Amid a tangle of wires and worried faces, the brief life of Joshua Diaz was slipping away, and Dr. Mitchell R. Goldstein knew he must soon make an agonizing decision.

For 30 minutes, Dr. Goldstein's emergency team had medically assaulted the 2-week-old baby with lifesaving measures, none of which appeared to be working. Worse, a device called a pulse oximeter failed to detect a pulse or show how much oxygen Joshua's blood was ferrying to his vital organs.

"I had the nurse and respiratory therapists asking me, `Why are we doing this?'" said Dr. Goldstein, of West Covina, Calif. Some feared they were just torturing the baby. But the doctor pressed ahead after attaching a second, experimental monitor that showed encouraging signs: Joshua's blood was taking on more oxygen.

Today, Joshua Diaz is a healthy 7-year-old living in Ontario, Calif. "We probably would have given up," Dr. Goldstein said, were it not for the second monitor.

But seven years later, its inventor, Joe E. Kiani, says he still cannot sell his oximeter, regardless of the price, to many American hospitals, even though medical experts say it helps the most fragile of patients — premature infants.

The reason, Mr. Kiani says, is that he has effectively been locked out — his much larger competitor has secured exclusive contracts to sell its device to thousands of hospitals, in part by paying fees to two national purchasing groups that largely determine which products many hospitals buy.

These two private groups act as middlemen for about half the nation's nonprofit hospitals, negotiating contracts last year for some $34 billion in supplies, from pharmaceuticals to pacemakers, bandages to beds.

Each group has the same basic mission: to use the market power of its more than 1,500 hospitals to find the best medical products at the lowest prices.

But many in the medical world — Mr. Kiani among them — question whether that mission is being compromised by financial ties that the groups, Premier and Novation, have to medical supply companies, ties that, according to an investigation by The New
York Times, are both extensive and highly unusual.

The problem begins with this simple fact: The buying groups are financed not by the hospitals that buy products but by the companies that sell them. In other words, the groups take money from the very companies they are supposed to evaluate objectively. Each year, companies pay Premier and Novation hundreds of millions of dollars in fees that represent a percentage of hospital purchases. The more hospitals spend on medical supplies, the more dollars Premier and Novation get from the suppliers.

In a few cases, Premier or some of its officials have also received stock or options from companies with which Premier contracts.

Critics say such conflicts of interest can mean that the buying groups do not always choose the products that are best for patients, hospitals or the taxpayers and insurers that pay their bills.

"It's just like payola," said Paul Lombardi, head of contracts for the Swedish Medical Center in Seattle. Buying groups are "getting paid" to buy certain products, said Mr. Lombardi, whose hospital system dropped Premier in 1996.

In Mr. Kiani's case, his small company says it could not compete against an industry giant, Mallinckrodt, whose many products generate large fees for the buying groups. Nor, Mr. Kiani says, can he afford to do what that company did — help finance Premier's private venture-capital fund and contribute $1 million to a Premier research service.

Premier did not give Mr. Kiani's company a contract even though the buying group's own evaluators had privately concluded in 1999 that its oximeter was superior to what was then on contract. Premier says that review was not conclusive.

R. David Nelson, who leads the Institute for Supply Management, representing purchasing managers or buyers from 11,000 companies, said he was surprised to learn that buying groups were financed by suppliers.

"I had no idea that the kind of things you're talking about were going on," Mr. Nelson said. If such practices occurred in the industries he knows, "red flags would go up all over the place," he added.

When suppliers finance buying groups "you get the tail wagging the dog," Mr. Nelson said.

Premier and Novation, which say their contracting decisions are untainted by supplier payments, release no public accounting of how much each supplier pays them, or the terms of individual contracts.

"Billions of dollars are being controlled by two companies, and nobody knows who they are," said Larry R. Holden, president of the Medical Device Manufacturers Association, a Washington-based group of mostly small companies. "Nobody looks at their books. Nobody knows what companies they are investing in."

The big buying groups "are like a form of government," said Peter Vincer of the Technology Management Group, an equipment maintenance company in Oak Creek,
An Industry Is Transformed

Buying groups became popular more than two decades ago as a way for hospitals to seek better prices for goods and services, which account for about a quarter of their costs. The groups identify good products and negotiate contracts for them, but member hospitals do the actual buying.

Initially, there were no dominant buying groups, and hospitals, not suppliers, often financed them. Much has changed, however. Not only did the groups consolidate, but in 1986 they also convinced Congress that money could be saved if legislators allowed suppliers to pay their costs.

As a result, Congress exempted the groups from federal antikickback laws. The agency now called the Centers for Medicare and Medicaid Services was supposed to monitor the fee payments "for possible abuse, particularly those in excess of 3 percent" of sales, according to a Congressional committee report.

Novation and Premier may have gone well beyond what legislators envisioned.

Novation acknowledges that about 30 percent of its contracts exceed 3 percent of sales, and a hospital official who buys through that group complains that some fees are now "up in the teens." Novation said its hospitals approved those fees.

Premier accepts virtually no fees above 3 percent, but it has sometimes accepted stock in supplier companies in lieu of or in addition to cash payments. It has also invested in a number of companies in the medical supply field.

Just three months ago, American Pharmaceutical Partners, based in Los Angeles — a company that Premier helped start and steered hospital business to — went public. At that time, the buying group's stake was worth $46 million. Premier said it invested in suppliers to encourage competition, to promote new technology and to make money for its hospital shareholders.

Some of Novation's hospitals are angry that tens of millions of dollars of supplier fees were invested in a publicly traded, money-losing electronic commerce company, Neoforma Inc.

Several hospital officials contend that Premier and Novation have become preoccupied with increasing revenue, rather than negotiating the best deals on products. Instead of being returned to hospitals, some of that revenue goes to finance programs that have little to do with negotiating buying contracts.

Some top buying group executives have found other ways to profit personally. Richard A. Norling, Premier's chairman and chief executive, was allowed to retain and continue collecting a supplier's stock options that he converted into a $4 million profit in 2001.

Mr. Norling received those options while serving as a director of one of Premier's predecessor buying groups and as Premier's top official.
Mr. Norling said he recused himself from any buying group decisions involving the company, Express Scripts, that gave him the options as one of its directors.

Premier officials say they did not know until an inquiry by The Times that another of its executives, William J. Nydam, received stock options as a director of a Premier contractor, American Pharmaceutical Partners. The options were worth about $1.2 million when the company went public late last year. Mr. Nydam has since left Premier.

Nor did the buying group know — until The Times asked — that another official, Palmer Ford, had received options from the same contractor after he left Premier, the group said. Neither man agreed to be interviewed.

Not every company has opened its doors to Premier. Michael Dalton, the head of Norfolk Medical of Skokie, Ill., said an executive of his small medical device company told him that around 1996 he was approached by a Premier official who suggested that Norfolk could "move to the head of the line" in the contracting process if it allowed the buying group to invest. Premier said it knew of no such comment.

Mr. Dalton said he had rejected the suggestion, but another company in the same field did give Premier securities. In 1998 that company, Horizon Medical Products of Manchester, Ga., issued Premier a warrant for up to 500,000 shares of its stock "in partial compensation" for Premier's business, records show. A top Premier contracting executive also got stock options as a member of Horizon's board.

Premier and Novation say they use member hospitals to help them select products based on quality and cost, and not on other financial considerations. "We use a competitive bid process," said Novation's president, Mark McKenna. Novation said that in 1998 it began de-emphasizing the role of fees in awarding contracts.

Mr. Norling, Premier's chief executive, said his members "would not use our services" if they thought fees and stock, rather than cost and quality, determined who got contracts.

Supplier fees finance not just the cost of negotiating contracts, but also other programs, including ones to improve medical care.

Some of the unused money goes back to the hospitals that own the buying groups in annual disbursements, though some members complain that not enough is returned. Other hospitals that buy through the groups but do not have an ownership stake get no cash back.

**Praise From Some Hospitals**

Maurice W. Elliott, a former chief executive of Methodist Healthcare in Memphis, said Premier saved his organization money, provided a "database to encourage quality" and helped him find minority contractors.

Novation is also highly praised by many of the hospitals that use it.

The two major buying groups say they are accountable only to those hospitals that
own them.

At Premier, which is based in San Diego, the owners include more than 200 hospital systems, among them prominent New York institutions like Mount Sinai Hospital and North Shore-Long Island Jewish.

Novation, based in Irving, Tex., negotiates contracts on behalf of its two owners — VHA Inc., a group of mostly community hospitals, and the much smaller University HealthSystem Consortium, representing many academic hospitals. Supplier fees go to VHA and the consortium, which use them to finance various programs.

"We answer the membership on every given day," Mr. McKenna of Novation said.

But the answers do not satisfy everyone. Larry Dickson oversees purchasing through Novation for Providence Health System in Seattle. He says he cannot get specific information on fees, despite the critical role he plays in supplying his hospitals.

"Why is this so secret?" Mr. Dickson asked. "There is an accountability question that is very much concerning a lot of people in health care. And if you ask, and the response you get is, 'That's none of your business,' that raises more questions than it answers."

An Inventor's Frustration

Joe E. Kiani, an Iranian immigrant, was a 24-year-old electrical engineer in 1989 when he helped found a company called Masimo in a garage in Mission Viejo, Calif. Using $175,000 in loans and a second mortgage, he set out to solve a problem that had long eluded the makers of pulse oximeters: how to eliminate false readings caused by sudden patient movement.

A pulse oximeter, which is clipped to a finger or toe, measures blood oxygen levels. It works best when patients are lying still, as during surgery. But the jerky movement of an infant or trauma patient can skew the readings. Nor did monitors work well in newborns, who have low blood flow in their hands and feet.

When readings fall outside normal limits, either because of a sudden patient movement or a true emergency, an alarm sounds. With a false alarm, nurses may unwittingly give babies too much oxygen, heightening the risk of eye damage in premature infants, experts say.

Moreover, when there are too many false alarms, as is often the case in neonatal units, hospital workers may become immune to the real ones. In such cases, brain damage can occur.

By the mid-1990's, Mr. Kiani was convinced his new oximeter had solved those critical problems. And over time, many in the medical field would agree with him. Several hospitals that compared Masimo's device to conventional oximeters concluded that Masimo's was better.

"If it was my baby or my daughter's baby, absolutely I would have Masimo on it," said Joseph Nigl, a respiratory therapist at Covenant Health Care in Saginaw, Mich.
The Cedars-Sinai Medical Center in Los Angeles found Masimo's device played a critical role in helping to virtually eliminate certain infant eye damage, said Dr. Augusto Sola, formerly head of the neonatology unit.

Even Masimo's chief competitor, Nellcor, said that the device was "very good" and that it had "raised the performance bar," according to what Masimo said were internal Nellcor documents filed as part of a patent dispute. Nellcor, a unit of Mallinckrodt, said those statements were taken out of context.

Nellcor's device is highly regarded, but some clinicians said it was ripe for a challenge in the late 1990's.

Dr. Goldstein, who saved Joshua Diaz, says Masimo's product was a significant advance. Masimo paid the cost of his traveling to present his research.

For all the benefits of Mr. Kiani's oximeter, many hospitals would not buy it. And some would not even allow his sales staff to demonstrate how it worked. A reason: Masimo did not have a contract with Premier or Novation. Both had awarded "sole source" contracts to Nellcor, which meant that hospitals were given strong financial incentives to buy Nellcor oximeters.

Mr. Kiani said he had not known that manufacturers were expected to supply the money that finances the big hospital buying groups. "I didn't think this kind of system existed," he said.

It was a system that the big buying groups had creatively nurtured. Premier, for example, invited suppliers to attend a 2000 conference with this written offer: for $25,000, a company could buy not only advertising at the conference, but also a "private dinner" with two Premier vice presidents, and a "small group meeting" with hospitals. Premier has said money does not help any company get a contract.

One invitation went to Retractable Technologies, a small maker of safety syringes in Little Elm, Tex. The company's chief executive, Thomas J. Shaw, says the dinner offer sounded to him like a bribe. "The initial $25,000 is just for the appetizer," Mr. Shaw said. "The entree is in the millions."

Retractable has sued Premier and Novation in Texas, accusing them of restraining trade — a charge both groups deny.

The entree Mr. Shaw referred to is what suppliers pay to sell their products through the big buying groups. The payments take different forms. Some include stock or options in the supplier, or have clauses where the fee percentage rises in proportion to sales. And buying groups often collect twice on the same product — from the manufacturer and from the company that delivers the product to hospitals.

Suppliers have also sweetened contracts by agreeing to pay some fees before sales are made. The inspector general of the Centers for Medicare and Medicaid Services issued a legal advisory in 2000 stating that payments of that type could pose "a significant risk of fraud and abuse."

Both groups say they have stopped taking such payments, and they declined to identify the companies that made them, or the size of the payments.
Mr. Kiani's company had limited ability to pay fees because, like other small firms, it had a single product line. Nellcor had no such problem, because its corporate parent, Mallinckrodt, sold many other medical products through the buying group.

Nor did Mr. Kiani know, when Masimo approached Premier in 1998, that Mallinckrodt had paid $1 million to belong to Premier's Innovation Institute. That unit promised to find ways to get new technology into hospitals.

Mallinckrodt was also one of 12 limited partners investing millions in Premier's venture capital fund, the Premier Medical Partner Fund. Some of the limited partners had Premier contracts.

Premier says suppliers got no special favors by financing either the institute or the fund. But, several small manufacturers say, the money solidified an already close relationship that big suppliers had with Premier.

Unaware of these arrangements, Masimo officials had a favorable first impression of Premier. "We walked out of there thinking we had made it," one of them said.

Device Gets Good Reviews

Indeed, Premier's technical staff had high praise for Mr. Kiani's technology, called Masimo SET.

That staff's 1999 report reads like a Masimo sales brochure: "Clinical trials conducted and published by well-respected physicians in the U.S. indicate that Masimo SET has significant clinical advantages to neonates and some highly critical adult patients."

The report added, "We can conservatively say Masimo technology will remain superior" to Nellcor through the remainder of 1999.

Masimo says it never saw the internal report. Instead, Premier told the company that more study was needed, then took nearly two years before finally rejecting Mr. Kiani's oximeter.

By then, Nellcor had come out with its own improved model.

"They basically stonewalled us," Mr. Kiani said. Premier said the long delay was due to staff turnover and Masimo's slow response to information requests.

Shown a copy of Premier's confidential report praising his product, Mr. Kiani said he believed that not only is he a victim, "but they are lying to their members and the hospitals they are representing."

Premier officials said they based their rejection of Masimo's device on a survey of member hospitals. Most of the medical personnel surveyed were unfamiliar with Masimo but were pleased with the Nellcor device.

Still, of the 20 that were familiar with Masimo's product, 15 said it was "more accurate than other pulse oximetry devices or eliminates false alarms," Premier's records show.
Premier said that its survey and its conclusions were fair, and that it also took into account what few scientific research papers existed on the topic.

Novation said it awarded a contract to Nellcor, rather than Masimo, for financial and clinical reasons.

Both groups say hospitals can buy products from anyone, but there are financial penalties for buying too many supplies from outside the group, like lost discounts or less money back at the end of the year from their buying group.

What happened to Masimo, Mr. Kiani says, underscores why more innovative medical devices are not getting into hospitals. "I doubt a company like Masimo could ever get funded now," he said.

Mr. Norling of Premier disputes that. "We do not know of any company with a truly innovative and market-ready product that does not have a contract with Premier, if the company wants one," he said. Premier now runs a program it says has helped smaller companies with new technology get contracts.

As for Mallinckrodt, its new corporate parent, Tyco International, said Nellcor had won contracts for one reason: its oximeter was superior. "Nellcor competes vigorously, fairly and ethically to earn and retain the business of Premier" and other buying groups, John H. Masterson, a Tyco lawyer, said in a statement. Neither Mallinckrodt nor Nellcor agreed to interviews.

But Dr. Sola, the doctor who said Masimo helped reduce eye damage in infants, says the battle he had to fight just to get the device in his hospital caused him to question the whole group buying process.

"In a country with freedom of choice, this was the hardest thing for me to understand," said Dr. Sola, who is from Argentina. "If the baby was choosing consciously, we know what the baby would choose."

A Big Company Loses Out

Questions about the fairness of Premier's selection process have also been raised by other companies, and not all of them small.

St. Jude Medical, a large manufacturer of pacemakers, wanted a Premier contract, but two principal competitors — Medtronic and Guidant — already had it. Premier required St. Jude to demonstrate that its pacemaker had medical advantages the other brands did not; in Premier's words, that meant showing "breakthrough" technology.

To help evaluate St. Jude's claims, Premier formed an expert panel of six cardiologists, including Dr. Anne Curtis at the University of Florida.

Dr. Curtis said St. Jude claimed it could operate a pacemaker on less electricity, meaning the implanted battery would last longer. "When the battery runs down the patient has to come in for replacement surgery," Dr. Curtis said.

On Sept. 19, 2000, the panel concluded: "In light of the increased device longevity and ease of use, the expert panel agreed unanimously that St. Jude's breakthrough claim is
substantiated."

But that is not what Premier reported to its contracting committee. Instead, it said the experts had found only a "theoretical breakthrough potential," and never mentioned the unanimous expert conclusion.

"Why did we bother?" said Dr. Curtis after being shown a copy of how Premier represented her panel's findings. "Was it just going through the motions to say you had an expert panel so then you can do what you want?"

Another panel member, who requested anonymity, said, "This is not an honest process."

Last March, Premier's contracting committee rejected St. Jude's request after concluding that the product's battery did not last appreciably longer than others.

Asked how it represented the experts' report, Premier said it did so "accurately."

But St. Jude does not agree. "Premier's conduct makes no sense from the perspective of offering the best patient care at a fair price," said Peter Gove, a company spokesman. "We can only speculate as to whether ulterior motives could be driving Premier's behavior."

Some Hospitals Seek Alternatives

For all the criticism, Premier and Novation enjoy much support among the nation's hospitals. One reason is the annual checks, some totaling hundreds of thousands of dollars, that are their share of what manufacturers pay the buying groups.

"A lot of health care folks at the end of the year say, 'Geez, we're in the hole! Oh, wait a minute, we've got this money coming back,'" said Mr. Dickson of Providence Health.

Hospitals have also slashed their purchasing staffs, leaving them with little expertise to oversee their buying groups or to find better deals on their own.

"Waste and inefficiency in health care is every bit as bad as everyone says it is," said Trevor Fetter, the chairman and chief executive of Broadlane, a smaller buying group.

No one knows how much money the buying groups save hospitals. Eugene S. Schneller, a professor at Arizona State University who has studied the issue, said the groups do provide benefits, although some hospitals can get good deals on their own.

Some hospitals are now questioning the wisdom of staying in the big buying groups.

Premier returned about 22 percent of its revenue last year to member hospitals. VHA returned 20 percent last year and Novation's other affiliated group, University HealthSystem Consortium, typically returns about 40 percent. The rest went for overhead, salaries, investments, and various programs.

"No, we are not satisfied with the amounts we are receiving," said Dennis A. Hall, the
chief executive of the Baptist Health System in Birmingham, Ala., which buys through Novation.

Consorta, a smaller buying group, says it returns about 68 percent of its revenue.

While smaller buying groups also accept fees, they say they operate differently. John Strong, Consorta's chief executive, said his group does not invest in suppliers because that "may affect the willingness of organizations to rigorously evaluate all competitors and all product options." Consorta limits fees to 3 percent.

Mark Moyer, vice president for marketing for Amerinet, another smaller buying group, said his executives cannot sit on supplier boards. "We aren't going to line any pockets here," Mr. Moyer said.

Premier suffered a major blow last summer when Trinity Health of Novi, Mich., whose chief executive, Judith C. Pelham, had been on Premier's board, decided to stop using the buying group.

"We wanted to reduce the cost of our supplies," said Stephen Shivinsky, a Trinity spokesman. "As a Catholic nonprofit, we believe we have a responsibility to be good stewards of our resources."

Nicholas C. Toscano, who oversees purchasing for Virtua Health in New Jersey, says his hospitals do their own buying, and save money. "There are no administrative fees in the contract," he said. And that means cheaper prices, he added.

"We just gave our nurses some significant increases in salaries," he said. "We're expanding our emergency rooms. We're improving our operating rooms."

Senator Patrick J. Leahy, Democrat of Vermont, said hospitals, not suppliers, should pay for buying groups. "The hospitals are going to be even more attentive to how they're performing," he said. "Because, after all, they're paying for it."

Later articles will examine who benefits from the decisions of hospital buying groups.