

NINTH ANNUAL REPORT OF THE VICTORIAN CYTOLOGY (GYNAECOLOGICAL)

SERVICE FOR THE YEAR ENDED, 30th JUNE, 1974.

As the end of the first decade of activity approaches, preparations are being made to analyse in detail the activities of the cytology service during this first ten years. This analysis will be aided, indeed made possible, by the storage of all relevant data on electro-magnetic tape in a form that is amenable to computer assessment. Already information of great interest is emerging and it may be predicted with considerable confidence that the existence of the cytology service will be more than justified by the results achieved.

DIAGNOSTIC ACTIVITIES

From July 1st, 1973 to June 30th, 1974, 190,619 smears were examined. This number of specimens represents an increase of approximately 8% on the figure for the previous financial year and brings the total number of smears examined since the inception of the service in January, 1965 to 1,157,465. The specimens are received from approximately 2500 medical practitioners who are currently registered with the service.

In the financial year under discussion major abnormalities were detected in 559 patients, this bringing the total number of major abnormalities detected since the commencement of activities to 3683. The term "major abnormalities" refers to cases of severe dysplasia and carcinoma in situ, conditions which are believed to immediately precede the development of invasive cancer, and all cases of invasive or established cancer. It must also be stressed that these figures refer to individual patients and not numbers of specimens, since several specimens may be received from the one patient, particularly one in whom abnormalities have been detected.

FINANCIAL

Once again the service has experienced both an increased work-load and an increase in expenditure. The total maintenance expenditure for the financial year 1973/74 was \$260,532, this representing an increase of \$53,649, or approximately 26% on the previous year. The major component of this increase was again wages, the costs in this area rising from \$137,854 to \$175,220. This 27% increase resulted almost entirely from increases under determinations of various Wages Boards and a National Wage increase.

It is of interest to examine what has been achieved for the amount of money expended.

Since the inception of the service, the total expenditure on maintenance (i.e. excluding capital costs) has been \$1,329,117, and as indicated above, the number of specimens examined in this period is 1,157,465. On this basis the cost per specimen examined has averaged \$1.14.

Similarly, as 3683 major abnormalities have been detected in this period, the cost per major abnormality detected has been approximately \$361. This compares more than favourably with the cost of treating a case of advanced carcinoma requiring, as it does, radiotherapy and major surgery, prolonged hospitalization for primary treatment, and frequently re-admission for the treatment of recurrent malignancy. One must also take into account the very important, but less tangible, factors such as the lessening of suffering and the prevention of the death of a woman, often young, and frequently the mother of a young family. In addition, one must take heed of the many by-products of a screening programme, particularly the benefits of regular examination with resultant detection and treatment of non-malignant gynaecological disorders and lesions of other systems.

It could be argued that it is not entirely legitimate to exclude the capital costs of building and equipment but it is difficult to allow for such factors as depreciation. Certainly the equipment used in the diagnostic work is largely restricted to microscopes and these have a comparatively long and trouble-free life.

The average cost per smear of \$1.14 is also of interest particularly as the current "most common fee" is \$7. Some of the reasons for this relatively low cost per smear can be seen from the following tables.

V.C.(G.)S. JANUARY 1st, 1965 - JUNE 30th, 1974

Details of Costs

| Period | No. of Smears | Expenditure | Average Salary per Staff Member | Salary Cost per Smear | Service & Materials | Total Cost per Smear |
|--------------------------------|---------------|-------------|---------------------------------|-----------------------|---------------------|----------------------|
| Jan. 1st, 1965-June 30th, 1965 | 4,928 | \$24,068 | \$1,725 | \$1.70 | -\$3.18 | \$4.88 |
| <u>Financial Years</u> | | | | | | |
| 1965-66 | 65,859 | \$76,659 | \$1,725 | \$0.56 | \$0.60 | \$1.16 |
| 1966-67 | 95,336 | \$81,314 | \$1,515 | \$0.51 | \$0.34 | \$0.85 |
| 1967-68 | 98,108 | \$101,689 | \$1,881 | \$0.61 | \$0.43 | \$1.04 |
| 1968-69 | 107,794 | \$108,355 | \$1,965 | \$0.60 | \$0.40 | \$1.00 |
| 1969-70 | 124,857 | \$132,822 | \$2,138 | \$0.67 | \$0.39 | \$1.06 |
| 1970-71 | 137,717 | \$156,314 | \$3,018 | \$0.77 | \$0.37 | \$1.14 |
| 1971-72 | 154,884 | \$180,481 | \$3,574 | \$0.76 | \$0.41 | \$1.17 |
| 1972-73 | 176,963 | \$206,883 | \$3,517 | \$0.78 | \$0.39 | \$1.17 |
| 1973-74 | 190,619 | \$260,532 | \$4,616 | \$0.92 | \$0.45 | \$1.37 |

The initial period from January to June, 1965, was devoted to organization and staff training and hence realistic costing is impossible for this period. An examination of the figures for subsequent financial years shows that, despite a three-fold increase in the average salary, the salary cost per smear has risen by approximately 50% only. The reason for this economy is shown by an analysis of staff efficiency. A measure of such efficiency is the average number of smears processed per staff member, all technical and clerical staff being included in the calculation.

V.C.(G).S. JANUARY, 1st, 1965 - JUNE 30th, 1974

| Period | No. of Smears Examined | STAFF EFFICIENCY | |
|-------------------|------------------------|-----------------------------------|------------------------------------|
| | | Full-time or F/T Equivalent Staff | Efficiency Smears per Staff Member |
| Inception to 1966 | 70,787 | 27 | 2,622 |
| 1966-67 | 95,336 | 32 | 2,979 |
| 1967-68 | 98,108 | 32 | 3,066 |
| 1968-69 | 107,794 | 33 | 3,266 |
| 1969-70 | 124,857 | 39 | 3,201 |
| 1970-71 | 137,717 | 35 | 3,935 |
| 1971-72 | 154,884 | 33 | 4,693 |
| 1972-73 | 176,963 | 38 | 4,657 |
| 1973-74 | 190,619 | 38 | 5,016 |

On this basis it would appear that staff efficiency has approximately doubled since the inception of the service. Nevertheless the rapid escalation of salaries is beginning to have some impact as evidenced by the sharp rise in the salary cost per smear over the past two financial years. This trend will be accelerated as staff efficiency reaches its' peak whilst salaries continue to rise. It may be possible to further increase staff efficiency by automating many of the clerical procedures. In the next financial year recommendations will be made for the purchase of equipment which should increase efficiency in the clerical area. This may lead to a reduction in the number of clerical staff necessary or, at least, will allow an expansion of activities without further staff being employed.

The "service and materials cost" comprises the cost of materials supplied to the medical practitioners, laboratory supplies, postage, and indeed all the costs of running the service with the exception of technical and clerical staff salaries. Here can be seen a remarkable stabilization of cost despite the massive inflation that has occurred in the community. This stabilization can be attributed to efficient management and the economy of bulk buying.

STAFFING

(a) Medical Staff

In the last annual report the resignation of Dr. A.S. Bodey was recorded. In September, 1973, Dr. R. Barua joined the Department of Anatomical Pathology, Prince Henry's Hospital, as a Senior Specialist Pathologist, and in this capacity he was seconded half-time to assist with the diagnostic activities of the V.C.(G).S.

In December, 1973, Dr. H.D.P. Thomson resigned after five years association with the service. Dr. Thomson was Deputy Director of Prince Henry's Hospital Department of Anatomical Pathology and also Deputy Director of the V.C.(G).S., being seconded quarter-time to this latter position. In January, 1974, the vacancy created by Dr. Thomson's resignation was filled by Dr. J.P. Dowling.

The medical staffing of the V.C.(G).S. continues to be a cause for considerable concern. There appears to be a world-wide shortage of Anatomical Pathologists and a critical shortage of Anatomical Pathologists who are interested, experienced, and skilled in the techniques of diagnostic cytology. Dr. Thomson was such a pathologist and his resignation represents a major loss to the V.C.(G).S. Every effort must continue to be made to reduce the vulnerability of the service as regards its' medical staffing.

(b) Technical and Clerical Staff

The stability of the technical staff, in particular, is a major source of gratification. The increased staff efficiency, as discussed above, can be attributed largely to this stability. The stability is itself due in no small measure to the association of the service with a vigorous teaching programme and to other activities such as involvement in World Health Organization projects. Such activities do much to maintain the enthusiasm, interest and technical competence of all staff members. The group of married women who work on a part-time basis continue to make a most valuable contribution to the diagnostic work, as do all the full-time cyto-technologists. Particular mention must be made of Mr. E. Wilson, the Laboratory Manager, and Mrs. W.M. Swaffield, the Senior Cytotechnologist, whose enthusiasm, interest and skill have played a major role in the development of the service.

At June 30th, 1974 the following staff was employed:

Technical Staff

Full-time

One (1) Laboratory Manager
Two (2) Senior Cytotechnologists
Three (3) Cytotechnologists
Three (3) Trainee Cytotechnologists.

Part-time

Two (2) Senior Cytotechnologists
Twenty-three (23) Screeners
Two (2) Preparation Technicians

Clerical Staff

One (1) Secretary

One (1) Clerical Supervisor

One (1) Medical Record Librarian

Nine (9) Typist/Clerks

Two (2) Key Punch Operators

TEACHING AND EDUCATIONAL ACTIVITIES

A vigorous teaching programme is being maintained. Senior staff of the service, in association with those of Prince Henry's Hospital Cytology Department, continue to run two courses in conjunction with the Royal Melbourne Institute of Technology. These courses, Clinical Cytology i and Clinical Cytology ii have been introduced into the programme of study for the Diploma of Medical Laboratory Technology. Thus it is now possible for students to gain this qualification "majoring" in cytotechnology. The availability of a formal qualification for cytotechnologists will provide a great stimulus to those contemplating this type of work and should assist with the future staffing of laboratories such as those of the V.C.(G).S.

The service continues to assist with World Health Organization activities. During October and November, the Director, Dr. Michael Drake, visited Burma, India, and Indonesia as a W.H.O. short-term consultant. The primary aim of this assignment was to advise the Government of Burma on cancer control measures and, in particular, on the establishment of laboratory facilities for cytology and gynaecological pathology. In Indonesia and Southern India, contact was renewed with pathologists and technologists trained in the laboratories of the service and the progress of their cytology programmes was reviewed.

During the latter part of 1973 Dr. Loh Min Choo, W.H.O. Fellow from Kandang Kerbau Hospital, Singapore, spent two months studying diagnostic cytology within our laboratories.

The previous annual report referred to preparations being made for an International Tutorial on Clinical Cytology. This tutorial was held in Melbourne in August, 1973, being sponsored by the International Academy of Cytology in collaboration with the Australian and New Zealand Societies of Cytology. The Director of the V.C.(G).S. acted as the local course director and several senior staff members assisted with the organization of the tutorial. The tutorial was conducted over a period of one week, an overseas faculty of twenty international authorities on cytopathology combining with a local faculty of eleven to present a series of lectures and microscopy workshops. The tutorial was attended by approximately 200 pathologists and senior technologists including nine technologists from the V.C.(G).S. All who attended gained a great deal from the week's activities. At the end of the tutorial an examination was held for the international qualification, the Certificate of Cytotechnology of the International Academy of Cytology - the C.T.(I.A.C.). All nine technologists of the V.C.(G).S. who attended the tutorial and sat the examination were successful.

ASSISTANCE FROM OTHER ORGANIZATIONS

We again record our appreciation of the continuing activities of the Anti-Cancer Council of Victoria in the field of public education, particularly as it relates to cytological screening for cervical cancer. There is no doubt that the educational programme of the Council has done much to ensure the continued support of the V.C.(G).S., both by members of the Medical Profession and by the women of Victoria.

We also continue to be deeply indebted to the members of the Floral Group of the Prince Henry's Hospital Auxiliaries who pack all the kits of materials that are sent to the medical practitioners who use the service. This work, which is carried out regularly, reliably and unobtrusively, makes a very real contribution indeed to the work of the service.

ACHIEVEMENTS

As indicated in the opening paragraph of this report, a detailed analysis of the activities of the first decade of operation of the V.C.(G).S. will be made in 1975. Already, however, there are indications that the ultimate objective of the service, namely the saving of life, is being realized.

At the outset it must be emphasized that it is still too early to expect a major impact on the cervical cancer death rate. In particular, the detection and treatment of pre-invasive carcinoma, or carcinoma in situ, will not influence the mortality rate for many years. This is so since the average time it takes a case of in situ carcinoma to progress to invasive cancer is generally accepted to be ten years whilst a further five years usually elapses between the time of diagnosis of an invasive lesion and death in those cases with a fatal outcome. However, one of the earliest benefits of cytological screening programme is that those cases of invasive cancer that do occur are detected in the earlier stages of development, the more advanced stages becoming uncommon. This earlier diagnosis can be expected to have a fairly rapid effect on the death rate.

The data that follows is derived from figures supplied by the Commonwealth Bureau of Census and Statistics and we are most grateful for this assistance. All the mortality rates are expressed as deaths per 100,000 total female population and all figures have been standardised for population variance. The standard population chosen was a composite of the average population in each age group in the State of Victoria over the years 1961 to 1973.

In addition, five year moving averages have been used in order to demonstrate the presence of any trends in the data. Bearing these facts in mind, the following figures are submitted for consideration.

Mortality Rates for Carcinoma of the Cervix in Victoria
5 year moving averages/100,000 total Female Population.

| | |
|------|------|
| 1965 | 7.08 |
| 1966 | 7.04 |
| 1967 | 6.86 |
| 1968 | 6.73 |
| 1969 | 6.71 |
| 1970 | 6.65 |
| 1971 | 6.27 |
| 1972 | 6.23 |
| 1973 | 6.19 |

These overall mortality rates indicate that Victoria appears to have a declining mortality rate although the magnitude of this decline is slight and of dubious significance.

At first sight the mortality rates are somewhat disappointing. However, in order to appreciate their true significance, the degree to which the female population of Victoria has been screened cytologically, particularly as regards age, must be taken into account. This population coverage is shown in the next table. The number of women tested in each age group is taken from the records for 1965-1972 inclusive. These are matched against the maximum number of women in each age group for any one year over the same period. As the maximum figures in each age group is used, it seems reasonable to state that the percentage coverage claimed is the minimum and could well be higher.

V.C.(G.)S. 1965-72

COVERAGE OF POPULATION

| Patient's Ages | No. Screened | Percentage of |
|----------------|--------------|--------------------|
| | | Age Group Screened |
| | | % |
| 15 - 19 | 12,452 | 8.14 |
| 20 - 24 | 78,716 | 52.82 |
| 25 - 29 | 94,318 | 70.92 |
| 30 - 34 | 81,422 | 74.20 |
| 35 - 39 | 69,451 | 66.60 |
| 40 - 44 | 66,451 | 62.06 |
| 45 - 49 | 55,150 | 52.10 |
| 50 - 54 | 34,841 | 37.61 |
| 55 - 59 | 19,025 | 22.96 |
| 60 - 64 | 10,783 | 15.14 |
| 65 - 69 | 5,969 | 10.34 |
| 70 and over | 4,996 | 4.22 |

It can be seen from this table that the main segment of the population screened to date is the 20 - 50 year old group. With this in mind it is of interest to study the mortality rates for Victoria in two categories, those for women between the ages of 20 and 49 and those for women 50 years and over

Mortality Rates for Carcinoma of the Cervix in Victoria
5 year moving averages/100,000 total female population.

| | 20 - 49 years | 50+ years |
|------|---------------|-----------|
| 1965 | 5.17 | 21.10 |
| 1966 | 4.87 | 21.43 |
| 1967 | 4.72 | 20.94 |
| 1968 | 4.50 | 20.74 |
| 1969 | 4.41 | 20.81 |
| 1970 | 4.09 | 21.05 |
| 1971 | 3.69 | 20.16 |
| 1972 | 3.59 | 20.09 |
| 1973 | 3.01 | 20.87 |

It can now be seen that there does appear to be a downward trend in the mortality rates for women between the ages of 20 and 49 years, the group that we would expect to influence initially. Conversely the mortality rates for women over the age of 50 shows no significant alteration. Finally, it is of interest to examine the mortality rates prior to the introduction of mass cytological screening and compare them with more recent rates. Reliable mortality data for carcinoma of the cervix in Victoria is available from 1961 on and hence the years 1961-1965 inclusive can be used as the "pre-cytology" years. The figures from these years can be matched against the most recent five years, i.e. 1969-1973 inclusive.

5 year Average Cervical Cancer Mortality Rates/100,000 Females

| Age Groups | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1961-65 inc. | 2.07 | 4.94 | 12.26 | 12.75 | 17.66 | 13.11 | 19.31 | 22.01 |
| 1969-73 inc. | 1.12 | 2.40 | 6.09 | 8.75 | 17.47 | 15.14 | 18.35 | 22.93 |

It would appear that the mortality for carcinoma of the uterine cervix has declined by 50% in the female population aged between 30 and 44 years and by approximately 30% in those women aged between 45 and 49 years.

CONCLUSION

As we approach the end of the first decade of activity of the V.C.(G).S. we can look with considerable satisfaction on what has been achieved. An efficient and economic organization has been established to provide cytological screening for the women of Victoria and this screening programme is receiving the support and co-operation of the women themselves and of the medical practitioners throughout the State. Well over one million specimens have been examined and the activities of the service continue to grow from year to year. Whilst it is too early to expect a major impact on the death rate for cervical cancer, there does appear to be a most encouraging trend. The indications are that the service has already made a significant step towards the realization of its' primary objective, namely the prevention of death due to cervical cancer amongst the women of Victoria.