VOLUME 7, ISSUE 30 | SEPTEMBER 20, 2011

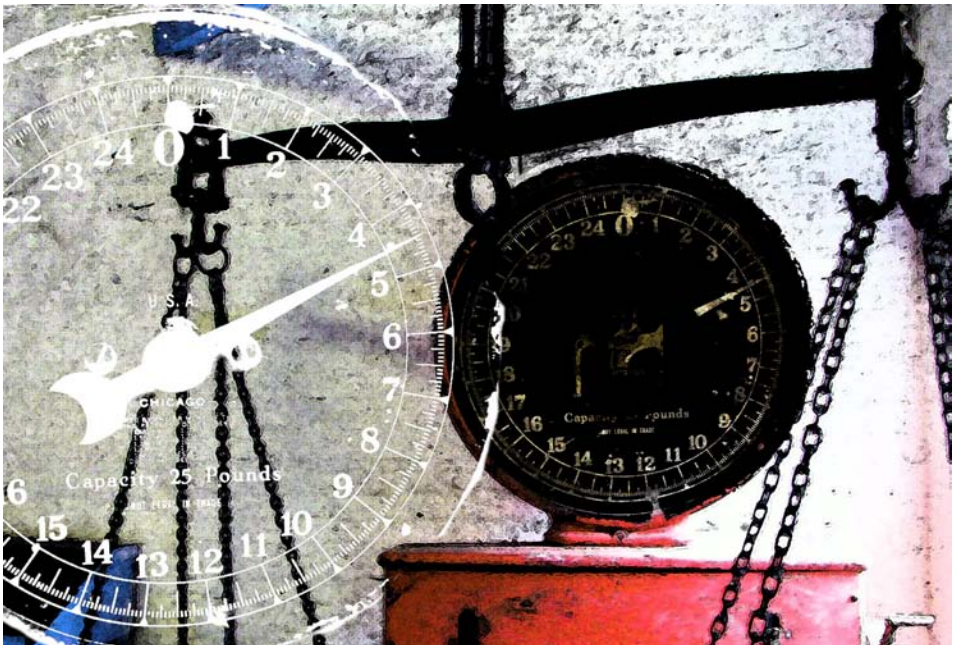
Orthopedics This Week

week in review

4 Weighing Device Tax on Orthopedics ◆ Will the 2.3% medical device tax squeeze the neck of the orthopedic goose laying golden eggs? Or will it prime the pump so that more patients have coverage and money to pay for orthopedic procedures. AdvaMed's new study argues the former. Read the argument here.

8 Key Study Guides Residency Selection ◆ The problem resident sitting in your office did well on orthopedic rotations and was named a member of Alpha Omega…why is he having issues? A team at NYU decided to get to the bottom of things.

12 Reporter's Notebook ◆ Well-slept, yet undertrained residents, LCDs making it hard to get paid, and private practices on life support…oh, and on a happy note, Zimmer, an OrthoCarolina surgeon, and GEANCO collaborate to help Nigerians.



picture of success

25 Dr. Kaye Wilkins ◆ Dr. Kaye Wilkins, winner of the 2008 Humanitarian Award from AAOS, has brought healthcare where there was none, presided over POSNA, and now devotes much of his time to laying the groundwork for the orthopedic field in Haiti.

breaking news

15 Do-It-Yourself **Stem Cells**

Medtronic Spinal Launches Dental System

DePuy's 3D Spine Deformity Correction Set Launched

Tool for **Chronic Pain Therapy**

Cam Impingement and **OA**

Bike Hard To **Burn Calories**

Mahoney's Move to **Boston Scientific** Stirs Takeover Rumors

Study: **PediGuard** Makes Spine Surgery Safer

Zimmer Scoliosis System Cleared for Kids

Orthopedics This Week

VOLUME 7, ISSUE 30 | SEPTEMBER 20, 2011

Orthopedic Power Rankings

Robin Young's Entirely Subjective Ordering of Public Orthopedic Companies

This Week: Orthopedic stocks are clearly back in favor. While top-line growth is still miserably low, high operating profit margins plus cash on hand at the large diversified manufacturers (Biomet excluded) spell either "M" or "A". In an economy that is de-leveraging, cash generating businesses like ZMH or MDT or SYK are hot stuff.

Rank	Last Week	Company	TTM Op Margin	30-Day Price Change	Comment
1	1	Zimmer	27.75%	7.84%	Despite the run this past month ZMH remains the least expensive ortho stock and #1 in the Power Rankings for another week.
2	3	Medtronic	28.63	7.36	Up one spot as Wall Street realizes the other reason to like MDT—strong dividend paying record and recent insider buying.
3	5	Stryker	25.23	3.72	SYK issues $750 million in senior notes. Debt is cheap. Cash is plentiful. Call it firepower and SYK has plenty.
4	6	Wright Medical	8.76	9.42	WMGI remains under U.S. gov't oversight but Wall Street shrugs it off. Is WMGI part of the consolidation trend?
5	4	Johnson & Johnson	26.33	1.41	JNJ's purchase of Synthes has set the tone for consolidation in ortho. Now JNJ is pretty much frozen for a year but other companies are just warming up.
6	2	Kensey Nash	34.24	(3.81)	P/E is pretty rich. Only a high expected earnings growth rate is keeping KNSY at such comparatively high multiples.
7	7	Smith & Nephew	22.8	0.45	Among orthopedic companies, SNN has the 4th cheapest P/E and future P/E but a below average earnings growth rate.
8	8	Orthofix	14.72	(1.98)	If OFIX beats the Street's $0.64 estimate for this quarter (vs. $0.48 last year), Wall Street could return to this long time fave.
9	9	Conmed	9.65	2.08	Buyers looking beyond the current quarter, which will be down, and hoping for a great Q4 to end the year.
10	NR	Integra	15.38	(3.61)	Buys a great little extremities company with interesting pryolytic carbon technology—Ascension. Back on the PR.

Robin Young's Orthopedic Universe

Top Performers Last 30 Days

	Company	Symbol	Price	Mkt Cap	30-Day Chg
1	MAKO Surgical	MAKO	$36.27	$1,503	10.99%
2	Wright Medical	WMGI	$16.03	$632	9.42%
3	Zimmer Holdings	ZMH	$56.94	$10,846	7.84%
4	Medtronic	MDT	$35.02	$36,980	7.36%
5	Stryker	SYK	$49.34	$19,160	3.72%
6	Conmed	CNMD	$23.51	$672	2.08%
7	Alphatec Holdings	ATEC	$2.60	$232	1.56%
8	Symmetry Medical	SMA	$8.06	$293	1.51%
9	Johnson & Johnson	JNJ	$64.59	$176,999	1.41%
10	Smith & Nephew	SNN	$47.28	$8,442	0.45%

Worst Performers Last 30 Days

	Company	Symbol	Price	Mkt Cap	30-Day Chg
1	TranS1	TSON	$3.70	$78	-22.43%
2	Exactech	EXAC	$13.50	$177	-9.94%
3	CryoLife	CRY	$5.03	$141	-8.88%
4	TiGenix	TIG.BR	$0.97	$88	-7.10%
5	Bacterin Intl Holdings	BONE	$1.76	$70	-5.38%
6	Tornier N.V.	TRNX	$21.69	$850	-5.33%
7	Synthes	SYST.VX	$167.75	$19,925	-5.24%
8	NuVasive	NUVA	$22.13	$883	-3.87%
9	Kensey Nash	KNSY	$26.76	$231	-3.81%
10	Integra LifeSciences	IART	$38.18	$1,051	-3.61%

Lowest Price / Earnings Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	P/E
1	Medtronic	MDT	$35.02	$36,980	10.64
2	Zimmer Holdings	ZMH	$56.94	$10,846	12.27
3	Johnson & Johnson	JNJ	$64.59	$176,999	13.21
4	Smith & Nephew	SNN	$47.28	$8,442	13.73
5	Stryker	SYK	$49.34	$19,160	14.02

Highest Price / Earnings Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	P/E
1	NuVasive	NUVA	$22.13	$883	27.66
2	Wright Medical	WMGI	$16.03	$632	22.90
3	ArthroCare	ARTC	$31.65	$869	22.13
4	Synthes	SYST.VX	$167.75	$19,925	21.23
5	Exactech	EXAC	$13.50	$177	17.76

Lowest P/E to Growth Ratio (Earnings Estimates)

	Company	Symbol	Price	Mkt Cap	PEG
1	Integra LifeSciences	IART	$38.18	$1,051	0.86
2	Orthofix	OFIX	$37.12	$683	0.90
3	Kensey Nash	KNSY	$26.76	$231	1.14
4	Medtronic	MDT	$35.02	$36,980	1.18
5	Exactech	EXAC	$13.50	$177	1.27

Highest P/E to Growth Ratio (Earnings Estimates)

	Company	Symbol	Price	Mkt Cap	PEG
1	ArthroCare	ARTC	$31.65	$869	3.69
2	Johnson & Johnson	JNJ	$64.59	176,999	2.37
3	CryoLife	CRY	$5.03	$141	2.11
4	Symmetry Medical	SMA	$8.06	$293	1.83
5	Wright Medical	WMGI	$16.03	$632	1.77

Lowest Price to Sales Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	PSR
1	Symmetry Medical	SMA	$8.06	$293	0.81
2	Exactech	EXAC	$13.50	$177	0.93
3	Conmed	CNMD	$23.51	$672	0.94
4	RTI Biologics Inc	RTIX	$3.49	$193	1.16
5	Orthofix	OFIX	$37.12	$683	1.21

Highest Price to Sales Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	PSR
1	TiGenix	TIG.BR	$0.97	$88	141.72
2	MAKO Surgical	MAKO	$36.27	$1,503	33.94
3	Synthes	SYST.VX	$167.75	$19,925	5.40
4	Tornier N.V.	TRNX	$21.69	$850	3.74
5	Kensey Nash	KNSY	$26.76	$231	3.23

PSR: Aggregate current market capitalization divided by aggregate sales and the calculation excluded the companies for which sales figures are not available.

Weighing Device Tax on Orthopedics

By Walter Eisner

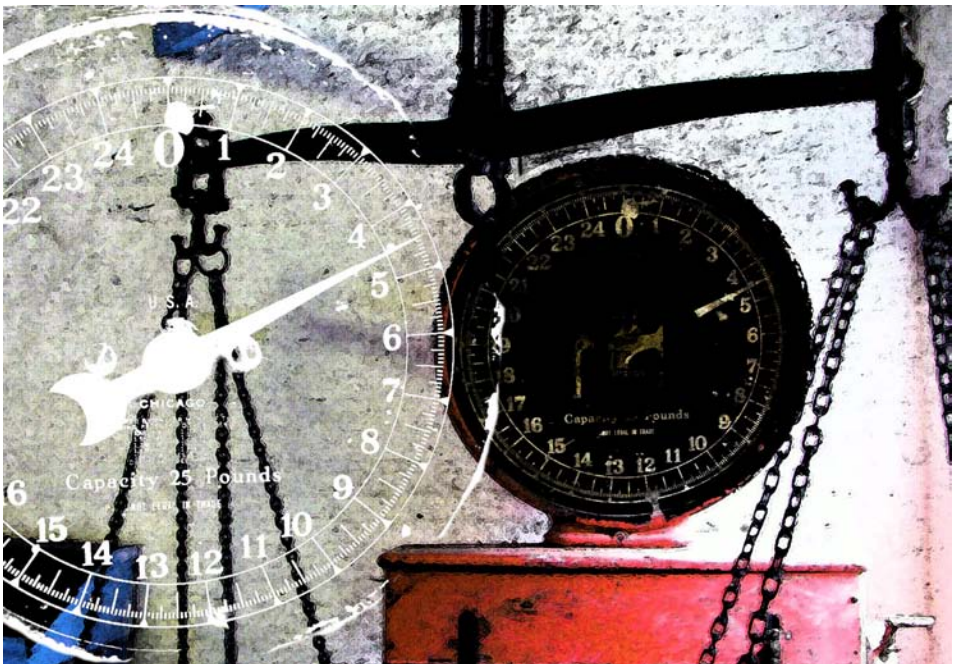


Photo Creation by RRY Publications/Morguefile

AdvaMed (the Advanced Medical Technology Association) released a study on September 7 which concluded that the 2.3% medical device tax scheduled to kick-in in 2013 under the Accountable Care Act (ACA), could cost tens of thousands of jobs, almost double the industry's total taxes, harm U.S. competiveness and cause a decline in the demand for medical devices.

The study, prepared for AdvaMed and titled, "Employment Effects of the New Excise Tax on the Medical Device Industry," was written by Hudson Institute senior fellows Diana and Harold Furchtgott-Roth.

Ms. Furchtgott-Roth was chief economist of the U.S. Department of Labor from 2003 to 2005. Mr. Furchtgott-Roth was commissioner of the Federal Communications Commission from 1997 to 2001, and chief economist of the House Commerce Committee from 1995 to 1997.

Report: Device Demand Will Drop

The authors write that the new excise tax is complex, and will substantially raise the tax burden on the medical device manufacturing industry. In response to the new tax, they argue that prices of medical devices will rise, and consumers and health care providers will pay more for medical devices.

The exact change in prices for medical devices as a result of the excise tax will depend on various economic parameters, but, according to the authors, an estimated half or more of the excise tax will likely be passed along to end users in terms of higher prices.

"Correspondingly, states the report, "the quantity of medical devices demanded will decline in response to the higher prices that include the excise taxes." They estimate that medical device demand would decline between $0.67 and $6.7 billion annually.

They argue that there is no reason to assume that the demand for medical devices is inelastic. "Consequently, the imposition of the excise tax on medical device manufacturers will likely lead to distortions in demand."

AdvaMed
Advanced Medical Technology Association

Advanced Medical Technology Association

New Paying Customer?

The study, however, does not address the expected expansion of coverage for the uninsured and likely larger number of patients with money to pay for new devices.

We are not advocating higher taxes for device makers, but we think it's important to evaluate the impact on the industry correctly.

When the tax was first proposed in September 2009 as part of a way to pay for increasing coverage for the uninsured, we noted there are 35 million to 40 million uninsured people in the U.S. (we saw numbers as high as 47 million, but if you exclude non-citizens the number drops). If the ACA plan to increase coverage is half way successful and 15 million newly insured patients come into the healthcare system, orthopedic companies, we calculate, will sell 8% more implants. That's $2.4 billion of incremental revenue.

By our estimates, the number of potential new orthopedic patients would rise by 300,000.

The Industry's Economic Impact

Setting aside the issue of device demand, the AdvaMed study provides a recent picture of the device industry and its impact on the U.S. economy.

In 2006, medical device manufacturers reported taxable income of $13.7 billion and paid $3.1 billion in corporate taxes. The new tax, according to the AdvaMed study would add $2.67 billion a year in new taxes.

Impact on Innovation and Employment

The study says the tax would be especially harmful to companies that create novel technologies. These companies tend to suffer losses in their early years when focused on research and development for a new product. These start-up companies would have to pay the full tax regardless of whether they had any profit. "This is a tax on innovation," said Stephen J. Ubl, president and CEO of AdvaMed.

According to the study, the tax could reduce employment in the industry if there is a decline in demand for medical devices and by encouraging American firms to shift production overseas. States the study:

- In 2009, the medical device industry provided well-paying jobs to more than 409,000 employees, who earned more than $33 billion dollars in labor compensation.
- The tax could result in job losses in excess of 43,000 and employment compensation losses in excess of $3.5 billion.
- The tax will also especially harm states with large employment in the medical device industry including California, Florida, Illinois, Indiana, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin.
- The tax will roughly double the device industry's total tax bill and raise the average effective corporate income tax rate to one the highest effective tax rates faced by any industry in the world. Moreover, the new tax will be paid both by firms that have net income and those that do not.

We noted in our September 2009 story that if demand for devices increases, the effective rate of the tax begins to drop because the tax will be collected on revenues for the previous year, while demand is rising in the year the tax is actually paid.

Manufacturing Exodus

Furthermore, the authors conclude:

- Under the tax, U.S. manufacturers will be more likely to close plants in the United States and replace them with plants in foreign countries.
- Foreign manufacturers will improve their competitiveness relative to American firms, and U.S.

Suzhou, China/Wikimedia Commons

leadership in this industry could be threatened.

- The Joint Tax Committee estimates that the tax will raise $20 billion in revenues over the period 2013-2019, a cost to device companies and the American consumer. The economic impact of the tax on wages and output will be significantly higher.

"This new tax burden could force companies that would otherwise never leave the U.S. to make difficult choices based on stark economic reality," added Ubl.

Impact on Earnings and Pricing

The effect of the tax on earnings of U.S. companies is likely to be significant, according to the study. In 2006, medical device manufacturers reported taxable income of $13.7 billion and paid $3.1 billion in corporate taxes. The U.S. already has one of the highest corporate income tax rates in the world. The new tax will roughly double their total tax bill and raise the average effective corporate income tax rate to one of the highest effective tax rates faced by any industry in the world

The authors argue that the tax would likely increase the after-tax prices to American consumers between .02% and 2.1% with most price increases around 1%.

Wall Street's Analysis on Orthopedics

What will be the impact of the tax on some specific orthopedic companies?

Mike Matson, senior analyst for medical supplies and devices at Mizuho Securities USA, Inc., updated his 2013 estimates for a number of orthopedic companies on September 14.

Matson argues that companies with more domestic medical device sales, lower margins, and/or lower tax rates should see a greater hit to their EPS (earnings per share) from the excise tax.

Larger-cap medical device firms tend to have more international sales and higher margins and should generally see 2013 EPS reduced by 4% to 6% as a result of the tax.

In contrast, says Matson, smaller-cap medical device firms tend to have less international sales and lower margins and should generally see 2013 EPS reduced by 10% or more.

Mike Matson, Mizuho Securities Senior Analyst/Matson

Within the universe of orthopedic companies that Matson follows Wright Medical Group, Inc. should see the largest impact followed by NuVasive, Inc. and Orthofix International. He expects median 2013 EPS growth of 4% for device makers, including the med tech tax (or 10% excluding the tax).

Ortho Market for 2013

Matson expects the orthopedic recon market to grow by 3% in 2013. That beats the cardiac rhythm management and drug-eluting stent markets of 0% and 2% respectively.

He looks for hip and knee sales to each grow by 3%

He includes the impact of the 2.3% medical device excise tax in his 2013 estimates and assume that the device companies will not be able to pass through or offset any of the tax. He believes the tax will hurt Wright Medical Group the most.

Matson says given the high degree of global economic and government policy uncertainty, he admits that his crystal ball is hazy. For now, he assumes that 2013 estimated growth in the major med tech markets will be consistent with 2012 growth.

The excise tax is tax deductible so the bottom line impact, according to Matson, should be softened a bit at companies that are paying taxes.

Risks

As Matson looks at target stock prices for orthopedic companies in 2013, he notes risks related to market share, pricing and procedure volumes.

For Medtronic the risk is primarily a greater-than-expected spine market share loss. NuVasive's risks include worsening spinal implant pricing or spinal fusion procedure volumes.

For Orthofix he identifies the risk of slower-than-expected spine stimulation growth and worsening spinal implant pricing and procedure volumes.

He is bullish on Stryker given the company's large cash position, but cites the risks of worse–than-expected orthopedic implant pricing and difficulties integrating recent acquisitions.

In addition to Wright's exposure to the device tax, Matson says potential worsening orthopedic implant pricing and repercussions of recent compliance issues are risks.

Finally, he says the primary risks to Zimmer Holdings, Inc. include worsening implant pricing and potentially, greater-than-expected market share loss to competitors

We note that Wright announced on September 15 that the company will lay off about 6% of its workforce (80 employees) to reduce costs. The company did not cite the expected device tax as a reason for the restructuring in its press announcement.

Rewarded or Punished?

The 2.3% excise tax will certainly hit medical device manufacturers who are one of America's bright spots when it comes to growth and exports. If demand rises, their forced contribution in helping cover the uninsured will likely, as Stryker chief Stephen MacMillan and former Senate Majority Leader Bill Frist, M.D. suggested, be rewarded. If demand declines, as the AdvaMed study argues, Congress will have taxed the goose that has been laying golden eggs for America. ◆

Key Study Guides Residency Selection

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

Just when you've got your "formula" down for selecting successful residents all of a sudden comes along a puzzler…someone who aced the boards, did impressive extracurricular research, and comes with excellent recommendations. But, it is becoming clear that he or she has difficulty interacting with others and is causing disruption in the program.

Is there a way to see this coming?

Dr. Kenneth Egol, vice chair for education in orthopaedic surgery at the New York University (NYU) Langone Medical Center is an author of a study entitled, "Success in Orthopaedic Training: Resident Selection and Predictors of Quality Performance." For 20 years, NYU has collected data on its orthopedic residents…and, because the program is the largest orthopedic residency training program in the country—12 individuals a year—there is a rich store of data.

With the shifting sands in medical education, says Dr. Egol, it is more important than ever to get residency selection right. "It has always been vital to try and attract the best and the brightest. Nowadays, however, it is even more critical because of things such as work hour restrictions, issues with the Accreditation Council for Graduate Medical Education, etc.…these issues are changing the way we train people. In our study we set out to determine if there is a way to predict who will be successful."

The team took a measured approach, says Dr. Egol: "We decided on what we considered to be good and bad performance; but, just because we associated certain factors with good or bad performance in the study we make no claim that this shows how they will do in practice."

Mass Communication Specialist 2nd Class Gary Granger Jr./Wikimedia Commons

What You Can and Can't Control

As the team proceeded with its retrospective review, they came to see that things were breaking down along the lines of "what we can control/know, and what we can't." "Each year we receive 700 applications for 12 residency places; in the end, we conduct thorough interviews with 72 people. No matter what precautions we take, however, every once in a while we find that we didn't make the right choice. It really gives us pause…how is that possible if the person did well on boards, participated in extracurricular, research, etc.? We found that if there is a problem it's typically in the areas we can't control, namely, the affective domain (personality, etc.)."

So despite doing well on orthopedic rotations, being a member of the Alpha Omega Alpha Honor Medical Society, etc…a troubled resident could still end up sitting in your office for a serious heart to heart. "There could be a work ethic issue, or the person could have problems with interpersonal relationships. There is usually a pattern of behaviors that they come with, so to speak, but this is not something that is easy to assess."

Speaking of more concrete measures, Dr. Egol notes, "Our results indicated that when looking solely at academic pre-residency selection factors such as medical school rank and scores on part

"It really gives us pause…how is that possible if the person did well on boards, participated in extracurricular, research, etc.? We found that if there is a problem it's typically in the areas we can't control, namely, the affective domain (personality, etc.)."

one of the standardized licensing exam, there was a positive correlation with higher scores on the Orthopaedic In-training Exam (OITE). And, although people like to downplay standardized tests, our study showed that the OITE is indeed a predictor of performance in our program *and* whether or not someone will pass the boards (the ultimate goal of completing training). However, this doesn't mean that if someone does poorly on the OITE that he or she can't pass the boards."

"Other factors that correlated with success in residency included successful completion of Part I of the American Board of Orthopaedic Surgery (ABOS) certification exam on the first attempt, a mean clinical performance score based on evaluations following each clinical rotation during the residency, the number of peer-reviewed articles the resident had published during residency training, and being named an executive chief resident director. Regarding the last of these, the resident was selected on the criteria that he or she must be considered a role model for his or her peers, possess a good fund of knowledge, have leadership skills, and be adept at multitasking."

Leadership and Time Management

When asked what particular leadership skills one might look for when interviewing candidates, and how they might be assessed, Dr. Egol is frank: "This is pretty difficult. The best we can do at this point is to try to evaluate the potential resident's history of leadership roles within the organizations and activities they have participated in."

The ability to handle a substantial workload cannot be emphasized enough when it comes to successful residents, says Dr. Egol. "The 'problem' with residency is that the person is still a student, yet they have a full time job…unlike when they were in medical school. The issue of being able to budget one's time is key; people work at different speeds, of course, and when they have a lot of patients, consults, paperwork, etc., a slower worker or one who is not supremely organized affects the rest of the team because the work is left for them. We sometimes see that people make the mistake of thinking, 'I worked like a dog for years to get here…now I can slow down a little.' They are disconcerted to learn that residency is actually the time when they need to work harder than ever."

The NYU team also learned that those potential residents who extend themselves in non-medical directions are

Marion S. Trikosko/Library of Congress/Wikimedia Commons

more likely to have a successful residency experience. "We found that well-rounded individuals such as those who do substantial charity work and participate in varsity athletics did better in residency. Specifically, those residents who were former varsity athletes received higher retrospective faculty evaluations on knowledge and were more likely to be named executive chief resident than were those who had not been collegiate varsity athletes. Given that success in residency involves leadership skills, team skills, a sense of individual responsibility, accountability, and time management skills—the things normally present in varsity athletes—it is perhaps no surprise that these individuals did better."

Overall, these characteristics fall under the rubric of comportment. Dr. Egol notes, "Professionalism is an area where some residents could use a bit of guidance. Does the person interact well with others? Does he or she respond appropriately to situations? Much of this falls within the realm of communications. To this end, we have on faculty an American Academy of Orthopaedic Surgeons communications instructor who, in part, works to help residents understand the subtext of their communications. This fall we are actually piloting a thorough professionalism training program within our residency."

Advice From the Experts

In conjunction with their efforts, states Dr. Egol, they tapped into the knowledge and experience of those who assess people for employment every day…the NYU human resources team. "We sat down with the people from HR to see if we could get to the bottom things. They helped us develop several questions that would help show whether potential residents possessed the ability to work as a team member, whether the person had a healthy set of interpersonal skills, etc. For example, 'Tell me about an experience you had during medical school where you had to lead a team?' or, 'Talk about a time when you had to deal with a difficult patient.'

"This year we will begin using the Defining Issues Test, a moral reasoning exam that may help us assess how potential residents would approach problems and/or deal with patients."

We also worked with them to develop several ethics-related scenarios such as, 'What would you do if you were the junior resident on a service and felt that the attending was somehow impaired?' While nine out of ten students said that they would approach the chief resident with his concerns, the fact is that they know this is the right answer, and there is always a chance that they would not actually proceed in this manner."

So what does the future hold for the educational pioneers at NYU? "This year we will begin using the Defining Issues Test, a moral reasoning exam that may help us assess how potential residents would approach problems and/or deal with patients. The NYU medical school has been administering this to medical students for several years with some success. We hope that it will help us make progress in assessing residents in the affective domain."

With recent advances in metrics, Dr. Egol and his team can be even more accurate in their assessments of potential residents. "We are using actors who simulate patients with orthopedic disease. The residents see these actors knowingly and unknowingly throughout their training. At various points in the program these 'simulated patients' give us feedback regarding the residents performance."

"Going forward," says Dr. Egol, "we need a broad-scale, multicenter study to examine whether these findings are reproducible in other orthopedic surgery residency programs throughout the U.S. That way, we can more readily pinpoint the precise reasons for success in training." ◆

Reporter's Notebook

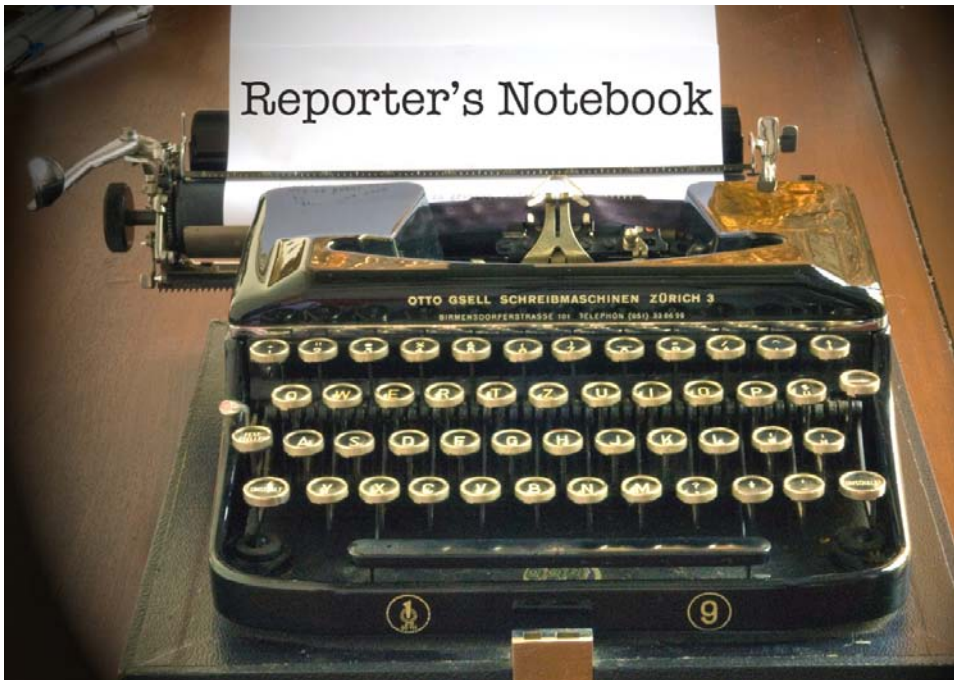
By Elizabeth Hofheinz

Dear *OTW* Reader:

Are resident work hours "the most critical issue in orthopedic education today?"

Alarm Bells Going Off Over Resident Training! L. Scott Levin, M.D., F.A.C.S., chair of Orthopaedic Surgery at the University of Pennsylvania, is ringing the alarm bells with regard to the ACGME (Accreditation Council for Graduate Medical Education) work rules for residents. Dr. Levin tells *OTW*, "This is the most critical issue in orthopedic education today. Things such as the **mandatory sleep times interrupt patient treatment** continuity… without even knowing if things such as this make a difference." While Dr. Levin says that it is too late for pushback, he adds, "The only thing that is going to make a difference is if training programs around the country approach hospital systems and demand ancillary support for patient care. The fact is that these rules are essentially making residents into shift workers. You have people unfamiliar with the details of a case covering patients at night—and that can easily lead to medical errors."

ACGME Living in a Fantasy World? Another concerned orthopedist tells *OTW*, "**The ACGME is not living in the real world.** I have seen no evidence in the literature of a statistically significant change in untoward events since these work hour restrictions went into effect. **What *has* changed is that residents are not as well trained when they finished their programs.** They go home and spend time with their families; they do recreational things. It used to be all about being a resident and learning; now families are doing better but the experience of trainees has been lessened. *There is just not as much fire in their bellies. Do they care? Yes. But it's more like a job than an all consuming profession or calling.*"



Wikimedia Commons

Residents Respond. "Don't hang residents out to dry," says a current trainee. This resident tells *OTW*, "**The biggest thing that residents are seeking is more business training in terms of contracts, how to find a good practice, coding, etc**. My friends and I talk a lot about how it would be helpful to have such things as part of the academic curriculum. As it is now, we're in a 'trial by fire' situation, grabbing help where we can. I know a resident who secured an offer from a practice, signed a contract, and received a signing bonus. But he got burned by the contract. As he completed his training he found that they kept changing the rules…he eventually had to return the signing bonus, leaving him with substantially more debt. We could really use some sort of resource…someone who could guide us with regard to contracts and the like."

Big Fight Looming in New Jersey There is a new PIP (Personal Injury Protection) coding and fee schedule proposed by the Department of Banking and Insurance in New Jersey that, says our source, could affect reimbursements for treating victims of car accidents. Says a surgeon to *OTW*, "The changes will negatively affect the reim-

bursement primarily of spine procedures and the facility fee they generate in ambulatory surgical centers. The fact is that these are accident victims who are unhappy to begin with. From the doctor's perspective, this person lands on your caseload, the results may not be what they wanted, you don't get paid properly, lawyers come calling and you may get sued…where is the motivation? The spine surgeons may reduce their exposure to these patients. The New Jersey Orthopaedic Society has sent flash letters to its members to organize and work to improve the schedule."

Polymer Over Metal? *OTW* hears, "A lot of people are talking about the recent article in the *Journal of the American Academy of Orthopaedic Surgeons* about Mayo Clinic going back to using all-polyethylene tibial components that work as well, if not better than the more expensive metal backed ones. They also have a longer track record and are significantly less expensive. In recent years they have been relegated to the Neanderthal pile, but this article points out that the old all poly tibial components worked well. But the cynic in me says that some companies think, 'Why sell a simple tibial component if we can sell one that is five times as expensive?' Unfortunately, most residents and fellows buy into the concept that if it is new and expensive it must be better—never having seen the old work well. They don't know it, they don't like it. Even when they are presented with evidence showing that some of the 'old stuff' worked well, most of them still want to use a $20,000 implant. So much is forgotten under the spell of a new designs, new instruments, planned obsolescence, profit motive and the lack of a historical perspective doomed to repeat the mistakes of the past, etc..... but more to the point we are not talking about mistakes, we are talking about what worked well at much less cost."

Hot Button Issue -- LCD An orthopedist looking at the changing economic landscape for surgeons and clinics tells *OTW*, "In my state, LCD (Local Coverage Determination) is a hot button issue. LCDs detail what must be documented in order to perform surgery. My fear is that if these guidelines are not followed to a 'T' then that will be an excuse for Medicare to deny payment. *Worst case scenario? You do a joint replacement and both you and the hospital are denied payment because third party payers say you didn't do 'XYZ' exactly right*. AAOS has been working with us on this, but the real issue is the bureaucrats at the federal level…in the end they have complete control."

Death of Private Practices? Another orthopedist blowing a bugle about government control tells *OTW*, "*Private practices are on death's door…and I think that is exactly what the feds want*. Because of shrinking reimbursement and the administrative cost of healthcare reform, many more doctors are choosing to become employed physicians. Take the cost of converting to electronic medical records. If your practice is large, you're easily talking about shelling out several million dollars in order to make this transition. There are not many practices that can handle those kinds of expenditures. I think the federal government wants all doctors to be employed, with the money flowing through the hospital systems as opposed to the doctors. Patients are the only ones who can stop this…they will gravitate toward—and then demand—excellence."

Gary Henley, Former CEO of Wright Medical Group Lands He's now around the board table at TransCorp Spine…the company has just named Henley as executive chairman of the board. Henley has 29 years in the ortho and medical device industry; years ago he worked at CeCorp, Inc., developing micro-cameras to work in conjunction with surgical microscopes for cataract procedures. He also spearheaded the development of devices such as arthroscopic cameras, light sources and other surgical products and accessories. *OTW* wishes Henley all the best…

Sunny Gupta, D.O., Newest Sports Medicine Physician at the Rothman Institute in Philadelphia, Pennsylvania. Dr. Gupta, who completed a sports medicine fellowship at Thomas Jefferson University Hospital, has been a team physician for a variety of sports teams on a professional, high school and collegiate level. He has a special interest in cutting edge treatment options and musculoskeletal injury prevention. He was previously the director of spine care and a physical therapist at Healthsouth Corp in Danbury, Connecticut. Best wishes, Dr. Gupta!

Emailing Rwanda…Vail-Summit Orthopaedics Surgeon Dr. Peter Janes and his wife (a nurse), continue to stay in touch with (and advise) those they helped on a recent Global Health Initiatives trip to this East African nation. Dr. Janes tells *OTW*, "Rwanda has no formal orthopedic programs or training; there are only about five orthopedic surgeons in this country of 9 or 10 million people. They need a well defined curriculum, and *regularly scheduled* groups of consistent visitors who will teach, not just do surgery and leave. Most fulfilling moment? When, after having to cancel a 14-year-old boy's surgery, we were able to transfer him and fix the fracture at a different hospital a week later in Kigali. I want to give a great deal of credit to Lew Zirkle and his SIGN nail program that continues to grow and mature around the world. Work in developing nations requires patience, some understanding of their cultures and expectations, realizing the resources that are available or not, and being able to work creatively with those limited resources. In the West we have, and waste, so very much. Leave your egos at home."

Zimmer, Dr. Neil Sheth and GEANCO Collaborate in Nigeria. One orthopedist for four million people. That is the situation in Anambra State, Nigeria. *Dr. Neil Sheth, a surgeon with the OrthoCarolina Group*, is one of the generous medical professionals traveling to Anambra with The GEANCO Foundation to help patients with disabling joint diseases. Zimmer Holdings, Inc. will support the mission by donating orthopedic implants and other surgical products. As he boarded his flight, Dr. Sheth told *OTW,* "One of my mentors from Penn was Dr. Enyi Okereke, a Nigerian who passed away in 2008; we were so close that I did his eulogy. It was his life and legacy that motivated me to help in Nigeria. Orthopedic conditions in that country are extraordinarily severe, and I hope to be able to make a substantial difference in patients' lives." ◆

company

DePuy's 3D Spine Deformity Correction Set Launched

DePuy Spine, Inc. announced the launch of the Viper 3D MIS Correction Set at the 46th Annual Scoliosis Research Society Meeting in Louisville, Kentucky, on September 14.

The Viper, according to the company, is the first surgical instrumentation system designed specifically for the minimally invasive three-dimensional correction of complex spinal deformities. The system received a 2011 Edison Best New Technology Award for innovation in the science and medical category.

Praveen Mummaneni, M.D., of the University of California, San Francisco and a member of the system's surgeon design team said the set, "makes performing complex corrections through small incisions less challenging and should help surgeons offer the minimally invasive option to more patients."

Viper 3D MIS Correction Set/DePuy Spine

The three-dimensional correction of the spine for complex pathologies, such as adult degenerative scoliosis (ADS) or adolescent idiopathic scoliosis (AIS), involves aligning an abnormal spinal curvature in three directions—front to back, left to right and top to bottom. The majority of these pathologies are currently treated through traditional open surgery.

The Viper 3D set, used with either the Viper MIS spine system or Expedium spine system, is designed to facilitate a minimally invasive approach, which typically results in smaller incisions, less pain, lower infection rates, less blood loss and quicker recovery than traditional open surgery, according to the company announcement.

The set consists of instrumentation and devices for a variety of correction maneuvers and techniques and includes the MIS Rod Inserter/Rotator for 360 degree correction, a spondy reduction lever to control sagittal alignment, derotation and correction frames, a multi-level compression and distraction device to control orientation at individual levels, and approximation tools for seamless rod reduction.

—WE (September 16, 2011)

Medtronic Spinal Launches Dental System

Medtronic's Spinal business announced the launch of its Artisan Space Maintenance System at the 93rd annual American Association of Oral and Maxillofacial Surgeons' meeting in Philadelphia on September 12.

The product is cleared for temporary use in oral-maxillofacial surgical reconstruction and dental regeneration procedures to maintain space during bone graft procedures. It is also designed to support soft tissue until bone formation occurs.

Artisan Space Maintenance System/Medtronic Spinal

The system is composed of three primary space maintenance implants: porous titanium mesh and bone fixation screws; an umbrella-shaped screw, called a Tenting Screw, which protects bone grafts; and an implant called a Socket Preservation Screw.

The company says the latter is a potential breakthrough for cosmetic dentistry because it allows for a simpler surgical approach by eliminating the need to perform a second flap to re-enter.

Daniel Spagnoli, D.D.S., M.S., Ph.D., with the University of Oral and Maxillofacial Surgery in Charlotte, North Carolina, said there a number of titanium mesh products on the market, but

the Artisan was designed specifically for the containment of bone grafts and "has handling characteristics that make it easy for the surgeon to adapt it to the surgical site."

The system can be used with bone void fillers and extenders such as Mastergraft ceramics and the Progenix DBM line of products. The system is not indicated for use with InFuse bone graft.

"Medtronic is quickly becoming a key player in this market, and we're enthusiastic about its future," said Brad Cannon, vice president, global commercial operations at Medtronic Spinal.

According to the company announcement, bone grafting for oral-maxillofacial anatomy is a common occurrence and is often required to correct bone loss caused by poor dental hygiene, neglect, trauma, and/or other co-morbidities. In the U.S. alone, a projected 1.4 million bone grafting cases are expected in 2011. Specialists such as periodontists and oral surgeons use products to protect bone grafts and support soft tissue architecture in the mandible, maxilla, and other cranio-maxillofacial anatomy. Without proper space maintenance measures, soft tissue or other forces could collapse upon the graft site thereby disrupting the bone regeneration.

Medtronic's Spinal business offers products and technologies for neurological, orthopedic, dental and spinal conditions.

—WE (September 13, 2011)

biologics

Do-It-Yourself Stem Cells

Cryo-Save, a stem cell bank headquartered in Europe, is launching its Cryo-Lip® service, a process that offers people in the U.S. the opportunity to store their stem cells from fat tissue for future use.

In its announcement the company says it has completed an "FDA-ready" validation study concerning the methodology being used and has partnered with Texas-based Genesis Biosystems to market the Cryo-Lip® service in the U.S.

Cryo-Save describes the Cryo-Lip service as a technology that allows people to store their own adipose tissue or adult stem cells for current or future use. After collection, the fat tissue is processed at the FDA-accredited tissue bank of General Biotech Technologies in Indianapolis. The tissue and cells can be preserved for many years and will be released back for reinjection upon request.
James D. Lafferty, CEO of Genesis Biosystems, sees a growing market; "Using a patient's own fat for injection for cosmetic enhancement increased by over 27% from 2009 to 2010, which indicates patients and physicians continue to see more benefit from natural tissue as opposed to synthetic injectable products. Additionally, with more than 300,000 liposuction procedures performed annually in the U.S., there are large numbers of patients that will choose to cryo-preserve their fat for future cosmetic and medical use as regenerative stem cell therapies become more prevalent."

According to Lafferty, Cryo-Save presently stores more than 185,000 samples from cord blood and umbilical cord tissue for newborns and adipose tissue for adults. The use of stem cells from adipose tissue is increasingly popular in cosmetic surgery, he says. Cryo-Save is now represented in over 40 countries on four continents, with processing and storage facilities in the United States, Belgium, Germany, Dubai, India, South Africa and France.

—BY (September 14, 2011)

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large joints

Cam Impingement and OA

morgueFile.com and David Kitchenham

Asymptomatic for hip OA? Get checked anyway…Femoro-acetabular impingement (FAI) may be a risk factor of osteoarthritis (OA) of the hip, says a new study out of Switzerland. It seems that the presence of an underlying deformity, known as cam impingement, is associated with hip damage in young men without any arthritis symptoms and detected using magnetic resonance imaging (MRI).

"Given that cam-type deformities are common in young asymptomatic males, we examined whether the deformities were associated with early signs of MRI detected hip damage," explained lead author Dr. Stephan Reichenbach from the Institute of Social and Preventive Medicine at the University of Bern in Switzerland, in the September 8, 2011 news release. The researchers recruited participants from a population-based group of male individuals enrolling in the Swiss army at a single recruiting center. A total of 244 males with a mean age of 20 years reported having no hip pain and were qualified for the study. MRIs were conducted and one hip in each participant was examined for cam-type deformities, labral lesions, signs of cartilage damage and impingement pits.

Researchers detected 67 definitive cam-type deformities in study participants with these men having higher body mass index and decreased internal rotation. Labral lesions were detected in 85% of participants with cam-type deformities and in only 67% of those without the deformity. Labral avulsions were found in 76% of participants with the deformity and 58% of those without. In participants with cam-type deformity versus those without, impingement pits were observed in 30% and 12%, respectively.

"Our study is the first population-based MRI study to confirm the role of cam-type deformities of the hip as a potential risk factor for joint damage," concluded Dr. Reichenbach. "Longer-term studies are needed to determine if cam-type deformity increases risk of developing hip OA."

Regarding what led to this work, Dr. Reichenbach told *OTW*, "Based on experimental and clinical studies, including in situ inspection in a series of 600 consecutive adolescents and young adults undergoing surgical dislocations of the hip, orthopedic surgeons proposed femoro-acetabular impingement to cause early OA in the non-dysplastic hip. Furthermore, it was thought that morphologic deviations of the proximal femur with a decreased anterior head-neck offset may lead to repetitive trauma of the peripheral articular cartilage during flexion and internal rotation, particularly in individuals taking regular exercises. However, estimates of the prevalence of these morphologic deviations and their association with damage of the hip was unclear. We certainly need follow-up data of this cohort to determine the relevance of our findings in terms of pain and progression of hip damage."

—EH (September 16, 2011)

Bike Hard To Burn Calories

Exercise burns calories, provided you exercise hard enough. Researchers found that men who biked intensely on a stationary bike for 45 minutes burned an additional 190 calories over the 14 hours following their workout. That was in addition to the 519 (average) calories they burned while doing the biking.

"This is the best evidence we have that a lot of calories are burned after intense exercise," says the study's lead author David Nieman, an exercise researcher with Appalachian State University in Kannapolis, North Carolina.

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To get the extra calorie-burning benefits, the workout needs to be intense enough that "you're sweating, your body temperature is up and your heart beats fast," says Nieman. The findings may also apply to other high-intensity, sweat-producing activities such as running, jogging and playing intense games of basketball and soccer.

Nieman and his colleagues at Appalachian State and researchers at the University of North Carolina-Chapel Hill studied the caloric expenditures of 10 men, ages 22-33, using a device called a metabolic chamber—a silicone-sealed room that looks like a small hotel room. Food is sent into the room through an airlocked entrance, researchers are able to measure the participant's oxygen consumption and carbon dioxide production in the room and determine their calorie expenditure.

Cryptologic Technician 3rd Class Domonique Clarke. Source: Wikimedia Commons and David Didier

Each participant spent 2 days in the room. On day one they did little physical activity for 24 hours, mainly sitting or sleeping. On the second day they followed a similar routine except they cycled vigorously for 45 minutes, beginning at 11 a.m.

Researchers were able to measure the participants' oxygen consumption and carbon dioxide production in the room and determine the calorie expenditure of each person.

The subjects used an average of 709 more calories on workout days than rest days. "That means a person would lose one pound after five intense exercise bouts if he resisted the temptation to eat more," said Nieman. "This shows that intense exercise can have a meaningful impact on your body fat stores if you don't counter it with an extra piece of cake."

Although the study involved men, Nieman says that "there's every reason to believe that the findings apply to women, too." The study was reported in the September issue of *Medicine & Science in Sports & Exercise*, the journal of the American College of Sports Medicine.

—BY (September 14, 2011)

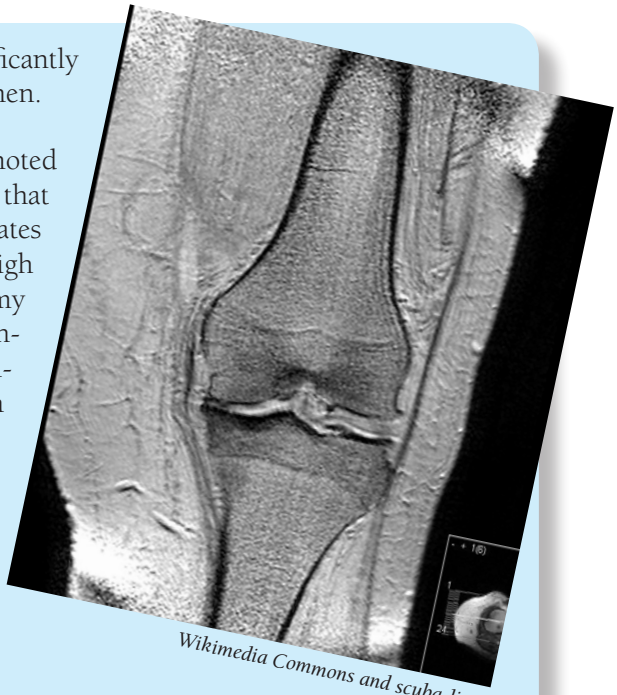
large joints

Tibial Osteotomey Postpones TKR

Performing high tibial osteotomies on young osteoarthritis patients appears to postpone total knee replacement for 10 years or more, according to a study reported from Copenhagen, Denmark. The lead researcher is Annette W-Dahl, PhD.

Dahl and her team identified 3,196 tibial osteotomy patients 30 years or older through inpatient and outpatient registers from the Swedish National Board of Health and Welfare. These surgical records were used to determine the operated side, as well as the diagnosis and indications for surgery. The team used the Swedish Knee Arthroplasty Register to identify conversions of high tibial osteotomy to knee arthroplasty.

The mean age in the cohort was 52 years, with 97% of the patients being younger than 65 years of age. At the 10-year mark following adjustments for age and gender, W-Dahl found that the cumulative revision rate was 29.4%. Increasing age was a factor in the increased risk of revision that was significantly higher in women.



Wikimedia Commons and scuba-limp

The authors noted in the study that the success rates indicate high tibial osteotomy could potentially be considered an alternative to total knee arthroplasty in younger, physically active patients.

"Seventy percent of high tibial osteotomies were not converted to arthroplasties after 10 years, and this must be regarded as a success since high tibial osteotomy postpones total knee replacement for 10 years or more in the majority of young osteoarthritis patients," W-Dahl said.

—BY (September 15, 2011)

extremities

Tool for Chronic Pain Therapy

Ameritox, a pain medication monitoring company, in conjunction with Beth Israel Medical Center, has announced the results of a study showing that the company's database tool, Rx Guardian CD, generalized well to a geographically and demographically distinct group of patients. Study findings were presented at PAINWeek (September 7-10, 2011), the national conference on pain for frontline practitioners.

According to the company, Rx Guardian CD, based on urine drug monitoring

Wikimedia Commons and Delsiegrates

results from a large database of adherent oxycodone-prescribed patients, when combined with other clinical indicators of non-adherence, should enhance clinicians' ability to help identify potential non-adherent patients using chronic opioid therapy.

Russell Portenoy, M.D., Chairman of the Department of Pain Medicine and Palliative Medicine at Beth Israel Medical Center in New York, was principal investigator of this study sponsored by Ameritox.

"Prescription opioid therapy is a critical lifeline for millions of patients suffering with chronic pain, but careful monitoring is important for both individual and public safety—in addition to health concerns, misuse, abuse and diversion of prescription opioid therapy costs payers millions," said Dr. Harry Leider, a contributing author of the study and Chief Medical Officer of Ameritox, in the September 9, 2011 news release. "By developing tools based on new drug monitoring technologies that can help physicians better detect non-adherence, we are contributing to improved quality of care and potentially reducing costs to the healthcare system."

Dr. Leider told *OTW*, "The key points for orthopedists are: Patients with issues such as chronic low back pain often receive chronic opioid therapy. While these medications are often necessary, the rate of prescription opioid misuse, abuse, and diversion has increased significantly over the last decade. Professional guidelines created by the pain societies recommend that clinicians prescribing chronic opioids routinely use urine drug monitoring to make sure their patients are not misusing or abusing their opioids. Standard drug testing cannot distinguish between a patient who is taking the correct amount of opioid from other who are taking just a little (and diverting the rest for economic gain) or taking too much (due to abuse or addiction)."

He also commented to *OTW*, "Rx Guardian CD uses a proprietary algorithm and a database of patients who were rigorously assessed and found to be adherent to opioid therapy to provide clinicians with information that can be used to assess the likelihood of opioid adherence vs. potential misuse, abuse, or diversion. The study demonstrated that 90% of patients in the study at Beth Israel who were on chronic therapy with OxyContin and were rigorously assessed as adherent, were correctly confirmed as adherent by the Rx Guardian CD tool. This study showed that this proprietary tool, developed in Wisconsin and based on a patient population that was largely Caucasian and rural, can be used in distinctively different setting and patient populations."

—EH (September 15, 2011)

Women Victims of Carpal Tunnel

Women are three times more likely to have carpal tunnel syndrome (CTS) than men, according to Michael L. Campbell, M.D., of Maryville Orthopaedic Clinic, a division of OrthoTennessee. Carpal tunnel syndrome occurs when pressure is applied to the median nerve, one of the three primary nerves supplying sensation to the hand. CTS affects up to 10% of the population.

Campbell notes that wrist bones are naturally smaller in most women than they are in men, creating a tighter space through which nerves and tendons must pass. And there may be a genetic link for more musculoskeletal injuries. For example, Campbell says that patients with a genetic tendency toward square wrists, a short stature, or thickened transverse ligaments may be at higher risk for developing CTS. Inherited conditions like thyroid disease and diabetes are also associated with CTS.

Finally, women deal with strong hormonal changes during both pregnancy and menopause and these changes can cause a build-up of fluid or enlargement of the wrist structure that leads to pressure on the nerve and symptoms of CTS. Usually in the case of pregnancy, CTS goes away following childbirth. If left untreated, Campbell says that CTS sufferers can lose feeling in their fingers and develop permanent weakness in the thumb. Over time, thumb muscles can actually waste away.

—BY (September 14, 2011)

morgueFile and chelle

spine

Study: PediGuard Makes Spine Surgery Safer

"The use of PediGuard significantly reduced the incidence of clinically relevant misplaced [pedicle] screws."

That's the conclusion of a clinical study published in the September 15 issue of the peer-reviewed medical journal, *Spine*. It's the third clinical study published about SpineGuard S.A.'s PediGuard FDA-cleared and CE-marked platform.

PediGuard Curve and Classic/SpineGuard S.A.

According to a company announcement on September 15, the high incidence of misplaced pedicle screws is well-documented in the scientific literature and occurs in about 20% of cases. Misplaced pedicle screws can result in spinal cord damage and the resulting various degrees of neurological impairment.

Stéphane Bette, chief technology officer and general manager of U.S. Operations for SpineGuard, said, "The scientific literature is rife with clinical evidence that the conventional modalities for implanting pedicle screws are potentially dangerous not only to spine surgery patients but also OR staff."

The principal investigator of the study, Dr. Dror Ovadia of the Department of Pediatric Orthopaedics, Dana Children's

Hospital, Tel Aviv, Israel, concluded that using the device increased the safety of pedicle screw implantation.

"The published clinical evidence that spine surgery can be made safer for patients is becoming incontestable," added Pierre Jérôme, CEO of SpineGuard. "This latest clinical evidence supporting the use of PediGuard as standard of care for placing pedicle screws should spawn widespread adoption of PediGuard by the spine surgery community. It is a 'must-have' solution to the well-documented clinical need for safer pedicle screw placement—the number one challenge in spine surgery."

PediGuard, according to the company, is the world's first and only handheld device capable of alerting surgeons to potential pedicular or vertebral breaches. Real-time feedback is provided via audio and visual signals. The device alerts the surgeon prior to a breach by accurately analyzing the electrical conductivity of the surrounding tissues.

Nearly 17,000 procedures have been performed by more than 200 spine surgeons with PediGuard. Multi-center clinical studies have been published demonstrating that the device doubles the pedicle breach detection rate, limits radiation exposure by 30%, and decreases by up to 10% the average time for pedicle screw placement.

The company notes that statements made by surgeons are based upon their own experiences with the PediGuard products and may not comply with the specifics of the U.S. FDA-approved indications for use. These statements are opinions and are provided for information only.

—WE (September 16, 2011)

Zimmer Scoliosis System Cleared for Kids

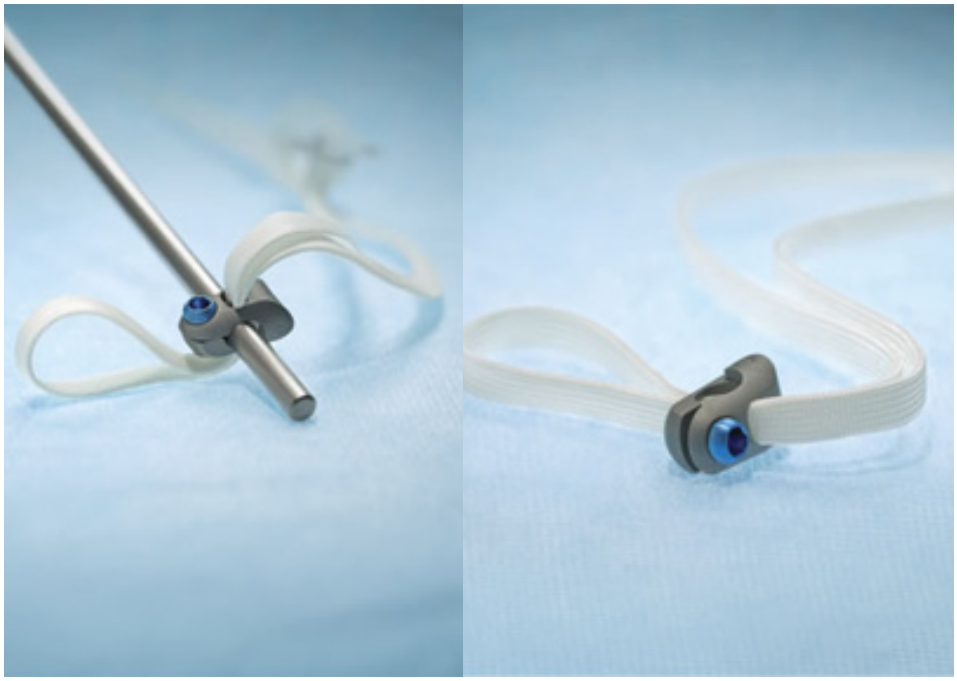
The FDA has cleared an additional indication for Zimmer Holdings, Inc.'s Universal Clamp Spinal Fixation System. The system is now cleared for treatment of idiopathic and neuromuscular scoliosis in patients eight years of age or older.

Introduced in Europe in 2006 and the U.S. in 2008, the system was designed for use in conjunction with spinal deformity procedures. Since its introduction, the system has been used in more than 24,000 procedures worldwide and is used in conjunction with spinal fusion surgeries.

According to a company announcement on September 14, the system uses a pedicle-sparing approach for malformed or small thoracic pedicles while still providing similar stability to pedicle screw constructs. A clamp band spreads contact forces over a greater surface area, thereby, says the company, reducing the risk of pulling through the lamina compared to wires and hooks. The system's reduction instrumentation allows surgeons to sequentially reduce deformity and spread the reduction forces over multiple levels.

Scoliosis is a condition characterized by spine curvature and back pain. In the U.S., scoliosis affects approximately 2% to 3% of the population with more than 27,000 cases a year determined to be serious enough to require surgery. Scoliosis is commonly diagnosed in childhood and early adolescence, with between three and five of every 1,000 children developing spinal curves that are considered large enough for treatment. The most common surgical intervention performed to correct severe scoliosis is spinal fusion.

—WE (September 15, 2011)



Universal Clamp Fixation System/Zimmer Holdings, Inc.

Girls With Scoliosis Smaller

Girls with idiopathic scoliosis are smaller than girls their age who do not have the spinal deformity which suggests that nutritional changes and endocrine factors affecting body composition and growth also might be involved in the etiology of idiopathic scoliosis.

Researchers studied 52 girls with adolescent idiopathic scoliosis (AIS) with an average scoliosis curve of 27 degrees Cobb and compared them with 92 girls without spinal deformity. The mean age was 13.9 years. The girls with scoliosis had a significantly lower average weight and lower body mass index than did the girls in the control group.

Moreover, the girls with AIS experienced a progressive decrease in body mass index (BMI) with age. Their percent of body fat was also lower. Eleven girls in the study group showed a BMI below 17.5, which is the limit for anorexia. Only three girls from the control group had a similar BMI.

None of the AIS girls had been treated previously with spinal surgery. Researchers measured the girls' weight, height, and skin-fold thickness in millimeters at six levels. They calculated BMI, Ponderal index, percentage of body fat, percentage of muscular tissue, fat mass, lean body mass, muscular weight, bony weight, and residual weight using standard rules to estimate body composition.

Wikimedia Commons and University of Utah Hospital

This study is believed to be the fCrst time that a body composition profile taken from measurements of skin-fold thickness, bony diameters at different levels, and arm and legs perimeters has been reported for AIS patients. The study is published in the August 15 issue of *Spine*.

—BY (September 13, 2011)

Stem Cells Used To Grow Bone

In a leading-edge procedure performed in August, neurosurgeons at UC Davis Health System used stem cells to promote the growth of neck vertebrae following the removal of cervical discs in a 53 year-old man who was experiencing degenerative disc disease.

Kee Kim and Rudolph Schrot, associate professors of neurosurgery, utilized bone marrow-derived adult stem cells to promote the growth of the bone tissue, essential for spinal fusion. The surgery was part of a multicenter clinical

Mesoblast Inc and RRY Publications

trial sponsored by Mesoblast, Ltd., of Melbourne, Australia, which is developing universal-donor stem cell products built upon the discovery of adult-derived mesenchymal precursor cells. Kim and Schrot were not compensated for their participation in the study.

In the surgery, called an anterior cervical discectomy, the doctors removed a cervical disc (or multiple discs) via an incision in the front of the neck. They then applied the investigational stem cell therapy to promote fusion of the vertebrae across the space created by the disc removal.

"We hope that this investigational procedure will eventually help those who undergo spinal fusion in the back as well as in the neck," said Kim, who is also chief of spinal

neurosurgery at UC Davis. "And the knowledge gained about stem cells also will be applied in the near future to treat without surgery those suffering from back pain."

Millions of Americans are affected by spine diseases, with approximately 40% of all spinal fusion surgery performed for cervical spinal fusion. Some 230,000 patients are candidates for spinal fusion, with the numbers of potential patients increasing by 2-3% each year as the nation's population ages.

"This is an exciting clinical trial to test the ability of the bone-forming stem cells from healthy donors to help patients with spinal disease," said Jan Nolta, director of the UC Davis Institute for Regenerative Cures. "For the past 50 years, bone marrow-derived stem cells have been used to rebuild patients' blood-forming systems. We know that subsets of stem cells from the marrow also can robustly build bone. Their use now to promote vertebral fusion is a new and extremely promising area of clinical study," she said.

The stem cells that were used were derived from a healthy single adult donor's bone marrow, and thus were very homogenous, Kim said. They are grown in culture to high concentration with minimal chance for rejection by the recipient.

Adequate spinal fusion fails to occur in 8-35% or more of patients and persistent pain occurs in up to 60% of patients with fusion failure, which often necessitates additional surgery.

"A lack of effective new bone growth after spine fusion surgery can be a significant problem, especially in surgeries involving multiple spinal segments," said Schrot. "This new technology may help patients grow new bone, and it avoids harvesting a bone graft from the patient's own hip or using bone from a deceased donor."

—BY (September 13, 2011)

people

Mahoney's Move to Boston Scientific Stirs Takeover Rumors

Mike Mahoney is leaving Johnson & Johnson (J&J) to replace Ray Elliott as president and CEO of Boston Scientific Corp.

Elliott, the former head of Zimmer Holdings, Inc. before taking over Boston Scientific, had announced his intention to step down in May.

To accommodate post-employment obligations to J&J, Mahoney will become Boston Scientific's president on October 17 and is expected to become CEO next year on November 1, 2012. Elliott will remain on the company's board and assist Mahoney through the end of the year.

Unusual Transition

Larry Biegelsen, senior analyst at Wells Fargo, said what's interesting to him about this September 14 announcement is that J&J and Boston Scientific have both agreed to this unusual transition plan. "It strikes us as a friendly agreement between two companies that have been fierce rivals over recent years and have litigated against each other extensively in the stent space. Given J&J's recent exit from the stent business, we think this announcement could fuel additional speculation about J&J's eventually acquiring Boston Scientific."

Mahoney was in charge of J&J's DePuy orthopedics business before taking over as head of J&J's medical device and diagnostic group in January. Before joining DePuy, Mahoney was with General Electric Medical Systems. He will be in charge of Boston Scientific's cardiac rhythm management and endoscopy businesses starting in October, and will take over the neuromodulation business next August.

Mike Mahoney

—WE (September 14, 2011)

THE PICTURE OF SUCCESS

Dr. Kaye Wilkins

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

Examining a patient with clubfeet with Bob Cady in Jacmel, Haiti/Source: Dr. Kaye Wilkins

In 1972, in the wastelands of southern Texas, there was little that could be done for a child who broke a leg or a grandmother suffering with hip pain. And more recently, in the wasteland of post-earthquake Haiti, there was much to be done and few hearty enough to do it. In these and other situations, Dr. Kaye Wilkins, winner of the 2008 Humanitarian Award from the American Academy of Orthopaedic Surgeons (AAOS), ignored the obstacles and got to work and found ways to employ his skills and knowledge.

A pediatric surgeon, whose motto is, "leave skills in addition to scars," Dr. Wilkins is co-editor of the most widely used pediatric fracture textbook in the world—Fractures in Children. He is also a former president of the Pediatric Orthopaedic Society of North America (POSNA), and a recipient of a Distinguished Service Award from that organization.

Of course Kaye Wilkins could foresee none of this as he bent over his earliest charges—pigs—and went about castrating them in the 100 degree heat. "My father was a government agricultural economist who encouraged me to have a career where I could be independent. I enjoyed animals, and ended up attending veterinary school and then taking a job providing veterinary services to farm animals in rural Northern Indiana. Not only was my bride unhappy in this small town, but I could see that I would eventually become physically drained if I continued with a large animal practice…castrating pigs in the 100 degree heat and dehorning cattle in snow storms was pretty draining. We moved to Tyler, Texas, where I started a small animal practice—the problem was that the town didn't need another practice. I was completely frustrated, and at the age of 28 walked through the doors of medical school."

Years later his decision to switch careers would be validated in the smiles of his patients, who so often have very little. Citing his experience in Haiti as his most life-altering endeavor, Dr. Wilkins opens a window into his work abroad, "I wanted to be a missionary at one point, but I had a family so going abroad for short trips turned out to be a good compromise. I started going to Haiti in 1995 for visits of one week as a result of a connection with my church. Even before the earthquake, Haiti was not an easy environment…it took three years before I developed any credibility with any of the local orthopedic surgeons and other health care providers. Many well meaning individuals head down to Haiti arriving initially with grand plans. Once they see the myriad of problems that come with working in Haiti, they become frustrated and don't return. As a result, the Haitians view anyone coming there with some skepticism until they see that these individuals are there for the long term."

As much as helping means to Dr. Wilkins, he knows that there are limits and nuances to giving. "Before the earthquake, the Haitian orthopedic surgeons who had completed their orthopedic training faced the reality that the hospitals couldn't provide the necessary equipment and people couldn't pay for care. Thus, these newly trained orthopedic surgeons started leaving the country. After the earthquake, the country's only residency program closed. In the chaos that followed, the approximately 35 remaining orthopedists in the country were dealing with lost practices and lost family members. And while it seems like help from abroad would be a good short-term answer, for the most part doctors who came to Haiti didn't really involve the Haitians. This influx of free

care provided by the visiting orthopedic surgeons destroyed what was left of Haitian private practices. Local people thought, 'Why go to Dr. X when I can go to a hospital with foreign-trained doctors and modern equipment?' One of my present goals in Haiti is to develop opportunities for the Haitian orthopedic surgeons to be able to earn a decent living in Haiti so they will stay there on a permanent basis."

As for how he ended up in orthopedics, Dr. Wilkins says, "First of all, when I made the decision to leave veterinary medicine, I was a little delusional about medical school. I thought, 'Four years…no problem.' The fact that it was 11 years before I had an income was pretty tough. But I enjoyed it, and worked in a pediatrician's office during medical school. It was the orthopedic rotations that really 'got me,' however. The happy, engaged orthopedic surgeons I met were part of the reason I enjoyed it so much; the other reason was because of the overwhelmingly positive results as compared to other specialties. I could not have accomplished this goal without the support of my wife Sidney. She worked as a teacher and cared for our children while I was busy getting my medical education."

And for 23 years he would take his positive results to "the people." Dr. Wilkins: "I had a private practice in San Antonio, and at the same time had an appointment with the local medical school. When I left the medical school as a full-time faculty member in 1978, there were not many people doing pediatric orthopedics, especially private practitioners. All of my colleagues who worked with adults swore that I would never be able to make a living. How wrong they were. We were inundated with patients because no other orthopedists in the area took care of kids."

Dr Wilkins making rounds at the Benh Vien Nhi Dong Hospital in Dong Nai, Vietnam/Source: Dr. Kaye Wilkins

Although he was pleased to be helping local patients, Dr. Wilkins eventually learned of a great need just south of him. "I found out that people living in the border towns had no access to an orthopedist. I'm really proud to have established several pediatric orthopedic outreach clinics in the area…over the years hundreds of patients have received treatment at these clinics."

Because he ventured into pediatric orthopedics early in field, Dr. Wilkins encountered a wide open field with lots of room for growth. "I became involved in the organization of a pediatric orthopedic study group that eventually became The Pediatric Orthopedic Society of North America (POSNA). I also initiated the development of an Outreach Continuing Education Program in Pediatric Orthopaedics whereby POSNA members volunteer abroad, pay their own travel expenses, and share their wealth of knowledge. Over the years that program has organized over 30 postgraduate pediatric orthopedics courses in 20 countries."

Dr. Wilkins' enthusiasm for his field is described in his wife Sidney's frequent refrain: "Kaye, you are a big kid!" "Working with children is special for many reasons. They all want to get well, they heal rapidly, and there is a wider margin of error (the bone doesn't have to be just exactly straight because it will remodel). And frankly, they are just fun…I have lots of toys that help to divert their attention away from the fact that they are in a doctor's office. One of my most memorable patients was a young girl who was crossing the street when a car hit her; she had four fractures and a head injury. We secured her fractures with multiple intramedullary nails and she has gone on to great health and is quite the athlete now."

As much as Dr. Wilkins loves his field, he is disappointed that others do not share his sentiment. "I think young surgeons shy away from pediatric orthopedics because it is not well reimbursed and there is a substantial liability risk. The fact is that there is a statute of liability that extends until a child is 21. The good news is that pediatrics orthopedists are more in demand than ever, the reimbursement is slowly increasing, and we can correct more pediatric conditions than ever before. My hope is that pediatric orthopedics will receive more attention…putting a child's hip back into a socket, repairing growth plates, etc…these things prevent people from having a lifetime of disabilities."

And wherever they live out those lifetimes, Dr. Wilkins is willing to help them. "I'm working to develop relationships in Sri Lanka, a country with 20 million people and no formal children's orthopedics program. Last year several colleagues and I went and taught a course on standard techniques that they had never seen before. We are trying to coordinate efforts between POSNA, the European Paediatric Orthopaedic Society, and the Paediatric Orthopaedic Society of India. Also, soon we will have an orthopedist from Sri Lanka coming to train in San Antonio. Through the years we have had about 40 foreign physicians visit, and—through the generosity of the nuns who run Santa Rosa Hospital—stay at their convent."

Hearkening back to his motto about leaving skills, Dr. Wilkins states, "There are many instances where doctors go to lesser resourced countries, perform surgery, and then leave nothing but scars. We have a responsibility to make such trips teaching situations. The goal of traveling to countries with limited resources should be to organize educational conferences and meet with your colleagues abroad…we have to teach ourselves out of a job. It is incredibly satisfying to return to these countries and see that they are doing things that I showed them."

Love and habit, says Dr. Wilkins, got him where he is. "Persisting no matter what is one of my big 'secrets.' The other is the constant support of my wife. She has accompanied me on a number of these outreach trips and is a wonderful sounding board for my thoughts."

Often, those ideas are flushed out as they relax at their house in Colorado. "We revel in the open air, and enjoy hiking in the mountains and 'taking in' the beauty. I also take a great deal of pleasure in meeting my colleagues abroad. I am looking forward to upcoming outreach education programs in Nepal, Spain, and eventually, Africa."

Dr. Kaye Wilkins…a gifted orthopedic surgeon who keeps on giving. ◆

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