

Mammographic Referral Patterns for two Breast Imaging Units in Jamaica

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ABSTRACT

Objective: In countries that have instituted national mammographic screening programmes, mortality from breast cancer has decreased by as much as 63%. Although mortality rates from breast cancer in Jamaica are high, there is no national mammographic screening programme. In this context, opportunistic screening, which depends on contact between healthcare provider and patient, as well as self-referral become important. Therefore, the authors sought to determine the source of referrals for women who had mammography.

Subjects and Methods: The variables of age, indication for mammography, source of referral and referring physician area of specialty if applicable were extracted from the attendance records for all patients who had mammography at the breast imaging unit at the University Hospital of the West Indies (UHWI) and Radiology West (RadWest) in the year 2003.

Results: There were 779 bilateral mammograms done at UHWI of which 452 (58%) were screening and 1223 mammograms done at RadWest of which 657 (54%) were screening. The difference in proportion of self-referral between the two facilities was significantly different ($p < 0.001$). Of the 452 screening mammograms performed at UHWI, 329 (73%) were self-referred, 31 (7%) were from primary care, 18 (4%) from gynaecologists and 17 (4%) from general surgeons. In contrast, of the 657 screening mammograms, at Radwest, 92 (14%) were self-referred, 323 (49%) were from primary care, 47 (7%) from gynaecologists and 37 (6%) from general surgeons.

Conclusion: To increase the utilization and hence effectiveness of screening mammography, programmes targeting healthcare professionals, particularly gynaecologists and the public are needed.

Patrones de Remisión para Mamografías en dos Unidades de Imágenes de Mamas en Jamaica

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RESUMEN

Objetivo: En países que han instituido programas nacionales de pesquiasje mamográfico, la mortalidad por cáncer de mamas ha disminuido tanto como un 63%. Aunque las tasas de mortalidad por cáncer de mama en Jamaica son altas, no existe un programa nacional de pesquiasje mamográfico. En este contexto, el pesquiasje oportunista – que depende del contacto entre el proveedor de la atención médica a la salud y el paciente – así como la autoremisión, se hacen importantes. Por lo tanto, los autores buscan determinar las fuentes de las autoremisiones de mujeres que tuvieron mamografías.

Sujetos y métodos: Las variables de edad, indicación de mamografía, fuente de remisión, y – si fuese necesario – el área de especialidad del médico que remite, fueron extraídas de los registros de asistencia de todas las pacientes a las que se les realizaron mamografías en la unidad de imágenes de mamas del Hospital Universitario de West Indies (UHWI), y en la de Radiology West (Rad West) en el año 2003.

Resultados: Se realizaron 779 mamogramas bilaterales en UHWI – de los cuales 452 (58%) fueron pesquiasjes – y 1223 mamogramas en RadWest – de los cuales 657 (54%) fueron pesquiasjes. La diferencia en proporción de autoremisiones entre las dos instalaciones, fue significativa ($p < 0.001$). De los 452 mamogramas de pesquiasje realizados en UHWI, 329 (73%) fueron autoremisiones, 31 (7%) provenían de atención primaria, 18 (4%) de ginecólogos, y 17 (4%) de cirujanos. En contraste con

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esto, en RadWest, de los 657 mamogramas de pesquisaje, 92 (14%) fueron autoremisiones, 323 (49%) provenían de atención primaria, 47 (7%) de ginecólogos, y 37 (6%) de cirujanos generales.

Conclusión: *A fin de aumentar la utilización, y por ende la efectividad de la mamografía de pesquisaje, se necesitan programas dirigidos a captar la participación de los profesionales de atención médica a la salud – en particular los ginecólogos – así como del público.*

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INTRODUCTION

Mammographic screening refers to the practice of doing mammograms on asymptomatic women of the appropriate age to detect subclinical breast cancer. In Jamaica, breast cancer is the leading cause of cancer in women (1). Secondary prevention or early detection of breast cancer through mammographic screening has been reported to be effective in reducing mortality associated with the disease in the population (2–4). The effectiveness is however dependent upon high levels of utilization (5, 6).

The major factors in determining whether or not a screening tool is of real value are the frequency of the abnormality to be detected as well as the sensitivity of the screening tool (7, 8). The deleterious effects of screening also have to be taken into account (7, 8). Whereas all leading organizations have endorsed breast cancer screening (2, 3, 5, 9), guidelines differ in terms of the age to begin and end regular mammography screening intervals. The frequency with which the screening tool is accessed *ie* the screening rate is also crucial.

Jamaica, a developing country, has no national screening programme for breast cancer. It has a population of 2.6 million, of which 363 503 are women aged 40 years and over (10). The health service in Jamaica is served by both public and private sector providers. Approximately 62% of ambulatory care is provided by the private sector (11). Of all patients seeking healthcare, 57% access private sector doctors, 38% use the public sector facilities and 5% use both (11). Mammography services are available at the public sector facilities of the University Hospital of the West Indies (UHWI), the Kingston Public Hospital (KPH) and the St Ann's Bay Hospital. At least seven private centres in Kingston, Ocho Rios and Montego Bay (including Radiology West) also offer the service as does one non-governmental organization, the Jamaica Cancer Society. All centres accept patients with physician referrals as well as on a "walk in" *ie* self-referred basis.

The UHWI breast imaging unit in the parish of St Andrew opened in 1997 and is affiliated academically with The University of the West Indies. The majority of its clients come from the eastern parishes of Kingston and St Andrew with an estimated combined female population of 95 484 aged 40 years and over, (10). Being a public institution, the majority of patients presenting at the unit are public patients of the various outpatient departments of the hospital. In contrast, Radiology West (RadWest) a private outpatient imaging centre located in the western end of the island opened in 2000. It is one of two mammography units serving the west-

ern parishes of St James, Trelawny, Hanover, Westmoreland and portions of St Elizabeth, the combined female population of these parishes aged 40 years and over being 76 771 (10). It has no academic affiliations. The women presenting at the UHWI would be predominantly urban, whereas, although RadWest is situated in an urban centre, the catchment area for patients would include a higher proportion of women from rural Jamaica.

In 2003, approximately 10 000 mammograms were performed by 11 of 13 centres, that offered screening mammography. This number includes data from the Jamaica Cancer Society, the organization with the largest mammography service in the island. Data from the Jamaica census showed that the number of women (aged 40–84 years) eligible for screening mammography is 348 356 (10). Thus, one can conservatively estimate that the proportion of eligible women who had screening mammography was < 5%. This compares poorly to countries that have a national screening programme, for example, the United Kingdom (UK), where a screening proportion of 76% has been reported in women age 50–64 years.

There is as yet no mammographic screening schedule tailored to the Jamaican population. Ninety-one per cent of the population of Jamaica is of West African descent. The international guidelines have been based predominantly on clinical trials with Caucasian women and there is insufficient evidence to determine the applicability of these guidelines to the Jamaican population. The inclusion of women aged 40–49 years in screening programmes has been controversial. Initial randomized clinical trials were underpowered to show an age-specific mortality reduction of screening breast mammography in women age 40–49 years (3). However, more recent trials as well as several meta-analyses have reported benefits of screening in this age group (3). The high proportion of women with dense breasts within the 40–49-year age group resulting in an increase in false negative scans (12, 13) was also stated as reason for their exclusion from screening exercises. Also, the benefit for women aged 40–49 years took longer to appear because their breast cancer growth rates were faster and their screening intervals excessively long (14). Based on the high age standardized mortality rate of breast cancer within this age group in Jamaica (151/100 000), approximately three-fold greater than the overall age-specific mortality of the general population (43/100 000) (1) and our findings that approximately 35% of women in this age group have radiolucent breasts, the authors have argued that women in this age group (15) should be included in annual local screening programmes (15).

In the absence of a national screening programme for breast cancer, factors that will facilitate screening are public awareness, physicians incorporating secondary health prevention activities in their interaction with patients and access to mammographic facilities (6). The Jamaica Cancer Society and other non-governmental agencies are involved in breast cancer health education activities, as is the breast imaging unit at the UHWI. As part of the comprehensive care of women, physicians with a significant primary care component to their practice should include screening for malignancy in their practice. The objective of the present study was ascertaining the source of referral for mammographic screening in women at a major public and private facility.

SUBJECTS AND METHODS

All patients attending both units are entered in patient logs in which information such as the patient's age, indication for mammography, source of referral and referring physician area of specialty are recorded. The data for this study were extracted from these attendance records for all patients who had mammographic screening at the UHWI and RadWest in the year 2003. A screening mammogram was defined as a mammogram performed on a patient who had no breast signs or symptoms. Patients presenting for imaging without the referral of a physician, whether or not they were symptomatic, were designated as self-referred patients. Asymptomatic patients with a history of previous mastectomy were excluded from the study.

STATISTICS

Data are expressed as frequencies or means with standard deviations. Differences in proportions between groups were tested by chi-square analysis. Data were analyzed with the Stata statistical software for Windows™ version 8 (College Station, TX 77845, USA).

RESULTS

There were 779 mammograms performed at the University Hospital of the West Indies (UHWI) of which 452 (58%) were screening mammograms. There were 1223 mammograms at RadWest of which 657 (54%) were screening mammograms (Table 1). This difference in proportion represented borderline statistical significance ($\chi^2 = 3.91$, df (1), $p = 0.06$). The mean ages of patients who had screening

Table 1: Types of mammograms and source of referral for screening mammography at the University Hospital of West Indies and Radiology West

Source	UHWI	Radiology West
Diagnostic mammography	327	566
Screening mammography*	452	657
All mammography	779	1223

Abbreviations: UHWI – Breast Imaging Unit, University Hospital of the West Indies; * $p = 0.059$, $\chi^2 = 3.57$ df (1)

mammograms were 51.9 years (minimum 29, maximum 87, standard deviation 9.5) and 50.8 years (minimum 20, maximum 86, standard deviation 10.2) at UHWI and RadWest respectively. The source of referrals for mammograms at each facility is shown in Table 2. The proportion of self-

Table 2: Source of referral for screening mammography at the University Hospital of the West Indies and Radiology West

Source of Referral	UHWI	Radiology West
Self *	327	91
Physician referrals	125	566
Primary care/general practitioner	31	323
Gynaecologist	18	47
Surgeon	17	37
Internal medicine	2	84
Other	57	75
All screening mammography	452	657

Abbreviations: UHWI – Breast Imaging Unit, University Hospital of the West Indies; * $p < 0.0001$ $\chi^2 = 390$ df (1).

referral compared with physician referral was significantly different between facilities with a significantly greater proportion of self-referrals at the UHWI facility, 73% vs 14% at RadWest ($\chi^2 = 390$, df (1), $p < 0.000$). The number of referrals from gynaecologists at each institution for screening were 18 (4% of total) and 47 (7% of total) respectively. Among physicians' referrals, there was a significant difference in the source of the referrals according to facility with a greater than expected proportion of referrals at RadWest originating from a primary care source ($\chi^2 = 102$, df (4), $p < 0.001$).

DISCUSSION

In this study, the proportion of examinations classified as screening were low (58% and 54%) compared to acceptable norms of 70% (6). There was a higher percentage of screening mammograms at the UHWI (58% cf 54%). Additionally, the difference in proportion of self-referral between the two facilities was significant ($p < 0.001$) as of the 452 screening mammograms performed at UHWI, 329 (73%) were self-referred compared to 14% (of 657) at RadWest. Additional sources of referral at UHWI included 31 (7%) from primary care, 18 (4%) from gynaecologists and 17 (4%) general surgeons. The comparable values at RadWest were 323 (49%) from primary care, 47 (7%) from gynaecologists and 37 (6%) from general surgeons.

There are several factors that affect the participation in a screening programme. These include awareness, cost, accessibility, perceived health status, educational level and visits to healthcare providers (6, 16). The greater proportion of women who were self-referred at UHWI may be due to accessibility, lower cost and greater awareness in women in Kingston and St Andrew. The screening mammograms performed at RadWest were associated with a high proportion of women referred to that facility by primary care physicians.

Whether this reflects a greater sensitization of primary care physicians to the value of screening mammography is unclear. Additionally, this pattern may be due to psychocultural factors in the women such as the reluctance on the part of women to present for screening unless "authorized" by a referring physician, and this may be more tangibly expressed in rural women. The UHWI also engages in patient outreach and educational programmes, which would also be likely to contribute to the larger percentage of self-referred patients. The socioeconomic status of the women may also have been a contributing factor but this variable was not reviewed in this study. Further work is required to quantify the contribution of these factors to the participation in a screening programme.

The number of cancers detected in these screening exercises was not included in this study as it was considered beyond the scope of this paper. The detection rate of the screening exercises at the UHWI is reviewed under the ongoing auditing exercise and in the year 2000 was actually found to be 10/1000 (personal communication).

Gynaecologists continue to play a role in cervical cancer screening (17, 18). However, in this study, the proportions of referral attributable to gynaecologists for screening mammography at the two facilities were low. This was unexpected as the University Hospital of the West Indies is the centre of training for gynaecologists in Jamaica. The low referral pattern may reflect the characteristic of the training programme that gynaecologists receive in Jamaica where care of the breast is delegated to the surgeon and family physician. However, gynaecologists do provide primary care services to their patients and in some instances are main providers of healthcare during the reproductive years. Gynaecologists as specialist physicians who care for women are uniquely positioned to contribute to mammographic screening (19). Therefore, a programme to sensitize gynaecology residents and gynaecologists about the need to encourage and recommend to their clients screening mammography seems warranted.

In summary, the data suggest that even in the absence of a national screening mammographic programme, the rate of screening is extremely low. To increase the utilization and hence effectiveness of screening mammography, more educational programmes targeting healthcare professionals and the public are needed.

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