



NICHE CONFERENCE

Implementation of a Geriatric Hip Fracture Program and Delirium Screening: Driving Quality Practice




Pinnacle Health System
 Harrisburg, PA.


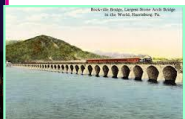
April 20, 2017 **PODIUM PRESENTER:**
 Dawn Hippensteel, MS, BSN, RN, CCRN, GCNS, NICHE Coordinator
 Maryalyce McCormick, MS, RN, ACNS-BC, ONC, CNRN


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Greetings from Pinnacle Health System, Harrisburg PA

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Fractured Hip Statistics


- 1 in 3 women & 1 in 5 men >50 years will have osteoporotic fracture
- 75% of hip, spine and distal forearm fractures >65 years
- 300,000 estimated hip fractures in U.S.
- By 2040, incidence expected to double
- 75% occur in women
- 24-30% mortality within 1 year of fracture
- 53% >65 years suffer loss of functional independence
- 2010 cost of care \$20million, by 2040, expected to triple

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NICHE CONFERENCE Pre-program Audit (Jan 2014-Dec 2014)

- ED Door-to-Medical consult mean 8.6 hours
- ED Door-to-Cardiology consult mean 9.6 hours
- ED Door-to-Orthopedic consult mean 2 hours
- ED Door-to-OR mean 22.9 hours
- 9% ICU stay post-operatively
- 42% developed post-op delirium
- 0% Vitamin D levels drawn
- 6 % initiation of new osteoporotic treatment



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NICHE CONFERENCE Background

- Lack of consistency with care and treatment of patients who were admitted with a hip fracture
- Opportunities
 - Align care with current EBP guidelines
 - Improve outcomes

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NICHE CONFERENCE Developing the Inter-professional Team

- Orthopedic Service Line Director & Manager
- Orthopedic Physician Champions
- Anesthesia
- Cardiology
- ED physicians
- Palliative Care Physician
- Nurse Managers
- Clinical Nurse Specialists
- Dietician
- Physical/Occupational Therapy
- Case Manager
- Internal Medicine Physicians

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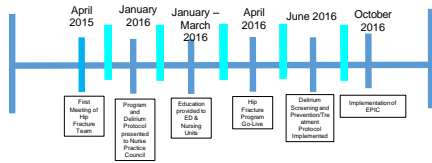


• Stakeholders

- Nurses
- Physicians
- Care Coordinators
- Radiology
- Emergency Medical Services
- Rehab Services (Physical and Occupational Therapy)
- Pharmacy
- Nutrition Services

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- Standardize & streamline evidenced based care delivery for fractured hip patients through their continuum of care
- Improve outcomes for hip fracture patients
 - Hospitalization management
 - Prevention of complications
 - Long term fragility management
- Decrease hospital LOS
- Decrease cost of care

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NICHE CONFERENCE ED Protocol of care

- EMS/Triage Nurse
 - Evaluate if criteria met
 - Confirm baseline cognitive status/active delirium
 - Confirm length of NPO status
 - 12 Lead EKG (syncope episode)
- ED Hip Fx Protocol
 - Pain management
 - Radiology testing within 30" of arrival
 - Early consultation of Orthopedic & Medical services
 - Early management of blood glucose
 - Osteoporosis screening
 - Hydration
- **Goal: ED door-to-floor 2 hours**

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NICHE CONFERENCE Pre-operative Care

- Hip Fracture Pre-operative/Non-Surgical order sets
 - Cardiac consultation criteria
 - ECHO testing criteria
 - Osteoporosis screening/treatment
 - Renal Risk screening
 - Glucose control
 - Nutrition consultation
 - Palliative care consultation PRN
- OR facilitation when patient optimized
- **Goal: Patient to OR within 24 hours**

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NICHE CONFERENCE Post-operative Care

- Hip Fracture Post-operative order sets
- Early mobilization POD#0
- Fall prevention education, vitamin D, calcium, DEXA, nutrition
- Delirium assessment & management
- Fragility management
 - Medication & nutritional interventions
 - DEXA scan post-hospitalization
- **Goal: Patient medically stable at time of transition**

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Delirium

- Delirium screening education and implementation
 - Literature search for the best tool to assess for delirium
 - Search for prevention and treatment strategies and other protocols
 - Protocol developed
 - Approval requested at Nurse Practice Council and Medical Executive Committee
 - Education on the 3 orthopedic units, on all shifts
 - Paper form
 - Assigned plan of care
 - Monitored by CNSs after launch

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Fractured Hip Outcomes

- Source of Admission (admitted from Home, Skilled Nursing home, Assisted Living, Acute Rehab)
- Door-to-OR time
- Door-to-Medical consult
- Door-to-Cardiac consult
- Type of Anesthesia utilized
- Amount of reversal agents used
- LOS
- Mortality
- Readmissions
- Complications
 - DVT/PE
 - SSI
 - Pneumonia
 - Respiratory Failure
 - Cardiac (Atrial fibrillation)
 - AKI
 - Hematoma
 - Delirium
 - Initiation of Vitamin D/Ca
 - DEXAscan arranged outpatient
 - Discharge Disposition

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Hip Fracture Dashboard

Measure	FY15 Baseline	Post-launch April-Sept FY16 (n=142)
Mortality	2.5%	3.5%
Readmissions	7.4%	★ 5.1%
Avg. LOS	5.7	★ 5.4
Door-to-Medical Consult Done (HH:MM:SS)	10:41:17	★ 6:18:35
Door-to-Cardiac Consult Done (HH:MM:SS)	12:57:21	★ 12:29:04
Door-to-OR (HH:MM:SS)	23:07:31	★ 21:10:29
Osteoporotic Treatment- IP Setting	7.0%	★ 42.4%

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NICHE CONFERENCE Hip Fracture Dashboard


Measure	FY15 Baseline	Post-launch April-Sept FY16 (n=142)
Hip Fracture Complications Rate		★ 21.3%
DVT	32%	0.0%
PE	0.0%	1.5%
Pneumonia	0.4%	2.5%
Hematomas	0.4%	0.0%
Respiratory Failure	4.6%	★ 3.9%
A-Fib	2.8%	★ 0.7%
Renal Failure	10.2%	★ 3.4%
Delirium	2.1%	★ 4.2%
Surgical Site Infections	0%	0.5%

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NICHE CONFERENCE Post-implementation focused audit May 2016 – Sept 2016

- Emergency department protocol**
 - Door-to-Medical consult 5:29:00 hours
 - Door-to-Cardiac consult 10:58:28 hours
 - Door-to-OR 20:01:13 hours
 - 49' average Radiology imaging timing
 - 1% utilization of acetaminophen suppository
 - 33% VitD25 lab drawn
- Pre-op/Non-op order protocol**
 - 59% Renal risk identification
 - 15% nutritional supplementation ordered pre-op
 - 70% Outcomes Management assessment ≤24 hours of admit
- Post-operative order protocol**
 - 37% nutritional supplementation ordered
 - 30% OOB day of surgery
 - Variation in delirium assessment documentation



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NICHE CONFERENCE Opportunities

- In the meantime we:**
 - Implemented a new EMR system
 - Went from paper to electronic documentation
 - Needed to do more nursing education related to the EMR
 - Revised our nursing protocol for delirium assessment, identification and treatment

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ED protocol

- IT enhancements to Initiation of ED Hip fracture protocol
- Enhance early pain management

Pre-op/Non-op care

- Renal risk identification
- Nutritional supplementation
- Early identification/treatment delirium
- Improve timing of Cardiac consultations

Post-operative care

- Early mobilization
- Nutritional supplementation
- Osteoporotic treatment initiation according to standard
- Delirium screening/monitoring



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- Continue to hardwire process
- Consistent delirium screening
- House wide use of delirium screening

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Geriatric Hip Fracture Program development:

- American Academy of Orthopedic Surgeons (AAOS) Management of Hip Fractures in the Elderly
- American College of Cardiology/American Heart Association (ACC/AHA) Peri-operative Cardiovascular evaluation and management of patients undergoing non-cardiac surgery 2015
- US Dept. of Health and Human Services: Bone Health and Osteoporosis: A Report of the Surgeon General, 2004
- National Osteoporosis Foundation: physicians guide to prevention and treatment of osteoporosis, 2003
- American College of Surgeons Best Practice Guidelines: Optimal pre-op assessment of the geriatric surgical patient
- American Geriatrics Society: CPG for Postoperative Delirium in Older Adults
- American College of Emergency Physicians: Geriatric Emergency Department Guidelines (2013)

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Hip Fracture and delirium articles:

Close, J.D., Swartz, K., Raywinder, D. (2013). Hip fracture in older patients: tips and tools to a speedy recovery. *Journal of Family Practice*, 62 (9), 484-492.

Fikweert, E.R., Izaks, G.J., Knobben, B.A.S., Stevens, M., Wouda, K. (2014). The development of a comprehensive multidisciplinary care pathway for patients with a hip fracture: design and results of a clinical trial. *BMC Musculoskeletal Disorders*, 15:188. <http://www.biomedcentral.com/1471-2474/15/188>

Grossmann, F., Haasemann, W., Graber, A., Bingseler, R., Kreszig, R.W., Nickel, C.H. (2014). Screening, detection and management of delirium in the emergency department- a pilot study on the feasibility of a new algorithm for use in older emergency department patients: the modified Confusion Assessment Method for the Emergency Department (mCAM-ED). *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, 22(19). <http://www.sjtem.com/content/22/1/19>

Guzman-Flores D, Salluh JI, Chalhoub RA, Quaramtini LC. (2012). The Confusion assessment method for the intensive care unit (CAM-ICU) and the intensive care delirium screening checklist (ICDSC) for the diagnosis of delirium: a systematic review and meta-analysis of clinical studies. *Critical Care* 16(4). doi: 10.1186/cc11407

Hill, B.W., Switzer, J.A., Cole, P.A. (2012). Management of high-energy acetabular fractures in the elderly individuals: A current review. *Geriatric Orthopaedic Surgery & Rehabilitation*, 3(3), 95-106.

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Holly, C., Rittenmeyer, L., Weeks, S.M. (2014). Evidence-based clinical audit criteria for the prevention and management of delirium in the postoperative patient with a hip fracture. *Orthopedic Nursing*, 33 (1), 27-34. DOI 10.1097/NOR.0000000000000020

Klimiec, E., Dziendziel, T., Kowalka, K., Szyper, A., Pera, J., Potoczek, P., et al. (2015). Prospective Observational POLISH Study on post-stroke delirium (PROPOLIS): methodology of hospital-based cohort study on delirium prevalence, predictors and diagnostic tools. *BMC Neurology* 15(94). DOI: 10.1186/s12883-015-0351-z

Leung, J.L., Leung, V.C.W., Leung, C.M., Pan, P.C. (2007). Clinical utility and validation of two instruments (the Confusion assessment Method Algorithm and the Chinese version of Nursing Delirium Screening Scale) to detect delirium in geriatric inpatients. *General Hospital Psychiatry*, 30, 171-176. DOI: 10.1016/j.genhosppsych.2007.12.007

Luetz, A., Heymann, A., Radtke, F.M., Chenstir, C., Meuthaus, U., Nachtigall, I., et al. (2010). Different assessment tools for intensive care unit delirium: Which score to use? *Critical Care Medicine*, 38, 409-418.

Mak, J.C.S., Cameron, I.D., March, L.M. (2010). Evidence-based guidelines for the management of hip fractures in older persons: an update. *MJA*, 192, 37-41.

Neto A.S., Nassar A.P. Jr, Cardoso S.O., Manetta J.A., Pereira V.G., Esposito D.C., et al. (2012). Delirium screening in critically ill patients: A systematic review and meta-analysis. *Critical Care Medicine*, 40(6):1946-1951.

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Neufeld, K.J., Leoutsakos, F.E., Seiber, D. J., Wanamaker, B.L., Rios-Robles, J., Needham, D.M. (2013). Evaluation of two delirium screening tools for detecting post-operative delirium in the elderly. *British Journal of Anaesthesia*, 111(4), 612-618. DOI: 10.1093/bja/aet167

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Radtke, F.M., Franck, M., Schust, S., Boehme, L., Pascher, A., Ball, H.J., et al. (2010). A comparison of three scores to screen for delirium on the surgical ward. *World Journal of Surgery*, 34, 487-494. DOI: 10.1007/s00268-009-0376-9

Radtke, F.M., Franck, M., Schneider, M., Seeling, M., Heinz, A., Wernicke, K.D., et al. (2008). Comparison of three scores to screen for delirium in the recovery room. *British Journal of Anaesthesia*, 101(3), 338-343. DOI: 10.1093/bja/aen193

Shi, Q., Warren, L., Saposnik, G., MacDermid, J.C. (2013). Confusion assessment method: a systematic review and meta-analysis of diagnostic accuracy. *Neuropsychiatric Disease and Treatment*, 2013(9), 1369-1369.

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