	33	IV	Smear Class IV	D & C conization of cervix	Chronic cervicitis with metaplasia and no evidence of malignancy <input type="checkbox"/>

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Photography in Medical Practice

W. G. Coughran *

Summary: *Some aspects of the value of photography in medical practice are discussed. Medical photography, which is one aspect of a wider audio-visual service, is essentially the recording of visual data in medicine. With recent advances in technology, the medical photographer can act as an assistant to the physician both in the recording and communication of medical data. The development and the applications of medical photography are then briefly discussed.*

Up to the last decade the term "medical photography" had meant simply the photographic portrayal of various abnormalities of the human body. Today, the words have come to mean much more, as the field has expanded into an essential teaching, diagnostic, and research tool.

Medical photography, as a term, is somewhat outdated. In most medical centres the term "Audio-Visual Service" is more appropriate. Photography itself has become merely one part of a rapidly expanding paramedical service, which includes the technology of

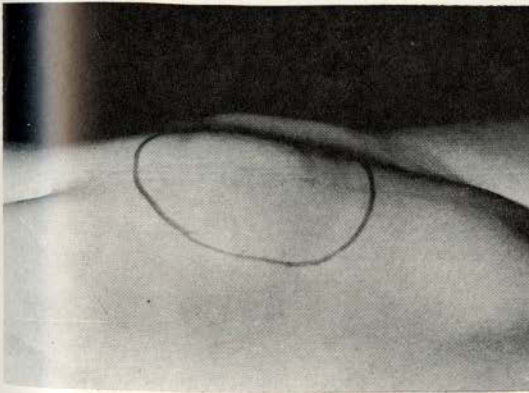


FIGURE 1

Ovarian cyst. Pre-operative clinical photograph, illustrating abdominal swelling.

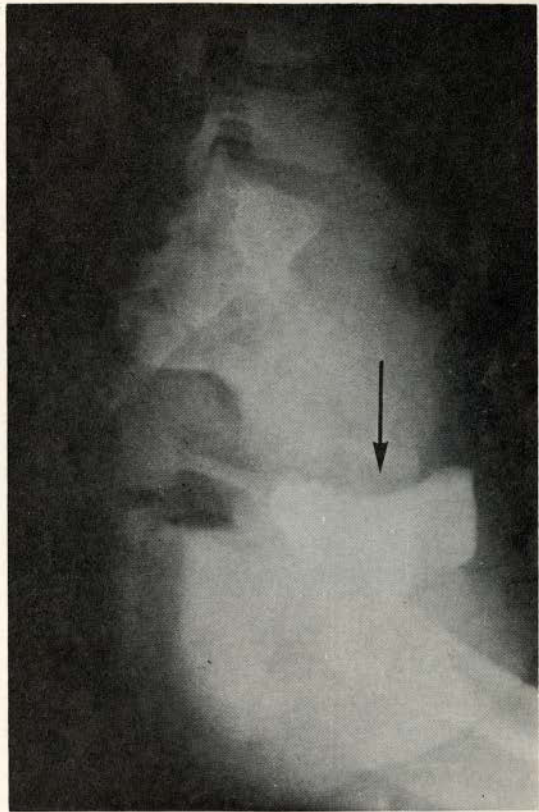


FIGURE 2

Photograph of pre-operative radiograph showing downward displacement of bladder.

closed-circuit television for medical education, and the art of medical illustration. As a result the photographer in the hospital or medical school setting is no longer a photographer only: he must now act to a great extent as an assistant to help the physician communicate medical experience to the next generation, a task in which photography is one of many available techniques for this end.

The expanding scope of medicine today, and the concomitant demand for more highly trained doctors, nurses, and allied personnel, has led to the development

of new instructional methods. Audiovisual aids are an ideal way of teaching medicine. Advances in the technical aspects of photography, together with the increased applications of these in clinical practice, education, and research, have caused medical photography to develop into a complete field in itself, and it is not surprising that it is different in certain respects from other types of photography. The biological photographer in medicine, as in dentistry, biology, and allied

*Head, Audiovisual Department, Izaak Walton Killam Hospital for Children, Halifax, N.S.

sciences, therefore faces his own unique problems as well as the general ones of illustrative photography.

Development of the photographic service in an Audiovisual Department

The essential aim of photography in medicine is to record visual data. To be completely effective, these must be recorded efficiently, and be available at a moment's notice. An important part of the medical photographer's work, therefore, is the development of a satisfactory filing system. Photographs are filed according to the International Classification of Disease, Adapted (I.C.D.A.), pertaining to the diagnosis of the condition in question. This classification is also used by the medical records departments for the coding of patients' charts; hence, a cross-index file to the patients' names is maintained, and the addition of yet another set of numbers to voluminous records is avoided. The "library" slides become the property of the hospital using the service, and they are available on loan to staff members, or duplicate slides may be made for the physician's own file if requested.



FIGURE 3

Operative photograph showing twisted ovarian cyst.

Although it is tedious and time-consuming, this system works well. Medical educators have been stimulated to use the large amount of material at their disposal.

The maintenance of an efficient service, however, needs trained and experienced personnel. The medical photographer must have a basic understanding of radiology, pathology, surgery, and especially anatomy and medical terminology. Yet at present there is no formal school in Canada which offers training of this type. Hopefully this situation will be alleviated in future.

Application of medical photography

Medical photography has now reached the stage at which it can be said that if it can be seen, with the proper equipment it can be photographed. Indeed, the recent advances in photographic equipment and film emulsions have made it even possible to record details

which are invisible to the eye. Infra-red photography in colour of subsurface tumours, occlusions, and other conditions which may cause localized changes in skin temperature is a good example of this.

The case illustrated in Figures 1-4 is presented not just because of its medical interest, but rather because it is indicative of some aspects of the photographer's work. Clinical diagnosis and recording of operative and pathological details are common applications, and the departments of pathology and surgery are the most frequent users of the photographic service.

Recommendations for small hospitals and doctors' offices

The applications of photography are obviously wider in teaching centers, in which the full range of audiovisual services is utilized, from "echo" sounding devices and complex cinematography to electron micro-

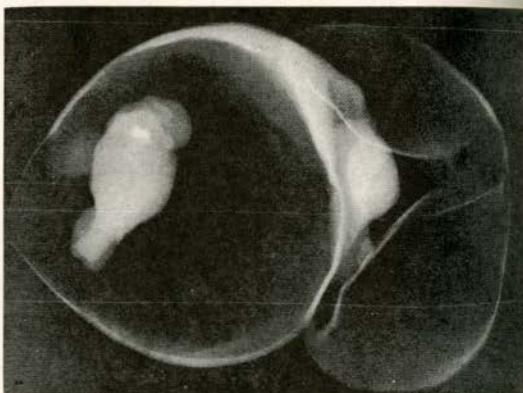


FIGURE 4

Photograph of radiograph of specimen. (Note calcification in dermoid cyst).

photography, than in the small rural hospital or doctor's office. Should the local portrait photographer be asked to photograph cases as required? The answer is emphatically "no". It is difficult enough at times for a trained medical photographer to understand precisely what is to be illustrated: it is next to impossible for the layman. There is a simple solution, namely, the use of specialized but inexpensive equipment. An example of this is the Instatecht which gives excellent results in colour and black and white, and for closeup as well as standard work; it can be used for photographing areas as large as the whole body or as small as a single eye.

In conclusion, the medical profession has witnessed, in the last decade, a tremendous growth in the use of audio-visual aids to Medical Education and practice. Undoubtedly, this trend will continue and intensify in the 1970's so that the audio-visual service will become an even more valuable paramedical service which in its own way, will contribute to the progress and advancement of the practice of medicine. □

†Registered Trade Mark, Eastman Kodak Company.

Pigeon Breeder's Disease

Summary: *A hypersensitivity pneumonitis was diagnosed in twelve patients who were pigeon breeders. Antibodies against various pigeon antigens were found in sera from all the patients. Avoidance of contact with pigeons is essential in preventing recurrence of the disease.*



Twelve pigeon breeders with a hypersensitivity pneumonitis, seen over a period of nine years, were studied for clinical, roentgenographic, and pathologic features. The patients had a history of chronic or episodic acute respiratory and systemic symptoms.

Pulmonary function tests were performed, chest roentgenograms and lung scans were obtained. Other laboratory tests included a hemogram, erythrocyte sedimentation rate, urinalysis, and serum protein electrophoresis.

Skin reactivity to pigeon antigens was determined by the intradermal injection of a non-irritating concentration of pigeon serum or pigeon dropping extract, and serum samples were also examined for antibodies. Lung tissue was obtained by biopsy from two patients.

All the patients were men ranging in age from 34 to 60 years who had been exposed almost daily for from two to 38 years to up to 500 birds. Duration of the disease symptoms was from eight months to 20 years.

Clinical features suggested that the disease could occur in three major forms: acute, sub acute, and chronic.

Ten of the 12 patients had the acute form, with sudden onset of chills, fever, cough, dyspnea, and myalgia which lasted up to 18 hours after exposure to pigeons or pigeon material. The severity and duration of each episode depended on the sensitivity of the breeder and on the duration and intensity of exposure.

Five of the breeders with acute symptoms had abnormal chest X-rays. The most consistent X-ray pattern during acute phases of the disease was that of a combination of coarsening of bronchovascular markings, fine sharp nodulations, and reticulation throughout the lung parenchyma.

Lung Function

When pulmonary function tests were performed one of the acutely ill breeders was found to have had normal functions; two showed only moderate obstruction; one had diminished diffusion and slight restriction; and one had slight restriction with moderate obstruction.

Lung scans of nine of the patients with the acute form of the disease revealed abnormalities in two. These consisted of diffuse or localized diminution of the blood flow to various areas of the lung. Eight with this form of the disease had immediate wheal and flare reactions to pigeon serum injected intradermally.

Two breeders had the subacute form of the disease. In one the initial phase was characterized by the insidious onset of unremitting systemic and lower respiratory symptoms resembling bronchitis. In the other, pulmonary function tests revealed restriction and diminished diffusion. Lung scans were normal in both.

The chronic form of pigeon breeders' disease developed in one breeder after prolonged and intense contact with pigeons. Onset of dyspnea without symptoms was insidious. The skin reacted to pigeon antigens and antibodies were present in sera.

Clinical manifestations of pigeon breeders' disease can be reproduced if sensitive breeders are exposed to pigeon materials. In the pathogenesis of the disease, the presence of high titers of antibodies to pigeon antigens favours the role of a hypersensitivity reaction. If contact with pigeons is avoided, relief of symptoms usually follows, clinical and laboratory values return to normal, and a reduction in antibody titers and skin reactivity to pigeon antigens occurs.

Few Cases Reported

Although there are approximately 75,000 pigeon breeders in the United States, few cases of the disease have been reported here. This may mean that the disease is relatively rare or, more likely, that many breeders with respiratory complaints are not diagnosed as having this pneumonitis.

There are, of course, other examples of hypersensitivity pneumonitides which follow inhalation of organic dust. These include farmers' lung, bagassosis, maple bark disease, and sequoiosis. This last is probably due to antigens of redwood dust. Mushroom pickers may also develop a respiratory disorder resembling pigeon breeders' disease that is related to the inhalation of thermophilic actinomycetes in the mushroom compost.

In pigeon breeders' disease, recurrent systemic and lower respiratory signs and symptoms, beginning several hours after contact with pigeons, are usually present in the typical, or acute, form. Sometimes the response is insidious, with lower respiratory signs and

Jordan N. Fink, M.D.; Abe J. Sosman, M.D.; Joseph J. Barboriak, Ph.D.; Donald P. Schlueter, M.D.; and Richard A. Holmes, M.D. *Annals of Internal Medicine*, June, 1968.

Reprinted from the Abstracts of the National Tuberculosis Association, December, 1968. Printed through cooperation of the Nova Scotia Tuberculosis Association.

The question has been raised of the possibility of the development of drug resistance with prolonged use of amphotericin B in relatively small doses. However, on the basis of other studies on fungal resistance to amphotericin B, it appears unlikely that fungi resistant to the drug will be a hazard in the regimen discussed.

The relative freedom observed in this study from such acute toxic side effects of amphotericin B as nausea, vomiting, and fever has not been reported in other studies. The most important factor in this decrease in side effects is believed to have been the small daily doses of amphotericin B used.

Toxicity

However, the regimen did not prevent other toxic manifestations. Phlebitis was common and necessitated the prophylactic use of heparin in each infusion. Hypokalemia developed in a third of the patients, and renal function became impaired in each one during the course

of treatment. The subsequent return of renal function after completion of therapy suggests that the degree of permanent renal damage resulting from amphotericin B administration is a function of the total dose administered. Thus, the present treatment regimen may produce less permanent impairment of renal function than other regimens have.

Anemia was another occurrence and red cell aplasia developed in two patients during therapy, but red cell production returned to normal after amphotericin B therapy.

On the whole, the therapeutic results with this regimen have been encouraging. The laboratory studies involved are simple and easily taught to technicians with minimal mycological training. The approach provides a rational basis for dosage and duration of amphotericin B therapy and allows treatment of patients with impaired renal function and other severe underlying medical disorders. □

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Rehabilitation Committee

A preliminary meeting between Doctors J. Woodbury, A. Shears, and B. Grogono, and Mr. D. Peacocke was held during which the function and objective of this committee was discussed.

The prime need for a new rehabilitation centre was emphasized by Doctor Shears who stated that the matter had been fully presented to the government and was under urgent consideration. After eleven years of effort, he felt that this matter would at last be soon approved.

It was thought that the committee could best concentrate on other aspects of rehabilitation, particularly sheltered workshops for the handicapped. A small committee was subsequently formed and consisted of Dr. B. Grogono, Chairman; Miss J. Walker, Dr. G. Colwell, and Dr. R. Davies. This committee has had two meetings.

A letter of inquiry was sent to all presidents and secretaries of branch societies inquiring into their views on rehabilitation in their particular area. The chairman has attended a meeting of the Nova Scotia Society for the Care of Crippled Children and has tried to find out some of the problems of rehabilitation in Nova Scotia.

Sheltered Workshops: Mr. R. J. Letourneau met with the Committee and has shown them around New Leaf Enterprises in Halifax. This has been placed under new management with a new lease of life. It has been producing offset printing which employs approximately

16 people and provides a good training in this occupation. The standard of work is high, and a fair volume of work has been produced during the past few years. A work-assessment workshop may be set up for the careful study of handicapped and disabled workmen who require re-training. It may save a large amount of money by ensuring that workmen are re-trained in a suitable trade according to their particular disability.

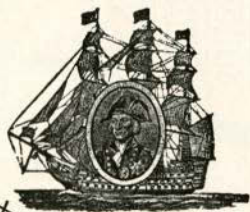
The work of sheltered workshop may be extended to the manufacture of ceramics and other products under a manager so that this shop will produce attractive and high quality goods.

It is hoped that members of the Nova Scotia Medical Society will be invited for a demonstration of the sheltered workshop. As a result of the meeting between this Committee and Mr. Letourneau, much enthusiasm has developed for this project of sheltered workshops; it is hoped that this may turn into a model for the rest of Nova Scotia.

Further meetings are planned for the Rehabilitation Committee during the year. The large amount of work now being carried out by the Rehabilitation Centre should be emphasized together with the need for added interest in all phases of rehabilitation. □

B.J.S.G.

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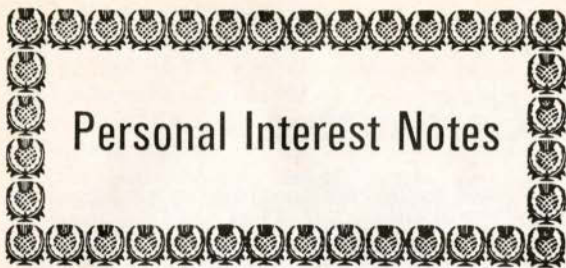
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Personal Interest Notes

CONTRIBUTIONS, PLEASE!

The Personal Interest Notes page is interesting to many readers. However, to make it representative it is essential to have as many contributions as possible sent in either from Branch Societies or from individuals. Any help will be gratefully appreciated.

Six Nova Scotian doctors were recently recognized by the College of Family Physicians of Canada. At Convocation Exercises held in Halifax on July 19, 1970, Dr. Lea Steeves (Halifax) was awarded honorary membership, Dr. S. G. B. Fullerton (Halifax) was made a Fellow of the College, and Drs. M. Bruce (Truro), M. Clark and M. Duncan (Halifax), and A. Prossin (Sydney) were recognized as Certificants of the College.

* * *

Dr. Macadam Duncan gave an interesting account of the examination for certification in family practice. New examination techniques included the use of sophisticated multiple choice techniques designed to test the candidate's ability to work out diagnostic problems as well as a fascinating if fearsome practical test; the latter made use of actors and actresses who had been coached in various disease patterns and who faced the candidate with a live display of human irritability, impatience, and intolerance to test his index of patience. So the examination is no sinecure, although a respectable number of practitioners passed.

* * *

Dr. R. C. Fraser (Halifax) was recently awarded a Fellowship of the Canadian Cancer Society in order to study aspects of cancer research and treatment in the United States and Europe.

* * *

Dr. C. M. Harlow (Halifax) was recently elected President of the Canadian Foundation of Alcohol and Drug Dependencies.

* * *

Dr. R. Langille (Halifax) has returned to Halifax to take up the practice of neurosurgery.

* * *

Those attending the Council meetings of the Canadian Medical Association's annual meeting included Dr. R. A. Burden (Spring Hill), Dr. P. B. Jardine (Musquodoboit Harbour), Dr. D. E. Lewis (Digby), Dr. G. C. Pace (Dartmouth), Dr. K. B. Shephard (Truro), and Drs. D. C. Brown, J. A. Myrden, L. C. Steeves, C. B. Stewart, and J. F. L. Woodbury (Halifax).

Dr. H. O. Nason (Dartmouth) recently returned to Nova Scotia from post-graduate studies in Winnipeg and Chicago. Formerly in general practice in Dartmouth, Dr. Nason is now on the surgical staff of the Izaak Walton Killam Hospital for Children in Halifax.

* * *

About 70 doctors in Halifax and Dartmouth have recently had a facelift: that is the impression one gains from visiting two new medical office buildings. In Halifax, the Halifax Professional Building on the corner of Spring Garden Road and Robie Street is the latest addition to the metropolitan skyline. The environment is obviously important in office design today. Colour, brightness, and an open plan make for an efficient "milieu interieur", while the magnificent exterior views add a new dimension to the day's work. An orthopaedic surgeon relished with justification his panoramic view of the city, his office being within waving distance of four of the major hospitals. The variation in design of the various offices was interesting, reflecting the differences in needs and personalities of physicians, from the attractively furnished and beflowered gynaecologist's waiting room, to the erudite neurosurgical library, to the quicker pace of plastic and ENT surgeons.

* * *

Across the harbour, the Dartmouth Medical Centre represents an interesting transformation from the skeleton of an automobile showroom and filling station to a modern professional building. The keynote is spaciousness, colour, and personalized attention to the needs of both physician and patient. These two new buildings will surely make a difference to the temper, time, and tedium of patients and physician alike. Who knows, but that a pleasant, bright, clean and air-conditioned environment, especially when embellished with pleasing views of the outside world, may add years to doctors' lives.



"Your medicine should be more appealing - I put an olive in it."



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Each peach-coloured tablet contains:

Acetylsalicylic acid 375 mg. (6 gr.)
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Dosage: One or two tablets two or three times daily as required.

Contraindications: Salicylate sensitivity, peptic ulcer.

Side effects: Skin rash, gastrointestinal bleeding, headache, nausea, vomiting, vertigo, ringing in the ears, mental confusion, drowsiness, sweating and thirst may occur with average or large doses.

Full information on request.

☐ Narcotic; telephone prescription permitted.

*new colour—new formula

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117th ANNUAL MEETING
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FRIDAY - SATURDAY
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Cephaloridine B.D.H.

DESCRIPTION: Cephaloridine B.D.H. is a semi-synthetic antibiotic substance obtained from the parent antibiotic cephalosporin C, presented as a water soluble crystalline powder.

INDICATIONS: Infections by the following gram-positive bacteria: Staphylococcus aureus, Streptococcus pyogenes, Streptococcus viridans, C. diptheriae and D. pneumococcus. An in vitro concentration of 1 µg/ml. or less inhibits most strains. An in vitro concentration of 8 µg/ml. also inhibits most strains of E. Coli, Proteus mirabilis, Klebsiella spp., H. influenzae, N. gonorrhoea, N. catarrhalis. Infections where penicillin cannot be used, either because the organism is penicillin-resistant, the infection is likely to be mixed or the patient is penicillin sensitive.

ADMINISTRATION: Cephaloridine B.D.H. is administered parenterally either by injection or intravenous drip. Intramuscular or deep subcutaneous injection is the general route and is generally free from pain even with repeated injections. No phlebitis is reported from large doses by intravenous drip. The intravenous injection of a concentrated solution is not recommended. Peak serum levels after intramuscular injection are obtained in about 30 minutes and good levels maintained for 6 to 8 hours.

DOSAGE: A chart for the purpose of calculating dosage is included in the package. Cephaloridine dosage of 20 mg/Kg/day will kill gram-positive organisms and infections due to gram-negative organisms and mixed infections will usually respond to 40 mg/Kg/day. Higher dosages have been used and in severe infections of unknown aetiology, subacute bacterial endocarditis, septicaemia, post operative infections, osteomyelitis and peritonitis, as much as 100 mg/Kg/day have been given. As clinical experience with high dosage is limited, it is probably unwise to exceed 6 grams daily in adults, and the patient should be carefully watched for side effects.

PRECAUTIONS AND CONTRAINDICATIONS: Since human experience with Cephaloridine is limited it should not be used in women of child bearing age unless, in the judgment of the clinician it is essential to the welfare of the patient.

Renal function tests, coagulation studies, routine leucocyte and platelet counts should be made during therapy. Renal function and cephaloridine levels should be carefully watched when used in patients with renal impairment. Cephaloridine is inactive against protozoa, helminths, fungi including Candida albicans. Proteus species with the exception of Proteus mirabilis, Brucella abortus and Ps. pyocyanea are insensitive to cephaloridine and it has low activity against M. tuberculosis. Strains of Streptococcus faecalis and Aerobacter aerogenes vary in sensitivity. Generally, organisms which develop resistance to other antibiotics retain sensitivity to Cephaloridine B.D.H. so that penicillin-resistant staphylococci are usually sensitive to Cephaloridine B.D.H.

SIDE EFFECTS AND TOXICITY: Dosages of 6 Gm. of Cephaloridine B.D.H. daily may produce hyaline and granular casts in the urine less commonly accompanied by proteinuria without renal dysfunction. These are reversible with cessation of therapy. Rare reports have been received of temporary neutropenia and agranulocytosis and of a transient rise in S.G.O.T. Skin rashes have occurred though patients hypersensitive to penicillin usually tolerate the drug well. Renal disturbances with high dosage or in patients with kidney dysfunction have occurred.

HOW SUPPLIED: Cephaloridine B.D.H. is issued in vials containing 250 mg., 500 mg., and 1 gram of Cephaloridine in boxes of 5.



Around the Willow Tree...

Serendipity often uncovers a host of fascinating items of knowledge, useless though some of them may be at the time; but later, who knows? For example, now is the season of travel and the following titbit may be welcome for professional or other reasons. The word TICKLISH may be phonetically translated thus:

- French Sha-too-dee
- Italian So-letti-co
- Spanish Cos-qui-lloso
- Portuguese Co-ce-guento
- Russian Lus-ko-tuch
- Chinese Ni-papu-py-yan
- Hebrew S'chake
- German) Kitzel
- Yiddish)

(*Canadian Podiatrist*, Vol. 7, p. 10, April 1970:

L. H. Hurwitz)

*

An interesting musical twist to pharmacology: music is considered to be the "safest 'drug'" according to a recent journal which almost certainly won't reach many doctors' desks. The reason for the merit of music is that "you need not be afraid to be as daring as your imagination allows". It seems that the writer was being more honest in his choice of title than many of us would be: it was "The CRYPTIC message of music".

(*J. Music Therapy*, Vol. 1, 1964: J. Cody)

*

In this age of jogging the pedometer has some value. Having taken the equivalent of a training program for the marathon in the past week, by walking up and down the corridors of the newest hospital in Canada, I consider it timely to mention the following statistics. The feet of surgical interns at the University of Michigan Medical Centre were recently used to assess daily work loads. The results: the average daily distance walked ranged from 3.9 to 7.8 miles, the shortest distance was 1.5 miles, while the longest was 12. Of course one

could extend measurements of this kind to many of the physician's activities, both on and off the golf course. (*Canad. Podiatrist*, Vol. 7, p. 7, April 1970)

*

The only time a fisherman tells the truth is when he calls another fisherman a liar.

*

Man is proving that he can live in outer space and at the bottom of the sea. Now all that remains is for him to manage to live in the area in between.

*

Television is an appliance which changes children from irresistible forces into immovable objects.

*

Did you know that mortality due to heart failure can be a serious economic burden in broiler chickens reared at high altitudes? No? Well it seems that they are unfortunate enough to suffer from acute hemorrhagic myocarditis in rarified regions (*Avian Diseases*, Vol. 12, p. 75, 1968: S. A. Hall and N. Machicoo). Chickens certainly have their troubles: this reminds me of the recent development of a variety of chicken which is featherless! But the idea that energy normally directed towards growing feathers would thereby be made available for other purposes was wrong: the chickens found it cold and used up their energy in keeping warm. And man's use of DDT has led to the development, through an abnormal effect on calcium metabolism, of a bird's egg sans shell.

*

The daughter of a minister belonging to a strict religious order stayed out late one night, incurring thereby her father's wrath. He greeted her next morning rather coldly: "Good morning, you daughter of Satan." Innocently she replied, "Good morning, Father".

*

He who has health, has hope; and he who has hope, has everything. —*Arabian Proverb* □

NOVA SCOTIA DIET MANUAL 4th Edition

The first Diet Manual was produced by the Department of Public Health in 1954 and its main purpose was to provide a standard for diet therapy and nutrition teaching in this Province. It was based on the concept of "normal nutrition" and the material was in keeping with Nova Scotia diet patterns.

The fourth edition was recently published in order to keep the information current and to include new material on "Hereditary Metabolic Defects".

The Nutrition Division of this Department has pioneered progress in the field of Public Health Nutrition. At the present time we have a Public Health Nutritionist in each of our Health Units throughout the Province and our program of nutrition education includes nutrition counselling to fit a "prescribed diet" into the home situation. These services to patients on discharge from hospital or to individuals referred from the Doctor's office have been very well received.

We hope this new edition which has been distributed to physicians and will be available in general hospitals will meet the considerable need which exists for information of this type. We hope this effort will be reflected in better health for Nova Scotians. □

D. G. McCURDY, M.D., D.P.H.,
Administrator,
Consultation Services

MEDICAL AND BIOLOGICAL ENGINEERING CONFERENCE

The Third Canadian Medical and Biological Engineering Conference will be held in Halifax between September 9-11, 1970. The tentative program includes consideration of Computing Systems, Vessel Dynamics, Prosthetics, Telemetry, and other measurement techniques. The conference will be based at Hotel Nova Scotian, Halifax, and is to be sponsored by the Canadian Medical and Biological Engineering Society. Further information may be obtained from: Conference Secretariat, Nova Scotia Technical College, P.O. Box 1000, Halifax, N.S. □

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**PROPOSED OUTLINE FOR SHORT COURSES
FALL 1970 — SPRING 1971**

September 18, 19, 1970	Family Life
October 9, 10	Royal College, Charlottetown
October 16, 17	Clinical Bio-chemistry
October 23, 24	Radiology
November 23-26	Dalhousie Refresher Course
February 23, 24, 1971	Stroke — Neurology and Neurosurgery
March 2, 3	Gastroenterology
March 18, 19	Paediatrics
April 16, 17	Obstetrics and Gynecology
April 23, 24	Rectal Surgery
April 26-30	Anaesthesia

For further inquiries write:
Division of Continuing Medical Education,
Dalhousie University,
Sir Charles Tupper Medical Building,
Halifax, N.S.

NOTICE

Blazer Crests for Members of The Medical
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Medical Society Office. Order soon.

117th Annual Meeting - 6th Meeting of Council

44th DALHOUSIE REFRESHER COURSE

November 23, 24, 25, 26, 27 & 28, 1970

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