TOWARDS A NATIONAL BREAST SCREENING PROGRAMME FOR NEW ZEALAND

ELIZABETH BANG

Churchill Fellow 1994
TOWARDS A NATIONAL
BREAST SCREENING
PROGRAMME
FOR NEW ZEALAND

A Report to the
Winston Churchill Memorial Trust
on a Study Tour of Breast Screening Centres
in the United Kingdom, Europe
and Australia.

by
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PREFACE
This report was made possible because the author was fortunate to be awarded a Churchill Fellowship for 1994. The study was related to breast screening and was undertaken in the United Kingdom, Sweden, Luxembourg and Australia. The study tour took some eight weeks and a number of centres were visited and observations made and discussions held with key personnel in each centre. The author is grateful to all those who so willingly undertook to share their knowledge and experience.

There can be little doubt that the recently announced New Zealand National Screening Programme can, (and should) learn from the experiences in other countries, and this report may assist in avoiding some of the pitfalls which have been experienced elsewhere. At the same time, the shortcuts which have evolved by others can assist in saving time and money and thus be of benefit to the women of New Zealand who stand to gain from the introduction of the National Programme.

The author wishes to record her grateful thanks to the Winston Churchill Memorial Trust without whose support the study tour could not have been completed. Other organisations also supported the study and the author also thanks the Otago Branch of the Cancer Society and the Cancer Auxiliary, the Australasian Patient Information Trust, GE Electrical Ltd, and Healthcare Otago who all encouraged the author in many ways and enabled the study to proceed.

Dunedin
August 1995
INTRODUCTION

In 1988 the Government of New Zealand set up a working group chaired by Professor D.C.G. Skegg to investigate and make recommendations on mammographic screening in New Zealand. In its report the group indicated that there was good evidence to suggest that mammographic screening could reduce mortality from breast cancer in women over 50.\(^1\) As a result, in 1990, the New Zealand Government set up two breast screening pilot programmes, one in the Otago-Southland region covering an area from south of the Waitaki River to Stewart Island, the other in Waikato covering a large tract of the central North Island.

In both the pilots, the screening population was about 20,000 women in the age-range 50 to 64 years. Overseas studies had shown that this was the age-range which would benefit most from a population-based screening programme and, accordingly, it was recommended by the Working Group. Women were to be invited to come to the programme for free mammography and follow-up where necessary. Attendance was to be wither at the fixed units based in the major population centres or, in the smaller communities and country areas, at a mobile screening mammography unit. It was considered that a multi-disciplinary team approach, using two-view mammography taken on a two-yearly screening cycle, based on the Swedish model, was the most appropriate option for New Zealand. Women should be able to leave the programme knowing that they did not have cancer or, should a cancer be found, having received appropriate treatment with inputs from radiology, surgery and radiotherapy services. It was envisaged that screening should encourage conservative surgery as any cancers detected would, of necessity, be small and women would not, on the whole, require mastectomy and prolonged chemotherapy.

The government was interested in the viability of a national breast screening programme for New Zealand, and established each pilot to measure the accessibility of the programme, its acceptability by those to whom it was directed, and the costs and benefits of operating such a programme. Women were to be screened in the two-yearly screening cycle at no cost to them. This general approach meant that the results of the two programmes would be comparable although regional differences might also be detected. Other information to be produced and evaluated by the pilots was how best to identify and invite eligible women and what staff training would be necessary for a successful national programme.

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Although the manager of each programme had a reasonably free hand to introduce measures and innovations which suited local conditions, both sought to make information freely available to the other, and to co-operate to the greatest extent possible.

The notions behind the setting up of a screening programme are related to the extension of life-expectancy, the improvement of quality of life, and the potential for such a screening programme to conserve the health budget by making low-cost appraisals of the onset of breast cancer, rather than face the high cost of treatment when the disease has advanced to a point where it is difficult or impossible to treat successfully in a conservative manner.

An independent evaluation team from the Hugh Adams Epidemiology Centre at the University of Otago was contracted to monitor and assess both programmes. Targets for all aspects of the programmes were devised using overseas experience and information and were discussed with the staff in both pilot programmes.

Over the period since the pilot programmes were established, results have been monitored to see whether or not the programmes were achieving a reasonable degree of success, and to establish whether or not the programmes’ objectives had been fulfilled. As a result of the success of the two pilot programmes, the government has recently announced its intention to establish a national breast screening programme. This follows the trends in the United Kingdom, Sweden and Australia as well as a number of European countries.

It seemed to the author, that there were lessons to be learned by studying a selection of these programmes and, having been successful in an application for a Churchill Fellowship, a programme of study was undertaken during a nine-week period covering the period from September to November 1994. The study began in Sweden where the principal breast screening centre at Falun was visited and observations were made and interviews conducted with key staff.

From Sweden the author travelled to the United Kingdom where centres which were well known for different aspects of breast screening work were visited for observations and discussions. The author was also able to visit Luxembourg which was not in the original proposal put to the Churchill Trust. The author had the good fortune, however, to receive an invitation from the Chief administrator of the programme in that country.

The study programme concluded with a visit to the Australian National Breast Screening headquarters at Canberra.
### TABLE 1
Operating Characteristics of the first screening round of established mammographic screening programmes and targets for the pilot programme

<table>
<thead>
<tr>
<th>Characteristic to be evaluated</th>
<th>RESULTS FROM RANDOMISED TRIALS</th>
<th>HIP</th>
<th>2SC</th>
<th>STK</th>
<th>MAL</th>
<th>EDB</th>
<th>NZ</th>
<th>TARGET</th>
</tr>
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<tbody>
<tr>
<td>Identification of eligible women</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>90</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>Percentage of eligible women participating at first screening</td>
<td></td>
<td>65</td>
<td>89</td>
<td>81</td>
<td>73</td>
<td>61</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td></td>
<td>82</td>
<td>96</td>
<td>86</td>
<td>78</td>
<td>92</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Specificity</td>
<td></td>
<td>?</td>
<td>96</td>
<td>95</td>
<td>97</td>
<td>97</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>Recall Rate</td>
<td></td>
<td>5</td>
<td>1.8</td>
<td>1.5</td>
<td>1.7</td>
<td>3</td>
<td>5-10%</td>
<td></td>
</tr>
<tr>
<td>Biopsy Rate (Percentage of screened women)</td>
<td></td>
<td>3</td>
<td>1.5</td>
<td>?</td>
<td>1.2</td>
<td>1</td>
<td>&lt;2%</td>
<td></td>
</tr>
<tr>
<td>Benign:malignant Ratio of biopsies</td>
<td></td>
<td>4:1</td>
<td>2:1</td>
<td>1:2</td>
<td>0.7:1</td>
<td>2:1</td>
<td>&lt;3:1</td>
<td></td>
</tr>
<tr>
<td>Percentage reduction in mortality</td>
<td></td>
<td>29</td>
<td>31</td>
<td>24</td>
<td>4</td>
<td>20</td>
<td>NA</td>
<td></td>
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Programme:
- HIP  Health Insurance Plan
- 2SC  Swedish Two-Counties
- STK  Stockholm
- EDB  Edinburgh
- MAL  Malmo

BACKGROUND TO BREAST CANCER
Breast cancer is one of the most common forms of cancer among women and each year significant number of women die from the disease. What causes breast cancer is not known and there is no known means of preventing its onset. Advances in treatments including radiotherapy, chemotherapy and hormone therapy have achieved only modest increases in rates of survival largely because the effectiveness of the treatment is directly related to the stage at which the disease is discovered. Often, the patient only presents with symptoms when the disease is advanced to a stage where it is potentially life threatening.

It follows from this, therefore, that if the disease can be detected at an earlier stage, the possibility of preventing deaths from the disease is enhanced. Based on this proposition, other countries, including the United States, the United Kingdom and Sweden have trialled mass breast screening programmes in an effort to see whether such a technique could significantly reduce the number of deaths from breast cancer. The results of such trials show that a reduction in the number of deaths by about 30% is possible, and that a significant number of lives can be prolonged. In addition, the cost-savings inherent in such a programme are significant when compared with the costs of treatment and rehabilitation in cases where the disease is discovered at a later stage.

In New Zealand, the two pilot programmes at Waikato and in Otago-Southland have shown that a mass screening programme for New Zealand could operate successfully and that a significant number of deaths could be prevented. Based on this the Government has announced that it will establish a national programme of mass breast screening for women in the 50 to 64-year age group.

The implementation of such a national programme, however, is not as simple as setting up a trial and it will require the acceptance of a complex set of ideas and techniques before a successful programme can be established. Fortunately, the programmes in the United Kingdom and Sweden are sufficiently well advanced that they can provide a model for the implementation of a successful mass programme in New Zealand. There are pitfalls, however, and there is a need to be watchful lest we fall into error by accepting without question what has been done elsewhere. There are also lessons which can be learned, and a study of these and other overseas experiences can be valuable in ensuring that what we do here, is the best that can be achieved.
Breast cancer is the commonest form of cancer in New Zealand women and each year approximately 600 women die from the disease.\(^2\) The disease usually begins in the milk-producing cells of the breast and in the linings of the milk ducts. It progresses in stages but usually starts with malignancy being confined to the duct system. This is followed by an invasive stage when the malignancy spreads to the surrounding tissue. Soon after, the disease can spread to the lymph nodes in the upper body and from there to other sites, to the skeletal structure and vital organs including the liver and brain. These secondary bodies are referred to as metastases.

The rate at which the cancer grows can vary in different people and with different types of breast cancer. Usually, however, there is a period of several years from the onset of the disease before it develops to the point where metastases locate in other sites. The major value of a screening programme, therefore, is that it can detect cancers while they are still localised in the breast where they can be removed or treated before the secondary spread occurs.

The majority of cancers occur in women over 50 and by comparison, very few cancers occur in women in their twenties or early thirties.\(^3\) The incidence of cancer rises with age although studies have shown that vigilance for signs ought to be exercised by women from families with a breast cancer history. These women should ideally be encouraged to increase their breast awareness and to look for signs that may alert them to seek assistance.

The stage at which the breast cancer is diagnosed greatly influences a woman's chance of survival and the earlier the detection can be achieved the greater the chance of successful treatment and survival.

The New Zealand Pilot programmes have shown that 54 per cent of detected breast cancers are less than 1 cm in size. These can be detected only by mammography. This statistic emphasises the importance of mammography screening and lies at the centre of the decision to widen the scope of the current pilot programmes.

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\(^3\) NHS (Britain) Breast Screening Information.
ESTABLISHMENT, DESIGN, AND IMPLEMENTATION OF NATIONAL BREAST SCREENING PROGRAMMES

Design, structure, and key characteristics of breast cancer screening programmes

The establishment of breast screening programmes studies in the United Kingdom and Sweden as well as in Australia and Luxembourg was, in each case, initiated by the government. This government initiative, however, was often prompted by public pressure from women’s lobby groups. Frequently, the degree of pressure increased as the programmes were developed, and more and more women demanded the extension of services to greater and greater geographical areas.

When screening first began in Sweden, for example, pilots programmes were set up in two counties and in each county, two groups were established. The first group consisted of those being screened and covered two thirds of the women invited into the screening programme. The other third became a "control" group. Within two years of the commencement of the programme, the women in each control group began to ask why they were not being screened. At the same time, lobby groups such as Red Cross, Rotary, Round Table, and other women’s groups became very vocal, pointing out that the women who were not being screened were being disadvantaged.

By contrast, pressure in Britain came not only from women’s lobby groups but also from professionals who saw the need for a screening programme as part of the preventive medicine regime. In the United Kingdom, women were canvassed prior to the pilots being established and the information gained from this survey work, together with European experience and statistics, were used in the establishment of the British screening programme. Establishment of programmes was encouraged by both health professionals and by women’s lobby groups. These lobby groups which have become more vocal as the programmes have developed and they have become more informed as to what might be expected from the programme.

During 1994, for example, a television documentary was made largely because of pressure from women in the United Kingdom who felt that surgery for breast cancer was a "lottery". This was because, even at that stage, some areas within the programme still did not have trained breast surgeons. Many women were showing their willingness to travel distances in order to secure the most appropriate treatment or surgery. This documentary was a direct result of the establishment and extension of the breast screening programme.
The establishment of the national breast screening programme was not an easy process. Obstacles in its establishment observed by the English national staff were often related to the lack of work carried out with general practitioners who generally did not see the value of such a breast screening programme. While this attitude has been modified over the time since the establishment of the programme, it is still considered that more work is needed to secure a more universal acceptance by general practitioners.

In this respect, Dr Joan Austoker, in her *Practical Guide for Primary Care Teams* (1990) acknowledges the need to improve the involvement with general practitioners who, in Great Britain, are often used for referral purposes, that is, they are used by the programmes to refer women to surgeons for treatment. Many general practitioners, however, did not receive post-treatment information about their patients and this has led to a lack of enthusiasm for the programme.

In at least one area, a particular effort has been made to improve the relationships with the general practitioners by ensuring that each general practitioner in the area is sent lists of patients eligible to attend the programme, those patients who have attended together with outcomes, the numbers of cancers detected, and the results of treatment after six weeks and again after six months. This has lifted the general practitioners' enthusiasm and resulted in better attendance rates of general practitioner's women from these practices. The programme staff members take an interest in discussing results and they report that general practitioners are now far more willing to have them engage in their practices to encourage their patients to attend the programme.

In Sweden, the results of the two pilot programmes, were instrumental in the recommendations made to the Swedish Government on the subject and the result was that a policy for a national screening programme was developed based on the two-county experience. The extension of the pilots to a national programme was taken step by step, because it was envisaged that each centre should be properly set up and well-established before the next centre's establishment was begun.

Representatives from both the county pilot studies were included in the establishment of the Swedish national programme although no manager was involved. This was seen later as a disadvantage since the programme began initially with solely medical direction. This resulted in an undue emphasis on the medical aspects of breast cancer until it was realised that a manager was capable of drawing the disciplines together to the advantage of the women whose interests could then be more even-handedly represented. A further result was that the programme became more integrated and comprehensive.
The experience of establishing a programme in Luxembourg, however, has been quite different from the experiences elsewhere in the world. It was the pressure for national coverage from various centres and professional bodies which led the government in Luxembourg to establish its programme. This was accomplished by establishing all the 12 centres at the same time and within a very tight time-frame. This is now recognised as a mistake since the establishment problems were compounded because of the multiple centres and lack of careful overall planning. These problems were varied in their nature and impact but perhaps chief among them was the failure of the programme to reach its targets. The problems arose from the fact that there had been little experience to draw on, and that there were few trained personnel to run the 12 local centres established concurrently. This underscores, quite dramatically, the need for a co-ordinated and comprehensive plan to be established prior to the extension of any programme, and for the multi-disciplinary training to be undertaken by those who are to be involved prior to the commencement of a programme in any one centre.

In the United Kingdom a small number of pilots was established to ascertain the parameters for a national programme. Again, the British approach emphasises that when a national programme is established those who have the experience in the pilots ought to be retained as advisers, not only with respect to the establishment of the national programme, but also as on-going advisers on the national committees and organisations which are set up to monitor progress.4

The Vessey Committee5 is the advisory committee to the National United Kingdom Co-ordinator, and she and her staff, in association with this committee, are responsible for setting policies for the National Programme. The outcome has been the establishment of a well-documented set of policies which is reviewed and monitored by the Vessey Committee on a regular basis and is, therefore, kept current.

In addition to the establishment of a sound set of policies to guide national effort, it has been realised universally that if it is to be successful, each local centre programme must be operated by a team of professionals. Originally, policy took 12 to 18 months to develop and it can be expected to take approximately that time as each unit in a programme is opened.

4 Dr. Barbara Thomas, Guildford, pers comm.
5 Dr Martin Vessey, Dr Jocelyn Chamberlain, Dr Barbara Thomas together with Julietta Patnick, the National Co-ordinator, and other members.
The best and most successful approach, is to have each team administered by a manager with experience and expertise in a field related to screening. The manager's primary role and task is to manage the programme rather than be professionally involved in the area of expertise in which the manager is qualified. In saying this, however, it must be noted that the manager must be able to perform professionally from time to time, and it is essential for this person to have an overall general knowledge of all disciplines involved in a screening programme.

The guidelines and standards for the national programmes which were established by reference to the pilots, were applied to all centres to which the programme was extended. Each centre was required to adhere strictly to the national guidelines and standards to ensure that high national outcomes were reached.

By and large, policy approaches focus attention on the women, and provide a means of educating them about breast cancer and what they should expect of the programmes into which they enter. This includes treatment options, standards for personnel within the programmes, and time-frames within which treatment and results can be expected. In 1994, this approach was given further emphasis in the United Kingdom by the production of a women's charter on breast screening. This document allows women to make informed enquiries about their position in relation to the programmes and what they might expect.

On the other hand, specialist centres in radiotherapy and oncology need to be strategically located in order that the most efficient use can be made of the resources available. It is recognised that women may have to travel reasonable distances for treatment sessions and it is accepted that this may require time away from home. This pattern can be recognised in all the countries visited. Staff in several of the larger centres commented on the real need to have centres of excellence in radiotherapy and oncology and studies have shown that women are prepared to travel up to five hours in order to have "the best" treatment. Dr Elizabeth Roberts, of Breast Test Wales in Cardiff, commented on this and said that radiotherapy and oncology services were not required as part of each centre. This sentiment was endorsed by many others.

Quality assurance programmes require high standards of performance by breast screening teams, and provide the standard by which the aspirations of women can be measured. Such programmes are universally established except in Luxembourg where quality assurance measures are only now being formulated. This lack of guidelines relating to quality has meant that the programme has not performed in terms of reasonable outcomes.
and the Luxembourghish principle of trying to correct problems by applying more money to them has not produced the solutions which had been hoped for. Rather, the approach has created further problems.

Policy initiatives commonly stress the need for trained personnel and the team approach in breast cancer screening. As to training, there is a universal insistence on specialised training for the screening programme and it is considered inappropriate that any professional should rely solely on general training in their professional area. For example, radiologists who may be well-trained and experienced in film reading are expected to attend an intensive introductory training course in reading mammograms. Such courses include both theory and practical sessions. Having completed the introductory course, readers are then expected to read a predetermined number of films which are then checked by experts for accuracy. All practitioners are expected to meet the "gold standard". This means that they must reach a high level of competence and those who do not meet this standard are not considered suitable for the breast screening programmes. Once accepted, having reached the high standard required, all radiologists are expected to maintain their skills by means of frequent refresher courses.

This same approach is common to all of the professions involved. Surgeons, for example, are expected to have specialised training in modern techniques of breast surgery and breast conservation and generalists are encouraged not to practice in the breast screening programmes in the United Kingdom, Europe or Australia until they have undergone such specialist training. The general level of practice requires that post-training competence is maintained. It is considered that at least 80 breast cancer patients need to be operated on each year by each surgeon and current discussions are aimed at deciding whether this is an acceptable standard. Joan Austoker, Director of Primary Care Education, University of Oxford, reports that the surgical guidelines and quality assurance measures have resulted in high levels of professional satisfaction among surgeons who were initially the most difficult group to convince but who are now the most enthusiastic about keeping up to date in breast screening work particularly, of course, in terms of surgical techniques and practices.

Each discipline within the breast screening team has a national body to which they can refer, and whose meetings their representatives attend. These bodies are referred to as the "Big 18" in each case, reflecting the fact that there are 14 breast screening regions in the England, together with the three Celtic nations and the private sector. Ireland is represented at these meetings in each discipline by means of an observer. The surgeon's group was initially the hardest to convince that a national group would be beneficial, but
their Big 18 (which actually consists of more than 36 members) is now the most enthusiastic group. This group is presently looking at guidelines for diagnostic women and was responsible for deciding that each surgeon needs to perform 80 breast cancer operations each year. The comment was made that adherence to this standard would "sort out the dabbler".6

Policy development for the programmes evolved over a period of 12 to 18 months and it was recognised early that each new programme would take this long to establish. The process was to appoint staff, beginning usually with the clinician who, in Sweden, traditionally has been the radiologist. Then the manager was appointed. These two then travelled around Sweden gathering information on current trends and familiarising themselves with equipment. Advice was always sought on staff numbers required, the volume of patients which could be expected to be handled, and general views on how the programme would operate.

It is quite evident from the Swedish experience, and Professor Tabar7 stressed the point, that the team approach to breast screening is the best means of ensuring a successful programme. Under this approach, the radiologist, the pathologist, the surgeon, and (usually) the manager meet before and after each operating session to discuss all patients. It is imperative that all three aspects are discussed because the outcome for women is best when this occurs.

It is important that each programme has built in to it, sufficient flexibility to make a range of appropriate decisions. For example, while the author was in Sweden, a young woman (who incidentally, was a medical practitioner) came to the clinic for further investigation. She had come for localisation under ultra-sound. The original ultra-sound had been done elsewhere and Professor Tabar was unable to find the lesion at all. After discussion with the patient and surgeon, the decision was made not to take the matter further especially since the patient was a 28 year-old. She was asked to return for a follow-up ultra-sound six months later when it would be decided whether a further mammogram would be necessary. She was instructed to consult Professor Tabar at any stage if she had further concerns. The message, he stresses from this example, was that the radiologist needs to be well-enough trained to be able to say, "No, it does not need doing".

6 Dr Joan Austoker, pers comm.
7 Professor Tabar is Professor of Radiology and Director of the Breast Screening Centre at Falun, Sweden, and an acknowledged world authority on breast screening.
The two county studies in Sweden used one-view mammography, and when the next two counties became involved it was decided that two-view mammography was the more preferable way to proceed. This has been continued throughout the Swedish programme. The screening programme deals with an age-range from 40 to 70 years and the Swedes would like to extend this to 75 years. There is a two year interval for screening but within that they are happy to screen 40 to 55 year-olds within 18 months, and above the 55 year age group, up to the 24 months.

Screening rates achieved are 80 clients per 8 hour day using two radiographers. This did not appear to cause any undue stress and all patients were treated carefully and appropriately.

In Europe and the United Kingdom, the breast screening programmes achieved such quality outcomes that diagnostic women now attend, and total breast units have been established. This development occurred only after the breast screening units had achieved the level of success which gave the breast screening women a better service than that for the diagnostic women. This led to the merger of the two services when the diagnostic service was required to meet the levels achieved by the breast screening units. At this point the screening units took over the diagnostic serves but the management of the screening units remained the same. Where these mergers have taken place, the extra staff required amount only to minimal clerical additions and some further radiographic staff, bearing in mind that all but one of the units visited had a resident radiologist.

This is the general pattern in Europe and the United Kingdom, Australia is developing in the same way.

In all cases, there is a national co-ordinator and the breast units have their own manager. Usually, the local areas are linked together, and to the national co-ordinator through quality assurance teams or the "Big 18s", (United Kingdom) or the "Q" teams in Australia. There are few linkages with other programmes, other than in the United Kingdom where the National Co-ordinator has been asked to assume co-ordination of the Cervical Screening Programme. This, however, does not amount to a formal linkage between the two programmes but is simply a recognition of the excellence of the breast screening programme and a desire on the part of the central authorities to have the cervical programme perform at the same level of excellence.

Professional personnel who provide services to the Breast Screening programme must be engaged under written contracts and partially seconded from their parent organisations.
In every case the range and scope of the work which is to be carried out by such professionals needs to be clearly documented within the contract with clear lines of accountability drawn. This has been a successful approach observed in all the centres visited.

Each local programme is expected to have its own set of operational documents consisting of a mission statement and a set of goals and objectives. Every person involved in the programme is required to subscribe to this set of documents. These can be negotiated locally but they must, of course, be consistent with the national model. This local set of operational documents should then form the basis of the local training and in-service education programmes.

A Structure for New Zealand

There can be little doubt that if a national breast screening programme is to be successful, it must be centrally organised and directed. National goals and objectives cannot be successfully implemented except by means of a central organisation whose policies and guidelines are agreed at the national level. Such a central organisation need not be large, but it is essential that there be a national co-ordinator, independent from the local programmes and from the local health organisations. While such a person may well be based in the Ministry of Health, there would appear to be more than a reasonable case for that person to be appointed at the Regional Health Authority level although such an appointment would need to be a joint appointment agreed to by the four Regional Health Authorities in New Zealand. The pattern of an independent national co-ordinator is universally the case in the United Kingdom, Europe and Australia and it is one which, based on the success of those programmes, obviously provides the best model for efficiency of operation.

In addition to the National Co-ordinator, there is a need for a national policy advisory committee such as the Vessey Committee in the United Kingdom. This committee is made up from among the staff of local programmes and is thus in a position to advise the national co-ordinator from a practical and operational point of view. Such a committee would need to be established in New Zealand to ensure that standards and procedures represent the best that can be achieved in a New Zealand National Screening Programme. Personnel to serve on such a committee should be drawn from experts in each field from the local programmes because these individuals have the appropriate experience and skills.
Quality Assurance teams ought also to be centrally organised and made responsible to the national co-ordinator. They need to be given the "teeth" to do the tasks required of them without needing to take stock of matters which may be peripheral to breast screening but important to those involved in areas outside the breast screening programme. This detachment ensures the independence necessary to take "hard" decisions when it is necessary to do so.

At the local level the programme may be organised within an existing health oriented organisation to achieve economies. In order to achieve acceptable levels of approach and outcome, however, each local programme must work well with the health organisation with which it is associated. Each programme must be under the control of a manager who will need to be actively involved with all of the disciplines involved in breast screening in order that credibility is maintained. Universally, the manager's task is solely to manage the breast screening programme. Where managers have other duties, there is a blurring of roles, and breast screening objectives are in danger of being compromised. The manager may be assisted by a small team of clerical staff appointed by the programme for the purpose.
PRIVATE SECTOR AND SCREENING

Prior to the establishment of a national screening programme women who needed mammograms had them in the private sector. Private radiologists, however, took mammograms only and were not in a position to offer any further services for services ancillary to screening. Initially, Swedish women preferred to stay in the private sector. The private radiologists, however, did not offer a total screening package and today nearly all Swedish women attend a screening programme and go to recommended surgeons. By contrast the United Kingdom used some private surgeons but few private radiologists.

In the United Kingdom, the screening programmes are operated entirely as part of the public health system, and there is little or no involvement of private practitioners with women participants in the screening programmes (apart from surgeons in some areas). It is entirely due to the pressure of population that in Guildford (and some other centres in England) the approach to the surgical component of the service is made by the general practitioner. The system in these cases is that the woman, once diagnosed, is referred back to her general practitioner who then discusses with her the choice of surgeon to perform the operation required. It is standard procedure, however, that in these cases, the surgeons are almost without exception specifically trained in breast surgery and attend breast screening multi-disciplinary meetings.

The resident breast surgeon in the Guildford programme works full-time with breast surgery patients and carries out about 90% of all breast work in that area. This surgeon is one of those insisting that breast surgeons in this situation should not be included in the "on-call" general surgical rosters in their institutions. This is because they have the time to do so little surgery apart from breast surgery that they feel that their skills in other areas are insufficient to offer the standard of service required. In addition, the pressure on these surgeons caused by their being required to be involved with counselling women with breast cancer is very time-consuming and stressful.

In New Zealand, both pilot programmes have involved the private sector to a greater or lesser extent. In the Waikato programme, radiologists are all either private practitioners only or are private practitioners who are involved in the public sector as well. Radiologists in the Otago-Southland programme are mainly employed in the public sector, but private radiologists from both Christchurch and Dunedin are involved to cover periods of annual leave.
All women in both programmes are given the choice of either a programme surgeon or their private surgeon should they prefer this. In the Otago-Southland Programme, only three women only since 1991 have chosen a private surgeon.

While it is appropriate to offer such choices in terms of surgery, the same is probably not true of pathology. It would appear essential that all pathology be carried out in the same laboratory so that quality and consistency can be maintained.
TRAINING FOR BREAST SCREENING

Training for the Multi-Disciplinary Team

It is universally recognised that personnel who operate within a breast screening programme must be adequately trained prior to the commencement of any programme. This is illustrated by the experience in Luxembourg, where all the screening centres within the programme were established at much the same time and few personnel were trained. Most had no experience in other programmes. The Director of the National Programme in Luxembourg reports that as a consequence they are now experiencing problems and are trying to bring staff up to an acceptable standard especially those in centres which are not performing adequately. His appointment to co-ordinate the whole programme in Luxembourg has been made to achieve this. In order to address the problem, the Director has instituted a system under which the personnel in the Luxembourgish programme are trained in Belgium, and the No 1 reader for the programme in Luxembourg is a Belgian radiologist who also runs training sessions for radiology staff in Luxembourg.

The Training School for the Swedish National Programme was set up at Falun, and all members of the multi-disciplinary screening teams are required to undergo training prior to the commencement of further programmes. This was the case even before the commencement of the first programme when training was given for staff setting up and operating the units.

Breast screening is now recognised, particularly in Europe, as a specialist area and appropriate training, particularly in terms of the team approach, is required accordingly. The Swedes make a charge to the trainees, and this income is set aside to be used by the training schools for the training of those who are, themselves, giving the training. This involves sending the training school staff to courses and conferences, often out of the country, where up-dated information is likely to be available. Typical charges are SK2,000 ($NZ400) per training session for radiographers and SK5,000 ($NZ1,000) for radiologists. This covers two weeks at the training school at Falun as well as the follow-up for which radiographer-trainees return after six-months. Staff from the training school at Falun often go to other centres to check on progress of those who have attended.

In the United Kingdom there are six recognised training schools, These are located at strategic geographic locations in relation to the population but they also owe their existence to the excellence of the service which is offered in the programmes to which they are attached and the extremely high quality of the staff at each centre. These training
centres are at Guildford, Nottingham, Manchester, London (King's College), Cardiff and Edinburgh.

Each of these centres is also a mammography screening centre and, in addition to the funds required to operate for its primary purpose, extra funds are allocated for training. It has become quite evident that the most appropriate and effective training programmes are those which operate within or are associated with a mammography programme. While all practitioners within the programmes may be trained already in their disciplines prior to their commencement with the programme, their theoretical knowledge and experience needs to be extended through the practical training within an operating unit. In fact, each of the training schools in the United Kingdom operates as a breast unit rather than a just a mammography screening programme. This means that the breadth of knowledge necessary for the most effective professional involvement can be made available. It is recognised universally that it is not possible for training in the clinical areas for effective and efficient screening programmes to be undertaken by outside agencies and funds are not made available to such agencies for training. The theory components for radiographers, for example, are often carried out in conjunction with a University. This is the case in Guildford and Nottingham.

In general terms, in the United Kingdom, the costs of training are met by charges made to the trainees, which is also the case in Sweden. Although government funds are allocated for training as well, these do not necessarily cover all costs and it proved necessary to make a charge. In any case, charging for the service probably means that the participants are more likely to "own" the outcomes of the courses and to have an increased commitment to excellence than if courses were provided free of charge. Any "profit" from training is usually re-invested in further training for the trainers, or in updating training facilities.

Australia follows a similar course to that taken in the United Kingdom and Sweden. There, all personnel are required to be specifically trained and the Commonwealth Government takes an interest in the development, trialling, reviewing and evaluation of all training programmes and training materials for use nationally. The Commonwealth Government is involved in facilitating the appropriate training and appraisal of trainers. They also monitor training courses provided at state level and promote these widely throughout the national programme. This is carried out in consultation with appropriate professional groups.
From overseas experience it can be seen that the establishment of a national programme in New Zealand will need to be preceded by the establishment of a training school or schools so that all personnel can be appropriately trained prior to the commencement of the actual work. In some respects this will require to importation of some talents since these are not widely available in New Zealand. In surgery, for example, there are few adequately trained specialist breast surgeons in New Zealand although those who operate in this field currently, undoubtedly provide an appropriate and effective service. The difficulty is that most surgeons who engage in breast surgery have patients referred to them whose cancers have advanced to the stage where they can be palpated. Often this requires radical treatment. In breast screening work, the aim is to detect cancers well before they can be detected clinically and their treatment at this stage is very different. This work requires specialist training and frequently involves conservative treatment not often encountered in the usual run of surgical practice. Overseas, other techniques such as reconstructive surgery, are much more frequently performed as part of the specialist work of breast screening programme than as part of the work of general surgery.

The Multi-Disciplinary Manager
The manager of the breast screening unit, ideally, needs a clinical knowledge in at least one of the health-related disciplines particularly those within the breast screening ambit. The appointment of one of the specialists, however, runs the risk of that speciality being given undue prominence at the expense of the programme as a whole.

In addition to the basic training, the manager ought to have managerial experience particularly within the health disciplines, and specialist training in health management. Such training ought to emphasise the importance of the team approach because in breast screening the real success, universally recognised, arises from the integrated team approach. Where the manager, or any other person within the team sees one of the disciplines as more important than any other, then the chances of real success are diminished as that speciality is given precedence.

Radiographers - Specialist Mammographers
Specialist training for radiographers in breast screening techniques is required to ensure that the best quality of service is delivered. At best, the mammography procedure is uncomfortable and the skilled radiographer must have developed techniques for easing this discomfort. Women coming to a breast screening programme are essentially well women and they need to be treated carefully and sensitively if their confidence in the programme is to be maintained. The screening radiographer, therefore, must use a range
of skills to ensure that women find the experience acceptable with a minimum of anxiety and discomfort.

Training for breast screening radiographers needs to be oriented towards the maximisation of the number of high quality images obtained, and the minimisation of the necessity for repeat examinations. Naturally, the radiographer is the team member who is in the position to provide initial information to those attending the programme. They need, therefore, to be well-informed, not only about their own discipline, but about the programme generally and be able to respond honestly and knowledgeably to clients’ questions. To do this they need to participate actively and fully in the team and its deliberations and activities.

Such attributes suggest a high level of specialist training not only in mammography techniques but also in aspects of sociology and psychology as well as team building and management. This level of training is recognised overseas as being more appropriate at the university level rather than at a more technological level. At Guildford, for example, the radiography training centre is recognised by the university and credits towards university courses are available from the training centre. University staff are involved in the lecture programme for trainees. This programme is available for undergraduate degrees and 1995 will see the introduction of post-graduate credits for masterate degree programmes as well. This pattern is also emerging at Nottingham where negotiations are proceeding between the programme and the University to establish a similar process. King’s College London is also working towards this goal.

It is evident from these overseas examples that the ultimate success of any programme will depend on a close relationship between the local breast unit and the University, and it is instructive that the United Kingdom experience suggests that Polytechnic training is not entirely suitable for breast screening staff, an approach which is given an even stronger point when it is realised that the Polytechnics in the United Kingdom have been degree conferring institutions for some time.

In New Zealand, credits towards further educational qualifications could be gained from either University or Polytechnic Institutions and both should be explored. There is precedent for this in courses such as physiotherapy, for example.

**Radiologists - Skilled Specialists**

In general terms it is recognised that it is fundamental to the success of the screening programme that all staff involved in reading mammograms must have attended a course of
instruction at an approved training centre. This training is followed by period of attachment at a training centre although this need not be the same centre.

Guidelines for radiologists are also available and set objectives for outcome and process. Emphasis is on quality structures and maintaining skill to the highest levels. It has been stressed than unless training in reading screening mammograms is undertaken, there more diagnostic biopsies would need to be performed. This is not helpful to women and unnecessary if proper training in reading is a prerequisite for radiologists in screening programmes. Training needs for radiology are clearly demonstrated in this areas. Double reading of films is recommended in all the centres visited. This is done “blind” and the staff then sort films. Where there is disagreement between readers the group of radiologists usually meet to discuss the process. It is also necessary for a radiologist to have experience with stereotactic biopsy and ultra sound equipment and techniques for use in assessment clinics.

Pathologists - Vital Specialists
Pathologists who are part of the multi-disciplinary team are required to work very closely with the other team members. The designated pathologist is responsible for ensuring that optimum handling of mammographically detected lesions occurs. In general terms pathologists take a vital role as part of the multi-disciplinary meeting at which the radiological, surgical, and pathological aspects are discussed and evaluated for treatment options. This is a universal pattern observable at all centres visited. There is also a universally observable enthusiasm among pathologists, and their contribution to the work of the units is vital to the interests of the women.

Pathologists also require specialist training in screening programme work to ensure that high standards of pathology and cytology are achieved. Training, which also exposes pathologists to the work of the multi-disciplinary team, is usually carried out by association with established screening units and their guidelines have been evolved by the pathologist's professional group. This appears to be the universal practice in the United Kingdom and Europe.

Pathology reporting in Breast Cancer Screening was prepared by the Royal College of Pathologists Working Group in 1989. This document clearly specifies how to classify malignant and non-malignant lesions and also stresses the importance of recording in order that pathology can be audited adequately.
Subsequently, *Guidelines for Pathologists* was developed at a later stage, the terms of reference for which were as follows:

To recommend minimum acceptable standards and provide guidelines and advice on pathological examination of the breast tissues in order to maximise detection of malignant neoplasia and to achieve a high level of accuracy and reproducibility in reporting breast lesions. To consider ways of achieving these objectives and identify resource implications.

*Guidelines for Pathologists*, 2

In the United Kingdom guidelines for cytology procedures and reporting have been written by a sub-group and were published in 1993. Quality assurance is stressed throughout all pathology documents.

**Surgeons**

The greatest degree of success in screening programmes and the best levels of satisfaction for women who needed surgery comes from programmes where there are dedicated and trained breast surgeons rather than general surgeons “with an interest” in breast surgery.  

Professor Jocelyn Chamberlain, of the Royal Marsden Hospital, Surrey, and many of the surgeons interviewed, said that at first it was very difficult to convince surgeons that they required specialist training in breast surgery. The Swedish, and the Australian surgeons would also agree that it has been extremely difficult to convince general surgeons that breast surgery is a specialised area. By involving surgeons in the process, however, and demonstrating by studies to show that mastectomy was **not** the best treatment for small lesions, surgeons were able to be convinced that breast surgery required further specialised training. It is now recognised that palpable lumps do require different techniques from those that are not clinically obvious. As a result, the surgical protocols which were developed were written by those specialising in breast surgery in association with the Royal College of Surgeons. They are now universally accepted. Professor Chamberlain reports that it is the aim of the National Co-ordinator to have a fully trained specialist breast surgeon within every breast unit in the next five years. This aim has been fully accepted and endorsed by the Royal College of Surgeons.

Specialist training in breast surgery will be difficult to achieve in New Zealand, and as indicated earlier, some importation of skills (at least for the purposes of training) may be necessary. Alternatively, New Zealand surgeons wishing to develop specialist skills may

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8 Professor Roger Blarney, Pers comm.
have to train overseas. In general terms, specialist breast surgeons in the United Kingdom have undertaken specific courses in breast surgery work and have then practised alongside existing specialists to improve and develop the appropriate techniques required in this area. Attendance at conferences and short courses, while valuable in themselves are better suited to on-going or in-service education rather than initial training prior to commencement in a breast screening programme.

The breast cancer surgeons group of the British Association of Surgical Oncology has a draft set of guidelines for surgeons involved in symptomatic breast disease in the United Kingdom. This was published in September 1994. Overseas experience shows that where there is a breast cancer screening unit, standards for symptomatic breast disease are raised.

Breast-care Nurses - Counselling Skills

The screening process is designed to take a woman from invitation to diagnosis in a pre-designed programme which is clearly and easily understood by the participants. In the majority of cases there is little anxiety in women attending for mammography other than that related to the physical discomfort of the mammography machine. Where the mammogram shows some abnormality and the woman is invited to return for further screening procedures, the level of anxiety and distress tends to increase. Overseas experience suggests that these women require the services of a well-trained and experienced registered nurse with well-developed counselling skills.

In Britain all counselling is carried out by breast-care nurses who are involved from the time a women is found to have a cancer at the assessment stage. Each unit has one or two such nurses on its staff. Breast-care nurses are specifically trained in this area and the Royal College of Nursing has been involved in setting up, and advising on programmes for such training.

The breast care nurses "Big 18" has developed a set of standards for such personnel. These standards include matters such as professional qualifications, up to date knowledge of treatments, experience, and disposition (which is a vital component). The group developed a system of auditing performance which was implemented during 1993 in order to ensure a high standard of competency at the national level.

By contrast, in Sweden much of the counselling which takes place after surgery, is done in the community using lay people. After surgery, a patient is given the name of a family to visit where a family member has had surgery for breast cancer. These families are
carefully selected. The Swedish equivalent of the New Zealand Cancer Society also helps with the counselling.

In Australia, volunteers, trained by the Cancer Society (and who are usually women who have had breast cancer), are available at assessment clinics and to women when they are diagnosed.

The breast-care nurse must be available at all assessment clinics and for all procedures thereafter. Although often the breast care nurses’ position will not be a full-time one, ideally, and wherever possible, the breast-care nurse ought to engage in other work within easy reach of the mammography unit to maximise availability. The question whether the position is full-time or not, would be eased where the screening unit is part of a larger breast-care unit but in New Zealand volumes of women screened or seen by a breast unit would probably not support a full-time position. Should breast units be established in New Zealand, the breast-care nurse position would, perhaps, require further hours but is unlikely to be full-time.

The breast-care nurse should have the skills to be able to convey to each women adequate information about the screening programme and the investigations, diagnoses and the range of treatment options available. This involves a good knowledge of the programme, its philosophies and expected outcomes as well as a thorough knowledge of breast disease and treatment options. The breast-care nurse must be a skilled counsellor capable of assessing and monitoring women for signs of anxiety and distress and of taking the appropriate interventions or making the appropriate referrals. To do this the nurse should have developed competent counselling skills learned through a comprehensive counselling programme conducted by an appropriate tertiary institution. Such a course would need to have included counselling theory, counselling skills, counselling ethics and to have included substantial periods of supervised clinical practice.

The breast-care nurse in practice must be a member of the integrated team providing specialist advice, education, and support to women and their families as well as being a professional resource for her colleagues and other members of the multi-disciplinary team. She must be constantly accessible to the appropriate staff and clients.

Women benefit most when the breast-care nurse is available with the surgeon since it is established that women do not hear all that they are told by the surgeon and the nurse is then available to reinforce and restate the information given in the session with the surgeon.
Medical Physics and Equipment Maintenance

All equipment used within a breast cancer unit must be of the highest quality since the object is to detect very small cancers. It must also be maintained and checked regularly, and it is usual for a medical physicist to complete such checks and advise on matters to do with machinery within each unit. If equipment is not up to standard, film quality is reduced and detection rates compromised.

The United Kingdom has a National Co-ordinating Centre in Guildford for the physics of mammography. Physicists must be trained to a national standard in the area of equipment maintenance but at present there do not appear to be any specialist courses for physicists engaged in mammography work.

It has been recommended that a physicist be assigned to the programme and adhere to published guidelines set out in *Quality Assurance Guidelines for Medical Physics Services in National Health Service Breast Screening*, August 1994. The physicist should have a position on the quality assurance committee within each programme.

Clerical and Support Staff

The entire staff working in a breast screening unit form a multi-disciplinary team and all staff members, irrespective of the work they carry out, need to be recognised as part of this team. This includes clerical and support staff. The work carried out by this group is vital to the success of the programme because it is they who ensure that invitations are sent out on time, that results sent to women and their general practitioners and that time-frames are appropriately met. Because clerical and support staff have contact with women and with medical practitioners by telephone, it is essential that they have a good overall knowledge of the programme and appropriate telephone and other communications skills.

Clerical staff working on mobiles and working in reception areas are the first point of personal contact for most women attending the unit. Often such staff members, if appropriately trained, can allay anxiety in women and alert the appropriate staff to individual needs. Public relations is, therefore, a large part of these positions and this needs to be recognised in training programmes.

The United Kingdom clerical and support group is in the process of writing policies and guidelines in the appropriate areas and the Nottingham experience of including staff in training has been very successful. The group is also forming its national body and this
has resulted in increased output and better quality of work and involvement in each programme.

In 1994, the Nottingham Unit first included the clerical and support group in their multi-disciplinary training programme. All these staff members attend the two general training days and then move into their own fields for specific training. For example, since good basic computer skills are essential for most clerical staff, there is a need for appropriate training to ensure that basic skill levels are achieved. More advanced skills are also required to ensure data gathering and statistical presentation standards are maintained and enhanced.

The supervising clerical administrator in Nottingham was able to comment that “most clerical workers felt that they worked hard for little recognition”. Training and involvement as part of the team has increased their self-worth. They feel “accepted” and their input into programme systems has increased accordingly.

In-Service Staff Training

It is recognised internationally that on-going staff education and training are essential to successful breast cancer screening. In most breast units, in-service training for day-to-day staff is in the form of study days organised by staff members. They include general topics together with up-dates from members of the team who have attended outside studies seminars and conferences, many of which are financed by the unit.

Most clinical colleges in the United Kingdom have requirements for staff training. Radiographers, for example, are required to attend three specified study days over each three year period. Of these, one must be a theory study and two must be practical workshops. This programme is seen as essential to the maintenance of competency. In all areas the level of competency is kept under review and where necessary adjustments are made in the requirements. The Royal College of Surgeons, for example, is currently reviewing the number of operations its members must carry out to maintain competency. Presently, surgeons must carry out at least 50 breast operations each year, but the College is currently examining whether a better level of competency would be achieved if a greater number were required, and the expected number is likely to be 80 operations.

Training centres in all countries visited are paid for operating training courses. Staff teach as part of their work requirements and are not paid extra for doing so. Once the costs of mounting the courses are defrayed, any “profit” is paid into a fund to assist in “training
the trainers”. Such training may take the form of specific courses, overseas and local conferences and seminars in the field of breast cancer.

Funding for such updates and conferences in New Zealand has often been difficult especially for non-clinical staff but overseas experience suggests very strongly that this is an important area for consideration to ensure that staff are able to maintain and develop skills and be up to date with current trends in breast cancer.

**Funding and Budgeting for the Programme**

In all cases screening programmes are funded from the public purse and usually this is a central government responsibility. In Sweden, however, there is a split between central government and county sources while in Australia the split is between the Commonwealth and State Governments. Sweden also has a private component because the women are expected to pay one-third of the costs of their attendance at the programme. This amounts to SK100 per woman per visit (approximately $NZ20).

The Australian Commonwealth government has recently provided a further $29 million for breast screening and is committed to a policy that all states must run successful programmes.

In Britain the budgeting formula is based on a per-capita sum which is called the "Forrest unit". Under this system £200,000 per annum is allocated for each 43,000 women. This allows 90 women to be screened per day in each centre and one full-time equivalent radiographer per 10,000 eligible women. Whilst this formula is suitable for screening units, the addition of symptomatic women in British units has placed stress on the staffing levels in breast units since no further funding was provided to cope with the added work loads.

In Luxembourg, by contrast, mammography units appear to have unlimited funds supplied by the government but, as noted above, this has led to its own set of problems.

Budgeting for quality assurance is separate in all countries and is provided by the relevant government as part of the total cost of the programme. In the United Kingdom and Sweden this is also the case for training costs which have money set aside for recognised training schools.
EQUIPMENT
The almost universal pattern for each country is that each centre which is established at a strategic location, is supplemented by mobile screening units. In Falun, Sweden, all screening mammograms are performed by the mobile units and the centre is used only for diagnostic women and those requiring assessment as a result of their mammogram taken on the mobiles. These mobiles are equipped with up to date machines and these are replaced at regular intervals. Because Falun is a training centre, and because of the particular experts available, staff there are involved in developing new mammography machines. The latest Siemens machine is in constant use and Professor Tabar was involved in the development and testing of this machine which is not yet on the market.

Of the two machines at the Falun base, one is permanently set up for magnified views and this saves considerable time because the machine does not have to be altered for different tasks. A third older machine at the Falun unit is used for taking detailed views of the hands and feet of rheumatoid arthritis patients. The staff enjoys this alternative work and it provides another field of interest for radiographic staff in the breast screening unit.

In addition to the x-ray machinery, processing equipment of a high standard is required to ensure that excellence in film clarity is achieved. Automatic feeders permit a high through-put of films and also ensure a uniform standard of product. Considerable staff time is saved because of the volume of films processed and the fact that there is little human intervention required once the process is commenced. While mammograms are taken on the mobiles, in both the United Kingdom and in Sweden the films are sent back to base by courier for processing. Some Australian mobiles, on the other hand, include processors as standard equipment. This is useful in areas where distances are too great to send films to the base by courier.

Most of the units visited had 3-minute film processing equipment as well as a combination processor capable of processing in 90 seconds. The combination machine was used heavily on assessment days when speed of processing is considered to be essential. Combination machines can be programmed for a 3-minute or 90-second processing time. Some clinicians contend that the 3-minute process gives a better result and would not use the combination processor or the 90-second programme. Others felt that the 90-second system had advantages in the assessment stage. They also believe that the film quality is just as high as that of the 3-minute processor. Obviously, the ultimate choice in this area depends largely on the preference of the person under whose control the machinery is placed.
In administrative terms both in Europe and the United Kingdom, office machinery is automated wherever possible. Equipment such as letter folding machines saves a considerable amount of staff time and cuts down the needs for clerical staff freeing those employed for more important and interesting work. Computerisation of records is universally practised and in Sweden the fact that every person has an identity card with a unique number speeds the process of identifying women and inviting them into the programmes. This card is also used to identify the film of each woman. As the film is loaded into the cassette the identity card is also loaded in and the information is transferred onto the film. Because of the equipment used and the identity card system, the invitation procedure is totally automated and it takes approximately 15 to 20 minutes for invitations for 1350 women to be processed and sent out each week.

A similar system operates in Britain through the Family Health Service Association. This system means that staff has access to any general practitioner's list. The list of women to be seen is produced and sent to the general practitioner through an electronic link for checking. On the receipt back of the checked list, invitations are sent out, usually between four and eight weeks in advance of the appointment.

In Guildford and Oxford, this system also allows general practitioners to be sent a list of women who have attended six weeks after their attendance and a final list after six months. The final list supplies information on the outcome of the visit and whether the woman has had any treatment as a result. At the end of each year all general practitioners in the area are sent a list of numbers of eligible women in their practices and how many attended. The result of this system has been to encourage general practitioners who may have been reluctant, to support the programme and this has resulted in generally better attendances. Not all screening centres use this method although variations of it are almost universally practised in the United Kingdom.

The filing of patient notes is a universal problem. Often, packets of notes are filed in library-type shelves, but this is wasteful of space and means that those who must have access to them are often required to climb ladders to retrieve them. In some areas overseas, filing systems have been evolved which allow for greater storage with easy access at operator level. In these instances a revolving shelf system is used. These are usually constructed from metal. Such systems are both space saving and convenient and assist in achieving accuracy and speed in storage and retrieval of hard information.

In most centres visited, the need for new equipment is assessed each year as part of the annual budgeting process and capital money is obtained where this is required.
Equipment requirements are discussed by the whole team prior to setting budgets and this exercise forms part of the budget process.
Information Systems

In the United Kingdom there are two computer systems working at present, one is the Oxford system and the other is that developed at Guildford. The Oxford system was set up quickly and was adapted from existing systems. It has not proved successful and a large amount of money has been spent trying to make the system work at an acceptable level. It is apparent that any system put in place for a breast screening programme must be developed for that programme keeping in mind the needs and requirements of the operators of the programme.

As a result of the English experiences, it has been decided that a new national system must be developed, and that this will need to be carried out carefully over time. A national system must be simple, and be devised after consultation with all disciplines, and the resulting system "owned" by the programme so that the user is constantly in control. There must be very good standards of documentation clearly and simply written to accompany the system, and such a standard of documentation must be demanded from the developer. By "owning" the software, this documentation can then move with the programme as necessary.

In some places there is a part-time programmer attached to the programme whose job it is to ensure that the software is capable of providing the level of data and information required, although much of the development of programmes and systems can be done under contract. Data collection, however, must comply with collection protocols for breast screening in order that results are comparable throughout the entire national programme.

Progress towards a national computer base has moved further forward and the United Kingdom programme is seeking tenders for a single computer system for the whole of the United Kingdom. The chief surgeon for the United Kingdom stresses that clinicians must be involved in what should be collected and data forms must be acceptable to all personnel including data entry staff. "Fail safe" mechanisms must be put in place and data must be signed off by clinical staff before it is entered into the computer system. This is essential to ensure that accurate and consistent information is available.

9 National Data Entry Specialist, pers comm.
10 Professor Roger Blamey, pers comm.
PROMOTION OF THE PROGRAMME
There is a universal need to ensure that the target group of women is properly informed of the nature and scope of the service which is offered to them. Without a thorough programme promoting the service, there is a good chance of its being under-utilised and the primary goal unfulfilled.

Promotion and education is no longer a problem in the United Kingdom and Europe where the programmes are now well-established and women are accustomed to attending. In some programmes a public relations or promotion position has been established attached to the unit but it is usually the manager who conducts much of the publicity by speaking when invited to do so, and by actively seeking out groups to whom to speak. This supplements the use of local media for advertising in areas in which a mobile unit is to be located. Often in the United Kingdom and Europe, advertising is carried out on national television. Professor Tabar insists that it is imperative to use television which is virtually the universal medium. In Sweden, as in New Zealand, television coverage is nearly 100% of the populated area of the country.
SERVICE DELIVERY
There is no universal pattern in terms of service delivery and the matter is complicated because in most areas in the United Kingdom and Europe the screening programme forms part of the services offered by breast clinics. These clinics supply a range of services including diagnostic mammography and screening. It has been recognised that the screening programmes were providing a service of excellence and that this should be extended so that diagnostic women could enjoy the same standard of treatment. In most cases staff is rotated through the diagnostic and screening services both at the base centre and on the mobiles and in all cases (except at Sheffield) there was a radiologist on site. This resulted in diagnostic women being able to be assessed on an urgent basis.

New Zealand as noted above, like Sweden, uses a two-view, two-yearly mammography screening system on women between the ages of 50 and 64 in its pilot programmes. This is by no means universal. Sweden, in contrast to New Zealand, is screening women from 40 years to 70 years but the United Kingdom, like the New Zealand pilots, screens 50 to 64 years. In the United Kingdom programmes, screening is carried out three-yearly using two views on the first visit, and oblique views only on the second visit. In Luxembourg the commencing age is 50.

There is some concern being expressed about the United Kingdom system where the "interval cancer" rate is too high. Professor Jocelyn Chamberlain, the epidemiologist assessing interval cancers, in the United Kingdom expressed her concern with the problem of defining "interval cancer". She is of the view that there are currently in Britain, too many definitions of the term and that it needs specific definition for a national programme. The British interval cancer rate is such that it appears to be indicated that the three-year interval between screening is too long and all latest evidence would suggest strongly that two-yearly is more appropriate. Current data collection is aimed, among other things, at identifying the most appropriate interval between screenings. This was often mentioned during the author's visits to centres in the United Kingdom. Obviously, this requires an agreed definition to be used in national data in the computer system, if that system is to be as effective as it ought to be.

Dr Robin Wilson, radiologist, and Professor Roger Blamey, surgeon, both of Nottingham, have advanced the notion of a complete service to the stage where they are contemplating the establishment of a surgical service within the programme by setting up

11 "Interval cancers" are those which appear between screenings. While it is inevitable that cancers will develop in the intervals between screenings, the longer the interval the higher the chance of cancers developing, and the greater the chance of more intensive treatments which may be required.
an operating theatre within the actual screening unit. This has come about because the space in which they work is presently too small and they are obliged to move. The author was invited to attend a management meeting at which this was being discussed and plans to encompass surgical services within the unit are well advanced. There are possibilities that other associated services can share the same theatre facilities.

Most programmes use the model that operates in Sweden. Here the mobiles are used only for taking mammograms and films are sent by courier to the base centre where they are developed and assessed. At the base there is no boundary between diagnosis and treatment because the team meets and discusses all cases. In Sweden this includes both screening and diagnostic women although the two groups do not attend at the same time where it is feasible to separate them.

There is a daily assessment at the Falun centre which is run as a breast unit. Women requiring treatment are sent straight to the surgeon who has discussed the case with the radiologist. Extended follow-up is not practised and, in fact, is frowned upon because it causes too much anxiety among the women. The radiologist and the surgeon are both involved in the initial counselling of the women.
QUALITY ASSURANCE

Quality assurance is of great importance in all aspects of a breast screening programme and strict quality assurance programmes within each discipline are now able to monitor all aspects of screening. The radiation laboratories and physicist involvement with the care of mammographic equipment is essential in order that optimum quality of films is assured. Strict guidelines for equipment and staff are available for all disciplines including clerical staff. These guidelines have all been developed in conjunction with professional staff and their professional bodies and in most cases staff members are extremely enthusiastic about adhering to standards and ensuring that they are maintained.

In 1994 the national co-ordinating group for breast screening physics in the United Kingdom conducted a review of staffing levels for the National Health Service's Breast Screening Programme, and concluded that one whole-time equivalent was the minimum necessary to provide a medical physics service for 15 mammographic X-ray units and associated equipment. This level assumes one equipment survey every six months and an additional visit per set of equipment each year to deal with problems. Bearing in mind the population levels per region in the United Kingdom, such information needs to be carefully assessed for New Zealand conditions.

The standards and guidelines, although prepared, were not always able to be applied because quality assurance teams had not been set up. These teams, which represent the different disciplines within the screening programme, have enabled this to be done. The radiologists, radiographers, pathologists, surgeons, managers and, latterly, clerical staff, from each region meet three times a year through their Big 18s. Funding from the national centre is available and the representatives are expected to report back to their groups in each region.

All statistics relating to quality assurance matters are monitored by the Department of Health Cancer Screening Evaluation Unit based at the Royal Marsden Hospital in Sutton, Surrey. Where there are obvious problems, a quality assurance team visits the centre, discusses problems and causes, suggests solutions and gives the centre a three month period in which to correct the problems. A second visit is made at the end of three months and the outcome checked. Sometimes personnel may be required to undergo further training to reach agreed competency levels. Many personnel commented that the quality assurance teams must have "teeth" and Julietta Patnick, National Co-ordinator in the United Kingdom, strongly argues that properly equipped and authorised quality assurance teams are essential when commencing a national programme if appropriate standards are to be established at the outset and then maintained.
Australia is presently setting up "Q" teams based on the model of the Big 18s (See Appendix A). The Australians have recognised the need for such systems and Lindy Bray of the National Program for the Early Detection of Breast Cancer, Canberra, was able to report the enthusiasm which these groups are generating. They are looking at methods of assessing problems which will be most appropriate and how to deal with them. The vast areas to be covered in Australia make this quality control even more essential. "Q" meetings will be funded from the Commonwealth purse.

The degree of quality is related to the extent to which the care provided is expected to achieve the most favourable balance of risks and benefits. Avedis Donabedian\textsuperscript{12} has suggested that all health services should be considered as being composed of three different components; structure, process and outcome. Dr J A Muir Gray stresses in the \textit{National Health Service's Breast Screening Programme Quality Assurance, General Principles}, that the focus should not always be on the individual but on the system and that this should be revised six-monthly.

In Britain the quality assurance "Big 18", like all these groups, has been established principally for the dissemination of technical information, to maintain and enhance standards of performance and to keep a watching brief on performance to ensure each unit meets quality assurance requirements.

The National Co-ordinator in the United Kingdom, Julietta Patnick, and Jenny Caseldine, the radiography adviser, are both involved in quality assurance protocols and are present and contribute at the Big 18 meetings in all disciplines which ensure national standards are established and met for that discipline.

It cannot be emphasised too strongly that the quality assurance teams visiting units to investigate problem areas need the authority to take the steps to rectify them. It was emphasised that the teams need a back-up from the central co-ordination body and from the professional groups to ensure that standards are maintained and enhanced.

A minor but very important part of the quality assurance programme is the means of keeping all members of all teams informed. In Great Britain this is done though a monthly newsletter. Other countries follow a similar pattern and such a publication should be established within the New Zealand National Programme at an early juncture.

\textsuperscript{12} Exploration in Quality of Assessment and Monitoring * pg 5.
One of the more important aspects of quality assurance is that relating to the machinery in the breast screening units. Often the physicist who undertakes this work is the quality assurance co-ordinator for the individual programme. In some regions in the United Kingdom, the physicist is the regional quality assurance co-ordinator. In Luxembourg, on the other hand, Carlo Back, the physicist for the Ministry is also the director of the programme. In cases where the physicist is not the quality assurance co-ordinator, it is essential that he or she is part of the quality control team.
EVALUATION

In the framework of "Europe Against Cancer" a European approach to mammography screening has been instituted to achieve comparable high quality results for all centres participating in the mammography screening programme. Quality assurance takes into account the three aspects of breast screening, medical, organisational and technical.\textsuperscript{13}

Evaluation is carried out by epidemiologists on a national basis but each programme is evaluated individually by unit staff and is carried out on a continuing basis for quality assurance. The epidemiologists are not encouraged to use the data for purposes other than evaluation.

Most women in Sweden do not have a regular general practitioner, and general practitioners are not involved with the programme. This is apparently because they move locations quite often. Talks have begun into a method of primary health care in Sweden but staff at the unit were unsure of the progress which had been made to date.

At the outset, as noted previously, the Swedish programme was set up with a control group of women who were not screened. This was intended to provide a measure by which the results of the actual screening could be evaluated. In fact, the use of a control group does not appear to be justified given the later experiences in Sweden and elsewhere in Europe and this technique could not be recommended. In any case, there are now sufficient statistics against which to measure the success or otherwise of a programme so that a control group simply disadvantages those who make it up, much as the Swedish women insisted they were being disadvantaged.

Breast screening programme targets in Sweden and in the New Zealand pilot programmes were comparable as were the small-cancer detection rates. If anything, New Zealand has a better small-cancer detection rate. In the United Kingdom, targets and small-cancer detection rates vary from region to region as can be seen in Appendix B. In Luxembourg, targets are being re-assessed along with the quality assurance programme and the need for specially trained personnel.

Evaluation of all aspects of each breast cancer screening unit should be carried out through rigid quality assurance programmes on a day to day basis. Multi-disciplinary management committees should meet regularly and the weekly multi-disciplinary case meeting is essential to evaluate each case in order that the woman involved receives the

\textsuperscript{13} European Guidelines for Mammography Screening. October, 1992.
best possible care. The author was fortunate enough to be able to attend such meetings in most units visited and it was encouraging to see that they all operated along lines very similar to those in the pilot programmes in New Zealand.
OUTCOMES OF THE PROGRAMMES TO DATE

In Sweden, women are identified through a national identification number which ensures a high degree of accuracy in the identification eligible women. Because of this system, the potential coverage is 100% and the result is that, in Sweden, the attendance of invited women is well over 80%. There is great variation in the United Kingdom and acceptance levels range from 60.1% in the north east Thames area to 78.9% in East Anglia. The recall rate is as low as 3% in most areas in Sweden while the biopsy rate is approximately 1.5% of screened women. The benign to malignant rate for biopsies is approximately 2:1. Research has shown, however, that the socio-economic status has some bearing on acceptance levels. Studies have also shown that ethnic group alone does not influence attendance levels as much as area of residence and socio-economic status.14

The question of potential problems arising from ethnicity is high in the minds of most people associated with breast screening programmes on an international basis. In most cases programmes are adjusted to cope with ethnic groups. Where language presents a problem, for example, interpreters are included in the breast screening team. The ways in which adjustments are made, however, is different for different groups. Often this is related to networking within the ethnic group, but at the end of the day, ethnicity does not appear to have as great a bearing on the matter as socio-economic status and education, and those who are of a higher socio-economic group or who are better educated will invariably be highly represented among those attending the programme.

Provision for those with disabilities is a universal feature of most programmes and in Sweden, where mobiles spend considerable time at each location, ramps are provided as part of the mobile’s facilities. In highly populated areas, or where distances are not so great, those with disabilities are encouraged to attend the fixed base unit where facilities are always available.

Professor Tabar has often written about cost savings and he believes it to be more costly to stop screening than to continue. The major savings arise from the fact that women do not require major surgery or long periods of hospitalisation. Nor do they need prolonged chemotherapy or the need for prolonged visits to the hospital for treatment for metastases. The greatest advantage, perhaps, is that the programme deals with women who, for the most part, arrive and leave the unit as well women.

14 Dr Joan Austoker, pers comm.
Surgical practices are conservative and are carried out, usually, by fully trained breast surgeons. Women to whom the author spoke overseas as part of this study, both on mobiles and at base centres reported to me that they were "very satisfied" with the programme in which they were participating. This is supported by the fact that very few invited women fail to attend. The attendance rate, universally, is in the order of 85% of invitees.

Implications on other health initiatives have not been delineated but almost without exception, personnel in the units visited were able to report that because of the high standards achieved in the breast screening programmes, other women's health initiatives had improved.

Because of the high success rate of the national breast screening programme, in the United Kingdom, Julietta Patnick, the national co-ordinator, as reported earlier, has been invited to assume control of the cervical screening programme and a further staff member has been appointed in order that she may begin immediately. She was excited about this prospect and had already begun using her existing contacts and making others in connection with her new responsibilities. At Derby, the screening unit celebrated its sixth anniversary during the author's visit, and Mrs Patnick, who was visiting the breast screening programme there, had also organised to visit the charge gyneacologist in recognition of her extended duties. She stresses, however, that the combination job could not possibly be established at the outset of a national breast screening programme.

Anxiety in Women

On the whole, women in Sweden appeared to be more accepting of the procedures and staff took the view that this was because of the length of time the programme had been running. Those women who were anxious had more time spent with them and Professor Tabar was very careful to explain results to them fully.

Joan Austoker, Oxford, has published results on anxiety in woman involved in breast screening programmes. One of her major findings is that it is ineffective to tell women not to worry. It was found that when told this either by letter or in person, it did nothing to reassure women to whom the message was sent. Joan Austoker considered that such a message was always of more comfort to the giver of the news than to the receiver. Staff must accept that women are anxious and staff energy should be spent ensuring that the media that those involved in breast cancer screening are working hard to minimise women's anxiety as much as possible.
Recall of women in the U. K. and Sweden is carried out by mail and the guidelines for recall procedures suggest that the timing of the message is very important. Women had pointed out that hearing prior to a weekend that they were to return for a further appointment the following week was a cause of further anxiety. Joan Austoker stressed that, where possible, it was best to have assessment days organised so that this did not happen. It is also recognised, however, that irrespective of the system used, screening staff must accept that they cannot please everyone. It may have been acceptable to recall women by phone during the pilot programmes but this will need to be re-assessed with respect to a National programme because the practice is very time consuming. The vast numbers involved in both Sweden and the United Kingdom prevent this happening although it may be possible in a national programme here.
CONCLUSION
The two pilot programmes have provided a considerable quantity of valuable information which will be important for the implementation of a nationally organised breast cancer screening programme in New Zealand. This information is important in two ways, First, it has provided a norm against which international information may be measured for its relevance and appropriateness in New Zealand, secondly, it has shown that such a programme is acceptable to the women of New Zealand, that it is accessible to them, and that it is cost-effective.

The international experience, however, has shown that there is an absolute need to have good, reliable data collection systems and skilled staff to analyse and interpret this data. This implies an effective and accessible computer system organised on a national basis to which programmes can have access organised on strict and secure protocols. Such information can be used to refine day to day approaches to breast screening needs and thus ensure that women have access to the best service which can be made available. Overseas experience suggests that excellence in the service should not cost more than any average system might cost. Such excellence depends on planning and the appropriate selection of staff and equipment.

The success of the programme will depend to a very large extent on skilled and dedicated staff, properly trained, and dedicated to breast screening. Such training must be oriented to the development of the special skills required in all areas of breast screening, for it must be remembered that the whole aim of the programme is the detection of breast cancers at a very early stage, before they are discernible by clinical examination. This requires the development of specialist skills rarely required in everyday medical practice, and updated, by regular and thorough in-service education.

Training is also required to weld the disciplines involved into a cohesive group which acts as a team to produce a comprehensive set of appropriate outcomes. Such a team approach is universally accepted as the most appropriate and effective means of reaching the high standards which are required in such a specialised area.

It is important also for the premises to which women are invited to be suitable and welcoming. This helps to reduce unnecessary anxiety and assists in creating a climate which favours return at the next screening round.
The two pilot programmes in New Zealand have shown that a national programme will work, and that women are happy to return in subsequent screening rounds. They have also provided a database for the study of interval cancers.

Experience in other countries has shown that when national policy and standards are established, and all personnel trained appropriately in their respective disciplines, breast screening programmes can achieve very worthwhile results. It is also evident that staff require on-going education and training to maintain and develop their skills. The Luxembourg experience reinforces the view that staff require specialised training and that national guidelines are vital to the best rate of success.

In New Zealand there are personnel already trained and in some geographical areas units are already operating with provision for some (or in some cases, all) aspects of breast screening. Radiographers who have trained and are experienced in mammography are not easy to find, however, and this is a problem which is also evident in Australia. In the United Kingdom, on the other hand, where screening has been carried out now for a significant time, there are sufficient radiographers to maintain high standards and more are becoming interested in this specialised area.

A training centre for all staff including radiographers will need to be established in New Zealand in order that all personnel can be properly trained in their specialist areas. The multi-disciplinary team approach to mammography that should be reflected in training needs to be explored since results from overseas training centres show that staff training under such a regime tend to perform more cohesively and that the team benefits from the collective knowledge of the group. Every training centre visited by the author was located in an actively operating breast unit with a high level of screening. This enabled a good degree of practical experience to be gained during the training period in addition to the theoretical content of the courses. This method also gives the staff a point of reference for the future.

The establishment of training centres needs to be accompanied by an exploration of the development of courses in conjunction with the appropriate universities and polytechnics. This will permit staff to comply more readily with the requirements of their respective college requirements. It would also mean that academic points could be made available for credit to existing courses and, in time, may allow the development of post graduate courses in mammography. This has been the pattern overseas. It has been shown that such developments promote further interest in the area. In Sweden and the United Kingdom, payment for such teaching is either sourced from the participants' employing
bodies or from individual participants. In the majority of cases however, it is the employing bodies who provide the funds.

Funding for further screening programmes would require careful budgeting. In the current New Zealand system, the regional health authorities have to find funding from existing resources for additional areas of health expenditure. It is imperative that the New Zealand Government adopts an approach similar to that adopted in the United Kingdom, Australia and Luxembourg where the service is provided free rather than adopt the mammography service into the existing system where part-charges are made for health services. This is because the service has the potential to save significant funds by detecting and treating cancers at an early stage when treatment costs are negligible and when "cures" can be much more readily achieved. Part-charges are likely to deter well women from taking a mammogram simply on the basis that they believe themselves to be disease-free. Thus, part-charging is likely to produce the problem of low or falling attendance rates and this, in turn, is likely to affect the viability of the residual programme. The pilots have offered a free service and it is estimated that to keep the programme cost-effective, a 70% attendance rate is required. This can be reached through the invitation system and self-referral together with general practitioner referrals especially when the service is offered free.

Quality assurance has been stressed throughout this report because it is a vital part of any successful screening programme. The maintenance of high quality assists in reaching successful outcomes and this is essential for women in the programme who, by and large, are well. Both New Zealand pilots have worked steadily towards accreditation and have followed strict guidelines to reach the acceptable standards. Overseas experience shows that national guidelines are essential and these must apply to all staff involved in the programme.

The attainment and maintenance of excellence is best achieved through a nationally directed programme. This suggests, and indeed overseas experience confirms, that it is essential that a central co-ordinator, with practical experience and specialised knowledge, be appointed to ensure consistency throughout the country. Such a person should have an adequate range of support services and personnel who can be called upon to assist in the maintenance of the programme.

Continual evaluation throughout the programme is also essential to the maintenance of standards and a computer system which will allows the networking of all centres for the evaluation of comparable data is an essential part of the maintenance of these standards.
Breast cancer is a major cause of death among New Zealand women. In 1992, 569 women died of the disease. Of these, 548 were non-Maori, the remaining 21 being Maori, and of those who succumbed to the disease, 80% were over 50 years of age. These statistics suggest that the establishment of a national programme which can reduce significantly the immediate mortality rate from breast cancer is in the national interest from a number of points of view. The initial goal in breast cancer screening is the establishment and maintenance of a service directed towards well women at the same standards as the best international practises and offered to women who can exercise their choices about attending, the ultimate goal is the extension of these services at the same standards of excellence to women with symptoms so that they too can exercise informed choices in relation to their treatment and the management of their disease.
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Abbreviations
NHSBSP, National Health Service Breast Screening Programme (United Kingdom)
National "Q" Groups

These are national groups to look at quality management in each specialised area. They will cover standard settings in relation to training, data and accreditation and will make recommendation to the NQMC.

The National 'Q' Groups

- Counselling
- Data Management
- Pathology
- Program Management
- Radiography
- Radiology
- Recruitment
- Surgery

Who is on the 'Q' Groups?

- One representative from each State and Territory
- One College representative / or external professional representative

What will they do?

1. Ongoing monitoring and review of existing national standards and guidelines in the relevant area of expertise, specifically in relation to quality assurance/accreditation, training and professional development, and data/record keeping.

2. Development of new standards and guidelines, either on request of the National Coordination Unit, National Advisory Committee (NAC), or National Quality Management Committee (NQMC), on its own initiative, or as a result of the ongoing monitoring and review process.

3. Act as a vehicle for the assessment of proposals and projects, particularly as to the quality assurance aspects, and including new technologies.

4. Make recommendations to the NQMC on matters relevant to the Terms of Reference.

5. Ensure that the work of the Quality Management Group is conducted within a multidisciplinary context by consulting and liaising as appropriate with other National 'Q' Groups, and the NQMC.

6. Establish and maintain close liaison, at national level, with the relevant professional learned societies.

7. Act as a network and clearing house for exchange of information at national level between the professional groups in each State, and the National and State levels.

8. Develop a work-plan for each two year period based on the work-plan of the NQMC, and report annually to the NQMC by 30 March each year on the previous calendar year.
# National Quality Management Committee

## Who is on it?

- An independent Chair.
- A representative of the:
  - Counselling 'Q' Group;
  - Data Management 'Q' Group;
  - Pathology 'Q' Group;
  - Program Management 'Q' Group;
  - Radiography 'Q' Group;
  - Radiology 'Q' Group;
  - Recruitment 'Q' Group;
  - InterCollegiate Committee;
  - the Commonwealth.
- A Consumer.
- An Epidemiologist.

The National Quality Management Committee (NQMC) is a multi-disciplinary umbrella committee which will draw together the threads being developed by the various 'Q' Groups and make recommendations to the National Advisory Committee (NAC). It will oversee the management of quality at a national level, referring matters to 'Q' Groups as required. It will also be the peak accreditation committee.

## What does it do?

1. Oversee the national management of quality within the Program. Specifically, on advice from the relevant national 'Q' Groups, to set, maintain and improve the various guidelines, standards, protocols or other instruments which may be created. These include the areas of accreditation, data collection, and training.

2. Provide a multi-disciplinary focus for the integration of the various elements of quality management overall facets of program activity; and the assessment of recommendations from the 'Q' Groups.

3. Recommend to the National Advisory Committee (NAC), at agreed intervals, revisions/improvements to such national standards and/or guidelines which may exist or which may be recommended from time to time.

4. Facilitate the review/evaluation, at agreed intervals, of the National Quality Management system itself.

5. Consult widely within the Program, and externally where appropriate, on any major revision or proposal within its Terms of Reference.

6. Oversee the national system of Accreditation, including the monitoring of the accreditation status of Services overall, the processing of applications and the training of the members of the national register of assessors.

7. Develop a Two Year Plan and report annually to the National Advisory Committee by 30 March each year on the previous calendar year. Provide routine reports to each meeting of the National Advisory Committee.
Breast screening – region by region

The figures show the relative achievements of the different UK regions, including Northern Ireland, Scotland and Wales. They concentrate on the prevalent (first) screening round since the majority of women are still attending for the first time, and the number of incident (subsequent) round attenders in some parts of the country is too small to be meaningful.