

Important  
Medical News  
from Bryn Mawr,  
Lankenau, and Paoli  
Memorial Hospitals

## Intracytoplasmic Sperm Injection (ICSI) Among New Procedures Aiding Infertile Couples

An estimated 15 percent of all couples experience infertility at one time or another, and each feels a sense of shock and disappointment that something which comes naturally to others is so difficult for them. However, as reproductive medicine continues to advance, it has refined and

confirmed the safety of a technique known as intracytoplasmic sperm injection (ICSI), which is now allowing many more couples with severe, male-factor infertility – who previously had to turn to donor insemination – to be able to conceive.

“This is by far the most significant in vitro fertilization advancement in the last few years,” says William H. Pfeffer, MD, Chief of the Division of Reproductive Endocrinology, Jefferson Health

System-Main Line. “It can usually resolve infertility for men who otherwise have been unable to conceive in any way.”

### Taking IVF to a New Group of Patients

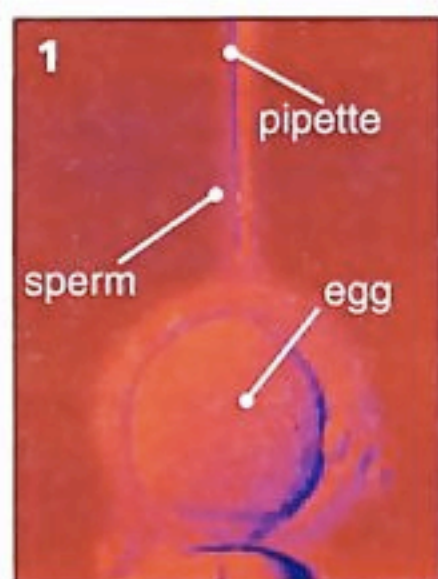
ICSI is part of a formal in vitro fertilization (IVF) protocol, with the woman first undergoing hormone injections followed by egg retrievals using transvaginal ultrasound. However, instead of placing the sperm and eggs together in a dish, the embryologist injects a single sperm directly into the cytoplasm of each egg and implants the resulting embryos. Studies have reported fertilization rates of 60 to 70 percent and clinical pregnancy rates of 25 to 35 percent with ICSI. (Age or other

factors among women attempting this procedure can hamper implantation, thus effecting this pregnancy percentage.)

Because only a single sperm is necessary for the procedure, men with extremely low sperm counts, or with poor sperm motility and morphology, are candidates for ICSI. “With this technique, we’ve basically eradicated male-factor infertility for men from whom we’re able to recover any sperm, which is a tremendous accomplishment, given that 40 percent of all infertile couples have some degree of male factor,” says Michael J. Glassner, MD, Director of the Center for Reproductive Medicine at Bryn Mawr Hospital (*see sidebar, back side*). “Our fertility services have achieved successful fertilization with men who have no motile sperm, and with men from whom we must obtain sperm by testicular biopsy or aspiration.”

ICSI can prove invaluable to men whose sperm quality is very poor due to most causes, including chemotherapy. “ICSI is for couples who – aside from severe, male-factor infertility – are good IVF candidates. These are couples for which other techniques have been unsuccessful and, for this group, ICSI is a major boon,” explains Gregory T. Fossum, MD,

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Intracytoplasmic sperm injection (ICSI) is an assisted fertilization technique that has become the treatment of choice for couples with prior failed or poor lab fertilization rates in conventional IVF, due to severe male infertility. Here, an embryologist injects a mature oocyte (obtained by transvaginal follicular aspiration) with a single sperm using a micropipette. The pipette is pushed through the zona pellucida, deep into the cytoplasm. The embryologist will then aspirate and expel a small amount of cytoplasm, along with the sperm cell, back into the egg.

### Thank you, to the following JHS-Main Line contributors to this article:

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Jefferson Health System

Important  
Medical News  
from the Jefferson  
Cancer Center at  
Bryn Mawr and  
Lankenau Hospitals

## Multiple Options Available in Immediate Reconstructive Surgery for Mastectomy

With continuing improvements in surgical techniques today, the majority of women undergoing a mastectomy can have their involved breast reconstructed in the same operating room session, immediately following mastectomy.

Women can wake up from mastectomy surgery with a breast mound in place, composed of a prosthetic implant, their own tissue, or a combination of both. Submuscular implants offer the shortest and least complicated surgical procedures; whereas, autologous tissue flaps give the cosmetic result most closely matching the uninvolved breast.

Immediate reconstruction is in demand from breast cancer patients and, fortunately, is rarely contraindicated, even for patients with late-stage disease. Long-term studies show that reconstruction has a significant positive influence on patients' self-image and overall psychological well-being.

"The method of reconstruction, depends on the patient's body shape, how much breast tissue needs to be reconstructed, the size of the breast, and the patient's own choice of what method she prefers," explains Thomas G. Frazier, MD, FACS, Chief of the Section of Surgical Oncology at Bryn Mawr Hospital.

In the early 1970s, surgical oncologists and plastic surgeons at Bryn Mawr Hospital were among the first in the country to perform immediate reconstruction following mastectomy and, since that time, have completed more than one thousand immediate reconstructions. Frazier and his colleagues first addressed the issues of immediate reconstruction in the journal *Cancer* in 1985 and followed 10 years later in *Plastic*

and *Reconstructive Surgery* with a 13-year review of recurrence data showing that the approach is safe.

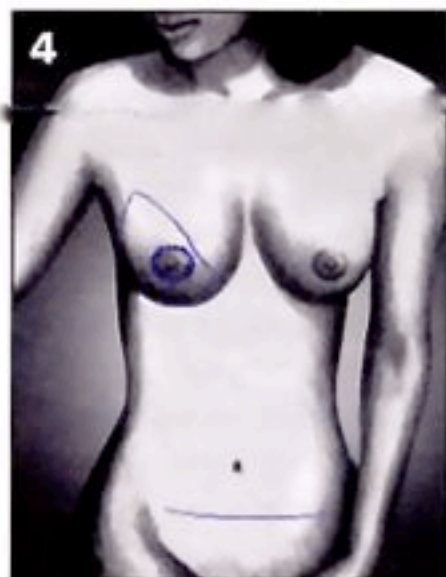
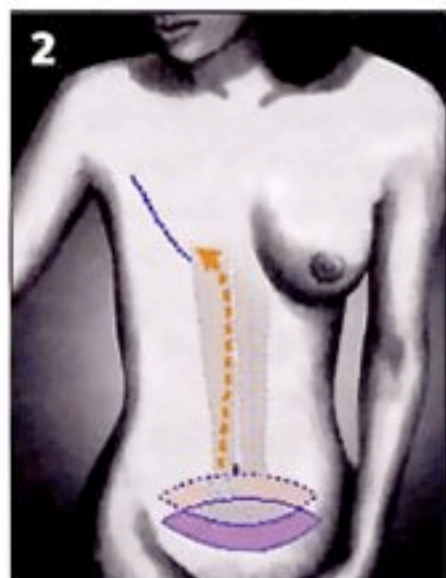
### Implants Simplest, Least Scarring

Surgeons commonly use a silicone shell implant filled with saline, placed behind the pectoral muscle. If the patient has a shortage of skin to accommodate the breast mound, they may first stretch the skin with a tissue expander that has a temporary filling port (through which they periodically inject saline on an outpatient basis) and then replace the expander with a permanent implant. Current implants can function as both tissue expander and permanent implant.

Despite FDA restrictions, silicone gel-filled implants remain available under limited distribution to mastectomy patients. They may be a fully filled implant or a combination implant to which saline can be added as an expander.

Implants do not add to the number or size of incisions, because surgeons use the mastectomy incision. Patients can return to most social

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To create a TRAM flap, the plastic surgeon partially resects a section of skin, subcutaneous tissue, fat, and a portion of one of the two parallel rectus abdominus muscles from the abdomen (1), creating a flap to which the blood supply is still intact. The surgeon tunnels the flap beneath the skin (2) to the mastectomy site, and rotates the tissue onto the chest wall, where a portion of the flap is used for filler and the remainder for the outside of the new breast, thus recreating the breast contour and surface (3). The patient later undergoes nipple and areola reconstruction (4).

### To Consult a Specialist or Schedule a Patient Appointment:

*Thomas G. Frazier, MD, FACS, Chief of the Section of Surgical Oncology, Bryn Mawr Hospital at 610-520-0700.*

*J. Brien Murphy, MD, Plastic and Reconstructive Surgeon and Attending Physician, Bryn Mawr and Lankenau Hospitals at 610-527-4833.*

*Marcia A. Fitzpatrick, MD, Chief of Plastic and Reconstructive Surgery at Lankenau at 610-642-9050.*

*Michael B. Dabrow, DO, Medical Director of the Lankenau Breast Cancer Risk Assessment and Counseling Program, Associate Professor of Clinical Medicine at Thomas Jefferson University Hospital and a member of the Department of Medicine at Lankenau Hospital at 610-645-2494.*

*Paul B. Gilman, MD, Chief of the Division of Hematology/Oncology and Medical Director of the Cancer Center at Lankenau Hospital at 610-645-2494.*

## Program Brings Latest Advancements In Ischemic Stroke Care to MLH

*Important Medical News from Bryn Mawr, Lankenau, and Paoli Memorial Hospitals*

During the period following the FDA's lauded 1996 approval of recombinant tissue plasminogen activator (TPA) for acute ischemic stroke, access to the new treatment was severely limited. Now, though, sophisticated community teaching hospitals such as those at Main Line Health (MLH) can offer the same kind of acute stroke care that a few years ago was the domain

only of major university hospitals that had conducted the TPA trials.

TPA's availability has had the widespread benefit of increasing awareness of stroke – especially of the need to treat it as

an emergency event. It has also refocused stroke specialists everywhere on the evolving phase of stroke, where they now know that they can prevent cell death.

Prompted in part by participation in the American Stroke Association's Operation Stroke Project, MLH has created a centralized, comprehensive Stroke Program that offers patients a chain of first-rate care from EMT to rehabilitation. According to the Stroke Unit Trialists' Collaboration, stroke patients who receive inpatient care in a stroke unit are more likely to be alive, independent, and living at home one year after their stroke.

### Time Saved Is Function Preserved

"The ER is becoming the primary entry point for stroke patients to our system – as it should be," says Gary Friday, MD, MPh, Medical Director of the Stroke Program. "We try to determine the time of stroke onset as accurately as possible, because it's key to patient eligibility for TPA and other clinical protocols."

The care pathway at all three MLH hospitals is practiced, honed, and ready – set up on the most up-to-date model:

- Stroke patients are stabilized and have a history taken promptly; then a CT is performed to differentiate between hemorrhagic and ischemic stroke.
- The staff expedites blood-sample analysis, with the physicians paying careful attention to prothrombin and partial thromboplastin results to assess the danger of hemorrhage from TPA.
- The radiologist evaluates the CT in the hospital or remotely via computerized videoconference within minutes (to exclude from TPA treatment any patients suffering from hemorrhagic stroke.)

"MLH has a neurologist and radiologist on call 24-hours a day to read stroke CTs and to help patients and families make timely decisions about TPA or other treatments," says Charlotte Baker, RN, Stroke Program Coordinator at MLH.

The team monitors TPA patients closely in the ICU for 24 hours after treatment, before transfer to the hospital floor. Most patients undergo a repeat CT at 24 to 48 hours after admission. The stroke specialists typically monitor patients for three to seven days before discharge for rehabilitation. (TIA or mild stroke patients may leave the hospital much sooner.)

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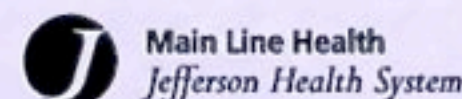


A stroke care team at MLH moves a patient expeditiously from the emergency room to the CT unit for a scan – the pivotal step in determining his eligibility for TPA therapy. Advanced community teaching hospitals with a formal, established stroke program, such as that at MLH, can now evaluate and treat patients based on the state-of-the-science, acute care model.

For more information about Main Line Health, please call **1-866-CALL-MLH.**

## Main Line Health

Lankenau Hospital  
Bryn Mawr Hospital  
Paoli Memorial Hospital  
Bryn Mawr Rehab



# SPINAL SURGERY

## Spinal Surgery Becomes Safer, Less Invasive as Instrumentation and Technique Evolve

Important Medical News from Bryn Mawr, Lankenau, and Paoli Memorial Hospitals



Interbody fusion cages are threaded cylindrical implants approved in 1997 to stabilize the disk space between vertebrae, after discectomy. The devices, which range from 1.3 cm to 1.9 cm in diameter, respond to compression and tension in a manner similar to the natural spine.

Surgery of the spine has always been complicated, entailed risk, and required a long recuperative period. At an increasing pace, however, technical ability to access specific vertebra – and improved instrumentation to diagnose and repair fractures and herniations – is making spinal surgery a group of operations that is more dependable and less difficult for patients.

Surgery of the spine has reached a point where it is even termed “minimally invasive” in many cases. For such leaps in progress, credit the advances that allow surgeons to specifically identify the discs causing problems, and to extract discs and fuse vertebrae through smaller incisions and with better implantable components. Patients suffer less as a result of surgery, usually go home the next day, and return to a functional level much sooner than would have been possible just two to five years ago.

### Microdiscectomy Techniques Evolve

More than 150,000 people undergo surgery for failed discs annually. The vast majority receives microdiscectomy, most often for repair of a disc extruded by either trauma or degenerative disease.

“We’ve been able to reduce the incision needed for such work from four inches to about one inch,” notes Lewis S. Sharps, MD, an orthopaedic surgeon on staff at Paoli Memorial Hospital. “With the improved instrumentation we have now, patients can be out of bed the same day and 90 percent of them can go home the next morning.”

### Better Stabilizers, Anterior Approach

Spinal fusion, though, remains an essential procedure for a significant number of patients who would otherwise experience spinal instability and pain as a result of a disc removal. Chief among the advances in this area is the interbody fusion cage. The devices are threaded metal cylinders that can restore disc spaces to, or near to, their original height and relieve pressure on nerves (see figures).

The surgical team may insert the cages through relatively small incisions via either the traditional posterior approach or an anterior approach. Surgeons favor the anterior approach in many cases, because they can reach the lumbar spine from its front – closer to where nerve impingement usually occurs. In anterior procedures, a vascular surgeon assists the team in moving blood vessels and other tissue to gain access to the spine. (Although cages cannot be implanted in the cervical spine, an anterior approach may be appropriate in this area.)

The anterior option seems to enable a more rapid recovery. Spinal surgeons generally consider the combination of this approach with the cage to be the most significant recent advancement in spinal surgery. Patients seem to tolerate front

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### Thank you, to the following Jefferson Health System – Main Line contributors to this article:

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Images courtesy of Spine-Tech Inc.



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