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or building projects for that purpose. They also requested that a moratorium on the research and a congressional inquiry be initiated to provide an "open, national setting for unbiased and unhurried examination" of the risks and benefits.

They base their "cease and desist" request on NIH's release of guidelines prior to release of an environmental im-

pact statement. Simring calls this a "glaring example of cart-before-the-horse tactics," a circumvention of public input and an "a priori assumption that the work would go ahead, thus violating the spirit as well as the letter of the law."

Bernard Talbot, NIH administrator, says that according "to the letter" of the National Environmental Policy Act, the impact statement probably should have been

filed first. But, he says, there was considerable public input during preparation of the guidelines and Fredrickson wanted to release the guidelines as soon as possible to replace the less stringent Asilomar guidelines, and to provide greater protection for the public. An environmental impact statement will be released on Sept. 1, he says, and public input will be used to revise and update the guidelines. □

Mammography: Controversy heightens

The risks of low-dose X-ray screening for breast cancer—mammography—may actually outweigh the benefits for women under age 50, two groups of scientists headed by Lester Breslow of the University of California at Los Angeles and Arthur Upton at State University of New York at Stony Brook reported to the National Cancer Institute on July 19 (SN: 7/31/76, p. 70).

Their reports received widespread newspaper and television coverage. Not unexpectedly, they have triggered concern if not alarm among the 129,000 women under age 50 who have been screened by the technique at 27 centers set up by the NCI and the American Cancer Society in 1972. Many of the 121,000 women over age 50 who have been screened also fear that the results pertain to them. Still other women with pending appointments at the centers have canceled them out of fear.

To counter these reactions and to better inform women on the issue, NCI Director Frank Rauscher Jr. and Guy R. Newell, deputy director of NCI, met with the press and some 400 women on staff at NCI on July 29. Ample evidence was presented to allay undue fear. But Rauscher and Newell agreed that the issue is highly complex and controversial even among scientists in the field, and that the scientific facts just aren't all in yet so that a rational judgment can be made.

First the values of mammography were clarified. The technique can definitely lower breast cancer death rates in women over age 50, according to the only mammography study to date, that of the Health Insurance Plan of New York during the 1960s. Also, preliminary data from screening 250,000 women at the 27 centers since 1972 suggests that mammography can detect breast cancers in women under that age whereas other techniques cannot. Of the 804 cancers detected to date, 223 have been in women under age 50, and of the 223, almost 50 percent were detected by mammography alone, not by palpation. "That is a substantial figure," Rauscher declared.

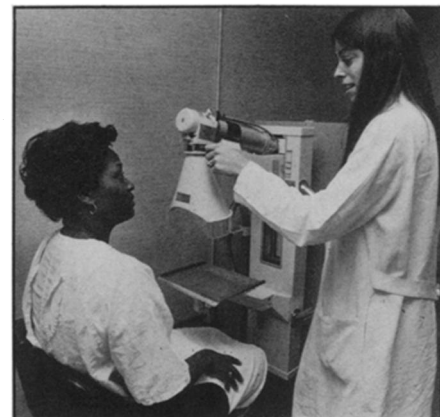
The risks of mammography were then put into perspective. Rauscher and Newell reemphasized what Upton had estimated. The average American woman has a 7 percent chance of getting breast cancer in her lifetime. One mammogram would increase her risk to 7.07 percent, 15 mam-

mograms would increase her risk to 8 percent, and 100 mammograms would double her risk from 7 to 14 percent.

But no definitive judgment about the benefit-vs.-risk ratio for women under age 50 can be made until more scientific information becomes available, Rauscher and Newell agreed. More information on the benefits and risks should become available in September when another group of scientists headed by NCI pathologist Louis Thomas reports to the NCI. Rauscher implied that he will make some recommendations after that, and that they will be based on the reports of all three working groups of scientists. Meanwhile, the decision to have or not have mammograms is up to American women, and women at the July 29 meeting asked some crucial questions to help them decide on their own, at least until Rauscher takes a stance. For instance, might a routine chest X-ray present breast cancer risks? Newell replied that it probably would not since it contains an even lower X-ray dose than a mammogram does, 70 millirads versus one rad. Another question: What is the lag time between X-ray exposure to the breast and breast cancer? Answer: Ten years at least, and that is one reason why the risks of mammography are probably greater for younger women than for older women.

There was one vital question that no one asked at the July 29 meeting, however. Why was routine mammography for women under age 50 set up in the first place since the only study of its value, the New York HIP study, had shown no benefits for women under age 50? Rauscher did partially answer this question by pointing out that mammography was becoming more sensitive in the early 1970s, and that hopes were great among a number of scientists that it would still prove itself useful for younger women. Also, he said, there was no evidence in 1972 that low doses of X-rays to the breast can cause cancer.

But there was evidence that high doses could. Even then, John C. Bailar III, editor of the JOURNAL OF THE NATIONAL CANCER INSTITUTE, recalls, a number of scientists did not approve of the idea of routinely screening women under age 50 with mammography. So why did the scientists pushing it win out over those who did not want it? As Bailar told SCIENCE



Patient prepping for a mammogram.

NEWS: "I have been 20 years in cancer research, and I have never come across anything as fiendishly complicated as this area. It involves pathologists, surgeons, mammographers, radiation physicists, radiation biologists, public health experts, other specialists. I suspect that these groups never got together in a way that perhaps they should have to hammer out their common problems."

Bailar admits though, that the evidence against X-rays to the breast has been building primarily since the screening centers were set up in 1972. It was he, in fact, who brought the increasingly incriminating evidence to the attention of Rauscher. Rauscher then set up three working groups of scientists last October to study the evidence in greater detail and to decide whether it applied to routine mammography of women under age 50.

The strongest indictment of X-rays to the breast to date, in Bailar's opinion, are study results reported by Upton's group on July 19. Women who had tuberculosis 30 or more years ago were, in those days, given repeated fluoroscopy of the chest to follow the course of their treatment. The radiation dose amounted to about 7.5 rads of X-rays per diagnosis, and the patients received an average accumulation of 1,215 rads. The women have now turned out to have a much higher incidence of breast cancer than the general population. Also, all their breast cancers are on the side of the chest that was bombarded by X-rays. "To me that really nails it down," Bailar asserts. But would an accumulation of 25, 50 or even 100 rads of X-rays from routine mammography in younger women also trigger breast cancer eventually? There is the rub, the yet unanswered question. □