CURRICULUM VITAE

Adam Robert Frymoyer, M.D.

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EDUCATION

1995-1999	Pennsylvania State University, University Park, PA	B.S.	Honors, Premedicine
1999-2004	University of Pittsburgh School of Medicine	M.D.	Cum Laude
2004-2007	University of California, San Francisco	Resident	Pediatrics
2007-2010	University of California, San Francisco	Fellow	Clinical Pharmacology
2010-2011	University of California, San Francisco	Post-doc	Pharmacometrics
2011-2012	University of California, San Francisco	Fellow	General Pediatrics

ACADEMIC & HOSPITAL APPOINTMENTS / AFFILIATIONS

2007-08	Pediatric Hospitalist, Kaiser-Permanente Medical Group, Redwood City, CA
2008-12	Clinical Instructor, Department of Pediatrics, Stanford University
2011-12	Clinical Instructor, Division of General Pediatrics, UCSF
2010-	Clinical Pharmacologist, HTN Group, Pediatric Trials Network, NICHD
2012-	Instructor, Department of Pediatrics, Stanford University

LICENSURE & CERTIFICATION

2006	Medical License, California
2007	Board Certification, General Pediatrics
2012	Re-Certification, Neonatal Advanced Life Support
2012	Re-Certification, Basic Life Support

HONORS & AWARDS

1995, 97-98	Howard Hughes Life Science Training Scholarship, Penn State University
1996	The President's Freshman Award, Penn State University
1997-99	Schreyer Honors Scholar, Penn State University
1998	Ruth Duffy Premedical Scholarship, Penn State University
1999, 2000	Ernest McDowell Health Career Scholarship, Pinnacle Health System, Harrisburg, PA
2000	Student Research Scholar, American Pediatric Society & Society for Pediatric Research
2001-02	Doris Duke Clinical Research Fellow, Doris Duke Charitable Foundation
2003	Alpha Omega Alpha Honor Medical Society, Junior Elected
2009	Pediatric Academic Societies 2009 Annual Meeting Fellow Travel Award
2010	Presidential Trainee Award, American Society of Clinical Pharmacology and Therapeutics

KEYWORDS/AREAS OF INTEREST

Clinical pharmacology, pharmacokinetics, pharmacodynamics, drug disposition, modeling and simulation, variability in drug response, clinical trial design, drug development, dose optimization.

PROFESSIONAL ACTIVITIES

Clinical

2007-08 Hospitalist (Moonlighter), The Kaiser-Permanente Medical Group, San Francisco and Redwood City, CA: I provided general pediatric clinical coverage 2 days per month for emergency department pediatric consultations, inpatient pediatric ward, and Level II newborn nursery.

2008-12 Hospitalist (Moonlighter), Packard Intermediate Care Nursery, Stanford University: I provided clinical coverage for the delivery room and Level II Nursery service 1-3 nights per month. I supervised residents and medical students while on their NICU rotation in the delivery room of high-risk deliveries.

2011-12 Attending, Nursery Service at UCSF Children's Hospital: I attended an intern (2), medical student (1) and nurse practitioner (1) based team. I spent 8+ weeks per year on this service.

2012- Attending, Newborn Nursery and Packard Intermediate Care Nursery, Lucile Packard Children's Hospital at Stanford University: I attend on these resident based teams for an equivalent of 8+ weeks/year

Summary of Clinical Activities

I care for well term and late-preterm newborns, as well as those who require increased medical observation or treatment (Level II intensive care). I attend on the Newborn Nursery Service and the Packard Intermediate Care Nursery at the Lucile Packard Children's Hospital at Stanford University where I supervise and teach residents and medical students on these rotations. I also maintain delivery room skills including resuscitation and management of critically ill neonates.

Other Clinical Experiences

2003 Visiting Medical Student, Tuba City Medical Center, Navajo Reservation, AZ
2004 Visiting Medical Student, Queen Elizabeth II Hospital, Maseru, Lesotho
2007 Visiting Resident, Baylor International Pediatric AIDS Initiative, Lilongwe, Malawi

PROFESSIONAL SOCIETIES

Memberships

1999-2004 American Medical Student Association (AMSA)
2004- American Academy of Pediatrics (AAP)
2007- American Society for Clinical Pharmacology and Therapeutics (ASCPT)
2008- American Association of Pharmaceutical Scientists (AAPS)
2011- American Society of Pharmacometrics (ASoP)

Service to Professional Organizations

2003-04 Alpha Omega Alpha, University of Pittsburgh Chapter, Treasurer
2008- ASCPT Pediatric and Maternal Pharmacology Scientific Section, Member

2010 ASCPT Annual Meeting, Abstract Reviewer (pediatric)

Service to Professional Publications

Ad hoc reviewer for *Pediatrics, Journal of the Pediatric Infectious Disease Society, Journal of Cardiovascular Pharmacology, and Journal of Acquired Immune Deficiency Syndromes*

INVITED PRESENTATIONS

National

2012 Pediatric Academic Societies Annual Meeting (symposium presentation)

Regional & Other Invited Presentations

2002 National Meeting Doris Duke Fellowship Program; Washington University, St Louis, MO
2010 Research Seminar, Division of Clinical Pharmacology, Cincinnati Children's Hospital
2010 Pediatric Pharmacogenomic and Personalized Medicine Conference; Children's Mercy Hospitals and Clinics, Kansas City, MO

Local

2002 Doris Duke Fellows Symposium, UCSF
2009 Division of Clinical Pharmacology Research Seminar, UCSF
2009 Division of Pediatric Infectious Diseases Seminar, UCSF
2010 Division of General Pediatrics Translational Research Seminar, UCSF
2010 Intensive Care Nursery Joint Practice Meeting, UCSF
2010 Division of Clinical Pharmacology Research Seminar, UCSF
2011 Division of General Pediatrics Translational Research Seminar, UCSF
2012 Division of General Pediatrics Translational Research Seminar, UCSF

UNIVERSITY AND PUBLIC SERVICE

University Service

1999-01	U. of Pittsburgh Medical Students for Choice	Coordinator
1999-01	U. of Pittsburgh Pediatric Interest Group	Coordinator
1999-01	U. of Pittsburgh School of Medicine Admissions Cmte	Interviewer
2000-01	U. of Pittsburgh Medical Student tutoring program	Tutor
2000-02	U. of Pittsburgh Medical Student advisor program	Advisor
2006-07	UCSF Med. Student Community Medicine Preceptorship	Preceptor
2007-10	San Francisco General Hospital Formulary Review Cmte	Member
2008-12	UCSF Children's Hospital Medication Committee	Member
2008	UCSF Pharmaceutical Sciences Science Day	Volunteer
2011	UCSF Pediatric Residency Selection	Interviewer

Public Service

1999-00	Matilda Theiss children's community center	Mentor/Tutor
1999-00	Operation Safety Net (health care for the homeless)	Volunteer
1999-01	Birmingham Free Clinic (underserved health care clinic)	Volunteer
2003-04	Prevention Point (free needle exchange program)	Volunteer

2006-07	Bay Area Pediatric International Health Interest Group	Member
2006-	Surfrider Foundation San Francisco (ocean preservation)	Member
2006-09	Boys & Girls Club of San Francisco	Volunteer

TEACHING & MENTORING

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Role	Current Position
2008-09	Matthew Browne	UCSF Pharmacy Student	Supervised research project	Clinical Pharmacist, UCSF
2009	Rachel Schwartz	UCSF graduate student	Supervised research project	Medical Student, USC
2010-12	Marc Yago	UCSF graduate student	Supervised research project	PhD Candidate, UCSF

POSTDOCTORAL RESIDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Role	Current Position
2008-09	Zlatan Coralic, PharmD	UCSF Clinical Pharmacy Resident	Research Supervision	Clinical Pharmacist, UCSF
2009-10	Lina Meng, PharmD	UCSF Clinical Pharmacy Resident	Research Supervision	Clinical Pharmacist, Stanford
2010-11	Dominic Bradford, PharmD	UCSF Pediatric Clinical Pharmacy Resident	Research Mentor	Clinical Pharmacist, UMC S. Nevada
2011-12	Shirley Lee, PharmD	UCSF Pediatric Clinical Pharmacy Resident	Research Mentor	Clinical Pharmacist, UCSF
2012-	Colleen Cloyd, PharmD	LPCH Pediatric Clinical Pharmacy Resident	Research Mentor	Clinical Pharmacy Resident, LPCH

INFORMAL TEACHING

2007-12 Didactic seminars, Department of Bioengineering and Pharmaceutical Sciences graduate program (2-4/year, 5-10 graduate students)
2007-12 Didactic seminars, Division of Clinical Pharmacology (2/year, 5-8 post-doctorate fellows)
2011-12 On-service teaching, UCSF Nursery Service (8 weeks/year)
2008- On-service teaching, Stanford University Newborn Nursery and Packard Intermediate Care Nursery and Delivery Room (equivalent to 8 weeks/year)

RESEARCH EXPERIENCES

1997 **Howard Hughes Undergraduate Research Fellow**
Dept. of Biochemistry and Molecular Biology, Pennsylvania State University

1998-99 **Howard Hughes Undergraduate Research Fellow / Senior Thesis**

Dept. of Kinesiology, Pennsylvania State University

2000 **American Pediatric Society Student Research Scholar**
Dept. of Community Pediatrics, University of California, San Diego

2001-02 **Doris Duke Clinical Research Fellow**
Pain Clinical Research Center, University of California San Francisco

2007-10 **Clinical Pharmacology Research Fellow**
Division of Clinical Pharmacology, University of California, San Francisco
Mentors: Leslie Benet, Ph.D. and B. Joseph Guglielmo, Pharm.D

2010-11 **Post-doctoral Research Fellow (Pharmacometrics)**
Dept. of Bioengineering and Therapeutic Sciences, University of California, San Francisco
Mentor: Davide Verotta, Ph.D.

2011-12 **General Pediatrics Fellow**
Division of General Pediatrics, University of California, San Francisco
Mentor: Michael Cabana, MD, MPH

SKILLS & EXPERTISE DEVELOPMENT

2007 Training in Clinical Research Summer Workshop, Dept. Epi. and Biostat, UCSF
2007 Biostatistical Methods for Clinical Research I, Dept. Epi. and Biostat, UCSF
2007-08 Principles of Pharmaceutical Sciences and Pharmacogenomics, Dept. of Biopharmaceutical Sciences, UCSF
2008-09 NIH Principles of Clinical Pharmacology, Office of Clinical Research Training and Medical Education, NIH Clinical Center
2009-12 Tutorials in Population PK/PD & NONMEM, Davide Verrota, PhD, UCSF
2011 MONOLIX 3.2 Hands On Workshop, Marc Lavielle PhD, Bay Area PK/PD Network, South San Francisco, CA
2011 SimCyp Hands On Workshop: 'Model-based drug development: Incorporating population variability into mechanistic prediction of PK and modelling of PK-PD', Simcyp Limited, San Francisco, CA
2012 Child Heath Intensive Course in Clinical Research: Study Design and Performance, Stanford Center for Clinical and Translational Education and Research (Spectrum), Stanford University

PUBLICATIONS

Peer Reviewed Original Research

1. Pazur JH, Perloff MD, **Frymoyer AR**, Jensen CJ, Micolochick H, Mastro A. The isolation and properties of the dimeric subunit of concanavalin A. *J Protein Chem*. 19(5): 353-9, 2000.

2. Pierzga JM, **Frymoyer A**, Kenney WL. Delayed distribution of active vasodilation and altered conductance in aged skin. *J Appl Physiol*. 94: 1045-1053, 2003.

3. **Frymoyer AR**, Rowbotham MC, Petersen KL. Placebo-controlled comparison of a morphine/dextromethorphan combination with morphine on experimental pain and hyperalgesia in healthy volunteers. *J Pain*. 2007;8(1):19-25.

4. **Frymoyer A**, Hersh AL, Benet LZ, Guglielmo BJ. Current recommended dosing of vancomycin for children with invasive methicillin-resistant Staphylococcus aureus infections is inadequate. *Pediatr Infect Dis J*. 2009 May;28(5):398-402. PMCID: PMC3101254.

5. **Frymoyer A**, Hersh AL, Coralic Z, Benet LZ, Joseph Guglielmo B. Prediction of vancomycin pharmacodynamics in children with invasive methicillin-resistant Staphylococcus aureus infections: a Monte Carlo simulation. *Clin Ther*. 2010;32(3):534-42. PMCID: PMC3097025.

6. **Frymoyer A**, Shugarts S, Browne M, Wu AH, Frassetto L, Benet LZ. Effect of single-dose rifampin on the pharmacokinetics of warfarin in healthy volunteers. *Clin Pharmacol Ther*. 2010;88(4):540-7. PMCID: PMC3091944.

7. **Frymoyer A**, Guglielmo BJ, Wilson SD, Scarpace SB, Benet LZ, Hersh AL. Impact of hospital-wide changes in empiric vancomycin dosing and associated therapeutic concentrations. *Pharmacotherapy*. 2011; 31(9):871-6.

8. Dong BJ, Zheng Y, Hughes MD, **Frymoyer A**, Verotta D, Lizak P, Sawe F, Currier JS, Lockman S, Aweeka FT. Nevirapine (NVP) Pharmacokinetics (PK) and Risk of Rash and Hepatitis among HIV-Infected Sub-Saharan African Women. *AIDS*. 2012; 26(7):833-841.

9. Budha NR, **Frymoyer A**, Smelick GS, Jin JY, Yago MA, Dresser MJ, Holden SN, Benet LZ, Ware JA. Drug Absorption Interactions Between Orally Administered Targeted Anti-cancer Agents and Acid-reducing Agents: When is pH-dependent Solubility the Rate-limiting Step of Drug Absorption? *Clin Pharmacol Ther.* 2012;92(2):203-13.

10. **Frymoyer A**, Verotta D, Jacobson PA, Long-Boyle J. Population Pharmacokinetics of Unbound Mycophenolic Acid in Adult Allogeneic Hematopoietic Cell Transplantation: Effect of Pharmacogenetic Factors. *Brit J Clin Pharm*. 2013;75(2):463-75.

11. **Frymoyer A**, Meng L, Bonifacio SL, Verotta D, Guglielmo BJ. Gentamicin Pharmacokinetics and Dosing in Neonates with Hypoxic Ischemic Encephalopathy Receiving Hypothermia. *Pharmacotherapy.* (In Press)

Letters

1. **Frymoyer A**. Comment: Vancomycin Dosing Practices, Trough Concentrations, and Predicted Area Under the Curve in Children With Suspected Invasive Staphylococcal Infections. *J Ped Infect Dis.* (In Press)

Abstracts (Peer-reviewed)

1. Pierzga J, **Frymoyer A**, Dunbar M, and Kenney WL. Age alters the spatial distribution of skin vasodilation during passive heat stress. *Federation of American Societies for Experimental Biology.* Washington, D.C. April 1999.

2. **Frymoyer A**, Bradley B, Lum L, Nader PR, DeGuire M, Sawyer MH. Effects of a standardized immunization curriculum on pediatric and family medicine residents' immunization knowledge and attitudes. *Pediatric Academic Societies' 2001 Annual Meeting*. Baltimore, MD. April 2001.

3. **Frymoyer A**, Hersh AL, Benet LZ, Guglielmo BJ. Current Recommendations for Vancomycin Dosing are Inadequate for Children with Invasive MRSA Infections. *48th Annual ICAAC/IDSA 46th Annual Meeting*. Washington, DC. October 2008.

4. **Frymoyer A**, Hersh AL, Coralic Z, Benet LZ, Guglielmo BJ. Increased Vancomycin Dosing Is Needed for Children with Invasive MRSA Infections. *2009 Pediatric Academic Societies' Annual Meeting*. Baltimore, MD. May 2009.

5. **Frymoyer A**, Shugarts S, Browne M, Wu A, Frassetto L, Benet LZ. Effect of Singe-dose Rifampin on the Pharmacokinetics of Warfarin in Healthy Volunteers. *2010 American Society for Clinical Pharmacology and Therapeutics Annual Meeting*. Atlanta, GA. March 2010.

6. **Frymoyer A**, Hersh AL, Scarpace S, Guglielmo BJ. Hospital-wide change in empiric vancomycin dosing and associated trough concentration. *2010 Pediatric Academic Societies' Annual Meeting*. Vancouver, BC. May 2010.

7. Meng L, **Frymoyer A**, Verotta D, Bonifacio SL, Guglielmo BJ. Gentamicin Clearance is Decreased in Neonates with Hypoxic Ischemic Encephalopathy. *50th Interscience Conference on Antimicrobial Agents and Chemotherapy*. Boston, MA. September 2010.

8. Dong B, Zheng Z, Hughes M, **Frymoyer A**, Verotta D, Lizak P, Sawe P, Currier J, Lockman S, Aweeka. Association Between Nevirapine (NVP) Pharmacokinetics (PK) and Development of Rash and Hepatitis Among HIV-Infected Sub-Saharan African Women in ACTG A5208. *18th Conference on Retroviruses and Opportunistic Infections (CROI 2011)*. Boston, MA. February 2011.

9. Smelick GS, West DA, Chu L, DuVall SL, Holden SN, Benet LZ, **Frymoyer A**, Dresser MJ, Ware JA. Prevalence of Acid-Reducing Agents in Cancer (CA) Populations: An Epidemiological Perspective to Predict Drug-Drug Interaction (DDI) Potential of Orally Administered pH-Dependent Cancer Therapeutics. *2012 American Society for Clinical Pharmacology and Therapeutics Annual Meeting*. Washington, DC. March 2012.

10. **Frymoyer A**, Verotta D, Jacobson PA, Long-Boyle J. A Population Analysis of Unbound Mycophenolic Acid Pharmacokinetics and Pharmacogenetics in Adult Allogeneic Hematopoietic Cell Transplantation. *2012 American Society for Clinical Pharmacology and Therapeutics Annual Meeting*. Washington, DC. March 2012.

11. Yago M, **Frymoyer A**, Smelick G, Frassetto L, Budha N, Dresser M, Ding X, Dean B, Ware J, Benet L. Use of Betaine HCl to Improve Dasatinib Absorption in Healthy Volunteers with Pharmacologically-induced Hypochlorhydria. *American Association of Pharmaceutical Scientist Annual Meeting.* Chicago, IL. October 2012.

12. Yago M, **Frymoyer A**, Smelick G, Frassetto L, Budha N, Dresser M, Ware J, Benet L. Pilot Study Evaluating Gastric Re-acidification using Betaine HCl in Healthy Volunteers with Pharmacologically-induced Hypochlorhydria. *American Association of Pharmaceutical Scientist Annual Meeting.* Chicago, IL. October 2012.

RESEARCH SUPPORT

Current

HSSN275000002I-TO-00007 (PI Benjamin) 7/01/2012 – 08/21/2013 1.375 calendar
NIH/NICHD Role: Co-Investigator
Pediatric Trials Network, subcontract Pediatric Hypertension
The goal of this project is to design and conduct a high quality pediatric PK/PD antihypertensive dose-ranging study that will lead to a CE trial of antihypertensives in children. I help provide pediatric clinical pharmacology expertise throughout the life of the study including PK/PD data analysis.

HSSN275000002I-TO-00002 (PI Benjamin) 7/01/2012 – 06/30/2013 1.2 calendar
NIH/NICHD Role: Co-Investigator
Pediatric Trials Network, subcontract Protocol Development Team
The goal of this project is to design and develop high quality pediatric clinical drug studies that will provide valuable PK/PD information in children in a variety of therapeutic areas. I help provide pediatric clinical pharmacology expertise throughout protocol development including PK/PD modeling and simulation support.