What I learned at the NAFP Spring Annual Meeting, 2019

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Thursday March 28, 2019

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Supportive Care for Patients on Biologic Therapy

Ryan Zwick, PharmD
Vanessa Vesely, PharmD

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Biologics

- Biosimilar product
  - No clinically meaningful differences from existing FDA product
  - Use pharmacokinetic and pharmacodynamics studies to assess for "clinically meaningful differences"
  - Biosimilar does not equal generic
- Preventative measures for biologic therapy
  - Tuberculosis screening
  - Baseline labs (hepatitis B, metabolic panel, CBC)
  - Vaccine recommendations
    - Receive 1 dose of both pneumococcal vaccines 8 weeks apart then PPSV 5 years later
    - Live vaccines are contraindicated during biologic therapy except HPV vaccine
- Other considerations for biologic therapy
  - Hold biologics in perioperative period
    - Stop biologic 3-4 half lives prior to surgery on case by case baseline based on guideline statements
    - Impaired wound healing and surgical site infections (conflicting evidence)
  - Monitor infections parameters
    - Discuss with rheumatologist
    - Possible 3 fold difference which is dose and duration of treatment dependent
  - Risk of GI perforation or bleeding
    - More likely lower than upper GI bleed
    - Increased risk when used in combo with corticosteroids

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Time to Walk the Talk: Addressing Diversity, Inclusion, and Equity in Medicine

Jasmine Riviere Marcelin, MD

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Diversity, Inclusion, and Equity in Medicine

- A meta-analysis on 13/15 studies measuring implicit bias in healthcare professionals showed statistically significant moderate levels of bias against POC
- Implicit bias
  - Attitudes, stereotypes and beliefs than can affect how we treat others
  - Runs contrary to our stated beliefs
  - Unintentionally behave in ways that are biased and discriminatory
- Implicit Association Test/project Implicit (https://implicit.harvard.edu/implicit/)
- Impact of implicit bias
  - Letters of recommendation favor men in terms of words to describe such as leadership qualities
  - Women doctors, nurses hearing biased comments about age and weight
  - Bias leads to more undesirable patient interactions
- Personal strategies to address implicit bias
  - Deliberative reflection
  - Question stereotypes
  - Cultural humility
  - Diversify experiences
  - Mentor and sponsorship opportunities of minorities
- Diversity drives excellence
- Minority Tax
  - Extra responsibilities placed on minority faculty in the name of efforts to achieve diversity
- Increasing diversity through strategy
  - Treat diversity, inclusion and equity as an ethical innovation challenge
  - Change institutional norms
  - Create a culture in which people feel personally responsible for change
  - Implement behavioral guidelines and action plans

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Resident Presentation: Pediatric Asthma Survey at Open Door Mission

Maria Vacha, DO

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Pediatric Asthma at Open Door Mission

- Purpose: describe the prevalence of asthma in children ages 4-18 years in an Omaha Homeless Shelter.
- Secondary purpose: to provide and/or augment care of asthma for underserved and vulnerable population in Omaha by reducing barriers to care
- Increased prevalence of asthma in poverty
  - Common risk factors present: family hx, allergies, respiratory problems during infancy, exposure to tobacco smoke, live in areas with high levels of pollutions
  - Emotional, physical and emotional stress increases prevalence of childhood illnesses
- Preliminary Results of study at Open Door Mission
  - 19 children screened
  - 8/19 positive for reactive airway disease (42.1%)
  - National average in 2016 8.3%
  - Results similar to larger 1999 study in New York

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Resident Presentation: Food Insecurities

Robin Chirackal, MBBS
Austin Saavedra, MD
Keidren Lewi, MD

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Food Insecurities

- 2017: 42.4 million Americans live in food insecure homes
  - 29.2 million adults and 13.2 million children
  - 1 in 8 Americans
- In Nebraska: 227,350 people struggling with hunger
  - 82,070 children
  - 1 in 8 people
  - 1 in 6 children
- Food insecurity: lack of consistent access to enough food for an active and healthy lifestyle
- Study
  - Screened patients of Creighton University Family Medicine Clinic not previously screened
  - Screened using standard questionnaire
  - 202 patients screened
  - 56 screened positive (28%)
    - 42% received no help from food bank
    - 29% received help from food bank
    - 29% no response
  - Received help 19% increase in sick visits compared to 20% in those received no help from food bank

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CVD and Renal disease in Type 2 Diabetes Mellitus: Individualizing Therapeutic Options to Reduce Comorbid Risk

Prakash Deedwania, MD, FACC, FAHA, FACP, FASH, FHFSA, FESC

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Therapeutic options for Type II DM in CVD and Renal Disease

- Metformin still first line treatment in newly diagnosed diabetics and all stages of diabetes
- In setting of CKD, CVD is leading cause of death
  - CV mortality in CKD patients is 15-30x higher than age adjusted CV mortality rate in general population
- Cardiovascular outcomes of newer diabetic agents
  - SGLT-2 Inhibitors: cardiovascular benefit; class effect
  - DPP-4 Inhibitors: cardiovascular neutral
  - GLP-1 agonists: mixed
    - Liraglutide (Victoza), semaglutide (Ozempic): cardiovascular benefit
    - Lixisenatide (Adlyxin), exenetide (Byetta): cardiovascular neutral
- CKD one of most common complications of DM2
  - RAAS inhibition slows progression of CKD and improves renal outcomes
  - SGLT-2 Inhibitors: empagliflozin (Jardiance), canagliflozin (Invokana)
    - stabilize or prevent decrease of eGFR, reduce albuminuria, improve overall renal outcomes
    - Contraindicated in stage IV and stage V CKD
  - GLP-1 agonist: Liraglutide (Victoza)
    - Slow progression of CKD and reduce albuminuria
    - Use caution if CKD stage IV and stage V
  - DPP4-Inhibitors
    - Fewer favorable effects on renal function, but may slow renal progression and reduce albuminuria

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AAFP Update

John Cullen, MD FAAFP
AAFP President

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AAFP Update

- For every increase of 10 primary care physicians per 100,000 people life expectancy increased by 53 days
- Oregon: every $1 dollar put in primary care save $13 overall
- Payment reform
  - 2019 fee schedule
  - APC-APM
  - DPC
  - Facility Fee
  - Increase in primary care spend (goal of minimum 15%)
- 12% of all rural hospitals offering ob have eliminated this service since 2011
  - 46% of nations rural hospital provide ob care
- Accelerate the future of health care with AI
  - Self documenting record with embedded with AI that will help with population health
  - $1 million grand prize (#CMSAICHALLENGE)
  - AI.CMS.gov
- FamMedPAC spent $1 million on 2018 midterms
- Public relations firm to increase presence on networks to become authoritative voice on primary care
- Improve website to improve experience of the members
- 25% of all US medical students to choose family medicine by 2030 (#25x2030)

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The most current updates and controversies in Breast Cancer

Edibaldo Silva, MD, PhD, FAC

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Updates and Controversies in Breast Cancer

- NCI consensus conference 1991
  - Endorsed breast conservation as preferred treatment for breast cancer
- Breast conserving surgery and radiation vs mastectomy
  - Lumpectomy and radiation with appropriate systemic therapy is equivalent or slightly better on recurrence rates at 5 and 10 years than mastectomy
  - Breast conserving surgery better than mastectomy for triple negative breast cancer
- Positive margin
  - Positive margin at ink mark is no worse than increasing margin width
- Radioactive seed localization
  - Implant radioactive seed into center of lesion and dissect to remove the entire seed and palpable mass
- MRI
  - Overestimates size in 11-70% of patients
  - Underestimates size in 10-56% of patients
  - Biopsy all second lesions prior to determine whether to proceed with lumpectomy vs mastectomy
- MRI
  - Overestimates size in 11-70% of patients
  - Underestimates size in 10-56% of patients
  - Biopsy all second lesions prior to determine whether to proceed with lumpectomy vs mastectomy
- Indications for MRI
  - BRCA carriers
  - Women with palpable mass with normal mammogram and U/S
  - Pre and post evaluation with using preop chemotherapy
  - Women with occult breast CA-palpable axillary nodes and normal mammogram
  - Paget's with normal mammogram
  - Women with implants
- Reducing contralateral risk
  - Assess informative value of screening mammogram
  - Design personalized screening strategy (MRI, U/S, every 6 months exam
  - Consider proactive strategies (tamoxifen, ralaxifen, exercise and diet)

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Interventional Pain Procedures

Scott Haughawout, DO

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Interventional pain procedures

- T2P
- Prevalence of chronic neck pain in adult population is 15%
  - 36-67% of patients have cervical spondylosis
  - Comparative local anesthetic blocks for diagnostic purposes
  - Radiofrequency ablation
    - Safe and effective for patients with disabling chronic neck pain related to cervical facet spondylosis (level II)
  - Cervical epidural steroid injection
    - Interlaminar-less specific, more area, less risky
    - Transforaminal-more specific, less area, more risky (stroke risk)
    - Indications
      - Discogenic/axial pain in cervical spine (level II)
      - Cervical stenosis with cpdiculopathy: interlaminar (level II) transforaminal (level III)
      - Post-surgery cervical syndrome: interlaminar (level II)
- Thoracic procedures: less beneficial as compared to cervical and lumbar
- Lumbar spondylosis
  - Present 27-37% asymptomatic individuals
  - In US over 80% of 40 yo will have radiographic evidence of lumbar spondylosis
  - No validated evidence of radiographic evidence and lumbar back pain
- Lumbar facet arthropathy
  - Medial branch block: 1st step-strictly diagnostic no steroid
  - If concordant response can proceed with radiofrequency ablation
- Lumbar disc bulging/herniation
  - Steroid injection: any approach (level II)
- Neuromodulation
  - Failed back surgery syndrome, chronic pain, intractable angina, complex regional pain syndrome

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Resident Jeopardy

Douglas Martin, MD FAAFP

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Resident Jeopardy

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Friday March 29, 2019

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Bold and Bald: Perils of Too Much Testosterone

Leslie Eiland, MD

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Perils of too much Testosterone

- Hypogonadism
  - Primary: testes have failed
    - Testosterone low,LH and FSH high
    - Less common, more likely younger men: infertility
  - Secondary: hypothalamic or pituitary failure
    - Testosterone low,LH and FSH low/inappropriately normal
    - Broader assessment of pituitary warranted
- Screening
  - Recommend against screening in general population
  - Need specific symptoms
  - Unequivocally consistently low serum total and/or free T concentrations
    - Order fasting and measure total T on 2 separate mornings
- Specific symptoms
  - Incomplete/delayed sexual development
  - Low libido
  - Decreased spontaneous erections
  - Breast discomfort, gynecomastia
  - Loss of body hair
  - Decreased shaving frequency
  - Small/shrinking testes
  - Infertility/low sperm count
- When free testosterone
  - Condition that alter sex hormone binding globulin (SHBG)
  - Initial total testosterone count at or near lower limits of normal
- Treatment
  - Primary: replaces unless contraindicated
  - Secondary: Find out why first then treat
  - Options: gel, IM, patch, pellets
  - Lots of interesting options over the counter
- Androgenic anabolic steroids
  - Abuse: use not treating disease
  - Increased recreational use
  - 3 million users: more than T1dM and HIV combined
  - Optimal strategies for medically supervised AAS withdrawal and recovery of testicular function are not known
  - Side effects
    - CNS: variable sometimes extreme
    - Cardiovascular: cardiomyopathy, Htn, CVA, MI
    - Liver: mainly oral supplements
    - Dyslipidemia: orals raise LDL, all forms lower HDL
  - Withdrawal
    - Suppresses hypothalamic pituitary testicular axis
    - May take months to years to recover and maybe never get back to normal
    - Biphasic
      - First phase: 1-2 weeks: agitation; vasomotor: Finpatient: clomiphe, sedatives
      - Second phase: months to years: depression, lassitude, SSRI, testosterone replacement
  - Hard to get people off exogenous abuse

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Goals of Care in Advanced Illness

Lou Ann Lukas, MD

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Goals of Care in Advanced Illness

- VA
  - Goals of Care Conversations and Life Sustaining Treatment Decision Initiative
  - Move toward patient center care
  - Elicit, record and enact patient choices based on thoughtful conversations about their illness and their values
    - Good conversation, durable orders, out of hospital orders
- Good Conversation: Healing Hand
  - See Handout
  - Make Friends: maintain relationship
    - Introductions/Support, Ask permission, slow down, reflect on what heard, name emotion, offer respect, align with their wishes, curiosity/exploring
  - Make Sense: "What's going on Here?" (Ask, Tell, Ask)
  - Make Recommendations: What matters most, what want to avoid?
  - Make Plans: agree on scope of treatment and limitations on life sustaining treatment
    - Patient centered goals, not consent for procedure
    - NETO, POLST
  - Make Peace: it's their lives and their choices, our role is to honor it
- Cognitive map for treatment decisions
  - Sequential: steps have to initiated in order
  - Iterative: steps may need to be revisited
  - Discrete: steps may happen over several visits
  - Efficient: learning a solid map saves time spent fumbling
- Four Real Recommendations for "Plan B"
  - Long Term Life Support
  - Full aggressive treatment until we are at the place you don't want to be
  - Strong supportive care/Treatment limited to General Medical Care
  - Treatment only to avoid suffering (may include hospice if expectancy less than 6 months)

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Hiram R Walker, MD, Lectureship in Family Medicine: Finding your Voice: The future of Family Medicine

Reid B. Blackwelder, MD FAAFP

Past AAFP President

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Finding Your Voice: Future of Family Medicine

- We are all leaders and must be change agents and must be informed
- Future of Family Medicine depends on each of us to do our part
- Disruptive leaders
  - Always looking for better solution
  - Want to improve processes
  - Not afraid to shake things up
  - 2 guiding principles
    - Assume good intent
    - Cheerful persistence
- Primary Care is "the Answer"
  - Family Medicine is THE Primary Care specialty
  - Our comprehensive training is designed so we can do it all
- Starfield 4 Cardinal C's of Primary Care
  - Contact
  - Collaboration
  - Comprehensiveness
  - Continuity
  - Community-based Care
- Main factors that improve health outcomes
  - Regular source of compressive care: Primary care not the ED
  - Insurance coverage
- Core Goal: Quadruple Aim
  - Improved outcomes
  - Better satisfaction of patients
  - Better satisfaction of providers
  - Lower cost
- Increase workforce (25% by 2030)
- Keep doors open, be creative
- Create/Demand/Advocate
  - Interoperability/Communication
  - Relationships/Communication
- Team Based Care
  - Embedded services (or relationships): pharmacy, social worker Behavioral Medicine
- Advocate for your VALUE!!!
- Be Intentional about what you do
- Primary Care Physicians must
  - Be who we say we are
  - Do what we say we can
- Life Tool: A Day of Ceremony
- Cultivate Thankfulness!!!

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Improving Diagnosis and Treatment of Atopic Dermatitis

Michael Blaiss, MD

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Atopic Dermatitis

- Prevalence atopic dermatitis: 31.9 million in the US
- Long term disease continuum: 60% develop asthma or allergic rhinitis and 30% develop food allergies
- Essential symptoms present
  - Pruritus
  - Eczema
  - Morphology (typical or atypical)
  - Age-specific patterns
  - History: chronic or relapsing
- Accurate assessment of severity important for optimal treatment
  - Validated clinical scoring symptoms not recommended in current guidelines
  - Clinical assesment: mild, moderate, severe
    - Itch
    - Sleep
    - Impact on daily life
- Disease persistence/Treatment goals
  - Control itch
  - Control skin inflammation
  - Restore barrier integrity
  - Decrease xerosis
  - Treat secondary infection
  - Recognize and prevent triggers
  - Reduce frequency of flares
  - Improve and maintain Quality of Life
- Treatment: basic management
  - Skin Care
    - moisturizer, liberal and frequent
    - Warm baths or showers using non-soap cleanser. 1x/day followed by moisturizer (even on non-bath days)
  - Trigger avoidance
- Treatment: mild
  - Basic management
  - Antiseptic measures: dilute bleach bath (or equivalent less than 2x/week (especially with recurrent infections)
  - Acute treatment: mild to moderate topical steroid until lesion gone plus 7 days
  - Calcineurin inhibitors or PDE4 inhibitors add on therapy
- Treatment: moderate
  - Basic management plus maintenance topical steroid or maintenance calcineurin inhibitor or maintenance PDE4 inhibitor
  - Acute treatment; moderate to high potency topical steroid until gone plus 3-7 days
- Treatment: severe
  - Refer to specialist
  - Phototherapy
  - Dupilumab
  - Systemic Immunosuppressants
  - Acute: may require wet wraps or hospitalization

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Medical Student and Resident Poster Presentations

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Student and Resident Poster Presentations

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Resident Presentation: Tracking Opioids on the Blockchain

Derek Shafer, MD

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Tracking Opioids on Blockchain

- Blockchain
  - Record of transactions that are independently verified by a decentralized network and cryptographically secured
- Opioid crisis
  - 217K prescription overdose deaths 1999-2017
  - 46 per day
  - Top 3 drugs
    - Methadone
    - Oxycodone
    - Hydrocodone
- Top 5 Prescribing Counties Nebraska 2017
  - Phelps
  - Jefferson
  - Dundy
  - Keith
  - Box Butte
- PDMP
  - Pharmacy driven
  - Provider dependent
    - No mandate to look at it
- Ethereum
  - Specific type of blockchain
  - Goal: be a global computer
  - Accessible programming
  - Relatively decentralized
  - Developers/miner payed in Ether
- Proof of concept
  - Yes could do this
  - Needs
    - Security
    - Permissions
    - Integration
    - Incentives for miners
    - Infrastructure
- Blockchain proactive as provides you real time prescription info prior to prescribing

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Resident Presentation: Atypical Parathyroid Adenoma with Findings of Severe Hypercalcemia and Hyperparathyroidism

Garrett Mockler, MD

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Atypical Parathyroid Adenoma Presentation

- Make sure document physical exam findings
- Hypercalcemeia workup
  - Confirm calcium elevated
  - Order PTH
    - PTH high hyperparathyroidism or MEN syndromes
    - PTH low malignancy, PTHrp assay
  - Vitamin D
  - DEXA
  - Urinary calcium excretion and creatinine clearance
- Primary Hyerparathyroidism
  - Stones bones groans with psychiatric overtones
  - Non-specific
    - Anorexia
    - Nausea
    - Constipation
    - Polydipsia
    - Polyuria
  - Nephrolithiasis
- Patients with primary hyperparathyroidism and vitamin D deficiency have more significant disease with larger adenomas, increased PTH concentrations, increased bone turnover, and more frequent fractures
- Benign Adenoma (typical presentation)
  - Modest Ca level <15
  - Non-palpable neck mass
  - PTH less than 3x normal
- Carcinoma (typical presentation)
  - Calcium >15
  - PTH 3x upper limits of normal
  - Palpable neck mass
  - Profound symptoms

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Annual Wellness Visits

Joseph Miller, MD FAAFP
Megan Faltys, MD
Jennifer Jarecki, RN

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Annual Wellness Visits

- T2P
- Annual Wellness Visit
  - yearly appointment with PCP or designated healthcare professional
  - Way to keep pt as healthy as possible
  - Develop or update personalized prevention plan based on current health and risk factor to prevent disease
  - Not sick visits
  - If eligible: 100% covered
  - Preventative wellness visit and NOT routine physical
  - Medicare does not provide coverage for routine physical exams
- Initial Preventative Physical Exam (Welcome to Medicare)
  - Review History and update chart
  - Screen for depression/mood disorders (PHQ2 or PHQ9)
  - Functional and safety screens (ADLs, fall risk, hearing, home safety)
  - Exam (height, weight, BMI, blood pressure, visual acuity)
  - End of life planning (provide verbal or written information)
    - Can't bill for Advanced Care Planning
  - Initiate referrals for risks identified from previous bullets
  - Review educate counsel and refer for preventative services and discuss what is covered by Medicare
    - Must provide written plan
- Annual Wellness Visit (Initial and Subsequent)
  - Health Risk Assessment
  - Review History and update chart
  - Update Care team
  - Dementia screen
  - Depression/mood disorder screen (PHQ2 or PHQ9)
  - Safety/functional abilities screen
  - Review preventative services , make referral and provide written plan
  - Review risk factors and treatment plan (written plan)
  - Initiate appropriate referrals
  - +/- advanced care planning
- Health risk assessment (self-reported information)
  - Demographics
  - Self assessment of health status
  - Psychosocial risks
  - Behavior risks
  - ADLs including but no limited to dressing, bathing, walking
  - Instrumental ADLs including but not limited to shopping, housekeeping, managing own meds and handling finances
- How to implement
  - Create practical workflow
  - Educate providers, staff and patients
  - Reach out to patients via phone or visits and offer to schedule
  - Create recall process

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Legislative Update

Josue Gutierrez, MD

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Legislative Update

- Grow legislative influence in Nebraska unicameral
- Become main contact for primary care related/community health question
- Foster and encourage academy members of importance of involvement in policy
- Start Primary Care spend legislation
- Doubled amount legislative activity this year
- Developing relationship with Director of Medicare and Medicaid Services
- Family Physician of the Day

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Saturday March 29, 2019

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Not so Complex Wound Care for Your Office

Debra Reilly, MD, FACS

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Complex Wound Care for Your Office

- Epithelialization
  - Within 1 day of injury
  - Rapid mitotic division migrate in leapfrog fashion until wound covered
  - Complete less than 48 hours
- Maturation and Remodeling
  - Takes about 6 weeks
- Scar: always pale as melanocytes do not distribute into scar
- Collagen synthesis dependent on
  - Adequate oxygen supply
  - Presence of sufficient nutrients
  - Local wound environment
- Re-sign: what is easy: most wound healing the remainder (time heals most wounds)
- Wound contraction
  - Overcome contraction with stretch and exercise (& surgery)
- Acute wound
  - Heals within predictable manner and time frame
  - Typically with little to no complications end result is well healed wound
- Management of acute wound
  - Examination
  - Preparation
  - Approximation
  - Follow-up
    - Watch for cellulitis
    - Suture removal: 4-5 days for face, 7-10 days for other skin
- Factors that affect wound healing
  - Local factors: Edema, Bacteria/necrotic tissue in wound, Topical agents (antibiotic), Ionizing radiation, Low weight-bearing, Foreign bodies
- Wound infection: 5-10% nationwide
  - Staph species, coag-negative strept, enterococcus, e. coli
- Systemic factors that affect wound healing
  - Nutrition, Metabolic diseases (diabetes), Immunosuppression, Connective tissue disorders, Medications (steroids), Smoking
- Chronic wounds
  - Failure to proceed through orderly progression
  - Greater than 3 months
- Evaluation of diabetic ulcers (10-15% of diabetics get wound)
  - Measure x y z bigger than 2 cm or 3 mm deep higher likelihood of osteo
  - Imaging
    - Can start with xray but MR better for identifying osteo
  - Labs
    - CBC, ESR/CRP, BCx, quantitative wound culture
    - DO NOT CULTURE SURFACE SUMS WITHOUT CLEANING WITH CHLORHEXIDINE AND RINSE
- How to heal: offloading
  - total contact cast is gold standard. Plantar ulcers, cumbersome
  - Can boot with/without ace wrap. can remove for more frequent wound care, better sleep
- When to refer
  - Urgent: open wound or ulceration: immediate
  - High risk 0: hx of previous ulcer with new skin changes: next open appt outpatient
  - Moderate risk 2: PAD, edema, absent pulses: see specialist every 2-3 months
  - Low risk 1: non-changing deformity: refer 3-6 months
  - Very low risk 0: no issues, patient seeks education

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Infection Control at Expeditionary Hospital in Afghanistan

Gabriel Harris, MD FAAFP

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Infection Control in Afghanistan

- Classification: gram negative bacilli
  - Enterobacteriaceae: E coli, K pneumo, Enterobacter
  - Pseudomonas
  - Acinetobacter baumanii
- Syndromes
  - Pneumonia (VAP)
  - UTI (CAUTI)
  - Bacteremia (CLASBI)
  - Wound Infection (SSI)
  - Meningitis
- Multidrug resistance organism (MDRO)
  - Resistance to greater than or equal 3 antibiotics OR
  - Extended Spectrum B-lactamase (ESBL) OR
  - Klebsiella Pneumonia Carbapenemase (KPC) OR
  - Vancomycin Resistant Enterococcus (VRE) OR
  - Methicillin Resistant Staph Aureus (MRSA)
- Extensively Drug Resistance (XDR)
  - Resistant to 1 agent in all but 2 or fewer categories of antibiotics
- Pan Drug Resistant (PDR)
  - Resistant to ALL antibiotics in ALL classes
- Antimicrobial Resistance
  - Loss of drug target
  - Prevented access to target
  - Efflux of antibiotic
  - Inactivation of antibiotic with enzyme
- Interventions
  - Hand Hygiene Policy
  - Contact Precautions
  - Environmental cleaning including terminal cleaning etc
  - Leadership support
  - Microbiology/lab including MDRO screens, ID and sens etc
  - Antimicrobial Sterwardship Program (CPGs, abx time-outs, Protocols)
    - Physician Led team

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What is New in Pediatric Oncology

Donald Coulter, MD

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New in Pediatric Oncology

- Childhood Cancer Statistics
  - In US 15,000/year diagnosed with cancer
  - Overall survival from cancer 80% but still number 1 disease cause of death in children
  - 75% of childhood cancer survivors will go on to have long term chronic health issues as a result of cancer diagnosis
  - Childhood cancer rates in Nebraska is very high
    - 2003-2014 had 7th highest incidence of childhood cancer in the country
    - 2010-2014 had highest incidence of childhood CNS cancers in country
- Geospatial variation impacts burden of care and outcomes for patients/families
- Possible explanation to geospatial variation
  - Residential and occupational exposure to pesticides possible risk factor
  - Nebraska ranks first in commercial red meat and third in corn production in US
- Cancer treatments
  - Chemotherapy
  - Immunotherapy
  - Car T cell Therapy

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Questions?????

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