power field, which seem to be implied in the emerging U.S. position, would damage their competitive position abroad.

It is not unusual for sensitive multilateral talks to be kept confidential, but the French seem to have been particularly insistent in the case of the London tàlks. French uncommunicativeness is ascribed primarily to the reluctance of the government of French president Giscard d'Estaing to offend Gaullists in the coalition of parties which he heads. The Gaullists would take a dim view of what appear to be concessions to U.S. proposals on proliferation which might work to the competitive disadvantage of French nuclear industry in international markets.

About the only observation U.S. officials will make is that in the last 2 years or so the French have moved a long way from a position in which they appeared willing to make nuclear sales virtually without safeguards. American officials also tend to acknowledge that the French and Germans have developed a stand on nonproliferation with which the United States may still disagree, but for which a case can certainly be made.

The rapid rise of proliferation as an issue can be dated from 1974 when India exploded a nuclear device using material from a reactor supplied by Canada. Concern here increased when the Germans announced conclusion of a nuclear reactor package deal with Brazil which included fuel reprocessing facilities (*Science*, 25 July 1975). And then the French weighed in with word of deals for reprocessing plants to South Korea and Pakistan. The sale to South Korea was canceled, mainly as a result, reportedly, of heavy pressure applied by the United States on South Korea. It is worth noting, however, that Giscard, on a presidential visit to Washington in June, said that he had taken an active part in ending the deal with South Korea.

The alarm on proliferation has been raised on Capitol Hill by the Senate Government Operations Committee headed by Senator Abraham Ribicoff (D–Conn.). Committee hearings provided the forum for Secretary Kissinger's formal statement on revised nonproliferation strategy. Ribicoff is the author of a July *Foreign Affairs* article on nuclear market sharing in which he makes a proposal under which, as he described in the Senate statement, the United States would "offer to enter into market-sharing arrangements with all the major suppliers to eliminate cutthroat competition from the sale of reactors and to promote nuclear fuel arrangements that will discourage production and stockpiling of weapons-grade material outside the supplier nations."

At the moment, the United States and France are cast in the role of chief antagonists in the proliferation debate and the sale of reprocessing plants is represented as the main point of conflict. This defines the issues too narrowly. What is at stake is the international control of the growing quantities of plutonium in the spent fuel of the increasing number of reactors that are operating throughout the world.

In a sense, the change in U.S. official attitude toward nonproliferation policy reflects a change in attitude toward IAEA safeguards. It is more clearly recognized now that safeguards are designed to detect diversion, not to prevent it.

United States policy now seems designed to buy time in order to find an alternative to the spread of fuel facilities. There is no diplomatic quick fix on the horizon—no neat new safeguards proposal, no test ban treaty or NPT. To be acceptable, any new formula must meet the requirements of both the sellers and the prospective purchasers of nuclear power technology. The era when the United States could call the tune in nuclear affairs because of a virtual monopoly in uranium enrichment capacity and dominance in nuclear technology is ending. New arrangements will have to strike a totally new balance of commercial and political interests.

What are the reasons for the change in U.S. policy? After all, nothing really unexpected has happened. As one U.S. official wryly observed, "The physics hasn't changed." But perceptions obviously have, and perhaps the most plausible explanation of that change is simply that the disturbing implications of proliferation were recognized but were seen as lying somewhere in the future and other problems took priority. Now, as another official said, "The future is here."

—JOHN WALSH

Hospices: For the Dying, Relief from Pain and Fear

This country is pouring zillions of dollars into the war against cancer, but is not paying much heed to the plight of victims once their individual battles are lost.

Of the 700,000 people diagnosed as having cancer each year, two out of three die of their malignancies. For these people dying can be a slow, painful, and very lonely business. Hospitals, geared as they are to aggressive therapy and prolongation of life, do not offer a good milieu for dying. A person is not necessarily better off at home if he is alone or surrounded by an anxious, grieving family ill-prepared to give him proper care.

Despite the growing concern about death and dying in this country, there is not much understanding of the needs of dying people—the needs for comfort both physical and mental, for others to see them as individuals rather than as hosts of their diseases, for someone to breach the loneliness and help them come to terms with the end.

Hospices—homes for care of the dying—are one way to meet the problem. The hospice idea, which originated among religious orders in the Middle Ages, has its modern flowering in England, where a number of such places have been set up for attending to dying cancer patients. These differ from the kind that are still run by charitable religious groups in one significant respect: in addition to loving concern for patients they are undergirded by a solid medical component whose chief characteristic is the sophisticated management of severe pain and other unpleasant symptoms of terminal cancer.

Best known to professionals in this country is St. Christopher's Hospice in London, founded less than a decade ago by Dr. Cicely Saunders. The hospice, which also does some pharmacological and psychosocial research, has become something of a mecca for health professionals interested in terminal care, which Saunders calls a "largely unexplored medical field."

Among the interested is the National Cancer Institute. Last fall, through its Division of Cancer Control and Rehabilitation (DCCR), the NCI sent out a "request for proposal" for interested groups to set up experimental hospices for terminal cancer patients. The NCI wants to see if the idea can work in this country. Not only is it novel to the high-technology big-business system of medical care we have, but it embodies a rather rare combination of spirituality and hard medicine, a combination whose uniqueness may not be appreciated until one encounters it in such a person as Cicely Saunders.

Saunders, now in her mid-50's, is an Oxford-educated (philosophy, politics, economics) lady who broke off her studies to become a nurse during World War II. An injured back sent her back to university where she finished her degree and became a medical social worker. Her hospice idea was born during the course of a close friendship with a 40-year-old Polish refugee who was dying of cancer in a busy London hospital. They discussed the kind of place where he would like to be, and he left her £500 when he died to help set up her "Home." Saunders went on to get her medical degree and subsequently spent 7 years at St. Joseph's, a London hospice. Finally, in the late 1960's, she received money from the National Health Service to build St. Christopher's, a five-story building in southeast London.

Saunders' unique contribution to hospices has been the sound medical management of terminal cancer pain. The first goal at St. Christopher's is to make the patient free of pain, and of the memory and fear of pain, by arranging that continuous dosages of analgesics be given so the patient is always one step ahead of the pain. In the most severe cases, this means regular oral doses of what is known as the Brompton mix, a cocktail made up of diamorphine (heroin), cocaine, gin, sugar syrup, and chlorpromazine syrup. The diamorphine dose starts at 5 to 10 milligrams, and patients rarely need more than 30 milligrams at a time. Saunders explains that when a patient's fears and anxieties are relieved the dosages can often be lowered, because so much of the subjective sensation of pain comes from emotional distress.

Sophisticated use of analgesics is a hallmark of St. Christopher's—indeed, says Saunders, "better pain control in hospitals would make many admissions [to the hospice] unnecessary." Inadequate pain control in hospitals is attributable partly to pharmacological ignorance on the part of doctors, and partly to the belief that analgesics should be administered sparingly to prevent the patient from becoming addicted and to avoid damaging side effects. But such considerations are irrelevant to the dying. When the principles of pain control for a patient who is expected to get well are applied to the terminally ill, the results are often appallingly inhumane.

At St. Christopher's, there is no such thing as giving "too much" analgesic—there is only that which is sufficient for continuous pain control. Saunders says this is not achieved at the expense of turning a patient into an insensate zombie. Further, she claims, a patient, once made comfortable, never develops a psychological addiction to the opiates.

Pain control is only part of what makes the hospice unusual. The rest comes from the atmosphere created by constant attention by the staff and volunteers who spend much time just listening and hand-holding (there is much more physical contact than in hospitals), and by the presence of friends and family members who can drop by almost any time and sometimes spend the whole day at the patient's bedside.

Saunders arrived at the NIH Clinical Center one day last month to explain her hospice, with the aid of a collection of slides. She resembles the stereotype of a typical English matron, tall and generously bosomed, but the moment she began to speak one could understand why one American doctor calls her a "startlingly beautiful woman." She radiates vitality, intelligence, and joyous humor. She is also a serious Christian.

Saunders explained that the character of the hospice has a lot to do with the community where it is located, a close-knit neighborhood in southeast London. Patients—those with the worst pain get first priority—are drawn from a 6-mile radius containing 1.5 million people. The hospice has 70 beds, 54 for cancer patients—average length of stay is 12 days—and a 16-bed wing for frail elderly patients, some of whom are relatives of staff members. Patients are in four-bed bays so they are never alone. There is sun and fresh flowers, and patients are surrounded by photographs and other personal belongings. Visiting hours are 8 a.m. to 8 p.m., and relatives are all over the place. Saunders showed several "before" and "after" slides of patients on admission—their faces and bodies showing tension and fear—and several days afterwards—one man, for example, had lost his hollow-eyed look and was propped up in bed, reading the racing form. She showed a man several days before his death, his face half eaten away by cancer, surrounded by friends and cheerily lifting a glass of sherry to celebrate his birthday. ("Celebration is a very important part of terminal care.") One man "died in his chair by his bed with his glasses on, which is how we want him to be," said Saunders cheerfully. Some patients can go home for a while after their pain is brought under control, bringing their Brompton mix with them in a big blue bottle. One such woman, a victim of stomach cancer, was shown working in the kitchen, her small children at her knees, 2 weeks before her death. The hospice people know that children can cope with death much better when the dying relative is not stashed away, a fact poignantly illustrated by a picture of a child reading a comic book next to the bed of his dying father.

Children, of course, are good to have around, and there is a nursery for offspring of the staff on the grounds of the hospice. Families are encouraged to help with patients' care. When someone dies, the staff mourns too. Relatives are looked after to see how they handle bereavement and those thought to be "at risk" are visited frequently by staff members and volunteers. Monthly parties are held for families and staff members.

Saunders emphasizes that medical care at St. Christopher's is "appropriate" care—which is to say, it is the patient and not the disease that gets the attention. She showed a picture of a new patient who came in with tubes sticking out of him from a tracheostomy and a gastrostomy. This, she said, was not "appropriate"; while it may have removed some of the tumor, it did nothing for the person.

The English are not very big on psychiatry, tending more toward reliance on common sense. A psychiatrist does sit in on the frequent staff meetings to help participants communicate with each other and to offer advice on dealing with patients in particular emotional distress. It may well be asked how the staff can handle such constant association with death. Some can't take it but most can; as Saunders says, what they are seeing is "not constant pain, but constant relief of pain." Of course, it takes some optimism and serenity to see this last phase as Saunders does: as "the unique period in the patient's illness when the long defeat of living can be gradually converted into a positive achievement in dying."

The hospice is not cheap to run—the per patient cost is about 80 percent of that in a general hospital in England—and 85 percent of the budget goes to staff salaries. "We are high person, low technology and hardware," says Saunders. But there are more savings over hospital care than these figures imply, because they do not take into account the fact that the home care program enables many people to die at home who would otherwise be in the hospital.

Whereas in the past some members of the medical establishment have tended to regard people like Saunders as pious eccentrics, the hospice idea now appears to be catching on in England, where 22 additional hospices are now being planned.

But it is hard to predict how successfully the concept could be incorporated into the American health care system. There are many variables that will determine whether such places can avoid taking on the grim aura of nursing homes or developing a creepy reputation as places where people go to die. Keeping the place alive, and not a "cul-de-sac," in Saunders' phrase, requires full community and family involvement.

Nonetheless, says Lawrence Burke, program director at DCCR, "we have to give the hospice philosophy a good chance." The NCI is prepared to fund a half-dozen hospices in various parts of the country for up to 3 years each. A major stipulation is that the facilities not be hospital-based. Burke explains that "a hospital has a whole set of values etched in there," and all kinds of machines and bustle and restrictive visiting rules and intimidating atmosphere, none of which is appropriate for the dying patient. Also, says Burke, he doesn't want applications from hospitals that just want money to fill up an empty ward. For each hospice the NCI offer calls for a home care component for 65 to 125 patients and an inpatient facility for no more than 24. There is to be heavy emphasis on volunteer help, with a staff to volunteer ratio of 1 to 12. Patients admitted must have prognoses for very short survival, because a hospice should not resemble an extended care facility.

At present the NCI has only one American model, Hospice Inc., in New Haven, Connecticut, which it has been supporting with $800,000 a year. Hospice closely follows the English model, but at present is only a home care enterprise. Its medical director, Sylvia Lack, was trained at St. Christopher's, and the staff and volunteers look after about 30 patients. Volunteers receive a 6-week training course. Frank Kryza, Hospice's information director, says physicians in the area were intially skeptical of the idea but now are enthusiastic and cooperative. Hospice does not take over responsibility from physicians, all of whom are required to continue caring for their patients after they have become part of the program. Hospice is now trying to raise money for a $3-million facility that is to house 44 patients, or 700 a year.

Another hospice that is gearing up—and applying for NCI money—is to be run by the Vince Lombardi Cancer Center at Georgetown University in Washington, D.C. Georgetown has had a home care program for years (it has its own version of the Brompton mix which contains morphine sulfate instead of diamorphine); now, plans are to remodel a floor of the Washington Home for Incurables for 25 terminal cancer patients.

Philip S. Schein, head of the center contends that there is absolutely no question that hospices will prove much more economical than comparable care in a hospital. And Kryza of the New Haven Hospice claims savings of $1800 per patient because the home care enables patients to spend an average of 2 weeks less in a hospital. Two-thirds of these patients die at home, compared to a nationwide figure of 2 percent.

Some American doctors are cautious about the hospice idea. John C. Hisserich of the Cancer Center at the University of Southern California is eager to see the idea tried, but he warns that no scientific evaluation has been made of hospice care and that the evidence of success is largely anecdotal. He also believes that hospice enthusiasts sometimes exhibit "a certain zealotry about the thing that may be necessary but that has the effect of turning off physicians who might otherwise be interested. . . ."

Perhaps the most serious reservations about efforts to sprout hospices in America come from Mel Krant, director of cancer programs at the new University of Massachusetts School of Medicine in Worcester. "My first reaction," he says, "is it's going to fail as an American idea. It will get into operation but its intent will fail." The reason, he feels, is that hospices will simply add to the excessive fragmentation, overspecialization, and discontinuity in American medicine. A hospice will be the incarnation of yet another specialty—care of the dying—and will become "another discontinuous phenomenon" when what is needed is integration. Krant has high regard for the English hospices, but he fears that without the spirit of voluntarism and community feeling that exists in England, and without leaders as "utterly devoted" as Cicely Saunders, hospices will turn out looking like nursing homes. He also thinks hospices would help relieve hospitals and physicians of their true responsibilities, which should include more community involvement. Krant thinks it better that Americans develop their own indigenous models for incorporating hospice concepts.

While others are more optimistic than Krant, there is wide agreement that ideally there should be a limited need for special facilities to take care of the dying because, with adequate education and technical and emotional support, the majority of patients who die in hospitals could be seen through the end at home.

Says Burke, "If we're going to solve the problem of terminal patients an increasing number of patients will have to die in the bosom of their own home." (How many is open to question. What of all the old people who have no family into whose bosom they may retreat?)

This will take some attitude-changing, not only among the general populace, but among members of the medical profession who find it difficult to get out of what Saunders calls the "investigate-diagnose-prolong-cure" mode of treatment and to redirect their energies to bringing relief from pain and isolation. The way things are conducted at the English hospices seems strange to doctors who have been trained as therapeutic activists—one doctor, after 2 months at St. Christopher's, wrote that he was struck by the absence of temperature, pulse, and blood pressure rounds and by the fact almost no intravenous fluids were given or blood samples taken. It was "a contradiction to all my previous training. And sometimes my inability to cure a patient became almost unbearable." Finally he found new kinds of satisfactions—"from helping to transform a patient in severe pain into one pain free and at peace."

A sidelight, but perhaps a very significant one, to the hospice philosophy bears on its relationship to the euthanasia controversy. Richard Lamerton, the young medical officer at St. Joseph's Hospice who has written and lectured in the field, writes: "If anyone really wants euthanasia, he must have pretty poor doctors and nurses." For, he says, when concern for the patient's well-being replaces dogged attacks on a disease that is hopelessly out of control, the euthanasia dilemma ceases to exist. In hospices, for example, patients are not fed intravenously if they want to stop eating. Antibiotics are not automatically given for the pneumonia of a terminal patient. When an ulcerated artery begins hemorrhaging, the patient is not given transfusions when the end is clearly in sight anyway; instead he is covered with a blanket so he won't be frightened at the sight of his blood and administered a strong sedative while someone sits close by clasping his hand. To Lamerton, this is not "passive euthanasia" but "appropriate care."

Such procedures do not mean that a patient couldn't be given aggessive life-prolonging therapy until the end if he wanted it. The hospice movement does not represent a new approach toward dying, but simply an attempt to establish as standard those principles that have always guided the best practitioners.

—CONSTANCE HOLDEN