Mutaz M. Jaber

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Personal website:https://mutaz94.github.io
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Research interest - Scientific skills

Pharmacometrics, Clinical pharmacology, Nonlinear mixed-effect approach, Absorption models, computational statistics, estimation algorithms, Circadian rhythm models, Congenital adrenal hyperplasia, Machine learning

Education

Experimental and Clinical Pharmacology, PhD - University of Minnesota 2020-current
Emphasis: Pharmacometrics
Minor: Statistics
Advisor: Richard C. Brundage, PharmD, PhD
Co-advisor: Mahmoud Al-kofahi, DDS, PhD
Overall GPA: 3.95 Thesis: Evaluation of Pharmacostatistical Model Components in a Nonlinear Mixed-effect Approach

Doctor of Pharmacy, PharmD - Jordan University of Science and Technology 2012-2018
Department of Clinical Pharmacy
College of Pharmacy

Research experiance

Graduate research assistant - University of Minnesota 2020 - current
Advisor: Richard C. Brundage, PharmD, PhD
Project(s):

- Methodology research - Uncertainty in NLME approach, Machine learning
- Clinical research - Hydrocortisone Pump for congenital adrenal hyperplasia patients

Postdoctoral Associate - University of Minnesota 2019-2020
Supervisor: Richard C. Brundage, PharmD, PhD
Project(s):

- Hydrocortisone pharmacokinetics/pharmacodynamics
- Mathematical modeling of circadian rhythms
- Tools development: HydroC-Precision
- Absorption models

Postgraduate researcher - Jordan University of Science and Technology 2018 - 2019
Supervisor(s): Mera Ababneh, PharmD, PhD; Sayer AlAzzam, MSc, PharmD
Project(s):

- Antimicrobial stewardship
- Pharmacostatistics models in pharmacoepidemiological research

- Seasonal Influenza vaccination in Jordan

Student research assistant - Jordan University of Science and Technology 2017 - 2018
Project(s):

- Autism, and ADHD pediatric research
- Protien chemical analysis

Pharmacometrics summer training
Pharmacometrics intern - Metrum Research Group June 2022 - Present
Mentor(s): Curtis Johnston, Kyle T. Baron

Pharmacometrics GDD intern - Novartis June 2021 - Aug 2021
Mentor(s): Matthew Fidler
Project: Simulation uncertainty in NLME approach

Clinical experiance

Pharmacy intern - Drug information center (KAUH) May,2018-July,2018

Clinical pharmacy rotation - KAUH Sep, 2017 - May, 2018

Pharmacy intern - KHCC Jan 2017 - Mar 2017

Teaching experince

- Graduate pharmacometrics summer series (2020, 2021): Population approach and NONMEM. Teaching introduction to population pharmacokinetic focusing on nonlinear mixed-effect approach. This course includes both theoretical and hands on session. The main objective of this course is to introduce the concept and teach student using NONMEM.
  No. of students: 15

Programming skills
Python, Julia, R, shell, FORTRAN 90+, C++, HTML5 and TEX/LATEX

Awards

- ACCP/ISoP Student abstract award ACCP annual meeting 2020

Scientific software development

- HydroC-Precision: Integrated hydrocortisone PKPD platform for children with CAH.
- NCA-ADAPT: Open-source program to conduct a pharmacokinetic non-compartmental analysis.
- ABS-NN: Program to classify absorption shapes using neural networks.

Ongoing projects/collaborations
1- Subcutaneous Hydrocortisone Children With Congenital Adrenal Hyperplasia (NCT03718234) (2019-Current)
Role: PhD student: Develop PK/PD models to describe the dynamic of HPA axis (exogenous and endogenous components)
2- Office of Orphan Products Development of the US Food and Drug Administration award number R01FDR0006100. (2019-2020)

Role: Postdoctoral associate: Develop Oral Hydrocortisone PK/PD model
3- Describing methadone pharmacokinetics in opioid dependenent population (2021-current)
Role: Develop PK/PD models
4- Simulating clinical trials with uncertainty - Novartis Pharmacometrics
Role: Investigating the use of different sampling distribution for simulation.

Publications

[1] **Jaber, Mutaz M.**, S. Cheng, and R. C. Brundage. "Evaluation of bias in weighted residual calculations when handling below the limit of quantification data using Beal's M3 method". en. In: (), p. 4.

[2] H. Al-Rayess, O. Y. Addo, E. Palzer, **Jaber, Mutaz M.**, K. Fleissner, J. Hodges, R. Brundage, B. S. Miller, and K. Sarafoglou. "Bone Age Maturation and Growth Outcomes in Young Children with CAH Treated with Hydrocortisone Suspension". In: Journal of the Endocrine Society 6.2 (2022), bvab193.

[3] **Jaber, Mutaz M**, B. Yaman, K. Sarafoglou, and R. C. Brundage. "Application of Deep Neural Networks as a Prescreening Tool to Assign Individualized Absorption Models in Pharmacokinetic Analysis". en. In: (2021), p. 11.

[4] M. Al Kofahi, M. A. Ahmed, **Jaber, Mutaz M.**, T. N. Tran, B. A. Willis, C. L. Zimmerman, M. T. Gonzalez Bolanos, R. C. Brundage, and K. Sarafoglou. "An integrated PK PD model for cortisol and the 17 hydroxyprogesterone and androstenedione biomarkers in children with congenital adrenal hyperplasia". en. In: Br J Clin Pharmacol 87.3 (Mar. 2021), pp. 1098–1110. ISSN: 0306-5251, 1365-2125. DOI: 10.1111/bcp.14470. URL: https://onlinelibrary.wiley.com/doi/10.1111/bcp.14470 (visited on 05/02/2021).

[5] H. Al-Rayess, O. Y. Addo, E. Palzer, **Mutaz Jaber**, K. Fleissner, J. Hodges, R. Brundage, B. S. Miller, and K. Sarafoglou. "Hydrocortisone Suspension Provides Similar Growth Outcomes as Hydrocortisone Tablets in Young Children With Congenital Adrenal Hyperplasia: A Cross Sectional Study". In: Journal of the Endocrine Society 5 (2021).

[6] T. Takahashi, **Jaber, Mutaz M.**, A. R. Smith, P. A. Jacobson, J. Fisher, and M. N. Kirstein. "Predictive Value of C-Reactive Protein and Albumin for Temporal Within-Individual Pharmacokinetic Variability of Voriconazole in Pediatric Hematopoietic Cell Transplant Patients". In: The Journal of Clinical Pharmacology (2021).

[7] T. Takahashi, M. A. Mohamud, A. R. Smith, P. A. Jacobson, **Jaber, Mutaz M.**, A. F. Alharbi, J. Fisher, and M. N. Kirstein. "CYP2C19 Phenotype and Body Weight-Guided Voriconazole Initial Dose in Infants and Children after Hematopoietic Cell Transplantation". en. In: Antimicrob Agents Chemother 65.9 (Aug. 2021). ISSN: 0066-4804, 1098-6596. DOI: 10.1128/AAC.00623-21. URL: https://journals.asm.org/doi/10.1128/AAC.00623-21 (visited on 11/11/2021).

[8] M. Ababneh, **Jaber, Mutaz**, A. Rababa'h, and F. Ababneh. "Seasonal influenza vaccination among older adults in Jordan: prevalence, knowledge, and attitudes". en. In: Human Vaccines & Immunotherapeutics 16.9 (Sept. 2020), pp. 2252–2256. ISSN: 2164-5515, 2164-554X. DOI: 10.1080/21645515.2020.1718438. URL: https://www.tandfonline.com/doi/full/10.1080/21645515.2020.1718438 (visited on 05/02/2021).

[9] M. A. Ababneh, **Jaber, Mutaz**, A. Rababa'h, and E. Alabweny. "Prevalence of antimicrobial use in a tertiary academic hospital: a venue for antimicrobial stewardship programs". en. In: Expert Review of Anti-infective Therapy (Dec. 2020), pp. 1–5. ISSN: 1478-7210, 1744-8336. DOI: 10.1080/14787210.2021.1863789. URL: https://www.tandfonline.com/doi/full/10.1080/14787210.2021.1863789 (visited on 05/02/2021).

[10] **Jaber, Mutaz M.**, M. Al Kofahi, K. Sarafoglou, and R. C. Brundage. "Individualized Absorption Models in Population Pharmacokinetic Analyses". en. In: CPT Pharmacometrics Syst. Pharmacol. 9.6 (June 2020), pp. 307–309. ISSN: 2163-8306, 2163-8306. DOI: 10.1002/psp4.12513. URL: https://onlinelibrary.wiley.com/doi/abs/10.1002/psp4.12513 (visited on 05/02/2021).

[11] M. Al Kofahi, P. Jacobson, D. R. Boulware, A. Matas, R. Kandaswamy, **Jaber, Mutaz M.**, R. Rajasingham, J.-A. H. Young, and M. R. Nicol. "Finding the Dose for Hydroxychloroquine Prophylaxis for COVID 19: The Desperate Search for Effectiveness". en. In: Clin. Pharmacol. Ther. 108.4 (Oct. 2020), pp. 766–769. ISSN: 0009-9236, 1532-6535. DOI: 10.1002/cpt.1874. URL: https://onlinelibrary.wiley.com/doi/10.1002/cpt.1874 (visited on 05/02/2021).

[12] H. Al-Rayess, K. Fleissner, **Jaber, Mutaz**, R. C. Brundage, and K. Sarafoglou. "Manipulation of Hydrocortisone Tablets Leads to Iatrogenic Cushing Syndrome in a 6-Year-Old Girl With CAH". en. In: Journal of the Endocrine Society 4.8 (Aug. 2020), bvaa091. ISSN: 2472-1972. DOI: 10.1210/jendso/bvaa091. URL: https://academic.oup.com/jes/article/doi/10.1210/jendso/bvaa091/5867523 (visited on 05/02/2021).

[13] K. Sarafoglou, J**aber, Mutaz M**, M. Al-Kofahi, and R. C. Brundage. "Hydrocortisone suspension formulations are not necessarily the same in the treatment of children with congenital adrenal hyperplasia". en. In: European Journal of Endocrinology 183.6 (Dec. 2020), pp. L27–L28. ISSN: 0804-4643, 1479-683X. DOI: 10.1530/EJE-20-0938. URL: https://eje.bioscientifica.com/view/journals/eje/183/6/EJE-20-0938.xml (visited on 05/02/2021).

In preparation/In Press

[14] B. EM, M. BS, A. OY, and J. M. M. S. K. "Sex Non-Specific Growth Charts and the Potential Clinical Implications in the Care of Transgender Youth". In: **Target**: JAMA pediatrics (2022).

[15] **Jaber, MM**, T. Takahashi, M. Kirsten, P. Jacobson, and R. Brundage. "Population Pharmacokinetic Analysis of Phosphoramide Mustard Following Cyclophosphamide Administration in Hematopoietic Cell Transplant Conditioning Therapy". In: **Target**: Clinical pharmacokinetics (2022).

[16] **Jaber, Mutaz M.** and R. C. Brundage. "Estimation of the recorded sampling time measurement variability in a nonlinear mixed-effect approach". In: **Target**: Journal of Pharmacokinetics and Pharmacodynamic (2022).

[17] **Jaber, Mutaz M.** and R. C. Brundage. "Investigating the contribution of residual unexplained variability components in a nonlinear-mixed effect approach". In: **Target**: Journal of Pharmacokinetics and Pharmacodynamic (2022).

[18] **Jaber, Mutaz M.**, R. C. Brundage, and B. G. "Pharmacokinetic Analysis of Buprenorphine in Opioid-dependent Vietnamese in a Methadone Treatment Program". In: **Target**: Clinical pharmacokinetics (2022).

[19] **Jaber, Mutaz M.**, R. C. Brundage, and B. G. "Simultanous Analysis of S-/R-Methadone and their unbound concentration in Opioid-dependent Treatment Program". In: **Target**: Journal of Clinical Pharmacology (2022).

[20] T. Takahashi, **Jaber, MM**, P. Jacobson, R. Brundage, and M. Kirsten. "Comparison of Dose Adjustment Strategies for Obesity in High-dose Cyclophosphamide Among Adult Hematopoietic Cell Transplantation Recipients". In: **Target**: Blood advances (2022).

Posters & abstracts

[21] **Jaber, Mutaz M.**, G. Bart, M. Al-Kofahi, and R. C. Brundage. "Simultaneous exposure analysis of total and unbound R-and S-methadone concentrations". In: Minnesota Supercomputing Research Exhibition 2022 (2022). DOI: 10.13140/RG.2.2.21563.08489.

[22] S. Cheng, **Jaber, Mutaz M.**, D. R. Flora, T. S. Tracy, A. Rettie, and R. C. Brundage. "Model-based analysis of the CYP2C9 genotype impact on the fluconazole inhibition of the commonly prescribed drugs flurbiprofen, ketoprofen, and tolbutamide". In: 2021 Annual American College of Clinical Pharmacology meeting (2021).

[23] **Jaber, Mutaz M.** and R. C. Brundage. "Investigating Components of Residual Unexplained Variability in Nonlinear Mixed-Effect Modeling". In: Population Approach Group Europe (2021). DOI: 10.13140/RG.2.2.26809.49765.

[24] **Jaber, Mutaz M.**, T. Takahashi, M. N. Kirstein, P. Jacobson, and R. C. Brundage. "Population Pharmacokinetic Analysis of Phosphoramide Mustard Following Cyclophosphamide Administration in Hematopoietic Cell Transplant Conditioning Therapy". In: 2021 Annual American College of Clinical Pharmacology meeting (2021). DOI: 10.13140/RG.2.2.23454.05445.

[25] **Jaber, Mutaz M.**, K. Sarafoglou, M. Al-Kofahi, and R. C. Brundage. "Application of a Deep Learning Algorithm as a Prescreening Tool to Assign Individualized Absorption Models in a Population Pharmacokinetic Analysis". In: 11th American conference on Pharmacometrics (2020).

[26] **Jaber, Mutaz M.**, K. Sarafoglou, M. Al-Kofahi, and R. C. Brundage. "HydroC-Precision: An Integrated Hydrocortisone Dosing and Biomarker Platform for Treating Children with Congenital Adrenal Hyperplasia". In: 2020 Annual American College of Clinical Pharmacology meeting (2020). DOI: 10.1002/cpdd.858.

Presentations & talks

- Reference Growth Charts in Children with Congenital Adrenal Hyperplasia ESPE 2022
- Case Series: Anastrozole Monotherapy for Non-Classic Congenital Adrenal Hyperplasia ESPE 2022
- Investigating the Contribution of Residual Unexplained Variability Components in a NLME approach PAGE 2021 & ECP 2021
- Simulation with Uncertainty in NLME approach Novartis 2021
- Application of Deep Learning in Pharmacokinetic Analysis ECP 2020
- HydroC-Precision: An Integrated Hydrocortisone Dosing and Biomarker Platform for Treating Children with Congenital Adrenal Hyperplasia ACCP 2020

Professional service

- Minnesota Pharmacometrics Summer School 2020: Planning Committee Member
- International Society of Pharmacometrics: Student Committee Member
- Doctor of Pharmacy Toward Optimum Patient Care Campaign
- Cooperative Group of Medical Profession (CGMP)
- Jordan University of Science and Technology Student Union 2015-2016: Class representative to 12 batch

Professional society

- American Society of Clinical Pharmacology
- International Society of Pharmacometrics
- Society for Industrial and Applied Mathematics
- American Statistical Association - Pharmacometrics