EUROPEAN JOURNAL OF CANCER 42 (2006) 2961–2967

available at www.sciencedirect.com

journal homepage: www.ejconline.com

Rapid assessment breast clinics – Evolution through audit

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ARTICLE INFO

Article history:
Received 15 February 2006
Received in revised form 15 June 2006
Accepted 29 June 2006
Available online 7 September 2006

Keywords:
Rapid assessment breast clinics
Triple assessment
Breast cancer

ABSTRACT

This observational, cohort study aimed to examine the potential utility of Rapid Assessment Breast Clinics (RABC) beyond cancer detection at presentation. One thousand four hundred and twenty nine women were studied over an 18 month period. 154 (10.7%) had breast cancer – 87.7% of whom were seen expediently with 92.9% being diagnosed at one attendance. One hundred and forty three (10%) of those with a benign diagnosis were found by routine questioning to have significant familial risk separate to their reason for referral. Despite careful triage, considerable contamination of appointment allotment occurred with many who were correctly triaged as non-urgent being seen 'urgently'. One hundred and seventy six attendees (12.3%) had neither the symptom that triggered referral, nor breast lump, nipple discharge nor family history of breast cancer, while 283 (19.8%) had no objective clinical or radiological abnormality. Although RABC reliably categorise malignant versus non-malignant diagnoses despite cluttering by low risk women, a significant proportion of non-cancer patients still require address of future risk rather than reassurance of their present status alone.

1. Introduction

Rapid Access Breast Clinics (RABC) strive to efficiently assess symptomatic women with a view to either prompt diagnosis and treatment of those with pathology or reassurance of those without. Since their inception, promotion by various professional bodies[1–3] and enthusiastic uptake by patients[4] have made RABC commonplace and they account for a considerable proportion of many Breast Care Units' weekly endeavour. However, although careful triage may attempt to minimise the number of 'worried well' attending in order to improve the efficiency of care for those with breast cancer, women's perceptions of risk and expectations of need for investigation do not necessarily correlate with actuarial figures.[5] As patients and physicians alike are all too aware of the minority of cancer cases that present outside of the typical demographic, early specialist investigation is often expected to be promptly available whether or not the patient's symptoms and signs actually meet the defined triage criteria. Address of this need for health care attention (rather than a need for health per se) requires that the role of such specialist units be extended away from pure cancer detection in order that all those attending gain maximally from attendance.

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0959-8049/$ - see front matter
doi:10.1016/j.ejca.2006.06.011

Despite their near ubiquity, there has been relatively little recent scientific analysis of the role of RABC in current clinical practice (although one recent study has pointedly questioned the value of these clinics[6]).[7] While early studies tended to concentrate on determining effectiveness in same day cancer detection,[8] later work has mainly focussed on trying to improve triage systems.[9] Only infrequently have efforts been made to scrutinise how the quality of care delivered to all those actually attending RABC may be maximised and how these clinics may be improved in their function as a gateway to specialist care networks. The aim of this prospective, observational study was to carefully define the referral, attendance and presentation patterns of those attending at an RABC in order to define the opportunities that exist for additional, effective health care intervention.

2. Patients and methods

All patient attendances at a newly established RABC for symptomatic women were scrutinised over an 18 month period following its initiation (i.e. between 1/7/2003 and 31/12/2004). In order to facilitate this audit, a paperless system of comprehensive record keeping was initiated utilising a customised software system (Key Order Communications System, iSoft Group plc, Manchester, UK). By this means, the presenting complaint as well as risk factors, clinical findings, results, diagnosis and outcome of all attending women was recorded in real time at the point of patient care. This system requires mandatory fulfilment of minimum datasets specifically selected to allow critical analysis of the breast care needs of the attending population and prevents sign off until complete data are entered. The family history data recorded on every individual was used to ascribe future risk in accordance to NICE guidelines on Familial Breast Cancer (i.e. 'significant' indicating at least a 3–8% risk of developing breast cancer between the age of 40 and 50 years or else a lifetime risk of 17% or greater).[10] The decision concluded at the completion of full assessment is also recorded onto the software system which then automatically generates a summary form as return correspondence to the referring doctor.

The only pre-requisite for attendance at the clinic was referral by a primary care physician. On receipt of a completed custom-designed form from a general practitioner detailing symptomatology and physical findings, all prospective attendees were triaged by a consultant surgeon as being in need of either 'urgent', 'soon' or 'routine' assessment. The former two categories allow early access of women with palpable breast conditions, while the latter one mostly comprises women with only subjective complaints. Additionally, factors such as the age of the individual as well as the primary care practitioner's clinical impression of the characteristics of any palpable abnormality are taken into account when ascribing priority. The intention was to assess 10 urgent, 10 soon and five routine cases during each week – however a degree of flexibility was permitted to facilitate the reactive nature of the clinic.

On the day of each clinic, the patients are first seen and examined by one of three doctors (one of consultant status) who assigns a categorical value to the clinical findings and then requests the appropriate radiological means of investigation (either mammogram or ultrasound) and/or fine needle aspiration cytology (FNAC) as per a protocol. Radiological and cytological investigations were reported by a consultant radiologist and pathologist, respectively, in real time with a categorical assignation being entered at the 'bedside' into the database (clinical, radiological and cytological categorisations were performed according to recognised international standards).[11] All results are then reviewed – concordant benign triple assessment allows reassurance while patients with concordant malignant results as well as those with discordant triple assessments are reviewed by the lead clinic consultant. All discrete palpable diseases are assessed cytologically with core biopsy (at a separate appointment) being held in reserve for patients with discordant triple assessment, indeterminate FNA results or palpable nodularity but no discrete lump. Alternative means of imaging such as magnetic resonance imaging are also arranged separately.

3. Results

Seventy-five clinics took place during the study period with a total of 1471 individuals being assessed. Data capture was fully complete for 1429 (97.1%) attendees with the final diagnosis of these patients by appointment category being shown in Table 1. The mean number of patients attending each clinic was 20 – the difference between this figure and the number intended to attend (25/clinic) was primarily due to non-attendances but a minority of patients attending did not actually have breast complaints. The variability in the number of both 'urgent' patients as well as the number actually diagnosed with cancer at each clinic is shown in Table 2. 35.3% of the urgent referrals were seen within seven days, while 65.5% were seen within 14 days. Interestingly, a proportion of patients who were triaged as non-urgent attended the clinic within the time frame that should be accorded to urgent cases. Forty-five 'soon' patients (four of whom had breast cancer) were seen within 14 days as were eight routine patients (none of whom had neoplastic disease) (see Fig. 1). Equally, a number of women deemed urgent or soon failed to attend appropriately, choosing instead to defer their appointments for a quite some considerable time. The seven most extreme outliers in the urgent category overall showed two cases where the patients themselves rescheduled although five cases were delayed because of clinics that were cancelled due to public holidays or because of the backlog that subsequently accrued.

Table 1 – Triaging of patients subdivided by final diagnosis

	Number of individuals attending	Number diagnosed with breast cancer
Urgent	550	135 (24.5%)
Soon	597	17 (2.8%)
Routine	282	2 (0.7%)
Total	1429	154 (10.8%)

Table 2 – Variability in numbers of urgent referrals and patients with breast cancer attending the RABC each week

Number of urgent patients seen/clinic	Number of clinics	Number of cancers diagnosed/clinic	Number of clinics
2	1	0	12
3	2	1	17
4	5	2	24
5	11	3	9
6	11	4	7
7	9	5	4
8	8	6	1
9	8	8	1
10	11		
11	4		
12	3		
13	2		

One hundred and fifty-four women (10.8%) were diagnosed with breast cancer, 143 (92.9%) of whom had a definitive diagnosis made on the day of attendance. Of all those with cancer, 135 (87.7%) had been correctly triaged as urgent and were seen on an average of 12.3 days after receipt of referral. The maximum 'urgent' waiting time for a patient with breast cancer was 36 days. Seventeen women (2.8%) with cancer had been assigned 'soon' appointments and had a mean waiting time of 53.7 days. The two patients (1.3%) who were diagnosed with breast cancer but had been triaged as routine had, in effect, 'screen-detected' cancers (these women had neither suspicious symptoms nor a palpable lump). Two hundred and sixty (18.2%) referrals were less than 30 years old. Although 41 (2.9%) individuals from this age group were triaged as urgent, none of these were diagnosed with cancer. Of the 782 (54.7%) patients aged between 30 and 50 years of age, 63 (8.1%) had cancer and 53 (84.1%) of these were seen urgently. The remaining 91 patients with cancer were older than

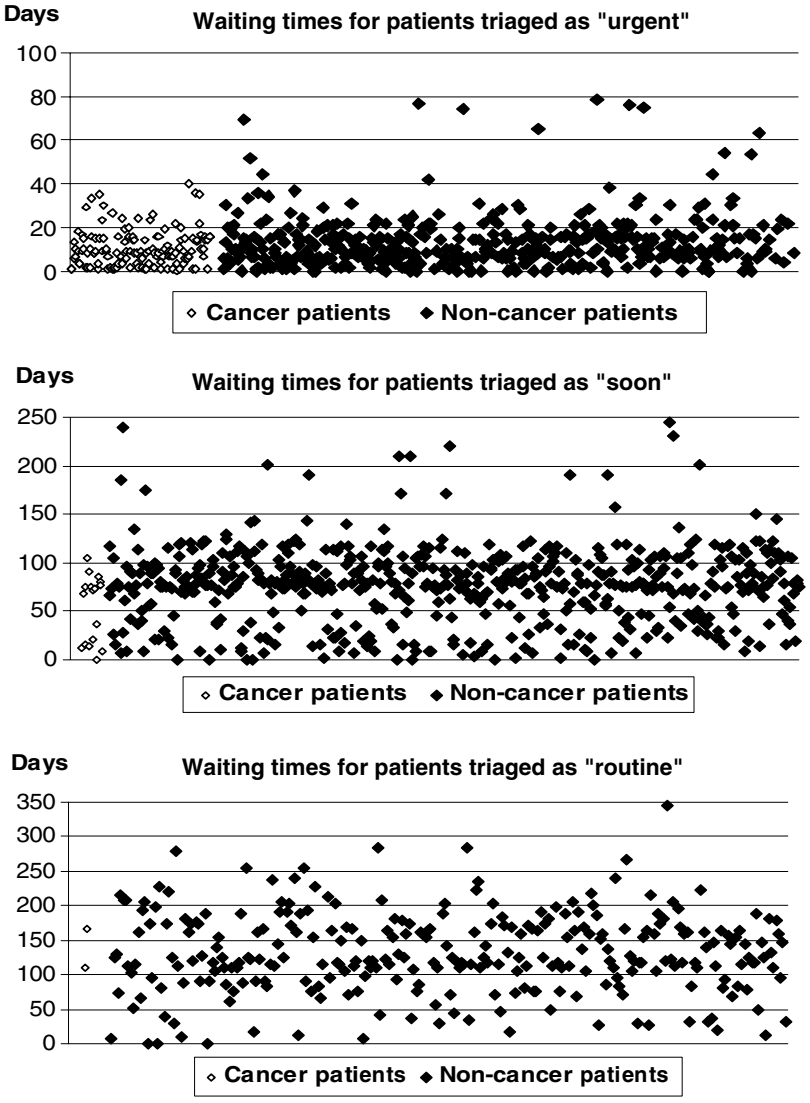

Fig. 1 – Waiting time for patients attending the clinic shown as scatter graphs divided by whether the individuals were categorised as being of urgent, soon or routine priority. Patients subsequently diagnosed as having cancer are shown separately to those with an ultimately benign assignation.

Table 3 – Triaging of all patients and cancer patients subdivided by age group

Age (years)	Total patients seen			Patients with breast cancer			
	Urgent	Soon	Routine	Urgent	Soon	Routine	Total
All	550 (100%)	597 (100%)	282 (100%)	135 (100%)	17 (100%)	2 (100%)	1429 (100%)
<30	41 (7.5%)	145 (24.3%)	74 (26.2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
30–50	271 (49.3%)	351 (58.8%)	160 (56.7%)	53 (39.3%)	9 (52.9%)	1 (50%)	63 (4.4%)
>50	238 (43.3%)	101 (16.8%)	48 (17.1%)	82 (60.7%)	8 (47.1%)	1 (50%)	91 (6.3%)

Table 4 – Triple assessment subdivided by final diagnosis

		Total number	Breast cancer
Clinical			
E1: normal	E1/E2	801	8 (0.9%)
E2: nodularity	E3	458	24 (5.2%)
E3: benign findings	E4/E5	170	122 (71.7%)
E4: findings suspicious of neoplastic change			
E5: findings clinically indicative of malignancy			
Radiology			
R1: normal mammogram	R1/R2	932	27 (2.9%)
R2: benign changes	R3	320	27 (8.4%)
R3: discrete change typical of benign breast disease	R4/R5	122	92 (75.4%)
R4: findings suspicious of neoplastic change			
R5: findings characteristic of malignant disease			
Cytology			
C1: insufficient	C1	75	6 (8%)
C2: benign	C2	348	7 (2%)
C3: atypical favouring benign change	C3	20	5 (25%)
C4: atypical favouring malignant change	C4/C5	114	111 (97.3%)
C5: definitely malignant			

Table 5 – Family history in patients with no lump, no nipple discharge and normal/benign mammography, subdivided by presence or absence of mastalgia

	No FHx	Non-significant FHx[a]	Significant FHx[b]
Breast pain	54	22	21
No pain	176	26	49

a Single family member >50 years old with breast cancer.
b First degree relative with breast cancer <40 years old or two or more relatives with breast cancer.

50 years and 82 (90.1%) of these patients were seen urgently (see Table 3). Analysis of the triple assessment results of those with breast cancer showed that 20.8% ($n = 32$) had either no palpable lump ($n = 8$, 5.2%) or a clinically benign lump ($n = 24$, 15.6%). Furthermore, 27 (18.5%) of the tumours imaged had only benign radiological features with eight tumours being mammographically inapparent. 5.4% of FNACs from malignant lesions were discordant but a further 8.5% demonstrated only atypia or were inadequate and so required further biopsy to establish their true nature (see Table 4). In comparison, assessment of breasts not harbouring a malignancy detected suspicious features on clinical examination in 48 patients (3.8%), on mammography in 31 individuals (2.5%) and on FNAC in three (0.7%).

Overall, 387 women (26.3% of the total) were found on routine questioning to have at least one first degree relative with breast cancer. One hundred and fifty five (10.5% of all attendees) of these were confirmed to have a significant familial risk with 39 women reporting a first degree relative with breast cancer under the age of 40 years, while 116 had two first degree relatives with the disease. Excluding those diagnosed at the clinic with malignancy, 143 patients (10% of the total) had a significant family history that required closer follow-up than that accorded to 'normal risk' women. Of patients referred because of mastalgia alone ($n = 97$, 6.8% of all attendees), 21 (1.5% of the total number attending) were identified as having an increased genetic risk based on their family history (see Table 5). In contrast, 176 patients attending the RABC (12.3% of the total) had no palpable lump and were, at presentation, entirely asymptomatic, reported no significant family history and had normal or benign clinical examination and breast imaging. Two hundred and eighty three (19.8% of the total) patients had neither significant clinical nor radiological findings with the proportions in each triage subgroup being 7.5% (41 patients) in the urgent category, 15.9% (95 women) in the soon subgroup and 52% (147 women) among those categorised as routine.

4. Discussion

Breast cancer is the most common non-cutaneous malignancy in women and awareness of it among the general population is high. This is due in part to not only the publicity generated by initiatives such as National Breast Screening Programmes but also to that surrounding women in the public eye who develop the disease (particularly if at a young age). Standard outpatient clinics tend to involve repeat attendances as investigations are staggered and so may prolong a concerned woman's anxiety. RABC were therefore created to facilitate early access to accurate specialist assessment with a view to the rapid confirmation of pathology or prompt alleviation of anxiety[12] and there are published guidelines recommending appropriate quality control measures and acceptable performance levels.[1] Although there has been little robust analysis of their effectiveness,[7] studies show that patient satisfaction with these clinics is generally high[13–15]

and that in addition to demonstrable improvements in objective markers of care (such as reductions in mean time from diagnosis to treatment in those diagnosed with breast cancer),[16] RABC can beneficially impact patient stress levels, at least in the short term.[17] However, although these clinics are efficient in the labelling of patient symptomatology, there are inherent drawbacks to the format which have led to some concerns over both their cost-effectiveness[6] and diagnostic accuracy.[18,19]

Full assessment in 'one stop' is both time consuming and labour intensive. Furthermore, it requires considerable specialist input as most patients will be seen only once. This is particularly true for pathologists and radiologists who would otherwise have been able to report on pooled results. Moreover, it has been argued that these clinics remain more expensive than standard outpatient departments despite the reduction in the total number of visits required to achieve a definitive diagnosis.[6] Additionally, their prioritisation of patients with suspicious symptoms means that less urgent referrals are subjected to prolonged waiting times. Many women also overestimate their risk of breast cancer and present for investigations in order to gain reassurance.[5] Time constraints on the length of each consultation can however result in failure to provide adequate reassurance, explanation or counselling to these patients. This may be due to a variety of complex psychosocial factors[20,21] but seems most likely to result from the minimal provision within the clinic setting of the most necessary resource for these women – namely, time. In a resource constrained healthcare environment, it is self-evident that the structuring of RABC should reflect these issues. The optimum means of doing so should be made evident by analysis of performance statistics.

This study demonstrates that our RABC functions ably in the detection of breast cancer with an overall pick-up rate of 10% (greater than 90% of whom were made on the day of first attendance). Age (30–50 or >50 years old) did not affect the chances of a patient with cancer being triaged as urgent (84.1% versus 90.1%) despite the differing proportions of each age group attending the clinic that ultimately were found to have cancer (8.6% versus 23.5%). This suggests that the basic details of the general practitioner's history and physical exam when supplied in a standardised format are adequate for accurate triaging by a consultant surgeon. Furthermore, our clinical, radiological and pathological assessments in this setting were all found to have reasonably low individual false negative rates that were consistent with other studies (in particular, those including premenopausal women[22]). It is apparent therefore from this study, as well as others, that maximising consultant involvement can improve efficiency in the process of triple assessment. In particular, the superior FNA results obtained when aspirations are performed by senior pathologists have been shown to minimise the number of repeat and additional investigations that may result from suboptimal cytopathology.[23] However, judicial triage is essential to maximise these clinics effectiveness and efficiency.[24,25]

The structuring of the clinic with regard to the urgent:soon:routine appointment ratio of 10:10:5 was reflected in the overall figures for the 18 month study period. The number of appointment slots utilised (25/clinic) is in keeping with that of many established clinics in the United Kingdom[4,6,8,9,26] and seems sufficient to deal with the majority of urgent referrals. However, many patients awarded 'soon' appointment slots were clearly not being seen within a satisfactory time-frame mandating efforts to increase clinic efficiency after triage. This review demonstrates however that only exceptional patients deemed 'routine' by our current system harbour a breast cancer. Therefore, after the analysis of this audit and in keeping with other expert recommendations[27], a separate 'routine only' clinic for low priority cases was established in order to allow concentration of clinic resources on those most likely to benefit. By doing so, we have 'added' an extra 25% of capacity to the RABC. More than 70% of clinics in the study period had less than 10 urgent cases presenting (with a further 15% seeing exactly 10 such patients) and so we have left the allotment of 10 urgent slots per clinic allowing an extra five patients with soon categorisation to be invited to attend.

Additionally, it is clear from this audit that elimination of non-attendance rates (ca. 20% in this study) would also impact significantly on waiting times. The hospital now contacts those due to attend the clinic with a reminder by SMS text message to their mobile telephone the day prior to their appointment. Further study examining the demographics and re-referral rates of those who do not attend is ongoing but may raise the possibility of using 'over-booking' as an additional strategy. However, perhaps, the most remarkable finding of this service audit (given that symptoms should have prompted every attendance) was that approximately one in every eight patients seen had neither symptoms nor signs of breast disease. Although some complaints may be expected to resolve in the interim between referral and attendance, the fact that these women persist in presenting suggests at least a moderate level of underlying anxiety regarding breast disease. Some NHS guidelines address this issue by imposing a mandatory return to the referring GP after a specified waiting time for patients with certain symptomatology. We currently have no such filtering process but implementing such recommendations for GP's has previously been shown to produce reductions in referrals of at least 11%.[4] We do however invite GPs in the area to attend our annual audit meeting in order to both educate and involve them regarding the structure and initiatives of this developing clinic. Finally, we found that considerable cross-contamination of the triage categories occurs. It is unclear from this study as to how this happens, but it no doubt contributes to the delay experienced by some of the patients who were actually triaged as urgent. We have however learnt from this analysis that, if it can be identified, 'queue skipping' by patients triaged as routine can be strictly discouraged with confidence as these early attendees tend not to have significant pathology.

However, despite the focus of RABC on symptomatic patients with breast cancer, the majority of individuals attending (89.2% in this study overall and 87% of those triaged as either soon or urgent) do not have cancer. Therefore, scrutiny is also required to improve the quality of care for these patients. Part of the reasoning behind establishing our 'routine only' clinic (aside from resource concentration) was to allow these women to be seen by a specialist away from the hustle and bustle of a RABC and separate them from the company of

anxious high-risk women awaiting their investigations and results at that forum. Furthermore, although family history and concerns regarding conferred risk are expected to account for a significant proportion of a specialist unit's workload, the number of individuals detected as having a significantly increased familial risk independent of their presenting complaint by routine questioning at the RABC is compelling. Overall, approximately 10% of individuals who had normal examinations or benign breast complaints had elevated genetic risk and so would require a thorough explanation of their status along with discussion about the benefits and failings of screening.[28] Reassurance alone and discharge back to primary care would not have been appropriate for these women because surveillance strategies, choice of imaging modality and consideration and counselling for genetic testing all require specialist consideration to allow tailoring to the individual circumstances. Although the ideal means for screening premenopausal women remains unclear, there is evidence to suggest that such a policy can have a positive impact.[29] To address these needs, therefore, we have established a dedicated familial risk clinic separate from the RABC. It is run by a nurse specialist who records new incident cases of cancer and profiles their family by means of detailed questionnaire and specific risk analysis software. Assistance in pedigree research by accessing of death certificate and medical records is also provided to women who believe that their familial risk is high.

In conclusion, when a standardised referral and consultant triage system is used, RABC reliably categorise malignant versus non-malignant diagnoses and are an efficient method of dealing with symptom suspicious for cancer. However, considerable opportunities to improve the efficiency and utility of these clinics exist that may be revealed by careful audit. Low risk patients without suspicious features should be dealt with in a different forum, while strict adherence to initial triage category can be confidently encouraged. Otherwise individuals unlikely to gain from the efforts expounded by RABC can clutter these clinics thereby both delaying more urgent patients. Inclusion of routine familial profiling within the setting of an RABC usefully begins to expand the focus from the individual to the familial and from present status to future risk. Effective audit and planned, regular re-audit after institution of changes are required to ensure that RABC evolve efficiently.

Conflict of interest statement

All authors are physicians employed by hospital (AMNCH) and work in the Breast Care Unit. No author however has any direct financial or personal relationship with other people or organisations that could inappropriately influence (bias) their work.

Acknowledgements

We would like to acknowledge the contribution of Ms. Trudy Duffy, AMNCH, Dublin 24 to the collection of data and to the preparation of this manuscript.

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