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## **The Quality of Care in Sterilization Camps: Evidence from Gujarat**

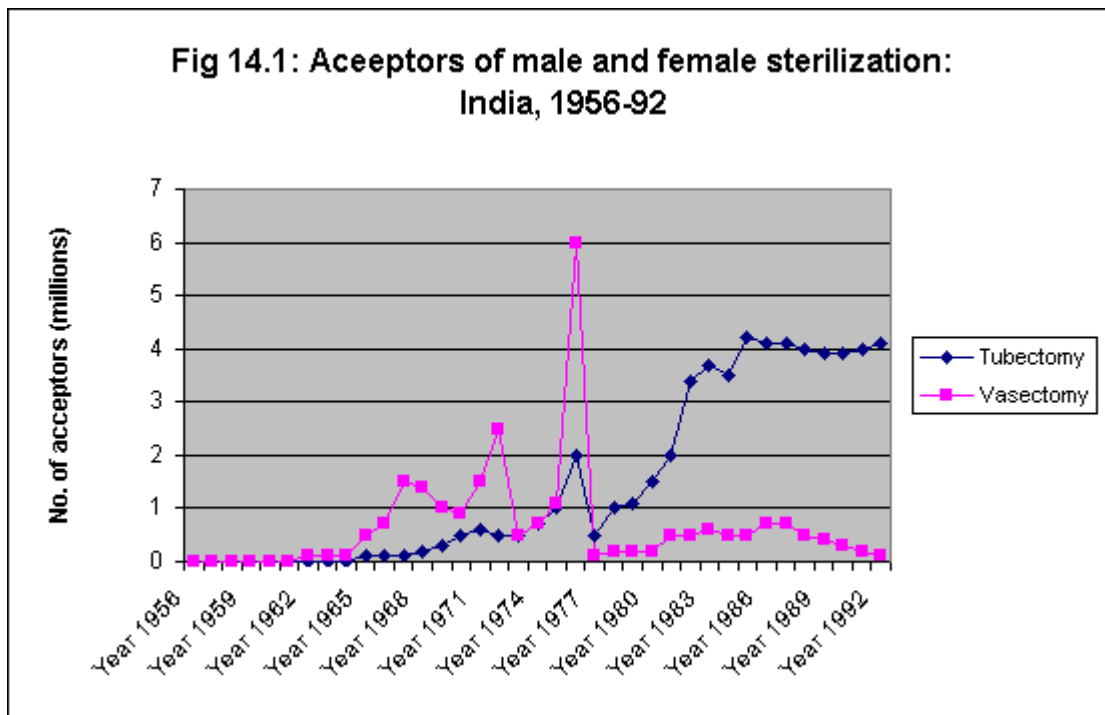
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Sterilization is the most popular method of contraception in India. The 1992-93 National Family Health Survey found that of the 36.2 percent of eligible couples using any modern method, most (30.7 percent) had been sterilized and only 5.5 percent were using temporary methods (IIPS 1995). Sterilization is thus six times more common than all the other modern methods combined. Although the Family Welfare Programme has begun to give higher priority to spacing methods than to permanent methods, sterilization is expected to remain the most popular method for the foreseeable future. Unfortunately, the government of India has paid little attention to the quality of sterilization services, and has tended instead to emphasize achieving targeted numbers of cases. A great deal of demographic research has been conducted in India, but few studies have focused on the quality of care in family planning, in particular the quality of sterilization services (see Shariff and Visaria 1991; Verma, Roy, and Saxena 1994).

### **History of the Camp Approach to Sterilizations**

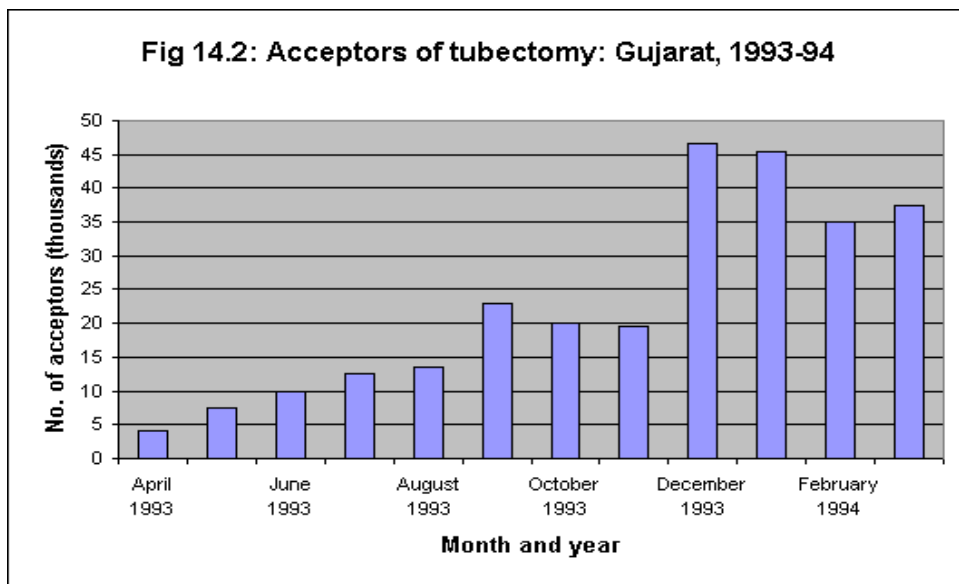
Although sterilization has been an important component of the Family Welfare Programme since the 1960s, the camp approach was not introduced until the Fourth Five-Year Plan (1969-74). Sterilization received a strong push in the early 1970s with mass vasectomy camps. The chief district administrator (called collector or district magistrate in India) of Ernakulam District in Kerala successfully brought large numbers of villagers to camps for vasectomies, thus setting an example for other regions in the country (Agarwala and Sinha 1983). This approach spread rapidly, and the prevalence of sterilization rose by two percent per year. Doctors at the camps tried to outdo one another in the number of operations they performed each day, with the result that there were high rates of failure and other complications.

The Ernakulam camps were models of organizational efficiency, but their methods were not always duplicated elsewhere. Handling large numbers of cases placed a strain on the camps' organizational capacity, making follow-up difficult. The number of sterilizations fell as problems associated with this hurried approach came to light (Soni 1983). The number of vasectomy cases declined further after 1976, when the government declared a national emergency during which thousands of men were coerced to accept vasectomies. Since 1977 female sterilization has been the most commonly used method (Figure 14.1). Among the 31 percent of couples sterilized as of 1992-93, female sterilization accounted for 27 percent and male sterilization accounted for a mere 4 percent.



Female sterilization consists of two methods—the abdominal method, or mini-laparotomy ("minilap" for short), and laparoscopy, which was introduced in the early 1980s. By the end of the decade, the laparoscopic procedure had become popular because it was quick and it did not require general anesthesia or a stay in the hospital. When the procedure was still new, only a few surgeons were trained in this method, and hence laparoscopies took place in large "camps" where a single surgeon performed 100-300 operations per day in an assembly-line approach. The camps were held in any building available. As more surgeons were trained and some of the problems of such large camps became evident, the camp sizes shrank to 20-50 cases per day, only occasionally exceeding 100 cases.

Sterilization is the center of what remains a target-oriented program. The central government sets targets for each state, which the state in turn distributes to each primary health center (PHC) and worker. In Gujarat each worker is expected to recruit about six sterilization cases per 1,000 population, or 18-24 cases per year. The government's fiscal year begins on April 1 and ends on March 31, which has led to a system in which the impetus for sterilization recruitment starts in October and ends with a crescendo in March. Workers must reach their targets by the end of March or face possible punishment, ranging from a verbal reprimand to the withholding of their salary or denial of promotion. The acceleration of cases can be seen in data from Gujarat and Maharashtra. In Gujarat during fiscal year 1992-93 about 5,100 sterilizations were completed in April 1992, whereas in March 1993 the number rose to more than 45,000. The data on sterilizations performed each month in 1993-94 also show that the numbers increase from about 5,000 in April 1993, the beginning of the fiscal year, to a peak of 48,000 in December and then decline to 37,000 in March 1994 (Figure 14.2). This periodicity could be due to women's preference for sterilization in winter and also to pressure to fulfill targets by the end of the fiscal year. Maharashtra presents a similar picture: 16 percent of sterilizations took place during the first quarter of the year (April-June), compared with 33 percent during the last quarter (January-March). Part of this periodicity is due to women's preference for having surgical procedures done during winter months, but the peak of operations in March can be explained largely by the target system and the pressure workers feel at the end of the fiscal year to meet their targets. Such pressure has adverse consequences for the quality of services provided by the camps.



In this chapter we assess the quality of sterilization in camp settings, drawing upon Judith Bruce's framework for evaluating the quality of family planning (Bruce 1990). The sterilization camps provide an opportunity to observe what information is given to clients, the technical competence of providers, interpersonal relations, and some aspects of follow-up. We draw lessons for the national sterilization program based upon our observations.

## **The Setting and Study Methodology**

The study took place in a district in northern Gujarat, the westernmost state in central India. According to the latest Indian census, Gujarat had a population of 41 million in 1991. It ranks high economically, but on a range of social indicators Gujarat ranks considerably lower.

A district is divided into several small blocks called *talukas*, each headed by a taluka development officer who is in charge of the block's development activities. In Gujarat the laparoscopic camps are organized at a community health center (CHC) or a "mother PHC"-that is, an old, large PHC constructed before the new pattern was established of one PHC for every 30,000 population (instead of for 100,000) which is usually located at the taluka headquarters. The sites for camps are generally located in the town where the taluka has its offices. Camp staffing and management duties are divided among the various PHCs of the area by rotation. Throughout the year, one day of each week is dedicated to sterilization camps. On that day the operations are carried out from morning to afternoon or evening, depending upon the number of cases.

This study of sterilization camps covered one PHC and two CHCs and was part of a larger project assessing micro-level planning for PHCs. We observed 10 sterilization camps between January and March 1994. Initially each camp received a visit from a team consisting of a public health physician, a researcher, and one or two female field investigators. The team participated in all activities of the camp and observed the camp's technical, interpersonal, and administrative aspects. On the basis of these initial observations, we developed a checklist for noting salient characteristics of each camp. Detailed information about each camp was also recorded in the form of a descriptive narration. The intent was to assess the quality of the camps and identify areas in need of improvement.

## Results

The 10 camps served a total of 275 women. We did not observe all the sterilization procedures, but we spent at least one hour in the operation theater (OT) of each camp. We also spent part of our time observing activities outside the OT. Our attention focused on four aspects of the camps: (1) the physical facilities of the PHC or CHC for camp-related activities, (2) the technical quality of care provided by the camps, (3) the human quality of care, and (4) organizational and administrative aspects of the camps.

### Physical Facilities

The most important physical facility at a sterilization camp is the OT. Other physical features we were interested in observing were patient facilities and facilities for patients' relatives.

*OT:* In the PHCs the OT was usually a room that had been temporarily converted for that purpose, whereas at the CHC it was generally better equipped. We found the OT at one of the three sites to be in good physical condition as it had been newly constructed by a private donor and handed over to the government. At the other two sites (one a PHC and the other a CHC) the OTs were in poor condition owing to improper construction and lack of maintenance. Lighting and ventilation were also poor; windows did not close properly. The paint on many walls was old and peeling.

Lack of cleanliness was a serious problem. One CHC's OT had pigeon nests on the light fixture above the surgical table. None of the theaters had facilities for scrubbing hands between operations. Although wash basins were located outside the theaters, most had no water; even if they did, the surgical staff did not scrub after each operation. Although the general cleanliness of the OT is the most important aspect of the technical quality of care in sterilization, the unsanitary condition of the OTs in two of the three centers we observed indicates the lack of importance given to cleanliness by PHC administrators.

OT equipment was old and in poor condition. There were no shadowless lamps but only tube lights and modified table lamps with ordinary bulbs. One might argue that laparoscopy does not require sophisticated OT lamps, but at three stages of the procedure-making the incision, closing it, and manipulating the

uterus-proper lighting is essential. At the two CHCs other routine operations were also done under these circumstances.

Emergency medicines and equipment were lacking at the camps. For example, although the OTs had oxygen cylinders, the key to open them, the pipes, and the masks were not readily accessible. No anesthesia trolley or respirator bag and mask were available for artificial respiration in the theater. In one of the theaters a blood-pressure (BP) cuff bulb was being used to pump air into the abdomen, and that bulb was so tattered that it was being held together with sticking plaster. We could find no systematic mechanism for regular inspection and maintenance of the OT equipment.

Most of the equipment normally found in an OT, such as trolleys, saline stands, standing BP meter, and the operation table, were either nonexistent or improvised from wooden furniture. The table was missing stirrups for arranging a woman's legs in the proper lithotomy position. The linen was meager and torn, and there was a shortage of gowns, masks, slippers, and other OT apparel.

The supply of water and electricity was erratic. During our observation at one center, water had to be brought by tanker because the water pump's motor had burnt out. At the center there was no running water, so that an assistant had to pour water for the surgeon to wash his hands. We were told about operations that had to be suspended because of the lack of electricity. Twice during the camps we observed a surgeon having to wait for two to three minutes for interrupted power to return while the laparoscope was inside a patient. Later, when discussing this matter with the district-level officers, we learned that some years earlier they had run the laparoscope by attaching it with a cable to a car battery. But this ingenious solution was not used in any of the centers we saw.

*Patient facilities:* To make surgery a more comfortable experience requires not only a properly equipped and maintained OT but also facilities for preoperative preparation and postoperative recovery. In most of the camps we observed, attention was not paid to such details. Clean and functioning toilets are essential at a sterilization camp because, as part of the preoperative preparation, women are given an enema to empty their bowels. In most camps we observed, the toilets were not functioning properly for lack of water and maintenance. They were full of waste.

There were no systematic seating arrangements for waiting cases. Women had to sit on the floor or were kept lying on mattresses after receiving preoperative

medications. At one camp, 35 women clients were packed side by side on the floor of a small anteroom next to the OT, waiting for surgery. Overcrowding was less of a problem at the CHCs.

Patients were not given OT clothes to change into. A woman's own *ghagara* (below-waist petticoat) was tied above the breast so that it covered her from the breast to mid-thigh. Such exposure must be acutely embarrassing to most women in this culture, where exposure of women's legs is unacceptable. Patients had little privacy in the resting room. Not only were many women crowded into the room, but the PHC staff-including male ward boys, peons (untrained male staff), and doctors-had to pass through it on the way to the OT.

Normally women come to the camps through their own means, but the centers arrange for them to be transported home after surgery. The vehicle used for this purpose is a jeep that is usually crowded with PHC staff, other women from the patients' villages, and patients' relatives. Therefore the ride home can be quite uncomfortable.

The camps provide no food or water for patients, who must fast both before and after the operation. This means that women undergoing sterilization have nothing to eat or drink for nearly 24 hours, beginning the night before their surgery.

*Facilities for patients' relatives:* An operation is considered a major event in the lives of Indian women, and therefore they are accompanied to the sterilization camps by two or three relatives. Many patients have just given birth and so have infants to feed. The relatives and infant arrive with the patient at around 9:00 a.m. and must stay until 4:00 or 5:00 p.m. At none of the camps we saw had the authorities made any systematic effort to provide them with a shaded place to sit, chairs or benches, drinking water, or toilets. The relatives had to wait in the open yard, seeking shade wherever they could find it. Those with infants made temporary cradles by tying two ends of a cloth to two supports. Relatives provide much-needed psychological support to the women who are undergoing the operation, but the PHC system does not seem to care about their welfare.

Several years ago the Health Department stopped paying workers a motivator's fee. Workers told us that, as a result, they had to spend their own money to purchase tea or snacks for the relatives of the women they had recruited for the operation. This change was a source of considerable resentment.

## Technical Quality of Services

The technical quality of care is critical to the overall quality of care provided by sterilization camps. Poor technical quality can cost lives and discredit the entire program. We looked at this aspect of quality during the preoperative, operative, and postoperative phases of care. Our results indicate that technical quality was inadequate.

*Preoperative care:* We focused on four elements of preoperative care: (1) screening and preoperative preparation; (2) the administration of preoperative medication; (3) technical skills of workers; and (4) patient counseling.

Proper screening identifies and eliminates high-risk cases, and preoperative preparation reduces risks associated with surgery. Screening should include a systematic examination to rule out contraindications for the operation. The preoperative preparations we observed included a general examination, BP measurement, a urine test using the Benedict method of measuring sugar level, a blood test to measure hemoglobin level, shaving of the pubic hair and lower abdomen, an enema, and the administration of preoperative medications. As already mentioned, patients were required to have fasted since the previous night. The general examinations we observed were cursory and hurried. In most cases a pelvic exam was not done. Hence in our view the cases accepted for surgery were not properly screened.

The preoperative medications given to each patient included atropine (to prevent vasovagal shock), penicillin (an antibiotic), diazepam (a sedative), and Phenergan (to prevent allergic reaction). In all the camps we observed, the nurses were using only about 8 to 10 needles and syringes to inject the four medicines into 20 to 30 women. The needles and syringes were washed in hot water or sometimes boiled for few minutes and then reused. Ideally, reusable needles and syringes should not be reused until they have been boiled for 20 minutes. There does not seem to be a shortage of supplies-the PHCs have adequate stocks of needles and syringes given to them under the Universal Immunization Programme-but the camp organizers and nurses were not taking the trouble to prepare autoclaved sets of needles and syringes for the sterilization cases as they normally do for immunization camps. Moreover, in most cases they allowed too little or too much time to elapse between the preoperative medication and surgery, with the result that the medication had not fully taken effect or the effect had waned by the time the women were operated on.



We observed nurses using the same instrument to give successive patients an enema without disinfecting or even cleaning it. We could not observe the shaving, but we suspect that the nurses used a single razor blade on more than one patient. This would have increased the risk of transmitting blood-borne diseases, such as HIV and hepatitis B virus, from one patient to another.

The technical skills of the workers were also deficient. At one camp we observed, the nurse did not know how to open the vials properly and accidentally spilled some medicine from each vial. She even accidentally broke several vials, with the result that the last patients did not receive any antibiotics. In another camp a nurse improperly attached a needle to the syringe she was using, thereby causing medicine to leak out while she injected a patient. Such incidents indicate that the staffs were not properly trained in preoperative procedures, or they reflect simple carelessness.

After being examined and prepared for surgery, the women were kept lying in a room until their turn came for the operation. PHC staff made no attempt at this point to prepare them psychologically for the operation by telling them what the surgery would entail and what they could expect to experience during the procedure. It is possible that the auxiliary nurse-midwife (ANM) had explained this when recruiting the women at their homes, but this is doubtful. This omission and the other problems described above indicate the weaknesses of the preoperative preparations.

*Quality of care in the OT:* The observance of proper OT procedures is critical to the prevention of infection and other complications. We found that instrument sterilization was inadequate in all the camps we observed. The trocar, cannula, scalpel, needles, forceps, and other instruments used in surgery need to be properly cleaned and thoroughly sterilized after each use to prevent the transmission of infection from one patient to another. What we saw instead was that the trocar, cannula, laparoscope, and scalpel were merely washed in hot water in a tray after use, dipped in the germicidal solution Cidex (glutaraldehyde 2 percent solution) for 30 seconds to 1 minute, washed with hot water again, and reused after being wiped with a sterile towel. The recommended amount of time for immersion in germicidal solution is 20 minutes at or above 25 degrees centigrade for a high level of disinfection and 10 hours for complete sterilization (Tietjen, Cronin, and McIntosh 1992). The catgut and needle used for suturing were cleaned with spirit and hot water, respectively, before reuse. Instruments used for uterine manipulation were not sterilized adequately either. Instead of being boiled for 20 minutes, they were washed with hot water. Surgical staff did

not swab each patient's vagina and cervix or paint them with antiseptic solution before inserting the uterine sound, which is required for manipulating the uterus during sterilization. This omission increased the risk of infection ascending from the vagina to the uterus and fallopian tubes. Although skin preparation with antiseptic was done reasonably well, there was also room for improvement here.

Among the large number of staff present in the OT, only some wore a mask, gown, or cap. The surgeons and nurses did wear surgical garb, but did not follow general aseptic precautions, such as changing their gloves, gowns, masks, and caps after each operation. After operating on one patient, the surgeon simply washed his gloved hands in hot water and dipped them in Cidex before moving on to the second table, where another patient was kept ready so as not to waste time.

Thus the sterilization of equipment and the aseptic precautions were extremely inadequate in the camps we observed. No one seemed to be paying attention to these important details. One positive observation was that, at least at the beginning of a day's surgical activity, most OT instruments and linen were autoclaved and the color indicator strips were preserved and pasted in a notebook to keep a record of autoclaving quality. But subsequently the same instruments were merely boiled or cleaned with hot water and reused.

Supporting our observations of OT procedures at the camps we visited is a study of 398 PHCs in 199 districts covering most major states in India, which the Indian Council of Medical Research conducted during 1987-89 (ICMR 1991). The researchers observed 2,075 sterilization cases at camps organized by the PHCS. They found that in 40 percent of the cases, sterilization of the instruments was "Improper or not done". They reported that in Gujarat, the laparoscope was not properly sterilized in 51 out of 65 cases observed, and that the sterilization of other instruments was inadequate in 36 out of 65 cases.

Improper surgical technique increases the risk of complications and failure. We did not observe the surgical technique of the laparoscopy procedure very closely, as we were not competent to do so, although an expert gynecologist could tell whether proper surgical procedures were being followed. In the final analysis, only follow-up of rates of complication and failure can determine the quality of surgery. We have not followed up the cases we observed because properly doing so would have required a prospective study of a large sample.

The attendants in the OTs we observed were not well trained. Peons served as OT attendants, making mistakes that caused patients to suffer. In one camp, for example, a peon instructed a patient to assume the wrong position, making it necessary for her to get on and off the table twice. Doing so was difficult because no steps were provided and the table could not be lowered. Nor were the ANMs who assisted in the operations properly trained to clean the instruments and disinfect them after each operation. According to one district-level officer, they had been taught some improper techniques during their basic training. Low technical quality of care in the OT could well be a reflection of deteriorating standards in various teaching and training institutes in the state.

*Postoperative care:* After the operation, patients are kept in a room to rest for two hours and then discharged. In one PHC we observed, the resting room was very congested. We did not observe any regular measurement of the patients' BP or pulse after the operation. Although this is less important now that laparoscopic operations are done under local anesthesia, it should be done to ensure that patients do not go into shock as a result of internal injury or allergy to medications.

*Follow-up:* Patients were given paracetamol and iron tablets at the time of discharge. But we did not see staff giving them any advice except such basic instructions as "Don't put water on the wound." No written instructions were given to the women. The women were delivered to their homes in a vehicle. The next day the health worker (an ANM or male worker) or doctor visited each woman at home and inquired about her health. After seven days the ANM removed the stitches at the woman's home. We were told that the materials available to the ANM were not adequate for proper dressing of the wound. Even though follow-up is routine, workers have no set protocol for examining the patient; they may miss a developing problem even if they visit the woman.

## **Human Quality of Service**

The human quality of service, one of Bruce's six elements for measuring the quality of care, is very important because negative impressions have an immediate effect on clients' behavior, often causing them to reject sterilization. For most women who come for the operation, this is their first encounter with hospital services, which include such unpleasant preoperative procedures as the shaving, enema, and vaginal examination. Such an experience can be traumatic if there is little empathy, gentleness, and proper psychological preparation for the

procedures. The provision of good human quality of care requires training, adequate time, and the right attitude on the part of providers.

Our observations indicate that the PHC system has not given thought to the interpersonal aspect of the sterilization procedures used in the camps. The camps are run more or less like an assembly line in which the surgeon operates on two tables, one patient right after the other. Generally in this operation the medical officer prepares each case by painting and draping the patient, then injecting air into her abdomen. The surgeon makes an incision, inserts the trocar and cannula, and then inserts the laparoscope and ligates the fallopian tubes. It takes only two to three minutes for this part of the procedure, after which the surgeon moves on to the other table. The medical officer then sutures the wound and puts a dressing on it. At one center we observed that besides the two patients on the table, two more were kept waiting in the OT in a squatting position so that as soon as one patient came down from the operation table, one waiting could immediately take her place. This was done to save the time of the surgeon, who came from the private sector or from another center. Approximately 10 to 15 operations are done in one hour. In such a setup, it is not possible to provide much empathetic treatment.

We believe that while waiting for their turn, clients who are next in line must be frightened by what they see and hear, especially if the woman being operated on cries in pain-which is common as the operation is done with local anesthesia. In one instance we observed, the surgeon had to do a lot of uterine manipulation because the patient was obese. The woman was crying in pain, and after the operation she began bleeding from the vagina as a result of internal injury caused by the procedure. Strong painkillers like morphine or pethidine are not given even in such cases.

The division of labor among the lower-level staff has male peons assigned to the OT to help women get on and off the table and to help them assume the lithotomy position, in which the women's private parts are exposed. Female attendants are assigned the task of cleaning the instruments and boiling water outside the OT. In most camps there are no female doctors, so that male doctors do all surgery. Only the nurses who assist the doctors are women. Thus the gender allocation of work follows the established hierarchy and is insensitive to clients' cultural modesty.

The nurses we observed did not seem to be sympathetic to the women. One woman was feeling uncomfortable after being prepared for surgery and was unable to lie down. She requested water. Instead of helping or comforting her, the nurse ordered her to "shut up and go to sleep." No one seemed to pay any

attention to the mental condition of the clients, whose anxiety might have been alleviated had they been told, honestly and sympathetically, what to expect during both the preoperative and operative phases of sterilization. The clients' relatives might have provided some comfort to the women, but they were not allowed to be with them either before the operation or afterward until the women were discharged.

The camps made no effort to provide health education or information to the clients. The women were required to give their consent for the operation, but it could not be called informed consent. They were simply told to sign a printed form or, in the case of the large number of illiterate women, put a thumb impression on it. Nobody explained to them what was written on the papers.

### **Organization and Management of the Camps**

As mentioned earlier, the sterilization camp is held at one place in the taluka, usually at the CHC or the "mother PHC." The center's staff are involved in organizing the camp, but the various PHCs of the areas where operations are not performed rotate responsibility for staffing the camp so that all share the burden of work and accountability if something goes wrong. The medical officers share responsibility for preoperative examinations and assisting in the OT. The surgeon comes from the private sector or from a nearby CHC or district hospital. The peons and ayahs (female attendants) work as OT attendants, and the ANMs or nurses provide assistance in the OT. Task allocation and overall responsibility are not clearly defined or adhered to. Generally the PHC sets up four or five stations, one each for registration, preoperative examination, preoperative preparation, operative procedures in the theater, and postoperative rest. Patients are admitted in order of their place in some sort of queue, but no numbering system is followed.

There was no systematic preparation for the camps we observed, nor was any thought given to the details of planning and organizing the camps. No one person had overall responsibility for their management. There was no monitoring of the various procedures, nor were there manuals, protocols, guidelines, or standing orders for anything done in a camp. We found no supervisory checklists in use. Most activities took place on an ad hoc basis or according to the tradition of a particular center. District-level health officers came periodically to visit the camps, but they did not seem to play any role in ensuring a high quality of services.

For example, during our observation period the district-level officer visited one of the camps. Instead of inspecting the various activities of the camp, he called all the workers and supervisors into one room and demanded to know who had not achieved their sterilization targets, reprimanding those who had a shortfall. Thus instead of helping the camp, he disrupted its activities by diverting staff away from their respective duties. Likewise, when the taluka development officer or other higher administrators visited a camp, they were more concerned about meeting targets than about the quality of care provided or resolving the camp's organizational problems.

Some camps are organized as "prestige camps" in the name of politicians or top administrative officers of the district, but we found no indication that the quality of care is given importance even in these camps. Social service organizations do support the camps, but they focus most of their attention on increasing the number of cases by giving additional incentives to acceptors rather than on improving the quality of care. Fortunately, during the last few years the additional incentive system has been discontinued. Nevertheless, there is no indication that camp organizers are paying more attention to the quality of care provided.

## **Discussion**

Our study indicates that although the technology of sterilization is well established, the quality of services offered in the sterilization camps has to date received little attention. In recent years the Family Welfare Programme has directed much of its attention to spacing methods in response to the criticism that it relied exclusively on sterilization. Consequently, there has been much talk about improving the quality of family planning services, but only in relation to spacing methods. This shift to a wider selection of services will take a long time to accomplish. Meanwhile, sterilization will remain the dominant method offered by the program, and therefore the quality of this important service should be given priority.

The effects of poor quality on the Family Welfare Programme have not been studied systematically, and future research should concentrate on this aspect. The literature on business management indicates that poor quality may seem effective in the short run, but is costly over the long term, and that investment in improving quality pays high dividends. In service management, high quality is regarded as an important asset that can give a provider a competitive advantage (Berry and Parasuraman 1991).

In the case of sterilization services, poor technical quality can lead to complications and even death. Poor interpersonal quality can create tremendous psychological barriers to the use of such services, and negative impressions of service quality will soon spread fear in the community. Our mini-survey and in-depth studies done as part of the same project revealed that community members had substantial fear and numerous misconceptions about sterilization. Of the 372 women interviewed in the in-depth study, 41 percent believed that laparoscopy burned the blood or the uterus because it used electricity to "burn" the fallopian tubes. In focus-group discussions, women who had undergone laparoscopy made such statements as "My complexion has darkened", and "I get black blood during menstruation" as a proof of "burning" during the operation.

Our survey results also revealed a sizable proportion of non-acceptors of family planning. The annual target for sterilizations is around 350-375 per PHC. At one community served by a PHC, we estimated there were 1,176 couples who did not want more children but nevertheless had not accepted sterilization; this gap could be defined as unmet need. During our in-depth interviews, we probed the reasons for not accepting this method. Fear alone accounted for approximately 4 percent of the total unmet need for contraception. "Poor health" and the belief that sterilization caused weakness accounted, respectively, for nearly 22 percent and 18 percent of unmet need in two PHCs we studied. Underlying responses like these may be apprehension about the operation-apprehension caused by anecdotal information from clients about the poor quality of services.

The impact of poor quality has been assessed by comparing mortality rates following sterilization in the state of Gujarat with those in developed countries where the quality of care is generally high. Bhatt (1991) reports that the mortality rate due to sterilization in Gujarat during 1978-80 was 20.6 deaths per 100,000 operations. In contrast, in the United States the death rate was only 1.5 per 100,000 hospital sterilization procedures during a similar time period. Over the years, sterilization mortality has declined in India and Gujarat owing to improvement in quality of services. Government data show that between 1990 and 1994, the sterilization mortality rate for India as a whole declined from 5.5 to 2.2 deaths per 100,000 operations (GOI, MOHFW 1994). Recent data from Gujarat show that sterilization mortality declined from 9.1 per 100,000 operations in 1990 to 5.0 in 1994 and then to 2.0 in 1998 (personal communication, Department of Health and Family Welfare, Government of Gujarat, Candhinagar, March 1998). Thus we have not yet reached sterilization mortality rates that were prevalent in the United States 20 years ago. Given that in India about 3.7 to 4.3 million female sterilization operations are performed every year and assuming a rate of 2 deaths

per 100,000 operations, there would be 74 to 86 deaths due to sterilization every year.

Finally, the fact that health workers face great difficulty in achieving their sterilization targets-which may represent only about 20- 25 percent of the potential demand among clients to limit fertility-indicates that many potential clients are reluctant to undergo sterilization in spite of not wanting more children. A major reason could be the perceived poor quality of care at sterilization camps. Improving such quality is within the direct control of the health care system.

### **Why Is Quality Poor?**

Why is the quality of care so low in a program of such great national importance? We previously described eight probable reasons (Mavalankar 1994):

1. *Lack of understanding of the importance of quality of care in the government system in general.* The top managers of the Family Welfare Programme have not realized the importance of quality of care. The program so far has used a target-incentive approach in which the emphasis is on recruiting acceptors "by hook or by crook," as a senior program manager put it. And because the funds for the program come from the central government and the targets are determined at that level as well, state-level officers believe they should be guided by what the central government directs them to do.

2. *Failure to monitor and reward quality.* It has been assumed that because fully qualified doctors perform the operations, they must be doing a good job. And who outside the medical profession can monitor doctors? Many managers have not recognized that standards of medical education have declined and that the doctors coming into the public system, at least in Gujarat, are often not adequately qualified.

3. *Pressure to achieve numerical targets.* At times doctors have had to compromise their medical standards in response to pressure from general administrators to meet program recruitment targets.

4. *Poor physical infrastructure and equipment.* Maintenance standards for all government facilities, including PHCs, have been declining rapidly. Budget cuts,



centrally squeezed allocation of meager resources, and lack of initiative at the PHC level mean that the PHCs and OTs are not well maintained.

5. *Deterioration of technical standards in teaching and training institutions.*

6. *Lack of standards, protocols, manual, and systematic recording systems.* System of quality assurance have not been set up in the program, despite the fact that the government periodically set guidelines and issues orders to improve program quality. Most of the orders seem to remain in the files of the state or district headquarters and do not get implemented in the field. For example, since the early 1990s the central government has been preparing a draft manual on quality of care in the Family Welfare Programme with help from the National Institute of Health and Family Welfare and the US-based Association for Voluntary Surgical Contraception. By 1997, however, only parts of this manual had reached the state and district level, and its use in the field was not evident.

7. *Lack of concern for the human aspects of quality of care.*

8. *No choice or voice for the clients.* Poor people are accustomed to receiving poor services from all sectors, public and private, and hence they rarely complain. Perhaps they see no point in complaining because they do not believe their complaints would have any effect. The Family Welfare Programme has no established mechanisms that enable people to have their voices heard.

Researchers have neglected the issue of quality until very recently. During the last 40 years, most of the research on the Indian program has focused on demographic outcomes. Programmatic research, operations research, and health-systems research have received little attention. Women's groups, who have vociferously protested the introduction of new contraceptive technologies, are surprisingly silent about the quality of sterilization services. No wonder all is quiet on the quality front.

### **Steps That Can Be Taken to Improve Quality**

The literature on service-quality improvement has numerous lessons for the Family Welfare Programme (Fitzsimmons and Fitzsimmons 1994). The most important requirements for improving quality are:

- Commitment from top management;
- Systematic assessment of quality and rewards for improvement;
- Establishment of a continuous, iterative process of quality improvement with both short- and long-term goals;
- Attention paid to critical details and systems set up to record and monitor them;
- Focus on clients' rather than staff needs;
- Process orientation, not person orientation;
- Follow-up and consistency in approach;
- Use of data for decision making; and
- Teamwork and development of shared values toward high quality.

Given these nine requirements, the program should assess the current situation, develop new standards, and work toward improving quality. Service quality has to be built into the process and should be a part of training. It cannot be imposed through mere supervision or inspection. Unless top management commits itself to developing a high-quality program, efforts made at lower levels of the bureaucracy will be futile.

In conclusion, sterilization is critical to the success of India's demographic and health goals, but the quality of the government's sterilization program must improve if further progress is to be made. Fortunately, there is opportunity for improvement, as the World Bank and many donors are now ready to allocate funds to improve the Family Welfare Programme under the new Reproductive and Child Health Initiative of the Indian government. It is hoped that this study will encourage many government officers to bring about positive changes in the sterilization program, which remains a central component of India's Family Welfare Programme.

## **Postscript: A Success Story**

In December 1997 we observed a laparoscopic sterilization camp at a PHC in the same district. The meticulous attention that the government surgeon paid to the technical quality of care was so surprising that we thought it merited description.

The surgeon, a male doctor with postgraduate qualification in general surgery, came to the PHC from a distant CHC. He is extremely careful about surgical aseptic procedures. Moreover, he has adapted the laparoscope to the rural situation, thus improving the quality of care and reducing cost. The key quality-improvement features we noted at the sterilization camp are described here.

The surgeon insists that the OT be wet-mopped and then fumigated with formalin a day before surgery. No one is allowed inside the room until the next day. All the instruments are meticulously autoclaved, and drums of instruments are prepared on the day of surgery. Details of instrument sterilization are recorded. No one is allowed inside the OT without a mask and a change of footwear.

Women are screened for diabetes and anemia. Only those without sugar in their urine and a hemoglobin level above 8 g/dL are approved for surgery. The routine examination and preparation are done as in other camps.

The surgeon has procured five laparoscopes from nearby hospitals and CHCs where they are not being used. All the laparoscopes are properly sterilized in Cidex solution for 30 minutes. After every operation the used laparoscope is cleaned with boiled water and dipped in Cidex. The amount of time a laparoscope is dipped in Cidex is noted. Generally each surgical procedure takes about five or six minutes; hence with five laparoscopes, the 30-minute cycle works well. The surgeon waits until the stipulated time has elapsed even if the operations take less time to complete.

A device designed by the surgeon powers the laparoscope's bulb when there is no electricity. Three regular flashlight-battery dry cells and a connector provide the power source. This device ensures that laparoscopic sterilization continues even when there is a power failure, a common occurrence in most rural areas. The surgeon has also replaced the light bulb socket of the laparoscope with an ordinary flashlight socket so that any flashlight bulb can be used to replace the

laparoscopic bulb. A laparoscope bulb is expensive to replace (Rs 1,200) and often cannot be found outside the state capital. A flash- light bulb is much cheaper (Rs 2) and is readily available.

Some of the problems observed in other camps were also seen in this camp. They include men working inside the OT to help partially exposed women clients climb on and off the table, women having to wait from morning to evening for surgery, the shaving of pubic hair with used razor blades, lack of a proper place or arrangements for patients' children and other relatives to wait, and the lack of health education services at the camp. Notwithstanding those problems, the technical quality of the sterilization procedure is good. The surgeon has attended the government's quality-of-care training, but our view is that he is exceptional in implementing the training and going beyond it. Unfortunately, there is no recognition or reward for such good work, and no one in the administration has thus far taken note of, or tried to replicate, his innovations.

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