



Department of Family Medicine  
and Community Health

UNIVERSITY OF WISCONSIN  
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Madison Family Medicine  
**Residency Program**

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**Scholarly and Community  
Health Projects**

From the Class of 2017

# Neil Cox, MD

## Projects Completed During Residency:

### Scholarly Project:

Update to Formulary of Common Medications  
For Tanzania

### Quality Improvement Project:

InBasket Workflow Project:

Dr. Abigail Puglisi and I, together with our residency nursing staff and attendings, created a work flow for InBasket management. Dr. Puglisi and I developed workflows for both nurses and residents. The nurse workflow ensures that messages arrive in the correct doctor's InBasket. The resident workflow explains how to appropriately document and route the response and which colleague to contact for help. We also developed a quick reference algorithm for both the nurses and residents.



Originally from Michigan, Neil attended the University of Pittsburgh for his undergraduate education, earning bachelor's degrees in linguistics and psychology and neuroscience, with a minor in chemistry. He worked as a chemistry teacher in Tanzania for the

United States Peace Corps, and then returned to Michigan to complete his medical degree at Wayne State University School of Medicine. As a medical student, Neil returned to Tanzania for a summer externship and helped prepare the following year's trip—even teaching Swahili to his classmates. He also participated in the Fabric of Society co-curricular program, working in student clinics serving the uninsured, tutoring grade-school students, and working as a laborer with Blight Busters to help beautify the city of Detroit by tearing down blighted buildings and processing those materials for reuse. He was also a gardener for a number of community gardens around the city. His commitment to teaching and community service are what drew him to family medicine. In his spare time, Neil enjoys reading, gardening, hiking, learning languages, and playing video games.



*Thank you to my wife for her love, support, willingness to travel to Tanzania with a two year old, and avid production of excellent budgets (in both American dollars and Tanzanian shillings).*



# Formulary of Common Medications For Tanzania

**Editors:**

**Henry D. Ziegler, MD, MPH**

**Priscilla B. Ziegler, ND, MsN, MsC**

**Neil Cox, MD**

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In Partnership with  
the Pharmacy School of St. John's University, Dodoma

Condition and possible organisms	Medication
<p><b>Asthma exacerbation</b></p> <p>All people with an asthma exacerbation should have supplemental oxygen to maintain saturations &gt;90%.</p> <p>All people requiring more than 1-2 doses of nebulized salbutamol should have medications weaned to every 4 hours before discharge home.</p> <p>All patients requiring IV aminophylline should be urgently transferred to a higher level of care as they may require intubation.</p> <p>A spacer device should be used with inhalers.</p> <p>Unless improved after single dose of salbutamol, patient should also receive a course of steroids</p>	<p><b>Adult</b></p> <p>Salbutamol 5 mg nebulized every 10 minutes And (if not improved 5 minutes after 1<sup>st</sup> salbutamol dose) Adrenaline 0.5 mg subcutaneous; may give second dose if not improved after 15 minutes And (if not improved 10 minutes after 1<sup>st</sup> adrenaline dose) Magnesium sulfate 50% solution 2 g IV over 20 minutes And (if not improved after magnesium sulfate) Aminophylline 5 to 6 mg/kg (max 500 mg) IV over 60 minutes Steroid (use steroids if required &gt; 1 dose of salbutamol): Prednisone 40 mg PO daily for 5 days Or (if unable to swallow medications) Hydrocortisone 100 mg IV 6 times a day until able to tolerate oral medications (then complete 5 days of therapy with prednisone)</p> <p><b>Child</b></p> <p>Salbutamol 2.5 mg nebulized every 15 minutes And (if not improved 5 minutes after 1<sup>st</sup> salbutamol dose) Adrenaline 1:1000 solution 0.01 mL/kg (up to 0.3 mL) subcutaneous; may give second dose if not improved after 15 minutes And (if not improved 10 minutes after 1<sup>st</sup> adrenaline dose) Magnesium sulfate 50% solution 50 mg/kg IV over 20 minutes And (if not improved after magnesium sulfate) Aminophylline 5 to 6 mg/kg (max 300 mg) IV over 60 minutes Steroid (use steroids if required &gt; 1 dose of salbutamol): Prednisolone 1 mg/kg (max 40 mg) PO daily for 5 days Or (if unable to swallow medications) Hydrocortisone 4 mg/kg IV 6 times a day until able to tolerate oral medications (then complete 5 days of therapy with prednisolone)</p>

<p><b>Asthma maintenance</b></p> <p>Asthma is well controlled if the patient needs salbutamol less than 2 times per month at night and less than 2 times per week during the day</p> <p>Patients with exercise induced asthma should use their inhaler 10 to 15 minutes before exercising. Even if they exercise many times a week, their asthma is still well controlled if they have no symptoms after using their inhaler.</p> <p>All patients with asthma (and the people they live with) should be encouraged to quit smoking and avoid other triggers.</p>	<p style="text-align: center;"><b>Adult</b></p> <p>Salbutamol 2 to 4 mg PO up to every 6 hours as needed Or (if not controlled with oral salbutamol) Salbutamol MDI 1-2 puffs inhaled up to every 6 hours as needed And (if not controlled with inhaled salbutamol) Beclomethasone 100 to 250 mcg inhaled 2 times a day Or (if not controlled with inhaled salbutamol and beclomethasone not available) Aminophylline 100 to 300 mg PO three times a day (increase every three days if not controlled to max dose) And (if not controlled with salbutamol and aminophylline and beclomethasone not available) Prednisone 2.5 to 10 mg PO daily</p> <p style="text-align: center;"><b>Child</b></p> <p>Salbutamol 100 mcg/kg (max 2 mg) PO up to every 6 hours as needed Or (if not controlled with oral salbutamol) Salbutamol MDI 1 to 2 puffs inhaled up to every 6 hours as needed And (if not controlled with inhaled salbutamol) Beclomethasone 100 to 250 mcg inhaled 2 times a day</p>
<p><b>Bacterial vaginosis</b> <i>Gardenella species</i></p> <p>Topical creams are preferred in pregnant or breastfeeding women.</p>	<p>Metronidazole gel 2 g per vagina 2 times a day for 7 days Or Metronidazole 500 mg PO two times a day for 7 days Or Clindamycin 2% cream 5 g per vagina daily for 7 days Or Clindamycin 300 mg PO two times a day for 7 days</p>

<p><b>Bloody diarrhea or severe diarrhea</b> <i>Shigella, Salmonella</i></p>	<p style="text-align: center;"><b>Adult</b></p> <p>TMP-SMX 960 mg PO 2 times a day for 5 days Or Ciprofloxacin 500 mg PO 2 times a day for 5 days Or Ceftriaxone 1 g IV daily for 3 days</p> <p style="text-align: center;"><b>Pregnant</b></p> <p>Ceftriaxone 1 g IV daily for 3 days Or TMP-SMX 960 mg PO 2 times a day for 5 days And Folate supplementation</p> <p style="text-align: center;"><b>Child</b></p> <p>TMP-SMX 4-20 mg/kg PO 2 times a day for 5 days Or Erythromycin 12.5 mg/kg PO 4 times a day for 5 days Or Ceftriaxone 50 mg/kg IV daily for 3 days</p>
<p><b>Bloody diarrhea not improving with above treatments</b> Amoeba</p>	<p style="text-align: center;"><b>Adult and Pregnant</b></p> <p>Metronidazole 500 mg PO 3 times a day for 7 days</p> <p style="text-align: center;"><b>Child</b></p> <p>Metronidazole 10 mg/kg PO 3 times a day for 7 days</p>
<p><b>Burns</b></p> <p>Supportive care most important, rarely require antibiotics with good management</p> <p>Wound can be dressed with a 1:1 mixture of honey and clarified butter (samli) soaked into bandages. Dressing must be changed daily.</p> <p>Poly-microbial when infected, but infections rarely occur with good management</p>	<p>Place 2 large bore IVs away from burned skin Consider Foley catheter to monitor accurate urine output Monitor blood oxygen levels Give tetanus toxoid IM once Change dressing daily Mobilize burned (with pain control) joints 2 times a day Give lactated ringers or normal saline IV:</p> <ul style="list-style-type: none"> <li>• Volume in mL = 4 x weight in kg x % area burned</li> <li>• Give half of the above volume in 1<sup>st</sup> 8 hours and the rest in the next 16 hours</li> </ul> <p style="text-align: center;"><b>Adult and Pregnant</b> (if burn appears infected) Ampicloxacillin 500 mg PO 4 times a day for 5 days And (if signs of sepsis or systemic infection) Gentamicin 4 to 6 mg/kg IV daily for 5 days</p> <p style="text-align: center;"><b>Child</b> (if burn appears infected) Ampicloxacillin 12.5mg/kg PO 4 times a day for 5 days And (if signs of sepsis or systemic infection) Gentamicin 4 to 6 mg/kg IV daily for 5 days</p>

<p><b>Cholera</b> <i>Vibrio cholera</i></p> <p>Most important is sufficient fluid and oral rehydration salts</p> <p>Antibiotics are only necessary in severe cholera.</p> <p>Children should receive zinc with any diarrheal illness.</p>	<p style="text-align: center;"><b>Adult</b></p> <p style="text-align: center;">Doxycycline 300 mg PO once Or Ciprofloxacin 1 g PO once Or Erythromycin 500 mg PO 4 times a day for 3 days</p> <p style="text-align: center;"><b>Pregnant</b></p> <p style="text-align: center;">Erythromycin 500 mg PO 4 times a day for 3 days</p> <p style="text-align: center;"><b>Child</b></p> <p style="text-align: center;">TMP-SMX 4-20 mg/kg PO 2 times a day for 3 days Or Erythromycin 12.5 mg/kg PO 4 times a day for 3 days</p>
<p><b>Chronic bronchitis or emphysema exacerbation</b></p> <p>Suspect in chronic smokers</p>	<p style="text-align: center;">Doxycycline 100 mg PO 2 times a day for 5 days And Prednisone 40 mg PO daily for 5 days</p>
<p><b>Mastitis</b> <i>Streptococcus species, Staphylococcus species</i></p> <p>Ibuprofen or diclofenac are helpful for pain and swelling. Panadol can be used with either for pain.</p>	<p style="text-align: center;">Ampicloxacillin 500 mg PO 4 times a day for 7 days Or Erythromycin 500 mg PO once, then 100 mg PO daily to complete 7 days of therapy</p> <p style="text-align: center;">Breastfeed from infected breast first.</p> <p style="text-align: center;">Unlikely except in breastfeeding women. May require surgical drainage if an abscess is present.</p>

<p><b>Meningitis</b></p> <p><i>S. pneumoniae, N. meningitidis, H. influenzae, L. monocytogenes</i> in pregnant, elderly, and people living with HIV</p> <p>Consider dexamethasone for all people with suspected bacterial meningitis.</p> <p>Dexamethasone must be given immediately before antibiotics and must not delay the antibiotics.</p> <p>Dexamethasone 0.15 mg/kg (up to 10 mg) IV 4 times a day immediately before antibiotics for the first 4 days of therapy</p>	<p style="text-align: center;"><b>Adult without risk factors for <i>Listeria</i> (below)</b></p> <p style="text-align: center;">Ceftriaxone 2 g IV or IM 2 times a day for 10 days</p> <p style="text-align: center;">Or</p> <p style="text-align: center;">Ampicillin 2 g IV 4 times a day for 10 days And TMP-SMX 8-40 mg/kg IV BID for 10 days</p> <p style="text-align: center;">Or (if anaphylaxis to penicillin)</p> <p style="text-align: center;">Chloramphenicol 1 g IV 4 times a day for 10 days And TMP-SMX 8-40 mg/kg IV BID for 10 days</p> <p><b>Pregnant, Elderly, and HIV positive (at risk for <i>Listeria</i>)</b></p> <p style="text-align: center;">Ampicillin 2 g 6 times a day for 21 days And Gentamicin 2 mg/kg 3 times a day for 7 days</p> <p style="text-align: center;">Or (if anaphylaxis with penicillin)</p> <p style="text-align: center;">TMP-SMX 8-40 mg/kg IV BID for 21 days And Gentamicin 2 mg/kg 3 times a day for 7 days And (if pregnant) Folate supplementation</p> <p style="text-align: center;"><b>Child</b></p> <p style="text-align: center;">Ceftriaxone 50 mg/kg IM or IV 2 times a day for 10 days Or Cefotaxime 50 mg/kg IM or IV 4 times a day for 10 days</p> <p style="text-align: center;">Or</p> <p style="text-align: center;">Chloramphenicol 25 mg/kg IM or IV 4 times a day for 10 days And Benzylpenicillin 60mg/kg or 100 000 units/kg IM or IV 4 times a day for 10 days</p> <p style="text-align: center;">Or</p> <p style="text-align: center;">Chloramphenicol 25 mg/kg IM or IV 4 times a day for 10 days And Ampicillin 50mg/kg or IM or IV 4 times a day for 10 days</p> <p style="text-align: center;">Or (if anaphylaxis to penicillin)</p> <p style="text-align: center;">Chloramphenicol 25 mg/kg IM or IV 4 times a day for 10 days And Gentamicin 2 mg/kg IM or IV 3 times a day for 7 days</p>
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<p><b>Otitis media</b> <i>Streptococcus species, H. influenzae</i></p> <p>This is an unlikely diagnosis in adults.</p> <p>Pregnant women should be given folate supplementation with TMP-SMX. They should not be given doxycycline.</p>	<p style="text-align: center;"><b>Adult</b></p> <p>Amoxicillin 250 mg PO 4 times a day for 5 days Or TMP-SMX 8-40 mg PO 2 times a day for 5 days Or Doxycycline 100 mg PO 2 times a day for 5 days</p> <p style="text-align: center;"><b>Child</b></p> <p>Amoxicillin 40 mg/kg PO 2 times a day for 5 days Or TMP-SMX 4-20 mg PO 2 times a day for 5 days</p> <p>Recheck and continue treatment for another 5 days if not improved.</p>
<p><b>Pelvic inflammatory disease</b></p> <p>Poly- microbial</p> <p>This is unlikely in pregnant women.</p>	<p style="text-align: center;"><b>Adult</b></p> <p>Ceftriaxone 250mg IM once And Doxycycline 100 mg PO 2 times a day for 14 days And Metronidazole 500 mg PO 2 times a day for 14 days</p> <p>If unable to tolerate PO or unstable vitals, start with IV therapy and change to oral two days after improvement to complete 14 days.</p>
<p><b>Peptic ulcer</b></p>	<p style="text-align: center;"><b>Adult and Pregnant</b></p> <p>Omeprazole 20 mg PO daily for 4 to 8 weeks</p>
<p><b>Peptic ulcer, recurrent</b></p> <p><i>H. pylori</i></p> <p>This is an unlikely diagnosis in children</p> <p>In penicillin allergic pregnant women, wait until after pregnancy to treat</p>	<p style="text-align: center;"><b>Adult and Pregnant</b></p> <p>Omeprazole 20 mg PO 2 times a day for 4 weeks then once a day for 2 weeks And Amoxicillin 1 g PO BID for 7 days And Metronidazole 400 mg PO BID for 7 days</p> <p>In penicillin allergic people, replace amoxicillin PO with doxycycline 100 mg PO BID for 7 days</p>

<p><b>Pneumonia, severe</b></p> <p><i>Chlamydia species</i> (in 1 to 3 month olds), <i>Streptococcus species, Staphylococcus species, H. influenza, Mycoplasma species</i> (in adults), <i>Pseudomonas species</i> (in very ill, not covered by the listed medications)</p> <p>If on ampicillin therapy without improvement for 48 hours, change ampicillin to cloxacillin 50 mg/kg (max 500 mg) IV 4 times a day.</p> <p>Consider chest x-ray to rule out empyema and chest tube if an empyema is present.</p>	<p style="text-align: center;"><b>Adult and Pregnant</b></p> <p>Ceftriaxone 1 to 2 g IV daily And Erythromycin 500 mg PO 4 times a day</p> <p style="text-align: center;">Or</p> <p>Ampicillin 2 g IV 4 times a day And Gentamicin 4 to 6 mg/kg IV daily And Erythromycin 500 mg PO 4 times a day</p> <p style="text-align: center;"><b>Child</b></p> <p>Ampicillin 50 mg/kg IM or IV 4 times a day And Gentamicin 7.5 mg/kg IV daily And (if HIV positive) TMP-SMX 8-40 mg/kg PO TID for 3 weeks</p> <p>Change to oral antibiotics when no longer severe to complete at least 5 days. Patient should be fever free for 3 days before stopping therapy.</p>
<p><b>Pneumonia, non-severe</b></p> <p>Organisms as above</p> <p>If required cloxacillin (above), replace amoxicillin with cloxacillin 50 mg/kg (max 500 mg) PO 4 times a day for 3 weeks.</p>	<p style="text-align: center;"><b>Adult and Pregnant</b></p> <p>Amoxicillin 500 mg PO 3 times a day for 5 days</p> <p style="text-align: center;">Or</p> <p>TMP-SMX 960 mg PO 2 times a day for 5 days And (if pregnant) Folate supplementation</p> <p style="text-align: center;"><b>Child</b></p> <p>Amoxicillin 40 mg/kg PO BID for 5 days And (if 1 to 3 months old and concern for <i>Chlamydia</i>) Erythromycin 12.5 mg PO 4 times a day for 7 days</p>

<p><b>Pyomyositis, cellulitis, or other skin infection</b></p> <p><i>Staphylococcus species</i>, <i>Streptococcus species</i></p> <p>Pregnant women should not be given doxycycline.</p> <p>If an abscess is present, it must be drained.</p>	<p><b>Adult and Pregnant</b></p> <p>Cloxacillin 500 mg PO 4 times a day for 7 days Or Cefalexin 250 mg PO 4 times a day for 7 days Or Doxycycline 100 mg PO 2 times a day for 7 days</p> <p>Or TMP-SMX 960 mg PO 2 times a day for 7 days And (if pregnant) Folate supplementation</p> <p><b>Child</b></p> <p>Cloxacillin 25 to 50 mg/kg PO 4 times a day for 7 days Or Cefalexin 12.5 to 25 mg/kg PO 4 times a day for 7 days Or TMP-SMX 4-20 mg/kg 2 times a day for 7 days</p>
<p><b>Sepsis with an unknown source</b></p> <p>Bacterial cause depends on source of infection in newborns, Group B <i>Streptococcus species</i>, <i>Listeria species</i>, Gram negative bacteria are possible.</p> <p>In people &gt; 8 weeks old, narrow antibiotics after determining source or stop after 2 fever free days.</p>	<p><b>Newborns</b> (8 complete weeks old or less)</p> <p>Ampicillin 50 mg/kg IV 2 times a day for the 1<sup>st</sup> week of life, then 3 times a day to complete 10 days And Gentamicin 5 mg/kg IV daily for the 1<sup>st</sup> week of life, then 7.5 mg/kg daily to complete 10 days</p> <p><b>Person over 8 weeks</b> (see “Neonatal fever” for newborns)</p> <p>Ampicloxacin 12.5 mg/kg (up to 500 mg) IV 4 times a day And Gentamicin 4 to 6 mg/kg IV or IM daily And Metronidazole 7.5 mg/kg (up to 500 mg) IV 3 times a day</p>

<p><b>Septic abortion</b> Poly- microbial</p> <p>May replace benzyl penicillin IV with ampicillin 2 or 3 g IV four times a day.</p> <p>May replace gentamicin IV with ceftriaxone 1 g IV daily.</p> <p>May replace metronidazole IV with clindamycin 900 mg IV three times a day.</p>	<p><b>Adult</b></p> <p>Benzyl penicillin 5 million units IV four times a day And Gentamicin 4 to 6 mg/kg IV daily And Metronidazole 500 mg IV three times a day</p> <p>After clinical improvement, discharge with oral medicine to complete 14 total days of therapy. Doxycycline 100 mg PO 2 times a day And Amoxicillin-clavulanic acid 500-125 mg PO 2 times a day</p> <p>May replace amoxicillin-clavulanic acid PO with metronidazole 500 mg PO three times a day</p>
<p><b>Sinusitis</b></p> <p>Usually viral, though can be <i>Streptococcus species</i>, <i>H. influenzae</i>, <i>Staphylococcus species</i></p> <p>Doxycycline 100 mg PO BID for 7 days if patient is penicillin allergic. Pregnant women should not be given doxycycline.</p>	<p><b>Symptoms less than 14 days</b></p> <p>Nasal saline drops And Phenylephrine or oxymetazoline for 3 to 5 days</p> <p><b>Symptoms 14 days or greater</b></p> <p>Amoxicillin 1 000 mg PO 3 times a day for 7 days Then (if no improvement) Amoxicillin-clavulanic acid 875 mg PO 2 times a day for 7 days</p>
<p><b>Strep throat</b></p> <p>Group A <i>Streptococcus species</i></p> <p>Less likely in adults</p>	<p>Benzyl penicillin G 1.2 million units IM once if &gt;25 kg Or (if &lt; or = 25 kg) Benzyl penicillin G 600 000 units IM once Or (if allergic to penicillin) Erythromycin 12.5 mg/kg (up to 250 mg) PO 4 times a day for 10 days</p>

<p><b>Syphilis</b> <i>T. pallidum</i></p> <p>VDRL titres should decline to one fourth of their original level by one year after treatment</p> <p>Refer to a specialist for desensitization if a person is allergic to penicillin and has neurosyphilis.</p> <p>All children of mothers with syphilis must be treated. Treatment is based on whether or not they have symptoms.</p> <p>All sex partners of a patient within the last 60 days must also be treated.</p>	<p><b>Adult, &lt; or = 2 years from infection</b> Benzathine benzylpenicillin G 2.4 million units once Or (if penicillin allergic) Doxycycline 100 mg PO 2 times a day for 14 days Or (if pregnant and penicillin allergic) Erythromycin 500 mg PO four times a day for 14 days.</p> <p><b>Adult, &gt; 2 years from infection or uncertain date of infection</b> Benzathine benzylpenicillin G 2.4 million units IM 1 time a week for 3 weeks Or (if penicillin allergic) Doxycycline 100 mg PO 2 times a day for 30 days Or (if penicillin allergic and pregnant) Erythromycin 500 mg PO 4 times a day for 30 days</p> <p><b>Adult, neurosyphilis</b> Aqueous benzylpenicillin G 2 to 4 million units IV 6 times a day for 14 days Or Procaine benzylpenicillin 2.4 million units IM daily for 14 days And Probenecid 500mg PO 4 times a day for 14 days</p> <p><b>Child (&lt; or = 2 years old, but not newborn)</b> Benzathine benzylpenicillin G 50 000 to 75 000 units/kg IM 3 times a day for 10 days</p> <p>Or (if greater than 2 years old) Benzathine benzylpenicillin G 50 000 units/kg IV or IM 4 times a day for 14 days Or (if penicillin allergic) Erythromycin 7.5 to 12.5 mg/kg PO six times a day for 30 days</p> <p><b>Newborn, asymptomatic</b> Benzathine benzylpenicillin G 50 000 units/kg IM once</p> <p><b>Newborn, symptomatic</b> Benzathine benzylpenicillin G 50 000 to 75 000 units/kg IM 2 times a day for 1<sup>st</sup> 7 days of life Then Benzathine benzylpenicillin G 50 000 to 75 000 units/kg IM 3 times a day for 3 days</p>
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<p><b>Trichomoniasis</b> <i>Trichomonas species</i></p> <p>Metronidazole 500 mg 2 times a day for 7 preferred during pregnancy and breastfeeding.</p>	<p><b>Adult</b> Metronidazole or tinidazole 2 g PO once Or Metronidazole 500 mg PO 2 times a day for 7 days Or Tinidazole 500 mg PO 2 times a day for 5 days</p>
<p><b>Typhoid</b> <i>Salmonella typhi</i> and <i>Salmonella paratyphi</i></p> <p>If no improvement after 2 days, change to ceftriaxone 80 mg/kg (up to 2 g) daily for 10 days.</p>	<p><b>Adult</b> Ciprofloxacin 500 mg 2 times a day for 10 days Or TMP-SMX 800-160 PO 2 times a day for 10 days</p> <p><b>Child</b> Azithromycin 20 mg/kg PO daily for 10 days Or TMP-SMX 8-40 mg/kg 2 times a day for 10 days</p>
<p><b>Urethritis, vaginitis, or cervicitis</b> <i>N. gonorrhoea, C. trachomatis</i></p> <p>All sex partners of a patient within the last 60 days must also be treated.</p> <p>Pregnant women and children should not be given doxycycline.</p>	<p>Ceftriaxone 500 mg IM once</p> <p>And Doxycycline 100 mg PO 2 times a day for 7 days Or Azithromycin 20 mg/kg (maximum 1 g) PO once</p> <p>Treatment is not considered completed until seven days after the first dose. Patient should use condoms to keep from infecting others.</p>



<p><b>Urinary tract infection</b> (including <b>pyelonephritis</b> or <b>kidney infection</b>), severe</p> <p><i>E. coli</i>, <i>Enterococcus</i> species, <i>Staphylococcus</i> species</p> <p>Infections are severe when patient is unable to tolerate oral medications has unstable vital signs.</p>	<p style="text-align: center;"><b>Adult</b></p> <p style="text-align: center;">Ceftriaxone 1 g IV daily Or Ciprofloxacin 500 mg IV 2 times a day Or</p> <p style="text-align: center;">Ampicillin 1 to 2 g IV 4 times a day And Gentamicin 4 to 6 mg/kg IV daily</p> <p style="text-align: center;"><b>Child</b></p> <p style="text-align: center;">Ceftriaxone 80 mg/kg IV daily Or Ampicillin 50 mg/kg IM or IV 4 times a day And Gentamicin 7.5 mg/kg IM or IV daily</p> <p style="text-align: center;">Give IV or IM antibiotics until vitals are stable, patient is afebrile for 24 hours, and patient can take oral medications. When all three criteria are met, change to oral antibiotics to complete 14 total days of antibiotics.</p>
<p><b>Urinary tract infection</b> (including <b>pyelonephritis</b> or <b>kidney infection</b>), non-severe</p> <p>Organisms as above</p> <p>Infections of the kidneys should be treated for at least 7 complete days.</p>	<p style="text-align: center;"><b>Adult</b></p> <p style="text-align: center;">Nitrofurantoin 100 mg PO 2 times daily for 5 days Or TMP-SMX 400-80 mg PO 2 times a day for 3 days Or Amoxicillin-clavulanic acid 500 mg PO 3 times a day for 5 days Or Ciprofloxacin 500 mg PO 2 times a day for 7 days</p> <p style="text-align: center;">Pregnant women should not be given ciprofloxacin. Pregnant women should be given folate supplementation with TMP-SMX</p> <p style="text-align: center;"><b>Child</b></p> <p style="text-align: center;">Cephalexin 12.5 mg PO 4 times a day for 5 days Or TMP-SMX 8-40 mg/kg PO 2 times a day for 5 days</p>

**Acyclovir cream**

Dosage, adult and child >12

**Genital HSV or herpes zoster**

1 cm of ointment for a 25 cm<sup>2</sup> surface every 6 times a day for 7 days

**Herpes labialis (cold sores)** – Apply 5 times a day for 4 days

Side effects: Mild pain, burning, stinging, itching.

Pregnancy safety: Use with caution.

Nursing instructions: Not for use in the eye. Keep away from eyes. Wash hands after application.

Medical instructions: This should be applied as soon as possible after the lesion(s) appear, if possible within one day or at least within three days. It speeds healing, but does not work well in AIDS patients.

**Acyclovir**

Dosage, adult

**Genital HSV, first episode** – 400 mg PO 3 times a day for 7-10 days.

**Genital HSV, prevention recurrence** - 400 mg PO 2 times a day

**Herpes zoster (shingles)** – 800 mg PO 5 times a day for 7 days

Dosage, child

**HSV, first episode** – 15 to 25 mg/kg (max 1 g/day) 3 times a day for 5 days

**Varicella zoster (chicken pox)** – As above

Side effects: Malaise, headache, nausea, vomiting, diarrhea, hives, itching.

Pregnancy safety: Use with caution

Nursing instructions: May take with or without food, but should drink extra water.

Medical instructions: Safety of oral acyclovir not been established for children younger than two years. Dosages in AIDS patients and other immune-suppressed may need to be higher or for longer periods.

**Adrenaline**

Dosage, adult

**Anaphylaxis** – 0.5 mL IM q5min until improvement

**Asthma or severe bronchospasm** – 0.5 mL IM may repeat in 15 minutes

Dosage, child

**Anaphylaxis** – 0.01 mL/kg subQ (max 0.3 mL) q5min until improvement

**Asthma or severe bronchospasm** – 0.01 mL/kg (max 0.3 mL) subQ may repeat in 15 minutes

**Severe croup** – 0.5 mL/kg nebulized once

### Adrenaline, continued

Side effects: Rapid heart rate, abnormal heart rhythm, anxious, restlessness.

Pregnancy safety: Fairly safe

Nursing instructions: Measure exact dose.

Medical instructions: This should not be used in a cardiac patient unless they are having a cardiac arrest; it may cause a heart attack. This should never be used in cardiac asthma, but is an important medication for bronchospastic asthma.

### Albendazole

Dosage, adult

**Ascaris (hookworm)** – 400 mg PO once

**Filariasis (elephantiasis) prophylaxis** – 400 mg PO with diethylcarbamazine citrate (DEC) 6 mg/kg PO yearly for 6 years

Dosage, child - **Ascaris** – 200 mg PO once (400 mg if >3 years old)

Side effects: Occasional nausea and vomiting.

Pregnancy safety: Fairly safe

Nursing instructions: May take with food, but not a meal with a lot of fat.

Medical instructions: Preferred to mebendazole because albendazole can be taken all at once as directly observed therapy. Child with worms should be treated every six. If over half of a school class shows worms on stool exam, the entire class should be treated.

### Aminophylline

Dosage, adult

**Asthma exacerbation** – 5 to 6 mg/kg (max 500 mg) IV over 60 minutes

**Asthma maintenance** – 100 to 300 mg PO three times a day (increase every three days if not controlled to max dose)

Dosage, child

**Asthma exacerbation** – 5 to 6 mg/kg (max 300 mg) IV over 60 minutes

Side effects: Vomiting, nausea, stomach pain, insomnia, depression, death.

Pregnancy safety: Fairly safe

Nursing instructions: Dilute in NS to a concentration of 1mg/ml and infuse over 60 minutes. Do not give IM as causes intense pain.

Medical instructions: Aminophylline can be used for both allergic asthma and cardiac asthma. If it is being given emergently to an adult or child, there should be a plan to transfer the patient to a higher level of care as they may need intubation. It should be avoided if possible.

### Amitriptyline

Dosage, adult

**Depression** – 25 to 150 mg PO qHS.

**Insomnia** – 12.5 to 50 mg PO qHS

**Peripheral neuropathy** – 12.5 to 150 mg PO qHS

Dosage, child – Do not use.

Side effects: Sleepiness, lightheaded if stand suddenly (drop in blood pressure), dry mouth, constipation, nausea, vomiting, liver failure.

Pregnancy safety: Fairly safe

Nursing instructions: Tell patient that it will help him make him or her sleepy. It takes 3-4 weeks before it helps for depression.

Medical instructions: Start at a low dose (half a tablet) and increase every week as tolerated (first to a whole tablet, then two, three, etc). It takes 3-4 weeks for the antidepressant effect to start. Patient should be monitored closely (within the next day or two). The patient should be monitored often especially early in treatment as symptoms can get worse. Amitriptyline is very toxic and easy to use for suicide so never give a patient more than one week of medicine at a time if they are suicidal.

### Amoxicillin

Dosage, adult

**Dental abscess** – 500 to 1 000 mg PO 3 times a day for 5 to 7 days (with metronidazole)

**Otitis media** – 250 mg PO 4 times a day for 5 days

**Pneumonia, non-severe** – 500 to 1 000 mg PO 3 times a day for 5 to 7 days

**Recurrent gastritis** – 1 000 mg PO 2 times a day for 7 days (with metronidazole and omeprazole)

**Sinusitis** – 1 000 mg PO 3 times a day for 7 days

Dosage, child

**Otitis media** – 40 mg/kg PO 2 times a day for 5 days

**Pneumonia** – 40 mg/kg PO 2 times a day for 5 days

**Other indications** – 20 mg/kg PO 2 times a day (length of treatment depends on indication)

Side effects: Rash, nausea, vomiting, diarrhea, anaphylaxis.

Pregnancy safety: Safe

Nursing instructions: Make sure patient is not allergic to penicillin (ask if he or she has had a bad rash in the past with amoxicillin or ampicillin). Return at once if patient cannot breathe or has a choking feeling. Return if moderate to severe skin rash occurs.

### Amoxicillin, continued

Medical instructions: Amoxicillin is the recommended drug for ear infections, bronchitis and mild to moderate pneumonia in children. It is an alternative to TMP-SMX for urinary tract infections, although there is often resistance. It is used to transition to oral therapy as a replacement for ampicillin. It is not recommended for abscesses.

### Amoxicillin – clavulanic acid

Dosage, adult:

**Bite wounds (animal/human)** – 875 mg PO 2 times a day for 7 days

**Urinary tract infection** – 500 mg PO 2 times a day for 7 days

**Impetigo** – 875 mg PO 2 times a day for 7 days

**Pneumonia, non-severe** – 875 mg PO 2 times a day for at least 5 days (afebrile 48 hours or more)

**Sinusitis** – 875 mg PO 2 times a day for 7 days

Dosage, child:

**Impetigo** – 12.5 mg/kg (max 875 mg) PO 2 times a day for 7 days

**Otitis media** – 45 mg/kg (max 875 mg) PO 2 times a day for 10 days (use if failed 1<sup>st</sup> line)

**Pneumonia, non-severe** – 22.5 mg/kg (max 875 mg) PO 2 times a day for at least 5 days

**Sinusitis** – 45 mg/kg (max 875 mg) PO 2 times a day for 14 days

**Urinary tract infection** – 7 to 13 mg/kg PO 3 times a day for 5 days

Side effects: Diarrhea, indigestion, nausea and vomiting. Hypersensitivity reactions are possible if patient allergic to penicillin.

Pregnancy safety: Fairly safe

Nursing instructions: Take medication at the beginning of a meal to avoid gastrointestinal problems. Before giving, make sure patient is not allergic to penicillin.

Medical instructions: Excellent for ENT and respiratory diseases. Can use in oral infections such as dental caries. It has less side effects than chloramphenicol for typhoid treatment. It has the same coverage as amoxicillin alone but also covers some Staph, Gonorrhea, Salmonella, Shigella, Klebsiella, and Proteus.

### Ampicillin

Dosage, adult:

**Genitourinary or gastrointestinal infections** – 500 mg IV every 6 hours

**Listeria meningitis** – 34 mg/kg IV every 4 hours for 3 weeks or greater

**Listeria bacteremia** – 50 mg/kg IV every 6 hours for 2 weeks or greater

**Respiratory tract infections** – 250 to 500 mg IV or IM every 6 hours

**Sepsis/meningitis** – 1 to 2 grams IV every 4 hours

### Ampicillin, continued

Dosage, child:

**Pneumonia, severe** – 50 to 100 mg/kg (max 12 g daily) IV every 6 hours  
**Gastrointestinal or genitourinary tract infections** – 25 mg/kg (max 500 mg) IV 4 every 6 hours

**Meningitis, sepsis, other severe infections** – 100 mg/kg (max 12 g daily) IV every 6 hours

Side effects: Rash, diarrhea, anaphylaxis.

Pregnancy safety: Safe

Nursing instructions: Make sure patient is not allergic to penicillin (if he or she has had a rash with ampicillin or amoxicillin). Do not give if allergic. Observe patient for problems breathing or if choking. Have patient return if he or she develops a rash.

Medical instructions: Ampicillin injection has the same coverage and use as amoxicillin. It is only used for patients who cannot take medicines by mouth.

### Ampicloxacin suspension/tablets

Dosage: **Adult** - 250-500mg every 6 hours

**Child** - 50mg/kg/day in divided doses every 6 hours

Side effects: Nausea, vomiting, diarrhea, anaphylaxis.

Pregnancy safety: Safe

Nursing instructions: Make sure patient is not allergic to penicillin (if he or she has had a rash with ampicillin or amoxicillin). Do not give if allergic. Observe patient for problems breathing or if choking. Have patient return if he or she develops a rash.

Medical instructions: This is a combination pill of ampicillin and cloxacillin. It combines anti-Staph cloxacillin with the broad coverage of amoxicillin. Ampicloxacin is the recommended drug for skin infections where it is likely Staph or Strep. This should be used in place of amoxicillin if Staph is suspected.

### Artemether – lumefantrine (Coartem or Alu)

Dosage, adult (35+ kg): 4 tablets PO once and at 8, 24, 36, 48 and 60 hours later

Dosage, child:

**5 to 14 kg** – 1 tablet PO once and at 8, 24, 36, 48 and 60 hours later

**15 to 24 kg** – 2 tablets PO once and at 8, 24, 36, 48 and 60 hours later

**25 to 34 kg** – 3 tablets PO once and at 8, 24, 36, 48 and 60 hours later

Side effects: Abdominal pain, lack of appetite, headache, and dizziness.

Pregnancy safety: No known harm

### Artemether – lumefantrine, continued

Nursing instructions: Tell patient to take all of medicine even if feeling well. Write out times to take doses for the patient.

Medical instructions: Emphasize the importance of taking all the pills. For severe malaria, admit for IV quinine rather than giving artemether – lumefantrine. Once finished with IV quinine, give an oral course of artemether – lumefantrine.

### Aspirin

Dosage, adult:

**Acute chest pain, heart attack, or stroke** – 300 mg chewed once

**Pain** – 300 – 600 mg PO q4hr PRN

**Heart attack or stroke prophylaxis** – 70 mg PO daily

Dosage, child: Do not use. It can cause liver failure.

Side effects: Abdominal pain, heartburn, bleeding from stomach, nausea, vomiting, ringing of ears.

Pregnancy safety: Do not use at full dose. 70 mg daily can be used as preeclampsia prophylaxis in women with a history of preeclampsia or eclampsia.

Nursing instructions: Give with food and a whole glass of water. Come back to doctor if abdominal pain, dark stools, vomiting or bleeding.

Medical instructions: Aspirin is an anti-inflammatory and can be very helpful for muscle and joint inflammation. It is also a blood thinner at low doses. If there is a history of stomach problems, heartburn or reflux, use aspirin very carefully. Do not use in patient with uncontrolled hypertension, previous hemorrhagic stroke, previous bleeding disorder, or while taking diclofenac or ibuprofen.

### Atenolol

Dosage, adult

**Hypertension** – 25 to 100 mg PO once a day

**After heart attack** – 100 mg PO once a day for 9 days

**Angina pectoris** – 25 to 100 mg PO once a day

**Atrial fibrillation** – 25 to 100 mg PO once a day

Dosage, child: Do not use.

Side effects: Slow heart rate, bronchospasm, tiredness, congestive heart failure, abdominal gas or pain, nausea, vomiting, dizzy, light headedness, depression, sexual impotence.

Pregnancy safety: Probably safe in pregnancy but avoid in first trimester. Avoid use one week before expected delivery as it can depress the infant. Labetolol IV is a better drug for pre-eclampsia than atenolol.

Nursing instructions: If pulse under 60, alert doctor before dispensing. Advise patient to take medicine with meals if patient has stomach upset.

Medical instructions: Atenolol is used for treatment of high blood pressure, angina, and after a heart attack. Except after a heart attack (when you start at 100 mg daily), the dose should start low and be increased to achieve an effective dose. If the heart rate is below 60 and the patient is symptomatic or if the heart rate is below 50 (without symptoms), the dose must be reduced. If the blood pressure not controlled and the pulse is over 65 beats per minute, the dose can be increased every week. Sometimes used with digoxin in atrial fibrillation.

### Benzathine penicillin injection

Dosage, adult:

**Group A strep pharyngitis** – 1.2 million units IM once

**Syphilis: primary, secondary, or early latent** – 2.4 million units IM once

**Syphilis: late latent, tertiary, or unknown** – 2.4 million units IM once weekly for three weeks

**Neurosyphilis** – Not indicated. Use aqueous penicillin IV.

Dosing, child:

**Group A strep pharyngitis** – 600 000 units IM once if <27 kg (larger children should receive adult dose)

**Syphilis, asymptomatic newborn** – 50 000 units/kg IM once

**Syphilis, symptomatic newborn** – 50 000 to 75 000 units/kg IM 2 times a day for the 1<sup>st</sup> 7 days of life, then 3 times a day to complete 10 days

**Syphilis, less than 2, but not newborn** – 50 000 to 75 000 units/kg IM 3 times a day for 10 days

**Syphilis, 2 or greater** – 50 000 units/kg IM 4 times a day for 14 days

Side effects: Anaphylaxis, nausea, vomiting, diarrhea, pain at injection site.

Pregnancy safety: Safe

Nursing instructions: Make sure patient is not allergic to penicillin (if he or she has had a rash with ampicillin or amoxicillin). Do not give if allergic. Observe patient for problems breathing or if choking. Have patient return if he or she develops a rash.

Medical instructions: Benzathine penicillin gives a duration of action of one to four weeks depending on dose. It will also prevent rheumatic fever by preventing recurrent strep infections. It should not be used for other infections; it will not work.

### Betamethasone cream

Dosage: **Adult** - apply small amount to rash 2-3 times a day

**Child** - apply small amount to rash 2-3 times a day

Side effects: If patient has a fungal or bacterial rash, betamethasone cream may make it worse. This can cause lightening of skin or thinning of the skin, especially in larger amounts or if on the face.

Pregnancy safety: Fairly safe but use a small amount

### **Betamethasone cream, continued**

Nursing instructions: Apply very small amount after bathing and rub in. Do not use near eyes or genitals. Come back to health centre if rash not improving.

Medical instructions: Betamethasone cream is an intermediate strength cream and should only be used if hydrocortisone cream is not enough. Steroid creams can make rashes from bacteria or fungus worse. If using on the face, be very careful and use a very small amount as it can cause lightening and thinning of the skin.

### **Calamine lotion**

Dosage: **Adult:** apply to rash as needed

**Child:** apply to rash as needed

Side effects: Skin irritation

Pregnancy safety: Safe

Nursing instructions: If rash not improving, come back to health centre.

Medical instructions: Safe simple treatment for itch especially if there is no obvious rash and the patient is not using a steroid cream.

### **Captopril**

Dosage, adult

**Hypertensive urgency or emergency** – 25 mg PO once, repeat if no change in 30 minutes

**Heart failure (or after heart attack)** – 6.25 to 50 mg PO 3 times a day

**Hypertension** – 75 to 100 mg PO 2 times a day (start 25 mg 2 times a day)

**Kidney disease in diabetes** – 25 mg PO 3 times a day

Dosing, child: Do not use.

Side effects: Dry cough (an indication to stop drug only if patient finds the cough very annoying), loss of taste and appetite, mouth sores (rare), rash and/or angioedema (rare, an indication to immediately stop the drug). Hyperkalemia (if other kidney failure, an indication to stop the drug).

Pregnancy safety: Dangerous in pregnancy. Do not use any ACE inhibitors in pregnancy and in menstruating women not on good birth control.

Nursing instructions: Take 1 hour before or 2 hours after food. If swelling of face or throat, this is an emergency and patient must come to the health centre at once.

Medical instructions: Excellent drug for high blood pressure. Side effects are rare. The most common is a dry cough; patient may switch to another drug if this irritates them. Urticaria or angioedema is an emergency, stop the captopril and give chlorpheniramine 4 mg every four hours. Captopril and other ACE inhibitors preserve kidney and heart function. Any diabetic patient with proteinuria or patient with congestive heart failure should use captopril. Patients who have had a heart attack should start captopril before leaving the hospital.

### **Ceftriaxone injection**

Dosage, adult:

**Bacterial enteric infections in PLHIV** – 1 g IV daily

**Bite wound (animal or human)** – 1 g IV 2 times a day (with metronidazole)

**Cholecystitis** – 1 to 2 g IV 1 to 2 times a day

**Urinary tract infection (severe)** – 1 to 2 g IV daily

**Gonorrhea** – 500 mg IM once (with azithromycin or doxycycline)

**Intra-abdominal infection** – 1 to 2 g IV 1 to 2 times a day for 4 to 7 days

**Meningitis** – 2 g IV 2 times a day for 7 to 14 days (with other antibiotics)

**Pelvic inflammatory disease** – 500 mg IM once (plus doxycycline and metronidazole)

**Pneumonia, severe** – 1 to 2 g IV daily

**Surgical site infections (gastrointestinal or genitourinary)** – 1 g IV daily (with metronidazole)

**Typhoid** – 2 g IV 1 to 2 times a day for 10 to 14 days (if fluoroquinolone resistant)

Dosing, child:

**Bacterial enteric infections in PLHIV** – 25 to 50 mg/kg (max 4 g) IV 1 to 2 times a day

**Pneumonia, severe** – 50 to 100 mg/kg IV daily (with erythromycin or azithromycin if > 5 years old)

**Epiglottitis** – 100 mg/kg IV on 1<sup>st</sup> day, then 50 mg/kg IV on 2<sup>nd</sup> day

**Gonorrheal conjunctivitis** – 25 to 50 mg/kg (max 125 mg) IV once (do not use if hyperbilirubinemic)

**Gonorrheal throat/genital infection** – 25 to 50 mg/kg (max 125 mg) IM once

**Meningitis** – 100 mg/kg (max 4 g) IV for 7 to 14 days

**Otitis media** – 50 mg/kg (max 1 g) IM once

**Shigella** – 50 to 100 mg/kg IV daily for 2 to 5 days

**Skin infections** – 50 to 75 mg/kg (max 2 g) IV daily

**Typhoid** – 80 mg/kg IV daily for 14 days

Side effects: Rash, upset stomach, diarrhea (can be severe), pain at injection site.

Pregnancy safety: Safe

Nursing instructions: Avoid alcohol for three days after taking this drug. Return to health centre if there are significant side effects.

Medical instructions: This is a very broad spectrum for both gram positive and gram negative bacteria, but does not cover anaerobes. It is also expensive.

### **Cephalexin**

Dosage, adult:

**Impetigo** – 250 mg PO 4 times a day for 7 days

**Mastitis** – 500 mg PO 4 times a day for 7 days

**Skin infection with or without abscess** – 500 mg 4 times a day for 7 days

**Strep pharyngitis** – 500 mg 2 times a day for 10 days

**Surgical site infection** – 500 mg PO 4 times a day for 7 days

**Urinary tract infection** – 500 mg PO 2 times a day for 7 to 14 days

### Cephalexin, continued

Dosing, child

**Impetigo** - 6.25 to 12.5 mg/kg (max 500 mg) 4 times a day for 7 days

**Skin infection with or without abscess** – 6.25 to 12.5 mg/kg (max 500 mg) 4 times a day for 7 days

**Pneumonia, non-severe** – 25 to 33 mg/kg PO TID for 7 days

**Strep pharyngitis** – 12.5 to 25 mg/kg (max 500 mg) PO 2 times a day for 10 days

Side effects: Anaphylaxis if allergic to penicillin. Also, nausea, vomiting, abdominal cramps, diarrhea, oral candidiasis, seizures at high doses.

Pregnancy safety: Safe

Nursing instructions: It is important to ask if the patient has had hypersensitivity reactions to penicillins or cephalosporins in the past. If an allergic reaction occurs, patient is to return to the health centre immediately.

Medical instructions: This is a first generation cephalosporin and is not good for sepsis, ear infections, or meningitis. It treats gram positive Strep, Staph, gram negative E-coli, some Proteus, and Klebsiella.

### Cetirizine

Dosage, adult: 5 to 10 mg PO 1 or 2 times daily depending on symptom severity

Dosage, child:

**6 to 12 months:** 2.5 mg PO once daily

**12 months to 5 years:** 2.5 mg PO 2 times a day or 5 mg PO daily

**6 years:** Adult dosing as above

Side effects: Headache, insomnia, fatigue, dizziness, abdominal pain, dry mouth, diarrhea, nausea.

Pregnancy safety: Fairly safe

Nursing instructions: Tell the patient not to take this medication if driving as it may decrease alertness. Also, avoid alcohol.

Medical instructions: Do not use for children less than 6 months of age. It is much less likely to cause sedation than chlorpheniramine. Therefore, it is a very good drug for patients who need to take antihistamines for allergy during the day but become sleepy on chlorpheniramine.

### Chloramphenicol

Dosage: **Adult and Child** – 12.5 to 25 mg/kg (max 4 g/day) PO or IV 4 times a day

Side effects: Death, aplastic anemia, nausea, vomiting, headache, confusion.

Pregnancy safety: Fairly safe

### Chloramphenicol, continued

Nursing instructions: Do not administer IM. Take 1 or more hours before eating or 2 or more hours after eating. Tell patient to come back to health centre if he or she has sore throat, tiredness, unusual bleeding or bruising or if becomes pregnant.

Medical instructions: Chloramphenicol many bacteria, but is very dangerous. It suppresses bone marrow during therapy and may kill the bone marrow (and patient) 1-12 months after completing therapy. Because of these dangerous side-effects, chloramphenicol should only be used when there is not another good choice for treating the infection. It should not be used if the patient has blood, liver, or kidney disease. It is often used for typhoid in young children because they cannot take ciprofloxacin.

### Chlorpheniramine

Dosage, adult: 4 mg PO every 4 to 6 hours (max 24 mg/day)

Dosage, child

**2 to 5 years:** 1 mg PO every 4 to 6 hours (max 6 mg/day)

**6 to 11 years:** 2 mg PO every 4 to 6 hours (max 12 mg/day)

**12 years or greater:** Refer to adult dosing above.

Side effects: Difficulty urinating, sleepiness, nausea, constipation, dry mouth.

Pregnancy safety: Safe

Nursing instructions: Take with food. Do not drink alcohol when taking this medicine. Return to health centre if they have vision problems or difficulty urinating.

Medical instructions: Used for allergies or itchy skin rash. Helps dry up stuffiness of a cold. It can be used to treat angioedema. Do not give to children young than two years.

### Ciprofloxacin

Dosage, adult:

**Enteric infections in PLHIV** – 500 to 750 mg PO or 400 mg IV 2 times a day

**Meningitis** – 400 mg IV 2 or 3 times a day

**Bite wounds (animal or human)** – 500 to 750 mg PO or 400 mg IV 2 times a day

**Cellulitis** 500 to 750 mg PO 2 times a day or 400 mg IV 3 times a day for 7 to 14 days

**Cholera** – 1 g PO once (rarely needed, fluids are more important)

**Diabetic foot infections** – 500 to 750 mg PO 2 times a day

**Infectious diarrhea** – 500 mg PO 2 times a day for 3 to 7 days

**Infectious diarrhea in PLHIV** – 750 mg PO or 400 mg IV 2 times a day for 14 days (if CD4 200 or greater) or 2 to 6 weeks (if CD4 is less than 200)

**Abdominal infection** – 500 mg PO or 400 mg IV 2 times a day for 7 – 14 days (with metronidazole)

**Plague** – 500 to 750 mg PO 2 times or 400 mg IV 3 times a day for 14 days

**Pneumonia, non-severe** – 500 mg PO 2 times a day for 7 days

### **Ciprofloxacin, continued**

**Pneumonia, severe** – 750 mg PO 2 times a day or 400 mg IV 3 times a day for 14 days

**Prostatitis** – 500 mg PO 2 times a day for 28 days

**Sinusitis** – 500 mg PO 2 times a day for 10 days

**Surgical site infection** – 750 mg PO or 400 mg IV 2 times a day (with metronidazole)

**Typhoid** – 500 mg PO 2 times a day for 10 days

**Urinary tract infection, non-severe** – 250 mg PO 2 times a day for 3 days

**Urinary tract infection, severe** – 500 mg PO or 400 mg IV 2 times a day for 7 to 14 days

Dosing, child: Avoid if possible.

**Mild to moderate infections** – 10 mg/kg (max 500 mg) PO 2 times a day

**Severe infections** – 15 to 20 mg/kg (max 750 mg) PO 2 times a day or 10 mg/kg (max 400 mg) IV 3 times a day

Side effects: Tendonopathy, nausea, vomiting, abdominal pain, sleepiness, blurred vision, dizziness, rash, and others.

Pregnancy safety: Avoid as first line therapy, though fairly safe if necessary.

Nursing instructions: Take on an empty stomach 1 hour before or two hours after eating. If there are GI side effects, eat small frequent meals.

Medical instructions: Excellent drug for typhoid in patients over 18 years of age. If no chloramphenicol is available, it can be used for typhoid in children but is not the first choice. It has broad coverage. It should mostly be used for typhoid, kidney infections, and as part of sepsis coverage or for other severe infections.

### **Clotrimazole**

Dosage, adult and child:

**Ointment** – Apply 3 times a day to rash for 7 days.

**Pessary (adult only)** – Put in vagina once a day for 7 days

Side effects: Irritation, burning or stinging.

Pregnancy safety: Fairly safe

Nursing instructions: Avoid sex or have partner use condom while being treated.

Medical instructions: Use for yeast infection on the skin in the vagina. If a woman is being treated with a broad spectrum antibiotic (e.g. amoxicillin or doxycycline), consider giving clotrimazole pessaries if she has a history of yeast infection. If a woman has recurrent yeast infections, test her for diabetes.

### **Cloxacillin**

Dosage, adult:

**Cellulitis (especially with abscess)** – 250 to 500 mg 4 times a day for 5 to 7 days

### **Cloxacillin, continued**

**Impetigo** – 250 to 500 mg 4 times a day for 5 to 7 days

**Pneumonia with empyema, non-severe** – 1 to 2 g IV or IM 4 times a day for 10 to 14 days

**Pneumonia with empyema, severe** – As above, with gentamicin for 7 days

**Pyomyositis** – 2 g IV or IM 4 times a day for 5 to 10 days

**Septicemia** – 2 g 4 to 6 times a day with gentamicin

Dosing, child:

**Cellulitis (especially with abscess)** – 12.5 to 25 mg/kg (max 500 mg/dose) PO 4 times a day for 5 to 7 days

**Impetigo** – 12.5 to 25 mg/kg (max 500 mg/dose) PO 4 times a day for 5 to 7 days

**Pneumonia with empyema, non-severe** – 25 to 50 mg/kg (max 2 g/dose) PO 4 times a day for at least 3 weeks (with gentamicin)

**Pneumonia with empyema, severe** – 50 mg/kg (max 2 g/dose) IV 4 times a day for 7 days (with gentamicin), then switch to oral dosing as above

**Pyomyositis** – 25 to 50 mg/kg (max 2 g/dose) 4 times a day for 5 to 10 days

**Septicemia** – 50 mg/kg (max 2 g/dose) IV 4 to 6 times a day (with ceftriaxone if <5 years old, with gentamicin if 5 or greater years old)

Side effects: Anaphylaxis, nausea, diarrhea, mouth sores.

Pregnancy safety: Safe

Nursing instructions: Do not use if the patient has a severe allergy to penicillin or amoxicillin. Take at least 1 hour before or 2 hours after eating and with a full glass of water. If patient has trouble breathing, this is an emergency and patient needs to come to health centre at once.

Medical instructions: Cloxacillin does not have broad bacteria coverage like amoxicillin. It is very good for Staph infections in the skin, blood or bone. Staph infections are more likely to cause an abscess.

### **Co-trimoxazole (trimethoprim – sulfamethoxazole, Bactrim, Septrim, or TMP-SMX)**

Dosage, adult:

**Bite wounds (animal or human)** – 160-800 mg (2 tabs) PO 2 times a day (with clindamycin or metronidazole)

**Chronic bronchitis** – 160-800mg (2 tabs) PO 2times a day for 10to14 days

**Diabetic foot infection** – 160-800 mg (2 tabs) PO 2 times a day for 7 to 14 days (wound will not be healed by the time antibiotic therapy is complete)

**Meningitis** – 5 to 10 mg TMP/kg IV 2 times a day

**Pneumocystis pneumonia in PLWHIV** – 320-1600 mg (4 tabs) PO 3 times a day for 21 days (with prednisone)

**Prostatitis** – 160-800 mg (2 tabs) PO 2 times a day for 2 to 12 weeks

**Sepsis** – 5 mg TMP/kg IV 4 times a day

**Shigella** - 160-800 mg (2 tabs) 2 times a day for 5 days (not recommended due to resistance)

### **Co-trimoxazole, continued**

**Skin infections** - 160-800 to 320-1600 mg (2 to 4 tabs) PO 2 times a day for 5 to 10 days

**Surgical site infection** – 160-800 mg (2 tabs) PO 4 times a day

**Urinary tract infection, non-severe** – 160-800 mg (2 tabs) PO 2 times a day for 3 days

**Urinary tract infection, severe** – 160-800 mg (2 tabs) PO 2 times a day for 14 days

Dosing, child:

**Cellulitis** – 4 to 6 mg TMP/kg 2 times a day for 10 days

**Otitis media** 4mg TMP/kg PO 2 times a day for 10days (if penicillin allergic)

**Head lice** – 5 mg TMP/kg 2 times a day for 10 days

**Pneumocystis pneumonia** – 7.5 to 10 mg TMP/kg 2 times a day for 21 days

**Urinary tract infection** – 4 mg TMP/kg 2 times a day for 10 days

Side effects: Rash, urticaria, nausea, vomiting.

Pregnancy safety: Should be avoided. If you must use, supplement with folate.

Nursing instructions: Do not use if patient has allergy to sulfa. If any rash develops, tell patient to come back at once to the health centre. Take at least one hour before or two hours after meals. Take with a full glass of water.

Medical instructions: This is a somehow broad spectrum antibiotic. It is good drug for urinary tract infections, acute ear infections, chronic bronchitis, and mild to moderate pneumonia. In the past it was used to treat typhoid but there is quite a high level of resistance now.

### **Cough expectorant syrup (Adult and pediatric)**

Dosage: **Adult** - one tsp 3 times a day as needed for cough

**Child** - 1/4-1 tsp 3 times a day as needed for cough

Side effects: Jumpy or sleepy

Pregnancy safety: Unsafe

Nursing instructions: This is symptomatic treatment and not as important as other medications which directly affect the infection.

Medical instructions: Do not use in a child two years of age and younger.

### **Dexamethasone**

Use: Corticosteroid, anti-inflammatory, acute asthma attack, severe typhoid

Pregnancy safety: Fairly safe

Dosage: **Adult** - 0.75-9mg/day

**Child** - 0.08-0.3mg/kg/day as single IM injection (for asthma)

### **Dexamethasone, continued**

**Severe Typhoid:** in patients who are in severe shock or reduced consciousness

(both adults and children) 3mg/kg stat IV at 1mg/kg every 6 hours for two days.

Side effects: May make tuberculosis or other infections worse. Can make stomach ulcers worse or cause them to bleed. Also, weight gain, swelling, and weakness can occur. Chronic use can suppress the immune system leading to adrenal insufficiency when withdrawn. Chronic use can also lead to avascular necrosis.

Nursing instructions: Do not give to nursing mothers since it goes in breast milk. Take with food. Come back immediately if patient has fever, infection, stomach pain, bleeding or black stools.

Medical instructions: This is a strong anti-inflammatory which can be very beneficial where there is severe inflammation such as in asthma. It has bad side effects and must be used very carefully and never used if there is a safer alternative. The recommendations for treating bacterial meningitis are mixed.

Since Tanzania has a high HIV prevalence, dexamethasone or other steroids are not used in the treatment of adults. If treating bacterial meningitis in children where there is no suggestion of AIDS, it must be used within one hour of the first dose of antibiotic or it does no good. Dexamethasone can also be used in tuberculosis meningitis and severe typhoid. It is no longer recommended in the treatment of severe malaria.

### **Diazepam**

Use: Short term treatment of anxiety; seizures; calms patient before surgical procedure. Part of treatment during withdrawal from alcohol.

Pregnancy safety: Do not use in pregnancy if at all possible.

Dosage: **Adult** - 5-10mg per dose, may repeat

**Child** - 0.04mg-0.3mg/kg

Side effects: Sleepiness, dizziness.

Nursing instructions: For I.V. can be slow pushed over 5 minutes.

Medical instructions: This is a helpful medication for children who are to undergo a minor surgical procedure. It is the first line drug for acute seizures or status epilepticus. It can be used to help a patient control acute anxiety. However, it should only rarely be used for more than a few weeks because it has significant addiction potential and does not help the patient deal with feelings.



## **Diclofenac**

Use: Pain and anti-inflammation

Pregnancy safety: Safe in early pregnancy. Do not use if at all possible in third trimester.

Dosage: **Adult** - 50-75mg 2 times a day  
**Child** - Do not use.

Side effects: Stomach upset or pain, stomach bleeding, swelling of legs. Because of salt retention, it can elevate blood pressure and must be used with caution in someone who already has hypertension.

Nursing instructions: Take with food if possible. If patient has heartburn, stomach pain, or black stools, come back at once to the health centre.

Medical instructions: Good for arthritis and musculoskeletal pain. This medication is not intended as an anti-pyretic. Can be used with other pain medications such as paracetamol, tramadol, and narcotics for severe pain, but should not be used with another non-steroidal anti-inflammatory such as ibuprofen or aspirin. It should also not be used with an oral or parenteral steroid since it can increase the chance of gastrointestinal bleeding.

## **Diclopar (paracetamol and diclofenac)**

(See entries for paracetamol and diclofenac.)

Medical instructions: This is one of the more expensive medications and is not part of the NHIF formulary. In place of this drug, paracetamol and diclofenac can be prescribed at the same time.

## **Digoxin**

This medication is no longer recommended as a standard drug for congestive heart disease or arrhythmias and should only be used by a specialist or after special training. See Specialty Section (to be developed.)

## **Domstal (Domperadone)**

Use: Antiemetic

Pregnancy safety: Not been established

Dosage: **Adult** – 20-40 mg 3 to 4 times a day  
**Child** – 0.6 mg/kg 3 to 4 times a day

Side effects: Usually well tolerated. Can have dry mouth, transient skin rash, itching, headache, diarrhea.

## **Domperadone, continued**

Nursing instructions: Side effects for most people are infrequent.

Medical instructions: This is an expensive drug. Promethazine can be used in its place. The only major advantage over promethazine is that it is less sedating.

## **Doxycycline**

Use: Antibiotic

Pregnancy safety: Unsafe

Dosage: **Adult** - 100 mg bid for 7 days  
**Child** - give only if 8 years or older

Side effects: Nausea, vomiting, diarrhea, rash which may be severe.

Nursing instructions: If stomach becomes upset, take with food. Come to the health centre at once if patient has rash, itching, dark urine, light stools, or trouble breathing.

Medical instructions: Used frequently with a ceftriaxone injection for treatment of sexually transmitted diseases since Chlamydia and Gonorrhoea are often present together. For vaginal infections where white blood cells are found on wet prep, it should be used along with ceftriaxone. Doxycycline can also be used for uncomplicated bronchitis, atypical pneumonia, and some urinary tract infections. It is used for malaria prevention in Western patients without immunity.

## **Entosec (secnidazole)**

Use: Parasitic infections (including amebiasis, giardiasis, and Trichomonas vaginalis)

Pregnancy safety: Unsafe

Dosage: **Adult** - 2 grams as a single dose  
**Child** - Do not use.

Side effects: GI upset, vomiting.

Nursing instructions: May give with food to avoid gastrointestinal intolerance.

Medical instructions: This is an expensive drug. Can use metronidazole in its place. Its major advantage is that it can be given as a single dose. Also, it has some gram negative coverage.

## **Ephedrine**

Use: Asthma, nasal congestion

Pregnancy safety: Fairly safe

Dosage: **Adult** - 25-50mg every 3-4 hours as needed during asthma attack  
**Child** - 3mg/kg/day in 4-6 divided doses

Side effects: Anxiety, nervousness, nausea, vomiting.

Nursing instructions: Come back to health centre if asthma comes back or never goes away.

Medical instructions: Do not use with cardiac asthma or in someone with heart disease, since it can lead to a heart attack from overworking the heart. If using the nose spray, it can only be used for three days because otherwise there is a rebound and the nasal congestion gets worse. In sinus headache, it can be given for 24 to 48 hours to shrink the membranes and start drainage before adding an antihistamine drying agent such as chlorpheniramine.

## **Erythromycin**

Use: Antibiotic

Pregnancy safety: Safe

Dosage: **Adult** - 250-500mg 4 times a day for 7 days  
**Child** - 25-50mg/kg/day divided 3 to 4 times a day for 7 days

Side effects: Abdominal cramps, nausea, vomiting, liver toxicity, diarrhea, rash, hearing loss.

Nursing instructions: Take on an empty stomach one hour before or two hours after meals with a full glass of water. If the patient has an upset stomach, he or she can take it with some food. Come to health centre if severe nausea, vomiting, dark stool, yellow in eyes, loss of hearing or itching.

Medical instructions: Erythromycin covers Strep pneumoniae (pneumococcus), Chlamydia, Mycoplasma pneumonia, some Staph, and only a few Hemophilis influenzae. It will not cover gram negatives such as E-coli. Therefore it is not as good a drug for most adult pneumonia as is amoxicillin. It is an excellent drug for atypical pneumonia.

Erythromycin is often the drug of choice for one month to three month old infants with pneumonia. It can be used as an alternative in pneumonia for a child over three months who is allergic to penicillin and therefore cannot take amoxicillin or ampicillin. It is effective for diphtheria and pertussis.

## **Ferrous sulfate and folic acid**

Use: Vitamin and mineral for pregnant women

Pregnancy safety: Safe and recommended

Dosage: **Adult** - 1 tablet 2 times a day for 30 days or more  
**Child** - Do not use.

Side effects: Stomach upset, nausea, vomiting, constipation, or diarrhea.

Nursing instructions: Take on an empty stomach with water. Can take after meals if stomach becomes upset. Do not take with milk, eggs, coffee, or tea. Warn patient that it may turn stool a dark green-black.

Medical instructions: All pregnant women should be on this. You will need to have the patient come back in one month to be sure that the anemia is getting better. Always give at least one month supply for it will take at least that long to build up the iron stores.

## **Flamar (paracetamol+chlorzoxazone+diclofenac)**

Use: Relief of pain and inflammation as well as muscle relaxation

Pregnancy safety: Not established

Dosage: **Adult** - one tablet 3 times a day  
**Child** - Do not use.

Side effects: Sleepiness, dizziness, malaise, diarrhea, indigestion, flatulence, abdominal pain, headache.

Nursing instructions: Do not take alcohol or aspirin when taking this drug.

Medical instructions: This is an expensive medication. Its main use is for low back pain with or without sciatica where there is substantial muscle tightness. Diclofenac and paracetamol can be used together in its place. Applying heat and doing gradual stretching exercises can replace the muscle relaxation given by the chlorzoxazone.

## **Fluconazole**

Use: Antifungal, treatment of Candidiasis, urinary tract infection, Cryptococcal meningitis

Pregnancy safety: Fairly safe in pregnancy

Dosage: **Adult** - 200-400 mg/day  
**Child** - loading dose: 6-12 mg/kg; maintenance: 3-12 mg/kg/day

### Fluconazole, continued

Side effects: Nausea, vomiting, diarrhea, headache, rash, swelling of throat with difficulty breathing.

Nursing instructions: If nausea, vomiting, and/or diarrhea occur, small frequent meals may help. If headache, take paracetamol or ibuprofen. If rash occurs or the patient has jaundice, return to health center at once.

Medical instructions: Fluconazole can be used to treat vaginal yeast infection but is rather expensive for this. It can be used to treat oral or esophageal candida (thrush) and Cryptococcal meningitis. It can be used for severe candidal skin rash that is not responding to topical medication.

### Folic acid

Use: Vitamin, especially for pregnant women

Pregnancy safety: Safe

Dosage: **Adult** - 0.4-1.0 mg a day  
**Child** - infants: 0.1mg a day  
- less than 4 years old: up to 0.3mg a day  
- 4 years and older: 0.4mg a day

Side effects: Allergic reactions possible.

Nursing instructions: Come back at once if patient has difficulty breathing or has a rash.

Medical instructions: When giving iron, you usually should give folic acid as well. Remember in older patients to think of B12 deficiency since this will lower both the folic acid and B12. Giving folic acid when there is B12 deficiency will treat the anemia but will not treat the brain and nerve damage that occur with B12 deficiency.

### Furosemide (Frusemide)

Use: Diuretic

Pregnancy safety: Fairly safe

Dosage: **Adult** - 20-40mg. May be repeated in 2-4 hours with severe congestive heart failure  
**Child** - 1-2mg/kg/dose

Side effects: Increased urination, postural hypotension, loss of potassium in body.

Nursing instructions: If possible take drug early in the day so increased urine does not interfere with sleep. Take with food to prevent stomach upset. With its use, it is

### Furosemide, continued

easy to make a person dehydrated or have a low potassium. Patients should take potassium when using this drug.

Medical instructions: Frusemide is not an antihypertensive drug except for patients with impaired renal function (serum Cr >1.5). It may be used for heart failure where thiazide not effective. Frusemide should be used for high blood pressure if a patient comes in with a very high blood pressure and captopril or another better emergency drug is not available. It has too short a time of action and too many potential side effects to be a good high blood pressure drug. Hydrochlorothiazide is a far better drug for the long term control of high blood pressure.

Frusemide is also used for swelling and fluid overload associated with congestive heart failure, kidney or liver disease.

If a patient is on frusemide he or she will need to take potassium or, if this is not possible, eat extra bananas or oranges. Frusemide pushes potassium from the body along with water. In a patient with normal kidney function, give oral KCl 20 meq daily for a frusemide dose of 40 mg and 40 meq daily for a furosemide dose of 40 mg I.V. A dose of 20 mg daily should be accompanied by KCl 10 meq daily.

### Gentamicin eye drops

Use: Antibiotic, treatment of conjunctivitis

Pregnancy safety: Fairly safe

Dosage: **Adult** - 1-2 drops in each eye once a day  
**Child** - 1-2 drops in each eye once a day (1.5-2.5 mg/dose)

Side effects: Kidney damage/failure, decreased hearing, nerve damage with vertigo and unstable walking, swelling, skin itching or rash.

Nursing instructions: Show patient how to insert drops without touching eye with tip of bottle.

Medical instructions: Even with eye drops, there is some systemic absorption. If there is evidence of kidney disease, use different antibiotic drops.

### Gentamicin

Use: Broad spectrum antibiotic for severe infections

Pregnancy safety: Fairly safe

Dosage: **Adult** - 1.5-2.5mg/kg/dose every 8 hours. No more than 7mg/kg/day.  
**Child** - 1.5-2.5 mg/kg/dose every 8 hours  
0-7 days: 2.5mg/kg/dose) every 12 hours

### Gentamicin, continued

Side effects: Kidney damage, decreased hearing, nerve damage with unstable walking, rash.

Nursing instructions: Only give IM. If patient is in-patient, may be given IV over one half hour or more.

Medical instructions: Gentamycin is used as part of the treatment of sepsis. It has good gram negative coverage and also covers Staph. It is also used for pneumonia in children under one month of age and for people with severe kidney infections, and can be used for Staph osteomyelitis.

Look at urinalysis, BUN and creatinine (if available) to check for kidney disease. If kidney disease is present, do not use this drug as it will destroy kidneys further. Repeat urinalysis, BUN and creatinine after first day of treatment.

### Griseofulvin

Use: Fungal infections of skin, nails, and hair

Pregnancy safety: Fairly safe

Dosage: **Adult** - 500-1000mg/day given divided twice a day or as a single once a day dose.

Give for at least a month 2 weeks after clearing infection.

**Child** - less than 2 years: 5-10mg/kg/day  
over 2 years: 10-20 mg/kg/days

Side effects: Headache, tiredness, mental confusion, rash, urticaria, nausea, vomiting, diarrhea.

Nursing instructions: Need to monitor blood count, kidney, and liver tests.

Medical instructions: Use for more severe fungus infections of skin as well as fungal infections of the hair and nail. For nails, the patient may need to be treated for 3 months or more.

### Hemovit (vitamins with iron)

Use: Iron and folic acid supplement, anemia

Pregnancy safety: Safe and recommended during pregnancy

Dosage: **Adult** - 1 tablespoon in the morning and in the evening  
**Child** - 1 tablespoon in the morning and in the evening

Side effects: Stomach upset, nausea, vomiting, constipation, or diarrhea.

### Hemovit, continued

Nursing instructions: Take on empty stomach with water. Take after meals if have stomach upset, but avoid milk, eggs, coffee, or tea before taking it. May turn stool a dark green-black.

Medical instructions: Use to give iron and folic acid to patients who are anemic and cannot take pills.

### Haloperidol

Use: Psychosis

Pregnancy safety: Fairly safe

Dosage: **Adult** - 2-5mg every 4-6 hours PRN  
**Child** - Do not give.

Side effects: Dry mouth, nausea, vomiting, sleepiness, headache, weakness, worsening psychotic symptoms. Extra-pyramidal syndromes. Hypotension, cardiac arrest, arrhythmias. Hypersensitivity with jaundice. Rash, bronchospasm, anemia, decreased white blood cells and platelets.

Nursing instructions: Make sure patient is taking enough fluids. Have patient return to health center if bleeding or bruising, sore throat, weakness, tremor, problem seeing, yellowing of eyes, or dark urine.

Medical instructions: This medication is for the treatment of acute psychosis. It may lower blood pressure. Do not give to children.

### Hydrochlorothiazide

Use: Diuretic, high blood pressure

Pregnancy safety: Probably safe in pregnancy. Try not to use in first trimester.

Dosage: **Adult** - 12.5-25n mg each morning for hypertension. Occasionally, doses as high

as 50 mg can be given.

**Diuretic:** 12.5mg-50 mg each morning. Occasionally, may need to go up to

100 mg for edema.

**Child** - 2mg/kg/day in two divided doses

Side effects: Increased urination, dizziness, dry mouth, nausea, vomiting, decreased potassium (muscle cramps and weakness).

Nursing instructions: Take in the morning to decrease urination at night. Come to health centre if unusual bleeding, bruising, muscle cramps or weakness.

Medical instructions: This is usually the first drug to use for high blood pressure. It is safe with few serious side-effects and is inexpensive. It can lower the potassium.

### Hydrochlorothiazide, continued

The patient will need a potassium supplement of 20mg/day if he or she has normal kidneys and is at a dose of 50 mg or more. The patient should be told to eat at least one large banana or orange a day when on the lower doses of hydrochlorothiazide. If used with hydrochlorothiazide, captopril will raise the potassium levels. In this case, there is no need to have extra potassium in the diet.

Hydrochlorothiazide does not work if there is significant kidney dysfunction. If there is, another drug such as frusemide should be used.

### Hydrocortisone cream

Use: Steroid, anti-inflammatory

Pregnancy use: Fairly safe

Dosage: **Adult** - Use very small amount on rash 2 times a day  
**Child** - Use very small amount on rash 2 times a day

Side effects: Immunosuppression - making infections worse.

Nursing instructions: Tell patient to return to the health centre if he or she has dark stools, abdominal pain, muscle weakness, fever or other signs of infection.

Medical instructions: Because it is milder than the other steroid creams it is a good choice for mild to moderate rash and for rashes on the face. If used on face, use only in very small amounts since it can thin and lighten the skin. This is the weakest steroid cream and can be used for mild to moderate rash even when it is fairly wide spread on the body.

Remember that steroids can make bacterial and yeast infections worse.

### Hydrocortisone

Use: Steroid, anti-inflammatory

Pregnancy use: Fairly safe

Dosage: **Adult** - 20-240mg IM  
**Child** - 1-5mg/kg/day IM one time

Side effects: Immunosuppression, stomach bleeding, leg swelling, weakness.

Nursing instructions: Return to health centre if having dark stools, abdominal pain, fever, and/or muscle weakness.

Medical instructions: Use to break severe asthma attacks. Use if a patient is in shock. It is also a very powerful anti-inflammatory, but makes infections worse. Because of the dangerous side effects, only use hydrocortisone injections in serious conditions where the risk of the side effects is justified.

### Hyoscine-N-butylbromide

Use: Decrease intestinal cramps and/or diarrhea

Pregnancy safety: Fairly safe

Dosage: **Adult** - one every 4 to 6 hours as needed  
**Child** - Do not use.

Side effects: Dizziness, nausea, decreased sweating, dry mouth, blurred vision, skin rash.

Nursing instructions: Warn patient that medication will decrease sweating so patient can over heat.

Medical instructions: Use for abdominal cramping. As it only treats symptoms, treat the underlying disease as well. Use only for a short time.

### Ibuprofen

Use: Inflammation, pain

Pregnancy safety: Fairly safe early in pregnancy but unsafe in third trimester

Dosage: **Adult** - 400-800 mg 3 times a day  
**Child** - 5-10mg/kg/dose every 6-8 hours

Side effects: Heartburn, upper abdominal pain, nausea, vomiting, bleeding from stomach. Can increase salt retention and elevate blood pressure.

Nursing instructions: Take with food. Do not take more than the prescribed amount. If patient has black stools, vomiting or persistent stomach pain or heartburn, come back to the health centre.

Medical instructions: Very good for fever in young children. For some children it works better than paracetamol. If the fever is not going down both drugs can be used following each other, alternating every two hours with paracetamol and then ibuprofen and then paracetamol and then ibuprofen.

Ibuprofen is very good for muscle and joint pain. Because it is an anti-inflammatory it will decrease the inflammation and speed up healing.

It can increase the blood pressure so this needs to be monitored. Also be very cautious if patient already has high blood pressure as it can raise the pressure to dangerous levels.

### Insulin

(See policies and procedures for diabetes.)

## Ketoconazole

Use: Fungal infections

Pregnancy safety: Use with caution

Dosage: **Adult** - 200-400 mg/day as a single daily dose

**Child** - 2 years or older: 3.3-6.6 mg/kg/day as a single dose for 1-2 weeks for Candidiasis; for at least 4 weeks in recalcitrant dermatophyte infection, and for up to 6 months for other systemic mycoses.

Side effects: Pruritus, nausea, vomiting, abdominal pain.

Nursing instructions: If patient is on antacids, instruct patient to take medication 2 hours prior to antacids to prevent decreased absorption due to the high pH of gastric contents.

Medical instructions: Ketoconazole has been associated with hepatotoxicity. Use with caution in patients with pre-existing hepatic impairment.

## Lignocaine injection 2%

Use: Local anesthetic

Pregnancy safety: Safe

Dosage: **Adult** - for IM administration: varies with procedure, maximum of 4.5mg/kg/dose.

Do not repeat within 2 hours

**Child** - Same as adult dosing

Side effects: Arrhythmia, bradycardia, agitation, anxiety, confusion, dizziness, itching, nausea, vomiting, allergic reactions.

Nursing instructions: Wait at least 10 minutes before starting a procedure in order for the medication to work.

Medical instructions: Do not administer intravascularly.

## Loperamide

Use: Antidiarrheal – for acute diarrhea

Pregnancy safety: Use with extreme caution

Dosage: **Adult** – initial: 4 mg, followed by 2 mg after each loose stool, up to 16mg/day

**Child** – not to be used for children < 2 years.  
2-5 years (13-20 kg): 1 mg 3 times/day  
6-8 years (20-30 kg): 2 mg twice daily

## Loperamide, continued

8-12 years (>30 kg): 2 mg 3 times/day

Maintenance: after initial dosing, 0.1 mg/kg doses after each loose stool, but not exceeding initial dosage

Side effects: Dizziness, constipation, abdominal cramping, nausea.

Nursing instructions: If diarrhea lasts longer than 2 days, patient should stop taking loperamide and see a healthcare provider.

Medical instructions: Use with caution in young children as response may be variable because of dehydration. Use with caution in treatment of AIDS patients. Stop therapy at the sign of abdominal distention. Do not use if diarrhea is accompanied by high fever or blood in stool.

## Magnesium sulphate

Use: Seizures in pregnancy

Pregnancy safety: Safe in pregnancy and helpful in decreasing seizures associated with eclampsia

Dosage: **Adult** - 4-5 grams of 50% solution every 4 hours as needed

**Child** - Do not use.

Side effects: Weakness, diarrhea, low calcium with tetany.

Nursing instructions: Alert patient that drug may cause sweating, flushing, muscle tremors, or inability to move arms/legs. Patient to alert nurse at once if any of these are present.

Medical instructions: Only use it to prevent seizures in eclampsia/pre-eclampsia. Do not use if there is kidney disease.

## Magnesium trisilicate

Use: Antacid

Pregnancy safety: Fairly safe

Dosage: **Adult** - one to two tablets between meals or at bed time.

**Child** - Do not use.

Side effects: Diarrhea, nausea, dizziness. Very dangerous if patient has kidney failure.

Nursing instructions: Never give to someone with kidney failure. Chew thoroughly and swallow with a glass of water.

### **Magnesium trisilicate, continued**

Medical instructions: It is good for heart burn and upset stomach or stomach pain of short duration of a week or less. If longer duration, consider omeprazole or if pregnant use ranitidine. Magnesium is not safe if there is kidney failure and should not be used.

### **Mebendazole syrup/tablets**

Use: Worms

Pregnancy safety: Fairly safe

Dosage: **Adult** - one pill 2 times a day for 3 days  
**Child** - one pill 2 times a day for 3 days

Side effects: Diarrhea, abdominal pain

Nursing instructions: If fever or severe diarrhea occurs, patient to return to health centre.

Medical instructions: Use for ascaris and hookworm. children with these worms should be treated with mebendazole or albendazole every 6 months.

### **Metformin tablets (Glucophage)**

Use: Antidiabetic agent (type 2 diabetes mellitus)

Pregnancy safety: Safe

Dosage: **Adult** - 17 years or older: initial - 500 mg twice daily or 850 mg once daily.  
Increases in daily dosage should be made in increments of 500 mg at weekly intervals up to a maximum of 2000 mg/day.  
Doses of up to 2000 mg/day may be given twice daily.  
**Child** - 10-16 years: initial – 500 mg twice daily.  
Increases in daily dosage should be made in increments of 500 mg at weekly intervals, given in divided doses, up to a maximum of 2000 mg/day.

Side effects: Nausea, vomiting, diarrhea, flatulence, weakness, chest discomfort, headache, dizziness, rash, indigestion, rarely, lactic acidosis (if in kidney failure).

Nursing instructions: Take with morning and evening meals.

Medical instructions: This is the first diabetic drug for mild and moderate diabetic patients. It should be increased to its maximum dose before adding other agents. It helps weight loss. The maximum dose is 2500 mg/day. Chlorpropamide should be stopped for 2 weeks before starting this drug. It can also help with PCOS.

### **Metronidazole**

Use: Amoeba, Trichomonas, Giardia, and antibiotic for anaerobic bacteria in intestine or in mouth

Pregnancy safety: Safe

Dosage: **Adult** - for amoeba: 750mg 3 times a day for 5-10 days  
for Trichomonas: 250mg 3 times a day for 7 days  
**Child** - for amoeba: 30-50mg/kg/day in 3 divided doses for 10 days

Side effects: Nausea, vomiting, diarrhea, metallic taste in mouth.

Nursing instructions: Take with food to avoid stomach upset. Do not drink alcohol while taking metronidazole since it can cause a severe reaction. If giving IV, infuse over one hour.

Medical instructions: This is the first line treatment for Trichomonas, Giardia, and amoeba, including amoebic liver abscess. It is much cheaper than Entosec but may not work as quickly. For sepsis, especially when there may be intestinal organ involvement, metronidazole should usually be part of the treatment. It also may be used for more severe dental infections.

### **Multivitamin syrup/tablets**

Use: Vitamins

Pregnancy safety: Safe and recommended

Dosage: **Adult** - one a day  
**Child** - one teaspoon a day

Side effects: None

Nursing instructions: Take once a day for at least a month.

Medical instructions: Prescribe for at least a month or more. All pregnant women and children, especially those under 5 years of age, should take daily multiple vitamins if at all possible.

### **Nifedipine tablets**

Use: Calcium channel blocker, for high blood pressure and for angina

Pregnancy safety: Fairly safe

Dosage: **Adult** - 10-30mg 3 times a day  
**Child** - Do not use.

### Nifedipine, continued

Side effects: Nausea, vomiting, dizziness, muscle cramps, swelling of the legs, irregular heart rate.

Nursing instructions: Take every day even if feeling fine. Tell patient that high blood pressure is silent until you have a stroke.

Medical instructions: This is the third line treatment for high blood pressure following hydrochlorothiazide and captopril. You usually add it to the other two instead of replacing one of them. The other drug to be considered instead of nifedipine is atenolol which usually has a few less side effects.

Nifedipine is being used more for high blood pressure in pregnancy where it appears generally safe. During pregnancy hydrochlorothiazide is not recommended and captopril should never be used.

### Nystatin

Use: Candida yeast infection of skin or mouth/esophagus

Pregnancy safety: Safe

Dosage: **Adult** - 400-600,000 units 3 times a day, applying half each side of mouth. For rash, apply small amount of ointment 3 times a day.

**Child** - infants: 200,000 units 3 times a day. For rash, apply small amount 3 times a day.

Side effects: When taken orally - diarrhea, nausea, vomiting, stomach upset. Ointment - can have local irritation.

Nursing instructions: Come back if stomach upset or local irritation. For oral use with infants, saturate cotton or gauze with solution and gently swab inside of mouth.

Medical instructions: It can be used by itself for oral Candida infection but the patient generally needs a systemic drug for esophageal Candida.

### Omeprazole

Use: Stomach ulcers, gastritis, acid reflux

Pregnancy safety: Fairly safe

Dosage: **Adult** – 20 mg once day for 4-8 weeks. Can go up to 40 mg a day if severe

**Child** - less than 20 kg: 10 mg once a day  
20 mg or more: 20 mg once a day

### Omeprazole, continued

Side effects: Headache, diarrhea, abdominal pain, nausea, vomiting, rash, cough, cold symptoms.

Nursing instructions: Take one half hour to one hour before largest meal. Come back to health centre if have severe headache or worsening symptoms or fever. If on higher dose, take one-half hour to one hour before breakfast and again one half hour to one hour before dinner.

Medical instructions: Omeprazole is the drug of choice for chronic heart burn, epigastric pain, or when you suspect stomach ulcers, gastritis, or gastro-esophageal reflux. It may take a few days for omeprazole to begin fully working. You need to treat a patient with it for at least one month.

### Ornidazole tablets

Use: Antiprotozoal and infections due to susceptible strains of anaerobic bacteria (used by DCMC Dental Clinic)

Pregnancy safety: Not established

Dosage: **Adult** - for trichomonas: 1.5 g single dose for one day; or 500 mg twice daily for 5 days  
- for amoebiasis (with amoebic dysentery): 1.5 g as a single dose for 3 days; patients > 60 kg should take 1 g twice daily for 3 days.  
- for giardiasis: 1.5 g as a single dose for 1-2 days

**Child** - only for child >35 kg. Same doses as for adults.

Side effects: Usually mild, with nausea, abdominal pain, vertigo, headache and skin rash.

Medical instructions: Expensive. Does same things as metronidazole but possibly with fewer side effects. Need to take for longer time than Entosec which is also expensive and generally equivalent.

### ORS powder

Use: Diarrhea (provides salts, sugar and water needed to help with diarrhea)

Pregnancy safety: Safe

Dosage: **Adult** - one packet mixed with a litre of water for every loose stool

**Child** - one packet mixed with a litre of water 2-4 times a day

Side effects: None

Nursing instructions: Advise to give or take sips very frequently. Come back to health centre if getting sicker or diarrhea persisting.



Medical instructions: This is often life saving, especially for young children. Virtually everyone with diarrhea should be given it unless they are sick enough to keep as an inpatient and receive intravenous fluids. Most patients with severe diarrhea who are treated and sent home should come back the next day for follow-up. Remember to look for cholera which needs referral to a cholera camp for careful monitoring and IV fluid or intensive ORS.

### **Oxytocin**

Use: Control of bleeding post delivery or post abortion bleeding. Also, induction of labor at term

Pregnancy safety: Not safe. Never use during pregnancy unless planning to deliver.

Dosage: **Adult** - 0.001-0.002 units/minute for induction of labor.  
For post-partum or post abortion bleeding: 10-40 units added to one litre normal saline at a rate needed to control the bleeding.  
**Child** - Do not use.

Side effects: Infant: fetal bradycardia, newborn jaundice, low Apgar scores.  
Mother: cardiac arrhythmias, hypertension, nausea, vomiting, anaphylactic reaction with problems breathing.

Nursing instructions: Monitor both mother and baby very carefully.  
Medical instructions: Good drug for postpartum hemorrhage. However, misoprostol is generally recommended for postpartum hemorrhage rather than Oxytocin it does not need to be refrigerated and generally has fewer side effects.

### **Paracetamol**

Use: Reduce fever, control pain

Pregnancy safety: Safe

Dosage: **Adult** - 500-1000 mg every 4-6 hours as needed (max 4 g/day)  
**Child** - 10-15mg/kg/dose every 4-6 hours as needed

Side effects: Headache, liver failure (especially in very high doses), anemia

Nursing instructions: Come into health centre at once if rash, unusual bleeding or bruising, yellowing of eyes, or changes in urination.

Medical instructions: It is good for pain and fever control, but not a good anti-inflammatory. It is safe to use with ibuprofen, diclofenac, or aspirin. If using both, write down when you give each drug so you don't accidentally overdose.

### **Phenobarbital**

Use: Seizures, sedation

Pregnancy safety: Not safe

Dosage: **Adult** - 1-3mg/kg per day in 2 to 3 divided doses  
**Child** - 5-8mg/kg/day in 1 to 2 divided doses

Side effects: Sleepiness, confusion, rash (which may be severe), respiratory depression, stomach upset.

Nursing instructions: Avoid pregnancy if using this drug. Come back to health centre if dizziness or drowsiness persists, or if develop rash, easy bruising or bleeding. If rash is severe, this is an emergency – stop medicine and come to health centre at once.

Medical instructions: This is a good drug along with dilantin for control of chronic seizures. If a patient is having seizures when you see him or her, diazepam is a much better drug. Phenobarbital can be addicting - so be careful using it.

### **Praziquantel**

Use: Schistosomiasis

Pregnancy safety: Safe

Dosage: **Adult** - 20mg/kg/dose 2 to 3 times a day for one day  
**Child** - (older than 4 years) same as for adults

Side effects: Dizziness, sleepiness, headache, abdominal pain, lack of appetite, nausea, vomiting.

Nursing instructions: Warn about side effects, especially parents when given to their children.

Medical instructions: It can be used as a mass treatment for schistosomiasis at schools but you will need to warn the parents and children about possible side-effects.

### **Prednisolone**

Use: Steroid, anti-inflammatory

Pregnancy safety: Fairly safe

Dosage: **Adult** - 5-60 mg once a day  
**Child** - 1-2 mg/kg/day in divided doses 1-2 times/day for 3-5 days

Side effects: Insomnia, nervousness, increased appetite, stomach upset.

### Prednisolone, continued

Nursing instructions: Tastes bitter. Crush for children and add to small amount of food or liquid.

Medical instructions: This is a very powerful anti-inflammatory but with dangerous side-effects. Like other steroids it can lower the immune response making the patient more likely to get infections. It can make tuberculosis worse.

### Procaine penicillin Injection

Use: Antibiotic

Pregnancy safety: Safe

Dosage: **Adult** - 0.6-million units/day given every 24 hours or given in half doses every 12 hours

Neurosyphilis: 2.4 million units/day with 500 mg probenecid by mouth 4 times a day for 10-14 days.

**Child** - 25,000-50,000 units/kg/day divided into 1 to 2 doses a day

Side effects: Anaphylaxis, rash, fever, wheezing, anemia, low white counts, mouth sores.

Nursing instructions: Do not use if patient has allergy to penicillin. If rash, difficulty breathing, mouth sores and/or unusual bleeding, this is an emergency and patient should come back to health centre at once.

Medical instructions: It can be used to treat Strep throat although benzathine penicillin is more often used. It can also be used to treat neurosyphilis.

### Promethazine

Use: Vomiting

Pregnancy safety: Fairly safe

Dosage: **Adult** - 25 mg IM or (when possible) by mouth every 4-6 hours PRN

**Child** - less than 2 years old: 0.25mg-1mg/kg/dose up to a maximum of 25mg/dose every 4-6 hours PRN

>2 years: 0.1 mg/kg/dose every 6 hours (for IM); 0.5 mg/kg/dose oral every 6 hours PRN

Side effects: Dizziness, sleepiness, confusion, seizures, drop in blood pressure, rash, stomach upset, blurred vision, swollen throat, anemia.

Nursing instructions: Avoid alcohol and drink lots of water. Come to health centre with sore throat, fever, bleeding or bruising, rash, yellow eyes, or dark urine.

Medical instructions: This just treats the symptoms. You need to look for the cause of the vomiting such as malaria, typhoid, or appendicitis and treat that as well.

### Quinine

Use: Malaria

Pregnancy safety: Not safe in pregnancy. But if pregnant woman has severe malaria, IV form must be used.

Dosage: **Adult** - 650 mg every 8 hours for 3 to 5 days

**Child** - 25-30mg/kg/day for 3 to 5 days

Side effects: Severe headache, nausea, vomiting, diarrhea, ringing in ears, blurred vision.

Nursing instructions: Be very slow and careful giving IV dose as can cause cardiac arrhythmias.

Medical instructions: Remember to monitor blood sugar when giving quinine as it can lower the blood sugar, especially in pregnant patients. After the IV infusion of quinine, follow with a 3 day course of coartem (Alu). Oral quinine could be used instead of coartem, but it has such a bitter taste most patients do not like it.

### Salbutamol

Use: Asthma

Pregnancy safety: Fairly safe

Dosage: **Adult** – 2 puffs every 4-6 hours as needed

If acute or severe asthma: 4-8 puffs every 20 minutes for up to 4 hours, then every 1-4 hours as needed.

**Child** - 4 or <4 years: 1 puff every 4-6 hours as needed

5-11 years: 2 puffs every 4-6 hours as needed

12 or >12 years: 2 puffs every 4-6 hours as needed

Side effects: Headache, tremor, tachycardia, palpations, high blood pressure.

Nursing instructions: Return to health centre if severe headache, irregular heart rate, or worsening asthma. Use a spacer for delivery of medication at health centre. Use a face mask with the spacer for children less than 4 years of age.

Medical instructions: Salbutamol is useful in treating asthma attacks. After giving a treatment you should re-check the lungs and not allow the patient to go home until he or she is clear. Salbutamol should never be given to a patient with cardiac asthma since it can make the heart work harder and possibly cause a heart attack. In Tanzania, because the inhalers are expensive, the syrup or tablets are usually given to the patient for home use.

### **Silverex ointment**

Dosage: **Adult and Child:** Apply 1 to 2 times a day until infection resolves

Side effects: Irritation, rash

Pregnancy safety: Safe when used in moderation

Nursing instructions: Wash area with soap and water (or sterile normal saline) before applying antibiotic cream.

Medical instructions: Remember if the skin rash is at all severe the patient will need oral antibiotics as well.

### **Tramadol**

Dosage: **Adult:** 50-100 mg PO 4 to 6 times a day (not to exceed 400 mg/day)  
**Child:** Do not use.

Side effects: Flushing, dizziness, headache, insomnia, pruritis, constipation, nausea, vomiting, weakness, seizures.

Pregnancy safety: Do not use.

Nursing instructions: Warn of side effects. May be taken with or without food.

Medical instructions: This drug is meant for moderate to severe pain, not mild pain. It can cause addiction. It can be used with paracetamol, a non-steroidal such as ibuprofen or diclofenac, and also with a narcotic such as morphine if more pain control is needed. It interacts with many medications.

### **Vitamin A**

Dosage, adult: 100,000 units for 3 days and then 50,000 units for 2 weeks

Dosage, child:

**Less than 1 year** – 100,000 units every 4-6 months  
**1 to 8 years** – 200,000 units every 4-6 months  
**8 or more years** – same as adult

Side effects: Irritability, headache, fever, dry skin

Pregnancy safety: Safe but dangerous in large doses

Nursing instructions: Vitamin A decreases infections and infant/young child deaths. Too much vitamin A can be toxic and make the person sick.

Medical instructions: This is a very important vitamin. All children receive it as part of the national campaign. Ensure they have received it when you see them. If a child is significantly malnourished or has measles, he or she will need vitamin A.

### **Volin gel (aspirin, diclofenac, linseed oil)**

Dosage, adult: Apply to affected area 3-4 times per day

Dosage, child: Do not use.

Side effects: Local irritation (mild to moderate itching, rashes, erythema or burning)

Pregnancy safety: Not been established

Nursing instructions: Apply only to intact skin and not to wounds or open injuries. Gently rub into skin.

Medical instructions: Used for local symptomatic relief from pain and inflammation due to trauma, rheumatism, and osteoarthritis. This is only useful superficially and expensive.

### **Whitefield ointment (benzoic acid)**

Dosage, adult and child: Apply to rash until improved (usually at least 5 days)

Side effects: Local irritation, rash

Pregnancy safety: Fairly safe

Nursing instructions: Do not put large amounts on rash.

Medical instructions: Severe fungal rashes may need an oral antifungal agent as well.

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- World Health Organization. (2011). *IMAI District Clinician Manual: Hospital Care for Adolescents and Adults: Guidelines for the Management of Illnesses with Limited Resources 2 Volumes*. Malta: WHO Press.
- World Health Organization. (2014). *Pocket Book of Hospital Care for Children: Guidelines for the Management of Common Childhood Illnesses – Second Edition*. Malta: WHO Press.

# Todd Domeyer, MD

## Projects Completed During Residency:

### Community Health Project:

Healthy Eating Options - Verona

### Scholarly Project:

Dietary Supplement Use and Source of Nutrition Information Among Collegiate Athletes:

Working with the UW Madison Athletic Department, we distributed a voluntary and confidential survey to all 738 athletes at UW Madison. I focused on supplement usage in athletes and their sources of nutrition information. Supplement usage was very common among our athletes and there were several significant differences by sex, sport, and the athletes' source of nutrition information. Most surprising were the large differences we saw in where the athletes got most of their information even with nutrition education provided through the UW Madison Athletic Department.



An Iowa native, Todd earned his bachelor's degree in integrative physiology and chemistry from the University of Iowa and completed his medical degree from the University of Iowa Carver College of Medicine.

His activities during medical school reflected

a commitment to teaching; he tutored students in subjects such as medical genetics and human organ systems, served as a peer mentor, and co-facilitated the Patient-Centered Learning course for second-year students. He also participated in research projects on improved control of postoperative pain and youth football injuries, and was active in Table to Table, an organization that provides food to area shelters. Todd is drawn to family medicine's focus on continuity of care, breadth of practice and emphasis on prevention. Outside of medicine, Todd enjoys running, playing basketball and football, spending time with friends and family, watching movies, and cooking.



*I would like to thank my family and friends who are always there to support me, the entire faculty for sharing their knowledge, and my official and unofficial mentors (Kathleen Carr and Erin Hammer). I would not have been able to do this without all of you. I would also like to thank Kathy Oriel for putting Tina at Verona!*

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## Avanti's

### Appetizers:

- Bruschetta
- Spicy Shrimp
- Crab Cakes

### Entrees: Best options

- Greek Chicken Salad
- Carries chicken Salad
- Spiced Roast Salmon Salad
- Dinner Salad
- Walleye a la Ritz
- Bone-in Ribeye (preferably with salad as a side)
- Grilled Salmon (better if you can substitute out the pasta for a side of vegetables)

## Chiang Jiang

Entrees: The following are listed under 'Diet' section and are steamed with the sauce on the side:

- D1 Mixed Vegetable
- D2 Chicken w. Broccoli
- D3 Jumbo Shrimp w. Mixed Vegetables
- D4 Chicken w. Mixed Vegetables
- D5 Jumbo Shrimp w. Broccoli
- D6 Fresh Scallops w. Mixed Vegetables
- D7 Fresh scallops w. Broccoli
- D8 Jumbo Scallops, Shrimp & Chicken w. Mixed Vegetables

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## Treads

Appetizers: *Better off skipping (mostly fried and unhealthy options)*

- Chicken wings would probably be your best bet if one was desired

### Entrees:

- Breakfast:** the best option would be to make your own omelet with egg whites; instead of hash browns ask for more vegetables or stick with an english muffin
- **Sandwiches and Burgers:** choose grilled chicken or veggie burger as substitute for beef, skip the bacon and ask to place on greens instead of buns or bread. Avoid the melts due to high fat content.
- Friday Night (without the fry) Fish:** choose either grilled jumbo shrimp or baked shrimp & fish dishes.
- Ribeye Steak on Saturdays:** skip the baked potato and ask for more steamed vegetables.
- Grilled Chicken Salad** (ask without bacon)
- Chef's Salad** (ask without bacon)
- Garden Salad**

*\* Fat free ranch available for salads.*

### Sides:

- Ask for vegetable options as the regular sides are all fried.



## Eat Out and Eat Well Guide

### Gray's Tied House

Appetizers: *Better off skipping (mostly fried)*

- Chicken wings would probably be your best bet if one was desired

### Entrees:

- Southwest Steak Salad
- Greek Salad
- Ahi Tuna Salad
- Spinach Salad
- Pacific Rim Salad
- Chicken Salad (ask for grilled chicken)
- Chef Salad
- Caesar Salad
- Soup & Salad Combo
- Mahi Mahi
- Ribeye
- Salmon Filet
- Sirloin

*\*Ask for dressing or any sauce on the side*

### Sides:

- Dipping vegetables and seasonal vegetables clearly most healthy
- Baked potato best of the remaining (watch your butter/sour cream use)

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## Drafthouse Bar and Restaurant

Appetizers: *better off skipping (mostly fried and unhealthy options)*

- Chicken wings or spinach artichoke dip would probably be your best bet if one was desired

Entrees:

- Grilled Fish Tacos
- Grilled Jumbo Shrimp
- Baked Walleye
- New York Strip (skip the potato)
- Draft House Salad
- Cobb Salad (skip the bacon)
- Chef Salad
- Casear Salad
- Santa Fe Chicken Salad
- Taco Salad (ask to skip the tortilla shell and sprinkle some tortilla chips on top instead to limit the amount of carbohydrates)
- Buffalo Chicken Salad
- Asian Chicken Salad

*\*Healthier dressing options include: Vinegar & oil, fat free french, fat free ranch, or fat free raspberry vinaigrette*

*\* Ask to put cottage cheese on salad as substitute for shredded cheese and dressing.*

Sides:

- Cup of cottage cheese
- Sautéed veggies

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## Monte's Grill and Pub

Appetizers: *Better off skipping (mostly fried)*

- Chicken wings would probably be your best bet if one was desired

Entrees:

- Epic Chicken Salad
- New York Strip steak (better if you hold the gravy)
- Monte's Margarita Flatbread

Sides:

- Monte's allows you to substitute seasonal vegetables for you potato (may be a charge)

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## Cuco's Mexican Restaurant

Appetizers: Try to limit yourself to one of the free chips and salsa (suggested limit, max of one basket per 2 people)

Entrees: Most dishes are served with rice and tortillas, would recommend skipping one (or using only half of each) as that is a lot of starch (carbohydrates)

- Fajitas (Vegetarian, Steak, Chicken, Shrimp, Mixed, Texana)
- Pollo Loco
- Fish Tacos
- Carne Asada
- Bistek Mexicano
- Camarones a la Diabla

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## Jordandal

Entrees: All burgers and wraps can be turned into a lettuce wrap or placed over greens, so you can still enjoy the meal without the extra carbohydrates. Another healthy option is to substitute any sauce or mayo for avocado slices.

- Seasonal Salad option
- Grilled Fish Tacos
- Walnut and Black Bean Burger
- Curried Beef Kabobs (available after 4pm)
- Meat Loaf (available after 4pm)

Sides:

Cold sides are available daily. Suggest the vegetable options instead of the pasta or sweets.

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## Sow's Ear

Entrees: Ask to put the contents of the cold or hot sandwiches on greens instead of bread

-**Chicken or Tuna Salad** on Greens with either yogurt, veggies, or extra salad greens (skip the chips option)

-**Grecian Sow:** Mediterranean platter features a scoop of our homemade hummus on a bed of fresh greens, cucumbers, carrots, olives and others

-**Garden Sow Salad:** Cucumber, carrot, and roma tomato on a bed of salad greens with Renaissance Farms lemon pesto dressing.

-**Fruit and Nut Salad:** Cranberries, almonds, and feta on a bed of salad greens with house made balsamic vinaigrette.

Sides:

- Applesauce
- Side of salad greens
- Yogurt

# Jared Dubey, DO

## Projects Completed During Residency:

### Scholarly Project:

OMT for the MD

### Community Health Project:

Verona Clinic Garden Project:

I served as functional manager to oversee the 2016 Verona clinic community garden. This involved planning, organization, delegation, and lots of gardening. The clinic partnered with the Badger Prairie Needs Network Food Pantry in Verona to provide over 1200 pounds of donated produce for families and individuals in need. Contributors to the garden project included clinic staff, residents, faculty, as well as a local high school agriculture class and several Verona community members.



Born in New Mexico, Jared completed his bachelor's degree in Mathematics from the University of California, Santa Cruz (UCSC). After graduation, he stayed in Santa Cruz to be an instructor and program educator at the UCSC Recreation Department, where he

facilitated classroom learning and led educational wilderness backpacking trips in the Sierra Nevadas. With the intent of continuing his role as a teacher, Jared entered medical school at Touro University College of Osteopathic Medicine in California. There, he coordinated an osteopathic manipulative medicine (OMM) clinic for homeless and indigent people in the San Francisco Bay area, which provided treatment, referrals and legal or social services as needed. He was also active in his school's chapter of the Student American Academy of Osteopathy, participating regularly in lunchtime OMM clinic events. Jared's interests in educating patients, treating the whole person, and helping the underserved—as well as integrating the principles of osteopathic medicine—are what drew him to family medicine. Outside of medicine, he enjoys yoga and meditation, traveling, cooking, guitar and many outdoor activities.



*A huge thank you to the residency administrative staff (Jenny, Michelle, Kacia, Dan, Vicki, Katy, Justin, and others) who have been so impressively dedicated to making this residency experience as smooth and positive as humanly possible. Your flexibility, creative problem solving, and ready smiles were a continual source of encouragement and motivation to me.*

**University of Wisconsin – Department of Family Medicine and Community Health**  
Madison Family Medicine Residency Program

**Osteopathic Manipulative Treatment for the Allopathic Physician (OMT4MD)**  
Longitudinal Elective Course Description and Syllabus

**Texts**

- *Foundations of Osteopathic Medicine 3<sup>rd</sup> Edition (FOM)*. Anthony Chila, executive editor. LWW, 2011.
- *Basic Musculoskeletal Manipulation Skills -The 15 Minute Office Encounter (BMMS)*. Rowane. AAO 2012.
- Anatomy Reference (any atlas or software program)
- *Counterstrain Atlas*. Glover et al.

Overview

**Goals:**

- To meet the interest amongst allopathic residents and fellows to learn OMT and prepare them to incorporate these skills into their clinical practice
- To study the feasibility and potential sustainability of incorporating this elective into the DFMCH

**Background:** The philosophies of osteopathic medicine and family medicine are inherently harmonious. Both seek to treat the whole person (body, mind, and spirit) while respecting the self-healing capacity of each individual. Osteopathic theory and practice is based on the core concept that alterations in physical structure affect physiologic functioning, and vice-versa. By addressing these physical alterations (i.e. somatic dysfunctions) OMT aims to correct aberrant physiology. OMT is indicated in many common primary care clinical scenarios. This elective is designed for allopathic residents who desire an in depth training in osteopathic manipulative diagnosis and treatment.

**Objectives:** The MD who completes this pathway will learn to:

- Appreciate the historical context and evolution of osteopathic medicine and its role in today's health care system
- Apply osteopathic principles and clinical reasoning to formulate appropriate osteopathic treatment plans for common presenting conditions
- Become proficient at performing an osteopathic structural exam, including segmental diagnosis of the axial and appendicular skeleton
- Become proficient with a range of OMT modalities, including soft tissue, counterstrain, muscle energy, and myofascial release
- Appreciate the role lymphatics and autonomies play in the application of osteopathic clinical theory and use OMT to address somatic dysfunctions that impact the normal physiologic functioning of these systems
- Effectively document and bill for osteopathic diagnosis and treatment



### **Curriculum Highlights:**

A modular, non-linear curriculum allows residents to jump in and out, as schedules necessitate. Modules can be completed in any order; with the exception that module 1 is foundational and should be completed first. In-person lab time will heavily prioritize hands-on learning, while significant didactic curriculum will be accomplished via readings and online lectures.

### Module Topics:

- 1) Finding Somatic Dysfunction and Introduction to Counterstrain
- 2) Lumbar Spine: Functional Anatomy, Diagnosis, and Treatment
- 3) Lower Extremity: Functional Anatomy, Diagnosis, and Treatment
- 4) Pelvis: Functional Anatomy, Diagnosis, and Treatment
- 5) Sacrum: Functional Anatomy, Diagnosis, and Treatment
- 6) Thoracic spine and ribs: Functional Anatomy, Diagnosis, and Treatment
- 7) Cervical spine: Functional Anatomy, Diagnosis, and Treatment
- 8) Upper Extremity: Functional Anatomy, Diagnosis, and Treatment
- 9) Makeup/Review lab

### Modular Elements:

- Didactic curriculum
  - Readings and online lectures to be completed prior to lab sessions
- Laboratory curriculum
  - Monthly or semi-monthly hands-on labs (8 total) to teach techniques and review theory (schedules permitting with make up times available)
  - Labs designed to be 2.5 hours each and held on Wednesday evenings after little/big seminar
- Practice Logs
  - Documenting 2-3 sessions of practice outside of scheduled labs for each lab attended
  - 10 whole body assessment and treatments upon culmination of program prior to testing for certification
- Preceptorship
  - Elective time (5 half days) with a DO in clinic, OMT shadowing/participation

### **Estimated Workload**

It's estimated that minimal requirements for completion of this curriculum will take 60-70 hours: (2 hours of prep, 2.5 hour lab, 2 hours of practice/review – per module x 8 modules) + (10-20 hours of shadowing and final review/practice time)

### **Completing a module**

A module is considered complete when the readings, online lecture, attendance at the lab, and submission of 2-3 practice logs has been documented

### **Checking off to use OMT in clinic**

Residents will be certified to use specific OMT approaches in clinic, under appropriate supervision, at the discretion of DO faculty, with demonstration of competence.

### **Eligibility**

Residents electing to participate in the OMT for MD pathway must be in good academic standing and approval must be obtained from clinic mentor and a program director

### **Certificate of Completion**

A certificate of completion will be awarded to residents who meet the following requirements:

- Completion of all modules (as described above)
- Completion of elective rotation time (as described above)
- Completion of 10 complete treatments documenting structural exam, treatment, and response for at least 5 body regions (template notes to be provided)
- Passing a mock-patient practical (full body diagnosis and treatment of 5 or more body regions under supervision)

### **Rotation Credit**

1 musculoskeletal medicine selective and 2-3 general electives can be met through enrollment in the OMT4MD program. This assures protected time during a resident's schedule to prepare for labs, review, and complete practice logs. Elective/selective half days can be distributed throughout a resident's schedule to accommodate optimal timing relative to lab sessions and to allow flexibility for working with DO's in clinic to meet clinical preceptorship requirement.

### Curricular Element Descriptions

#### **Labs**

Each module will have a corresponding lab session. Labs will be held on Wednesday evenings after little/big seminar, in **Alumni Hall room 1819 from 4:45 – 7:15pm**. Attendance at lab is required for module completion, with the exception that one lab can be "made up" during the make up lab at the end of the year. This should be discussed with primary lab facilitator to ensure participant is prepared properly. Modules and labs may be completed in any order, though it is highly recommended to complete module 1, first. If unable due to scheduling concerns, this should be discussed with lab facilitator to ensure participant reviews necessary material. Lab attire should be comfortable clothing that permits full range of motion of the whole body.

#### **Readings**

Readings form an important context for laboratory sessions and thus should be considered 'required.' However, we acknowledge that as adult learners it may be appropriate to skim familiar material in some cases, and dive into further text on other, less familiar topics. In order to assist the busy learner, we've bolded certain assignments to denote what we feel are more

essential sections, keeping in mind that all assigned reading is still felt to be relevant and important.

### **Online Lectures**

Each module will have a corresponding online lecture, designed to outline the module, highlighting key points and preparing participants for the lab session. These online, narrated presentations will take the place of in person didactic sessions. It is expected that participants will review the corresponding lecture before lab attendance. In addition, these curriculum elements may serve as a resource to MD staffers looking to become more familiar with Osteopathic principles and practice.

### **Practice Logs**

Attaining competence with OMT requires practice. Participants are expected to document osteopathic assessment (diagnosis of somatic dysfunction) and treatment in practice logs. 2-3 logs per module, focusing on specific assessments and techniques covered, as well as 10 full body treatments upon completion of all modules documenting in at least 5 body regions (templates will be provided). Patients may be friends, family, co-residents, or clinic patients (once checked off to use OMT in clinic and under appropriate supervision).

### **Clinical Preceptorship**

Shadowing a DO in clinic during OMT appointments. Recommended to do 4-5 half days.

### Module Outlines and Reading Assignments with Dates

#### **Module 1 – Finding Somatic Dysfunction and Introduction to Counterstrain (9/21/16)**

- Readings
  - FOM Ch1 - Osteopathic Philosophy (*pp3-21*)
  - FOM Ch9 – Somatic Dysfunction, Spinal Facilitation, and Viscerosomatic Integration (*pp 118-131*)
  - FOM Ch 33 – Palpatory Examination (*pp 401 – 409*)
  - FOM Ch 34 – Screening Osteopathic Structural Exam (*pp 410-430*)
  - FOM Ch35 - Segmental Motion Testing (*pp 431-436*)
  - FOM Ch49 - Strain and Counterstrain Approach (*pp749-757: all; p758: AC1 tenderpoint; p761: iliacus tenderpoint*)
  - FOM Ch50 – Soft Tissue/Articulatory Approach (*pp763-768 - ignoring sections on articulatory technique*)
- Lecture: *Osteopathic Principles, Screening Structural Exam, and Intro to Counterstrain*
- Lab session
  - Palpatory exploration: cornstarch, phone books, layer palpation exercise
  - Screening Osteopathic Structural Exam
  - Soft tissue: paraspinal kneading and stretching for the C/T/L spine (exploring inhibition, traction, and lateral stretching). Finding tissue texture changes.
  - SCS: AC1, AC7, psoas and iliacus

## **Module 2 - Lumbar Spine: Functional Anatomy, Diagnosis, and Treatment (10/12/16)**

- Readings:
  - **FOM Ch 546 – Lumbar Region** (pp546-559, starting at descriptive functional anatomy and stopping at integrated physical exam; **pp561-564, starting at palpation of tissue texture changes and stopping at specific tests**; pp572-574, starting at osteopathic manipulative approach to clinical conditions through end of chapter)
  - BMMS Ch 5 Lumbar Spine (pp57-66) ??
- Lecture
- Lab session
  - Diagnosing the Lumbar Spine
  - Soft Tissue: The Schiowitz shuffle
  - Muscle energy: Treating articular dysfunctions of the lumbar spine, lumbar roll
  - SCS: QL, anterior lumbar points, psoas and piriformis review

## **Module 3 - Lower Extremity: Functional Anatomy, Diagnosis, and Treatment (11/30/16)**

- Readings:
  - FOM Ch42 – Lower Extremities (pp605 -614: starting at HIP, ending at Ankle Sprains)**
  - BMMS Ch3 – Long Restrictors, Piriformis and Psoas Muscles (pp 30-38)
- Lecture
- Lab session
  - Diagnosis of the talus, fibula, and knee
  - CS: Hamstring and calf tenderpoints
  - Muscle energy: fibula, talus, quads, and psoas
  - MFR: interosseous membrane and knee

## **Module 4 - Pelvis: Functional Anatomy, Diagnosis, and Treatment (1/18/17)**

- Readings:
  - **FOM Ch41 (pp575-600)**
- Lecture
- Lab session
  - Standing and seated flexion tests
  - Pelvic compression test
  - Innominate rotations, shears, and flares
  - Muscle energy: Treating innominate shears, rotations, and flares
  - CS: high yield anterior and posterior pelvic points

## **Module 5 - Sacrum: Functional Anatomy, Diagnosis, and Treatment (2/8/17)**

- Readings:
  - **FOM Ch41 (pp575-600)**
  - **Section on Myofascial Release**
- Lecture

- Lab session
  - Diagnosing the Sacrum: Mitchell model
  - Muscle energy: Treating sacral flexions, extensions, and torsions
  - Myofascial release of the sacrum and SI joints

**Module 6 - Thoracic Spine and Ribs: Functional Anatomy, Diagnosis, and Treatment (3/8/17)**

- Readings:
  - **FOM Ch39 Thoracic Region and Rib Cage (pp528-541)**
  - BMMS Ch6 Thoracic Spine (pp70-75, p 78:Thoracic Prone lateral technique, pp82-89)
  - BMMS Ch7 Thoracic Cage (pp96-113, pp116-130)
- Lecture
- Lab session
  - Diagnosing the Thoracic Spine
  - Diagnosing Ribs
  - Muscle energy: treating articular dysfunctions of the thoracic spine, inhalation and exhalation ribs
  - SCS: rib counterstrain points in inhalation and exhalation somatic dysfunctions

**Module 7 - Cervical Spine: Functional Anatomy, Diagnosis, and Treatment (4/12/17)**

- Readings:
  - FOM Ch38 Cervical Region (pp513-522, stopping at diagnostic modalities)
  - BMMS Ch9 Cervical Spine (pp162-188)
- Lecture
- Lab session
  - Diagnosing C2-C7, C1, and the OA
  - Soft tissue: suboccipital release, cervical paraspinal kneading and stretching
  - Muscle energy: treating segmental articular dysfunctions
  - SCS: high yield tender points of the cervical spine

**Module 8 - Upper Extremity: Functional Anatomy, Diagnosis, and Treatment (5/10/17)**

- Readings:
  - **FOM Ch 43 – Upper Extremities (pp640-659)**
- Lecture
- Lab session
  - Diagnosing the clavicle, GH joint, and radial head
  - Spencer's technique
  - Muscle energy: Treating the clavicle and radial head
  - SCS: Biceps and rotator cuff tender points

**Module 9: Review (6/7/17)**

# Jody Epstein, MD

## Projects Completed During Residency:

### Scholarly Project:

Mental Healthcare in Rural Latin America

### Community Health Project:

Latino Health Council Mentorship Experience:

Over two years I participated in the Latino Health Council, a coalition of many Madison healthcare organizations and providers with a shared goal of promoting Latino health through education, advocacy, consulting, and networking. My objective was to learn from the experience of a well-functioning community health advocacy organization and its leaders. I attended and participated in health council meetings. I also provided brief patient consults and health screenings to approximately 15 Spanish speaking patients at the Latino Health Fair “Ask the Doctor” booth in November 2015. These experiences provided me with an appreciation for the benefit of long-term, sustained relationships between providers, community stakeholders, and non-physician leaders over time to have a positive impact on community health.



After earning a bachelor's degree in third world studies from Oberlin College, Jody worked in several community service roles that helped shape her commitment to care for the underserved. She was an Americorps volunteer, a lactation consultant, a patient services

representative at Access Community Health Centers, and a treatment and support services coordinator at AIDS Network in Madison. These experiences encouraged her to expand her advocacy work through a career in medicine, and she moved to New Hampshire to pursue her medical degree at the Geisel School of Medicine at Dartmouth. As a medical student, Jody volunteered at the Good Neighbor Health Clinic for the uninsured, and was an active member of the school's Family Medicine and OB-GYN Interest Groups. Medical school also gave her the opportunity to pursue another passion: teaching. Her work as a tutor for fellow medical students and as an adjunct lecturer in reproductive health for a local physician assistant program proved to be as rewarding as her clinical work, and she looks forward to more opportunities to teach throughout her career. Outside of medicine, Jody enjoys yoga, bicycling, hiking, camping, and spending time with her husband and two young sons.



*Thank you to my soul mate, Jeremy Holiday, who has kept our ship afloat through these many hard years of training. Thanks also to our wild monkeys, Ethan and Sam, for teaching me humility and patience; to Nana and Pappy for raising me right; to all of my residency friends and colleagues for joining me on this journey; and to our excellent faculty for all their wisdom, especially my mentors Patricia Tellez-Giron, Beth Potter, and Jonas Lee. I wouldn't be here without all of you!*

# Mental Healthcare in Rural Latin America

## Jody Epstein, MD

### Introduction:

The goal of this article is to provide an overview of epidemiology of mental health disorders in Latin America, discuss unique issues in mental health faced by rural Latin American communities, summarize the history of Latin American healthcare systems, and describe current strategies to improve and innovate mental health service delivery in Latin America.

### Epidemiology:

The International Consortium in Psychiatric Epidemiology (ICPE) reports lifetime prevalence of any mental disorder at between one quarter and one third of the population in Latin America, based on an urban sample (1). This report also found that mental disorders were positively correlated with socioeconomic measures of disadvantage and there are significant gaps in care for people with mental disorders. Depression is the most common mental disorder and affects women more often than men. From 20% to 40% of women in developing countries suffer from depression during pregnancy or the postpartum period (2).

One systematic review on the prevalence of mental disorders in indigenous populations in the Americas found “no differences between Indigenous and similar non-Indigenous groups in the 12-month prevalence of depressive, generalised anxiety and panic disorders. However, Indigenous people were at greater risk of PTSD. For lifetime prevalence, rates of generalised anxiety, panic and all the depressive disorders were significantly lower in Indigenous.”(3)

These data must be considered with some skepticism. First, the data is limited, with less than 50% of Latin American countries collecting and reporting information on mental health (4). Further, many of these providers are concentrated in urban centers and reporting from urban areas may skew the data. Access is even more scarce in rural regions. Lastly, many of the diagnostic tools used in clinical practice and research are not validated in cross-cultural context and therefore may not be appropriately categorizing all affected patients. Some have attempted to address this problem by creating guidebooks for providers to better address the diagnosis of mental disorders within a cultural context, such as *The Latin American guide for psychiatric diagnosis* (5). This issue becomes more complex when considering indigenous communities within Latin America, as cultural and language differences and remote locations are more common in these groups (6).

Treatment gaps for mental disorders are estimated at as much as 70% in some areas of Latin America (7). There are several issues to contribute to limited access to healthcare. These include workforce shortages, limited funding, variable presence and enforcement of mental health policies, and stigma. According to the WHO, the rate of mental health workers in South America was 27.7 workers per 100,000 population and in Central America, Mexico and the Latin Caribbean was only 8.7 workers per 100,000 population (4). The majority of these workers are not highly trained healthcare providers. In Latin America and the Caribbean, there is a median of 2.1 psychiatrists, 6.0 nurses, and 4.2 psychologists per 100,000 population (8). This is in contrast to other parts of the world with much more robust mental health workforce. In parts of Western Europe with the most developed healthcare systems, the number of psychiatrists is as high as 30 per 100,000 (9).

## **Overview of Mental Health Care Systems in Latin America:**

As has been seen in many parts of the world, the system of mental healthcare in Latin America has undergone a transition from largely reliant on centralized psychiatric hospitals where patients were often institutionalized for many years, to a healthcare system with more emphasis on community-based psychiatric services. This transition began in many countries in the 1960s and 1970s and has been a slow process. In 1990 the Pan American Health Organization (PAHO) created what has since been termed the Caracas Declaration, a guiding document that codified the international emphasis on community based, comprehensive, participatory mental health services with a focus on prevention and the human rights of those with mental illness. PAHO specifically recommended moving away from the psychiatric hospital as central and move toward primary-care integration. Latin American nations have realized this paradigm shift to a variable extent. Currently, while 81% of countries surveyed in the Americas have a stand-alone plan for mental health, only 34% have legislation that is partially or fully implemented and has a satisfying compliance with human rights standards (4).

PAHO further developed a plan of action on Mental Health 2015-2020 which enumerates several strategic points of action for mental health reform:

1. Develop and implement policies, plans, and laws in the field of mental health and mental health promotion, to achieve appropriate and effective governance.
2. Improve the response capacity of systems and services for mental health and the care of psychoactive substance-related disorders, to provide comprehensive, quality care in community-based settings.
3. Prepare and implement promotion and prevention programs in the area of systems and services for mental health and for the care of alcohol- and substance related-disorders, with particular attention to the life course.
4. Strengthen information systems, scientific evidence, and research.

Countries have had varying degrees of success in implementation of these initiatives. Approximately 80% of nations in the Americas have created national mental health care policies but only 34% have partially or fully implemented and has a satisfying compliance with human rights standards (4). While the vision of ideal mental healthcare has been clarified, strategies for creating these systems are still very much a work in progress.

### **Innovative solutions:**

There are many Latin American communities working to find innovative solutions to the treatment gap in mental health services. Three approaches show promise at reaching the most underserved communities, including utilization of community health workers, innovative use of technology, and primary care integration.

#### *Utilization of Community Health Workers:*

The shortage of psychiatric medical providers in Latin America demands that communities use creativity in workforce development. Community health workers are a viable option to address this human resource shortage. These workers are laypeople with special training in community mental health who can assist with identification of patients in the community in need of further services, referral and care coordination, and medication administration and adherence monitoring. They can



also play a role in community education and outreach to reduce stigma and increase understanding of mental illness. Benefits include cultural and language competency, rapport with the community, and much less investment in training and salary than psychologists and psychiatrists. Clearly, these workers need to be appropriately trained and supervised, ideally in a team-based model where care for patients is shared. The mental health system of Río Negro Province in Argentina provides a nice example of this team-based care. The health department and the department of psychiatry have created multidisciplinary teams that include community health workers which they call operadores, in addition to core psychiatrists, nurses, and therapists (10). They employ 60 of these integrated team members who provide day to day services directly to patients. As part of a comprehensive program, the Río Negro Province has made great progress toward more robust community-based mental health services.

#### *Utilization of Technology:*

Mental health services are amenable to voice and video technologies, more so than other aspects of medicine, where physical exam and laboratory testing is necessary. Several groups have attempted to take advantage of this, and use videoconferencing technology to provide mental health services. The advantage to this approach is that providers can reach patients in remote locations where services are scarce. One randomized trial in Brazil assessing efficacy of home-based videoconferencing for depression found this intervention feasible and as effective as in-person care (11).

Enlace Hispano Americano de Salud (EHAS), a foundation focused on improving health-care services in rural areas of developing countries through the use of information technology, has described many innovative uses of technology including tele-stethoscopes and ultrasound (12). Particularly relevant to our discussion is their project in the Napo River area in Loreto, Peru. The Project deployed a telecommunications network to connect health technicians with supervising physicians and general physicians with consulting specialists. The tools were also used to provide distance training to health workers in their home communities. This type of network would have great use in tele-psychiatry.

#### *Primary Care Integration:*

Many mental health conditions are quite treatable in the primary care setting, such as depression and anxiety disorders, which are the most common psychiatric illnesses. While still in short supply in rural Latin America, generally access to primary care is greater than access to psychiatric services. It is reasonable then, to explore the possibility of treating mental health conditions in primary care. Additionally, providing services for mental health in a primary care setting is easier for patients, as they can receive their services in one location, and it gives an opportunity to capture a population and provide a full complement of important preventative and chronic disease management services.

Several countries have made strides in primary care integration. Many successful programs piggy-back on robust, universal systems of primary medical care, such as are seen in Cuba and Brazil. These governments have invested heavily in creating strong health systems, and mental health care has benefitted from these structures. Other nations have made different attempts at primary care integration. One such example is in Chile, where the Ministry of Health created a program for standardization of diagnosis and treatment of depression in primary care (10). The program components included adding psychologists into general health teams; using standardized diagnoses;

providing patient education, use of antidepressant medications and group psychosocial sessions, provider training, and evaluation of the program's effectiveness. This program has been successful at improving depression symptoms amongst treated patients (13). In addition, very few of their patients required referral to a higher level of care.

Health departments may be interested in standardized models for training primary care providers in mental health. The WHO Mental Health Gap Action Programme (mGAP) provides resources that may be of great use to health systems aiming to increase mental health services in primary care. mGAP is an initiative to address the treatment gap in mental health, neurological and substance abuse disorders. In 2010 the programme has published a comprehensive guide that teaches basic diagnosis and treatment of mental disorders (14). It is aimed at healthcare providers in non-specialist settings and is a potentially very helpful tool for training primary care doctors, nurses and health workers. It is readily available and could quickly be implemented in a variety of settings.

### **Conclusions:**

We have seen that psychiatric illness is common, affecting up to 25% of the population of Latin America, and massive gaps exist in access to proper diagnosis and treatment. Limited healthcare resources, remote location, and cultural barriers all contribute to these gaps. There is a global movement toward comprehensive, community-based mental health care that is slowly changing the way in which mental health care is provided in Latin America. Health departments and communities interested in improving mental health services will need to re-envision how mental health care fits into their health systems. Creative solutions that focus on integration of primary care, use of technology, and team-based care are the most likely to succeed in meeting the great need for mental health services in Latin America.

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# Bonnie Garvens, MD

## Projects Completed During Residency:

### Community Health Project:

Dryden Terrace: Building Community to  
Improve Health Status

### Scholarly Project:

Does universal screening and treatment for thyroid dysfunction in pregnancy improve maternal and child outcomes?

Although multiple studies have demonstrated that universal screening, compared with case finding, identifies more women with thyroid dysfunction who may be subsequently treated, universal screening has not been shown to improve maternal or neonatal / child outcomes. (Strength of Recommendation: B, based on a systematic review and 2 randomized controlled trials). Multiple societies recommend screening women at high risk for thyroid dysfunction, which notably includes women older than 30 years, women with a personal or family history of autoimmune disease, or with a prior miscarriage or preterm delivery.



Bonnie grew up in rural Wisconsin, and although she left the state to earn a bachelor's degree in biology at Luther College in Decorah, Iowa, she returned for medical school at the University of Wisconsin School of Medicine and Public Health.

Bonnie's rural background and experiences attracted her to family medicine as an advocate for access to health care. This advocacy started when she volunteered at a rural clinic and hospital in Ghana while an undergraduate — an experience that set her on the path of medicine as a career. During medical school, Bonnie continued her advocacy work by serving as the intake coordinator on the leadership council for the student-run MEDiC free clinic, and as a medical assistant for Our Lady of Hope Clinic. She also participated in a research project on HIV care for current and former prisoners, analyzing the control of HIV and development of viral resistance, which provided her the opportunity to care for a unique population of patients. Outside of medicine, Bonnie's interests include distance running, hiking, canoeing, kayaking, cross-country skiing, reading, and learning guitar.



- *Thank you to the faculty and DFMCH / Northeast staff for your enthusiasm, commitment, and compassion, and for a thousand lessons learned over three years.*
- *Thank you to my family, for the sacrifices, support, and understanding that have made this journey possible.*
- *Thank you, Anthony, for everything, and for making my heart sing.*
- *Thank you to the God who daily reminds me: do justice, love mercy, and walk humbly.*

## **Dryden Terrace: Building Community to Improve Health Status**

### **Bonnie Garvens, MD and Emily Torell, MD**

#### **Background:**

In 2015, the Madison Fire Department (MFD) identified a subsidized housing development, Dryden Terrace, as a “hotspotting” community with high resource utilization. Through tracking 911 calls, MFD determined that Dryden Terrace residents placed the highest number of 911 calls in the city - 3.5 times the city average. Northeast clinic, 150 feet away, cares for 50% of the Dryden residents who are 3.4 times more likely to visit the emergency department than the average Northeast patient.

The MFD initiated a monthly program, Community Action Resource and Education (CARE), to provide health screenings and home visits at Dryden Terrace with the goal of fostering communication between the residents and MFD and decreasing the number of 911 calls to the building. Faculty and residents of UW Northeast Family Medical Center were invited to participate due to the close proximity of the clinic to Dryden Terrace.

#### **Objectives:**

The goals of the initial project created by MFD were to develop rapport with the residents of Dryden Terrace, distribute information on fire prevention, provide basic health screenings, and ultimately decrease unnecessary utilization of EMS services. In addition to these objectives, residents and faculty of the DFMCH set out to improve critical health metrics for the residents of Dryden Terrace by providing opportunities for increased community engagement, empowerment, and information exchange that complemented the health screenings done by the MFD.

#### **Methods:**

In developing the program, we collaborated with the MFD and Public Health of Madison and Dane County (PHMDC) to conduct an initial community needs assessment, which revealed a high burden of disease and social isolation among residents at Dryden Terrace. Of the 35 residents who completed the survey, 57% reported fair to poor health and only 29% reported having daily social interactions. We added a monthly lunch and learn component, “Dining with Doctors,” that immediately preceded the CARE programming. Using the initial needs assessment as a guide, we developed sessions that focused on chronic disease management, nutrition education, and mindfulness while providing opportunities for social interaction among the residents.

To measure the impact of the program, we are tracking 911 data from MFD and MPD, as well as internal UW Health data including demographics, ER visits, urgent care visits, and hospitalization LOS for Northeast patients living at Dryden Terrace, using Northeast Clinic patients as a reference population. We also repeated our initial needs assessment to capture whether our programming has had impacts on measures such as self-perceived health status, physical functioning, health care use, and social isolation.

#### **Results:**

Over the last two years, we have seen increasing attendance at our monthly Dining with Doctors and CARE sessions and have reached approximately 74 residents at Dryden Terrace with our programming. The staff at Dryden Terrace has seen a decrease in residents calling 911 out of misutilization, and the MFD has seen a trend toward a decrease in the overall number of 911 calls, though data collection is still ongoing. Our follow-up survey did not reveal any changes in self-perceived health status or social

isolation. Despite these limited objective results, we have developed rapport and trust among the Dryden Terrace community, the value of which cannot be underestimated. In the follow-up survey, 92% and 87% of respondents reported good, very good, or excellent interactions with the MFD and Dining with Doctors respectively. By stepping outside of the clinic walls, faculty and residents of the DFMCH have learned about the barriers to care experienced by this population as well as the health issues that affect them most. This partnership has also given residents of Dryden Terrace a reason to venture out of their apartments and engage with others in their community.

### **Conclusions:**

Through coming together to work towards a common goal, we have all gained a deeper understanding of the health issues and barriers to care that affect those who live in the Dryden Terrace community. We have also developed an appreciation for how difficult it is to address these barriers with limited resources and time. Other challenges have included variations in data collection and reporting in the electronic health record that has limited our ability to track outcomes. Our partnership is continuously evolving and we are currently working more closely with PHMDC to develop a logic model that will help formalize and clarify the goals of the program going forward. Now that we have developed rapport with the community, we hope to create a more intensive intervention that may be better able to address the health issues and barriers to care for residents at Dryden Terrace. In addition, we are also interested in adding a home visit component as part of the residency curriculum and measuring the impact of this community engagement project on provider morale.

### **Acknowledgments:**

- DFMCH - Jennifer Edgoose, MD
- Madison Fire Department - Chiefs Johnny Winston, Laura Laurenzi, and Che Stedman
- Public Health of Madison and Dane County - Mari Gasiorowicz, Rachel Goldman, Mary Michaud
- Madison Police Department - Carlin Becker (Mental Health Officer)
- Dryden Terrace Staff - Kelsey Eyers (social worker) and Nancy Lenz (apartment manager)
- Dryden Terrace Residents
- Aging and Disability Resource Center
- River Food Pantry

# Parker Hoerz, MD

## Projects Completed During Residency:

### Community Health Project:

What Works in Healthcare?

### Scholarly Project:

Cultivating Compassion and Promoting Resilience for Medical Students through Training in Urban Medicine and Public Health (TRIUMPH):

This project developed and explored methods to cultivate compassion, promote resilience, and prevent burnout for second, third, and fourth year medical students in the University of Wisconsin School of Medicine and Public Health (UW SMPH) Training in Urban Medicine and Public Health (TRIUMPH) program, who dedicate significant time to medically underserved populations. Activities included designing and leading components of three full-day retreats employing mindfulness, self-reflection, journaling, and movement.



A Wisconsin native, Parker earned a bachelor's degree in biomedical engineering from Marquette University and completed his medical degree at the University of Wisconsin School of Medicine and Public Health (SMPH).

As a medical student, Parker participated in the SMPH's Training in Urban Medicine and Public Health (TRIUMPH) program, which provides specialized training in reducing health disparities in urban, underserved settings. As part of his work with TRIUMPH, he took on a leadership role at a free clinic on the south side of Milwaukee to identify neighborhood resources and develop strategies for providers to better connect patients with those resources. He also served as president of MEDiC, a student-run network of seven clinics in Madison that provides care for the uninsured, and was a project lead for Engineers without Borders, working with students, professional engineers, and community members to design and implement a community water system in rural Honduras. Parker is drawn to family medicine because of its emphasis on therapeutic relationships and engagement with the larger community. In his off hours, his interests include camping, cycling, meditation, woodworking, and anything that includes his wife and two young children.



*Thank you to my family -- my wife, children, parents, siblings, grandparents -- and friends for your uncompromising love and support in the face of the emotional and time constraints of medical education. Thank you to my residency classmates for your camaraderie, support, authenticity, compassion, and resiliency. Thank you to the residency faculty for your mentorship, patience, and teaching with regard to both medicine and life. Thank you to the residency support staff for your logistical and scheduling magic. Thank you to my patients for serving as both the means and the end -- the "how" and the "why" -- behind my medical education.*

## **What Works in Healthcare?**

### **Parker Hoerz, MD**

#### **Background:**

This quality improvement project assesses attitudes and experiences of African American patients at Wingra Family Medical Center, a Federally Qualified Health Center (FQHC) and residency teaching clinic with a diverse patient population in Madison, WI.

#### **Objectives:**

This project aims to learn about physician actions and behaviors that lead to good patient interactions, particularly involving African American patients. Ultimately, we would like to use this understanding to teach health care providers and systems how to provide better care.

#### **Methods:**

Background research involved a brief literature review on racial disparities in health and healthcare, paying particular attention to the implications of psychological processes.

Data were collected through in-person interviews with African American patients who identified Wingra Family Medical Center as their primary care clinic. When I joined the project, several interviews had already been conducted, but the sample was disproportionately female. I focused on collecting the stories and perspectives of several of Wingra's African American male patients. I am currently involved in the qualitative data analysis.

Also as part of my community health learning activities, I attended planning meetings for Wingra's Clinical Navigator project aimed at addressing social determinants of health, and I explored strategies to promote individual and community health at two local conferences.

#### **Results:**

I interviewed several African American men about their best experiences in the healthcare system. Formal qualitative analysis will be performed on the transcribed audio recordings, and the results will be summarized. Eventually, we hope to develop a list of specific steps that the system, clinic, and/or healthcare providers/staff can take to provide better care for patients of Wingra Family Medical Center and other UW Department of Family Medicine and Community Health (UW DFMCH) clinics.

Even prior to a more formal analysis, the patient interviews reveal several recurrent themes. Positive patient experiences are supported by longitudinal relationships that foster trust, shared understanding, and common goals. Experiences of explicit bias within the health care system were exceedingly rare among those interviewed. Implicit bias may affect the patient experience by hindering patient and provider engagement. Socioeconomic racial disparities (e.g., literacy, financial resources, transportation) contribute to racial disparities in health and healthcare, and patients may feel that the effects of socioeconomic disadvantage are underappreciated by providers and the healthcare system.



**Conclusions:**

Socioeconomic disparities and implicit bias threaten our ability to provide high quality patient care. However, even in the face of discordant racial, cultural, and socioeconomic backgrounds, continuity can foster a patient-provider relationship characterized by trust, understanding, and shared goals. For this reason, Family Medicine is well-positioned to provide high quality care to diverse populations.

Ultimately, this project will teach faculty, residents, and staff at Wingra Family Medical Center and other UW DFMCH clinics how to better care for our patients. Personally, I have also gained valuable experience in qualitative research and quality improvement. And, I am grateful to have had the opportunity to indulge in patients' narratives without the time constraints of a typical office visit.

**Acknowledgments:**

Many thanks to Jonas Lee, MD, principal investigator for the "What Works in Healthcare?" quality improvement project; Kirsten Rindfleisch, MD, for her mentorship in developing a community health learning plan and while working with the Clinical Navigator project; patients, faculty, residents, and staff at Wingra Family Medical Center for their valuable contributions to my community health and residency education.

# Emily Jewell, DO

## Projects Completed During Residency:

### Scholarly Project:

Psoas and Piriformis Dysfunction, a Common Presentation

### Community Health Project:

Addressing Food Insecurity in the Hispanic Population at Northeast Clinic:

The Northeast Clinic together with community partners developed and rolled out a process for identifying patients at Northeast who deal with food insecurity as a part of daily life. Patients are identified via a two question survey, and if they survey positive for food insecurity, they qualify for a “fruit and vegetable prescription” in an effort to help curb food insecurity while providing nutrient dense foods. In a specific segment of the population of patients at Northeast clinic, what is the most effective way to reach out to the community and help them to realize the most benefit from this program? In an effort to explore this question I am working together with the clinic social worker and the community partners already participating in the food insecurity program to develop a learning session(s) surrounding utilization of the fruit and vegetable prescription in Spanish.



Emily grew up in southwestern Wisconsin and completed a bachelor's degree in biology at the University of Wisconsin—Madison. After attending medical school at the Bradenton branch of the Lake Erie College of Osteopathic Medicine (LECOM) in Bradenton,

Florida, she is happy to return to her home state for her family medicine residency. Emily had the opportunity to finish high school in Barcelona, Spain, and developed a love of new languages and cultures. While in medical school, she worked in the Hispanic community as an English tutor through the Challenger adult reading series, volunteered at the LECOM-sponsored Hispanic Health Fair, and served as a Spanish translator at the Community Connections Free Clinic in Dodgeville, Wisconsin. She also has a strong interest in health care policy, as demonstrated by her research and outreach work with Collaborate for Healthy Weight, a national initiative that aims to improve the high childhood obesity rates in underserved areas. In her spare time, Emily enjoys Latin dance, gardening, and spending time with her husband and sons.



*I would like to acknowledge the unwavering support of the residency, its directors, and support staff for their investment in my success through multiple challenges during the last three years. On a personal level I would like to thank my Husband, Mother, and Father for their guidance and support through the same challenges. Carlos - You have been a constant source of love and inspiration in my life, even from Honduras your love and support kept me going. I am so thankful for the love we have and looking forward to starting our next chapter together. Claudia - Mi terminación de residencia sólo era posible con tu apoyo y ayuda. Yo podría no haber hecho esto sin ti. Ni una vez no tenía que preocuparse por el bienestar de mis hijos durante este proceso riguroso. Siempre estaré en deuda con usted por el amor y compromiso que nos han enseñado. My completion of residency was only possible with your support and help. I could not have done this without you. I never once had to worry for the wellbeing of my children during this rigorous process. I will always be in debt to you for the love and commitment you have shown us.*

# OMT CASE REPORT

PSOAS AND PIRIFORMIS DYSFUNCTION, A COMMON PRESENTATION

## 51 Y/O FEMALE WITH LOW BACK PAIN

Having back pain on and off for several years. Worse over the past 3 months. Right low back is worst right now but often has pain on both sides of low back. Has frequent pain in left hip and gluteal region that will intermittently shoot down her leg.

### DIFFERENTIAL DIAGNOSIS?

### DIFFERENTIAL DIAGNOSIS

- Lumbar radiculopathy
- Referred visceral pain
- Sacroilitis
- Trochanteric bursitis
- OA
- Siatiaca
- Muscle spasm; psoas, piriformis

### HPI

- Up to date with Health Maintenance: negative colonoscopy and mammogram within the calendar year.
- First noticed pain during busy season at work in 2014. Works for a tax preparation firm, spends long hours at a desk and has a 45 min commute to work each way.
- Pain is ever present. Mostly dull but can become sharp and shoot down the left leg when the pain is worse.
- Denies change in bowel or bladder function
- Pain worse after being seated 20-30 min. Improves with ambulation but getting up can be particularly painful.
- Sleep has been interrupted due to hip and butt pain. Unable to stay in same position for long.

### HPI

- Has tried ibuprofen and Tylenol for pain with little relief. Hot tub at gym helpful for short period afterward.
- No history of recent trauma. Remote MVA in 20s, rear ended waiting to turn left at approximately 35 mph.
- Rides bike in summer for exercise, relatively sedentary during winter months other than biweekly yoga class at her gym.
- Father with "back trouble all his adult life," worked as farmer. Mother OA of knees, overweight.
- Non-smoker, social drinker, no illicit substances

VITALS: BP 136/80 HR 82 RR 14 T 98.0 BMI 29.3

### EXAM:

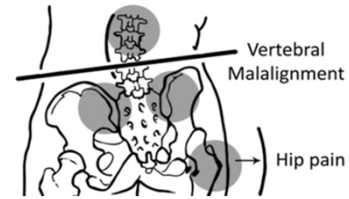
General: NAD, uses arm rests to assist in rise from chair

Back: tender at SI joints and surrounding soft tissue R>L, piriformis tenderness to palpation on the left over body of muscle. Strength 5/5 at hip, knee. Full ROM at hips and knees. Straight leg raise negative bilaterally, Thomas test positive on the right, foot appears externally rotated on left in supine position, patellar and achilles reflexes 2+ bilaterally

## OSTEOPATHIC EVALUATION AND FINDINGS

- OA compression with decreased rotational component of motion of cervical spine especially at top of C spine, C2-4RRSL
- Myofascial strain involving almost entire right aspect of cervical, thoracic, and lumbar regions with tenderness culminating at the transition zone of the thoracic and lumbar spines and wrapping anteriorly into the inguinal region.
- LOL sacral torsion
- Anterior psoas tender point on the right
- Piriformis tenderpoint at ILA on the left

## PSOAS SYNDROME WITH PIRIFORMIS INVOLVEMENT COMMON DISTRIBUTION OF PAIN



## OMT TECHNIQUES USED FOR FINDINGS IN THIS CASE

- **CERVICAL SOMATIC DYSFUNCTION:** OA condylar decompression, sub occipital release, BLT to group curve
- **MYOFACIAL STRAIN :** myofascial release to thoracolumbar transition zone
- **SACRAL TORSION:** Still technique
- **ANTERIOR PSOAS TENDERPOINT RIGHT:** counterstrain
- **PIRIFORMIS TENDERPOINT LEFT:** counterstrain

## OUTCOME

Subtle improvement in low back and hip pain at time of treatment.

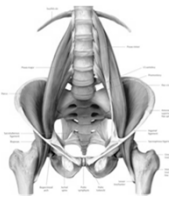
Basic standing hip flexor stretch and supine piriformis stretch given at close of treatment with instructions to do both gently and daily.

At follow up one month later patient endorsed continued improvement over several days following treatment and with stretching.

Patient has returned for OMT on an additional occasion several months later for a flare of symptoms exacerbated by a long car trip.



## PSOAS MAJOR AND MINOR



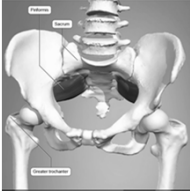
- The psoas major muscle originates at the T12-L4 vertebral bodies and the L1-L5 transverse processes. It inserts onto the lesser trochanter of the femur
- Psoas minor muscle originates at the T12-L1 vertebral bodies at its origin and inserts at the iliac fascia bilaterally.

## MUSCLE ACTION

**PSOAS**  
Flexor of hip  
Contributes to lumbar spine lordosis

**PIRIFORMIS**  
External rotator of lower extremity  
Abductor of lower extremity  
Hip stabilizer, weak flexor

## PIRIFORMIS



- Originates at the anterior surface of the sacrum, at the levels of vertebrae S2 through S4, near the sacroiliac joint capsule.
- Inserts to the superior medial aspect of the greater trochanter via a round tendon that, is merged with the tendons of the obturator internus and gemelli muscles
- Innervated by spinal nerves S1 and S2—and occasionally also by L5.

## MUSCLE ACTION

PSOAS	PIRIFORMIS
Flexor of hip	External rotator of lower extremity
Contributes to lumbar spine lordosis	Abductor of lower extremity
	Hip stabilizer; weak flexor

## HISTORY AND PHYSICAL FINDINGS IN PSOAS AND PIRIFORMIS DYSFUNCTION "PSOAS SYNDROME"

PSOAS	PIRIFORMIS
Increased lumbar lordosis	Tenderness over piriformis muscle belly, origin (SI region), and insertion (greater trochanter)
Pain with rising from seated	Pain after sitting or lying for several minutes
Restricted hip extension	Foot eversion
Positive Thomas test	

## COMMON OSTEOPATHIC FINDINGS IN PSOAS AND PIRIFORMIS DYSFUNCTION

PSOAS	PIRIFORMIS
Somatic dysfunction in upper lumbar spine. Typically group curve with rotation toward hypertonic psoas and side bent away	Ipsilateral OA dysfunction Sacral torsion. Typically on axis contralateral to dysfunction
Sacral torsion. Typically forward on axis ipsilateral to dysfunction	External rotation of ipsilateral lower extremity
Pelvic shift away from hypertonic psoas	Tenderpoint at ILA of affected side and/or along body of muscle
Tenderpoint inferior and medial to ASIS	

## OA DECOMPRESSION AND SUB OCCIPITAL RELEASE

### Direct Suboccipital Myofascial Release

- Dr. Suboccipital myofascial restriction
1. Patient supine
  2. Use pads of fingers to contact suboccipital tissues
  3. Laterally translate suboccipital tissues to the myofascial barrier
  4. Sidebend to the barrier
  5. Flex or extend to the barrier
  6. Gently maintain position at the barrier until the tissues yield
  7. Recheck



### OA Condylar Decompression (direct)

- Dr. OA extension
1. Patient supine
  2. Using index fingers (may reinforce with middle fingers), contact occiput as close to condyles as possible
  3. Tension applied toward axis to make firm occipital contact
  4. Apply traction while moving elbows medially (using fingers to move laterally, widening the upper margin) & decompressing occipital tension
  5. Breathe respiratory phases & have pt. hold breath as long as possible in phase that provides best increase in motion or release of coil
  6. Repeat until best motion obtained (avg. 3x)
  7. Recheck



Kimberly Manual 2008 page 69 (SAM 106)

## TREATMENT OF PSOAS ANTERIOR PSOAS TENDER POINT AND COUNTERSTRAIN

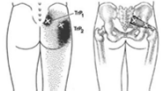


2/3 of the distance from the ASIS to the midline and pressing deep in a posterior direction toward the belly of the psoas.



Treat: Marked bilateral hip flexion; external rotation of the hips; side bend lumbar spine toward

## PIRIFORMIS TENDERPOINTS AND COUNTERSTRAIN



Midpoint between the lower half of the lateral aspect of the sacrum and ILA and the greater trochanter.

Treat: Marked flexion of the hip and abduction. Fine-tune with external or internal rotation.



## SOURCES

- PSOAS IMAGES:

<https://www.bing.com/images/search?view=detailv2&ccid=miZLkoB&id=F33DB126CDEB050CC13469AB6AA2E7AE1054C8A08&rs=sacral+rotation+psos+syndrome&simid=6080481293122304>

<http://www.calwellphysicaltherapy.com/MediaLibrary/Images/SCS.jpg>

- PIRIFORMIS IMAGES:

<http://dx.doi.org/10.1177/1541901010380001>

<http://www.zoonhant.com/images/articles/piriformis.jpg>

- ARTICLES:

Diagnosis and Management of Piriformis Syndrome: An Osteopathic Approach <http://jaoa.org/jarticle.aspx?articleid=2093614>

Psoas Syndrome: A Frequently Missed Diagnosis <http://jaoa.org/jarticle.aspx?articleid=2094465>

# Catherine Nelson, DO

## Projects Completed During Residency:

### Scholarly Project:

OMT for the OB

### Community Health Project:

Partnering with Badger Prairie Needs Network:

Badger Prairie Needs Network is a local food pantry and resource center in Verona, WI. I collaborated with Badger Prairie Needs Network to learn how local resources impact Verona's health. After learning about services offered at BPNN, I became more involved. I helped prepare and serve healthy community meals. I assisted with youth cooking classes where we promoted healthy eating habits and introduced healthier food options. I assisted with the community garden, which provided fresh produce for the food pantry. Through this partnership, I gained a better understanding of the community's need for access and education to healthy nutrition.



Originally from Decorah, Iowa, Catherine earned her bachelor's degree in biology with a minor in music from the College of St. Benedict in St. Joseph, Minnesota. Catherine was drawn to medicine after she spent time studying abroad and volunteering in South Africa. This

experience inspired her to pursue a career in which she could combine her commitment to serve others with her desire to promote wellness and healing. Catherine returned to Iowa to complete her medical degree at the Des Moines University College of Osteopathic Medicine. There she continued her volunteer service working with the homeless population of Des Moines. She regularly provided medical care through a mobile clinic and organized community meals for the homeless. She was attracted to family medicine because it allowed her to address many aspects of health and wellness and to build relationships over time. In her free time, Catherine enjoys playing the piano and violin, cooking, hiking, watching Packer's football, and spending time with her family.



*Many thanks to my husband Ryan for giving me encouragement and believing in me. Thanks to my amazing family for their love and support. Thanks to all my co-residents and faculty, it has been an honor working with you all.*

## OMT for OB

Catherine Nelson, DO  
Maria Din, DO  
Sarah James, DO

## Objectives

- Discuss physiological changes of pregnancy
- Review evidence related to pregnancy and OMT
- Review common presentations and chief complaints of prenatal issues
- Introduce and review common OMT techniques used for prenatal patients

## Physiologic Changes of Pregnancy

- Cardiovascular
  - Progesterone causes smooth muscle relaxation
  - CO increased 30-50% by 6 weeks and peaks around 24 weeks and slight decrease after 30 weeks
  - Both HR and SV increase and by 2<sup>nd</sup> trimester BP drops as SVR decreases. BP returns to normal during 3<sup>rd</sup> trimester

## Physiologic Changes of Pregnancy

- Pulmonary
  - Progesterone signals brain to lower CO<sub>2</sub> by increasing tidal and minute volume and RR
  - O<sub>2</sub> consumption increases by 20% to meet increased metabolic needs
  - IRV, ERV, RV, capacity and plasma CO<sub>2</sub> decreases partially due to elevated diaphragm
  - VC and plasma O<sub>2</sub> is unchanged
  - Thoracic circumference increases by 10 cm
  - Respiratory mucosa swelling

## Physiologic Changes of Pregnancy

- MSK
  - Increased lordosis of the lower back
  - Forward flexion of the neck
  - Joint laxity in the longitudinal ligaments of the lumbar spine
  - Widening of the increased motion of sacroiliac joints and pubic symphysis
  - Increase in the anterior tilt of the pelvis
  - Increased use of hip extensor, abductor, and ankle plantar flexor muscles

## Physiologic Changes of Pregnancy

- MSK
  - Joint pain is associated with increased estradiol and progesterone levels
  - Relaxin: relaxes myometrium and pubis symphysis and softens the cervix



## Evidence Based Medicine

- Prevalence of pain in pregnancy
  - Low back pain and pelvic pain are common in pregnancy
    - >2/3<sup>rd</sup> of pregnant women will have low back pain in their pregnancy
    - 20% of pregnant women have pelvic pain
  - Pain often progresses throughout pregnancy
    - Affects daily activities, ability to work, and causes sleep problems

## Evidence

- High relapse rates of pain in subsequent pregnancies
- Half of pregnant women with back pain do not get any treatment
- Cochrane review concludes:
  - “low-quality evidence from single trials suggested no significant difference in pain or function between two types of pelvic support belt, between osteopathic manipulation (OMT) and usual care or sham ultrasound (sham US)”
  - “low-quality evidence from single trials suggested that OMT significantly reduced pain and improved function”

## Evidence

- PROMOTE Study: Pregnancy Research on Osteopathic Manipulation Optimizing Treatment Effects
- RCT of 400 women in third trimester assigned to one of three groups:
  - Usual care only (UCO)
  - Usual care plus OMT (OMT)
  - Usual care plus placebo ultrasound treatment (PUT)

## PROMOTE Study

- The standardized OMT protocol addressed cervical, thoracic, lumbar, sacrum, and pelvis body regions
- The OMT group received standardized OMT for 20 minutes in 7 sessions

## PROMOTE Study

- Primary outcomes were measured using two questionnaires:
  - Low back pain was measured with Quadruple Visual Analog Scale (QVAS)
  - Back related functioning was evaluated with Roland-Morris Low Back Pain and Disability Questionnaire (RMDQ)

## PROMOTE Study

- Pain Scores:
  - Improved in OMT and PUT groups
  - Worse in the UCO groups
  - OMT group demonstrated improved pain scores compared to the UCO group
  - OMT group compared to the PUT group was not significantly different

## PROMOTE Study

- Back related functioning:
  - OMT group demonstrated improved scores compared to the UCO group
  - OMT group compared to the PUT group was not significantly different

## Contraindications

- HVLA is a relative contraindication!
  - Vaginal bleeding
  - Ectopic pregnancy
  - Untreated DVT
  - Maternal uncontrolled BP and unstable VS
  - Preterm labor
  - Fetal distress
  - Placental abruption

## Cases and Demonstration

## Case One

- 30 year old G1P0 at 38w5d with pregnancy complicated by obesity who presents for an OB visit and complains of worsening low back pain
  - HPI
    - Onset- 4 weeks
    - Location- lumbar region
    - Description- constant achy feeling and soreness
    - Severity- hasn't slept in four days, constant pain, 7/10
    - Radiation- to bilateral hips, left > right
    - Aggravating features- prolonged sitting and standing, twisting or bending
    - Relieving features- none
    - Treatments- pelvic support belt, heat, ice, Tylenol, walking, stretches (cat/cow stretch)

## Osteopathic Findings for low back pain

## Osteopathic Findings

- Increased lumbar lordosis
- Lumbar and thoracic hypertonicity
- Lumbar-sacral junction compression
- Innominate rotation
- Psoas hypertonicity
- OA and cervical somatic dysfunction

## Treatments for low back pain

1. Seated Forward-Leaning T-Spine Articulator
2. Lateral Recumbent Lumbosacral Soft Tissue
3. Cervical Soft Tissue

## Seated Forward-Leaning T-Spine Articulator

- Patient is sitting
- Physician is standing in front of patient, using their knees to stabilize the patient on the table
- Patient crosses arms and leans forward against physician
- Physician wraps arms around patient and places hands at the transverse process or costotransverse junction of the thoracic spine
- Patient drawn forward to restrictive barrier
- LVMA springing is applied until release is felt
- May add sidebending and/or rotation

## Seated Forward-Leaning T-Spine Articulator



## Lateral Recumbent Lumbosacral Soft Tissue

- Patient is laying on lateral recumbent position with top knee and elbow bent to 90 degrees
- Physician stands near patient's abdomen with arms braced on patient's axilla and iliac crest
- Physician's hands are placed on the medial aspect of the paraspinal muscles
- Physician applies following three motions with their arms along the thoracic and lumbar spine
  - Pull arms laterally to stretch the ilia from the patient's arm, causing lumbar area to sidebend
  - Twist arms apart, pushing patient's shoulder posteriorly and ilia anteriorly
  - Push the fingertips in a lateral motion along the paraspinal muscles

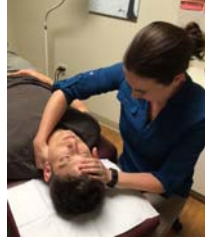
## Lateral Recumbent Lumbosacral Soft Tissue



## Cervical Soft Tissue

- Patient is supine
- Sit at head of bed next to patient's head
- Stabilize forehead with one hand
- Place fingers of other hand at the medial aspect of cervical paraspinal muscles
- Draw fingers anteriorly in a kneading fashion
- Continue this motion until you feel relaxation of the tissues

## Cervical Soft Tissue



## Case Two

- 29 year old G2PO at 33w6d with uncomplicated pregnancy presents for routine OB care and complains of right sided rib pain
  - HPI
    - Onset- 3 days
    - Location- right anterior ribs 10-12
    - Description- sharp pain with deep inspiration
    - Severity- 9/10 during inspiration, 3/10 at rest
    - Radiation- around right side rib cage to the mid thoracic back
    - Aggravating features- deep inspiration, fetal movement, twisting
    - Relieving features- shallow breath
    - Treatments- Tylenol, stretching

## Osteopathic Findings for Rib pain

## Osteopathic Findings for Rib pain

- Exhalation somatic dysfunction (inhalation restriction)
- Anterior or posterior rib tender points
- Rib cage lateral shifts
- Diaphragmatic restriction
- Thoracic inlet dysfunction
- Thoracic spine dysfunction

## Treatments for Rib Pain

- Supine Diaphragm Myofascial Release
- Thoracic Inlet Myofascial Release
- Lateral Recumbent Scapulothoracic Myofascial Release

## Supine Diaphragm Myofascial Release

- Patient lays supine on the table
- Physician stands at patients side near abdomen
- Spread fingers over the lower ribs laterally or place hands in the AP position just under the xiphoid anteriorly and TL junction posteriorly
- Assess rotation, sidebending, and flexion/extension of diaphragm
- Move fascia into either direct or indirect barrier
- Add respiratory component to assist in release of tissue
- Hold 20-60 seconds until release is felt

### Supine Diaphragm Myofascial Release



Lateral Position



AP Position

### Thoracic Inlet Myofascial Release

- Patient is supine
- Sit at the head of the bed
- Place hands over the shoulders with thumbs posterior over the T1-2 costovertebral junction and other fingers over the sternal clavicular junction and anterior ribs 1-2
- Assess rotation with sidebending, rotation, flexion/extension
- Move into either direct or indirect barrier in all three planes
- Hold 20-60 seconds until feel release of tissue

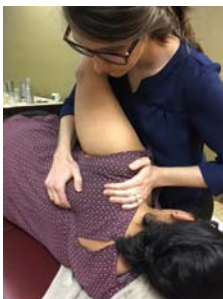
### Thoracic Inlet Myofascial Release



### Lateral Recumbent Scapulothoracic Myofascial Release

- Patient is in lateral recumbent position with affected shoulder upright
- Physician stands by patient's front side of the shoulder
- Place one hand on the superior angle of the scapula and the other hand on the inferior medial angle of the scapula
- Patient places their hand over the physician's caudad arm
- Induce a circular motion of the shoulder and scapula with the cephalad hand to help release the muscles
- The caudad hand touches the rhomboids and paraspinal muscles along the medial aspect of the scapula
- Assess fascial restrictions in all planes. Take the scapula into direct or indirect position and hold until release is felt

### Lateral Recumbent Scapulothoracic Myofascial Release



### Lateral Recumbent Scapulothoracic Myofascial Release

- Move patient's arm across the physician's cephalad arm
- Physician's cephalad hand is over the superior portion of the shoulder and caudad hand's thenar eminence is placed within the patient's axillary fold
- Compression is applied into the axillary tissue with the thenar eminence. Hold until you feel change in tissue texture

### Case Three

- 24 year old G2PO at 26w3d with pregnancy complicated by obesity and recurrent UTIs presents for routine OB care and complains of left hip pain and left sided groin pain
  - HPI
    - Onset- 6 weeks
    - Location- left posterior and lateral hip and left inguinal region
    - Description- Constant ache in the left hip. Felt like menstrual cramps in the groin region
    - Severity- constant 2/10 and get to 6-7/10 with movement
    - Radiation- radiation into her pubic and vaginal regions
    - Aggravating features- laying flat for too long, getting up too quickly, twisting
    - Relieving features- support belt
    - Treatments- Tylenol, stretching, antibiotics for UTIs

### Osteopathic Findings for Hip/Pubic pain

### Osteopathic Findings for Hip/Pubic pain

- Innominate rotation
- Inflare/Outflare
- Pubic Shear
- Lumbar lordosis
- SI Joint dysfunction
- Psoas hypertonicity
- Pelvic tender points for lumbar spine, sacrum, pelvis or associated musculature

### Treatment for Hip Pain

- Posterior and Anterior Innominate Muscle Energy
- Pubic Decompression
- AP Pelvic Diaphragm MFR

### Posterior Innominate Muscle Energy

- Patient is supine
- Physician stands on side of dysfunction
- Leg on side of dysfunction is extended off the side of the table
- Physician places one hand on the patient's opposite ASIS to stabilize and the other hand on the ipsilateral thigh
- Extend the thigh to restrictive barrier
- Patient pushes knee to ceiling to 3-5 seconds
- During relaxation, take the innominate to a new barrier by extending the thigh further
- Repeat 3-5 times

### Posterior Innominate Muscle Energy



### Anterior Innominate Muscle Energy

- Patient is supine
- Physician stands on side of dysfunction
- Leg on side of dysfunction is flexed at knee and hip
- Physician places one hand on knee and one hand on IT
- Leg is flexed to restrictive barrier of innominate
- Patient pushes thigh against physician's chest for 3-5 seconds
- During relaxation, take the innominate to a new barrier by further flexing the hip
- Repeat 3-5 times

### Anterior Innominate Muscle Energy



### Pubic Decompression

- Patient is supine
- Physician stands next to patient
- Patients hips and knees are flexed with feet together
- Patient attempts to separate knees while physician resists, providing an isometric counterforce for 3-5 seconds
- Patient relaxes. Knees are rocked side to side 3 times
- Patient's knees are spread apart to fist-width. Physician provides counterforces as patient attempts to bring knees together for 3-5 seconds.
- Patient relaxes. Knees are rocked side to side 3 times
- Knees are spread to two-fist width and steps repeated
- Knee are spread to forearm width and steps repeated

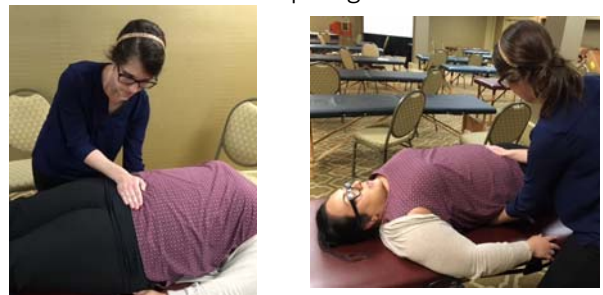
### Pubic Decompression



### AP Pelvic Diaphragm MFR

- Patient is supine on table
- Physician is sitting next to patient's pelvis
- Physician places hand posteriorly on the inferior aspect of the sacrum and coccyx with fingers towards contralateral ischial tuberosity
- Physician places other hand across and slightly above the pubic symphysis
- Assess plans of motion with rotation, sidebending, and flexion/extension
- Take into direct or indirect barrier
- Hold until release is felt

### AP Pelvic Diaphragm MFR



## Case Four

- 36 year old G3P2 at 28w6d with pregnancy complicated by AMA and obesity presents for routine OB care and complains of right buttocks pain
  - HPI
    - Onset- 2 weeks
    - Location- right SI joint and right gluteal region
    - Description- constant throbbing pain
    - Severity- constant 5/10. up to 10/10 when radiating
    - Radiation- radiates down the posterior right leg to the level of the knee
    - Aggravating features- bending forward, prolonged sitting, prolonged walking
    - Relieving features- laying down
    - Treatments- heat pack, rest

## Osteopathic Findings for SI Joint pain

## Osteopathic Findings for SI Joint pain

- OA restrictions
- L5 Anterior
- ASIS compression
- Anterior/Posterior Innominate Rotation
- SI compression
- Piriformis hypertonicity
- Sacral somatic dysfunctions
  - Sacral torsions
  - Unilateral sacral flexion or extension
  - Sacral base anterior/posterior

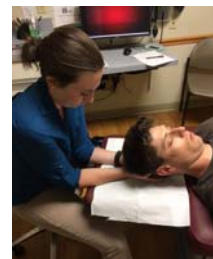
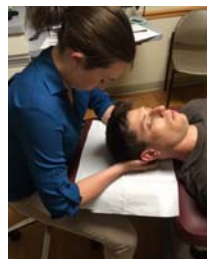
## Treatments for SI joint pain

- Occipital-Atlantal Decompression
- Sacroiliac Articulation
- Frogleg Sacral Articulation

## Occipital-Atlantal Decompression

- Patient supine
- Sit at the head of the bed, next to patients head
- Place fingers on the occiput close to the occipital condyles
- Put tension anterior towards patient's eyes
- Move elbows medially to apply traction between your fingers
- Ask patient to take in slow breaths
- Hold until you feel release. May take 20-30 seconds

## Occipital-Atlantal Decompression





## Sacroiliac Articulation

- Patient is supine
- Physician is standing at the side of the SI joint dysfunction
- Flex patients knee and hip. Hold at patients knee and apply mild compression through patients femur towards the acetabulum.
- While maintaining compression, externally rotate the hip and circumduct the leg into a straightened position
- Repeat this motion but start with internal rotated hip and then circumduct the leg into a straightened position
- Repeat 4-5 times until motion improves
- Treat the other side



## Frogleg Sacral Articulation

- Patient is supine
- Physician is standing near patient's pelvis
- Patient places hips into external rotation and knees are flexed with feet touching each other
- Caudad hand is placed on the sacrum with fingers at the base and palm at the apex
- Instruct patient to inhale and then slowly exhale
- During exhalation, patient extends legs and physician pulls caudally on the sacral base
- Repeat three times



## Home Stretching Program

### Scapular Approximation

- Use: increases motion of the chest, shoulders, and decreases thoracic kyphosis and muscular stress
- Squeeze scapulae together
- No activation of anterior chest
- Hold 20 seconds and release
- Repeat 3 times



## Upper Body Stretch

- Uses: mobilize thoracic and lumbar spines, loosen T/L diaphragm
- Stand with legs shoulder apart
- Rotated upper torso bilaterally
- Hold on each side 10 seconds
- Repeat 2-3 times on each side



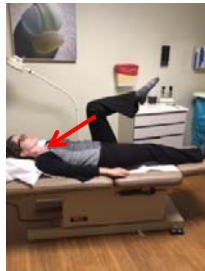
## Psoas Stretch

- Uses: Low back pain, hip pain, sciatica symptoms
- Stand with one leg on the chair
- Other foot three feet behind chair
- Lean forward on the chair
- Hold for 20 seconds
- Repeat on opposite side



## Knee raises

- Uses: SI joint and round ligament pain
- Flex thigh to 90° with knee bent
- Reach one knee towards opposite arm
- Hold for 20 seconds
- Repeat on opposite side



## Posterior Pelvis Tilt

- Use: to decrease lumbar lordosis
- Lie supine with knees bent
- Lift buttocks and push lumbar spine against bed/floor
- Tilt pelvis posteriorly
- Hold for 10-20 seconds
- Repeat three times



## Knee/Chest Position

- Use: increases blood flow and lymphatic drainage
- Place hands on lower abdomen and push contents of pelvis up towards the umbilicus
- Hold 30 seconds

## Cat/cow stretches

- Use: alleviate pressure from pubic symphysis and inguinal ligaments
- Patient is on hands and knees or elbows and knees
- Alternately arch and lower back
- Hold for 10 seconds, repeat 2-3 times



Questions?

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# Erin Peck, MD

## Projects Completed During Residency:

### Community Health Project:

Verona High School Adolescent Girls' Group

### Scholarly Project:

Are there any safety guidelines proven to be effective for reducing cyber-bullying or predatory internet behavior?

Cyberbullying is pervasive and affects at least a fifth of children and adolescents. Also referred to as electronic aggression, cyberbullying has been linked to a number of negative health outcomes including mood disorders and suicidality. This brief article reviews the most current interventions and their effectiveness with regard to reducing cyberbullying and the associated harms.



After completing a bachelor's degree in chemistry at the University of North Carolina (UNC), Erin initially set her career sights on a research career in public health, and earned a Ph.D. in toxicology from the University of Washington. While she enjoyed pursuing her

own focused research projects, she discovered that her true passion for improving health was in working directly with people. This solidified her desire to become a physician, and she went on to earn a medical degree from the University of Wisconsin School of Medicine and Public Health. Erin brings to family medicine a passion for service and community health. During medical school, she traveled to Tajikistan to conduct a quality improvement project with the U.S. Agency for International Development that identified barriers to treating multi-drug-resistant tuberculosis. She also volunteered and served as the community resources coordinator for the student-run MEDiC clinics, which provide healthcare to underserved populations in Madison. In her free time, Erin's interests include spending time outdoors, playing ultimate frisbee, listening to NPR, watching UNC basketball, and singing karaoke.



*I would like to thank my family, most importantly my parents and sisters, and friends for their love and support during my educational endeavors.*

## **Verona High School Adolescent Girls' Group**

### **Erin Peck, MD**

#### **Background:**

The idea for my project arose through discussions with my faculty advisor Julia Yates. We, along with other providers at our clinic, regularly see adolescent patients with anxiety and mood disorders, conditions which disproportionately affect females and often contribute to unhealthy thoughts and behaviors. We felt that a school-based group visit approach would be a powerful way to engage with individuals from this community about these issues while fostering resiliency, self-efficacy, and healthy behaviors. Using [healthydane.org](http://healthydane.org), I identified a “promising practice” called Girls’ Circle, which designs programs and curricula for this purpose. I selected and purchased a curriculum entitled “Wise & Well” and then connected with Megan Wenn, a culinary arts instructor at the Verona High School, who saw a need for such a program at the school. She, along with school guidance counselors, identified individuals who could potentially benefit from our group.

#### **Objectives:**

My project focused on the education and empowerment of adolescent females at the Verona High School. As mentioned previously, Megan and others identified group participants, which ultimately included 5 freshman females. Julia and I acted as co-facilitators for the weekly group, and Megan participated informally as a facilitator and advisor. The selected curriculum provided content on a wide range of topics, including social media, substance use, coping strategies, and mental health. This was an original project.

#### **Methods:**

The group was held during a newly created period at the school called A+, which provides students with opportunities for additional learning and professional development. We combined this period with the lunch period, which gave us approximately 1 hour each week. We opted to pilot this group over a 4-week period, though the program provided 8 weeks of material. We surveyed the participants prior to starting the group regarding their preferences for what we would cover, which seemed to be beneficial in fostering interest and engagement. We brought lunch each week and also provided journals and other materials for each session’s activities; these items were purchased using funds from a micro grant that I obtained through the department. We started each group with a check-in, in which each person shared a high and low from the week. We spent the majority of the session on a specific topic and related activities. We ended each group session with each person sharing something she learned and would use in her life in the coming week.

#### **Results:**

It was challenging to quantify the impact of this project, but overall it was very well-received. We surveyed the participants regarding what they learned, what they liked and didn’t like, and what additional topics they would like to cover. Each participant offered an insightful statement about what she learned (e.g., “I learned that acceptance of others and yourself is key and it helps a lot of situations.” “I learned that

everyone struggles with something in their life.”) All participants said that they wanted the group to be longer (longer and/or more sessions). Additional proposed topics included body image and safe dating. I personally enjoyed the opportunity to interact with members of this community and to learn about the issues that they currently face. I hope that this will help me to be a better provider.

### **Conclusions:**

The most important thing I learned was that there is a need for this type of engagement with the adolescent female community. My eyes were opened regarding the role that social media currently plays in the lives of high schoolers, often with negative consequences. Group dynamics were a challenge at times; through the help of Julia, I learned ways to effectively redirect the conversation. I think that this could be a sustainable partnership between the Verona Clinic and Verona High School and hope that it will be continued, possibly with longer and/or more sessions. I would recommend a similar group size (5-6 participants) and continuing to seek input from participants regarding content.

### **Acknowledgments:**

I would like to thank Julia Yates for serving as an enthusiastic and effective advisor and co-facilitator for this project. I would also like to thank Megan Wenn, who advocated for us to bring the curriculum to the school and actively participated in each session. I am thankful to all of the group participants, who engaged consistently each week and openly and honestly shared their feelings, insights, and personal experiences. Lastly, I am grateful to the DFMCH for its financial support of this project.

# Jennifer Perkins, MD

## Projects Completed During Residency:

### Community Health Project:

Speaking Out About Gun Violence

### Scholarly Project:

Gun Safety: Screening and Intervention:

I am currently working on a Family Practice Inquiry Network (FPIN) Help Desk Answer regarding primary care approaches to addressing gun violence. Although the data is limited and heterogeneous, there are 2 recent review articles with some high quality evidence showing modest improvement in safe gun storage through brief screening and intervention in primary care clinics.



Jen earned a bachelor's degree in physiology from the University of Arizona, and spent a number of years working as a certified massage therapist in a collaborative clinic that focused on integrative medicine. Through this work, she learned that her presence and attention

with her clients was a therapy she offered along with massage, and the ability to develop this kind of relationship with patients is what drew her to family medicine. She completed her medical degree at the University of Wisconsin School of Medicine and Public Health. During medical school, she sought out opportunities to address healthcare disparities by working with the MEDiC free clinic, primarily at ARC House, which is a residential program for women transitioning from prison. She also served as a student leader for Students for a National Health Program, organizing lectures, hosting educational events on healthcare policy and reform, and setting up political advocacy opportunities. Through residency she continued to cultivate her voice as a physician advocate. Outside of medicine, Jen enjoys activities that get her outside, such as hiking, biking, and backpacking.



*I am incredibly grateful for the faculty, my inspiring peers, and residency staff at DFMCH. Your kindness, depth of knowledge, experience, and compassion remind me of the physician and the person that I want to be on a daily basis!*

# Speaking Out Against the Toll of Gun Violence

## Jennifer Perkins, MD

### **Background:**

The thumping bass mixed with laughter marks another morning as the kids converge on East High. I bike past the purple jackets, colorful language, and the occasional spontaneous dance move juxtaposed to a memorial for Tony Robinson, the African American student who was shot and killed by a police officer. The Memorial and the youthful energy around it are a not-so-gentle reminder of how close to home the deep racial inequities and disproportionate violence are. After the horrific Charleston murders, I rode through an overpass on the west side of town with a gun spray-painted on the wall, caption: I kill black people. A friend's basement was flooded for the black lives matter sign in her yard. This is not the community I want to live in, so how do I change it? Gun violence takes the lives of roughly 33,000 people a year, 63% to suicide, a large proportion of the homicides in black communities, increases the mortality of domestic violence, and is a leading cause of death and disability in young people making the topic both an ethical issue and one of public health.

My primary objective was to inform my community about the burden of gun violence and our collective responsibility to create a safe place for our kids to grow and thrive. In the process of advocating and educating, I also intended to engage and empower my colleagues to use their unique perspective as physicians to affect policy. Our legislators benefit from hearing about our daily experience on the front lines while they make decisions that drastically affect our patients. More specifically, I intended to highlight the need for research funding to develop evidence based interventions, promote screening and brief interventions at well child checks and wellness visits in high-risk individuals, advocate for comprehensive licensing for gun owners and request a ban of automatic and high magazine weapons.

### **Methods:**

I started with a deep search of the literature to explore the multiple aspects of gun violence including unintentional injuries—often of children or by them, murders—the higher rate of death in DV cases in gun containing households, suicidal ideation, and mass shootings, which get the most press but take the least toll. I connected with faculty deeply committed to advocating on this issue to identify opportunities to get involved, and joined the National Physicians Alliance (NPA) and the American Medical Association (AMA) to amplify my voice. I published an Op Ed in the local paper and presented on the topic to the faculty and residents in a morning report. I wrote a second FPIN HDA that reviewed the evidence base for clinic interventions. Finally, I accepted a year-long advocacy training with the NPA, a group that has been vocal in supporting gun violence research, preserving physicians' right to discuss gun safety with patients and promoting gun safety as a public health issue.



**Results:**

The effects of advocacy are not so easy to quantify. Through the process, I became deeply impassioned about the issue, had conversations that broadened my perspective and informed my approach to discussing the topic, increased awareness in my colleagues, and developed more confidence in speaking to mixed audiences about a charged topic.

**Conclusions:**

In the consuming task of meeting the acute medical needs of our patients, finding one's voice to affect policy is challenging, and the results of one's efforts are often more abstract. Through connecting with the media, educating peers and legislators and connecting with organizations, one can amplify that voice and hopefully create enough resonance to effect change. The greatest challenge to overcome is finding time to show up. Opportunities abound to speak out for our patients and affect policy that promotes an environment of health and wellbeing.

**Acknowledgements:**

Melissa Stiles, Jennifer Edgoose, Jeff Huebner, and Laurel Mark.

# Emily Peterson, MD

## Projects Completed During Residency:

### Community Health Project:

First Breath: Bringing Evidenced Based Prenatal Tobacco Intervention to Belleville

### Scholarly Project:

Dynamed Project:

Evidence based point of care resources have become increasingly important in the world of family medicine. It is essential that the resources we use have the most accurate and up to date information in addition to being user friendly and patient oriented. During this project, we identified a point of care resource that was not being utilized by the DFMCH but had good evidence for quality of information and user ease. We conducted a pre-survey to gather user knowledge and interest in this resource. The department then provided a trial of this resource for 3 months, and we subsequently conducted a post survey. The surveys' largely positive reviews will allow us to advocate for a more permanent subscription to this valuable evidenced based resource.



A lifelong Wisconsin resident, Emily earned a bachelor's degree in biology and molecular biology from the University of Wisconsin-Madison, and completed her medical degree at the University of Wisconsin School of Medicine and Public Health (SMPH). Emily is attracted

to family medicine because of the relationships family doctors build with their patients and the community. Her dedication to community engagement drew her to the Wisconsin Academy of Rural Medicine (WARM), an SMPH program that provides medical students with a longitudinal rural curriculum at sites throughout the state. During medical school, Emily planned and implemented a community mass casualty drill for first responders and hospitals in La Crosse, Wisconsin. In addition, as a leader and member of the Doctors Ought to Care (DOC) program, which partners with schools to provide youth with fun, dynamic health information, she visited over two dozen classrooms—including one in her former high school. In her off hours, Emily enjoys camping, hiking, fishing and skiing, as well as cooking and baking.



*Thank you to my amazing resident colleagues who have become my family over the course of the past 3 years. I can't imagine this journey without you. Thank you to my newly minted husband who has tolerated my exceedingly poor ability to adhere to the "underpromise, overperform" advice that was given during intern year. Thank you in particular to Jensi Carlson who has been a guiding light, mentor, and friend.*

# **First Breath: Bringing Evidenced Based Prenatal Tobacco Intervention to Belleville Emily Peterson, MD**

## **Background:**

Through our community health lecture series, it was identified that Belleville rates of tobacco use during pregnancy are higher compared to other UW Health clinics. Wen Jan Tuan obtained data through EPIC analysis which showed Belleville rates of smoking during pregnancy were about 13%, with other UW clinics ranging from 4%-20%. Further research revealed that the Belleville clinic, in addition to Wisconsin as a whole, has higher rates of tobacco use during pregnancy when compared to the rest of the nation, which averages around 6%.

## **Objectives:**

This project's objective was to implement an evidence based program to reduce the risks of tobacco use during pregnancy by helping our pregnant patients to abstain, quit, or reduce smoking during pregnancy. The intention of this intervention is to improve the health of both moms and newborns. In addition, the program is intended to decrease the rate of tobacco relapse among mothers after delivery.

## **Methods:**

Investigation for evidence based interventions produced the Wisconsin based First Breath Program, which integrates clinic based motivational interviewing with patient gift incentives. The First Breath program reports that 83% of participants are able to abstain, quit, or cut back tobacco use during pregnancy. The First Breath program was brought to the clinic for training sessions, using the nurses as primary contacts. The OB/Prenatal workflow was restructured to include an evidence based prenatal risk screening form at the first prenatal encounter. This screening tool was designed to identify patients who would qualify for First Breath services but also identify patients at risk of alcohol use, other substance use, intimate partner violence, and depression.

## **Results:**

Results from implementation of the First Breath program are still pending as the outcomes will be delayed by at least a year. The First Breath program will track the Belleville data through surveys completed at enrollment, 28 weeks, and postpartum. Maintenance of the program and reporting of the data will be completed by future Belleville residents.

## **Conclusions:**

During the implementation of this project, I learned the importance of workflow and structure when instituting a new program in a clinical setting. We have laid the ground work and structure to bring in the My Baby and Me program, an evidence based intervention for alcohol cessation in pregnancy in the future.

## **Acknowledgments:**

Thank you to the First Breath Program and Wisconsin Women's Health Foundation who provides the funding and training for this program. Thank you to Jen Lochner and Jensi Carlson for mentoring me through this process.

# Eric Phillippi, MD

## Projects Completed During Residency:

### Community Health Project:

Nehemiah Reentry Health Initiative

### Scholarly Project:

Resident-Led Education:

Through surveying the residents of our program, it became evident that residents appreciate learning from their co-residents. Our program currently has a robust resident-led EKG curriculum. There are also opportunities for residents to teach about specific topics during Morning Reports, Journal Clubs, and Primary Care Conferences. Second-year residents lead a practical lecture series for the first year residents during the first six months of residency. In order to provide additional opportunities for residents to teach each other, without necessitating extra prep work, Parker Hoerz, Bret Valentine and I set out to create a unique curriculum. Our goal was to create a format for resident-led teaching about common primary care topics that could be facilitated with minimal to no prep work ahead of time. To accomplish this, we have gathered a repository of useful teaching x-rays as well as a format of how a group can collectively learn from each x-ray without having studied ahead of time. We also are employing a style of learning called Illness Scripts, which allow a group of physicians to cooperatively learn about a topic with minimal prep work. These sessions of learning will be incorporated into our weekly lecture schedule. This will increase participatory learning, resident opportunities to teach, and not increase resident workload or prep work. We will pilot some of these learning methods during Morning Reports towards the end of this year.



Eric grew up in Wisconsin, and completed his bachelor's and medical degrees at the University of Wisconsin–Madison. He has a strong interest in global health, and has traveled to Honduras, Romania, and Kenya to provide medical services to vulnerable

populations. He co-founded Passports for Education, a 501(c)(3) nonprofit organization that provides information and scholarships for students interested in global service work, and he hopes to engage in family medicine education in the developing world throughout his career. During his residency training, Eric has developed a strong interest in primary care procedural medicine as well as emergency / urgent care. He is drawn to family medicine for its focus on meaningful patient relationships and its potential for international application. He is an avid golfer and ultimate Frisbee player; and loves to run, bike, rock climb, scuba dive, play music, travel, and spend time with his wife and family. After residency, Eric plans to enjoy five months of “pre-tirement” in order to get back into all of those fun activities. Eric will be starting his career with UW at the Odana Atrium Clinic in December.



*First and above all the rest, I'd like to thank Emily, my caring, compassionate, and brilliant wife, for her support and encouragement throughout this process of becoming a doctor. This wouldn't have been nearly as fun or worthwhile of a journey without her! I'm grateful to God for the open doors that I have been able to walk through. I'd like to thank my family for their continued support and inspiration. To my co-residents, you are incredible doctors and even better human beings. I'm lucky to have been on this journey with you. To my mentors and teachers, I appreciate your wisdom, and more importantly, your eagerness to share it. Lastly, to my patients, I am humbled by your struggles and victories; and I am grateful that you willingly offered me a front row seat to be a witness to your lives.*

## **Nehemiah Reentry Health Initiative**

### **Eric Phillippi, MD**

#### **Background:**

The Nehemiah Center for Urban Leadership Development is a nonprofit organization with multiple focus areas. Their physical location is in the South Park St. community on the south side of Madison, and a large portion of the impact they have is in the 53715 communities. Their reentry services division seeks to provide wraparound services for men who are leaving jail or prison. They offer emergency and transitional housing, which aims to prevent homelessness during the transition out of incarceration. They also provide mentoring, coaching, and instruction related to issues of trauma, healthy relationships, anger management, fatherhood training, and leadership development. The leadership of Nehemiah have identified that they have not been able to develop programming related to health or healthcare transitions for these gentlemen.

#### **Objectives:**

The broad goal of this project is to understand the scope of services provided by Nehemiah for their ex-offenders, and to help identify opportunities for programming related to health and healthcare transitional services for these men. Additionally, once these opportunities are identified, a secondary goal is to attempt to provide resources, information, or ongoing partnerships that could help to fill these gaps. A second objective was identified during our discussions, which related to a common category of diagnoses that a number of their ex-offenders share. This is related to mental health diagnoses, which are treated with prescription medication while incarcerated. The leadership identified that many of these men will leave with only a couple days worth of medication following their release from jail or prison, and Nehemiah does not feel that they have a robust understanding of how to assist these men in seeking out and obtaining proper health care during their transition.

#### **Methods:**

The initial steps for this project involved multiple meetings with Nehemiah leadership. We discussed the current programming that Nehemiah has in place for their reentry services. We also discussed the goals that Nehemiah has in place for providing wraparound services to help their ex-offenders transition into the community successfully. We have hopes to arrange a time during one of their weekly meetings to have an open discussion with the men of their group to identify what type of instruction or coaching related to health they would find helpful. Additionally, related to the second objective of transitions for the men who have prescription medication needs, we realized that Nehemiah often does not identify men who need help with this transition until the men have run out of their medication, or it becomes clear that their mental health condition is a barrier for them to have a successful transition into the community.

#### **Results:**

At this stage the major result has been relationship building, a needs assessment for their programming, and identifying the next steps to be taken to fulfilling those programming needs. Additionally, they have plans to make adjustments to their intake forms so that Nehemiah can identify men who will need additional help with health care transitions related to prescription medications.

**Conclusions:**

I learned that I am able to provide a useful perspective for programmatic development by looking through the lens of a healthcare provider. Additionally, I learned that there are many barriers to success in relation to the vulnerable population of ex-offenders recently released from jail or prison. The first few weeks after their release are a particularly vulnerable time that can significantly shape the trajectory of their transition into the community, especially for men with mental health diagnoses. Nehemiah has reentry services that are beneficially impacting the trajectory and success of transition into the community for hundreds of men per year who are recently released from jail or prison.

**Acknowledgments:**

I have been honored to work with Rich Henderson and Anthony Cooper who are both part of the staff of the Nehemiah Center for Urban Leadership Development.

# Abigail Puglisi, DO

## Projects Completed During Residency:

### Quality Improvement Project:

Advanced Directives: Process Improvement at St. Clare Hospital

### Scholarly Project:

Baby Led Weaning:

While participating in the Parenting and Infant Development elective, I did a literature review regarding baby led weaning, a method for introduction of solid food to infants. Specifically, I determined whether or not this was a safe and effective method for complementary feeding. I found evidence to support that there is no increased risk of choking or gagging with baby led weaning compared to traditional spoon feeding. Additionally, infants are more likely to develop self regulation of their meals and be active, social participants in the family meal time. The final project was presented during a quarterly clinic education day.



Abby earned a bachelor's degree in biomedical sciences from Marquette University, and a medical degree from Des Moines University (DMU) College of Osteopathic Medicine. Part of what drew her to family medicine is her focus on education and community building.

During medical school, she worked with Homeless Camp Outreach, a student group that visits weekly with homeless individuals, sharing coffee and conversation. She also co-founded the Global Health Learning Collaborative at DMU, created a curriculum for a global health survey course, and traveled to Honduras to serve on medical mission trips. During residency, she enjoyed working closely with the Nurse Family Partnership program in Sauk County, which provides support for at risk pregnant women. Outside of medicine, Abby enjoys cooking, traveling, sewing, reading, and hiking with her husband Mike and daughter Millie.



*Thank you to my husband Mike, who has certainly earned the award as "best supporting spouse" during these crazy first years of marriage known as residency. You have been an amazing source of love and support for me, and I appreciate you!*

# **Advance Directives: Process Improvement at St. Clare Hospital**

## **Abigail Puglisi, DO**

### **Background:**

As part of routine case review, the Ethics committee at St. Clare hospital reviewed the case of a 68 year old female. She was known to have terminal squamous cell carcinoma at the base of her tongue. Upon presentation to the emergency department, she was confused, disoriented, and actively dying. Her power of attorney for health care was activated in the emergency department by the ED physician and the admitting physician. The following morning, the daytime care team assumed care and did not have this information. The family, who included the POA, had also not been notified of the activation overnight. Because of this lack in communication, the patient continued to be asked to consent for her own care. She was refusing all cares, including comfort aides, which ultimately led to significant moral distress and suffering for the family, caregivers, and patient.

### **Objectives:**

To develop a St. Clare specific process for POA activation/deactivation that provides clear communication to the providers, patients, and medical decision makers. Our specific objectives were to:

1. Evaluate the available policies and procedures surrounding healthcare power of attorney at the hospital, system, and state level
2. Cement a workflow for what to do with a HCPOA document once it is activated and how this information is shared
3. Answer the question “what do we do when someone who has an activated POA is refusing care?”

### **Methods:**

A multi-disciplinary team including social work, administration, physicians, and health information services personnel was formed to address the objectives as noted above. We evaluated the St. Clare Hospital Policy on Advance Directives, the SSM Policy Withholding and Withdrawing Treatment at the End-of-Life, the St. Clare Meadows Care Center Workflow, the Ethical and Religious Directives for Catholic Health Care Services and the Wisconsin Statute. Members of the committee reached out to other facilities in the state to see how they were accomplishing this task at their respective facilities. We learned that there is the ability for the EMR to provide a “banner” alert when a patient’s HCPOA was active. We did not find a current workflow for communication of activation or deactivation.

We did find guidance on how to approach a situation when a patient with an activated HCPOA is refusing care specifically from the SSM Policy noted above.

### **Results:**

Our team created a step-wise process for the activation of the HCPOA and subsequent documentation. This was then presented to the ethics committee and then to the medical staff at St. Clare hospital. After both meetings, the workflow was updated to represent those groups’ feedback.



1. Two physicians, or a physician and licensed psychologist must determine incapacitation.
2. Decision is made to activate.
3. Both providers sign the activation form.
4. Advance Directive Assessment updated in EPIC (EMR) by RN caring for patient at the time of activation AND Attending provider clearly documents activation in his/her note as well as the problem list. Provider also responsible for updating the family/HCPOA at the next available time.
5. Physical form is placed in the floor chart until scanned.
6. Activation form scanned into EPIC (EMR) by HIM team during next business day.
7. If deactivation is necessary, this is done by attending provider with same process of documentation (return to step 1).

Additionally, we were able to achieve an update in EPIC (EMR) to include the visual alert banner when a HCPOA is active. This is triggered by the Advance Directive Assessment noted above, and appears if the patient is activated during the admission, or if it is a long standing activation, as long as it is documented in EPIC (EMR).

### **Conclusions:**

As outlined above, we cemented a workflow for what to do with a HCPOA document once it is activated and how this information is shared. Additionally, we achieved a method for making this information clearly visible in the EMR. Future goals related to this project include extension of this workflow to the outpatient settings, such as the clinic and ancillary care centers.

### **Acknowledgements:**

Laura Jelle, Barb Talley, Stephanie Wilkinson, Alison Kalkahoff, Dr. Rex Flygt, the St. Clare Ethics Committee, and St. Clare Medical Staff.

# Emily Torell, MD

## Projects Completed During Residency:

### Community Health Project:

Dryden Terrace: Building Community to Improve Health Status

### Scholarly Project:

Presentation about my community project at the Society of Teachers of Family Medicine Conference on May 6, 2017.



Emily earned a bachelor's degree in anthropology at Washington University in St. Louis. She completed her medical degree at the University of Michigan Medical School, extending her studies by one year to earn a master of public health at the University of Michigan School of

Public Health. Emily's motivation for pursuing family medicine stems from her desire to reduce health inequities — locally, nationally and globally. She has provided care to uninsured patients by volunteering with the student-run free clinic at her medical school. She also worked with the Alliance to Reduce Disparities in Diabetes, a national initiative comprising five community sites implementing evidence-based diabetes management programs for low-income populations, to identify system improvements that can ultimately effect state and national policy change. After residency, she will complete an Academic Fellowship that will allow her to further pursue her interests in teaching and women's health. In her spare time, Emily enjoys running, spending time outdoors, cooking, and baking.



*Thank you to Jennifer Edgoose for her continued dedication and support of this project and for being an incredible mentor along the way.*

## **Dryden Terrace: Building Community to Improve Health Status**

### **Bonnie Garvens, MD and Emily Torell, MD**

#### **Background:**

In 2015, the Madison Fire Department (MFD) identified a subsidized housing development, Dryden Terrace, as a “hotspotting” community with high resource utilization. Through tracking 911 calls, MFD determined that Dryden Terrace residents placed the highest number of 911 calls in the city - 3.5 times the city average. Northeast clinic, 150 feet away, cares for 50% of the Dryden residents who are 3.4 times more likely to visit the emergency department than the average Northeast patient.

The MFD initiated a monthly program, Community Action Resource and Education (CARE), to provide health screenings and home visits at Dryden Terrace with the goal of fostering communication between the residents and MFD and decreasing the number of 911 calls to the building. Faculty and residents of UW Northeast Family Medical Center were invited to participate due to the close proximity of the clinic to Dryden Terrace.

#### **Objectives:**

The goals of the initial project created by MFD were to develop rapport with the residents of Dryden Terrace, distribute information on fire prevention, provide basic health screenings, and ultimately decrease unnecessary utilization of EMS services. In addition to these objectives, residents and faculty of the DFMCH set out to improve critical health metrics for the residents of Dryden Terrace by providing opportunities for increased community engagement, empowerment, and information exchange that complemented the health screenings done by the MFD.

#### **Methods:**

In developing the program, we collaborated with the MFD and Public Health of Madison and Dane County (PHMDC) to conduct an initial community needs assessment, which revealed a high burden of disease and social isolation among residents at Dryden Terrace. Of the 35 residents who completed the survey, 57% reported fair to poor health and only 29% reported having daily social interactions. We added a monthly lunch and learn component, “Dining with Doctors,” that immediately preceded the CARE programming. Using the initial needs assessment as a guide, we developed sessions that focused on chronic disease management, nutrition education, and mindfulness while providing opportunities for social interaction among the residents.

To measure the impact of the program, we are tracking 911 data from MFD and MPD, as well as internal UW Health data including demographics, ER visits, urgent care visits, and hospitalization LOS for Northeast patients living at Dryden Terrace, using Northeast Clinic patients as a reference population. We also repeated our initial needs assessment to capture whether our programming has had impacts on measures such as self-perceived health status, physical functioning, health care use, and social isolation.

#### **Results:**

Over the last two years, we have seen increasing attendance at our monthly Dining with Doctors and CARE sessions and have reached approximately 74 residents at Dryden Terrace with our programming. The staff at Dryden Terrace has seen a decrease in residents calling 911 out of misutilization, and the MFD has seen a trend toward a decrease in the overall number of 911 calls, though data collection is still ongoing. Our follow-up survey did not reveal any changes in self-perceived health status or social

isolation. Despite these limited objective results, we have developed rapport and trust among the Dryden Terrace community, the value of which cannot be underestimated. In the follow-up survey, 92% and 87% of respondents reported good, very good, or excellent interactions with the MFD and Dining with Doctors respectively. By stepping outside of the clinic walls, faculty and residents of the DFMCH have learned about the barriers to care experienced by this population as well as the health issues that affect them most. This partnership has also given residents of Dryden Terrace a reason to venture out of their apartments and engage with others in their community.

### **Conclusions:**

Through coming together to work towards a common goal, we have all gained a deeper understanding of the health issues and barriers to care that affect those who live in the Dryden Terrace community. We have also developed an appreciation for how difficult it is to address these barriers with limited resources and time. Other challenges have included variations in data collection and reporting in the electronic health record that has limited our ability to track outcomes. Our partnership is continuously evolving and we are currently working more closely with PHMDC to develop a logic model that will help formalize and clarify the goals of the program going forward. Now that we have developed rapport with the community, we hope to create a more intensive intervention that may be better able to address the health issues and barriers to care for residents at Dryden Terrace. In addition, we are also interested in adding a home visit component as part of the residency curriculum and measuring the impact of this community engagement project on provider morale.

### **Acknowledgments:**

- DFMCH - Jennifer Edgoose, MD
- Madison Fire Department - Chiefs Johnny Winston, Laura Laurenzi, and Che Stedman
- Public Health of Madison and Dane County - Mari Gasiorowicz, Rachel Goldman, Mary Michaud
- Madison Police Department - Carlin Becker (Mental Health Officer)
- Dryden Terrace Staff - Kelsey Eyers (social worker) and Nancy Lenz (apartment manager)
- Dryden Terrace Residents
- Aging and Disability Resource Center
- River Food Pantry

# Bret Valentine, MD

## Projects Completed During Residency:

### Community Health Project:

Screening for Adverse Childhood Experiences

### Scholarly Project:

Resident-Led Education:

My scholarly project was in collaboration with Dr. Phillippi and Dr. Hoerz. In principle, the purpose was to create a reference bank and outline for teaching high yield, reviewable materials that would allow any resident at any time to teach other residents on areas of core content. We have collated a list of teaching references and outlined teaching scripts to guide resident teachers.



Bret grew up in Freedom, Wisconsin and earned bachelor's degrees in dietetics and biology from the University of Wisconsin-Madison. He then went on to complete a master's degree in nutrition from the University of Minnesota and then worked for a

few years as a registered dietitian at Children's Hospital of Wisconsin and in private practice before deciding to go to medical school where he attended the University of Wisconsin School of Medicine and Public Health. Bret's passion for social justice, patient advocacy, public health, and caring for patients of all ages has always been a natural fit for family medicine. When he has free time, Bret enjoys spending time with his wife, daughter Edith (3), son Jack (1), and dog Otis (8). He also enjoys biking, listening to and playing music, watching the Brewers, the Badgers, and the Packers, hiking, camping, cooking, craft beer, and golfing. He will be working at 16th Street Community Health Clinic in Waukesha after graduation from residency providing full spectrum care.



*I lack the words to thank my unconditionally supportive wife, Margaret. She too had to work incredibly hard and endlessly through this medical training journey, especially during some of the tough rotations, long days, and nights. She is my life raft and is the heart and glue of our family. I love you so much.*

# Screening for Adverse Childhood Experiences

## Bret Valentine, MD

### **Background:**

Adverse childhood experiences (ACEs) is a term created to describe all types of abuse, neglect, and other traumatic experiences that occur to individuals under the age of eighteen. Early research established a standardized screening questionnaire to quantify the number of ACEs a person experienced in their early life.<sup>1</sup> There are strong correlating data<sup>ii</sup> that showed that an increasing number of ACEs lead to worse health behaviors, mental health, and increased morbidity and mortality in later life. These data are reinforced by our understanding of physiologic principles of the effects of chronic toxic stress on the developing brain and the human body. ACEs affect all socioeconomic strata (SES) however lower SES persons are at higher risk for victimization and perpetration of ACE. Access Community Health Clinics (ACHC), under the lead of their Behavior Health Consultant (BHC) program, initiated an ACE screening program at two of its community clinics on the eastside and south side of Madison to help identify patients in portions of their population that are at high-risk for both medical and behavioral health comorbidities. A similar screening program was briefly attempted at the UW DFMCH affiliated Wingra clinic site and was never restarted.

There are over 1400 patients that have been screened through the ACHC, BHC lead ACE screening program. ~32% of all screened patients have been identified as having an ACE > 4 (out of 10), which is generally accepted in the literature as a high exposure rate and correlates with measurable, negative health behaviors and chronic disease outcomes. The original research conducted on the topic of ACE showed a prevalence of 12% of patients with an ACE > 4. The majority of patient's screened were at the Access sites other than Wingra; however the clinic demographics of Wingra are similar to the other clinics, especially in terms of SES, so it could be expected that a similar portion of Wingra patients would screen high (ACE > 4).

### **Objectives:**

My objectives were to become familiar with the topic of ACE and understand its potential for clinical application. Additionally, I then was to perform a qualitative risk benefit analysis for the implementation of an ACE screening program at Wingra. I obtained input and data from a variety of sources including the Access BHC, Access faculty, and Wingra FM residents, however this was an individual research project.

### **Methods:**

I performed independent study to collect information and review past and present research regarding ACE. I conducted key informant interviews and a focus group of Wingra faculty, staff, and residents to obtain qualitative information about application of an ACE screening program at Wingra.

## **Results:**

Through the previous data collected from the Access ACE screening program led by BHC, we can anticipate that the patients would screen positive with a high ACE score at an incidence 2.5-3x of that of the general population. Currently the data is being collected through the ACHC ACE screening program and has not lead to direct clinical intervention or a measurable change to health outcomes. Nationwide, efforts to address patients with high ACE screening scores are very limited and research is early and ongoing, but the principles of care of the patient with a high ACE score includes comprehensive medical and mental health care, substance abuse treatment, and variety of social support programs. Prevention programs focusing on providing children with safe, stable, and nurturing relationships are beginning to show some effectiveness<sup>iii</sup>.

There is consensus among interviewees that the topic of ACE is an important one, and one that is directly applicable to our population.

The possible benefits to screening for ACE include: it would provide comprehensive understanding of the qualitative history of our patients and how that may be impacting their current and future health; the data could help to identify certain patients to be directed to more high intensity clinical services such as intensive care management; or the data could be used as a population health statistic for application for further research, grants or clinic funding, or other resource allocations.

The possible risks to screening for ACE include: providers would not know what to do with the information once it was collected; the clinic lacks the personnel, money, and time to implement a new screening program; patients and provider may start to suffer from “screeener fatigue”; the clinic lacks the resources to provide comprehensive care required for intervention of high ACE screened patient.

## **Conclusions:**

The topic of ACE is important and applicable to our patient population at Wingra. There does not seem to be direct clinical benefit for a general screening program at this time, mostly based on the inability for providers to direct someone with a high ACE score to comprehensive, wraparound services, such as intensive case management. True intervention for high ACE scores would require a comprehensive reprioritization of clinical and community resources with redirection toward increased mental, substance, family support, and other social services.

Instead of focusing on an ACE screening program, providers should be trained on the topic of ACE and use it as a tool when obtaining a comprehensive social and medical history. Advocacy and support for community based programs in Dane County that help to prevent ACE should be encouraged for all providers. Future resident projects could be developing a sustainable ACE education program for residents and/or identifying community based programs that currently exist in Dane county to help spread awareness to current providers.

## **Acknowledgments:**

Thank you to Catie Beck, LCSW for her help and data from their ongoing ACE screening and HRSA substance abuse expansion grant.

## References

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<sup>i</sup> Felitti, Vincent J et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. American Journal of Preventive Medicine , Volume 14 , Issue 4 , 245 – 258

<sup>ii</sup> <https://www.cdc.gov/violenceprevention/acestudy/journal.html>

<sup>iii</sup> <http://protomag.com/articles/scars-that-dont-fade>



# Julia Weiser, MD

## Projects Completed During Residency:

### Community Health Project:

Stepping On at Belleville Clinic: Preventing Falls and Building Partnerships with Green County's Aging & Disability Resource Center

### Scholarly Project:

Does marijuana use in the teen years predict development of a future substance use disorder in adulthood?

Epidemiological and twin cohort studies suggest that, even when controlling for other influences, there is an association between adolescent cannabis use and later substance abuse disorders. Data suggests that there are likely genetic and environmental factors which impact this relationship. While the correlation between adolescent cannabis use and adult substance use disorders is reproducible, a direct causative association cannot be established. More rigorous scientific studies, such as randomized controlled trials, cannot be used to answer this question because it would be unfeasible and unethical to conduct such an experiment. Further research should be conducted to determine whether behavioral interventions to reduce adolescent marijuana use leads to lower rates of future substance use disorders.



*I am grateful every day to my family and friends, near and far, who have supported me on my journey to becoming a family doctor. I am indebted to the mentors, colleagues, and especially the patients who have helped me develop as a physician, a caregiver, and as a human being over the past 3 years. It has been a privilege to work, learn, suffer, celebrate, and grow together.*



Julia earned a bachelor's degree in biology from Yale University, and completed her medical degree at University of Texas Southwestern Medical School, where she was a member of AOA. She was called to Family Medicine because it embraces a philosophy of patient-centered care and allows physicians to treat patients over lifetimes and across generations. Her special interests are geriatric medicine and palliative care, along with social justice and care for the underserved. Outside of medicine, Julia has an enduring love of team sports. She played varsity field hockey in college, intramural flag football in medical school, and learned to love ultimate frisbee after moving to Madison for residency.

# **Stepping On at Belleville Clinic: Preventing Falls and Building Partnerships with Green County's Aging & Disability Resource Center (ADRC)**

## **Julia Weiser, MD**

### **Background:**

Belleville Clinic sits near the border of Dane and Green Counties, and it serves many of the residents of the nearby towns of Belleville and New Glarus. However, it also serves a much more widespread population of patients from its large rural catchment area to the south. Our ties to the town of Belleville have been strengthened by participation in community events and our direct proximity. Recently we've been expanding our outreach to forge relationships with the broader community we serve. Green County residents, on average, are more under-served and further removed from their resource-rich counterparts in Madison and Dane County. Creating closer relationships with community members and agencies that serve this population will help our clinic learn better ways to serve our patients.

In July 2016, representatives from the Green County ADRC asked to speak at our clinic to advertise their Stepping On classes and ask us to recruit future participants. Stepping On is a nation-wide curriculum that has been proven to reduce the rate of falls in community dwelling older adults. The ADRC has been conducting this 7-week course for several years, and they asked us if we could help recruit participants and donate clinic space to hold a class. Their goals dovetailed with the falls screenings we were already doing at Belleville and provided a continuation of a falls prevention project conducted the previous year. We eagerly agreed to partner in their efforts.

### **Objectives:**

The goals of this project were two-fold:

- 1) Offer an evidence based falls prevention course to Belleville patients (and other residents of Green County) at our clinic
- 2) Strengthen relationships with Green County ADRC representatives to facilitate future projects and partnerships

### **Methods:**

We divided tasks to complete our goals.

I acted as the liaison between our clinic and the ADRC. I helped advertise the goals of the project to everyone working at our clinic (through meeting announcements, reminder emails, and paper pamphlets), encouraged our attendings, residents, and PAs to recruit potential participants, compiled the list of interested patients for the ADRC to recruit to the class, recruited local pharmacists and physical therapists to act as expert guest speakers for the class itself, and made sure that our conference room at clinic was booked and set up properly for each class.

The ADRC contacted the recruits, confirmed their participation, did additional advertising and recruiting outside of our clinic, and provided all of the educational materials necessary for conducting the classes. They recruited the local police officer and vision expert who acted as additional expert

guest speakers. They also conducted the classes themselves according to the evidence-based Stepping On curriculum.

### **Results:**

We recruited 20 potential participants and ultimately confirmed 9 participants for our spring course. Eight people attended at least six of the seven Stepping On sessions conducted at our clinic from February through March 2017. There will be a “booster course” at Belleville for these participants on June 22, 2017. The ADRC also collected pre- and post-class surveys regarding participants’ attitude and knowledge about falls and fall prevention. Data from these surveys were not available at the time of this summary. In general, the class was very well received, and participants expressed hope that more classes would be offered at Belleville in the future.

### **Conclusions:**

Partnering with the Green County ARDC to conduct a falls prevention class at Belleville Clinic accomplished three goals:

- 1) It helped create and solidify relationships with community partners, whose goals dovetailed with our mission at Belleville.
- 2) It successfully conducted a falls prevention course for a handful of community members who expressed great satisfaction about the experience. The class aimed to promote safety and prevent falls for independent elders in our community.
- 3) It paved the way for future joint endeavors. Specifically, it created the groundwork for holding more classes and events at our clinic, in partnership with the ARDC.

### **Acknowledgments:**

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Colleen Miller PTA, GL Rehab (Belleville, New Glarus), Stepping On Expert Guest  
Peggy Soehnlein, Clinic Manager, UW Health Belleville Family Medicine  
Sally Jeglum, Administrative Assistant/Clinic Scheduler, Belleville Family Medicine  
Jennifer Lochner, MD, Belleville Clinic Director, UW Faculty Sponsor  
Belleville Staff, Faculty, and Residents