Community Screening for Cervical Cancer in New Hampshire

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Ongoing programs offering Papanicolaou tests have been shown to reduce cervical cancer mortality significantly.[1–4] There are fewer reports on the impact of short-term programs. In a project for high-risk women in New York, 1800 women were screened, and 13 were found to have malignant or premalignant cells on Papanicolaou testing.[5] In another project 816 women 65 years old or older were screened, and 11 were found to have malignant or premalignant cells.[6] Most community projects screening for cervical cancer by Papanicolaou tests have been based in sites that are not patients' usual source of care. This report describes a 15-month program that provided over 1400 free Papanicolaou tests, other preventive services, and a cancer education program through special community clinics. Differences between participants who had and did not have a regular physician are explored.

METHODS

The project's administrative office was responsible for design of the educational program, clinical protocols, the survey instrument, media campaigns, and data management. Contracts to provide clinical services were negotiated with preexisting community sites. No funds were available for definitive diagnostic evaluation or treatment.

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Target Population

New Hampshire women at higher than average risk for cervical cancer constituted the target population. The following criteria were used to identify women for inclusion into the study: residence in Coos, Grafton, or Hillsborough county (where mortality from cervical cancer is higher than the state average), no Papanicolaou test within the previous 3 years, a history of first pregnancy before the age of 19 years, low-income status (defined as participating in any public assistance program), fewer than 12 years of formal education, age 30 years or more, and no regular physician.

Women who did not have any of the inclusion characteristics were also provided services. This open-access policy was established because program staff wanted to avoid negative connotations to participation and because prescreening patients would have substantially increased the administrative costs. Patients were recruited through posters, supermarket fliers, newspaper articles and paid advertisements, and radio and television public service announcements.

Patient Care Sites

Existing clinical sites (contraception and community clinics) provided services at specially dedicated sessions. All sites followed standard protocols for clinical care, patient education, and data collection. Women with abnormalities found on Papanicolaou testing or physical examination were referred to their regular physicians for evaluation or to a choice of appropriate local physicians if no regular relationship with a physician already existed. Before the examination, a 15-minute educational program, attended by the women in groups of four, included brief descriptions of breast self-examination techniques, early signs of breast cancer, and rationale for and appropriate frequency of cancer detection tests. The patient education methodology was modeled on a community program in which graphic flip

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CONTRAINDICATIONS: Anuria. Hypersensitivity and in patients in hepatic coma or in states of severe electrolyte depletion. Although Bumex can be used to induce diuresis in renal insufficiency, any marked increase in blood urea nitrogen or creatinine, or the development of oliguria during therapy of patients with progressive renal disease, is an indication for discontinuation of treatment.

WARNINGS: Dose should be adjusted to patient's needs. Excessive doses or too frequent administration can lead to profound water loss, electrolyte depletion, dehydration, reduction in blood volume and circulatory collapse with the possibility of vascular thrombosis and embolism, particularly in elderly patients.

Prevention of hypokalemia requires particular attention in patients receiving digitalis and diuretics for congestive heart failure, hepatic cirrhosis and ascites, states of aldosterone excess with normal renal function, potassium-losing nephropathy, certain diarrheal states, or other states where hypokalemia is thought to represent particular added risks to the patients.

In patients with hepatic cirrhosis and ascites, sudden alterations of electrolyte balance may precipitate hepatic encephalopathy and coma. Treatment in such patients is best initiated in the hospital with small doses and careful monitoring of the patient's clinical status and electrolyte balance. Supplemental potassium and/or spironolactone may prevent hypokalemia and metabolic alkalosis in these patients.

In cats, dogs and guinea pigs, Bumex has been shown to produce ototoxicity. Since Bumex is about 40 to 60 times as potent as furosemide, it is anticipated that blood levels necessary to produce ototoxicity will rarely be achieved. The potential for ototoxicity increases with intravenous therapy, especially at high doses.

Patients allergic to sulfonamides may show hypersensitivity to Bumex.

PRECAUTIONS: Measure serum potassium periodically and add potassium supplements or potassium-sparing diuretics, if necessary. Periodic determinations of other electrolytes are advised in patients treated with high doses or for prolonged periods, particularly in those on low salt diets.

Hyperuricemia may occur. Reversible elevations of the BUN and creatinine may occur, especially with dehydration and in patients with renal insufficiency. Bumex may increase urinary calcium excretion.

Possibility of effect on glucose metabolism exists. Periodic determinations of blood sugar should be done, particularly in patients with diabetes or suspected latent diabetes.

Patients should be observed regularly for possible occurrence of blood dyscrasias, liver damage or idiosyncratic reactions.

Especially in presence of impaired renal function, use of parenterally administered Bumex should be avoided in patients to whom aminoglycoside antibiotics are also being given, except in life-threatening conditions.

Drugs with nephrotoxic potential and bumetanide should not be administered simultaneously.

Since lithium reduces renal clearance and adds a high risk of lithium toxicity, it should not be given with diuretics.

Probenecid should not be administered concurrently with Bumex.

Concurrent therapy with indomethacin not recommended.

Bumex may potentiate the effects of antihypertensive drugs, necessitating reduction in dosage.

Interaction studies in humans have shown no effect on digoxin blood levels.

Interaction studies in humans have shown Bumex to have no effect on warfarin metabolism or on plasma prothrombin activity.

Pregnancy: Bumex should be given to a pregnant woman only if the potential benefit justifies the potential risk to the fetus.

Bumetanide may be excreted in breast milk.

Pediatric use: Safety and effectiveness below age 18 not established.

ADVERSE REACTIONS: Muscle cramps, dizziness, hypotension, headache and nausea, and encephalopathy (in patients with preexisting liver disease).

Less frequent clinical adverse reactions are weakness, impaired hearing, rash, pruritus, hives, electrocardiogram changes, abdominal pain, arthritic pain, musculoskeletal pain and vomiting. Other clinical adverse reactions are vertigo, chest pain, ear discomfort, fatigue, dehydration, sweating, hyperventilation, dry mouth, upset stomach, renal failure, asterixis, itching, nipple tenderness, diarrhea, premature ejaculation and difficulty maintaining an erection.

Laboratory abnormalities reported are hyperuricemia, azotemia, hyperglycemia, increased serum creatinine, hypochloremia, hypokalemia, hyponatremia and variations in CO_2 content, bicarbonate, phosphorus and calcium. Although manifestations of the pharmacologic action of Bumex, these conditions may become more pronounced by intensive therapy.

Also reported have been thrombocytopenia, deviations in hemoglobin, prothrombin time, hematocrit, WBC and differential counts. There have been rare spontaneous reports of thrombocytopenia from postmarketing experience.

Diuresis induced by Bumex may also rarely be accompanied by changes in LDH, total serum bilirubin, serum proteins, SGOT, SGPT, alkaline phosphatase, cholesterol, creatinine clearance. Increases in urinary glucose and urinary protein have also been seen.

DOSAGE AND ADMINISTRATION:

Oral Administration: The usual total daily dosage is 0.5 to 2.0 mg and in most patients is given as a single dose.

Parenteral Administration: Administer to patients (IV or IM) with GI absorption problem or who cannot take oral. The usual initial dose is 0.5 to 1 mg given over 1 to 2 minutes. If insufficient response, a second or third dose may be given at 2 to 3 hour intervals up to a maximum of 10 mg a day.

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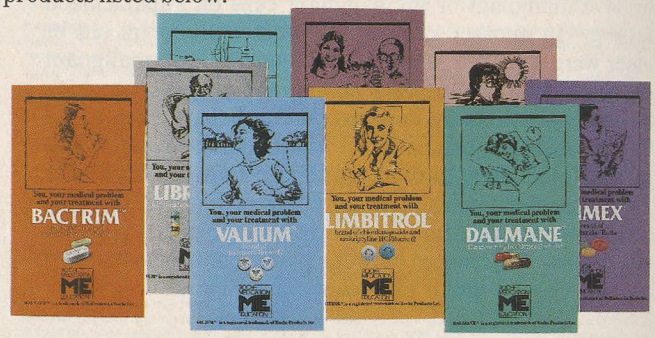

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ROCHE ME MEDICATION EDUCATION

TABLE 1. PERCENTAGE OF PROJECT WOMEN SERVED (N = 1459) WHO CHECKED HIGH-RISK CHARACTERISTICS

Characteristics	Project	General Population*
No Papanicolaou test within 3 years	46†	25
Age at first pregnancy < 19 years	13†	8
Receive public assistance	10†	5
Education < 12 years	19†	30
Age ≥ 30 years	80†	71
Have no regular physician	42†	25

** General population percentages are based on data from the 1980 census for women aged 19 years and older in the 3 counties (N + 140,279),[8] statewide vital statistics,[9] and a representative survey[10]*
† All characteristics differ significantly based on 95% confidence intervals

TABLE 2. CLINICAL DIAGNOSES REQUIRING REFERRAL

Diagnosis	Number
Relevant to Cancer Detection	
Cancer	4
Cervical intraepithelial neoplasia found on Papanicolaou test	27
Atypical cells found on Papanicolaou test	30
Visually abnormal cervix	39
Postmenopausal bleeding	5
Adnexal mass	8
Abnormal breast examination	54
Not Cancer Related	
Blood pressure > 140/90 mmHg	24
Other gynecological abnormalities*	52
Other nongynecological abnormalities	17

** Included pregnancies, prolapse of uterus, fibroids, and serious infections*

charts provided consistent delivery of the educational messages to participants.[7] The education session concluded with the message that women should establish an ongoing relationship with a physician, if they did not already have one, and obtain future Papanicolaou tests and other preventive care as recommended.

Evaluation

All sites administered a 10-minute 30-item questionnaire to patients on arrival that addressed demographic characteristics and elicited information concerning previous preventive health care behavior and knowledge related to early detection of cancer. A post-test on knowledge and satisfaction was administered prior to leaving. Characteristics of women who participated were compared with characteristics of women in the general population of the three counties and the state by 95% confidence intervals using the normal approximation of the binomial distribution.

RESULTS

One hundred forty-seven sessions were held between September 1986 and May 1987 at 24 different sites with 1459 women participating. The mean age of participants was 44.3 years (range 16 to 87 years). Participants who met selected target criteria are compared with women in the general population in Table 1. The yield of problems requiring referral is summarized in Table 2. All four women with cancer fit the low-income criterion, had not had a Papanicolaou test in over 3 years, and had no regular physician. All women with cancer and at least 89% of those with abnormal results of Papanicolaou testing followed through with referrals for definitive diagnosis and management.

Fifty-eight percent of women who attended said that they had a regular physician, but 45% of these had not had a Papanicolaou test in over 3 years. When these women were queried about why they had not had a Papanicolaou test sooner, 33% indicated it was because the test was too expensive, 28% had forgotten to get one, and 8% replied that they did not know the test was indicated more often than every 3 years. Fifty-nine percent of women who lacked a regular physician had not had a Papanicolaou test within 3 years. Fifty percent of this group indicated that the main reason for this was that they had no regular physician; cost and forgetfulness were the next most common reasons.

Overall, the great majority of women were very satisfied with the project. Knowledge scores also increased between

the pre- and post-test. The total direct cost of the project was $103,000. About $35 was spent for each participant for direct clinical services including patient education and Papanicolaou test readings. Of the remainder, about $10 per patient was spent for marketing and ongoing administration, and the remaining expenditures were related to project startup.

DISCUSSION

The project yielded 30 malignant or premalignant (defined as presence of cervical intraepithelial neoplasia) lesions found by Papanicolaou testing, or 21 per 1000 women screened. This rate exceeds the rate found in the studies previously cited (7 per 1000[5] and 13.5 per 1000[6]). This finding lends support to the belief that high-risk women living in New Hampshire are an appropriate population for special Papanicolaou test efforts. Comparison between project participants and the general population is instructive. Even with the open-access policy, the project attracted significantly more women over 30 years old who had had no Papanicolaou test for at least 3 years or who were on public assistance than are in the general population.

The finding that a substantial proportion of participating women who have a regular physician had not had a Papanicolaou test in over 3 years is disturbing. Although the Papanicolaou test rate was substantially better than for those without a regular physician, other studies have shown that the great majority of established patients of primary care physicians had a recent Papanicolaou test[11,12] Population-based surveys show that in the general population almost 46% of women older than 17 years have had a Papanicolaou test within the past year[13] regardless of whether they have a regular physician, and almost 60% have had a Papanicolaou test within the last 2 years.[14]

This project shows that it is feasible to reach New Hampshire women with selected target characteristics through special community clinics and that a substantial clinical yield can be expected. There may be a substantial number of New Hampshire women who have regular physicians but who are not being provided with indicated Papanicolaou tests. Future study is needed to assess the extent of this preventive care gap and how to correct it. Special community clinics may actually supplement services provided by primary care physicians both because they reach women who do not have regular physicians and because they can provide services to women who have a physician but who have not obtained a Papanicolaou test in over 3 years because of oversight, expense, or other barriers to care.

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