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Orthopedics This Week

week in review

picture of success

breaking news

For all news that is Ortho, read on.

Orthopedic Power Rankings

Robin Young's Entirely Subjective Ordering of Public Orthopedic Companies

This Week: How many times must the Street be surprised before they adjust their expectations? Case in point, OFIX. Surprises Wall Street every, single quarter for two years. Six months ago OFIX beat the Street by 21%. On another note, NUVA returns to the power rankings this week at #8.

Rank	Last Week	Company	TTM Op Margin	30-Day Price Change	Comment
1	1	Orthofix	13.51%	(2.61%)	Only 14x P/E, 0.92 Price-to-Sales, expected earnings growth rate is 2x P/E. Lowest priced equity in orthopedics.
2	2	Zimmer	27.69	15.33	Wall Street's learning to like ZMH again. Analysts raised EPS growth estimates to 8% this year, 10% next year.
3	5	Stryker	24.71	7.71	In the current difficult healthcare environment, SYK's portfolio approach and cash rich balance sheet is attractive.
4	6	Smith & Nephew	22.83	12.02	Big move this past month as the rumors of takeover stay strong. Self fulfilling prophecy?
5	7	Medtronic	32.59	7.77	Third least expensive stock in the universe, but with the strongest operating profit margin. Sleeper stock which could surprise on upside.
6	4	Wright Medical	6.36	(0.46)	It's 3 yards and a cloud of dust in every WMGI market right now. But WMGI's extremities business is way undervalued.
7	3	Alphatec	1.59	(0.77)	Tough pricing headwinds right now. Kuyper's new product pipeline makes ATEC's risk/reward profile attractive.
8	NR	NuVasive	6.69	14.09	Lukianov grabbing the mantle of surgeon champion vs. insurance company baloney. Will earn NUVA market share.
9	9	Integra LifeSciences	15.37	(2.39)	Clever new cancellous bone allograft sponge launched. Waiting for end of year results.
10	8	CONMED	9.07	3.61	Three percent sales growth for Q4. Cost cutting continues. CNMD buys back 1.1 million shares. All long-term pluses.

Robin Young's Orthopedic Universe

Top Performers Last 30 Days

	Company	Symbol	Price	Mkt Cap	30-Day Chg
1	TranS1	TSON	$3.38	$71	15.8%
2	Zimmer Holdings	ZMH	$60.65	$11,910	15.3%
3	NuVasive	NUVA	$29.40	$1,160	14.1%
4	Smith & Nephew	SNN	$56.94	$10,100	12.0%
5	Mako Surgical	MAKO	$15.77	$537	11.8%
6	TiGenix	TIG.BR	$1.87	$58	9.3%
7	Medtronic	MDT	$39.24	$42,120	7.8%
8	Stryker	SYK	$58.51	$23,090	7.7%
9	CONMED	CNMD	$26.44	$744	3.6%
10	Orthovita	VITA	$2.13	$164	2.9%

Worst Performers Last 30 Days

	Company	Symbol	Price	Mkt Cap	30-Day Chg
1	Bacterin Intl Holdings	BIHI.OB	$5.60	$201	-36.0%
2	Kensey Nash	KNSY	$23.87	$203	-9.5%
3	Exactech	EXAC	$16.84	$218	-5.3%
4	RTI Biologics Inc	RTIX	$2.62	$143	-3.7%
5	Johnson & Johnson	JNJ	$60.84	167,080	-2.8%
6	Orthofix	OFIX	$29.08	$515	-2.6%
7	Integra LifeSciences	IART	$46.12	$1,300	-2.4%
8	ArthroCare	ARTC	$28.66	$775	-2.3%
9	CryoLife	CRY	$5.31	$149	-1.8%
10	Alphatec Holdings	ATEC	$2.57	$228	-0.8%

Lowest Price / Earnings Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	P/E
1	Kensey Nash	KNSY	$23.87	$203	10.46
2	Medtronic	MDT	$39.24	$42,120	11.82
3	ArthroCare	ARTC	$28.66	$775	12.66
4	Wright Medical	WMGI	$15.13	$593	12.96
5	Johnson & Johnson	JNJ	$60.84	$167,080	13.10

Highest Price / Earnings Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	P/E
1	Alphatec Holdings	ATEC	$2.57	$228	213.32
2	Smith & Nephew	SNN	$56.94	$10,100	78.85
3	RTI Biologics Inc	RTIX	$2.62	$143	40.80
4	Symmetry Medical	SMA	$9.34	$336	28.13
5	CONMED	CNMD	$26.44	$744	21.87

Lowest P/E to Growth Ratio (Earnings Estimates)

	Company	Symbol	Price	Mkt Cap	PEG
1	Orthovita	VITA	$2.13	$164	-3.29
2	Mako Surgical	MAKO	$15.77	$537	-0.36
3	TranS1	TSON	$3.38	$71	-0.29
4	Orthofix	OFIX	$29.08	$515	0.58
5	NuVasive	NUVA	$29.40	$1,160	0.88

Highest P/E to Growth Ratio (Earnings Estimates)

	Company	Symbol	Price	Mkt Cap	PEG
1	Kensey Nash	KNSY	$23.87	$203	3.16
2	CONMED	CNMD	$26.44	$744	2.27
3	Johnson & Johnson	JNJ	$60.84	167,080	2.25
4	CryoLife	CRY	$5.31	$149	2.21
5	*Average*			*$12,068*	*1.93*

Lowest Price to Sales Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	PSR
1	RTI Biologics Inc	RTIX	$2.62	$143	0.88
2	Orthofix	OFIX	$29.08	$515	0.92
3	Symmetry Medical	SMA	$9.34	$336	0.98
4	CONMED	CNMD	$26.44	$744	1.02
5	Wright Medical	WMGI	$15.13	$593	1.16

Highest Price to Sales Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	PSR
1	TiGenix	TIG.BR	$1.87	$58	206.49
2	Bacterin Intl Holdings	BIHI.OB	$5.60	$201	14.72
3	Mako Surgical	MAKO	$15.77	$537	14.48
4	Synthes	SYST.VX	$133.69	$15,866	8.80
5	Stryker	SYK	$58.51	$23,090	3.15

"Milliman Made Me Do It"

By Walter Eisner

Wikimedia Commons

"Milliman made me do it."

That's what an increasing number of spine surgeons say they are hearing from insurance reviewers who are denying coverage for fusion procedures the surgeons deem necessary for their patients.

It has the feeling of the immovable object of guidelines meeting the irresistible force of medical judgment.

Milliman Care Guidelines

Who and what is Milliman?

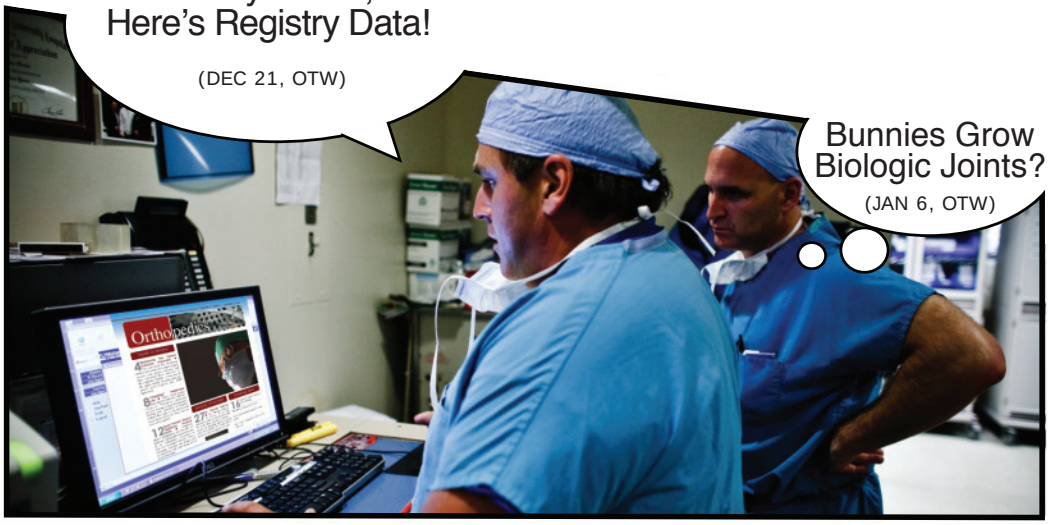
Milliman Care Guidelines LLC, is a Milliman Company that independently develops and produces "evidence-based clinical guidelines used by more than 1,800 clients, including more than 1,000 hospitals and 7 of the 8 largest U.S. health plans," including, reportedly, CMS.

The Milliman Care Guidelines are updated annually and products include: Ambulatory Care, Inpatient and Surgical Care, General Recovery Guidelines, Recovery Facility Care, Home Care, Chronic Care Guidelines, and Behavioral Health Guidelines. These products support, according to the company, "the healthcare management of a majority of Americans."

Milliman is among the world's largest independent actuarial and consulting firms. Founded in Seattle in 1947 as Milliman & Robertson, the firm has more than 50 offices worldwide, and employs more than 2,400 people in healthcare, employee benefits, property and casualty insurance, life insurance, and financial services consulting practices.

Managing Risk

Insurance companies are in the risk management business. Milliman helps them manage their risk by providing guidelines which are often more con-



servative than standards of care developed by medical societies, according to device industry insiders.

One surgeon told us that in his experience, reviewing physicians "hide behind the Milliman criteria, stating they are not withholding care, but merely outlining what is covered as a benefit based on Milliman. Reviewers insist they are not defining standards of care, only covered benefits. The patient is free to have the surgery for out-of-pocket payment."

Some device industry insiders tell us insurers are using the guidelines to deny care for patients to save money.

One Milliman employee told us that if insurers are using the guidelines to deny coverage, the insurer is misusing the guidelines. One industry attorney told us the guidelines are just that, guidelines, not rules. Ultimately the insurer makes the decision about coverage and reimbursement based on the contractual obligations of the patient's insurance policy.

Guideline Development

Tim Muth is Milliman's outside counsel. He told us that there is a misperception that because Milliman is an actuarial company, the guidelines are developed by actuaries. In fact, the guidelines are developed by medical professionals hired by Milliman.

According to the company, a team of doctors, nurses, and other clinicians have reviewed more than 100,000 abstracts, articles, and other sources of evidence and chosen more than 14,000 unique citations. The company says it uses the findings to "build evidence-based authorization criteria, care pathways, and other care management tools. These decision-support resources enable payors, care providers, and facilities to efficiently and consistently make care decisions grounded in rigorous, up-to-date research. They also assist clients in evaluating current practices and finding opportunities to improve both quality of care and care management."

Medical Societies

Medical societies we spoke with are not engaged with Milliman in the development of their care guidelines. Some surgeons told us that the company rebuffs society input.

"They (Milliman) are one voice in advising payers," said Eric Muehlbauer, Executive Director of NASS, the North American Spine Society. Muehlbauer says that if the Society has an issue with an insurer's care guidelines, the Society goes directly to the insurer. We were told the same thing by AAOS, the American Academy of Orthopaedic Surgeons.

AAOS sent us a statement that said, "Although management guidelines can lead to better patient outcomes and controlled costs, uniform standards of care can often be overly restrictive and cause harm to patients who don't fit the mold. The AAOS remains constantly vigilant of insurer misuse of management guidelines and encourage insurers to establish coverage policies that protect the doctor-patient relationship and provide appropriate coverage for those patients who stand to benefit from alternative treatment options."

Device Manufacturers "Rebuffed"

We heard from some medical device manufacturers that the guidelines feel as if they are created in a "black hole." Milliman also rebuffs dialog with manufacturers, according to our sources. They point out that the physician editors of the guidelines are not orthopedic or neurosurgeons and covering a wide range of medical procedures can lead to narrow and inadequate research.

One device manufacturer told us that of the 200 healthcare consultants employed by Milliman, only a small handful were physicians – specifically one family practitioner, two internal medicine and one internal medicine/pulmonary medicine physician. James Schnibanoff, M.D., is the editor-in-chief of Milliman Care Guidelines.

Schnibanoff is board-certified in internal medicine and pulmonary medicine. He served as chief medical officer of a San Diego healthcare system and served for three years as chief executive officer of two San Diego hospitals with a combined budget of $250 million.

For an example of the immovable guideline meeting the irresistible medical judgment force, we looked at the Milliman Care Guideline's 14th Edition specifically for Lumbar Fusion. Here are the major headings for the lumbar fusion section:

Care Planning – Inpatient Admission and Alternatives
- Clinical Indications for Procedures
- Alternatives to Procedures
- Operative Status Criteria
- Preoperative Care Planning

Hospitalization
- Optimal Recovery Course
- Goal Length of Stay
- Extended Stay
- Hospital Care Planning

Discharge
- Discharge Planning
- Discharge Destination
  - oUsual
  - oAlternate

Guidelines v Standard of Care

Chris Bono, M.D., was one of the co-authors of the united surgeon society's response to BlueCross BlueShield of North Carolina's proposed change to their lumbar fusion policy.

We asked Dr. Bono to review the Milliman Care Guidelines for Lumbar Fusion and give us a hypothetical example where the guidelines are at odds with a standard of care.

"Mrs. X has bilateral leg pain associated with a grade II isthmic spondylolisthesis (less than 50% slip). She has had 10 years of symptoms and has failed many different attempts at nonoperative care. She is functionally limited, is not able to perform her activities of daily living,

Chris Bono, M.D.

and is becoming increasingly sedentary. Under the Milliman criteria, she would not qualify for a lumbar fusion."

David Polly, M.D. was more forceful.

David Polly, M.D

Polly said insurance guidelines are a step towards appropriate use criteria. "However it is not clear how these have been developed. They certainly have not all been done in a scientific, transparent fashion." Polly says all payers have negative incentives to fund these procedures as they directly cost the insurance company's money (or profits).

He told us that some insurers are doing a good job at finding appropriate use criteria. But he notes that perhaps the other extreme would be the Milliman criteria, which he understands were, "Developed by a for-profit entity with no transparency and without clear evidence of spine surgeon involvement. Similarly I have never seen any outcomes data as a result of the application of these guidelines/criteria. Are patients better off or worse off as a result? The only data seems to be how much the payers are paying for spine surgery. Is insurance company profitability the appropriate medical care metric? Certainly as a society we have a need for viability of these entities but the degree of their profitability to the detriment of their policy holders is a legitimate topic for detailed public discourse."

Public Scrutiny

Milliman and the guidelines have rarely come under media scrutiny as we were able to find few references in our media search.

An August 2001 article entitled "Hospital Stay Guidelines: Just Plain Weird" in *Medical Economics*, pointed out the inaccuracies in the Milliman guidelines as it relates to the number of days a patient should stay in the hospital. The guidelines state that a patient with congestive heart failure should have a one day stay or less, the mean nationwide, at the time, was 5.5 days according to Solucient (a health care research company). Another example was a 1996 protest over Milliman guidelines of 24 hours in the hospital for mothers and newborns following normal vaginal delivery.

Milliman: "Never Replaces Clinical Judgment"

Milliman guidelines, according to the story, come with "warning labels" that states the physician has the last word. "Use of guidelines requires, and never replaces, clinical judgment." The article also found that insurance companies interpret the guidelines differently and that even within one company it can be reviewer specific. The story notes that Milliman itself does not present the guidelines as clinical practice guidelines or a standard of care.

There is also little litigation involving the guidelines.

According to the article, there were three lawsuits involving Milliman guidelines up to 2001. The first, a class action suit against insurers such as Humana and Ætna accused insurers of using guidelines from Milliman and other companies to defraud patients and doctors. The second was a class action suit against Prudential where patients claimed the insurer wrongly relied on Milliman guidelines to deny them needed care. The third involved four Texas pediatricians who sued Milliman for listing them erroneously as contributors to Milliman pediatric guidelines that they call dangerous.

Milliman's counsel told us that in none of those cases, from the last century, were the guidelines at issue and he remembers the cases being settled between the insurer and their policyholders.

Industry View

While device industry leaders are understandably reluctant to get into a public fight with insurers, two device leaders with companies deeply tied to the fusion market gave us their views about Milliman.

Alan Milinazzo, president and CEO of Orthofix, told us that it is incumbent on the industry, to collaborate with payers and technology assessment organizations to identify those patients who will benefit the most from our technology. "Having proactive and open dialogue about the data and the supporting evidence for prescribing the therapy is our main objective."

Alex Lukianov, the chairman and CEO of NuVasive, was combative and told us that his concern about the "negative impact of the Milliman guidelines" is manifest in several ways.

First, access to appropriate care for patients is denied. Second, the guidelines inhibit spine surgeons to practice and provide the best care for their patients. And third, the guidelines "curtail industry from providing innovative products together with a loss of jobs."

Said Lukianov: "The guidelines in my view are too far reaching and limiting. The vast majority of patients in need of fusion may not qualify for surgery. This is incredulous and appears to be linked solely to the best interests of payers to limit or even eliminate spine fusion as a viable option for patients."

"The problem with the guidelines is they are being treated as Gospel by the payers and substituted for the judgment and training of a spine surgeon. Who do you want caring for your back? A guideline or the judgment of a skilled surgeon?"

"Overall the Milliman guidelines seem to have slowed down spine market growth by increasing the frequency and hurdles associated with denials…Right now there are too many patients being denied spine fusions."

This recent focus on guidelines developed by insurance consultants may spur physician societies to push efforts to engage private consultants like Milliman who are involved in "the healthcare management of a majority of Americans." ◆

5 Steps to Investing in Orthopedics

By Robin Young

Early in my Wall Street career with such firms as Craig-Hallum or Piper Jaffray, my boss, the Director of Research said to me: "Robin, I don't care if your stock picks are right or wrong, just be consistent."

My job was to identify mis-priced stocks. So I'd visit management, surgeons, hospitals and ask, essentially, about their jobs. How's business? What's working, what's not? What changes are you seeing?

Then I'd boil whatever I learned down to a quantifiable set of numbers—sales and earnings forecasts—and put a price tag on the whole complicated enterprise. If my price was higher than the stock market's collective estimate, then I'd say "buy." Lower, then "sell." Basically.

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All my trading clients asked was….is Robin's batting average high enough (right or wrong) to rely on to make a profit? If he's consistently wrong, I can make money betting against him, for example. The key was consistency.

My first three years were awful. Couldn't price companies if my life depended on it. I followed all the steps they teach you in MBA and CFA class. Create multi-layered spreadsheets. Interview absolutely everyone. But my stock picks were as good as any monkey's in a zoo.

That was 1986.

Valuation Framework

So I studied the problem. Read Graham, Dodd, Drucker and Buffet. Talked to trading veterans at Piper. Read the Journals of Finance and paid close attention to statistical anomalies in the stock market. And I came up with a framework for looking at companies and their valuations.

A framework that worked.

Within one year of applying those principals, I was selected by *Institutional Investor* magazine as one of the top ten analysts in the United States. A few years later, the *Wall Street Journal* selected me as one of the top three medical technology analysts in the United States. And I've put together a string of successful medical technology calls that might seem pretty mystifying for a guy who only had one biology class in college.

Keys To Orthopedic Companies

I mention all of this because the orthopedic industry and certain companies in it are fitting very well into my framework. Meaning that there are some notably and tantalizingly mis-priced and inexpensive orthopedic companies around today.

So, in this article, I'm going to share five keys to looking at today's orthopedic companies and mention one money manager, Kevin Kotler of Broadfin Capital, who posted a 26% rate of return in medical device companies last year and is putting in practice a lot of the same elements that I independently developed years ago. (Incidentally, Kotler's compound rate of return over the past few years is 1,700 basis points better than the S&P 500.)

1. **Patients, not surgeons, know which new medical technologies will work.**

The rank and file surgeon, who purchases about $6 million of orthopedic products each year on average, is expected to perform the same surgery thousands of times. It's boring. To ensure consistently high outcomes, surgeons use what works best for them. Every time. There is precious little reward (and increased risk of punishment) for taking risks in the current system.

Patients on the other hand want change. They are in the physician's office seeking change. History shows that patients are often the agent of change. Minimally invasive gall bladder surgery, for example, was driven by patient demand. Balloon angioplasty, which failed 70% of the time in those early years, was driven by patient demand. Stem cells are, today, being driven by patient demand. So, step one, watch what patients are saying and asking for.

When should you listen to the surgeon? When you want to know about handling characteristics in surgery. I know this is counter-intuitive. **Many investors base their decision on what the surgeon/researcher/scientist says… but the business is driven by the patien**t. Again, balloon angioplasty failed 70% of the time. Virtually no heart surgeon recommended angioplasty in those early days. Today more patients receive balloon angioplasty than by-pass graft surgery. If there is any hope for disc arthroplasty, it lies with the patient. Longer term, patient demand will drive the business.

So, what are patient's demanding in orthopedics? Hip and knee reconstruction is tried and true and rates highly among patients—***but*** patients still want better intermediate treatments which would delay joint replacement. Also patients are fascinated with the idea of smart biologics (like stem cells and related products) that use signaling to clear out inflammation and lay a basis for regeneration.

2. **Buy dollar bills for 40 cents.**

Irwin Jacobs, one of my mentors in those early years, used to buy gunny sacks for pennies and then sell them for dollars when the Mississippi river flooded. Later he bought consumer credit card debt from bankrupt retailers for pennies on the dollar and then collected for years until he received dollars on the dollar. Early on I joined with an investor and we bought trade debt out of a railroad bankruptcy for 35 cents on the dollar. We were eventually were paid $1.15 for each of those $0.35 purchases.

This is another key lesson from Graham, Dodd and Buffett. Buy low, sell high. Look for the inherent value in an asset. **The inherent value in orthopedics is, in fact, the ability to relieve pain and improve range of motion.** That creates a low elasticity of demand for products and, therefore, a powerful economic model.

Surgeons, hospitals and suppliers have been using that inflexible demand to build a pricing structure that delivers great cash flow. So, if viewed from the perspective of cash flows, the current pricing for companies like Zimmer (28% return on sales), Stryker (25% return on sales), Smith & Nephew (23% return on sales) or Medtronic (33% return on sales) is, in effect, like buying dollars for 40 cents. What makes this even more interesting is that these valuations are available just in front of some historic changes—like Baby Boomers reaching 65 and the advent of trophic and regenerative implants.

3. **Progress is always about efficiencies.**

Wal-Mart became the largest retailer by driving logistics efficiencies. Tyson Foods became the largest meat processor by driving efficiencies. Remembering that patients drive change and that demand for pain relief and improved mobility

is inelastic, the central challenge for suppliers is to find ever more efficient ways to deliver pain relief and mobility. Is that longer lasting implants? Is it off-shore manufacturing? Arguably, no. However, is it pain relieving injections? Site-specific drug delivery? New methods of tissue removal like ablation? Of course. Last year in the United States there were more than 100 million injections into joints to relive pain and improve mobility. One hundred million. No wonder they call these guys needle jockeys.

The central task of suppliers is to take control of treatment modalities that stretch out the continuum of care for chronic diseases like arthritis or other degenerative processes. An implant represents a near-terminal event in the disease cycle. Leading up to that point are dozens and dozens of treatment events.

If someone ever comes up with a pain relieving, cartilage generating, bone spur eliminating injection, they will own orthopedics because they will have set a new standard of efficient care.

4. **Everything is a cycle.**

To paraphrase Broadfin's Kotler—can orthopedic manufacturers outmaneuver the macro cycle with product innovation and geographic portfolio management? Sure, assuming they know where they are on these cycles. The pricing cycle is going south right now and, in the absence of really new technologies, it will continue to behave as if most orthopedic implants are commodities.

Regulatory trends are likewise negative while payers are being squeezed by their funding sources (Congress is squeezing Medicare, companies are pushing back at Aetna/Cigna /United) and at the end of the line are hospitals, surgeons and suppliers. The prospect of paying for new Baby Boomer joints has CMS in a cold sweat. So the regulatory and pricing squeeze is on. That's why orthopedic company stocks are cheap.

But there is one more cycle to watch. The system cycle. Remember, patients drive change and demand is inelastic. Patients are still going to be showing up for treatment. So if the current system can't handle that, **then we may be looking at a cycle of system innovation where new distribution patterns (like Physician-Owned Distributorships), new points of delivery (medical tourism) and new treatment modalities drive value and change.**

5. **Historic patterns are an accurate predictor of future patterns.**

ArthroCare's management built a great franchise in sports medicine,

then made an accounting mistake—nothing particularly major—until they tried to cover it up. It's the cover up that will always get you.

ArthroCare's value broke down spectacularly. But the business didn't. ArthroCare's historic pattern was to effectively bring to market surgeon-friendly and effective MIS products. Broadfin's Kotler figured this out and rode ArthroCare from $5 per share to $38 per share in space of about one year.

Orthopedic companies have an historic pattern of effectively solving pain and range of motion problems in the musculoskeletal system. This is the largest sector in all of medicine. What Zimmer, Stryker, Orthofix, Medtronic, Smith & Nephew, Wright Medical, NuVasive, Alphatec and other leading orthopedic companies have done in the past is an excellent predictor of what they will do in the future. **So while valuations may be broken, the fundamentals in orthopedics are not.** Note, for example, that three of the companies mentioned above have introduced a stem cell product.

Buy Low

Bottom line: the ability of this industry to solve patient problems is fully intact but the value of that as a business has never been as discounted as it is today. Which is a good thing if you are a buyer. ◆

Choices to Live With: Resident Selection

By Elizabeth Hofheinz, M.P.H., M.Ed.

"He was number one in his class, won several awards, and seemed hardworking. So why is he the resident who keeps me up at night?"

There are tangible ways to assess prospective residents such as board scores, awards, and letters of recommendation. And then there is something markedly less scientific, but equally as important that must be taken into consideration as well…one's gut or intuition about the candidate. The reality in resident selection is that with no definitive formula, residency directors are left with the option of crafting their own system of selecting—and eliminating—residents.

wax115/morgueFile

Dr. John Cardea, Chair Emeritus at Virginia Commonwealth University (VCU), selected residents long enough to have honed his own method. And, says Dr. Cardea, it has proven to be consistently reliable…in 27 years there were only two residents who didn't complete the VCU program. He states, "First of all, there are few subspecialties that are in as much demand as orthopedics; our program receives as many as 400 applications each year for five positions. This naturally means that we can be very selective."

If a residency candidate waltzes into Dr. Cardea's office with a board score of 230 and is in the top 10% or AOA, he is still not impressed. As for what else he looks for, Dr. Cardea says, "If someone tells me that they were a member of Phi Beta Kappa then that lets me know that they had *consistently* high grades in their undergraduate years. Someone could have all A's in his fourth year, but may have played around prior to that…but not if they are Phi Beta Kappa. This tells me that they are capable of consistent self study. Additionally, I want to know if they can take tests well. Approximately 5 or 6% of those taking the boards fail them…so often because they get flustered."

When it comes to a traditionally important way of assessing residents, i.e., letters of recommendation, Dr. Cardea says one must see what is—and is not—being said. "In time you learn to read between the lines, and can tell if someone was not especially enthusiastic about a candidate. In essence, the referring letter would be generic and not overly complimentary. If, on the other hand, the letter says something like, 'Dr. X is a stellar physician and I will try to keep him at our institution,' then that tells me that I really have to sell my program."

Not wanting to get trapped with someone whose work ethic is less than desired, Dr. Cardea picks up the phone to get the inside information. "I do a thorough due diligence on prospective residents, and will usually call two peo-

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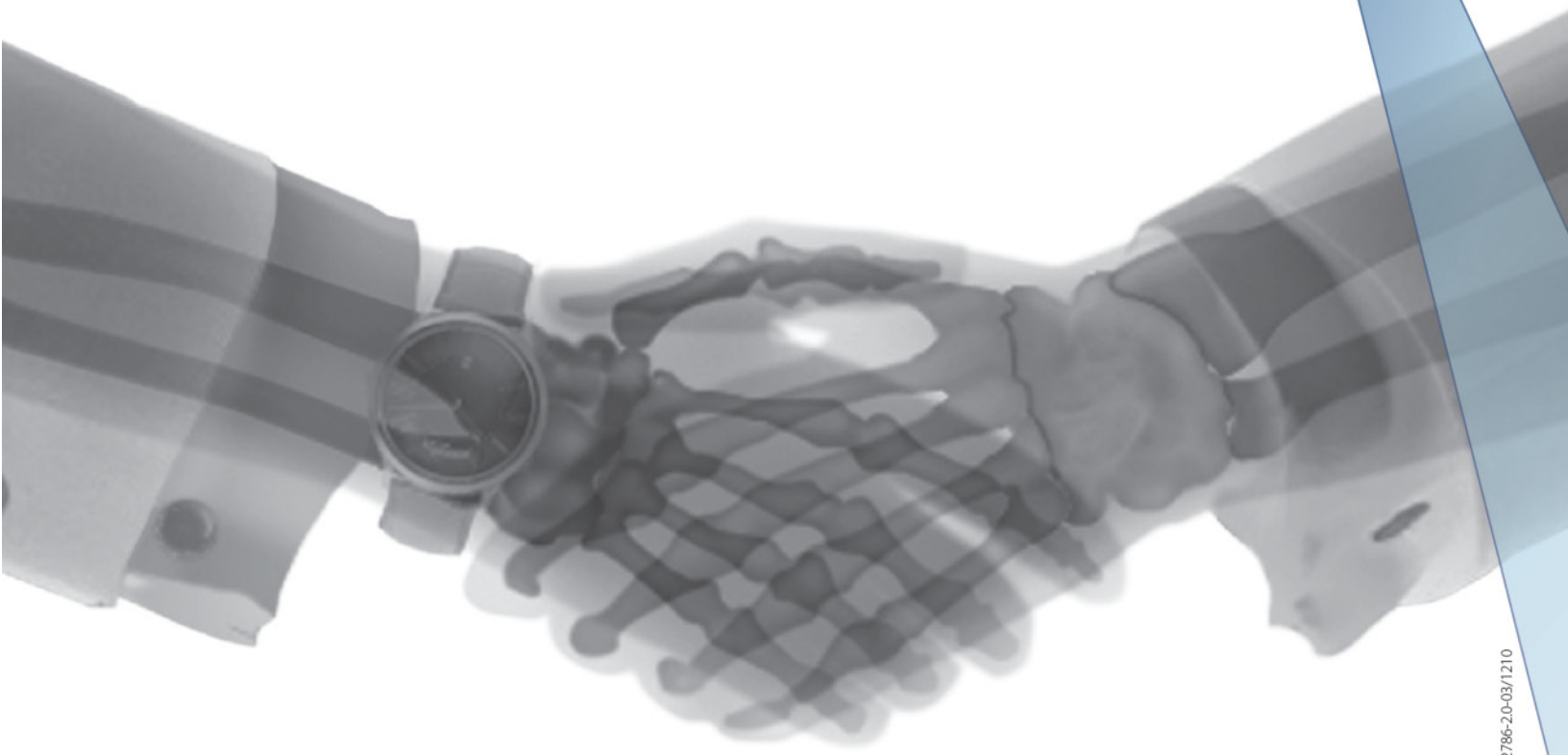

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"Someone could have all A's in his fourth year, but may have played around prior to that…but not if they are Phi Beta Kappa. This tells me that they are capable of consistent self study."

ple I know from their institution. I am particularly apt to do this if the person's CV looks too good to be true. I also look hard at the personal letter. Red flags there would be dishonest representation…for example, someone says they have run marathons, but when you dig a little you find that they trained for one, but never actually completed one."

Not a fan of hand holding or hand wringing, Dr. Cardea states, "I look for people who are calm…those who have no highs and lows. Someone who vacillates between being on cloud nine one day and sulking the next is someone who is overly emotional…and overly emotional people are more apt to make poor decisions. Logic should prevail with regard to patient care, especially if you get into a difficult situation in the OR."

"In the system as a whole, there are talented, but unstable individuals who somehow make it through medical school, but then can't handle the pressure that comes afterwards—or expect too much assistance. I think that once you are past medical school then you're in adult learning. If you don't have the inherent drive to seek knowledge on your own about your specialty then you won't be a good doctor. I recall a situation where a student with an ACL tear came to me after a lecture and said, 'Can you tell me what I have in store and can you examine my knee?' I looked at him and said, 'Son, if I had an ACL tear during medical school I would be the world's leading authority on that condition.' He—along with everyone else lined up to see me—made a quick break for the door."

Wikimedia Commons

Dr. Cardea says, "If someone looks especially promising, I would bring them in on a Friday and spend several hours with him or her. I talk to them about their upbringing, and am very attuned to the extent that they want to talk about their parents and siblings. It is a red flag if the person shows no interest in family (i.e., regardless of the questions I ask they change the topic)."

And Dr. Cardea is wary of orthopedic Johnny-come-latelies. "I prefer candidates with a longstanding interest in orthopedics. If, for example, a Ph.D. or masters graduate who previously had no interest in medicine all of a sudden decides to pursue a medical career, then that person will rate a bit lower in my estimation. In my experience, those whose passion for orthopedics reaches back many years are the happiest people in their residencies…and happier people work harder and take better care of patients."

Finally, says Dr. Cardea, there is the issue of program fit. "Some residents

"Someone who vacillates between being on cloud nine one day and sulking the next is someone who is overly emotional…and overly emotional people are more apt to make poor decisions."

"The difference between an IQ of 150 and 120 is not that great…the key is to make sure they are not mentally unstable. After years of going through this process, I believe that having a psychiatrist on the admissions committee may be of help."

don't like the hustle of a city hospital; it is too much pressure and they end up leaving. Some people are better off in a place where they will only do two femoral fractures a year, but will study them to death—this is a completely different personality type than someone who revels in, say, Maryland's Shock Trauma Center. In lecturing my applicants about MCV [Medical College of Virginia] I tell them, 'If you don't want to be an independent thinker and make some decisions by yourself then do not come here. We see 75,000 patients a year and you need to be able to handle that load.' Bottom line: you need people who are going to be willing and able to work hard every day for four years—and who will do so without grousing."

Another veteran of the residency selection process has more advice: "Make sure they are not crazy."

This orthopedist, who requested that his name be withheld, states, "A certain amount of intelligence is obviously important and can be measured; the things that can't be measured are probably more important.

The difference between an IQ of 150 and 120 is not that great…the key is to make sure they are not mentally unstable. After years of going through this process, I believe that having a psychiatrist on the admissions committee may be of help. We have to remember that each person we select is going to be responsible for other human lives. I know a number of people who dropped out of orthopedic residencies because they couldn't stand the stress and/or the responsibility of surgical decisions. Or, they couldn't stand the physical work or the hours in the operating room and had to drop out because of a psychiatric breakdown during their training. These people should have been identified in the residency selection process as unsuitable for the specialty and advised to select a field where they could lead happier and more productive lives."

"It's difficult because due to privacy regulations, psychiatric problems are not disclosed in someone's application. I have seen people come through the admission process whose life decisions belie an unsettled thought process. On one occasion I interviewed someone who had taken a year off to study music, then took more time off to pursue something else. This individual was all over the place and I couldn't trust that he would be an appropriate, healthy choice."

Our anonymous surgeon adds, "I cannot overemphasize communication skills. Do they look you in the eye? If not, do you think that person is going to look patients in the eye? If he or she is staring at his shoes during the interview then there is a problem with a basic human skill that they should have learned as a two year old. It's too late to teach them how to communicate with patients and team members. These people must be able to put patients at ease, something that won't happen if they just stare at their little computer, read the lab tests and say, 'Your numbers look OK.' As a general rule, if someone has participated in team sports then that is a good sign because you can't do that and have shoddy communication skills. They know how to work hard in order to perform, they know how to lose, and they know what it takes to come back stronger. They know themselves, they are honest with themselves, and have a better understanding of others."

Not letting those in the other chair off the hook, this orthopedist says, "Unfortunately, there are times when the people doing the interviewing don't have communication skills themselves—or, frankly, they just don't care enough to be thorough. They ask rote questions and get rote answers…they select resi-

“We in orthopedic education must try to identify the common traits of successful surgeons and make greater efforts to select successful residents. They are all bright, but fundamentally, it is something else that makes for success. We need to find out—once and for all—what that is.”

dents by the numbers and are happy to have checked the questions off on their little list.”

And when this occurs, says Dr. X, one of the things you will likely fail to assess is the person’s honesty. “I have been presented with many padded CVs. On one occasion I was interviewing a candidate who had included several research papers where he was listed as coauthor. When I asked questions about the studies it soon became obvious that he knew nearly nothing about the research. One of the best ways to get the truth about someone’s honesty is to *call someone you know who knows them*. This is a very serious issue because you will be counting on someone to do his or her job and you need to ensure that they won’t let you—not to mention their patients—down. Personally, I think all of our candidates should have a letter from the chief resident of a busy surgical service who worked with the applicant for three months; that chief resident will really know the person’s work habits, skills, honesty, practical intelligence, common sense, and surgical potential.”

His final recommendation is one that points to a more streamlined process. “We in orthopedic education must try to identify the common traits of successful surgeons and make greater efforts to select successful residents. They are all bright, but fundamentally, it is something else that makes for success. We need to find out—once and for all—what that is.” ◆

company

Kensey Nash Bonds With Nerites Corp.

Kensey Nash Corporation of Exton, Pennsylvania, a medical device company focused on regenerative medicine utilizing proprietary collagen and synthetic polymer technology, has, for $20 million in cash, acquired the assets of privately held Nerites Corporation, a developer of medical adhesives and anti-fouling coatings based in Madison, Wisconsin.

Surgical sealants and adhesives have applications in most surgical procedures. Over the past several years the wound closure market has shifted from early technology, such as staples or sutures, to next generation technologies including a variety of external and internal surgical adhesives. These products address a market that encompasses over 70 million surgical wounds in the U.S. By 2015, the U.S. medical adhesive and sealant markets are projected to be over $1 billion.

The Nerites' technology is derived from the proteins secreted by marine mussels for bonding to underwater surfaces. Research conducted on these adhesive proteins by Phillip Messersmith, Ph.D., of Northwestern University, identified the key components believed to be primarily responsible for the adhesive properties. The company developed synthetic versions of these key components to create biomaterials capable of binding to tissue in aqueous surgical environments. Nerites funded its activities through venture capital and private investors, as well as innovation and research grants.

Kensey Nash | Nerites Corporation | Rockcritters.com

Kensey Nash intends to develop and integrate the acquired adhesive, sealant, and coating technologies into its regenerative biomaterials business. The company believes that access to this technology will enable the it to develop a portfolio of next-generation hybrid adhesive-based products that integrate its ECM, collagen and polymer technology platforms for applications in neurologic, plastic/reconstructive, orthopaedic, urologic, cardiovascular and thoracic surgical specialties. Initial product targets include devices for repairing defects in abdominal walls, dural membranes, and gastrointestinal tracts.

The Kensey Nash also intends to explore applications of the Nerites anti-fouling technology for preventing bacterial biofilm formation. Biofilms form when microorganisms attach to implanted medical devices, forming a biological film coating which can interrupt the healing process and result in infection. It is estimated that device-related biofilm infections increase hospital stays and add over $1 billion per year to U.S. hospitalization costs.

"We are very excited about this acquisition," commented Joseph W. Kaufmann, President and CEO of Kensey Nash. "The Nerites' technology will integrate well with Kensey Nash's existing biomaterial capabilities and technologies, providing many opportunities for next generation products currently in the market and expanding our development pipeline as well as opportunities for additional strategic partnerships. We will initially target the hernia and dura repair markets."

—BY (February 2, 2011) ◆

Tornier (TRNX) Goes Public

RRY Publications LLC

Tornier is now public.

Tornier N.V. priced its initial public offering of 8,750,000 of the company's shares at $19 on February 2, 2011. That's $166 million. Net proceeds of $156.8 million will be used to repay notes of approximately $115.2 million.

At noon on February 3, 3,718,000 shares had traded and were down to $18.47.

The company, founded 70 years ago, is based in Amsterdam, with U.S. headquarters in Edina, Minnesota. It was acquired in 2006 by a group of investors led by U.S. private equity firm Warburg Pincus, along with The Vertical Group, Split Rock Partners LP, and CEO Douglas W. Kohrs.

The ordinary shares began trading February 3, 2011, on the NASDAQ Global Select Market under the symbol TRNX.

A registration statement relating to the initial public offering of ordinary shares was declared effective by the Securities and Exchange Commission on February 2, 2011.

Tornier is a global medical device company focused on serving extremities specialists who treat orthopedic conditions of the shoulder, elbow, wrist, hand, ankle and foot. The company's offering of over 70 product lines includes joint replacement, trauma, sports medicine, and orthobiologic products to treat the extremities, as well as joint replacement products for the hip and knee in certain international markets.

According to the AP, Tornier has reported a loss every year since 2007. In 2009, the company had sales of $201.5 million, and posted a loss attributable to shareholders of $24 million. Through early October, sales reached $166.1 million, but it posted a loss of $31.4 million. The company had $25.5 million cash on hand in October and has not yet reported fourth quarter 2010 results.

The underwriters, led by Bank of America Merrill Lynch and JPMorgan, were granted an option to purchase up to 1.3 million additional shares to cover over-allotments, if any.

—WE (February 3, 2011) ◆

legal

Florida ACA Ruling Impacts Physician-Owned Hospitals

A U.S. federal judge in Florida, Roger Vinson, has ruled the entire Affordable Care Act (ACA) unconstitutional in a case brought by attorneys general from 26 states.

"The act, like a defectively designed watch, needs to be redesigned and reconstructed by the watchmaker," wrote Vinson in a 78-page opinion on January 31.

While the focus of the ruling was on the individual mandate requirement and its severability from the entire act, Vinson's decision also breathes life into physicians seeking to overturn the ban on the expansion of new physician-owned hospitals.

Scott Oostyk is the constitutional lawyer representing the Tyler, Texas, physicians who are trying to have the physician-owned hospital ban in the ACA (Section 6001) declared unconstitutional. Oostdyk told *OTW* after the ruling, "Judge Vinson has ruled the whole of ACA to be unconstitutional, finding he is unable to root Section 1501 (the individual mandate) out of the law without legislation, and noting that Congress declined to include a 'severability' provision to allow the remaining parts of the law to keep functioning intact if any part was struck down."

"Given that Secretary Sebelius (U.S. Secretary of Health and Human Services) is thus unable to enforce Section 6001 of ACA within Judge Vinson's jurisdiction in Florida (the bar to physician-owned hospital expansion), PHA (Physician Hospitals of America) is seeking now to have the Eastern District of Texas to recognize the unconstitutionally of Section 6001. The PHA and member hospital Texas Spine & Joint Hospital have a suit pending in that court challenging Section 6001. Plaintiffs are preparing appropriate motions to the Texas court seeking invalidation of 6001," added Oostdyk.

Judge Vinson declined to suspend the new law however, pending appeals, a process legal experts say could take two

Judge Roger Vinson/flaglerlive.com

years. The individual mandate requirement of the law is to take effect in 2014.

The score in the federal courts over the constitutionality of the individual mandate is now 2-2, with Clinton appointed judges ruling in favor of ACA in Michigan and Virginia and Reagan and Bush appointed judges ruling against ACA in Florida and Richmond, Virginia. The federal appeals court in Virginia has promised to hear oral arguments in early May on the Obama administration's appeal of Judge Henry Hudson's previous Richmond decision against ACA.

Click here to read Judge Vinson's decision. http://ryortho.com/01_31_11_Vinson_Florida.pdf

—*WE (February 1, 2011)* ◆

large joints

European Patent for PyroCarbon

It's not a diamond, but it's in the same family…the carbon clan. Ascension Orthopedics, Inc., specialists in PyroCarbon orthopedic implants, has announced the receipt of a European patent for a PyroCarbon humeral head. The design is being developed as a component of the TITAN Modular Shoulder System released in September 2010.


Ascension Orthopedics, Inc.

Jerome Klawitter, Ph.D., Founder and Chief Science Officer of Ascension Orthopedics, commented in the news release, "I am very pleased our PyroCarbon humeral head hemi-arthroplasty has been patented. PyroCarbon has been shown to cause much less damage to cartilage and bone joint tissues than the Co-Cr metal alloy currently used for shoulder joint hemi-arthroplasty. A PyroCarbon humeral head replacement should extend the functional life of shoulder hemi-arthroplasty and result in improved patient outcomes. Extensive design and testing has resulted in the development of a product which will soon be available for clinical use."

Dr. Klawitter is a trailblazer, years ago having launched the use of PyroCarbon in the manufacture of mechanical heart valves. After turning his attention to the design of PyroCarbon implants for the orthopedic market, he joined forced with the Mayo Clinic, something that lead to the founding of Ascension Orthopedics in 1992.

"Our commitment to research with PyroCarbon is based on the material's enhanced wear resistance and biocompatibility against native bone and cartilage compared to metals and ceramics. Native joints have been shown to lubricate through the adsorption of surfactant to cartilage, providing boundary layer lubrication. Similarly, adsorption of surfactant onto graphitic surfaces aids in lubricating joints, offering favorable wear characteristics against native cartilage," added Klawitter.

Dr. Klawitter told *OTW,* "The two most demanding milestones in development of the PyroCarbon humeral head prosthesis were developing the ability to produce large PyroCarbon parts and designing an implant that will withstand the high loads of shoulder joint function. PyroCarbon has a long history of use in smaller devices such as heart valves and finger joint implants. A new PyroCarbon coating technology had to be developed to produce the large 52 mm diameter parts required for making shoulder joint prostheses. Likewise, a device design has been developed that is the basis for the European patent and which results in a high strength implant structure capable of functioning as a shoulder joint replacement. PyroCarbon has been shown to be much less damaging to cartilage and bone tissues than the currently used Co-Cr metal alloy. I am very pleased that we have been able to develop a PyroCarbon shoulder hemi-arthroplasty that has the potential to result in improved patient outcomes."

—EH (January 31, 2011) ◆

Later Puberty, Less Bone Mass

Starting puberty? Start the BMD clock…Researchers from the Saban Research Institute of Children's Hospital Los Angeles have found that the onset of puberty was the primary influence on adult bone mineral density (BMD). Length of puberty did not affect bone density.

The study, led by Vicente Gilsanz, M.D., Ph.D., director of Clinical Imaging at the Saban Research Institute, is an ongoing multicenter study examining bone development in healthy children and teenagers of both sexes and ethnic groups in the U.S. For this analysis, the investigators studied 78 girls and 84 boys who had just entered puberty, until they reached sexual maturity.

"Puberty has a significant role in bone development," explained Dr. Gilsanz in the news release. "During this time, bones lengthen and increase in density. At the end of puberty the epiphyseal plates close, terminating the ability of the bones to lengthen. When this occurs, the teenager has reached their maximum adult height and peak bone mass. We found that early puberty was associated with greater bone mass while later puberty resulted in less."

Adolescents with short stature sometimes undergo medical intervention to delay puberty in an effort to achieve greater height. This study indicates that prolonging the growth period by delaying puberty may have unexpected consequences in later life.

The 2000 National Institutes of Health Consensus Development Conference on Osteoporosis Prevention, Diagnosis, and Therapy identified bone mineral deposition during adolescence as a critical determinant of osteoporosis risk later in life. As indicated in the news release, given that the rate of decline of bone mass in adulthood is approximately 1% to 2% each year, a 10% to 20% increase in bone density resulting from a natural early puberty corresponds to an additional 10 to 20 years of protection against the normal age-related decline in bone strength.

Dr. Gilsanz told *OTW*, "We were surprised to learn how much the timing of puberty influences the amount of bone mass that normal, healthy children gain. Although it probably doesn't really have any orthopedic surgical relevance, the strength of the bone is probably greatest in youth that sexually develop earlier."

—EH (February 1, 2011) ◆

Kayau/Wikimedia Commons

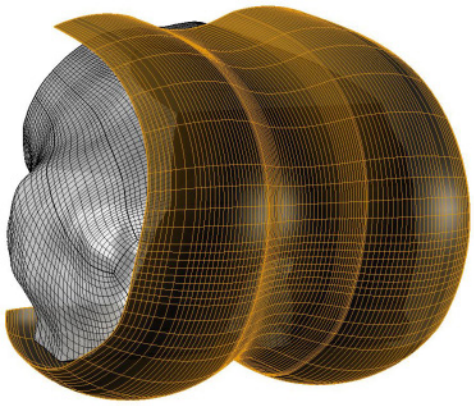
510K for ConforMIS' iTotal Knee

You might not have liked geometry, but due to the efforts of the ConforMIS team, damaged knees all over will benefit from it. The company is reporting receipt of FDA 510(k) clearance for its iTotal CR Knee Replacement System (let the marketing begin!). As indicated byConforMIS, its iTotal CR is the only true patient-specific system available for patients who would traditionally receive a standard total knee replacement (TKR).

Computer modeling is used to build a 3D image of a patient's knee from CT scans. That image then guides the design and manufacture of the jigs and the personalized implants that resurface the patients' articular surfaces. Each iTotal CR is made to fit an individual patient—without under-sizing and overhang. ConforMIS also indicates that it has one of the broadest implant contact areas in the industry, resulting in extremely low polyethylene contact stress. Another advantage, says the company, is that its technology on the femur preserves significantly more bone than a traditional TKR.

"The ability to give patients a long lasting, natural feeling knee has been the holy grail of orthopedics for decades," said Wolfgang Fitz, M.D., in the news release. Dr. Fitz, a member of the surgeon design team, added, "A patient-specific total knee that reconstructs the surface geometry of the condyles has the potential to create a knee replacement that is as close to normal as it gets."

The commercial release version of the iTotal CR Knee Resurfacing System was 510(k) cleared in early January 2011.



ConforMIS

The iTotal system will be available in limited release to a select group of surgeons in 2011.

Dr. Phillip Lang, CEO of ConforMIS, told OTW, "We introduce new systems using a limited release approach to ensure that we can methodically collect feedback on our system and improve our training programs. We know we have a great implant, but the limited release gives us an opportunity to get feedback on the surgical technique and instruments from a broader group of surgeons before we roll out training and the system to the broader surgeon community. The limited release surgeons come from a wide range of backgrounds, because we are looking for some diversity of feedback on the experience of using our implants. But all of them have a great interest in being involved with cutting edge innovation. We expect to be in a limited release period through the rest of the year."

—EH (February 2, 2011) ◆

PRP Cuts Surgical Blood Loss

Patients undergoing total knee replacement surgery experience markedly less blood loss when treated with platelet-rich plasma (PRP), according to Dr. Jeffrey Traina, an orthopaedic surgeon at Natchez (Mississippi) Community Hospital. Traina described his experience in recent presentations at the annual International Arthroplasty Conference in Sharm Elsheikh, Egypt, and at the International Society for Technical Arthroplasty Congress in Dubai.

The presentations were based on a study Dr. Traina completed where he treated 81 patients with PRP after total knee replacement surgery. He found that only 2.4% of the patients needed a blood transfusion, compared with the typical transfusion rates in patients not treated with PRP of 30% to 50%.

PRP use is a relatively new therapy, Traina said, so scientific data is just being gathered: "My study looked at using platelet-rich plasma to help stop bleeding after total knee replacement surgery." Platelet-rich plasma is a fairly simple product, made from the patient's own blood. "Before the operation, we draw approximately four tablespoons of blood from the patient and process it," Traina said. "At the conclusion of the operation, before we put our stitches in, we inject this into the wound."

Surgical solutions using platelet rich plasma have recently begun making headway in orthopedic surgery, according to reports published by AAOS, which, nonetheless, recommends that physicians have a good understanding of the how the technique works before using it.

Puravida and morgueFile.com

For orthopedic use, the physician harvests the venous blood and transfers it to the centrifuge. Once the blood is in the centrifuge, processing usually takes between 15 and 20 minutes. The current recommendations state that the platelet concentration should be raised four to six times above the baseline concentration.

The major components of PRP include transforming growth factor-beta, plate-

let-derived growth factors, insulin-like growth factor, vascular endothelial growth factors and fibroblast growth factor-2, which stimulate the proliferation of mesenchymal cells.

Recent studies suggest that PRP could significantly improve tendon repair and enhance soft tissue repair—particularly for tendons and wound healing.

Physicians thinking about using PRP in their practices are advised to consider the time commitment it takes to learn and employ the technique, insurance coverage and informed consent, according to reports published in *AAOS Now*. The American Medical Association recently introduced a new category III CPT code for performing PRP injection procedures which includes harvesting the blood, spinning the blood and injecting the plasma.

Traina believes that more studies need to be done to confirm the results he's seen with patients. But he says that he has seen enough evidence to convince him to continue using PRP.

—BY (February 2, 2011) ◆

trauma

New Football Head Injury Research

Concern continues to grow over the potential long-term consequences of head injuries to young athletes. A study at Purdue University suggests that players who have not had a concussion nevertheless suffer undiagnosed changes in brain function.

"Our key finding is a previously undiscovered category of cognitive impairment," said Thomas Talavage, Ph.D., an expert in functional neuroimaging who is an associate professor of biomedical engineering and electrical and computer engineering and co-director of the Purdue MRI Facility.

"The problem is that the usual clinical signs of a head injury are not present," said Larry Leverenz, Ph.D., an expert in athletic training and a clinical professor of health and kinesiology. "There is no sign or symptom that would indicate a need to pull these players out of a practice or game, so they just keep getting hit." The findings are detailed in a research paper appearing online this week in the *Journal of Neurotrauma.*

The study suggests that some high school football players suffer undiagnosed changes in brain function and continue playing even though they are impaired. The team of researchers screened and monitored 21 players at Jefferson High School in Lafayette, Indiana.

"The athletes wore helmets equipped with six sensors called accelerometers, which relay data wirelessly to equipment on the sidelines during each play," said Eric Nauman, Ph.D., an associate professor of mechanical engineering at Purdue and an expert in central nervous system and musculoskeletal trauma.

Impact data from each player were compared with brain-imaging scans and cognitive tests performed before, during and after the season. The researchers also shot video of each play to record and study how the athletes sustained impacts.

Whereas previous research studying football-related head trauma has focused on players diagnosed with concussions, the Purdue researchers tested all of the players. They found cognitive impairment in players who hadn't been diagnosed with concussions.

The research team identified 11 players who either were diagnosed by a physician as having a concussion, received an unusually high number of impacts to

Keith Lovett/Wikimedia Commons

the head or received an unusually hard impact. Of those 11 players, three were diagnosed with concussions during the course of the season, four showed no changes and four showed changes in brain function.

"So half of the players who appeared to be uninjured still showed changes in brain function," Leverenz said. "These four players showed significant brain deficits. Technically, we aren't calling the impairment concussions because that term implies very specific clinical symptoms, such as losing consciousness or having trouble walking and speaking. At the same time, our data clearly indicate significant impairment."

The ongoing research may help to determine how many blows it takes to cause impairment, which could lead to safety guidelines on limiting the number of hits a player receives per week. "We're not yet sure exactly how many hits this is, but it's probably around 50 or 60 per week, which is not uncommon," Nauman said. "We've had kids who took 1,600 impacts during a season." The findings support anecdotal evidence that football players not diagnosed with concussions often seem to suffer cognitive impairment.

—BY February 1, 2011) ◆

THE PICTURE OF SUCCESS

Dr. Blair Filler

By Elizabeth Hofheinz, M.P.H., M.Ed.

Dr. Blair Filler

As Dr. Blair Filler rappelled down the craggy cliffs of a canyon on a search and rescue mission he was living his motto…love orthopedics, but love something else as well. Dr. Filler, an attending surgeon with Los Angeles UCLA Orthopaedic Hospital, is also a sheriff, a pilot, and a veteran of 53 marathons. He strongly believes that his fellow orthopedists should have interests outside of the OR…if not, says Dr. Filler, you are setting yourself up for burnout.

For his concrete results and willingness to address difficult situations, Dr. Filler, a hand and upper extremities specialist, was honored with the AAOS William Tipton Leadership Award in 2009. His sense of what a situation calls for may have been honed in his youth as he repeatedly entered new environments and had to adapt. Dr. Filler: "I was born in small town Ohio where my dad managed a local 5 and 10 store. He was transferred every nine months so I ended up attending 14 different schools before I graduated from high school. The downside was that I never had close long-term friends; the upside was that I learned to adjust to things quickly and developed a great deal of self sufficiency."

He would need this maturity in the coming years. "It was a difficult time personally, as my parents divorced when I was 13; also, the country was in the midst of World War II. The day after I finished high school I signed up for the military, knowing in the back of my mind that I eventually wanted to become a physician. Having had both a sledding accident and an ongoing skin disease meant that I had a fair amount of exposure to doctors. I was quite impressed by their kindness and talents…and I hoped to emulate them."

But first Dr. Filler would have a less captivating role. "I failed the eye exam, so the Air Force was out. During my boot camp days the atomic bomb was dropped; my training was halted and I was sent to a Corpus Christi Navy airbase where I peeled three tubs of onions a day for four months. I was then given the job of educational advisor where I helped discharged vets decide on a college. When I was ready to attend college myself, I knew there was an opening at Bowling Green State University…and I already knew the registrar. I called him and said, 'I have someone for you.' When he said, 'Is he any good?' I replied, 'It's me.'"

Perhaps it was that experience of watching his hands work for four months that led Blair Filler to become a hand surgeon. Whatever forces brought him in that direction, the fact is that he has helped innumerable children and adults get a handle on…get a sense of control over…their lives. "It is very powerful to enable a child with a completely disabled hand to have some function. It has also been rewarding to work with cerebral palsy patients, something that

"Now, surgeons are being forced to be musculoskeletal physicians with no in depth knowledge of patient care. In residency, trainees are not rotating through internal medicine or general surgery, meaning that doctors are becoming technicians—albeit good ones. The bottom line is that if a patient has a problem that is unrelated to musculoskeletal medicine a young orthopedist is more apt to miss it."

led to my learning upper and lower extremity procedures. There is not a lot that an orthopedist can do for these patients that's going to make a huge difference—but we can make little differences. I recall one patient who could not open his hand, but after our team operated on him, he improved significantly, turned into a great artist, and designed beautiful Christmas cards."

The appeal of hand surgery, jokes Dr. Filler, is that you can *sit* to do the procedures. "We are handling tissue much more gently, and fortunately don't have to do a lot of tugging and pulling that is often required to get visualization in other parts of the body. Hand surgery takes a detail-oriented person because you are working in a smaller area with a substantial concentration of nerves and other important structures. While the long hoped-for future is here—hand transplantation—the serious drawback is that patients must remain on anti-immunologic medication the rest of their lives. The minute you sew someone else's hand onto a patient the body tries to reject it. There is research being done on this aspect of transplantation; we will likely see some positive developments in the next five to ten years."

Dr. Filler, who was chief of the hand service at Los Angeles County Hospital for 22 years, recalls, "When I first came to Los Angles, Dr. Herbert Stark was a premier hand specialist in the area. Dr. Stark took me under his wing and said, 'I'm establishing a hand service here at L.A. County. If you can guarantee me five years we'll make you a subspecialist.' Five years later I became chief of the hand service."

From his long-term vantage point, Dr. Filler sees a growing tendency that concerns him. "Now, surgeons are being forced to be musculoskeletal physicians with no in depth knowledge of patient care. In residency, trainees are not rotating through internal medicine or general surgery, meaning that doctors are becoming technicians—albeit good ones. The bottom line is that if a patient has a problem that is unrelated to musculoskeletal medicine a young orthopedist is more apt to miss it."

But for those who found themselves in trouble while wandering the hills and valleys of Los Angeles County, for 26 years Dr. Filler—and his extensive medical knowledge—was on hand to assist. "Many people don't realize how mountainous the L.A. area is; they set out hiking and encounter some steep, crumbly terrain. We—the county search and rescue team—would find people hanging on little ledges or isolated in deep caverns. The helicopter would hover, we would rappel down a rope and then would either treat any injured parties there and then bring them up, or wait until they were on board and treat them if the situation required. I had to become a sheriff, as did the paramedics; we all carried guns and badges. But when the calendar turned and I hit 77 years of age the county made me retire."

For his insight and courage in a variety of challenging situations, Dr. Filler was recognized by AAOS with the William Tipton Leadership Award. "I think people see in me someone who is determined to get to the bottom of things in as fair a manner as possible."

Reflecting on his years of service to others, Dr. Filler highlights his volunteer work and says that it is likely going the way of the T-Rex. "I run a charity clinic at the Los Angeles UCLA Orthopaedic Hospital where we see 55,000 children a year (either for a minimal fee or at no charge.) When I started in practice years ago there was no Medicare or Medicaid and we were strongly encouraged by the senior orthopedists in the community to devote one day a week to charity…everyone did it. Then came Medicare and for the average doctor, charity work is history. There are doctor payment issues and hospital payment issues…in the end the community suffers."

Dr. Filler talks of these and other important lessons of the field with those plotting their courses for the

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future. He says, "I suppose my philosophy is simple: if you are doing something you truly like and believe in, then things seem to work out. And if you are enjoying your work your enthusiasm will be contagious to the people you're educating. Some individuals don't have enough passion or talent for orthopedics; in fact, I have counseled some students that they should look elsewhere for a career."

Although proud of his work with AAOS, the Western Orthopaedic Association, the American Medical Association and other groups, Dr. Filler says his most important life's work was right at home. "My wife and I have four kids who are leading productive, happy lives. I couldn't ask for anything more."

Far from empty nesters, Dr. Filler and his wife are both pilots and often take their Piper Cherokee Six to go skiing, head down to Cozumel, or up to Alaska. "A small plane is especially great for getting to the out of the way valleys of Idaho; and the bonus is that you don't have to deal with airline security."

A surgeon who has hit numerous milestones, Dr. Filler has also hit a multitude of mile markers. "Running is both calming and energizing, and I have enjoyed being in a running group for many years. We meet every Sunday morning and cover 6 to 8 miles; truth be told, however, it is becoming a walking group."

His advice to those whose energy is solely focused on, say, "The Match," or getting the best contract with that new hospital? "Orthopedics IS fun and rewarding, but we need other interests. My search and rescue work was stimulating in part because I got to learn other people's jobs. Find something to recharge yourself...something re-create yourself…if not you will burn out."

Dr. Blair Filler…focused, but willing to handle the big (difficult) picture. ◆

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