

## RESEARCH LETTER

### Integrating Medical Breast Specialists Into the Traditional Breast Center Practice Model: A Review of 11 Years of Experience

The development of comprehensive, multidisciplinary breast centers over the past 30 years reflects advances in breast cancer detection, diagnosis, and treatment. Subspecialties within the field of breast disease, including surgical oncologists, radiologists, medical oncologists, and pathologists, have emerged to diagnose and treat benign and malignant breast disease, and these subspecialties generally define the multidisciplinary breast center model at most institutions.<sup>1-6</sup> Under this model, the surgical breast specialist (SBS) triages and manages all patients, whether surgical intervention is required or not.

The Cleveland Clinic Breast Center, Cleveland, Ohio, which opened in 1995, was based on this surgeon-directed practice model. Since its inception, it has offered full-time surgical oncology and breast radiology services and part-time medical oncology, radiation oncology, and plastic surgery services as needed. Initially, the appointment scheduling process directed all patients, including those new to the center or those who had been seen previously, to the surgeons' schedules for evaluation prior to making a determination if the patient were a likely surgical candidate, resulting in continual accrual of patients who neither had breast cancer nor required a breast operation. In addition, and because there were no other options available, these patients returned for routine follow-up examination, further compounding the matter of nonsurgical patients filling the surgeons' schedules and, therefore, delaying access to surgeons for those patients newly diagnosed with breast cancer or other suspicious abnormalities requiring immediate attention.

To mitigate these scheduling issues and to provide more rapid and more appropriate patient access and triaging, the concept of medical breast specialist (MBS) was conceived, initially as an adjunct to SBS, and implemented in 1998. Defined as a primary care physician who has been provided with additional training in benign and malignant breast disease, the MBS role was intended to assist in the triage of undiagnosed patients, to provide routine follow-up care to patients who had a history of

breast cancer but no active disease, to evaluate patients with benign breast disease, and to evaluate and counsel patients at high risk of developing breast cancer.

Training included 6 months of specialized clinical rotations in breast surgery, breast imaging, histopathology, cytopathology, medical oncology, radiation oncology, translational molecular genetics, and plastic surgery. During this time, the MBS candidate was also schooled in diagnosis and treatment of benign and malignant breast disease and the techniques of cyst aspiration, fine-needle aspiration biopsy, punch biopsy, and incision and drainage of abscess cavities until proficiency was demonstrated. In addition, MBSs are required to actively participate in the weekly multidisciplinary breast conference, during which unusual case reports are presented for review, and to pursue clinical research.

The purpose of this report was to review our 11-year history and to identify and discuss changes to our practice model since implementation of MBS.

**Methods.** Data were collected prospectively in our institutional review board–approved patient registry for all patient visits between February 1995 and December 2005. Variables collected included age, patient-described race, diagnosis for each visit, number of visits per patient, and specialty seen for each visit. The primary diagnosis for each visit was classified as either breast cancer, including any infiltrating breast cancer or ductal carcinoma in situ (BC), abnormal mammogram or mass (mamm/mass), or high-risk (including family history, confirmed *BRCA1/BRCA2* mutation, personal history of atypia or lobular carcinoma in situ, or elevated Gail model score) or benign breast disease.

Because the MBS role was established in 1998, all patients seen between 1995 and 1998 were seen by SBS only; these data are used as a baseline. From 1998 through 2005, patients could have been seen by SBS, MBS, or both, and these data are used to determine if changes occurred in our practice model after implementation of MBS relative to the baseline data.

To accommodate proper scheduling and patient access, appointment schedulers were retrained to accommodate the MBS role: guidelines to schedule patients with historical breast cancer or known benign disease in need of routine follow-up examinations or those desiring risk assessment or to discuss chemoprevention options with MBS were instituted. Scheduling templates were generated for MBS, and templates already in place for SBS were modified to decrease the number of available slots for routine follow-up, particularly for patients with known benign disease, and to increase the number of slots avail-

**Table 1. Patient Visits**

Variable	1995-1997 (SBS Only), No. (%)	1998-2005 (SBS and MBS), No. (%)
Practice seen		
SBS	23 755 (100)	51 052 (68)
MBS		23 807 (32)
Diagnosis		
Cancer	6062 (26)	26 179 (35)
High risk	175 (1)	3342 (4)
Mamm/mass or benign	17 518 (74)	45 338 (61)
Race		
White	20 164 (85)	61 077 (83)
Black	3082 (13)	10 364 (14)
Other	472 (2)	1792 (2)
Age at first visit, y		
Mean (SD)	55 (14)	55 (14)
Median, range	54 (12-98)	54 (12-101)

Abbreviations: Mamm/mass, mammogram or mass; MBS, medical breast specialist; SBS, surgical breast specialist.

able for new patients with known breast cancer or for problems not otherwise included in the MBS guidelines.

Data were compared between MBS and SBS using the *t* test or the  $\chi^2$  test, and trends were assessed using the Cochran-Armitage test for categorical variables or the Jonckheere test for continuous variables. *P* < .05 was considered statistically significant.

**Results.** Data were available for all patient visits completed from 1995 through 2005 (**Table 1**). After integration of MBSs in 1998, 32% of visits were to MBS, while 68% were to SBS. Prior to MBS (1995-1997), 26% of visits were for breast cancer, whereas after MBS integration, 35% of visits were for breast cancer. Nevertheless, benign breast disease, including high-risk assessment, evaluation of abnormal mammogram or palpable mass, or any other benign finding, accounted for a majority of visits regardless of the time period.

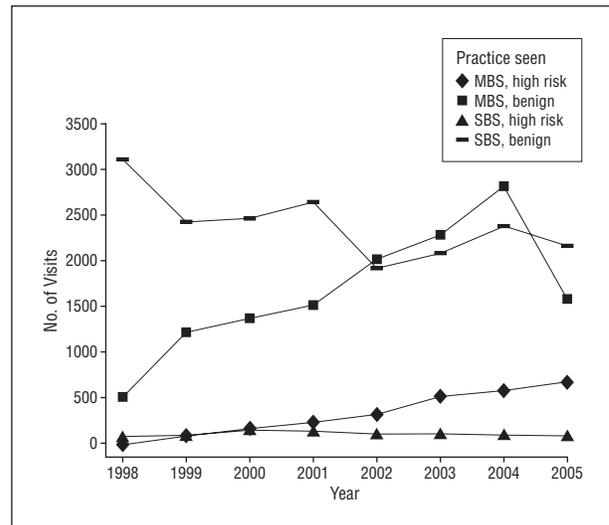
Patients who saw MBS only were likely to be younger (*P* < .001; **Table 2**); to be black (*P* < .001), a finding mostly likely attributable to the region's demographic, the result of public education efforts, or both; to have benign disease (*P* < .001); and to make fewer visits than those who saw SBS only or SBS and MBS. Demonstrating the intention to shift patients with benign disease and a history of breast cancer from SBS to MBS, these 2 diagnostic categories were evaluated for all visits after MBS implementation. From 1998 through 2005, SBS saw a decline in the number of visits for benign disease (**Figure**), while MBS saw an increase in the number of visits for benign disease and high risk. Surgical breast specialist visits for high risk did not change.

Over time, the number of visits to SBS gradually declined as the MBS practice grew (*P* < .001; **Table 3**), and fewer visits for breast cancer were completed overall (*P* < .001). Also statistically significant, but not likely clinically relevant, was that patients who saw MBS were more likely to be younger at the time of the first visit and to be black.

**Table 2. Comparisons Between MBS and SBS, 1998-2005**

Variable	MBS, No. (%)	SBS, No. (%)	<i>P</i> Value
Age at first visit, y			
Mean (SD)	52 (14)	56 (14)	] <.001
Median (range)	52 (12-100)	55 (13-101)	
Race			
White	18 680 (81)	42 397 (85)	] <.001
Black	3841 (17)	6523 (13)	
Other	633 (3)	1159 (2)	
Diagnosis at visit			
Cancer	4265 (18)	21 914 (43)	] <.001
Mamm/mass or benign	16 994 (71)	28 344 (55)	
High risk	2548 (11)	794 (3)	

Abbreviations: Mamm/mass, mammogram or mass; MBS, medical breast specialist; SBS, surgical breast specialist.



**Figure.** Comparing visits to surgical breast (SBS) and medical breast practices (MBS) for high-risk and benign breast disease over time.

**Comment.** These findings suggest that MBS has met its expectations: the number of visits made to SBS for benign disease, including for palpable mass or abnormal mammogram, decreased and, although the percentage of patients with breast cancer remained steady at approximately 25% of all patients seen, the percentage of visits for breast cancer was higher for visits to SBS than for visits to MBS (43% vs 18%). Twenty-seven percent of patients seen by MBS were seen only once and discharged from the practice without referral to SBS.

We noticed that, over time, the MBS patients were more likely to be younger and to be black, and, overall, the percentage of visits for high-risk assessment increased from approximately 1% in 1995 to 9% in 2005, demonstrating the success of the MBS program and suggesting that patient education efforts may have influenced more women to undergo evaluation for risk assessment. Topics of interest for these patients include breast risk, cancer genetics and genetic testing, new research, new options in breast cancer treatment, healthy lifestyle, stress management, and hormone therapy.<sup>7</sup> The primary care background and additional subspecialty training in breast disease equips the

**Table 3. Trends in Patient Visits From 1998-2005**

Variable	1998-1999, No. (%)	2000-2001, No. (%)	2002-2003, No. (%)	2004-2005, No. (%)	P Value
Practice seen					
SBS	14 456 (82)	14 311 (75)	10 916 (59)	11 369 (58)	] <.001
MBS	3184 (18)	4745 (25)	7593 (41)	8285 (42)	
Diagnosis					
Cancer	6892 (39)	7088 (37)	5941 (32)	6258 (32)	] <.001
High risk	242 (1)	646 (3)	1035 (6)	1419 (7)	
Benign	10 506 (60)	11 322 (59)	11 533 (62)	11 977 (61)	
Race					
White	14 833 (85)	15 499 (83)	15 014 (83)	15 731 (83)	] .02
Black	2321 (13)	2768 (15)	2567 (14)	2708 (14)	
Other	385 (2)	386 (2)	495 (3)	526 (3)	
Age at first visit, y					
Mean (SD)	55 (14)	55 (14)	54 (14)	55 (14)	] .004
Median (range)	54 (12-99)	54 (12-101)	54 (12-94)	54 (12-96)	

Abbreviations: MBS, medical breast specialist; SBS, surgical breast specialist.

MBS to address these topics in a patient care setting, to identify those patients who are at high risk for developing breast cancer, and to refer those patients for radiologic or surgical intervention as appropriate.

In addition, the health care needs of the increasing number of cancer survivors are viewed as a challenge in most multidisciplinary centers, both in terms of time and focus. Routine breast cancer follow-up usually entails visits to hospital clinics for as many as 10 years following the diagnosis<sup>8,9</sup> and has, under the traditional practice model, been assumed by the surgical oncologist or medical oncologist. However, a review by the Early Breast Cancer Trialists' Collaborative Group<sup>10</sup> reported that there is a steady relapse rate for breast cancer 15 years and more after diagnosis. The American Society of Clinical Oncology 2006 update of the Breast Cancer Follow-Up and Management Guidelines in the Adjuvant Setting<sup>11</sup> indicated that continuity of care for breast cancer patients is recommended and should be performed by a physician experienced in the surveillance of cancer patients and in breast examination, including the examination of irradiated breasts.

Traditionally, surveillance after adjuvant care has been directed at early detection and management of local recurrences, detection of distant metastases, detection of contralateral breast cancer, and psychosocial support. Although primary care surveillance has been shown to be a safe alternative to follow-up by a specialist,<sup>12-16</sup> patients often prefer subspecialty follow-up.<sup>13,16</sup> The medical breast model within the multidisciplinary breast center offers specialized care without infringing on either the surgeons' or medical oncologists' schedules, freeing them to treat patients with active disease. Surveillance components offered by MBS, in addition to detection and management of disease recurrence, also include addressing the side effects of adjuvant treatment, the posttreatment recovery phase, physical and emotional well-being, cosmesis, menopause issues, and general health promotion.

Recent expansion of our program includes the integration of advanced practice nurses, one of whom works primarily with SBS and one with MBS. Under the supervision of the physician, these nurses assist in some triaging of new patients, but their primary role is to per-

form follow-up examinations for patients previously diagnosed with either breast cancer or benign disease. Patients alternate visits with the nurse (under physician supervision) and physician every 6 months.

We have demonstrated that MBS can function independently in a high-volume multidisciplinary breast center to facilitate diagnostic evaluations for symptomatic patients; to screen, counsel, and educate high-risk patients; and to provide surveillance for posttreatment patients. The MBS practice model is a patient-driven, statistically supported adjunct to multidisciplinary breast care that has successfully met its objectives. Although the forces driving the development of the MBS role were the need for more rapid access to the breast center and a better process to care for patients with benign breast disease or historical breast cancer, what has emerged is a subspecialty that not only meets those needs but has surpassed them. The MBS role is likely to expand as improvements are made in identifying patients at high risk of developing breast cancer, as technologic advances in mammogram, breast magnetic resonance imaging, and other diagnostic modalities are implemented; as gene-based predictors for breast cancer recurrence are refined and integrated into routine surveillance programs; and as the field of molecular genetics develops.

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## COMMENTS AND OPINIONS

### Vitamin D Treatment in Chronic Kidney Disease: What We Really Need to Know

We read with great interest the article by Kovesdy et al<sup>1</sup> about the association between activated vitamin D (calcitriol) treatment and mortality in chronic kidney disease (CKD). The results are certainly of interest, but as the study is purely observational, these data must be confirmed on prospective randomized studies. At the end of the article, the authors are calling for such randomized studies comparing activated vitamin D and analogues. We have another proposal and working hypothesis that would involve a study comparing active vitamin D (1,25-dihydroxyvitamin D<sub>3</sub> [1,25(OH)<sub>2</sub>-D<sub>3</sub>]) with native vitamin D (25-hydroxyvitamin D [25(OH)D]). Indeed, 25(OH)D can bind and directly activate vitamin D receptor. Even if 25(OH)D is 200 to 400 times less active than activated vitamin D, many studies suggest important physiological roles for native vitamin D, even in patient's receiving hemodialysis.<sup>2</sup> On one hand, circulating 25(OH)D plasma concentrations are 500 to 1000 times higher than 1,25(OH)<sub>2</sub>-D<sub>3</sub>. On the other hand, recent studies have well described that 1 $\alpha$ -hydroxylation of 25(OH)D is not re-

stricted to the kidney but also exists in other tissues (notably in parathyroid and bones) and could have an important autocrine and paracrine effect.<sup>2,3</sup> The physiological basis for native vitamin D use in patients with CKD is thus strong, while deficit or insufficiency in 25(OH)D concentration is very frequent in these patients.<sup>4</sup>

Moreover, a recent observational study published by Wolf et al<sup>4</sup> shows a correlation between 25(OH)D concentration and early mortality in incident hemodialysis patients. From these results, it will be of interest to know if the patients treated with activated vitamin D and non-treated patients in the study by Kovesdy et al<sup>1</sup> study had similar 25(OH)D concentrations at baseline.

Regarding physiological and clinical data, we are calling for large prospective randomized studies comparing activated vitamin D and native vitamin D. Because native vitamin D is less expensive than activated vitamin D and analogues, such a study could probably only be initiated by the National Institutes of Health or another independent structure owing to the high economic risk for pharmacological firms if native vitamin D was shown to be better.

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### Vitamin D Therapy and Reduced Mortality in Chronic Kidney Disease

The study by Kovesdy et al<sup>1</sup> showed that treatment with activated vitamin D (calcitriol) therapy significantly increased survival in patients with CKD not receiving dialysis. However, baseline data between treated and untreated groups was not comparable regarding the bone and mineral abnormalities. The baseline parathyroid hormone (PTH) level was high in the calcitriol group (152 pg/mL vs 75 pg/mL), and more patients in the calcitriol group were using calcium and phosphate binder, indicating that more patients in the calcitriol group had secondary hyperparathyroidism. Thus, a simple explanation of observed benefit with calcitriol therapy is by correcting secondary hyperparathyroidism.

Secondary hyperparathyroidism contributes significantly to progression of the kidney disease and increase in mortality.<sup>2</sup> Previous studies suggest a decreased progression of CKD with better management of associated mineral and bone disorders.<sup>3</sup> To suggest a benefit of ac-