

# Breast Self-Examination: Historical Perspective and Current Progress

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During its 30 years as an examination technique, breast self-examination (BSE) has developed from an idea proposed by a chapter of the American Cancer Society to a standard recommendation of many health care professionals. While screening for breast carcinoma has been documented as a valuable undertaking, a majority of the studies are concerned with physician examination and the use of xeromammography. BSE as an individual factor has not been adequately studied. Since several studies propose that BSE is indeed effective, while others refute that contention, the results of well-controlled prospective studies are needed. The current literature is at least supportive of BSE, which should be encouraged while controlled trials are analyzed.

Breast self-examination (BSE) is a concept endorsed by virtually all of those participating in the field of preventive health care. Recommended for over 30 years as a self-examination technique, it must withstand the tests of effectiveness to be considered a part of contemporary health screening. Does the test do what it proposes? What are the risks and costs? What have studies determined regarding the effectiveness of BSE, and what direction should studies take to make better defined recommendations regarding BSE in screening?

## Historical View

There is minimal documentation of the initial development of the BSE. Holleb<sup>1</sup> reviewed what is

known about its early history. In 1947 Dr. A. M. Popma, with the Idaho Division of the American Cancer Society (ACS), encouraged national distribution of a film on BSE, and in 1949 Haagensen persuaded the National Cancer Institute and the ACS to cooperate in making a teaching film.<sup>2</sup> A film was produced for distribution in 1950 and described in 1952.<sup>3</sup> The two steps of the examination were inspection before the mirror and palpation while supine. Essentially the same examination was described by Venet<sup>4</sup> in 1980. A third step, palpation of the breasts while bathing, has been put forth by the ACS.<sup>5</sup>

In an American Cancer Society monograph<sup>6</sup> first published in 1950, Haagensen stated, "It is probably true that, from the point of view of the greatest possible gain in early diagnosis, teaching women how to examine their own breasts is more important than teaching the technique of breast examination to physicians, for we must keep in mind the fact that at least 98 percent of the women who develop breast carcinoma discover their tumors themselves." The value of BSE was generally accepted, but the first critical evaluations did not appear until 1971.<sup>7</sup>

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## Breast Cancer Screening

Breast cancer screening in general has been effective.<sup>8-10</sup> In the study of the Health Insurance Plan of Greater New York,<sup>8,11,12</sup> 31,000 women were offered annual screening breast examinations and mammography, while a control group continued to receive their usual medical care. It was demonstrated that both modalities contribute independently to case detection and that periodic screening reduces mortality. Strax<sup>9,13</sup> reported on a screening approach that included encouragement of breast self-examination together with other modalities. Of the various modalities, the use of mammography has been supported for those over the age of 50 years<sup>8,14</sup> and for younger women as well<sup>15-18</sup> although there has been controversy.<sup>19-21</sup> The value of examination by a physician has also been documented.<sup>8,22</sup> The contribution of BSE, however, is not clear.

### Breast Self-Examination as a Screening Tool

Several studies argue favorably for breast self-examination.<sup>23-28</sup> Foster et al<sup>23</sup> studied 335 patients with breast cancer and found more favorable clinical and pathologic stages of breast cancer with more frequent BSE. Greenwald et al,<sup>24</sup> in a study of 293 patients, noted that tumors were detected in clinical stage I 37 percent of the time by BSE compared with 27 percent of the time when the discovery was accidental. (However, 53.8 percent were in clinical stage I when discovered by physician examination.) Huguley and Brown,<sup>25</sup> in a study of 2,092 breast cancer patients, found that those who practiced BSE discovered the cancer earlier than those who did not. Feldman and colleagues,<sup>26</sup> in a study of 996 newly diagnosed breast cancer patients, noted a significant association between BSE and pathologic stage of the disease. Regular self-examination was associated with a one-third reduction in the likelihood of positive nodes. Gastrin<sup>27,28</sup> found that women were likely to discover tumors at an earlier stage in a study of more than 56,000 women in Finland who were given relatively intense encouragement to perform BSE.

Two studies fail to show benefit from breast self-examination. Smith et al,<sup>29</sup> in a study of 220 breast cancer cases, noted no difference in pathologic stage between women who did and did

not practice BSE. Senie et al,<sup>30</sup> in a study of 1,216 cancer patients, found no evidence that BSE frequency was associated to the stage of the disease.

How can these varying results be reconciled? Cole and Austin,<sup>31</sup> in a thoughtful editorial accounting for the differing results of several studies, offered that "a reasonable interpretation . . . is that among women who use various other breast cancer detection practices the incremental effect of BSE is small. However, among women who use these other services less (such as Huguley's subjects . . .), BSE has a meaningful role to play in breast cancer detection." They further stated that women should be encouraged to conduct BSE, but not as a substitute for a physician's examination or for mammography, which provide the first line of detection.

### Problems with Breast Self-Examination

Breast self-examination as a screening tool has definite limitations. Not only can breast size and character limit the effectiveness of self-examination,<sup>7</sup> but most lesions may be missed by women who do BSE without the benefit of prior training with models.<sup>32</sup> Promotion, the time spent for instruction, and the time spent in performance of breast self-examination are real costs. In addition, BSE may cause anxiety and may result in unnecessary biopsies. Expressing skepticism about the value of BSE, Moore<sup>33</sup> stated, "Let us remain cautious physicians, not resorting to public advocacy until we know what we are talking about." Baum<sup>34</sup> also stated that "These seductively simple approaches should be tested scientifically in the same way as any other clinical hypothesis."

Current studies are attempting to clarify the role of breast self-examination. One ongoing study<sup>35</sup> involves 50,000 women invited for annual mammography or clinical examination, 65,000 invited for education in BSE, and 120,000 controls. Boyle et al,<sup>36</sup> reflect on their own current study:

If these women continue to practice BSE, and if those who develop breast cancer are seen and treated in early stages, and if mortality from breast cancer is reduced in these women, the evidence which so far has been lacking, that BSE is an effective screening procedure, will

be available. If on the other hand, BSE is shown to be ineffective in early detection and reducing mortality, the resources now used to promote self-examination can be diverted to other endeavors.

### Compliance and Performance

A 1976 Gallup Poll<sup>37</sup> showed that 95 percent of women knew of breast self-examination, but only 25 percent practiced BSE monthly, and 25 percent did not examine themselves at all. Lack of knowledge, fear of findings, and lack of self-confidence are reasons given for failure to perform BSE.<sup>38</sup> Even those who claim to perform BSE may actually have limited knowledge of proper technique.<sup>36</sup>

BSE performance has been associated with age, education, knowledge, attitude,<sup>39</sup> and religion,<sup>40</sup> as well as marital status, family history of breast cancer, prior benign disease, and more frequent medical examination.<sup>29</sup>

Intensive person-to-person education supplemented by mass communication can result in a 70 percent compliance in regularly repeated BSE.<sup>27,28</sup> Women who learn BSE from a physician or nurse are more likely to comply.<sup>25</sup> Written materials and media health messages increase the chance of compliance,<sup>41</sup> but are not as effective as, and cannot substitute for, personal instruction.<sup>36,40</sup> Edwards<sup>42</sup> found that demonstration of BSE by a model was as effective as (1) modeling and guided practice, (2) modeling plus self-monitoring (use of a calendar to guide practice), and (3) modeling plus peer-group support (telephoning of partners to remind each other to do BSE). All groups were equal in frequency, knowledge, and confidence of BSE; thus these additional modalities are not necessary. Hall et al<sup>32</sup> demonstrated that training with silicone models improves the ability to detect lumps.

Taylor and Kalache<sup>43</sup> have indicated that men may play a significant role in encouraging spouses to perform BSE and to seek medical advice promptly when an abnormality is found.

Instruction by nurses is as successful as instruction by physicians. The role of nurses has been evaluated by Soini and Lauslahti,<sup>44</sup> and it has been found that nurse clinicians can be highly successful in identifying lesions.<sup>29,45</sup> Nurses were involved extensively in the Gastrin study.<sup>27,28</sup>

To increase compliance and to ensure adequate technique, therefore, personal instruction by a nurse or a physician is essential. Promotion of breast self-examination by media or otherwise and the involvement of husbands may be valuable adjuncts.

### Conclusions

Breast self-examination requires additional study. It is not a proven method when regular physician examinations and mammography are also utilized. Inasmuch as most data are supportive, the present impetus of breast self-examination should be encouraged as more information is gathered. However, its value may not be verified by future data. Breast self-examination must not be considered a substitute for the physical examination and mammography.

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