

# NICHOLAS B. FRISCH, M.D. | M.B.A.

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## EMPLOYMENT

ASCENSION CRITTENTON HOSPITAL, Rochester, MI	2017 - present
ST. JOSEPH HEALTH SYSTEM, Tawas City, MI	2018 – present
ASCENSION RIVER DISTRICT HOSPITAL, East China, MI	2018 – present

## EDUCATION AND TRAINING

AAHKS HEALTH POLICY FELLOWSHIP, Chicago, IL	2016 - present
RUSH ADULT JOINT FELLOWSHIP, Chicago, IL	2016 - 2017
Department of Orthopaedic Surgery, Fellow	
HENRY FORD HOSPITAL, Detroit, MI	2011 – 2016
Department of Orthopaedic Surgery, Resident	
TUFTS UNIVERSITY SCHOOL OF MEDICINE, Boston, MA	2007 – 2011
MD   MBA in Healthcare Management	
LOYOLA UNIVERSITY CHICAGO, Chicago, IL	2005 – 2006
Master of Arts in Medical Science	
UNIVERSITY OF VERMONT, Burlington, VT	1999 – 2003
Bachelor of Arts in English – Minor in Chemistry	

## LICENSURES

Michigan Medical License & Controlled Substance License	June 2017
Illinois Medical License	2016 - present
Michigan Educational Limited License	2011 - 2016
Basic and Advanced Cardiac Life Support, Detroit, MI	June 2012, May 2013, May 2015
Fundamentals of Critical Care Support Provider Conference, Detroit, MI	May 2012

## PROFESSIONAL MEMBERSHIPS

Alpha Omega Alpha	2014 - present
American Association of Hip and Knee Surgeons	2014 - present
Mid-America Orthopaedic Association	2015 - present
Detroit Academy of Orthopaedic Surgeons	2011 – present
Michigan Orthopaedic Society	2012 - present
American Medical Association	2011 - present
American Academy of Orthopaedic Surgeons	2011 - present

## HONORS AND AWARDS

<i>Orthopedics</i> Blue Ribbon Article Award	2018
Campbell KJ, Louie PK, Khorsand DK, <b>Frisch NB</b> , Gerlinger TL, Levine BR. Innovation and Entrepreneurship: Perspectives from Orthopaedic Surgery. <i>Orthopedics</i> , 2017. PMID: 29658978	
<i>Orthopedics</i> Best Clinical Article Award	2016
<b>Frisch NB</b> , Nahm N, Khalil JG, Guthrie ST, Charters MA. Short versus Long Cephalomedullary Nail for Pterochantheric Hip Fractures – <i>Orthopedics</i> , 2016. PMID: 27874910	
<b>Frisch NB</b> , Evans T, Dobson C, Gibson G, Parsons TW, Mott MP. The Validity of a Rat Model for Analyzing miRNA in Chondrosarcoma	
Winner Best Poster - American Academy of Orthopaedic Surgeons – San Diego, CA	March 2017
AAHKS Healthcare Policy Fellowship	2017-2018
Outstanding Resident Award Henry Ford Hospital – Detroit, MI	May 2016
Winner Ford Motor Co. Connected Health Challenge – Detroit, MI	June 2016
Winner Best Paper Award, Michigan Orthopaedic Society Annual Meeting – Mackinac Island, MI	June 2016
<b>Frisch NB</b> , Taliaferro K, Wessell NM, Ananthasubramaniam K, Brooks K, Silverton CD. Metal Ion-Induced Cardiomyopathy in Dual-Taper Modular THA	
2 <sup>nd</sup> Place Paper Award, Michigan Orthopaedic Society Annual Meeting – Mackinac Island, MI	June 2016
<b>Frisch NB</b> , Pepper A, Guthrie ST, Silverton CD. Intraoperative Temperature Monitoring in Hip Fractures	
Winner Mid-America Orthopaedic Associate Educational Grant – Bonita Springs, FL	April 2016
2 <sup>nd</sup> Place SEMCME Research Forum - Rochester, MI	May 2016
<b>Frisch NB</b> , Pepper A, Guthrie ST, Silverton CD. Intraoperative Temperature Monitoring in Hip Fractures	

Alpha Omega Alpha –Member, Wayne State University School of Medicine	2014
Winner Henry Ford Annual Medical Education Research Forum (Clinical) - Detroit, MI	February 2016
<b>Frisch NB</b> , Pepper A, Guthrie ST, Silverton CD. Intraoperative Temperature Monitoring in Hip Fractures	
Winner Henry Ford Annual Medical Education Research Forum (Basic Science) - Detroit, MI	February 2016
<b>Frisch NB</b> , Lynch J, Banglmaier RF, Silverton CD. The Effect of Impact Location on Force Transmission to the Modular Junctions of Dual-Taper Modular Hip Implants	
Winner of Detroit Academy of Orthopaedic Surgeons Resident Research Symposium – Birmingham, MI	May 2015
<b>Frisch NB</b> , Wessell NM, Charters MA, Goldstein A, Cann B, Silverton CD. Impact of Body Mass Index on Blood Transfusion in Total Hip and Knee Arthroplasty	
Winner of Detroit Academy of Orthopaedic Surgeons Resident Research Symposium – Birmingham, MI	May 2014
<b>Frisch NB</b> , Charters MA, Sikora-Klak J, Banglmaier RF, Oravec DJ, Silverton CD. Intraoperative Periprosthetic Femur Fracture: A Biomechanical Analysis of Cerclage Fixation	
Winner of Henry Ford Health System Research Symposium in Epidemiology – Detroit, MI	May 2014
<b>Frisch NB</b> , Charters M, Dobson C, Les C, Hoegler J, Hakeos W, Guthrie T. Intertrochanteric Hip Fractures: How Time To Surgery and Comorbidities Affect Mortality	
Winner of Edward D. Henderson, M.D. Physician in Training Award, Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX	April 2014
Charters MA, <b>Frisch NB</b> , Wessell NM, Sikora-Klak J, Yu S, Jeffries JJ, Les CM, Silverton CD, Laker M. Rivaroxaban versus Enoxaparin for Venous Thromboembolism Prophylaxis after Hip and Knee Arthroplasty	
Winner \$10K Henry Ford Innovation Institute Challenge – reducing 30 day readmissions through technology	2013
\$2500 Henry Ford Innovation Institute Challenge – wireless, wearable sensor technology in healthcare	2014
Norman S. Stern MD MBA Award, Tufts University School of Medicine	2011
Phi Beta Kappa, University of Vermont	2003
English Departmental Honors	2003
NCAA Division I Academic Honor Roll	2000 & 2001
National Society of Collegiate Scholars	2001
Golden Key International Honour Society	2001
Phi Eta Sigma National Honor Society	2000

**INTELLECTUAL PROPERTY**

**Frisch, NB**, Keller, RA, Henry Ford Health Systems; “System for wireless monitoring of musculoskeletal range of motion,” 2015, U.S. Provisional Patent Appl. 62/153,708, April 28, 2015.

**Frisch, N**, Keller R, Bartol S, Ford Motor Company; “Patient-centered vehicle emergency application and web interface that provides emergency personnel with vehicle data and personalized occupant health information,” U.S. Provisional Patent Appl 62/398,862, September 23, 2016.

**PROFESSIONAL DEVELOPMENT**

National Orthopaedic Leadership Conference, Washington D.C.	June 2018
AAHKS Leadership Retreat, Miami, FL	May 2018
International Congress for Joint Replacement Hip and Knee Course, Vail, CO	February 2018
AAHKS Legislative Retreat, Washington D.C.	February 2018
AMA National Advocacy Committee Meeting, Washington D.C.	February 2017
9 <sup>th</sup> Annual Joint Replacement Fellows Symposium, Vail, CO	January 2017
AAHKS Spring Meeting	May 2017, 2018
AAHKS Annual Meeting	2014, 2016, 2017
AAOS Annual Meeting	2014, 2015, 2016, 2018
AAOS Board Review	2016
Miller Board Review	2016
MAOA Annual Meeting	2014, 2015, 2016, 2018
AANA Fundamentals in Arthroscopy Course, Chicago, IL	January 2014
AAHKS Residency Course, Dallas, TX	November 2013
ISTA Annual Meeting	2013, 2015
Dallas Short Course – Orthotics and Prosthetics, Dallas, TX	October 2013
Michigan Orthopaedic Society Annual Meeting, Mackinac Island, MI	June 2013
AO Basic Fracture Course, Charlotte, NC	January 2013

**ADMINISTRATIVE SERVICE**

Ascension Crittenton Optimization Clinic Committee	2018 - Present
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MARCQI Representative – Bald Mountain Surgery Center	2017 - Present
Orthopaedic Joint Surgery Power Plan Committee	2017 - Present
Physician Advisory Committee, Crittenton Hospital	2017 - Present
Reviewer – Journal of Arthroplasty	2017 - Present
Wayne State University School of Medicine Research Forum, Judge	2016
Department of Orthopaedic Surgery, Resident Admissions Committee	2016
Mayo Clinic Healthcare Systems Process Improvement Committee, Reviewer	2014
HFHS EPIC Physician Readiness Committee	2013-2014
HFHS House Officer Council, Representative	2012 - 2013
HFHS Department of Orthopaedics Bundled Payment Pilot Committee	2011 – 2013
HFHS Quality Exposition Competition, Judge	November 2012
MD/MBA Program Director Search Committee	2010 – 2011

## PUBLICATIONS – BOOK CHAPTERS

**Frisch N**, Silverton C. Trochanteric Approaches for Primary THA. In “The Adult Hip, 3<sup>rd</sup> ed.”, Chapter 6, edited by Callaghan J, Beaulieu P, Clohisy J, Della Valle C, Rosenberg A, and Rubash H., Philadelphia: *Wolters Kluwer Health*, 2015.

**Frisch NB**, Berger RA. Management of Patellar Tendon Rupture – Extensor Mechanism Allograft. In “Complex Cases in Total Knee Arthroplasty”, Chapter 16A, edited by Alfred J. Tria, Giles R. Scuderi, and Fred D. Cushner: *Springer*, 2018.

**Frisch NB**, Darrith B, Della Valle CJ. Previous Knee Sepsis – One Stage. In “Complex Cases in Total Knee Arthroplasty”, Chapter 7A, edited by Alfred J. Tria, Giles R. Scuderi, and Fred D. Cushner: *Springer*, 2018.

**Frisch NB**, Jacobs JJ. Hypersensitivity: “Doc, Am I Allergic to My Implant?”. In “Seminars in Arthroplasty”, edited by A. Seth Greenwald: 2017.

McCaslin M, **Frisch NB**. Partnership, Ancillaries and other Considerations. In “Orthopedic Practice Management: Strategies for Growth and Success”, edited by Eric C. Makhni, Melvin C. Makhni, Eric F. Swart and Charles Bush-Joseph. *Springer*, 2018.

**Frisch NB**, Jacobs JJ. Revision for Metal on Metal Failure or Taper Corrosion. In “Surgery of the Hip”, edited by Daniel J Berry and Jay R Lieberman: *Elsevier*, 2018.

**Frisch NB**, Jacobs JJ. Metal Allergy and Management. In “The Adult Knee 2e”, edited by Harry Rubash, Aaron Rosenberg, Robert Barrack, Hany Bediar, Brett Levine, James Huddleston. Wolters Kluwer; 2019.

**Frisch NB**, Darrith B. Patellofemoral Complications after Total Knee Arthroplasty. In “The Adult Knee 2e”, edited by Harry Rubash, Aaron Rosenberg, Robert Barrack, Hany Bediar, Brett Levine, James Huddleston. Wolters Kluwer; 2019.

**Frisch NB**, Courtney PM, Shah RP. Health Policy. In “Orthopaedic Knowledge Update 13e”, edited by Javad Parvizi. Wolters Kluwer; 2019.

**Frisch NB**, Darrith B. Can More than One Compartment be Done? In “Unicompartmental Knee Arthroplasty: Indications, Surgical Techniques and Complications”, edited by Tad Gerlinger. Springer; 2019.

## PUBLICATIONS – PEER REVIEWED JOURNALS

Liu J, **Frisch NB**, Mehran N, Qatu M, Guthrie ST. Short-term medical complications following short versus long cephalomedullary nails. *Orthopedics*. 2018 PMID: 30011050

Nodzo SR, **Frisch NB**. The Use of Antibiograms in Orthopedic Surgery. *Current Reviews in Musculoskeletal Medicine*. 2018 PMID: 29971613

**Frisch NB**, Lynch J, Banglmaier RF, Pourzal R, Silverton CD. Dual Taper Modular Hip Implant: Investigation of 3D Surface Scans for Component Contact, Shape, and Fit. *Arthroplasty Today*. 2018 PMID: *pending*

**Frisch NB**, Darrith B, Hansen DC, Wells A, Berger RA. Single-dose lidocaine spinal anesthesia in hip and knee arthroplasty. *Arthroplasty Today*. 2018. PMID: 29896560

**Frisch NB**, Wessell N, Charters M, Dobson C, Les C, Guthrie T. Hip Fracture Mortality: Differences Between Intertrochanteric and Femoral Neck Fractures. *Journal of Surgical Orthopaedic Advances*. 2018. PMID: 29762119

Courtney MP, **Frisch NB**, Bohl DD, Della Valle CJ. Improving Value in Total Hip and Knee Arthroplasty: The Role of High Volume Hospitals. *Journal of Arthroplasty*. 2018 PMID: 28844631

**Frisch NB**, Courtney PM, Darrith B, Della Valle CJ. Do higher-volume hospitals provide better value in revision hip and knee arthroplasty. *Bone Joint J*, 2017. PMID: 29212684

Courtney MP, Darrith B, Bohl DD, **Frisch NB**, Della Valle CJ. Reconsidering the Affordable Care Act's Restrictions on Physician Owned Hospitals: Analysis of CMS Data on Total Hip and Knee Arthroplasty. *JBJS*, 2017. PMID: 29135661

**Frisch NB**, Kadri O, Davis JD. Intraoperative Chlorhexidine Gluconate Irrigation during Total Hip and Knee Arthroplasty- *Arthroplasty Today*. 2017 PMID: 29204500

Ross RD, Deng Y, Fang, R, **Frisch NB**, Jacobs JJ, Sumner DR. Discovery of Biomarkers to Identify Peri-Implant Osteolysis before Radiographic Diagnosis. *J Orthop Res*. 2018 PMID: 29873110

Evans TJ, **Frisch NB**, Gibson G, Mott MP, Parsons TW. Validation of a Rat Model for Analyzing MicroRNA in Chondrosarcoma. *J Musculoskelet Res*. 2018. PMID: pending

**Frisch NB**, Wessell NM, Taliaferro K, VanHolsbeeck M, Silverton CD. Ultrasound Findings in Asymptomatic Patients with Dual-Taper Modular THA – *Skeletal Radiology*. 2017. PMID: 28204856

Campbell KJ, Louie PK, Khorsand DK, **Frisch NB**, Gerlinger TL, Levine BR. Innovation and Entrepreneurship: Perspectives from Orthopaedic Surgery. *Orthopedics*, 2017. PMID: 29658978

Khalil LS, Keller RA, Mehran N, Marshall NE, Okoroa K, **Frisch NB**, DeSilva SP. The utility of botulinum toxin A in the repair of distal biceps tendon ruptures. *Musculoskeletal Surgery*. 2017. PMID: 29027640

**Frisch NB**, Wessell NM, Charters MA, Goldstein A, Cann B, Guthrie TS. Early-Stage Chronic Kidney Disease Stage and Hip Fracture Mortality. *Journal of Surgical Orthopaedic Advances*. 2017. PMID: *pending*

Liu J, **Frisch N**, Barden R, Rosenberg A, Silverton C, Galante GO. Heterotopic ossification prophylaxis after total hip arthroplasty in high risk patients. *Journal of Arthroplasty*. 2016. PMID: 27884418

Slotkin S, **Frisch NB**, Roc G, Silverton C. Hemispherical and minimally invasive total hip reamers- a biomechanical analysis of use and design. *Arthroplasty Today*. October 10, 2016. PMID: 28695186

**Frisch NB**, Lynch J, Banglmaier RF, Silverton CD. The Stability of Dual-Taper Modular Hip Implants: A Biomechanical Analysis Examining the Effect of Impact Direction on Component Stability– *Arthroplasty Today*. October 7, 2016. PMID: 28695184

Mahan C, **Frisch NB**, Woods T, Parsons TW, Mott MP. Case Report: Ewing's Sarcoma of the Fifth Metacarpal of an Adult Female – *JBJS Case Connect*, 2016 Dec 14; 6 (4): e95. PMID: 29252749

Zang L, Yan M, Mayer T, Johnston B, Less C, **Frisch N**, Parsons T, Mi Q, Gibson G. The Use of MicroRNA Biomarkers to Distinguish Enchondroma from Low Grade Chondrosarcoma. *Connective Tissue Research*. 2017 Mar;58(2):155-161. PMID: 27267924

**Frisch NB**, Pepper AM, Jildeh TR, Shaw J, Guthrie ST, Silverton CD. Intraoperative Hypothermia during Surgical Fixation of Hip Fractures – *Orthopedics*, 2016 Aug 18:1-8. PMID: 27536952

**Frisch NB**, Pepper A, Silverton CD. Intraoperative Temperature Monitoring in Total Hip and Knee Arthroplasty – *Orthopedics*. 2016 Oct 25:1-8. PMID: 27783839

**Frisch NB**, Nahm N, Khalil JG, Guthrie ST, Charters MA. Short versus Long Cephalomedullary Nail for Pertrochanteric Hip Fractures – *Orthopedics*, 2016. PMID: 27874910

**Frisch NB**, Wessell NM, Charters MA, Goldstein A, Cann B, Silverton CD. Impact of Body Mass Index on Blood Transfusion in Total Hip and Knee Arthroplasty. *Orthopedics*. 2016; 39(5):e844-e849. PMID: 26970905

**Frisch NB**, Lynch J, Banglmaier RF, Silverton CD. The Effect of Impact Location on Force Transmission to the Modular Junctions of Dual-Taper Modular Hip Implants – *Journal of Arthroplasty*, 2016. PMID: 26970905

**Frisch NB**, Charters MA, Sikora-Klak J, Banglmaier RF, Oravec DJ, Silverton CD. Intraoperative Periprosthetic Femur Fracture: A Biomechanical Analysis of Cerclage Fixation. *Journal of Arthroplasty*, 2015. PMID: 25765131

Charters MA, **Frisch NB**, Wessell NM, Dobson C, Les CM, Silverton CD. Rivaroxaban versus Enoxaparin for Venous Thromboembolism Prophylaxis after Hip and Knee Arthroplasty. *Journal of Arthroplasty*, 2015. PMID: 25724111

**Frisch NB**, Wessel NM, Charters MA, Yu S, Jeffries JJ, Silverton CD. Predictors and Complications of Blood Transfusion in Total Hip and Knee Arthroplasty. *Journal of Arthroplasty*, 2014;29(9Suppl):189-92. PMID: 25007727

Nandyala SV, Marquez-Lara, **Frisch NB**, Park D. The Athletes Spine – Lumbar Herniated Nucleus Pulposus. *Oper Tech Sports Med* 2013. 21:170-176.

Lucier D, **Frisch NB**, Cohen B, Haas M, Wagner M, Salem D, Fairchild D. Academic Retainer Medicine: An Innovative Business Model for Cross-Subsidizing Primary Care. *Academic Medicine* 2010 Jun;85(6):959-64. PMID: 20505394

## PUBLICATIONS – ABSTRACTS

**Frisch, N.**, Wessell, N., Van Holsbeeck, M., & Silverton, C. (2016). Ultrasound findings in asymptomatic patients with dual taper modular total hip arthroplasty. *Bone Joint J* 2016, 98-B(SUPP 7), 141.

**Frisch, N.**, Scotting, O., Mehran, N., Peters, C., & Silverton, C. KT-1000 analysis of bicruciate retaining total knee arthroplasty. *Bone Joint J* 2016, 98-B(SUPP 7), 140

**Frisch, N.**, Lynch, J., Banglmaier, R., & Silverton, C. Impact direction effects force transmission of modular components in total hip arthroplasty. *Bone Joint J* 2016, 98-B(SUPP 7), 139.

**Frisch NB**, Sikora-Klak J, Silverton C. Cerclage fixation for cementless total hip arthroplasty complicated by intraoperative Vancouver B1 periprosthetic fractures: A biomechanical analysis. *Bone Joint J* 2013; 95(SUPP 34): 309.

**Frisch NB**, Charters M, Wessell N, et al. Rivaroxaban versus enoxaparin for venous thromboembolism prophylaxis after hip and knee arthroplasty. *Bone Joint J* 2013; 95-B(SUPP 34) 60.

## RESEARCH

**Frisch NB**, Courtney PM, Darrith B, Della Valle CJ. Do Higher Volume Hospitals Provide Better Value in Revision Hip and Knee Arthroplasty?

Podium presentation American Academy of Orthopaedic Surgeons Annual Meeting – New Orleans, LA March 2018

Poster presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2018

**Frisch NB**, Lynch J, Banglmaier RF, Pourzal R, Silverton CD. Dual Taper Modular Hip Implant: Investigation of 3D Surface Scans for Component Contact, Shape, and Fit

Poster presentation American Academy of Orthopaedic Surgeons Annual Meeting – New Orleans, LA March 2018

Poster presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2018

Podium presentation International Society for Technology in Arthroplasty - Boston, MA October 2016

**Frisch NB**, Taliaferro K, Wessell NM, Ananthasubramaniam K, Brooks K, Silverton CD. Metal Ion-Induced Cardiomyopathy in Dual-Taper Modular THA

Poster presentation American Academy of Orthopaedic Surgeons Annual Meeting – New Orleans, LA March 2018

Poster presentation International Society for Technology in Arthroplasty - Boston, MA October 2016

Poster presentation Mid-America Orthopaedic Association Annual Meeting - Bonita Springs, FL April 2016

Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016

Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016

- Courtney MP, **Frisch NB**, Bohl DD, Della Valle CJ. Improving Value in Total Hip and Knee Arthroplasty: The Role of High Volume Hospitals.  
Podium presentation American Academy of Orthopaedic Surgeons Annual Meeting – New Orleans, LA March 2018
- Darrith B, **Frisch NB**, Basques B, Culvern C, Tetreault MW, Della Valle CJ. Inpatient vs. Outpatient Arthroplasty: A Single-Surgeon, Matched-Cohort Analysis of 90-Day Complications  
Poster presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2018
- Pepper A, **Frisch NB**, Gabbard M, Hightower W, Silverton CD. Prospective Evaluation of Perioperative Hypothermia in Hip and Knee Arthroplasty  
Poster presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2018
- Courtney MP, Darrith B, Bohl DD, **Frisch NB**, Della Valle CJ. Is it time to end the affordable care act's restrictions on physician owned hospitals?  
Podium presentation American Academy of Orthopaedic Surgeons Annual Meeting – New Orleans, LA March 2018  
Poster presentation American Association of Hip and Knee Surgeons Annual Meeting. Dallas, Tx November 2017
- Nelson A Karan S, **Frisch NB**, Silverton CD. A Viable Alternative to Cemented Total Knee Arthroplasty: Clinical and Radiographic Outcomes of Cementless Total Knee Arthroplasty  
Podium presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2018  
Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016
- Frisch NB**, Kadri O, Davis JD. Intraoperative Chlorhexidine Gluconate Irrigation during Total Hip and Knee Arthroplasty  
Podium presentation Mid-America Orthopaedic Association Annual Meeting – Amelia Island, FL April 2017
- Frisch NB**, Pepper A, Silverton CD. Intraoperative Temperature Monitoring in Total Hip and Knee Arthroplasty  
Poster presentation International Society for Technology in Arthroplasty - Boston, MA October 2016  
Podium presentation Mid-America Orthopaedic Association Annual Meeting - Bonita Springs, FL April 2016  
Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016  
Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016
- Frisch NB**, Pepper A, Guthrie ST, Silverton CD. Intraoperative Temperature Monitoring in Hip Fractures  
Podium presentation Orthopaedic Trauma Association Annual Meeting – National Harbor, MD October 2016  
Podium presentation Mid-America Orthopaedic Association Annual Meeting - Bonita Springs, FL April 2016  
Podium presentation American Academy of Orthopaedic Surgeons - Orlando, FL March 2016  
Winner Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016  
Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016
- Frisch NB**, Wessell NM, Taliaferro K, Walker L, vanHolsbeeck M, Silverton CD. Ultrasound Findings in Asymptomatic Patients with Dual-Taper Modular THA  
Podium presentation International Society for Technology in Arthroplasty - Vienna, Austria October 2015  
Podium presentation Mid-America Orthopaedic Association Annual Meeting - Bonita Springs, FL April 2016  
Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016  
Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016
- Frisch NB**, Wessell NM, Silverton CD. Cobalt Chromium Ratio in Dual-Taper Modular THA  
Poster presentation International Society for Technology in Arthroplasty - Boston, MA October 2016  
Poster presentation Mid-America Orthopaedic Association Annual Meeting - Bonita Springs, FL April 2016
- Frisch NB**, Wessell NM, Charters MA, Goldstein A, Cann B, Guthrie TS. Impact of Chronic Kidney Disease Stage on Postoperative Intertrochanteric Hip Fracture Mortality  
Poster presentation American Academy of Orthopaedic Surgeons Annual Meeting – Las Vegas, NV March 2015  
Podium presentation Detroit Academy of Orthopaedic Surgeons - Birmingham, MI May 2015  
Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2015  
Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2015
- Frisch NB**, Lynch J, Banglmaier RF, Silverton CD. The Effect of Impact Location on Force Transmission to the Modular Junctions of Dual-Taper Modular Hip Implants  
Winner presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016

- Podium presentation International Society for Technology in Arthroplasty - Vienna, Austria October 2015  
 Podium presentation Mid-America Orthopaedic Association Annual Meeting – Hilton Head, SC April 2015  
 Podium presentation Detroit Academy of Orthopaedic Surgeons – Birmingham, MI May 2015  
 Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2015
- Frisch NB**, Lynch J, Banglmaier RF, Silverton CD. The Stability of Dual-Taper Modular Hip Implants: A Biomechanical Analysis Examining the Effect of Impact Direction on Component Stability  
 Poster presentation International Society for Technology in Arthroplasty - Boston, MA October 2016  
 Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016
- Frisch NB** Slotkin S, Roc G, Varshney A, and Silverton C. Conventional versus MIS reamers: how use affects accuracy  
 Poster presentation International Society for Technology in Arthroplasty - Boston, MA October 2016  
 Presented at Henry Ford 20th Annual Medical Education Research Forum. Detroit, MI February 2016  
 Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016
- Mahan C, **Frisch NB**, Woods T, Parsons TW, Mott MP. Case Report: Ewing’s Sarcoma of the Fifth Metacarpal of an Adult Female  
 Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2016  
 Poster presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016
- Frisch NB**, Wessell NM, Charters MA, Goldstein A, Cann B, Silverton CD. Impact of Body Mass Index on Blood Transfusion in Total Hip and Knee Arthroplasty  
 Podium presentation International Society for Technology in Arthroplasty - Vienna, Austria October 2015  
 Poster presentation American Orthopaedic Association - Providence, RI June 2015  
 Winner Detroit Academy of Orthopaedic Surgeons – Birmingham, MI May 2015  
 Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2015
- Scotting O, **Frisch NB**, Mehran N, Peters C, Silverton CD. Anterior Cruciate Ligament Stability after Bicruciate-Retaining Total Knee Arthroplasty  
 Poster presentation American Association of Hip and Knee Surgeons Annual Meeting – Dallas, TX November 2016  
 Podium presentation International Society for Technology in Arthroplasty - Vienna, Austria October 2015  
 Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2015  
 Poster presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2015
- Frisch NB**, Taliaferro K, Moen P, Meyer K, Silverton CD. Intraoperative Periprosthetic Fracture Mapping  
 Podium presentation Henry Ford Annual Medical Education Research Forum - Detroit, MI February 2015  
 Podium presentation Detroit Academy of Orthopaedic Surgeons – Birmingham, MI May 2015  
 Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2015
- Frisch NB**, Mehran N, Silverton CD, Parsons TW. Primary Total Hip and Knee Arthroplasty: The Impact of Payer Mix.  
 Podium presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2014  
 Poster presentation Mid-America Orthopaedic Association Annual Meeting– San Antonio, TX April 2014
- Frisch NB**, Evans T, Dobson C, Gibson G, Parsons TW, Mott MP. The Validity of a Rat Model for Analyzing miRNA in Chondrosarcoma  
 Winner Poster presentation American Academy of Orthopaedic Surgeons – San Diego, CA March 2017  
 Poster presentation Orthopaedic Research Society Annual Meeting – San Diego, CA March 2017  
 Podium presentation Musculoskeletal Tumor Society Annual Meeting- Detroit, MI October 2016  
 Poster presentation Michigan Orthopaedic Society – Mackinac Island, MI June 2016  
 Podium presentation Society of Military Orthopaedic Surgeons – Scottsdale, AZ December 2014  
 Podium presentation Detroit Academy of Orthopaedic Surgeons – Birmingham, MI May 2014  
 Podium presentation Mid-America Orthopaedic Association Annual Meeting– San Antonio, TX April 2014  
 Podium presentation Musculoskeletal Tumor Society Annual Meeting - San Francisco, CA October 2013
- Frisch NB**, Wessell NM, Charters MA, Yu S, Jeffries JJ, Silverton CD. Predictors and Complications of Blood Transfusion in Total Hip and Knee Arthroplasty.  
 Podium presentation Detroit Academy of Orthopaedic Surgeons – Birmingham, MI May 2014  
 Poster presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2014  
 Podium presentation American Association of Hip and Knee Surgeons Annual Meeting – Dallas, TX November 2013

**Frisch NB**, Charters MA, Sikora-Klak J, Banglmaier RF, Oravec DJ, Silverton CD. Intraoperative Periprosthetic Femur Fracture: A Biomechanical Analysis of Cerclage Fixation  
 Winner of Detroit Academy of Orthopaedic Surgeons Resident Research Symposium – Birmingham, MI May 2014  
 Podium presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2014  
 Poster presentation International Society for Technology in Arthroplasty – Palm Beach, FL October 2013

**Frisch NB**, Charters M, Dobson C, Les C, Hoegler J, Hakeos W, Guthrie T. Intertrochanteric Hip Fractures: How Time To Surgery and Comorbidities Affect Mortality  
 Winner of HFHS Research Symposium in Epidemiology – Detroit, MI May 2014  
 Podium Presentation at Detroit Academy of Orthopaedic Surgeons – Troy, MI May 2013  
 Podium presentation at Michigan Orthopaedic Society – Mackinac Island, MI June 2013  
 Podium presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2014

**Frisch NB** and Silverton C. Arthroscopic-Assisted Revision Total Knee Arthroplasty. Case Study.  
 Presented at Henry Ford 20th Annual Medical Education Research Forum. Detroit, MI February 2013

**Frisch NB**, Charters MA, Wessell NM, Sikora-Klak J, Yu S, Jeffries JJ, Les CM, Silverton CD, Laker M. Rivaroxaban versus Enoxaparin for Venous Thromboembolism Prophylaxis after Hip and Knee Arthroplasty.  
 Podium presentation American Academy of Orthopaedic Surgeons Annual Meeting – New Orleans, LA March 2014  
 Podium presentation Mid-America Orthopaedic Association Annual Meeting – San Antonio, TX April 2014  
 Winner of Edward D. Henderson, M.D. Physician in Training Award  
 Poster presentation American Association of Hip and Knee Surgeons Annual Meeting. Dallas, Tx November 2013  
 Podium presentation International Society for Technology in Arthroplasty. Palm Beach, FL October 2013  
 Podium presentation at Michigan Orthopaedic Society. Mackinac Island, MI June 2013  
 Podium presentation at Detroit Academy of Orthopaedic Surgeons Research Forum. Troy, MI May 2013

**Frisch NB**, Nahm N, Khalil JG, Guthrie ST, Charters MA. Retrospective comparison of short versus long linear compression cephalomedullary nails for the treatment of intertrochanteric fractures.  
 Podium presentation at Henry Ford 20th Annual Medical Education Research Forum – Detroit, MI February 2013  
 Podium presentation at Michigan Orthopaedic Society – Mackinac Island, MI June 2013

Gibson, Zhang, Mayer, **Frisch**, Dobson, Parsons. MicroRNA biomarkers for chondrosarcoma.  
 Poster presentation at Orthopaedic Research Society – New Orleans, LA March 2014

Keller RA, **Frisch NB**, Abghari M, Desilva S. The utility of botulinum toxin in the repair of upper extremity tendon repairs.  
 Podium presentation at Michigan Orthopaedic Society - Mackinac Island, MI June 2014

Nahm N, **Frisch NB**, Wael G, Guthrie ST. Radiographic predictors of screw cutout for intertrochanteric fractures treated with cephalomedullary nails  
 Podium presentation at Henry Ford 20th Annual Medical Education Research Forum – Detroit, MI February 2013

Gibson, Zhang, Mayer, **Frisch**, Dobson, Parsons. MicroRNA biomarkers for chondrosarcoma.  
 Poster presentation at Orthopaedic Research Society – New Orleans, LA March 2014

#### **CURRENT RESEARCH:**

**Frisch NB**, Bell J, Edmiston T, Sporer S, Levine B, Della Valle CJ. Closed Reduction of a Dislocated Total Hip Arthroplasty: Treatment in the Emergency Department versus the Operating Room.

**Frisch NB**, Darrith B, Jacobs JJ, Rosenberg A. Metal Hypersensitivity: A Decision Analysis.

**Frisch NB**, Pepper A, Hightower W, Silverton CD. A Prospective Analysis of Intraoperative Temperature Monitoring in Hip Fractures

**Frisch NB**, DeClaire JD, Keller RA. Quantifying patient engagement in total joint arthroplasty using digital app-based technology

Nodzo SR, Boyle KK, **Frisch NB**. Nationwide organism susceptibility patterns to common preoperative prophylactic antibiotics: what are we covering?



DeClaire JD, Keller RA, Aiello P, Freeman DC, **Frisch NB**. Outpatient unicompartmental knee arthroplasty: selection criteria and early clinical outcomes

**Frisch NB**, Courtney PM, Aiello P, Copeland LA, Gerlinger T. Veterans undergoing total hip and knee arthroplasty: analysis of demographics and outcomes

**Frisch NB**, Taliafero K, Silverton CD. Wear in metal-on-metal hip arthroplasties as measured by cobalt-chromium ratios

**Frisch NB**, Taliafero K, Silverton CD. Periarticular pseudotumor localization in total hip arthroplasty

**Frisch NB**, Taliafero K, Silverton CD. Evaluation of dual mobility interface corrosion rates as measured by serum titanium in metal-on-metal modular hip arthroplasty

**Frisch NB**, Taliafero K, Silverton CD. Changes in serum cobalt and chromium in metal-on-metal modular total hip arthroplasty implants

**Frisch NB**, Taliafero K, Silverton CD. Prevalence of metal ion induced subclinical cardiomyopathy in modular metal-on-metal total hip arthroplasty

## PROFESSIONAL HEALTHCARE EXPERIENCE

**3M**, Maplewood, MN September 2016 – Present  
Physician Advisor

**miROM, LLC**, Detroit, MI September 2016 – Present  
Co-Founder  
Develop and design sensor technology for musculoskeletal injury prevention and rehabilitation

**MD|MBA Network**, Boston, MA September 2008 – June 2012  
Co-Founder  
Developed business plan and ascertained funding for launch of MD|MBA Network – a fully functional web-based platform for collaboration between MD/MBA alumni, faculty, administration and current students  
Designed web-based platform, managed platform construction and coordinated with faculty and administration, orchestrating official Network launch event at Tufts University School of Medicine

**Tufts Medical Center**, Boston, MA April 2010 – June 2011  
Consultant  
Benchmarked and proposed a curriculum for a Leadership Education Program designed for new physician executives/leaders at Tufts Medical Center  
Created Program's teaching structure and content through collaboration with administrators and faculty at Tufts University and Brandies Heller School of Healthcare Management

**Tufts Medical Center Physicians Organization**, Boston, MA November 2009 – March 2010  
Consultant  
Conducted market research for proposed business development models  
Proposed strategies to optimize service delivery based on market analysis

**Tufts Medical Center**, Boston, MA August 2008 – January 2009  
Consultant  
Researched and provided strategic analysis of new business development protocols for medical universities, academic medical centers and device/pharmaceutical companies  
Proposed and presented potential Tufts Medical Center-specific models for new business development

**Tufts Health Plan**, Watertown, MA May – November 2008  
Consultant  
Reviewed evidence-based medicine, provider perspectives, competitor positions and Tufts Health Plan data on total joint replacement

Provided consolidated review of clinical decision-making processes and developed potential medical policy and management strategies surrounding total joint replacement

**Cambridge Health Alliance**, Cambridge, MA  
Consultant

June – August 2007

Developed a business plan for a Sports Medicine Fellowship in Family Medicine  
Analyzed process flow for the Department of Orthopaedics at the Cambridge Campus

**EMPLOYMENT EXPERIENCE**

**G.A. FRISCH, INC.**, Troy, MI

2003 – 2008

*Project Manager*

- Supervised commercial, industrial and historic restoration projects
- Redesigned and implemented automated progress reports and project flow analysis
- Oversaw development of company safety program based on updated Michigan OSHA standards

**FLETCHER ALLEN HEALTH CARE**, South Burlington, VT

2001 – 2002

*Hemodialysis Technician*

- Performed patient care duties related to patients' personal needs, comfort and safety
- Administered hemodialysis treatments to patients in end stage or acute renal failure

**ADDITIONAL INTERESTS**

windsurfing · kiteboarding · skiing · lacrosse · hunting · fishing