

# ELIZABETH R DUKE

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## WORK EXPERIENCE

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- 2013-2014 William S Middleton Memorial VA Hospital Madison, WI
- Staff physician, Dept of Medicine
  - Attended in the Emergency Dept and ICU, supervising overnight residents

## EDUCATION

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- 2014-current University of Washington Seattle, WA
- Fellowship in Infectious Diseases
  - Clinical fellow 2014-2015
  - Senior fellow/Senior fellow trainee 2015 - present
- 2010-2013 University of Wisconsin Hospitals and Clinics Madison, WI
- Residency, Internal Medicine
  - Board certified in Internal Medicine 2013
- 2006-2010 Marshall University School of Medicine Huntington, WV
- M.D., G.P.A. 3.5
- 2002-2006 Marshall University Huntington, WV
- M.A. Mathematics, G.P.A. 3.9
  - concurrent medical school prereqs.
  - Thesis: *Solving Higher Order Dynamic Equations on Time Scales as First Order Systems*  
<http://mds.marshall.edu/etd/577>
- 1998-2002 Marshall University Huntington, WV
- B.A., Mathematics and Latin, Summa Cum Laude, GPA. 4.0
  - Yeager scholar, senior project, *Dirty Latin Poetry: Martial in Translation*, <http://eduke.org/martial>

## RESEARCH EXPERIENCE

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- 2015-present Intra-host Mathematical Modeling Seattle, WA
- Member of the Schiffer Group at Fred Hutchinson Cancer Research Center
  - Research supported by University of Washington T32 Host Defense Grant
  - Mentor, Joshua T. Schiffer, MD, MS
- 2011-2013 MRSA in multiple body sites in skilled nursing facilities, Univ Wisc Madison, WI
- Analyzed longitudinal data from cohort of nursing home residents to inform screening strategies for MRSA at multiple body sites, oral presentation at state ACP and poster at national ACP
  - Mentor, Christopher Crnich, MD, PhD
- 2010 Microbiology Research: Bacteriophages as therapy for *P. aeruginosa*, Marshall SOM Huntington, WV
- 4 weeks research elective, 2 weeks paid research assistant
  - Project testing the efficacy of bacteriophage against *Pseudomonas aeruginosa* clinical isolates from patients with cystic fibrosis. Learned PCR, Western blot, gel electrophoresis, and Kirby-Bauer testing
  - Mentor, Hongwei D. Yu, PhD

- 2006-2009                      Neurobiology of cockroach locomotion, Marshall SOM                      Huntington, WV
- Research Assistant for NSF grant “Sensory Signals of Load in Freely Walking Animals” at Marshall SOM
  - Analyzed neurobiological data from cockroaches, contributed to writing posters and papers, performed literature searches, developed a mnemonic generator for medical students, <http://musom.marshall.edu/anatomy/grosshom/mnemonic>
  - Mentor, Sasha N. Zill, PhD

#### TEACHING EXPERIENCE

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- 2013                                      Case Conference, small group leader, STDs                                      Madison, WI
- Led discussion group for second year Univ Wisconsin medical students

- 2002–2005                                      Marshall University Mathematics Dept                                      Huntington, WV
- Graduate Teaching Assistant
- Full responsibility for teaching College Algebra for Business Majors, Business Calculus, College Algebra for Science Majors, Trigonometry
  - Faculty advisor and students rated teaching performance “excellent”

- 2002–2003                                      Marshall Univ Classical Studies Dept                                      Huntington, WV
- Part-time Faculty
- Building English Vocabulary from Greek and Latin Elements
  - Designed curriculum for this course, including 2 week emphasis on medical terminology derived from Greek roots

#### PUBLICATIONS

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##### Research Papers

**Duke ER**, Reeves DB, Prlic M, Hladik F, Schiffer JT (2016) *A compound interest approach to HIV cure*. Scientific Reports, *in submission*.

Reeves DB, **Duke ER**, Spivak AM, Schiffer JT (2016) Brief Communications Arising: *HIV persistence during antiviral therapy*. Nature, *in review*.

Zill SN, Keller BR, Chaudry S, **Duke ER**, Neff D, Quinn R, Flannigan C (2010) *Detecting substrate engagement: responses of campaniform sensilla in cockroaches*. J Comp Physiol A Neuroethol Sens Neural Behav Physiol 196:407-420. PMID: 20396892

Zill SN, Keller BR, **Duke ER** (2009) *Sensory signals of unloading in one leg follow stance onset in another leg: Transfer of load and emergent coordination in cockroach walking*. J Neurophysiol 101:2297-2304. PMID: 19261716

Keller BR, **Duke ER**, Amer AS, Zill SN (2007) *Tuning posture to body load: decreases in load produce discrete sensory signals in the legs of freely standing cockroaches*. J Comp Physiol A 93:881-891. PMID: 17541783

**Duke ER** (2006) *Solving Higher Order Dynamic Equations on Time Scales as First Order Systems*. Theses, Dissertations and Capstones. Paper 577. <http://mds.marshall.edu/etd/577>

**Duke ER**, Hall KJ, and Oberste-Vorth RW (2004) *Changing time scales I: The continuous case as a limit*. Proceedings of the Sixth WSEAS Intl Conf on Applied Mathematics (CD-ROM), Poulos, Mastorakis, Mladenov, Gorla.

**Duke ER**, Hall KJ, and Oberste-Vorth RW (2004) *Changing time scales II: Bifurcations in second degree equations*. Proceedings of the Sixth WSEAS Intl Conf on Applied Mathematics (CD-ROM), Poulos, Mastorakis, Mladenov, Gorla.

### Poster Presentations

2016 IDWeek (Joint meetings for IDSA and SHEA) New Orleans, LA

- *Latent Cell Proliferation Sustains the HIV Reservoir on Long-term ART—A Mathematical Modeling Study with Implications for Cure*

2016 Conference for Gene and Cell Therapy for HIV Cure Seattle, WA

- *A Compound Interest Approach to HIV Cure*

2016 Keystone Symposium, HIV persistence Olympic Valley, CA

- Pathogenesis and Eradication Session: *A Compound Interest Approach to HIV Cure*

2013 ACP National Meeting San Francisco, CA

- Clinical research poster session: *Screening for MRSA at Multiple Body Sites in Nursing Home Residents*; also, presented at UW Dept Med Research Day

2007 American Medical Student Assoc. National Meeting Washington, DC

- *A quantitative study of pedagogical approaches to body structure: analysis of CURRMIT data* (also presented at JCESOM Research Day, Apr 2006)

### Oral Presentations

2016 University of Wisconsin and Midwest AIDS Training and Education Center Madison, WI

- Invited presentation A compound interest approach to HIV cure *A compound interest approach to HIV cure*

2015 Frontiers in Gastroenterology and Hepatology, Univ Washington Seattle, WA

- Invited presentation *Listeriosis as a possible complication of Fecal Microbiota Transplant*

2012 Wisconsin State ACP Meeting Wisconsin Dells, WI

- Research presentation *Screening for MRSA at Multiple Body Sites in Nursing Home Residents*

2012 Advances: *How to Wield an MRSA Screening Swab* Madison, WI

- 50 min literature review on a current topic in Internal Medicine

2011 Advances: *Decolonizing carriers of CA-MRSA to reduce Skin and Soft Tissue Infections* Madison, WI

- 50 min literature review on a current topic in Internal Medicine

**Abstracts (National meetings)**

Murphy SC, **Duke ER**, Jensen R, Fong Y, Fritzen E, VonGoedert T, et al. *A proof-of-concept, randomized study in non-immune healthy adult volunteers to investigate the safety, tolerability, pharmacokinetic profile and prophylactic activity of a single dose of DSM265 in a controlled human malarial infection challenge either by direct venous inoculation of Plasmodium falciparum sporozoites of a single episode of bites by mosquitoes carrying P. falciparum.* American Society of Tropical Medicine & Hygiene, Abstract 1534.

**Duke ER**, Reeves DB, Prilic M, Hladik F, Schiffer JT (2016) *A compound interest approach to HIV cure.* Keystone HIV Persistence: Pathogenesis and Eradication (X7), Abstract 4011.

Reeves DB, **Duke ER**, Spivak AM, Schiffer JT (2016) *Latent Cell Proliferation Sustains the HIV Reservoir on Long-term ART—A Mathematical Modeling Study with Implications for Cure.* IDWeek, Abstract 58639.

Keller BR, Neff D, **Duke ER**, and Zill SN (2008) *Force feedback from cockroach campaniform sensilla depends upon receptor location: signals of unloading from tibial receptors can aid in 'emergent' coordination in walking, tarsal receptors encode muscle contractions in substrate grip.* Society for Neuroscience Abstracts 34, program no. 375.26.

Keller BR, Neff D, **Duke ER**, Amer AS and Zill SN (2007) *Detecting load in pedal extremities: structure and responses of sense organs that encode forces in the tarsi of cockroaches.* Society for Neuroscience Abstracts 33, program no. 78.2.

Zill SN, **Duke ER**, Keller BR, Holliday C and Rhoten WC (2007) *Teaching medical gross anatomy with prosections and digital images: advantages and disadvantages.* FASEB Journal 21(6):lb2.

Zill SN, **Duke ER** and Keller BR (2006) *Discrete sensory signals of load decreases in the legs of freely moving cockroaches.* Society for Neuroscience Abstracts 32, program no. 449.9.

**AWARDS RECEIVED**


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2016 University of Washington Office of Post-doctoral Affairs Travel Scholarship

- Travel scholarship based on competitive application

2016 IDSA Travel Award

- Travel support based on acceptance of an abstract for upcoming national meeting (Oct, 2016)

2016 Conference for Gene and Cell Therapy for HIV Cure

- Winner of Poster Competition

2013 University of Wisconsin Internal Medicine Research Day

- Winner of the Research Poster Competition

2012 Wisconsin State ACP Meeting

- Winner of the Research Presentation Competition – paid trip to national mtg

2012 David Sundee Humanism in Medicine Award

- Chosen by resident peers

2011, 2013 Gomeroke – Runner up, Most entertaining/original performance

- Karaoke competition to support Guitars for Veterans at the Vet Center

2006 Marshall University JCESOM 19<sup>th</sup> Annual Research Day

- Anagene B. Heiner Memorial Basic Science Poster Presentation Award

#### LEADERSHIP POSITIONS

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2006-2010 Treasurer of Marshall Univ SOM Class of 2010

- Created class budgets, managed bank account, collected dues, developed an annual March Madness fundraiser

2006-2010 American Medical Student Association (AMSA)

- Vice President of Local Chapter (2007-2008)
- Organized suturing clinics, medical movie nights, clothing sales, and invited speakers; race director 2008, volunteer coordinator 2007, registration coordinator 2006, Jingle Bell 5K Run/Walk and Let's Get Moving! Kids' Mile

#### VOLUNTEER WORK

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- Intern support groups – attended meetings with several intern small groups 2011-2013 as a senior resident liason, Univ Wisc Hosp & Clinics; led a group 2013-14
- Volunteer actress – Professional Consult Simulation for new fellows, 2012, UWHC
- American Red Cross, Whole Blood donation, 2007-2013
- Puget Sound Blood Centers, Whole Blood donation, 2015 - current
- Ebenezer Medical Outreach Center (provides no-cost health care to uninsured in Huntington, WV), participated in weekly project taking patient histories, 2008 with Dr. Steven Petrany, Marshall University Family Practice
- Let's Get Moving! Project, "exercise buddy"
- Global Medical Brigade 5K fundraiser, traffic directing and registration, 2009
- AMSA's Jingle Bell 5K Run/Walk – extensive participation in preparation and race day volunteering, including race director 2006-2010

#### PROFESSIONAL ORGANIZATIONS/COMMITTEES

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- Resident Member of Hand Hygiene Committee, Univ Wisc Hosp Clinics, 2011-2012
- American College of Physicians, 2010-2014
- Infectious Diseases Society of America, 2014 - present

#### PERSONAL INTERESTS

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2003-2010 *Positron*, a rock-and-roll cover band of music of the 1980s

- Lead vocals, guitarist, electric violinist
- Perform songs of the artists Queen, the B-52s, Bruce Springsteen, Pat Benatar, Joan Jett, Aha!, etc.

2003-2010, 2015 - present                      Adult League Soccer

- Goal keeper (in leagues that allowed this position)

Other interests include recycling, bicycling, electric vehicles, biodiesel