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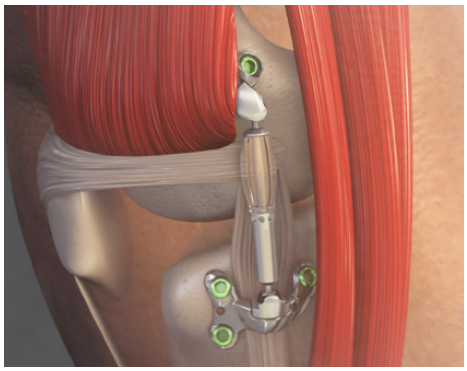
Orthopedics This Week

WEEK IN REVIEW



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: If there is any single lesson from the mid-year sales and earnings reports, it is that procedure volumes for classic musculoskeletal procedures were stronger than most companies and analysts expected for 2023. Stryker, DePuy, Synthes, Smith & Nephew, and Zimmer Biomet each reported strong procedure growth and large joint and trauma product sales. Investors, however, appear to be moving cash to the sidelines. This week consumer sentiment numbers and more Fed news is due. With producer prices heating up, investors wonder if the Fed will decide to tighten more.

RANK	LAST WEEK	COMPANY	TTM OP MARGIN	30-DAY PRICE CHANGE	COMMENT
1	3	Bioventus	(5.33%)	22.83%	What a difference a CEO makes. The moment Tony Bihl returned, BVS's valuation executed a neat 180—to the upside. How long will he stay? Long time, we hope.
2	5	Pacira Biosciences	23.50	2.79	Nice jump for PCRX. Good relative stock strength. On a valuation basis, still too cheap given PCRX's dominate market position in the nnovative surgical pain management space.
3	1	ZimVie	(5.96)	12.04	FDA approves new version of the Mobi-C motion preserving spinal implant. Smaller profile. More options for surgeons confronting different anatomies.
4	2	Integra LifeSciences	17.32	1.75	Shareholders were encouraged by management's $125 million stock repurchase announcement. Good relative strength movement. Still, 3rd cheapest equity in ortho.
5	6	Johnson & Johnson	24.97	9.98	DePuy Synthes had a great mid-year report. Overall, sales rose 5.7%, with Synthes's trauma leading the way at +6.5%. Knees and hips next. Bringing up the rear was spine, +2.0%.
6	8	Smith & Nephew	12.75	(7.18)	SNN reported that first half sales had risen a strong 7.3%, well above expectations, but in line with other recon reports. Leading the way was sports medicine, +12%.
7	4	Conmed	7.42	(15.73)	Despite good 1st half report—sales up 18% (!) and a decent Q2 earnings rate ($14 million), the stock is off 16%. Compared to other MSK equities, CNMD is 5th cheapest.
8	7	Orthofix	(11.48)	(1.34)	The merger with SeaSpine is only 7 months old, but already the pace of new product introductions has, it seems, accelerated. 1st half report was good.
9	10	Xtant	(9.71)	46.73	Wow, wow! Xtant closed on the SRGA biologics and spine business. Sales now up in the $75+ million range. I really like this Montana-based company. Smart and nimble management.
10	9	Zimmer Biomet	19.02	(13.12)	Go figure. ZBH reports rising procedure volumes, 6% sales growth—versus Wall Street's 4.5% forecast—and raises full year guidance. Yet stock drops 13%.

Robin Young's Orthopedic Universe

TOP PERFORMERS LAST 30 DAYS

	COMPANY	SYMBOL	PRICE	MKT CAP	30-DAY CHG
1	Xtant Medical Hldgs	XTNT	$1.18	$152	46.37%
2	Bioventus	BVS	$4.52	$355	22.83%
3	ZimVie	ZIMV	$12.00	$318	12.04%
4	Johnson & Johnson	JNJ	$173.85	$451,831	9.98%
5	Pacira Biosciences	PCRX	$37.57	$1,744	2.79%
6	Medacta	MOVE	$141.34	$2,827	2.20%
7	Integra LifeSciences	IART	$43.66	$3,554	1.75%
8	Dynatronics Corp	DYNT	$0.78	$3	1.69%
9	Orthofix	OFIX	$19.92	$732	-1.34%
10	MicroPort Scientific	0853	$1.74	$3,190	-1.62%

WORST PERFORMERS LAST 30 DAYS

	COMPANY	SYMBOL	PRICE	MKT CAP	30-DAY CHG
1	AxoGen	AXGN	$6.07	$261	-34.45%
2	Anika Therapeutics	ANIK	$18.38	$269	-29.01%
3	Nevro Corp	NVRO	$19.71	$712	-22.19%
4	SI-BONE, Inc	SIBN	$21.53	$865	-21.31%
5	Alphatec Holdings	ATEC	$14.90	$1,793	-19.98%
6	ConMed	CNMD	$112.92	$3,471	-15.73%
7	Aurora Spine	ASG.V	$0.17	$11	-14.86%
8	Zimmer Biomet	ZBH	$123.93	$25,897	-13.12%
9	SINTX Technologies	SINT	$1.21	$5	-12.95%
10	OrthoPediatrics Corp	KIDS	$38.72	$904	-11.09%

LOWEST PRICE / EARNINGS RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	P/E
1	Integra LifeSciences	IART	$43.66	$3,554	19.68
2	Medtronic	MDT	$83.45	$111,022	19.99
3	Johnson & Johnson	JNJ	$173.85	$451,831	20.09
4	Zimmer Biomet	ZBH	$123.93	$25,897	26.21
5	Globus Medical	GMED	$57.04	$5,729	26.93

HIGHEST PRICE / EARNINGS RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	P/E
1	Pacira Biosciences	PCRX	$37.57	$1,744	71.25
2	Medacta	MOVE	$141.34	$2,827	57.92
3	Smith & Nephew	SNN	$28.44	$12,420	55.69
4	ConMed	CNMD	$112.92	$3,471	41.76
5	Stryker	SYK	$282.11	$107,139	33.25

LOWEST P/E TO GROWTH RATIO (EARNINGS ESTIMATES)

	COMPANY	SYMBOL	PRICE	MKT CAP	PEG
1	Smith & Nephew	SNN	$28.44	$12,420	-6.96
2	ConMed	CNMD	$112.92	$3,471	1.50
3	Medacta	MOVE	$141.34	$2,827	2.06
4	Globus Medical	GMED	$57.04	$5,729	2.15
5	Stryker	SYK	$282.11	$107,139	3.33

HIGHEST P/E TO GROWTH RATIO (EARNINGS ESTIMATES)

	COMPANY	SYMBOL	PRICE	MKT CAP	PEG
1	Medtronic	MDT	$83.45	$111,022	11.29
2	Integra LifeSciences	IART	$43.66	$3,554	5.47
3	Johnson & Johnson	JNJ	$173.85	$451,831	5.10
4	Pacira Biosciences	PCRX	$37.57	$1,744	3.96
5	Zimmer Biomet	ZBH	$123.93	$25,897	3.62

LOWEST PRICE TO SALES RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	PSR
1	Dynatronics Corp	DYNT	$0.78	$3	0.07
2	ZimVie	ZIMV	$12.00	$318	0.35
3	Aurora Spine	ASG.V	$0.17	$11	0.56
4	Bioventus	BVS	$4.52	$355	0.69
5	Orthofix	OFIX	$19.92	$732	1.59

HIGHEST PRICE TO SALES RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	PSR
1	SI-BONE, Inc	SIBN	$21.53	$865	8.13
2	OrthoPediatrics Corp	KIDS	$38.72	$904	7.39
3	Medacta	MOVE	$141.34	$2,827	6.47
4	Stryker	SYK	$282.11	$107,139	5.81
5	Globus Medical	GMED	$57.04	$5,729	5.60

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

#1 Co-Morbidity in Spine Patients? 77% – Psychiatric Distress

BY ELIZABETH HOFHEINZ, M.P.H., M.ED.

Source: Shutterstock

A new, 296-patient study from Tufts Medical Center and Tufts University School of Medicine has articulated the importance of psychiatric distress and its misdiagnosis in spine surgery patients. How crucial is this? It may well be the #1 co-morbidity in spine surgery!

The study, "Spine Surgeon Assessments of Patient Psychological Distress are Inaccurate and Bias Treatment Recommendations," appears in the July 1, 2023, edition of *Spine*.

Co-author Andrew Moon, M.D., an orthopedic resident at Tufts Medical Center, told *OTW*, "Prior literature has identified the relationship between psychological factors contributing to the manifestation of back and neck pain."

Indeed, noted Dr. Moon, the biopsychosocial model of healthcare, which is a comprehensive approach to patient care that recognizes the important interplay between the various factors that can influence a patient's relationship with their medical condition, is a powerful influence on how patients perceive their health and, therefore, the physician's ability to deliver healthcare services.

"Psychological distress is known to be common among patients presenting with complaints of chronic back and neck pain," explained Dr. Moon, "with up to 77% incidence of psychiatric comorbidity in this population."

"This is important when considering that patients with psychological distress are more likely to fail to return to work, to improve functionally, and to report improvement in pain despite treatment. Therefore, identifying these factors may be helpful in the clinic setting when considering surgical intervention in this population."

For their study, the Tuft's research team asked patients to complete the Modified Somatic Perception Questionnaire and Zung Depression Index. The patient's answers then generated a Distress and

Risk Assessment Method score of normal, at risk, or distressed.

The research team also gathered scores from the Oswestry Disability Index and Neck Disability Index scores. Finally, the surgeons who were treating the patients provided their own estimates of the Distress and Risk Assessment Method score *after* the visit and reported on their surgical recommendation.

Results and Key Findings *(Not Encouraging)*

Of the 296 patients who participated in the study, 40.5% reported some level of psychological distress (at risk) and 15.9% had a high level of distress.

Of the surgeons who participated in the study, all three did a poor job of accurately assessing their patient's distress. Indeed, the research team found that the surgeons demonstrated a bias toward underestimating the patient's true level of psychological distress. Patients rated as normal by the surgeon were 3.78 times more likely to be recommended for surgery compared to

> As for other resources that might be helpful, Dr. Moon mentioned to *OTW*, "Surgeons may want to consider interdisciplinary collaborations with psychiatric providers—not only to accurately assess patient levels of psychologic distress, but to provide more comprehensive care for these patients."

those assessed as distressed. Patients with higher Distress and Risk Assessment Method scores had higher Oswestry Disability Index (ODI) and Neck Disability Index (NDI) scores compared to those with lower Distress and Risk Assessment Method scores.

"The key findings of this study were that psychological distress was common among patients presenting for consideration of spine surgery and spine surgeons had limited ability to detect psychological profiles in patients with a tendency to underestimate levels of distress. Moreover, these inaccurate estimations of psychological distress were found to influence surgical decision-making when recommending surgical intervention. This raises a question of whether surgeons have an implicit bias to avoid surgery in patients they perceive to have higher levels of psychological distress."

Time to Use Validated Psychological Assessment Tools in Spine Surgery

When *OTW* asked what might need to happen in order for surgeons to be able to accurately assess patient distress, Dr. Moon noted, "This highlights the importance of using validated psychological assessment tools in order to accurately assess patient distress. Validated screening tools are utilized infrequently in spine clinics and psychological distress is known to be strongly correlated with increased patient reported disability scores for neck and back conditions (ODI and NDI scores)."

As for other resources that might be helpful, Dr. Moon mentioned to *OTW*, "Surgeons may want to consider interdisciplinary collaborations with psychiatric providers—not only to accurately assess patient levels of psychologic distress, but to provide more comprehensive care for these patients."

"Surgeons should be aware of the high levels of psychological distress in spine patient population, as well as the poor ability of surgeons to accurately assess psychological distress. There are many factors that must be taken into consideration when evaluating candidacy for surgery. Subjective measures such as reports of pain and disability must be weighed against objective radiological imaging, lab values, range of motion, etc. This study suggests that a patient's level of psychological distress, and the surgeon's ability to independently measure this, may also be important components of the clinical picture and methods for evaluating this should be further studied." ♦

Implantable Knee Shock Absorbers: Two New Studies

BY ELIZABETH HOFHEINZ, M.P.H., M.ED.

Two new peer-reviewed studies which collected safety and efficacy data for a novel, implantable knee shock absorber—which has been shown to be an effective alternative to knee arthroplasty for patients diagnosed with osteoarthritis—have recently been published. Here are some of the details.

The first study, "An implantable shock absorber yields an 85% survival-from-arthroplasty rate through 5 years in working-age patients with medial compartment knee osteoarthritis," was published in the March 23, 2023, edition of *Knee Surgery, Sports Traumatology, Arthroscopy.*

The second study, "Improved 2-Year Freedom from Arthroplasty in Patients with High-Risk SIFK Scores and Medial Knee Osteoarthritis Treated with an Implantable Shock Absorber versus Non-Operative Care," appears in the June 2023 edition of *Cartilage.*

The implantable knee shock absorber, which is brand named MISHA Knee System and manufactured by Fremont, California-based Moximed, Inc.—is indicated for symptomatic patients with knee OA. The most recent study (June 2023 in *Cartilage*) reported that 97% of the patients receiving the implant still had the implant (did not opt for arthroplasty) after three years. Overall, from all studies, the MISHA knee system demonstrated a five-year freedom from arthroplasty rate of 85%.

MISHA Knee System / Courtesy of Moximed, Inc.

"For a highly symptomatic patient population that has exhausted conservative care and is not ready for joint replacement, there are limited patient-friendly surgical options," stated Dennis Crawford, M.D., Ph.D., Professor of Orthopedics and Rehabilitation, School of Medicine, Oregon Health and Science University, Portland. "The MISHA Knee System represents a new surgical service line, and the data support the tremendous pain relief and the potential to delay joint replacement for a meaningful time period."

From the Calypso Study of the MISHA Knee System researchers documented that patients with high-risk subchondral insufficiency fractures of the knee are more likely to seek knee arthroplasty unless they are offered an alternative intervention—specifically the MISHA knee shock absorber. The Calypso research team designed a study where matched groups of knee OA patients were offered non-surgical interventions

or the knee shock absorber. Here is what they found.

- At one year:
    - o 0% of high-risk subchondral insufficiency fractures of the knee patients who'd been treated with the implantable shock absorber opted for knee arthroplasty.
    - o 77% of high-risk subchondral insufficiency fractures of the knee patients who'd been treated with non-surgical interventions opted for knee arthroplasty surgery.
- At two years:
    - o 0% of high-risk subchondral insufficiency fractures of the knee patients opted for arthroplasty surgery.
    - o 100% of high-risk subchondral insufficiency fractures of the knee patients treated with non-surgical interventions opted for knee arthroplasty surgery.

"Remarkable Turnaround"

"I have multiple patients from the early trials, who went from disabled to healthy and active," said Dr. Crawford to *OTW*. "One stands out because she was initially too young for the study, but her disease and disability were so limiting it threatened her occupation and thus health insurance coverage. By exception, she was permitted to be enrolled in the trial."

"The surgery not only facilitated a remarkable turnaround with her knee pain and capacity, but she was inspired by her experience to attend nursing school. She now relates how her capacity since, as a result of the MISHA procedure allowed her to routinely work as a nurse in an ICU, caring for COVID patient for 12+ hours a day."

Discussing what led him to be involved in the study, Dr. Crawford told *OTW*, "Essentially two things. First was the recognition as a practicing physician/surgeon that many patients with a common disabling disease had no therapeutically effective options to treat a ubiquitous form of early osteoarthritis. Second was the sound nature of the fundamental bio-mechanical principals that are at the core nature of this breakthrough medical device." ♦

Where Does Artisanal Surgery Go in the AI World?

BY ROBIN YOUNG

Source: Wikimedia Common and Timothy Wilson

Are you a free-hander or a navigator?

Are you an artisanal surgeon or do you look forward to a future of engineered processes and computational medicine?

As AI (artificial intelligence) and data push their way into the OR and physician's offices, surgeons and their staff will be grappling with new and profound questions—including how to frame the practice of orthopedic and spine care itself.

In the following editorial we'll check in on AI's progress in medicine, so far.

Artificial Intelligence as a Creative Engine

By now, I expect 60, 70, maybe 80% of orthopedic surgeons have taken ChatGPT for a test drive. And, I expect, the experience was good. Maybe great. Playing with ChatGPT, a large language model, has changed our awareness of what AI is and what it can do.

In the knowledge and creative industries, generative models like ChatGPT have been transformative. More than half of all software code is now written by generative AI models. The Hollywood writers' and actors' strike is based on a fear that AI generative models will mimic writers, creators and, actors in hyper-realistic ways.

Bottom line, among its consumers, the tool of artificial intelligence has evolved from an analytical tool to a creativity and productivity app.

Artificial Intelligence as a Disintermediating Engine

The three basic manifestations of AI modeling (generative models like ChatGPT: deep learning models like AlphaGo and the combinatory models that created the novel drug Halcyon) have

been deployed to create novel therapeutic drugs and proteins.

AI, in these applications, is a powerful disintermediating force.

Mike Nally, who was one of Merck's top executives and currently CEO of Generate Biomedicines and CEO-Partner of Flagship Pioneering, described at a recent AI panel discussion how AI is being used to accelerate drug development.

"When you make this transition from artisanal craft to engineering, it introduces a new scalability dimension," explains Nally. "If you're relying on individuals or a team of geniuses, that's really hard to scale. When you're relying on computation, it's very easy to scale. And so, I think, given the productivity challenge that is associated with research, Artificial Intelligence offers the prospect of taking advantage of scalability of technology."

> AI and Data Science, in combination with the Law of Large Numbers, will be the tool that scientists and healthcare professionals use to understand biology.

"We see this in our organization. We can generate [protein or molecular] sequences instantaneously. We can work on 15-20 programs with a group of about 200 and be comparable to the output of my former employer [Merck Pharmaceuticals] with 72,000 employees. These rules are being changed as we put computational techniques at the center of some of these processes."

Nally's company, Generate Biomedicines, creates breakthrough medi-

cines using machine learning and AI techniques. His AI tools study millions of proteins and kick out generalizable rules which decode biologic functions—like pain relief, tissue healing, viral or infection reduction, you name it.

Nally is doing this Merck-scale with 200 knowledge workers. Instead of a 20-year development cycle, which is fairly typical of drug development, Nally is looking at a fraction of that time—40-50 weeks, for example.

Added Nally, "This productivity change will force us to think radically differently about business models, about access to healthcare models, because, ultimately, if you can solve productivity, you can get more medicine to more patients. Which is why a lot of us do what we do."

The challenge, of course, is the next step in the process of bringing novel therapeutics to the patient. A one-year clinical study still takes one year.

Artificial Intelligence as a Predictive Model Engine

Most experts in AI applications in medicine see predictive modeling as the most promising way to crack the productivity problem at the clinical level.

Again, from Mike Nally's discussion: "We can have better predictive models. We rely on animal models today. Animals are bad predictors of human biology. There are better techniques that have to be introduced."

So far, the effort to apply AI, whose internal engines are fundamentally P-Value generators, to improve the clinical aspect of medicine has fallen short.

In a 2022 editorial in the journal *Nature*, authors Marwaha and Kvedar write: "A recent systematic review by Zhou et al, the authors surprisingly show that AI's impact so far has been quite limited."

The *Nature* authors go on to say: "They reviewed 65 randomized controlled trials (RCTs) evaluating AI-based clinical interventions and found that there was no clinical benefit of using AI prediction tools compared to the standard of care in nearly 40% of studies."

Furthermore, the authors write, "The clinical benefit of using deep learning (DL) predictive models over traditional statistical (TS) risk calculators was only minimal, and there was no benefit in

using machine learning (ML) models over TS tools."

"Somewhat counterintuitively, most of the AI tools in these trials exhibited an excellent area under the receiver operating characteristic (AUROC; a common performance metric for predictive models) during development (median AUROC 0.81, IQR 0.75–0.90) and validation (median AUROC 0.83, IQR 0.79–0.97): a humbling reminder that *robust predictive utility does not guarantee clinical impact at the bedside."*

Another way of thinking about the AI revolution in medicine is with the following analogy.

Math was the tool that scientists used to understand physics.

AI and Data Science, in combination with the Law of Large Numbers, will be the tool that scientists and healthcare professionals use to understand biology.

Is Biology more complex than physics?

I think so. One scientist described the complexity of trying to unravel the mystery of biology as trying to map the fingerprints of GOD.

Risks to Turning Medicine Into an Engineering Process

As authors Marwaha and Kvedar essentially argued in their *Nature* editorial, Artificial Intelligence predictive models have so far been humbled when confronted by the complexity of clinical medicine.

Personally, I'm wary of people who think they apply AI to break the clinical medicine system down to its component parts and make it an engineering science.

Still, AI is coming. But where?

About 80% of FDA approvals in the AI area are for medical imaging. So, imaging.

Also, Microsoft and Epic (the largest supplier of electronic medical record systems in the United States) recently announced that they have teamed up to bring AI-based ambient listening systems into the examining room to draft a physician's clinical notes, link to reimbursement codes and then, finally, to be added to the EPIC electronic medical records.

So, logistics.

Which, studies have shown, means less paperwork, less burnout, more time for direct patient care and fewer clinical mistakes.

That'll work. Also, stay tuned. ♦

COMPANY

Orthofix Continues to Take Spine Share at Mid-Year

Courtesy of Orthofix.com

Texas-based Orthofix, which merged with California-based SeaSpine eight months ago (effective January 2023), continues to exceed Wall Street analyst and institutional investor expectations. Sales at the mid-2023 point reached $362 million, up from $224 million for the first half of 2022.

Of course, most of that $138 million sales increases year-over-year was due to the merger with SeaSpine. Apples to apples, Orthofix sales rose 7%. Most importantly, post-merger with SeaSpine and under the leadership of former SeaSpine (and before that, NuVasive) President Keith Valentine, Orthofix beat Wall Street's expectations and continued to gain spine surgery market share.

Ladenburg Thalman's Managing Director, Equity Research Jeffrey Cohen said this to his Institutional Investor clients: "Overall, we are encouraged by the company's progress related to integration following the merger. Additionally, the company is leveraging cross-selling opportunities, channel and distributor expansion, and product launches to be well positioned for continued growth through 2023 and beyond. Therefore, we reiterate our Buy rating and $42.00 price target."

In a conference call with Wall Street analysts and professional investors, Val-

entine said: "We have been successful in managing revenue dis-synergy risks and capitalizing on operating expense synergy opportunities throughout the merger process and are encouraged to see continued market share taking in the U.S. spinal implants, biologics and enabling technologies franchises by leveraging our complementary product portfolios. We look forward to a strong back half of 2023 and remain focused on meeting the needs of our patients and providing value for other stakeholders by continuing to deliver quality driven solutions."

In terms of business units, Orthofix's bone growth therapies led overall growth coming in at 10%, followed by global spine at 7% and spinal implants, biologics and enabling technologies at 5.4%.

Characteristically (for SeaSpine and, before that, at Valentine-led NuVasive) Orthofix announce two important product launches just ahead of the mid-year financial report.

1. New Phantom and Tornado Hinges for the company's market leading TrueLok™ Ring Fixation system.

2. Commercial launch of Orthofix's new WaveForm 3D Printed Anterior

Digging into Orthofix's quarter:

- Orthofix's bone growth therapies business unit, which reported the greatest rate of sales growth, clearly benefited from the launch of AccelStim as well as investments made in 2022 to create a more focused sales organization.

- Spinal Implant sales, as Valentine noted in his comments to analysts, benefited from cross-selling opportunities between the Orthofix and SeaSpine organization.

Images: Courtesy of Orthofix

- Orthofix's accelerated new product launches boosted OFIX's cervical franchise.
- In the 90 days ending June 30, OFIX placed six 7D imaging units.

For the remainder of this year, Orthofix's management is planning to continue its aggressive product development and launch pace, investing 8% to 9% of revenue into R&D.

Finally, management, based on the strong results so far, raised sales and adjusted EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) guidance to sales of between $752.0 million and $758.0 million as compared to the previous range of $750.0 million to $756.0 million and EBITDA of between $42.0 million and $46.0 million from the previous range of $40.0 million to $45.0 million. — *RRY*

LEGAL

Appeals Court Grants Spine Surgeon New Trial

The Ohio First District Court of Appeals has reversed a $438,335.35 judgment against fugitive spine surgeon Abubakar Atiq Durrani, M.D. and the Center for Advanced Spine Technologies, Inc. (CAST).

The judgment was awarded to former patient Tammy Mann on her claims for negligence, failure to obtain informed consent, and fraudulent misrepresentation. Mann's claims related to treatment she received from Dr. Durrani in 2012 for back pain.

According to the appeals court's opinion, during the trial Mann played a

Source: Pixabay and Ezequiel_Octaviano

recording of a collage of testimony from Dr. Durrani. The collage did not contain any questions regarding Mann's surgery. The collage "contained questions on a multitude of topics, including Durrani's role as the director of spine surgery and as an attending orthopedic surgeon, the education he received in Pakistan and his family ties to that country, prior lawsuits filed against Durrani, the revocation of his medical licenses and suspension of his privileges to practice medicine, whether various statements on his resume and on his application for a medical license were truthful, whether papers that he had submitted had to be withdrawn because the information he submitted was false, and his practices as a surgeon, including the frequency of recommending surgery to patients on their first visit."

CAST and Dr. Durrani filed a motion for judgment notwithstanding the verdict, a new trial, or remittitur which the trial court denied. CAST and Dr. Durrani appealed, arguing that the trial court erred in denying the motion. CAST and Dr. Durrani asserted that the motion should have been granted "based on the trial court's admission of evidence that was allegedly substantially more prejudicial than probative, including the collage, evidence of Durrani's medical license revocations, and other lawsuits that had been filed against Durrani."

The appeals court sided with CAST and Dr. Durrani. In the appeals court's opinion, it reversed the trial court's judgment denying CAST and Dr. Durrani's motion for a new trial.

This is not the only case against Dr. Durrani where the collage has been challenged. In its opinion, the appeals court referenced a similar challenge to the admission of the collage in a different case. In that case the court held that "in its entirety, the collage was 'rife with prejudicial and inadmissible testimony' and was improperly admitted."

OTW has been covering litigation involving Dr. Durrani for nearly a decade. For *OTW*'s coverage, see "Fleeing Spine Surgeon Can't Outrun the Law," "Pakistani Hospital Suspends Spine Fugitive Durrani," "Medtronic Disentangles From Durrani Infuse Lawsuits," "Government Gets $4.1 Million From Hospital Used by Fugitive Spine Surgeon," "Spine Fugitive Durrani Found in Pakistan," and "Spine Surgeon Under Investigation Disappears." — *KD*

LARGE JOINTS

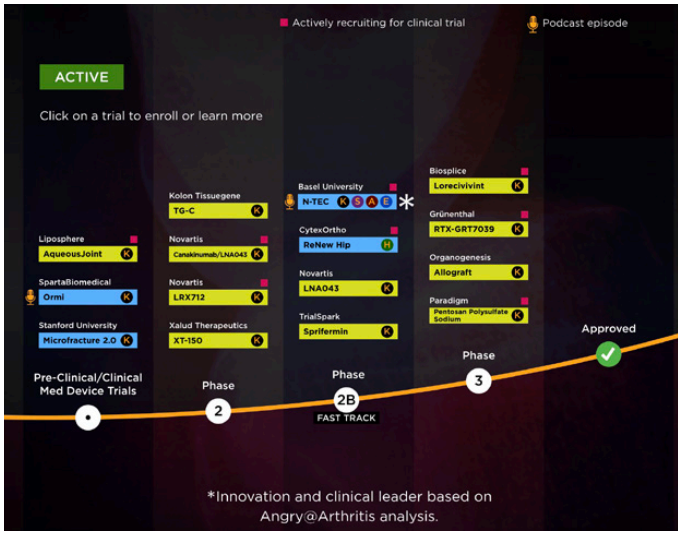
First-Ever OA Clinical Trial Locator Launched

It's called…OA Fix.

The first ever global osteoarthritis clinical trial locator has been launched by a new nonprofit organization whose objectives are to significantly expand the number of patients with osteoarthritic (OA) joint pain's knowledge and access to the full range of alternative treatments working their way through the regulatory process.

The group's name, by the way, is Angry@Arthritis. The app they have developed is—OA Fix.

"Today, more than 32 million American OA patients are blind to new OA treatments currently in development and approval," said Angry@Arthritis Founder Steve O'Keeffe to *OTW*. "It's you and the Google against the disease—and that's simply not fair. Angry@Arthritis is the patient's guide to OA; we're focused on providing OA sufferers with direct access to the leading OA cure science through our podcast and this new OA Fix. The OA Fix provides the first patient guide to the innovative OA treatments that promise to regrow cartilage and save your joints—and the interactive chart allows you to locate and sign up for the most promising and relevant clinical trials."



Courtesy of Angry@Arthritis

O'Keeffe commented, "As a patient with OA in multiple joints, I wanted to know more about the most viable developmental cures on the horizon, which treatments might work for the joints where I have the disease, and further, how I can sign up for clinical trials. I couldn't find it—respectfully, clinicaltrials.gov is impossible to navigate—so, we decided to create that OA treasure map—the OA Fix."

The Advanced Project Research Agency for Health recently announced its Novel Innovations for Tissue Regeneration in Osteoarthritis program to cure OA[1]. The funds are estimated to be over $1 billion dollars, with the goal of eliminating OA in 5 years.

"Today," O'Keeffe told *OTW,* "there are promising new treatments that are repairing OA joints, such as the Swiss University of Basel N-TEC and American Cytex procedures. We are moving closer to OA cures. At the same time, the federal government's Advanced Project Research Agency for Health announced the new Novel Innovations for Tissue Regeneration in Osteoarthritis program. Purportedly funded at $1 billion, the program aims to cure OA in five years—and make joint replacements a thing of the past. These are exciting times for OA."

Jason Kim, Ph.D., vice president of OA research at the Arthritis Foundation, said, "The OA Fix chart is a great start to the fantastic new resource for the OA community. It provides a regularly updated and consolidated view of promising OA treatments—which would be an easy way for patients to gain visibility and access clinical trials as well."

"Looking forward," Steve O'Keeffe commented to *OTW*, "our goal for the next year is to make regular people more aware of the advances in OA treatments—there is light at the end of this tunnel. The University of Basel, N-TEC program just received $2.6 million in funding from the European Medical Agency—and is engaged in human clinical trials in knees, shoulders, ankles, and elbows. Cytex will go into human clinical trials for OA in hips this year."

"We obviously hope to see great strides with the Novel Innovations for Tissue Regeneration in Osteoarthritis program—and want to make sure that all Americans are aware of, and cheering for, this OA cure moonshot program. We need to energize pharma, venture capital, and regular people to engage in funding innovative new OA cures. Go to www.angryatarthritis.org and get involved in finding a cure for OA." — *EH*

1. https://arpa-h.gov/news/nitro/

REMEMBRANCES

Surgeon, Lawyer, and Beloved Team Physician, 'Doc' Blue, Dies at 93

Alfred Blue, M.D., former team physician for the Seattle Thunderbirds hockey which is based in Kent, Washington, passed away on Sunday, April 23, 2023, at the age of 93.

"Very sad news," said T-Birds coach Matt O'Dette in a statement. "Doc Blue was an incredible man and took great care of hockey players in Seattle for decades. We will miss him and his vast knowledge and wisdom around the rink. Deepest condolences to Doc Blue's family and friends."

Blue began his career as team physician with the Seattle Totems in 1963. He stayed with them until the team disbanded in 1975. He began working with the Thunderbirds who were originally called the Seattle Breakers in 1977.

Alfred Blue, M.D. / Courtesy of Kent Reporter

The Thunderbirds moved to the ShoWare Center in Kent in 2009. The team named the medical room there after Blue on November 14, 2017, according to the *Kent Reporter*. He also was the recipient of the Western Hockey League Distinguished Service Award on September 30, 2006.

Blue wore many different hats during this medical career as a plastic surgeon, hand surgeon and orthopedic surgeon. He was also a lawyer, specializing in medical legal cases.

"His selfless dedication to Seattle hockey and the Seattle players' physical and mental well-being was unparalleled," the Thunderbirds said. "He was a great Thunderbird who set a standard for excellence that cannot be matched."

Besides taking care of hockey players, he had a private practice in Seattle and was affiliated with Swedish Medical Center-Cherry Hill.

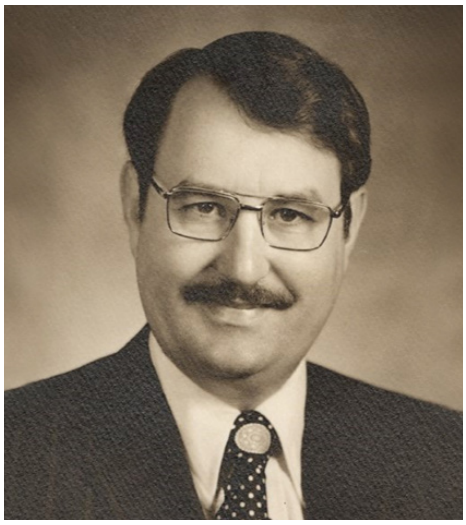
Blue earned his medical degree from University of Arkansas for Medical Sciences College of Medicine and then spent a year between 1955 and 1957 doing an internship at the U.S. Naval Hospital. He did his surgical residency back at the University of Arkansas between 1958 and 1959.

He also did two residencies in orthopedic surgery at the University of Washington between 1960 and 1963. He completed his residency in plastic surgery at Baylor College of Medicine between 1973 and 1976. He earned his undergraduate degree from Kent State University. — *TR*

Award Winning Combat Surgeon Bob Bilderback Dies at 85

Robert Douglas "Bob" Bilderback, M.D., a Vietnam veteran and orthopedic surgeon, passed away at home in Beardstown, Illinois, on March 10, 2023, at the age of 85.

He served orthopedic patients first at Robert Greene Memorial Hospital in San Antonio, Texas, and then opened his own orthopedic surgery practice in San Antonio.



Robert Bilderback, M.D. / Courtesy of Beardstown Newspapers

He earned his medical degree for the University of Missouri School of Medicine in Columbia, Missouri, in 1963. He passed his Missouri Medical Boards in 1963 and then did a medical internship at the Mobile General Hospital in Mobile, Alabama, from July 1, 1963 to June 30, 1964.

After his internship, he joined the U.S. Army Reserves as a Commissioned Officer and served as a General Medical Officer. He initially served in Missouri while also practicing as a general

practice physician at O.B. Barger, M.D., and Cass County Hospital, both in Harrisonville, Missouri.

He was called up to active duty on February 4, 1965, and within a month he became Chief of Preventative Medicine Division out of the USA Dispensary in Fort Bliss, Texas.

Bilderback served as a Battalion Surgeon for the HQ 6th Battalion 71st Artillery starting on August 13, 1965, and then he began his tour of duty in the Vietnam War as Battalion Surgeon/Staff Physician at the 12th U.S. Air Force Hospital, Cam Ranh Bay Air Base between September 19, 1965, and September 26, 1966.

For his service during this time, he received the National Defense Service Medal, Vietnam Service Medal, Vietnam Campaign Medal, and the Air Force Commendation Medal.

He continued active military service until 1967, when he was honorably discharged. He stayed active in the reserves out of Fort Bliss until May 29, 1970.

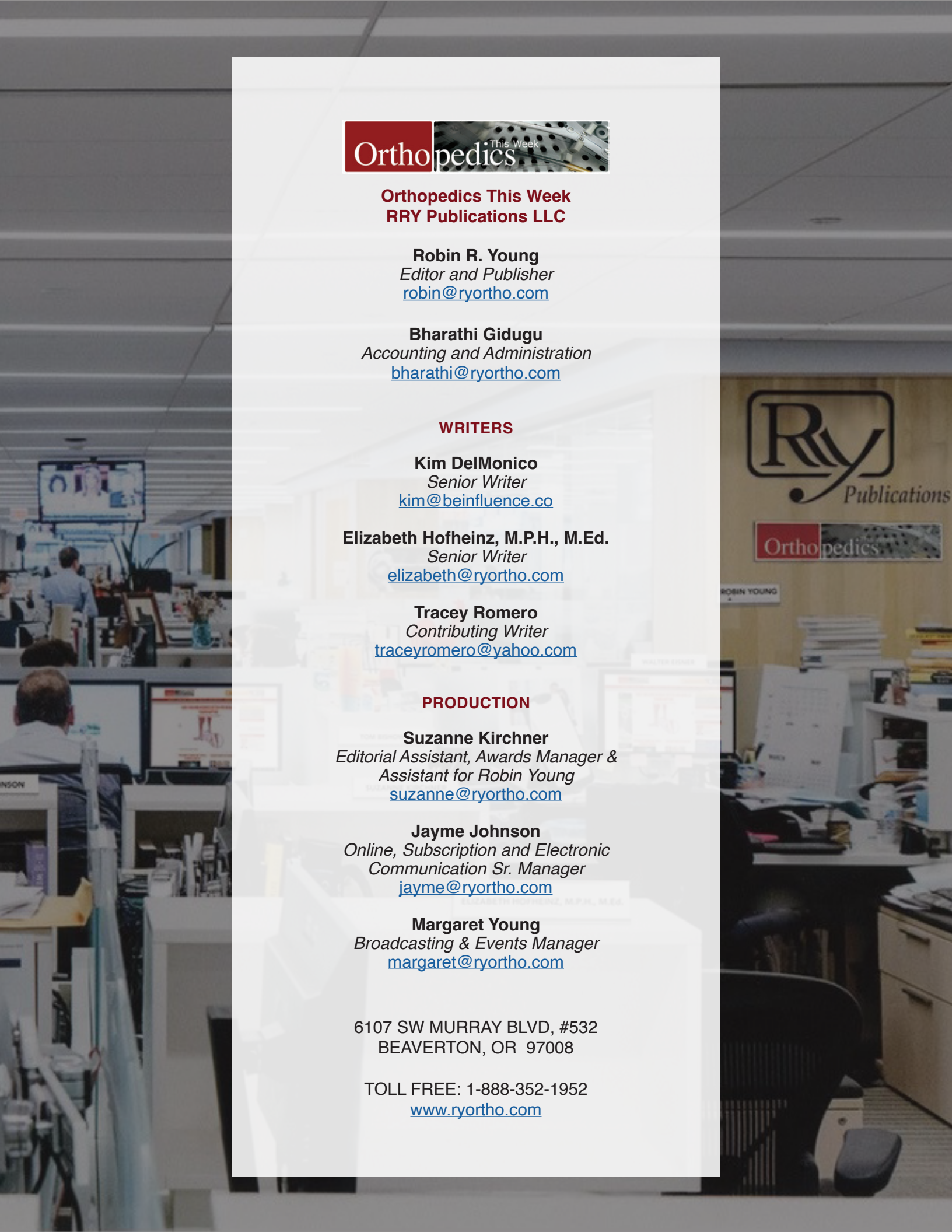
After closing his San Antonio practice in 1987, he worked in medical research in St. Louis, Missouri, and in Galesburg and Bowen, Illinois.

Bilderback was born on December 29, 1937, to his parents, Sterling G. Bilderback and Margaret L. Bilderback Kilpatrick in Quincy, Illinois. He was one of three boys. He graduated from Bowen High School in Bowen, Illinois, where he was a basketball star.

After graduating in 1955, he earned his undergraduate degree in biology from Monmouth College. He was a member of the Gamma Alpha Graduate Scientific Society in 1959.

Bilderback was married twice. He and his first wife, Carol Prettyman, had one daughter together, Teresa Ann. He and his second wife, Graciela Dominguez, had three children together: Lisa Michelle, Robert Douglas, and John Nicholas.

He was a resident of Beardstown, Illinois, when he passed. He is survived by his brother, Roger Kent Bilderback; his daughter, Teresa Ann Bilderback; his daughter, Lisa Michelle Bilderback and granddaughter, Lisa Nicole; his son, Robert Douglas Bilderback II; and his son John Nicholas Bilderback. He also leaves behind his niece Sheri Bilderback. He was predeceased by his brother Marvin and his parents. — TR



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