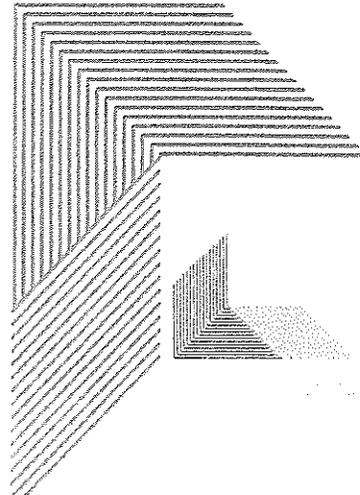
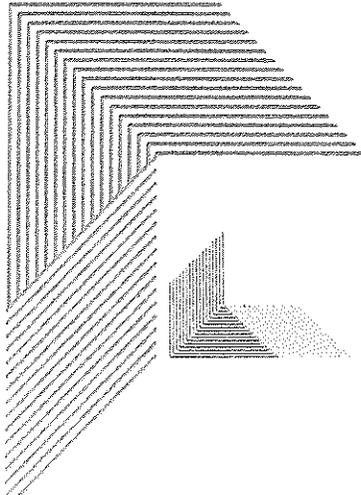
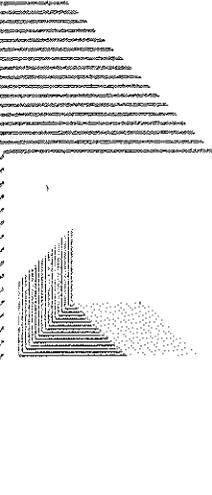
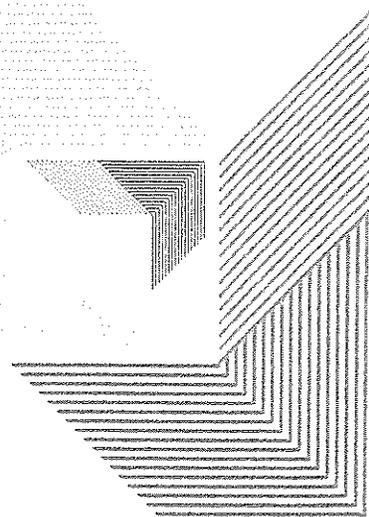
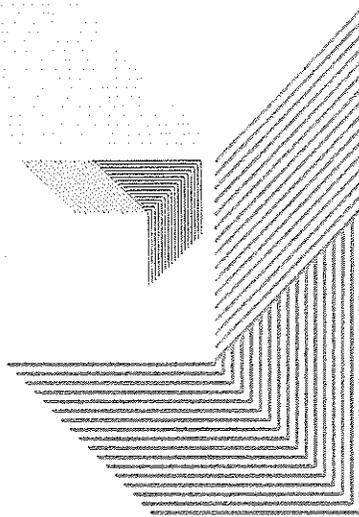
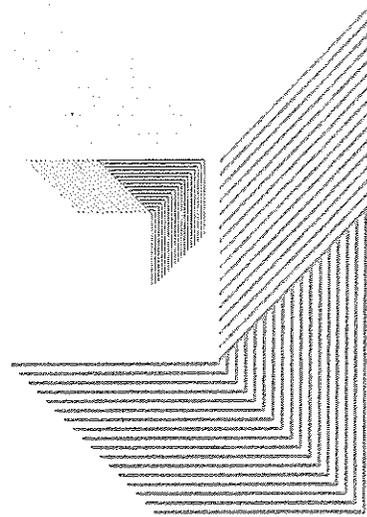


Report No. 90-3
January 1990

STUDY OF PROPOSED MANDATORY HEALTH INSURANCE FOR MAMMOGRAM SCREENING

A REPORT TO THE GOVERNOR AND THE LEGISLATURE OF THE STATE OF HAWAII



THE OFFICE OF THE LEGISLATIVE AUDITOR

The missions of the Office of the Legislative Auditor are assigned by the Hawaii State Constitution (Article VII, Section 10). The primary mission is to conduct post audits of the transactions, accounts, programs, and performance of public agencies. A supplemental mission is to conduct such other investigations and prepare such additional reports as may be directed by the Legislature.

Under its assigned missions, the office conducts the following types of examinations:

1. *Financial audits* attest to the fairness of the financial statements of agencies. They examine the adequacy of the financial records and accounting and internal controls, and they determine the legality and propriety of expenditures.
2. *Management audits*, which are also referred to as *performance audits*, examine the effectiveness of programs or the efficiency of agencies or both. These audits are also called *program audits*, when they focus on whether programs are attaining the objectives and results expected of them, and *operations audits*, when they examine how well agencies are organized and managed and how efficiently they acquire and utilize resources.
3. *Sunset evaluations* are conducted of professional and occupational licensing programs to determine whether the programs should be terminated, continued, or modified. These evaluations are conducted in accordance with a schedule and criteria established by statute.
4. *Sunrise analyses* are similar to sunset evaluations, but they apply to proposed rather than existing regulatory programs. Before a new professional and occupational licensing program can be enacted, the statutes require that the measure be analyzed by the Office of the Legislative Auditor as to its probable effects.
5. *Health insurance analyses* are conducted on bills which propose to mandate certain health insurance benefits. Such bills cannot be enacted unless they are referred to the Office of the Legislative Auditor for an assessment of the social and financial impact of the proposed measures.
6. *Special studies* are conducted when they are requested by both houses of the Legislature. The studies usually address specific problems for which the Legislature is seeking solutions.

Hawaii's laws provide the Legislative Auditor with broad powers to examine all books, records, files, papers, and documents and all financial affairs of every agency. The Auditor also has the authority to summon persons to produce records and to question persons under oath. However, the Office of the Legislative Auditor exercises no control function, and its authority is limited to reviewing, evaluating, and reporting on its findings and recommendations to the Legislature and the Governor.



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Legislative Auditor

OVERVIEW

STUDY OF PROPOSED MANDATED INSURANCE FOR MAMMOGRAM SCREENING

Honolulu, Hawaii

January 1990

Summary

This report assesses the social and financial impact of Senate Bill No. 1398 and House Bill No. 594, which require insurers to provide benefits for low-dose mammogram screening. As of October 1989, twenty-five states had laws mandating some kind of insurance coverage for the procedure. The benefits in the Hawaii bills are based on guidelines of the American College of Radiology: one baseline mammogram for women 35 to 39 years of age, a mammogram every two years for women 40 to 49 years of age, an annual mammogram for women over 50 years of age, and a mammogram on a physician's recommendation for women of any age with a history of breast cancer or whose mother or sister has had breast cancer.

Screening mammography is a procedure that uses low-intensity radiation to detect signs of breast

cancer in women who have no symptoms. When properly performed and interpreted and combined with a physical examination of the breast, it can detect cancer in its earliest stages, long before the lesions can be felt. Studies have shown that periodic mammogram screening, combined with palpation, can reduce mortality from breast cancer and improve survival.

Most experts agree that the radiation risk from periodic screening is minimal. However, the need for quality control can be expected to increase with any large-scale screening program because poor-quality mammograms can miss small cancers and also lead to unnecessary biopsies. The test is expensive--charges for a screening mammogram in Hawaii range between \$50 and \$130.

FINDINGS

Although periodic mammogram screening for women over 40 years of age is beneficial, usage is low, even in plans with coverage. Mammogram screening is covered by most plans of health maintenance organizations such as Kaiser, but not by the fee-for-service plans of the Hawaii Medical Service Association (HMSA) and other insurers. The cost of the procedure may be a barrier to many women, but cost is not the only barrier, and insurance alone will not guarantee that women will regularly seek screening.

The proposed legislation can be expected to increase the use of screening in plans that do not cover the benefit and add to the costs of health care in spite of some savings in reduced treatment costs. The Wyatt Company, an actuarial firm, estimated the total first-year costs

of screening at \$2,428,078 for plans that do not currently cover the benefit. The impact on insurance premiums is an estimated \$.41 per month per adult member. These estimates do not include deductible and coinsurance levels, which vary by plan and could reduce insurance costs considerably.

The bills have some weaknesses: the House measure did not include mutual benefit societies such as HMSA; neither measure specifies health maintenance organizations such as Kaiser; neither measure allows specifically for coinsurance provisions (in addition to deductible provisions) in force in contracts or policies; and the requirement for an informational brochure was not reasonable or cost-effective.

CONCLUSIONS

The study was not able to provide clear-cut answers to all questions

on the impact of the proposals to mandate benefits for mammogram screening. For the individual woman, the costs of dying from advanced stage breast cancer outweigh the annual costs of screening. For large numbers of women, the costs of large-scale screening will not be entirely offset by savings in treatment costs, and insurance rates will likely increase. However, these increases should not be substantial and could be reduced considerably with cost-sharing arrangements.

RESPONSE

The Director of Health stated that the Department of Health supports mandated health insurance coverage of mammogram screening. The State Health Insurance Program will be providing age-specific coverage for mammogram screening.

**STUDY OF
PROPOSED MANDATED HEALTH INSURANCE
FOR MAMMOGRAPHY SCREENING**



A Report to the Governor and the Legislature of the State of Hawaii

Submitted by

**Legislative Auditor of the State of Hawaii
Honolulu, Hawaii**

**Report No. 90-3
January 1990**

FOREWORD

Act 331 of 1987 requires the legislative auditor to study the social and financial impact of measures that propose to mandate health insurance benefits. The purpose of these studies is to give the Legislature an objective basis for evaluating the merits of the proposals.

As requested by Senate Concurrent Resolution No. 6, S.D. 2, H.D. 1, this report estimates the social and financial impact of mandating health insurance coverage for mammography screening as proposed in Senate Bill 1398 and House Bill 594, Regular Session of 1989. We were assisted by The Wyatt Company, an actuarial firm, which estimated the financial impact of the proposed measures.

We wish to express our appreciation for the cooperation and assistance of those state agencies, private insurers, and other interested organizations and individuals contacted during the course of the study.

Newton Sue
Acting Legislative Auditor
State of Hawaii

January 1990

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Chapter 1

INTRODUCTION

Sections 23-51 and 23-52 of the *Hawaii Revised Statutes* require the Legislature to pass concurrent resolutions requesting the auditor to study the social and financial effects of any measure that would mandate health insurance benefits. The law stems from legislative concern over the increasing number of these proposals in recent years and their impact on the cost and quality of health care. The purpose of the assessment is to provide the Legislature with an independent review of the social and financial consequences of each proposal.

Scope of the Study

In response to Senate Concurrent Resolution No. 6, S.D. 2, H.D. 1, this report assesses the social and financial impact of Senate Bill No. 1398 and House Bill No. 594, which require insurers to provide benefits for low-dose mammogram screening. It is important to note that the study examines the impact of mandated *insurance coverage* for mammogram screening, and not the impact of the procedure itself. The law requires the following areas to be considered:

Social Impact

1. The extent to which low-dose mammogram screening is used by a significant portion of the population.
2. The extent to which insurance coverage for mammogram screening is already available.
3. The extent to which the lack of coverage prevents women from obtaining mammogram screening.

4. The extent to which the lack of coverage results in unreasonable financial hardship.
5. The level of public demand for mammogram screening.
6. The level of public demand for insurance coverage for mammogram screening.
7. The level of interest of collective bargaining organizations in this coverage.
8. The impact of indirect costs other than premium and administrative costs on the question of the costs and benefits of coverage.

Financial Impact

1. The extent to which the proposed coverage might increase the use of mammogram screening.
2. The extent to which insurance coverage might increase or decrease the cost of mammogram screening.
3. The extent to which mammogram screening might be an alternative to more expensive treatment for breast cancer.
4. The impact of coverage for mammogram screening on the total cost of health care.
5. The extent to which insurance coverage for mammogram screening might increase or decrease the insurance premiums of policyholders and the administrative expenses of insurers.

Methodology

In carrying out the request, we reviewed the research literature for information on the benefits and risks of the procedure and on the utilization, coverage, costs, and impact of similar coverage in other jurisdictions. Data from other states were limited because laws mandating coverage for mammography screening have been enacted only since 1986. We analyzed information from insurers, providers, and researchers in Hawaii. We also interviewed employer groups, unions, advocacy groups, and other interested parties to gauge public interest and demand. Research was carried out between May and October of 1989.

The major sources of information on utilization, coverage, and costs were the HMSA, Kaiser, Island Care, Queen's Health Plan, Pacific Healthcare, Travelers, and Aetna. The Department of Health provided data and usage estimates from facilities providing mammogram screening services.

An actuarial firm, The Wyatt Company, was contracted to estimate the financial impact of the legislation. Wyatt contacted the major insurers in Hawaii and developed the actuarial model used in calculating what insurers and policyholders would have to pay for the additional coverage.

Organization of the Report

This report consists of four chapters. Chapter 1 is this introduction. Chapter 2 provides background on health insurance issues pertinent to the study. Chapter 3 gives background on mammogram screening and describes the proposed coverage. Chapter 4 assesses the social and financial impact, reviews the proposed legislation, and makes some concluding observations.

Chapter 2

BACKGROUND ON HEALTH INSURANCE

The increasing cost of health care has led consumers, providers, insurers, and government to grapple with the question of who pays. National health care expenditures in 1986 were over \$458 billion.¹ Americans can no longer afford to pay for all their health care costs. Insurance plays a central role in financing and providing access to health care. Third party payments from private insurance, government, and charity paid for 71 percent of personal health care expenditures in 1986.²

The cost of health insurance has risen sharply. In recent years, premiums have increased by about 20 percent annually. Health benefits have become the third largest cost item for most manufacturers.

Table 2.1 shows typical group rates for health insurance in the public and private sectors in Hawaii. The rates in the private sector are negotiable and merit rated so they vary considerably among group purchasers. The private sector pays about a third more than the public sector for comparable coverage, averaging more than \$300 per month for family coverage.

To hold down costs, employers have increased employee payments through deductibles (the amount patients must pay before benefits begin) and copayments (the portion of the expense of a covered service for which patients are responsible). Employers offer "cafeteria" plans that allow employees to choose among various benefit packages including vacation, deferred compensation, or financial incentive programs if they spend less on health care.

Table 2.1. Monthly Costs of Group Health Insurance Per Employee: Examples from Public and Private Sectors, 1989

	Self Only	Family
State ¹		
Kaiser	\$ 70.00	\$ 212.00
HMSA	71.00	219.00
Community Health Plan	82.00	253.00
Island Care	76.00	234.00
Private ²		
Kaiser	\$ 100.00	\$ 280.00
HMSA	118.00	333.00
Best Care	104.00	287.00
Aetna	112.00	348.00

1. State rates were effective July 1989 for employees with contracts and include both employer and employee contributions. They do not include additional rates for dental, drug, and vision coverage effective as of January 1990.

2. Private plan rates include drug, vision, and dental coverage. Aetna rates are based on a \$250 deductible policy for a family of four.

Sources: *Health Fund Benefit Plans for State and County Employees and Retirees*, July 1989 and January 1990, and interviews with employer groups.

Many employers are adopting self-insurance plans where they assume all or most of the risk of claims for a policy year. Under such plans, employee claims are paid directly from an employer's bank account or a trust established for that purpose. Self-insurance plans are exempt from state regulation under the federal Employee Retirement Income Security Act (ERISA). They have an added advantage in that they are exempt from state laws mandating health insurance benefits. The number of these plans has more than doubled in the past five years.

Mandated Health Insurance

Since the 1960s, states have enacted a variety of laws mandating coverage that insurers must provide. These laws have required insurers to cover the services of certain health practitioners, dependents of a certain age or category, and specific medical conditions and treatments. In Hawaii, the Legislature has passed laws mandating benefits for the services of dentists performing oral surgery, the services of psychologists, for *in vitro* fertilization, treatment of mental illness and substance abuse, and for preventive care of children.

In 1985, Metropolitan Life Insurance Company sued the Commonwealth of Massachusetts for its mandated mental health coverage. The company charged that the benefits law violated ERISA, which has a provision preempting state laws relating to employee benefit plans. In a unanimous decision, the federal court held that state mandated benefit laws fall within the authority of states to regulate insurance and are not preempted by the federal statute.

One effect of this decision was to move the question of mandated benefits into the political arena. One writer points out:

Legislatures will be faced with the difficult issue of trying to determine not only

what conditions should be covered, but what type of providers should be reimbursed for providing certain services. Legislatures will have to cut through a thicket of special interest groups, all representing good causes, in order to make what are essentially health planning decisions.³

Mandated health insurance may be appropriate in certain circumstances, such as when insurers refuse to cover certain services or when they discriminate. However, they may not be the best solution for certain social problems. They may merely shift the cost of treatment or care from one group to another. In some states, concerns about costs versus actual benefits have slowed the momentum of legislated benefits.

Arguments for and against mandated health insurance. Opponents and proponents disagree on just about all aspects of the issue of mandated coverage--whether a particular coverage is necessary, whether it is justified by demand, whether it will increase the costs of care and by how much, and whether it will increase premiums.

Generally, providers and recipients of medical care support mandated health insurance, and businesses and insurers oppose it. Proponents base their arguments primarily on medical and social premises, while opponents base theirs on economics and costs.

Proponents cite the gaps in coverage that prevent people from obtaining the care they need. They say that the current system is not equitable because it does not cover all providers, all medical conditions, or all needed treatments and services. Mandated coverage is thus necessary to give people the care they require. Further, it could increase competition and the number and variety of treatments available. In some instances, it could reduce costs by making preventive care, early treatment, or alternate care more available.

Opponents argue that mandated benefits add to the cost of employment and production and reduce other more vital benefits. Small businesses are especially vulnerable because they pay more for health insurance and are less able to absorb rising premium costs. Opponents also argue that mandates reduce the freedom of employers, employees, and unions to choose the coverage they want. Insurers cite premium rates that may rise beyond what employers and consumers are willing to pay. They see mandates as creating an incentive for employers to adopt self-insurance plans that are exempt from these mandates.

The controversy has led a number of states to review existing benefits and to evaluate additional coverage. For example, the piecemeal nature of add-on benefits led Maryland to establish a Governor's Commission on Health Care Policy and Financing. Its task is to evaluate the state's mandated benefits and to recommend a coherent policy and statutory structure for these laws.⁴

Types of insurance plans affected. Laws to mandate insurance affect three main types of private insurance: (1) Blue Cross and Blue Shield plans; (2) commercial insurance plans; and (3) the independent plans provided by health maintenance organizations (HMOs).

The oldest and largest of the private health insurers are the Blue Cross and Blue Shield organizations. They offer the traditional fee-for-service plans, sometimes called indemnity plans, that reimburse physicians and hospitals for services. The Hawaii Medical Service Association (HMSA) is the Blue Shield insurer for Hawaii. With a 1988 membership of 557,600, HMSA covers more than 54 percent of Hawaii's civilian population.⁵

Commercial indemnity plans of private insurance companies such as Aetna, Travelers, and Prudential reimburse for medical services as do the Blue Cross plans. In Hawaii, commercial carriers share about 10 percent of the health insurance market.

Independent plans are the fastest growing segment of the health insurance market. HMOs offer a package of preventive and treatment services for a fixed periodic fee. The Kaiser Foundation Health Plan, Inc., is the second largest independent plan in the state, serving 163,000 members in 1988. It is followed by Island Care and smaller plans such as Pacific Healthcare. HMSA also offers HMO plans.

Self-insured plans, the federally supported Medicare and Medicaid programs that insure the elderly and disadvantaged, and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) that covers military dependents and retirees are not directly affected by mandated health insurance.

Prepaid Health Care Act

The courts have ruled that mandated health insurance laws fall within the authority of states to regulate insurance. Hawaii may present a unique situation, however, because of its 1974 Prepaid Health Care Act.

The act is intended to give Hawaii's working population a minimum level of health insurance protection. It requires employers to provide a qualified prepaid health care plan to regular employees working at least 20 hours per week. A qualified plan is one with benefits that are equal to, or a medically reasonable substitute for, the benefits provided by the plan with the largest number of subscribers in the State. The director of the Department of Labor and Industrial Relations, in consultation with a Prepaid Health Care Advisory Council, decides whether plans meet the standards of the act.

Some attempts made to broaden the medical benefits specified in the 1974 law were challenged in the courts. The federal courts ruled that the Hawaii Prepaid Health Care Act is preempted by ERISA, which governs all employee benefit plans. A subsequent congressional amendment exempted the Prepaid Health Care Act from ERISA, but the exemption applied only to the

law as it was enacted in 1974. In effect, this froze the law at its original provisions since ERISA would preempt any subsequent amendments.

Although mandated insurance laws have been found to fall within the authority of states to regulate insurance, it is possible that in Hawaii any mandated benefit laws added to the State's insurance law will be viewed, and challenged, as a means of bypassing the limitations placed on the Prepaid Health Care Act.

Chapter 3

BACKGROUND ON MAMMOGRAPHY SCREENING

This chapter gives background on mammography screening. It describes the procedure, its benefits, and some concerns. It discusses mandated benefits in other states and reviews the provisions of Senate Bill No. 1398 and House Bill No. 594.

Screening for Disease

The purpose of screening for any disease is to identify people who are ill from among those who appear to be well. A person having positive results is referred to a physician for diagnosis and treatment. The objective of screening is to detect disease in early stages so as to treat it and thus hinder its progress. The assumption behind screening is that detecting disease before symptoms are evident allows treatment at a time when the progress of the disease can be altered. Screening tests range from single tests applied to individuals or groups to whole batteries of tests offered to large populations.¹

The medical value of a screening test is based on criteria that include the ability of the test to separate those who have the condition from those who do not; the ability of the test to avoid harming those people not needing treatment; and the "yield" of people out of those screened that the test will bring to treatment. Other important principles of screening are whether the disease screened for is an important health problem; whether acceptable treatment for the disease is available; whether there are facilities for diagnosis and treatment; whether people will accept the test if it is made available; whether the disease is

adequately understood; and whether the costs of screening are balanced in relation to available resources.²

Screening Mammography Defined

Screening mammography is a preventive procedure that uses low intensity radiation to detect signs of breast cancer in women who have no symptoms. It differs from diagnostic mammography, which uses high intensity radiation to detect the location, size, and extent of cancer in women with symptoms. When screening mammography is properly performed and interpreted, it can detect cancer in its earliest stages, long before the lesions can be felt.

Since the 1970s, screening equipment has been specially designed, or "dedicated," for mammography. These dedicated machines use extremely low doses of radiation without loss of image quality.

The American Cancer Society now recommends one baseline mammogram between ages 35 to 39, one mammogram every other year between ages 40-49, and annual mammograms thereafter. When making recommendations about cancer screening, the society has several concerns: there must be good evidence that the test is medically effective in reducing mortality; the medical benefits must outweigh the risks of the test; the costs must be reasonable in light of the expected benefits; and the test should be practical and feasible.³ Although some uncertainty remains about the precise effects of mammogram screening of

younger women, the society's guidelines reflect serious consideration of the benefits and concerns of this test. The following sections touch on some of the main issues.

Benefits and Concerns of Screening Mammography

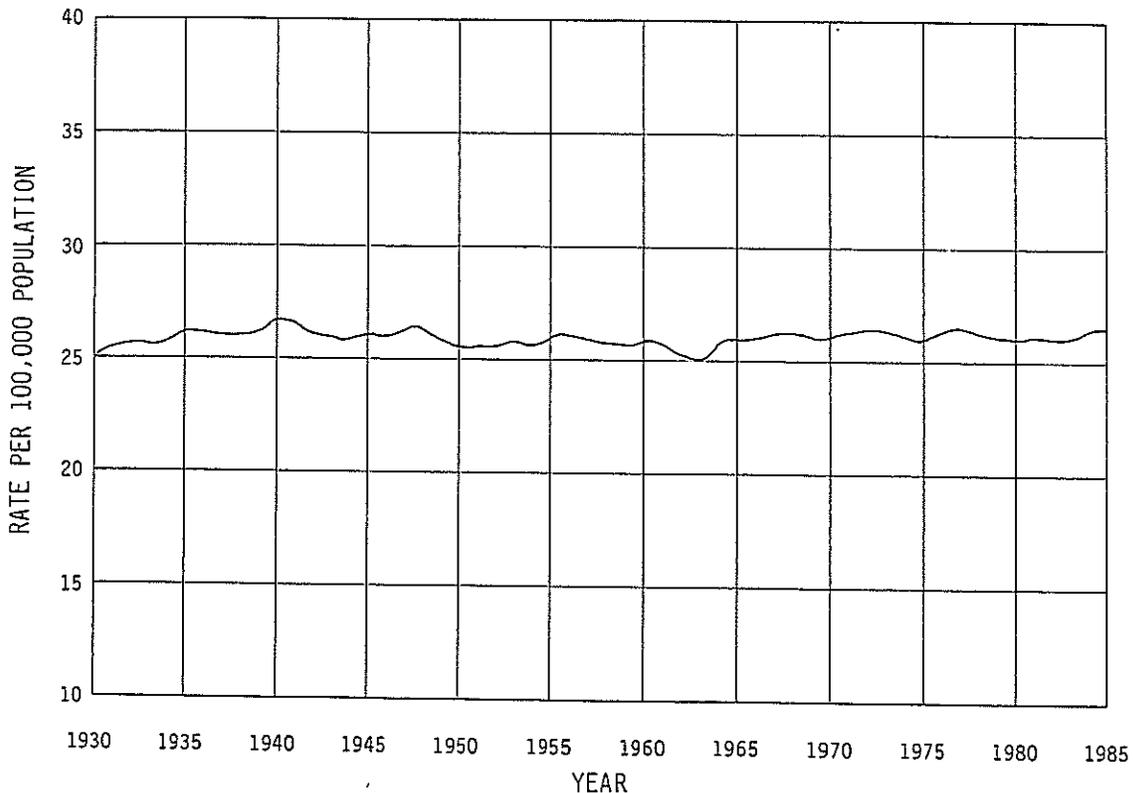
Breast cancer is the leading cancer in women and also the second leading cause of cancer deaths. In 1987 there were an estimated 130,000 new cases and 41,000 deaths nationally. The American Cancer Society estimates 142,900 new cases and 43,000 deaths for 1989.⁴ In Hawaii there were 633 new cases and 103 deaths in 1987.⁵ As Figure 3.1 shows, despite advances in knowledge and treatment of the disease, the

mortality rates for breast cancer in the U.S. have remained constant for many years.⁶

All women are at risk for breast cancer, and the risk increases as women grow older. Incidence is also higher in women who have had cancer in one breast or who have a close relative with an early history of the disease.

Improved survival and reduced mortality. The beneficial role of mammography when combined with a physical examination of the breast, called palpation, lies in its ability to detect the disease at early stages. While early detection does not guarantee cure, the earlier the stage of the disease at the time of diagnosis, the better the prognosis.⁷

Figure 3.1
Breast Cancer Death Rate, 1930-1985



Source: American Cancer Society, *Cancer Facts and Figures, 1989*, Atlanta, Georgia, 1989.

Breast cancers grow at different rates, with some lesions becoming clinically detectable after a few years, others after many years. The term "early" refers to the clinical stage of the disease at the time of detection. Early breast cancers are those detected at Stage I and Stage II. Advanced breast cancers are those detected at Stages III and IV. The term *in situ* refers to microscopic abnormalities that are confined to the site of origin and which cannot be detected by touch.⁸

The stage of cancer generally depends on the size of the tumor and the extent to which it has invaded the lymph nodes. Stage I includes tumors up to two centimeters in diameter with no involvement of the lymph nodes. Stage II includes tumors between two and five centimeters (up to two inches) in diameter or cancers which have invaded the lymph nodes. Stages III and IV include tumors larger than five centimeters or those that exhibit unfavorable signs, such as evidence that the cancer has spread to other organs.⁹

Most early-stage cancers are responsive to less radical and costly care.¹⁰ Advanced-stage breast cancers are likely to involve chemotherapy or radiotherapy or both, in addition to surgical removal of all or part of the breast and other tissue. By contrast, the partial mastectomy or "lumpectomy" used with many early cancers removes only the tumor and a small amount of surrounding tissue.¹¹

There is both scientific and professional consensus that periodic screening, by detecting cancers in early stages, improves the rate of survival and in the long run reduces the rate of mortality. Two major screening studies in the United States support the health benefits of screening. Studies in Sweden and Holland have also reported positive results.¹²

The New York Health Insurance Plan (HIP) study. The HIP study compared 30,000 women who were screened using a combination of mammography and palpation with the same

number of women in a control group who were monitored but not screened. In comparing the survival rates of these two groups over a period of years, the study found consistently higher survival rates for screened women. After 5 years, for example, the survival rate for screened women was 87 percent compared to 60 percent for women not screened; after 14 years the rate was 55 percent for screened women versus 40 percent for unscreened women.¹³

Screening was also found to reduce mortality. Screened women had a 23 percent lower mortality rate than unscreened women after 18 years.¹⁴ The study, which was begun in 1963, initially showed mortality significantly reduced only in women over 50 years of age. Mammographic techniques, however, have improved dramatically since then, and new work on the data contains evidence that women aged 40 to 49 may also benefit from the procedure.¹⁵

The Breast Cancer Detection Demonstration Project (BCDDP). The BCDDP screened more than 280,000 women with a combination of mammography and palpation. After five years, the overall survival rate was 91 percent for women under 50 and 89 percent for women over 50. For women with early detected cancers, the survival rate was almost 100 percent for both age groups.¹⁶

The Hawaii BCDDP screened 10,000 women using mammograms and breast palpation and found 181 cancers in 171 women during the five year period. Almost 45 percent of these cancers could be felt, but 42 percent could only be detected by mammography. Women diagnosed with very early breast cancer had five-year survival rates of 96 percent compared to 71 percent for women with larger lesions and cancers that had spread to the lymph nodes.¹⁷

Although there was no control group, a comparison of cancer deaths among women in the BCDDP study with a national program that monitored breast cancer deaths across the country suggests that screening may reduce mortality

by almost 50 percent. More than 30 percent of the cancers detected in the BCDDP were early stage cancers less than 1 centimeter in size.¹⁸

Radiation. In the late 1970s, a controversy arose about the possible radiation hazard of mammography. That controversy has been resolved to the satisfaction of most experts, who agree that the radiation risk for women receiving periodic low-dose mammograms is negligible. The technique has improved continuously over two decades, with increasing diagnostic accuracy and decreasing radiation. State-of-the-art mammographic machines have reduced breast radiation to 1/20th that of the early 1970s. When modern mammographic techniques are used, the exposure to radiation is minimal.¹⁹

Quality control. An increase in screening will result in more true positives, false positives, and false negatives. Each outcome requires follow-up attention if screening is to have a positive effect.²⁰ Screening will detect a certain number of suspicious lesions that must be confirmed with a biopsy and may lead to surgery. Some estimates are that about 2 percent of the women screened will have biopsies that will turn out not to be cancers.²¹ Since false readings have serious medical and psychological consequences, the need for quality control can be expected to increase with any large-scale screening program.

Poor quality mammograms can miss small cancers. Getting a quality image while keeping radiation dose low depends on properly adjusted equipment dedicated solely to mammography, proper processing of film separate from other x-rays, well-trained and supervised technicians, and proper positioning of the breast. Equipment and procedures have improved considerably in recent years, but uniform standards for taking and interpreting mammograms have not been achieved. The American College of Radiology has a voluntary program offered nation-wide to certify mammography facilities. Approximately

30 percent of the units applying for certification failed to pass the test.²²

Most mammography machines in Hawaii are state-of-the-art, but a recent Department of Health survey showed differences in the quality of the developed images that may reflect differences in technique, skill, and processing.²³ Mammography units located in private hospitals come under the Joint Commission on Accreditation of Healthcare Organizations, which requires annual inspection of general x-ray equipment and an ongoing quality control program. However, many Hawaii sites are located outside of hospitals and are not subject to these requirements.

Age and screening interval. Although medical experts agree on the value of mammography, they still do not agree on the optimal age and screening interval.²⁴ The issues are whether mammograms are beneficial for younger women and whether annual mammograms are necessary for women under 50 years of age.²⁵

A coalition of 11 groups, including the National Cancer Institute and the American Cancer Society now recommend that all women aged 40 to 49 have a mammogram every one to two years, and annually thereafter. These recommendations are based on growing evidence that mammography can detect cancer in both older and younger women and that radiation risks are minimal.²⁶

Costs of screening. A frequent complaint about the procedure is its cost. Mammography is an expensive test. In mainland states a mammogram may cost as much as \$250.²⁷ The charges for a screening mammogram in Hawaii range between \$50 and \$130, with an average charge of about \$65. This includes the charge billed by the facility and fee of the radiologist. Costs are higher if a physical examination and ancillary imaging procedures are included.

Mandated Insurance Coverage for Screening Mammography in Other States

As of October 1989, 25 states had laws mandating insurance coverage for mammogram screening, and legislation was pending in 21 additional states (including Hawaii) and the District of Columbia.²⁸ The intent of these laws is similar, but the emphases are different. The laws differ in quality assurance measures, price setting, kinds of coverage, screening guidelines, and equipment specifications, as well as who pays for the service.

Quality assurance. Several states have made the quality of the exam a condition of reimbursement. Lawmakers have stipulated quality assurance guidelines such as dedicated equipment, licensed technologists, and board-certified radiologists. New Hampshire's law created a committee to study whether radiologic technologists should be regulated. Michigan requires that screening centers be accredited by the American College of Radiology. Michigan's law has stringent quality assurance provisions because a survey found that many units were unable to detect the number and size of observable breast lesions.

Screening guidelines. Most states use the screening guidelines of the American Cancer Society and the American College of Radiology. For example, Massachusetts law provides benefits for a baseline mammogram for women between 35 and 39 and an annual mammogram thereafter. Other states leave decisions on age and frequency to the discretion of a physician.

Scope of coverage. Some states require all group and individual policies and all health maintenance organizations to provide coverage, but some states specify only those policies that reimburse for mastectomies. A few states include Medicare supplemental insurance policies. California, Oklahoma, and North Dakota have legislation covering self-insured plans. California, Massachusetts, and Connecticut,

three states with the most comprehensive legislation, cover all types of health plans, including HMOs. States with the least comprehensive laws restrict coverage to Medicare supplemental policies.

Cost setting. Some states have set limits for reimbursement. Arkansas requires insurers to pay not less than \$50 for the mammogram. Maryland's law requires Medicare supplemental policies to pay up to \$100 for annual screening. Most states make coverage subject to the same coinsurance, deductibles, and other contract provisions of existing policies.

Provisions of Proposed Measures

The purpose of Senate Bill No. 1398 and House Bill No. 594 is to "encourage the use of mammographic screening for the early detection of breast cancer among the women of Hawaii and to insure that any policy providing health insurance in the State of Hawaii covers a minimum schedule of mammographic screening for all policy beneficiaries." Recognizing breast cancer as one of the two leading causes of death among women in the United States, the measures emphasized the ability of mammography to detect cancer in the early stages thereby lowering mortality rates.

The proposed measures amend Section 431:10A-116, HRS, Hawaii's insurance code. The Senate bill also amends Chapter 432, which covers mutual and fraternal benefit societies.

The bills provide benefits based on the guidelines of the American College of Radiology: (1) one baseline mammogram for women 35 to 39 years of age, (2) a mammogram every two years for women 40 to 49 years of age, (3) an annual mammogram for women over 50 years of age, and (4) a mammogram on a physician's recommendation for women of any age with a history of breast cancer or whose mother or sister has had breast cancer.

Both measures specify the use of equipment designed specifically for mammography, with average radiation exposure of less than one rad mid-breast, and two views for each breast.

Both measures cover all accident and sickness insurance policies issued by private insurers in the state. The Senate version also specifies individual and group hospital or medical service plan contracts covered under Chapter 432, HRS, which provides for mutual and fraternal benefit societies. Both measures subject screening to the same deductible provisions in force in the policy or contract.

Both versions require the insurance commissioner to review annually the age and frequency guidelines recommended by the American College of Radiology and, if necessary, to adjust the mandated requirements by rule. They also require insurers to provide eligible women with a brochure each year on the benefits of screening.

Review of testimony. Most testimony supported the measures. Testifying in favor were the American Cancer Society, the Executive

Office on Aging, the Hawaii Medical Association, the Hawaii State Commission on the Status of Women, and other patient advocacy groups. Testifying against were the Hawaii Medical Service Association (HMSA), the Kaiser Foundation Health Plan, and the State Department of Health.

Proponents pointed to the health benefits of mammogram screening and the long-term cost benefits of preventive care. They said that the procedure would save money by offsetting the high costs of care for advanced stage breast cancer.

HMSA argued that mandatory coverage would result in an "immediate cost increase in all health plans."²⁹ Although the Department of Health supported the benefits of the procedure, it felt mandating the coverage was a "piecemeal approach" that was not good public policy. The department advocated instead a "voluntary approach" to expanded coverage.³⁰ Kaiser currently offers screening similar to that outlined in the measures, but it was concerned that the specific screening guidelines could become obsolete in a short time.³¹

Chapter 4

THE SOCIAL AND FINANCIAL IMPACT OF INSURANCE COVERAGE FOR MAMMOGRAPHY SCREENING

This chapter assesses the impact of the mammogram screening benefits provided in Senate Bill No. 1398 and House Bill No. 594. The assessment is followed by an analysis of the proposed legislation and concluding remarks on the findings of the study.

Summary of Findings

- 1. Periodic mammogram screening for women over 40 years of age is beneficial. However, the current use of screening is low, and demand for coverage is not evident.*
- 2. Screening costs may be a barrier to many women. However, cost is not the only barrier, and insurance alone will not guarantee that women will regularly seek screening.*
- 3. Insurance coverage can be expected to increase the use of screening among women not currently covered. Screening can be a cost effective alternative to more expensive care.*
- 4. Mandated insurance coverage for mammogram screening will add to the cost of health care. It is likely that insurance rates will increase to meet the increased screening costs. These increases should not be substantial and could be reduced considerably with cost-sharing arrangements.*

Social Impact

The extent to which low-dose mammogram screening is used by a significant portion of the population. More women are now having screening mammograms, but use is still low relative to the number of women who could benefit. Recent surveys indicate the procedure has not become standard medical practice, even though most medical specialists accept the guidelines of the American Cancer Society and the American College of Radiology.

The American Cancer Society has estimated that only about 15 to 20 percent of American women have ever had a mammogram, and a much smaller proportion are being examined regularly as the guidelines recommend.¹ Even these estimates are probably high. They include mammograms performed for diagnostic as well as screening purposes.² Other national surveys also show that screening mammography is underutilized.

A 1987 survey by the State Department of Health found Hawaii estimates to be similar. Only 22.4 percent of all women over age 50 reported having an annual mammogram. In the 40 to 49 age group, about 30 percent had a screening mammogram during the past two years. The survey also showed that 20 percent of the adult women in Hawaii had never heard of the term "mammogram." Filipinos and Hawaiian/Part-Hawaiians had the highest proportion of adults who had never heard of a mammogram, 33 percent and 27 percent respectively.³

Utilization is low even among women who have insurance coverage. Data based on 1988 claims experience from the Hawaii Medical Service Association (HMSA) indicate a service

rate of less than 20 percent (191.8 per 1000) for screening mammograms in its health maintenance organization (HMO) plans that cover the benefit.⁴ Kaiser's service rate for diagnostic and screening mammograms for 1989 was projected at 30 percent (305 per 1000).

Current screening mammogram estimates developed for this study by the Wyatt Company show a combined screening utilization rate for all age groups in HMO plans of 21.4 percent (214 per 1000). For plans without coverage, Wyatt estimated a combined screening rate for all age groups of 2.8 percent (28 per 1000). It is important to note that although the utilization rate is low, it is higher in plans that provide coverage. (See Appendix A.)

The extent to which insurance coverage is available for mammogram screening. Most HMO plans cover the benefit, but the major indemnity plans, such as the HMSA basic plans, do not. Thus the majority of insured women in the state do not have any coverage for screening. The proposed legislation would extend such coverage for the first time to these women.

Based on data from some insurers, approximately 53,600 insured women over 35 years of age, or 27.6 percent, have coverage for mammogram screening. Most are members of the three largest prepaid health plans, including the Kaiser Foundation Health Plan and HMSA's Community Health Program and Health Plan Hawaii. These HMO plans include mammogram screening as part of their package of preventive services. Smaller prepaid health plans such as Pacific Health Care also provide coverage. Aetna's indemnity plan recently added a benefit.

Most HMO plans offer coverage comparable to that proposed in the legislation. They tend to differ in coinsurance arrangements. For example, some Kaiser plans cover the full charge for baseline mammograms for women under 40 years of age. Other plans may require a copayment.

This leaves approximately 140,600 women in indemnity plans such as HMSA (which insures most people in the state) that do not have coverage for screening mammograms. As of January 1, 1990, HMSA plans to include a new program of risk identification and health promotion for certain group plans. The program will provide a risk assessment and some coverage for preventive tests, such as screening mammograms, if warranted by the assessment.

The extent to which the lack of coverage results in women being unable to obtain mammogram screening. The higher use rates among women with coverage for mammogram screening suggest that more women will use the procedure if cost is removed as a barrier. As mentioned previously, however, use is relatively low even in plans with coverage. Thus cost may be a barrier, but cost alone does not explain why so many women do not have breast examinations.

Mammography is a relatively expensive test. Primary care physicians say that cost affects their referral decisions. A 1985 survey of physician attitudes and practices in early cancer detection showed that only about 11 percent followed American Cancer Society guidelines.⁵ This low referral rate is a major deterrent to greater use, and cost is a frequently cited factor in a physician's decision to refer a patient for screening.⁶

Knowledge, convenience, accessibility, and attitude also influence a woman's decision to seek the service on a periodic basis. To establish a successful screening program, caregivers will have to overcome the fear of radiation, apathy, reluctance of physicians to prescribe, and the tendency of people to wait until they are ill before seeking medical care.⁷

These barriers should not be underestimated. In the Health Insurance Plan study where mammograms were free, only about two thirds of the women offered screening came to the

first examination, and only about one half continued to participate annually. The experience of the Breast Cancer Detection Demonstration Project, which offered free screening, also showed the importance of nonfinancial barriers in screening utilization.⁸

The extent to which the lack of coverage for mammogram screening results in financial hardship. The charges for a mammogram in Hawaii are not likely to lead to financial hardship, but they are beyond the means of some women. What is likely is that women who cannot afford the procedure will simply not have it.

The level of public demand for mammogram screening. Current demand is low but will probably increase as more women recognize the value of mammography and more doctors recommend the procedure. Resources for screening are currently underused.

It is likely that more women are interested in having the procedure than current utilization rates suggest. In May 1988 when the American Cancer Society offered screening mammograms for \$39, over 12,000 women were referred to the 14 participating facilities. In May 1989, the society offered baseline mammograms for \$45 to women who had never had a mammogram, and approximately 5,000 women were referred during the month.

Thus a valid concern with any screening program is the ability of existing facilities to deliver the service. It has been pointed out that an "inefficient screening program with increased demands can lead to long waiting lists if demand exceeds service capacity."⁹ In Hawaii the total capacity of screening facilities exceeds current demand. However, some facilities now operate at close to full capacity and report waiting periods of one month or more. There is some question about the availability of specially trained technicians to do the examinations. One of the largest and busiest facilities reported it was

unable to increase its capacity due to difficulties in finding skilled technicians.

The level of public demand for insurance coverage for mammogram screening. There was no research evidence of public demand for coverage for mammogram screening. However, some insurers maintain that group purchasers are becoming increasingly interested in preventive benefits that might ward off catastrophic illnesses.

Insurers often maintain that the marketplace should determine the services to be covered and that mandates deny consumers the right to choose. However, consumer interest may not be a good measure of the kinds of benefits the public wants because most health insurance is sold to groups, with employers or unions acting on behalf of their employees and members.

Our interviews with insurers and employer groups indicate that individual choice or preference plays a small role in the selection and purchase of benefits in group plans. Because all health plans have to provide the minimum benefits of the Prepaid Health Care Act, employers first comply with these provisions and then weigh the cost advantages of individual plans, such as deductibles, the cost of retention, interest paid on reserves, and administrative fees.

Even those who purchase individual plans have little to say about benefits. Individual plans are usually purchased as complete packages and enrollees cannot select additional coverage available to groups through "riders."

The level of interest of collective bargaining units in negotiating for mammogram screening coverage. On the whole, there is little interest among collective bargaining units we interviewed in negotiating for coverage of mammogram screening. While they might recognize the value of the procedure, collective bargaining

organizations prefer such additional coverage as vision care, dental care, and prescription drugs.

Impact of indirect costs other than premiums and administrative costs. No specific data are available on the indirect costs of coverage. These costs, however, do exist, and many of them are not related to medical care. These would include lost time from work, transportation, and other incidental costs in obtaining an examination. Intangible costs might include the discomfort of the examination and the anxiety associated with the results of the tests. Experts have pointed out that these costs are important since they act as deterrents.

Legal aspects of the test and the reporting of results may contribute to indirect costs. Legal and medical communities have raised questions about liability and how current laws will be applied to the facilities performing the service. Although mammography is the best method for detecting small cancers, it does not locate all cancers. Results from recent studies indicate that readings that report no cancer have been wrong from 5 to 69 percent of the time.¹⁰

Financial Impact

Extent to which insurance coverage would increase the use of mammogram screening. The intent of the legislation is to encourage women to have screening mammograms by having insurers pay for the benefit. When cost is removed as a barrier, the use of the service can reasonably be expected to increase. However, the pattern of this increase over time and the degree to which the terms of insurance will affect use cannot be determined precisely. Table 4.1 shows estimates developed by the Wyatt Company of current and projected utilization rates for screening mammograms by age group and coverage status.

Based on data from several sources, including Kaiser and HMSA, the current estimates show

that HMO plans with coverage have a higher utilization rate for screening mammograms than plans without coverage. As noted previously, the Wyatt Company estimated that the combined annual use rate for screening mammograms in HMO plans is 21.4 percent (214 per 1000) compared with a use rate of 2.8 percent (or 28 per 1000) for indemnity plans. The 2.8 percent use rate assumes that a small percentage of women with no coverage are paying out-of-pocket for screening.

It is assumed that following the legislation, utilization rates in indemnity plans will rise from their existing levels to levels comparable to HMO plans with coverage. As shown in Table 4.1, the expanded benefits will impact on indemnity plans that do not now cover the benefit. These rates will rise from 2.8 percent to 21.3 percent. HMO plans, which now cover the benefit, will show no increases as a result of the legislation. (Differences in the composite rates are due to slight differences in the mixes of females in each age group.)

Extent to which insurance coverage would increase the cost of mammogram screening. Insurance can be expected to increase the volume of use, which in the long run may contain the cost of the test, which now ranges between \$50 and \$130. Insurers could help contain costs if they were allowed to design benefit packages to keep charges at reasonable levels.

The cost of a mammogram is influenced by such factors as equipment costs, services of technical personnel, location (whether in a hospital, clinic, private physician's office, or facility specializing in screening), and follow-up of suspicious findings that may prove to be benign. Insurance has the potential to increase demand and volume, which is an important influence on costs. As the volume of screenings increases, the individual charge can be lowered without affecting the total revenues of the facility.¹¹

Table 4.1. Estimated Annual Mammography Screening Utilization Rates Before and After Mandated Benefits¹

Type of Coverage	Percent Utilization by Age Groups ²			
	<u>35-39</u>	<u>40-49</u>	<u>50-64</u>	<u>Combined</u>
<u>Current Estimates</u>				
HMOs	6.9	17.3	34.6	21.4
Indemnity Plans	.9	2.3	4.6	2.8
Composite	2.6	6.4	12.9	7.9
<u>Post-Legislation Estimates</u>				
HMOs	6.9	17.3	34.6	21.4
Indemnity Plans	6.9	17.3	34.6	21.3 ³
Composite	6.9	17.3	34.6	21.3 ³

1. The Wyatt Company estimated pre- and post-legislation utilization rates based on information provided by the Hawaii Medical Service Association and Kaiser Permanente; and on data from the Centers for Disease Control, "Behavioral Risk Factor Surveillance--Selected States, 1987," and the U.S. Public Health Service, *Promoting Health/Prevention Disease: Year 2000 Objectives for the Nation*, 1989 (Draft).
2. Utilization rates in the 35-39 age groups assume one screening mammogram during the five year period. Rates in the 40-49 age groups assume five screening mammograms during the ten year period. Rates in the 50-64 age groups assume 15 screening mammograms during the 15 year period.
3. The combined rates differ by 0.1 percent due to slightly differing mixes of women within each age category.

Insurers could also influence costs through such cost-sharing arrangements as deductibles, coinsurance, and eligible charges. The proposed measures have no cost controls except the provision that allows insurers to continue to use deductibles currently in force in their policies. The basic HMSA plans rely on coinsurance arrangements and eligible charges to contain costs.

Extent to which mammogram screening will serve as an alternative to more expensive treatment or service. For an individual woman, the benefits of screening should outweigh its costs. Screening is done to detect breast cancer in early stages when the prognosis is hopeful and treatment can be more conservative. A woman diagnosed with advanced breast cancer can incur hospitalization costs in the thousands,

in addition to the costs of surgery, chemotherapy, radiotherapy, physician's fees, and medication. The American Cancer Society, in recommending their screening guidelines, has concluded that the medical benefits outweigh the risks and costs.

The impact of mandated insurance coverage on the total cost of health care. The financial impact will be on plans that currently do not cover the benefit. The Wyatt Company estimated the cost impact of mammography screening legislation for the first year following implementation and for a "mature" year when continuing and terminal care costs will have reached a steady state. It was assumed that continuing and terminal care costs would rise at first and then level off. As shown in Table 4.2, the total direct care cost impact for the first

year will be an estimated \$2,428,078, assuming that utilization rates for screening mammograms will be the same as rates experienced by HMOs that currently cover the benefit.

The method and assumptions used in estimating these costs are summarized below.

Conceptual model. The insured women eligible by age for mammogram screening were divided into those who currently have coverage and those who do not. A certain number of these women will have screening mammograms, and most will test negative. Of the few who test positive, a certain number will undergo further workups, and most will turn out not to have cancer. Those women found to have cancer will have it in various stages.

Table 4.2. Estimated Costs of Screening Legislation¹

	First Year	Mature Year ²
Utilization Rate	21.3	21.3
Screening Costs	\$ 1,950,709	\$ 1,950,709
Biopsy Costs	428,740	428,740
Initial Care	(7,320)	(7,320)
Continuing Care	61,776	205,920
Terminal Care	(5,827)	(45,032)
Total Costs ³	\$ 2,428,078	\$ 2,533,017

1. Estimates are for plans that currently do not cover mammogram screening. HMO plans that have coverage roughly equivalent to that specified in the legislation will experience no impact.
2. Mature-year estimates assume that continuing and terminal care costs have increased for a period following implementation and then leveled off to a steady state.
3. Total costs represent the costs of screening and biopsy plus or minus the costs of initial, continuing, and terminal care.

Each of the above outcomes has costs: the cost of the screening procedure for women who test negative; the cost of the screening and biopsy for women who test positive; the costs of the screening procedure, biopsy, initial care varying with the stage of cancer, and continuing and terminal care for women who are found to have breast cancer.

Method. Wyatt used a computer simulation to estimate the cost impact of the proposed legislation. Eligible women were assigned to the possible outcomes based on pre-legislation assumptions. Survival and mortality were simulated using life table methods for ten years following changes in screening mammography coverage and utilization. The same simulation was repeated based on post-legislation assumptions. Estimated annual costs incurred and the estimated number of deaths due to breast cancer were calculated for both scenarios. The estimated cost impact is the difference in costs between pre- and post-legislation scenarios. (See Appendix B for further discussion.)

Assumptions. The cost estimates were based on a number of assumptions that include the following:

- . *Potential users.* The mandate will extend mammogram screening coverage to approximately 140,642 women insured by plans that do not cover the benefit. The 53,558 HMO enrollees who have coverage will not be affected.
- . *Utilization.* Current annual utilization rates for screening mammography are as shown in Table 4.1. Following legislation, women in the three age groups will use the new benefit at the current rates shown for HMO plans.
- . *Charge.* The charge for a screening mammogram is \$65 and remains constant.

- . *Women currently paying out of pocket.* Women aged 35 and older who are not covered for the benefit and who currently pay out-of-pocket for screening mammography will submit all allowable charges to their insurers for mammograms received following passage of the legislation.
- . *Biopsies.* Of all screening mammograms performed, 2 percent will result in a recommendation of biopsy. The cost per biopsy alone will be \$900.
- . *Stage distribution.* A certain number of women will have cancer at various stages. Screened women will have more early-stage cancers than unscreened women. (See Appendix C for stage distribution assumptions for screened and unscreened women.)
- . *Costs of care.* These costs will vary depending on the stage of cancer. Cancers discovered at later stages will cost more. (See Appendix D for treatment-cost assumptions.)
- . *Incidence and survival rates.* Cancer incidence rates for Hawaii were based on the National Cancer Institutes *Annual Cancer Statistics Review, Including Cancer Trends: 1950-1985*. (See Appendix E for incidence rates.) Survival rates for women with breast cancer are equal to those found in the National Cancer Institute's Surveillance, Epidemiology, and End-Results Program, 1977-83. There was no survival benefit assumed for mammograms received by women aged 35 to 39.
- . *Survival rates for women without breast cancer.* These rates are equal to those of all U.S. women as reported in the 1979-81 U.S. Life Tables prepared by

the Social Security Administration. Survival rates for women in the age group 40-49 are equal to Life Table rates for women aged 45, while rates for the age group 50-64 are equal to the Life Table rates for women aged 57.

Estimated impact of changing the mammography benefit. The Wyatt Company also estimated the impact on health care costs of changing the mammography benefit in the legislation and limiting it to annual screening mammograms for women aged 50 to 64 only. The estimated cost for the modified benefit in the year following the legislation was \$1,493,501, or 62 percent of the cost of the benefit proposed in the legislation.

Sensitivity analysis. The cost estimates in this study were based on reasonable assumptions. However, such variables as actual mammography charges, breast cancer incidence, mammography utilization, and so forth may deviate from the assumptions used and thereby impact on total costs.

The Wyatt Company ran a sensitivity analysis varying combined mammography use (diagnostic and screening), breast cancer incidence, and mammography cost. The charges for mammography appears to be the most sensitive assumption with respect to impact on total costs. This was not unexpected since the cost of screening comprises about 80 percent of the total cost of providing the coverage.

Extent to which insurance coverage for mammogram screening can be expected to increase or decrease the insurance premiums of policyholders and the administrative expenses of insurers. It is likely that insurance rates will increase to meet increased screening costs. Although the lower costs for treatment may offset the increased costs for screening, savings are unlikely to completely recover screening costs. The Wyatt Company has estimated that insurance plans will experience a cost impact because they do not cover mammogram screening

as required by the legislation. HMO plans that cover the benefit will have no impact.

Estimated impact on plans not covering mammogram screening. Estimated premium increases are shown in Table 4.3 for plans that do not cover the screening benefit. Potential monthly increases are \$.41 per adult member in the year following the legislation and \$.43 in a mature year. These estimates were derived by dividing the estimated increases in total costs by the total number of adult members. *They do not include administrative costs that could run an additional 5 to 15 percent, nor do they include savings from deductible or coinsurance arrangements that could reduce premium costs considerably.*

Approximately 72 percent of insured women aged 35 years and older are not covered for screening mammograms. In deriving the premium costs, it was assumed that initially the annual cost impact of mandating the benefit would result from (1) the number of new screenings performed on this group and (2) the number of follow-up services that result from positive readings. Costs associated with continuing care and savings associated with terminal care will be relatively small initially but grow in magnitude over time. Premiums were therefore calculated separately based on costs for the first year and those for a mature year.

Administrative costs. Any new coverage will require insurers to amend their policies and familiarize their claims personnel with the changes. The new benefit levels, quality assurance, and utilization review will require expanded resources. Claims volume and related administrative work will increase. The HMSA testified that the provision requiring insurers to give their members a brochure about the new benefit would cost from \$50,000 to \$100,000 per year. The costs associated with all of these will be passed on to policyholders.¹²

These costs may be offset to some degree by decreases in claims for other medical services.

Table 4.3. Estimated Impact on Premiums: Health Insurance Plans Not Currently Covering Screening Mammograms¹

Year One:

Increase in costs to insurers	\$2,428,078
Number of adult members ²	488,843
Annual increase in covered charges per capita	\$4.97
Monthly increase in covered charges per capita	\$0.41

Mature Year:

Increase in costs to insurers	\$2,533,017
Number of adult members ²	488,843
Annual increase in covered charges per capita	\$5.18
Monthly increase in covered charges per capita	\$0.43

1. These estimates do not factor in such cost-saving provisions as copayments required by many indemnity plans for x-ray procedures. For example, the common 50 percent copayment arrangement would reduce by half the cost of the screening procedure to the insurer.
2. Best estimate. Numbers exclude HMOs currently covering screening mammograms.

However, we were unable to estimate what the offset would be among Hawaii's insured population and therefore did not include administrative costs in our estimates.

Assessment of Senate Bill 1398 and House Bill 594

The legislation was reviewed with two questions in mind: (1) will it achieve responsible and humane goals, and (2) will it do so in an economical manner.

Purpose. The measures as currently drafted should encourage the use of mammographic screening among those for whom cost is the main barrier by ensuring that all policies cover the benefit.

Scope. The House measure amends only Chapter 431, the Insurance Code of the *Hawaii Revised Statutes*, and does not amend Chapter 432, which covers benefit societies such as HMSA. The measures do not specify health maintenance organizations and plans. A large proportion of the insured are members of these organizations.

Adjustment of age and frequency guidelines. Both measures contain provisions that require the insurance commissioner to review age and frequency guidelines of the American College of Radiology and make adjustments to the law as necessary.

There are two concerns with this provision. *First*, because the measure amends Chapter 431, the Insurance Commissioner must adopt the

rules. However, the Department of Commerce and Consumer Affairs testified that it may not be the appropriate agency to review and adjust screening guidelines. The legislation could clarify that the department should seek the advice of the Department of Health in this matter. *Second*, although the guidelines of the American College of Radiology have wide acceptance, not all organizations concur with the age and frequency portions. An independent body, such as the American Cancer Society, that will not stand to gain directly from the mandate should be included to provide guidance.

Informational brochure. The bills contain a provision that requires insurers to give subscribers an informational brochure at the start of coverage and annually thereafter. The purpose is "to improve the insured's understanding of the health benefits of mammography."

The HMSA testified that this would be an expensive and ineffective way to educate the public and would cost \$50,000 to \$100,000 each year.¹³ Insurers already include descriptions of covered benefits in brochures provided upon enrollment and renewal. It is not reasonable, cost-effective, or beneficial to single out screening for special consideration. Education on the benefits of this procedure can be better achieved through other means.

Deductibles. The measures provide that screening services shall not be exempt from *deductible* provisions in force in insurance contracts or policies, but they do not specify *coinsurance* provisions that insurers normally use to hold down the costs of medical services. Inclusion of coinsurance would clarify insurers' right to use methods of cost containment such as participating providers, preferred providers, eligible charges, customary charges, and so forth.

Conclusion

This study was unable to provide clear-cut answers to all questions on the impact of the Senate and House proposals to mandate benefits for mammogram screening.

The unchanging mortality rates for breast cancer underlie the need for early detection and treatment. Mammogram screening appropriately performed and combined with breast examination now offers the best hope of reducing these rates. The use of screening, however, is low even among women who have the coverage. Clearly, cost is not the only barrier, and much more needs to be done in the way of education and encouragement before women seek this treatment in numbers that will make a significant difference in the mortality statistics.

There is more than one way to look at costs. For the individual woman, the costs of dying from advanced stage breast cancer far outweigh the annual costs of screening. The legislation will probably result in small premium increases. These costs could be reduced if the benefits in the legislation were modified or if insurers were allowed to use cost-sharing initiatives.

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APPENDIXES

APPENDIX A

Current Mammography Screening Utilization

One of the first steps in estimating costs was to estimate the current utilization rate for screening mammography. For plans with coverage (HMO plans), the Wyatt Company estimated a current utilization rate for all age groups combined of 21.4 percent. For plans without coverage, Wyatt estimated a utilization rate for all age groups combined of 2.8 percent. Age group breakdowns were as follows:

	<u>35 - 39</u>	<u>40 - 49</u>	<u>50 - 64</u>	<u>Combined</u>
Plans with coverage (HMOs)	6.9%	17.3%	34.6%	21.4%
Plans without coverage	0.9%	2.3%	4.6%	2.8%
Composite	2.6%	6.4%	12.9%	7.9%

For plans of health maintenance organizations (HMOs), Wyatt assumed that 34.6 percent of women across all age groups would comply with American Cancer Society guidelines for screening mammograms and that the prevalence of diagnostic mammograms is 9.5 percent of all mammograms. Thus for women in the 35 to 39 age group, 34.6 percent compliance would imply a 6.9 percent (69 per 1000) annual screening rate (34.6 percent divided by 5 since only one mammogram is covered in the five-year interval). For women in the 40 to 49 age group, 34.6 percent compliance would imply an annual utilization rate of 17.3 percent (34.6 divided by 2 since one mammogram is covered in a two-year interval). For the 50 to 64 age group, 34.6 percent compliance translates directly to 34.6 percent annual utilization since coverage is available annually.

These rates compare favorably to service rate data provided by major insurers. Adding 9.5 percent to Wyatt's combined screening rate of 21.4 percent gives a combined diagnostic and screening rate of 30.9 percent (309 per 1000), which is within Kaiser's estimates of 30.5 percent (305 per 1000) for combined diagnostic and screening mammograms.

For plans without coverage, the approach in estimating utilization was more subjective. Basing screening estimates on national and local surveys, Wyatt assumed that some women without coverage were paying out-of-pocket for screening mammograms and that usage was considerably lower than plans with coverage.

APPENDIX B

Cost Impact of Mandating Mammography Coverage for Women Aged 35-64

The annual impact of mammography screening legislation on total health care covered charges for insurance plans that do not cover the benefit is shown below. Separate estimates were projected for the first year after legislative implementation and for a later "mature" year, at which time continuing and terminal care costs will have reached a steady state.

It should be noted that the numbers shown here have been rounded. The numbers used in the model were actually carried out to many more decimal places than those displayed.

First Year:

Population (no coverage for screening)	140,642	
35-39	34,184	
40-49	53,102	
50-64	53,356	
Utilization rates*		
35-39	6.90%	
40-49	17.30%	
50-64	34.60%	
Combined	21.30%	
Number of services (all age groups combined)*	30,010.90	
Charge per screen	\$ 65	
Screening costs		\$ 1,950,709
Biopsy rate	2.00%	
Biopsies (false positives)		
Pre-legislation	73.00	
Post-legislation	549.38	
Difference	476.38	
Cost per biopsy	\$ 900	
Biopsy costs		\$ 428,740
Initial care costs		\$ (7,320)
Continuing care costs		\$ 61,776
Terminal care costs		\$ (5,827)
TOTAL COSTS - FIRST YEAR		\$ 2,428,078

*Numbers have been rounded.

Mature Year:

Population (no coverage for screening)	140,642	
Utilization rate	21.30%	
Number of services	30,010.90	
Charge per screen	\$ 65	
Screening costs		\$ 1,950,709
Biopsy rate	2.00%	
Biopsies (false positives)		
Pre-legislation	73.00	
Post-legislation	549.38	
Difference	476.38	
Cost per biopsy	\$ 900	
Biopsy costs		\$ 428,740
Initial care costs		\$ (7,320)
Continuing care costs		\$ 205,920
Terminal care costs		\$ (45,032)
TOTAL COSTS - MATURE YEAR		<u><u>\$ 2,533,017</u></u>

Population. Cost estimates were for a population of women aged 35 to 64 who currently have no coverage for screening. Wyatt estimates this group as numbering 140,642.

Utilization. Current (pre-legislation) utilization rates were calculated for different age groups as discussed in Appendix A. The pre-legislation mammography screening rates for those not currently covered indicate that a small percentage of women (2.8) seek screening services on an out-of-pocket basis but that these women will submit all charges to their insurers following legislation.

For the same group, the post-legislation utilization rate for all age groups combined is 21.3. These rates were estimated based on current utilization rates in plans with coverage for screening.

Number of services. The number of services was determined by multiplying the utilization rate for each age group by the number of women estimated to be in each age group. The products were then added to yield the total service rate as follows:

35-39	2,365.3400
40-49	9,185.8973
50-64	<u>18,459.6714</u>
Total	30,010.9087

Screening costs. Screening costs were determined by multiplying the total number of services by the charge per screen:

$$\begin{array}{r}
 30,010.9087 \\
 \times \quad \$65 \\
 \hline
 \$ 1,950,709
 \end{array}$$

The screening costs resulting from the mandate are based on the entire number of mammograms performed after the mandate. Wyatt assumed that the small percentage of women currently paying out-of-pocket for their screening mammograms would submit eligible charges to their insurers.

Biopsy costs. The overall biopsy rate was assumed to be 2 percent. However, the biopsy cost includes only those biopsies involving false positives. Biopsy costs for those cases where breast cancer is detected (true positives) were captured under initial care costs.

The biopsy costs were derived by calculating the difference in false biopsy rates between the pre- and post-legislation scenarios. Calculations were done by age group. The difference was then multiplied by the cost per biopsy of \$900:

	Pre-legislation	Post-legislation	Difference
35-39	6.0786	45.7457	39.6671
40-49	22.6749	170.6455	147.9706
50-64	<u>44.2464</u>	<u>332.9866</u>	<u>288.7402</u>
Total	72.9999	549.3778	476.3779
			<u>X \$900</u>
			\$ 428,740

Initial care costs. These are costs that result from a true positive mammogram. They include the cost of the biopsy and the first three months of cancer treatment. Wyatt's model assumes that mandated screening mammography coverage will alter the stage distribution in which breast cancer is initially detected and lead to earlier detection (see Appendix C for stage distribution). Lower initial care treatment costs are associated with earlier stage identification (see Appendix D for treatment costs).

Wyatt first calculated the number of cancer cases with and without screening for both pre- and post-legislation scenarios.

	<u>Cancer Cases Pre-Legislation</u>			<u>Cancer Cases Post-Legislation</u>		
	Screen	No Screen	S + NS	Screen	No Screen	S + NS
In situ	0.3379	9.9975	10.3354	2.5420	7.7490	10.2910
Stage I	2.7022	48.6149	51.3171	20.3361	37.6819	58.0180
Stage II	3.7156	104.6788	108.3944	27.9621	81.1376	109.0997
Stage III	-0-	15.8783	15.8783	-0-	12.3074	12.3074
Stage IV	-0-	16.8584	<u>16.8584</u>	-0-	13.0670	<u>13.0670</u>
			202.7836			202.7831

Initial care “savings” were estimated by computing the difference between initial care costs before and after the legislation for all stages of cancer.

	<u>Post-Legislation</u>	-	<u>Pre-Legislation</u>	x	\$	=	\$
In situ	(10.2910	-	10.3354)	x	\$ 6,880	=	\$ (305)
Stage I	(58.0180	-	51.3171)	x	\$ 7,277	=	\$ 48,762
Stage II	(109.0997	-	108.3944)	x	\$ 7,612	=	\$ 5,369
Stage III	(12.3074	-	15.8783)	x	\$ 8,106	=	\$ (28,946)
Stage IV	(13.0670	-	16.8584)	x	\$ 8,494	=	\$ (32,204)
							\$ (7,324)*

*The \$7,324 compares with the \$7,320, with the difference due to rounding.

It should be noted that a screening mammography benefit will not affect the breast cancer incidence rate: cancer cases with and without screening both before and after the legislation will still add up to the same number of total breast cancer cases. However, by moving more cases into the “identified by screening” category where earlier detection is assumed, initial care savings of \$7,320 was the result. This figure represents the difference in initial care costs before and after the legislation and is seen as a savings.

Continuing care costs. Based on evidence in the literature, Wyatt assumed that earlier detection of breast cancer resulting from the mandate will translate into a protracted period of continuing care treatment. This was calculated by multiplying the increase in the number of breast cancer cases identified by screening by the “number of months of preclinical duration.” Wyatt estimated that mandated screening mammography coverage will result in breast cancer detection, on average, of 20 months sooner than without the mandate.

The increase in true positives as a result of the legislation was first estimated by subtracting the true positives before the legislation from the true positives after the legislation.

True positives after legislation	51
True positives before legislation	<u>7</u>
Increase	44

The preclinical duration was estimated as 6 months of continuing care for cases diagnosed in the first year; 6 months of continuing care for cases diagnosed in the second year plus 12 months of continuing care for cases diagnosed in the first year; and six months of care for cases diagnosed in the third (mature) year plus 12 months of care for cases diagnosed in the second year plus 2 months of care for cases diagnosed in the first year. These estimates were:

Calendar Year Diagnosed	Pre-Clinical Duration from Effective Date			Combined
	1 year	2 years	3 years	
1	6	-	-	6
2	12	6	-	18
3	2	12	6	20

Then the costs associated with these 44 cases from the first year to the mature year were estimated by multiplying the pre-clinical duration (measured by the effective date of the mandate) by an assumed durational cost of \$234 per month.

Year 1	=	6	x	\$234	x	44	=	\$ 61,766
Year 2	=	18	x	\$234	x	44	=	\$ 185,328
Year 3	=	20	x	\$234	x	44	=	\$ 205,920

The calculations resulted in an estimated \$61,776 for the first year and an estimated \$205,920 for the mature year following legislation.

Terminal care costs. Terminal care "savings" result from the fact that earlier detection of breast cancer improves life expectancy and that terminal care costs for breast cancer deaths are higher than terminal care costs for deaths from all other causes (\$15,136 - \$10,814 = \$4,322). (See Appendix D for treatment costs by stage.) Wyatt assumed there would be no appreciable survival benefits in the 35 to 39 age group and also a 100 percent recovery in the in situ stage.

Terminal care savings were determined by multiplying the increase in the number of lives saved (from breast cancer death) by the terminal care cost savings amount of \$4,322. Lives saved due to screening were calculated for pre- and post-legislation scenarios for the 40 to 49 and 50 to 64 age categories and for each stage at which detection occurred. The overall U.S. female mortality was imposed upon all other women. The difference, by age and stage, represented the number of lives currently saved due to screening. The number of breast cancer deaths prevented due to the mandate is the difference between the pre- and post-legislation lives saved multiplied by the terminal care cost savings amount of \$4,322.

This calculation yielded a savings after the first year of \$5,827 and after a mature year of \$45,032.

Total costs. Total costs of \$2,428,078 for the first year following legislation (and \$2,533,017 for the mature year) are the sum of screening and biopsy costs plus or minus the costs of initial, continuing, and terminal care.

APPENDIX C

Stage Distribution of Cancers With and Without Screening

The estimates assumed that screened and unscreened women would have cancers at different stages. The stage distribution is shown below. The model assumed that the cancers detected in a screened population would be early stage cancers. For example, 40 percent of the cancers detected in screened women would be Stage I compared to 24.8 percent for unscreened women.

Stages	With Screening	Without Screening
In situ*	5.0%	5.1%
Stage I	40.0%	24.8%
Stage II	55.0%	53.4%
Stage III	0.0%	8.1%
Stage IV	0.0%	8.6%

* Microscopic abnormalities in breast tissue.

Source: U.S. Congress, Office of Technology Assessment, *Breast Cancer Screening for Medicare Beneficiaries: Effectiveness, Costs to Medicare and Medical Resources Required*, Washington, D.C., November 1987.

APPENDIX D

Treatment Costs for Screening, Biopsy, Initial Treatment, and Terminal Care

	Covered	Charges
Screening Mammography	\$	65
Biopsy	\$	900
Initial Treatment		
In situ	\$	6,880
Stage I		7,277
Stage II		7,612
Stage III		8,106
Stage IV		8,494
Terminal Care		
Breast cancer	\$	15,136
All other causes		10,814

Source: M.S. Baker, et al., "Analysis of the Continuous Medicare History Sample File: The Cost of Treating Cancer," paper presented at a meeting of the American Cancer Society, San Diego, CA, May 1987.

APPENDIX E

Breast Cancer Incidence and 5-Year Survival
Women Aged 40 to 64, State of Hawaii

Age	Stage	Incidence per 100,000*	Percent 5-Year Relative Survival
40 - 49	Total	142.31	77.28
	In situ	12.45	100.00
	Stage I	21.64	100.00
	Stage II	70.27	81.61
	Stage III	16.90	61.41
	Stage IV	8.60	22.08
	Unstaged	12.45	100.00
50 - 64	Total	196.14	75.48
	In situ	11.43	100.00
	Stage I	29.50	100.00
	Stage II	99.73	83.15
	Stage III	18.28	54.30
	Stage IV	15.17	17.07
	Unstaged	22.02	90.58

*Female population.

Source: National Cancer Institute, *Annual Cancer Statistics Review Including Cancer Trends: 1950-1985*, Bethesda, Maryland, Department of Health and Human Services, January 1988.

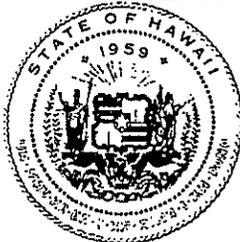
RESPONSE OF THE AFFECTED AGENCY

COMMENTS ON AGENCY RESPONSE

We transmitted a preliminary draft of this report to the Department of Health and the Department of Commerce and Consumer Affairs on January 2, 1990. A copy of the transmittal letter to the Director of Health is included as Attachment 1. A similar letter was sent to the Department of Commerce and Consumer Affairs. The Department of Commerce and Consumer Affairs did not respond. The response from the Director of Health is included as Attachment 2.

The Director of Health states that the department wishes to go on record as supporting mandated health insurance coverage of mammography screening. The State Health Insurance Program will be providing age-specific coverage for screening mammography as a minimum benefit.

STATE OF HAWAII
OFFICE OF THE AUDITOR
465 S. King Street, Room 500
Honolulu, Hawaii 96813



(808) 548-2450
FAX: (808) 548-2693

January 2, 1990

C O P Y

The Honorable John C. Lewin
Director of Health
Department of Health
1250 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Lewin:

Enclosed are three copies, numbers 6 to 8 of our draft, **Study of Proposed Mandatory Health Insurance for Mammogram Screening**. We ask that you telephone us by January 4, 1990, on whether you intend to comment on our conclusions. Should you decide to respond, please transmit the written comments to us by January 11, 1990. We will append your response to the report submitted to the Legislature.

The Governor, the presiding officers of the two houses of the Legislature, and the Director of the Department of Commerce and Consumer Affairs have also been provided copies of this draft report.

Since the report is not in final form and changes may be made, access to this report should be restricted to those whom you might wish to assist you in preparing your response. Public release of the report will be made solely by our office and only after the report is published in its final form.

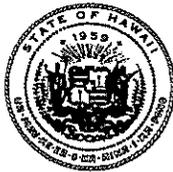
Sincerely,


Newton Sue
Acting Legislative Auditor

Enclosures

ATTACHMENT 2

JOHN WAIHEE
GOVERNOR OF HAWAII



JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3378
HONOLULU, HAWAII 96801

January 11, 1990

In reply, please refer to:
File:

RECEIVED

JAN 17 8 33 AM '90

STATE OF HAWAII

Mr. Newton Sue
Acting Legislative Auditor
Kekuanaoa Building, Suite 500
465 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Sue: *Newton*

Subject: Study of Proposed Mandatory Health Insurance for
Mammogram Screening (Draft)

The Department of Health wishes to go on record as supporting mandated health insurance coverage of mammography screening. Screening mammography is one of two areas in which mandated coverage is warranted.

Screening must be distinguished from diagnostic mammography for which costs are high. Costs can be contained to approximately \$50 per procedure for screening mammography which will eventually benefit the health insurance industry by reducing the costs of treatment of women with otherwise preventable advanced breast cancer.

As a demonstrated commitment to this preventive philosophy, our State Health Insurance Program will provide age-specific coverage for screening mammography as a minimum benefit.

Very truly yours,

John C. Lewin
JOHN C. LEWIN, M.D.
Director of Health

