

**Arun Kumar, PharmD, MS, Ph.D. (C)**  
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[Google Scholar Citations](#)

### SUMMARY OF QUALIFICATIONS

Results-oriented outcomes researcher with over five years of experience conducting studies in health economics and outcomes research and pharmacoepidemiology discipline. Expert in synthesizing evidence using real-world data, administrative claims data, systematic reviews, and meta-analysis. Track record of managing all aspects of research conduct including generating research ideas, identifying research gaps and potential data sources, developing study designs, executing analyses, and drafting abstracts & manuscripts. Strong academic record with excellent writing skills and proven peer-reviewed publication record. Proficient in analyzing data using software packages including SAS, STATA, SPSS, TreeAge, Covidence for systematic reviews, and RevMan for meta-analysis.

### CORE COMPETENCIES AND SKILLS

● Health Economics and Outcomes Research (HEOR) ● Pharmacoepidemiology ● Pharmacoeconomics ● Health Services Research ● Systematic Review and Meta-analysis ● Value Proposition and Economic Modeling ● Healthcare Data Analysis ● Claims Data Analysis ● Evidence-Based Medicine ● Drug Utilization Evaluation ● Statistical Inference ● Pharmaceutical Marketing ● Consumer Behavior ● Clinical Pharmacy ● Pharmacotherapeutics.

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### EMPLOYMENT HISTORY

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**Research Assistant, Social and Administrative Pharmacy Program** 2017–Present  
College of Pharmacy, University of Minnesota

- Conducted data analyses using various databases such as Medical Expenditure Panel Survey (MEPS), Integrated Public Use Microdata Series (IPUMS), Behavior Risk Factor Surveillance System (BRFSS), and IMB MarketScan.
- Well trained in multiple analytics software packages such as SAS, STATA, TreeAge, and RevMan.
- Managed all aspects of research studies by generating research ideas, identifying potential data sources, developing study plans, executing analyses, and drafting abstracts and manuscripts.

**Research Assistant at Institute for Social Research and Data Innovation** 01/2020- 05/2020  
Minnesota Population Center, University of Minnesota

- Conduct validation studies to compare healthcare utilization, expenditure, accessibility, and quality of care estimates of the MEPS database with IPUMS database estimates.

**Teaching Assistant, Social and Administrative Pharmacy Program** 2017-2019  
College of Pharmacy, University of Minnesota

**Teaching Assistant, College of Pharmacy and Health Sciences** 2015-2017  
St. John's University, Queens, NY

**Assistant/Associate Professor** 2013–2019  
ISF College of Pharmacy, Moga, Punjab, India

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### EDUCATION

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**Ph.D. Social and Administrative Pharmacy (Pharmacoepidemiology and Pharmacoeconomics)** Expected 2021  
College of Pharmacy, University of Minnesota (GPA: 3.85) Minneapolis, MN

**MS Pharmacy Administration with Pharmacoepidemiology Emphasis** 2017  
College of Pharmacy and Health Sciences, St. John's University (GPA: 3.85) Queens, NY

**PharmD (Gold Medalist)** 2012  
School of Pharmaceutical Sciences, VELS University Chennai, India

**Bachelor of Pharmacy** 2008  
Kurukshetra University Haryana, India

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## RESEARCH EXPERIENCE IN PHARMACOEPIDEMIOLOGY

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**Project:** *Fondaparinux Sodium Compared with Low-Molecular-Weight Heparins for Perioperative Surgical Thromboprophylaxis: A Systematic Review and Meta-analysis (Master's thesis work)*

- Conducted a systematic review and meta-analysis to compare safety and efficacy of fondaparinux sodium and low molecular weight heparins (LMWH) for thromboprophylaxis among patients at risk of venous thromboembolism as per Virchow's Triad.
- Used preferred reporting items for systematic reviews and meta-analyses (PRISMA) and Cochrane collaboration guidelines.
- Awarded *Best Student Poster Research Presentation Award* at International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 22nd Annual International Meeting.

**Project:** *Safety and Effectiveness of antiplatelet drugs in Acute Coronary Syndrome Patients (Doctoral dissertation work)*

- Conduct a longitudinal study to assess the safety and effectiveness of antiplatelet drugs (P2Y12 inhibitors) among patients suffering from acute coronary syndrome using the Truven MarketScan® database.
- Determine current gaps in prescribing and prescription patterns of antiplatelet drugs in acute coronary syndrome patients in the US.
- Compare newer P2Y12 inhibitors in two clinically different populations. Includes important clinical and policy implications for effective and safe use of these new drugs in a real-world scenario.

**Project:** *Factor Xa Inhibitors Compared to Low Molecular Weight Heparins (LMWH) in Major Orthopedic Surgeries: A Systematic Review and Meta-Analysis.*

- This study systematically compares the safety and efficacy/effectiveness of injectable factor Xa inhibitor with LMWH in RCTs and observational studies.

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## RESEARCH EXPERIENCE IN HEALTH ECONOMIC AND OUTCOMES RESEARCH

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**Project:** *Health-Related Quality of Life (HRQoL) of Stroke Survivors Compared to Non-Stroke Individuals among African Americans in the United States: A Nationally Representative Propensity Score Matched Analysis*

- Assessed HRQoL of African-American stroke survivors by conducting a matched case-controlled study using BRFSS complex survey data using a nationally representative propensity score-matched approach.
- Revealed that African-American stroke survivors had lower HRQoL for perceived general health, physical health, and daily activity domains compared to their matched controls.
- Recognized by the health outcomes research community with *Best Student Research Poster Presentation Award* at the 24th ISPOR Annual International Meeting.

**Project:** *Cost-effectiveness of Edoxaban Compared with Low Molecular Weight Heparin/Vitamin K Antagonist for the Treatment of Venous Thromboembolism (VTE)*

- Developed a Markov state-transition model to evaluate the cost and quality-adjusted life years (QALY) for treatment of VTE with Edoxaban and LMWH/VKA.
- Provided evidence for decision-makers that Edoxaban was found to be cost-effective compared with LMWH/VKA at an incremental cost-effectiveness ratio (ICER) of \$25,213 per QALY gained, well below the high economic value threshold of \$50,000 per QALY gained.

**Project:** *Cost-effectiveness of Apixaban Compared to Conventional Therapy for Stroke Prophylaxis among Renal Impaired Patients with Atrial Fibrillation from Perspective of US Third-Party Payer*

- Developed a decision-analytic model to compare Apixaban 2.5mg/5.0 mg twice daily with dose-adjusted Warfarin
- Revealed that anticoagulation with Apixaban is a cost-effective therapy as compared to dose-adjusted warfarin for stroke prophylaxis among renal impaired patients.

**Project:** *Cost-effectiveness Analysis of Dilaglutide Compared with Insulin Glargine Add On to Insulin Lispro In Treatment of Type 2 Diabetes: A US Third-Party Payer Perspective*

- Developed a decision analytical model to compare the cost-effectiveness of dulaglutide 0.75 mg and 1.5 mg once weekly with bedtime insulin glargine, an add-on to prandial insulin lispro for diabetes control of patients who are candidates for a basal-bolus insulin regimen.
- Found that treatment with dulaglutide weekly, instead of basal insulin injection once daily, in combination with prandial insulin is a cost-effective approach, and dulaglutide 1.5 mg is considered a dominant option compared with dulaglutide 0.75 mg.

**Project:** *Cost-effectiveness of Ibrutinib and Rituximab for the Relapsed or Refractory Chronic Lymphocytic Leukemia (CLL) in China*

- Collaborated with a visiting scholar from China Pharmaceutical University, Nanjing to develop a decision tree analysis to determine the cost-effectiveness of Ibrutinib and Rituximab from a Chinese payer perspective.

**Project:** *Association between Perceived Risk and Willingness to Pay Thresholds among Interventions for Common Diseases*

- Conducted a systematic literature review on *willingness to pay* thresholds and evaluated their association with perceived risk for most common diseases from the healthcare researchers' perspective.

**Project:** *Patient-centered Medical Homes (PCMH) and Preventive Service Use*

- Collaborated with a multi-disciplinary team of researchers from the University of Minnesota and University of North Carolina to construct general and disease-specific preventive service indicators using the 2015 MEPS database
- Added to the literature that improving access to a usual source of care may be as important as the application of PCMH principles to a usual source of care practice.

**Project:** Cost-effectiveness analysis of pharmacogenomic guided opioid analgesia with non- pharmacogenomic guided analgesia in post-operative pain.

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## TEACHING EXPERIENCE

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### Teaching Assistant, PHAR 6786: Acute Patient Care Pharmacotherapy

Spring 2020

College of Pharmacy, University of Minnesota

*Course Objectives:* To provide teaching and learning through case examples of patient scenarios related to acute care disease states/conditions and the pharmacotherapeutic management of those disease states/conditions. To approach patients with multiple medical problems and gain experience with the dynamic changes that patients may experience in association with being acutely ill.

*Responsibilities:* Conduct team-based learning sessions, prepare materials for the sessions, design keys for different clinical case scenarios/questions, grade assignments, exams, and group exercises, proctor, and address students' needs to prepare them for their rotations.

### Guest Lecturer, SAPH 8610: Pharmacoepidemiology

Fall 2019

College of Pharmacy, University of Minnesota

*Topic:* Approach to Conduct Systematic Reviews and Meta-Analyses

### Teaching Assistant, Patient Care & Non-Patient Care Electives

2017–2019

College of Pharmacy, University of Minnesota

*Course Objectives:* To develop students' professional judgment and competencies to skillfully perform the functions and meet the responsibilities of a pharmacist in a wide range of practice environments.

*Responsibilities:* Assess students' responsibilities while on rotation to determine if they meet the required expectations at their respected practice site.

### Teaching Assistant, multiple courses in PharmD curriculum

2015–2017

College of Pharmacy and Health Sciences, St. John's University, Queens, NY

*Responsibilities:* Facilitate team-based learning sessions, lecture, proctor, grade students' exams for various patient care and non-patient care courses, and meet with students in-person to address their needs and ensure successful learning.

**Assistant/Associate Professor**

2013–2019

ISF College of Pharmacy, Moga, Punjab, India (On study leave post-2015)

At ISF college of Pharmacy, my responsibilities included teaching fourth and fifth-year PharmD students. I managed all aspects including teaching, grading, and monitoring the students in the following courses:

**I. Pharmacoepidemiology and Pharmacoeconomics**

The focus of this coursework is to give students a comprehensive understanding of basic principles of pharmacoepidemiology and pharmacoeconomics to research this discipline.

Different epidemiologic research methodology such as cross-sectional studies, cohort studies, case-control studies, and systematic reviews, and meta-analyses were taught to expose PharmD students to the methodology used to conduct comparative effectiveness research. Students were also taught the applications of pharmacoeconomics principles including cost-minimization, cost-benefit, cost-effectiveness, and cost-utility studies for better formulary decision making.

**II. Biostatistics and research methodology**

This coursework is designed to equip PharmD students with the necessary statistical knowledge for their research projects. Basic concepts of statistical inference including but not limited to descriptive statistics, random variables and their distributions, point/interval estimation for means and odds/risk, hypothesis testing, ANOVA, simple regression/correlation, multiple regression were covered in this course. A broad range of methods, with a focus on their practical use and interpretation in clinical trials and observational studies, were also discussed. Other statistical concepts used in comparative effectiveness research such as sample size determination, power of a study, determination of sample size for simple comparative experiments, determination of sample size to obtain a confidence interval of specified width were covered in this coursework.

**III. Clinical Pharmacy**

This course is designed for PharmD students to introduce them to the daily activities of clinical pharmacists to enhance the safe use of medications and better patient care in a healthcare setting. Various clinical pharmacy activities including drug therapy monitoring, medication chart review, clinical review, pharmacist interventions, ward round participation, adverse drug reaction management, drug information, medication history, patient counseling, drug utilization evaluation (DUE) and review (DUR), and other clinical pharmacy services were covered in this coursework.

**Clinical Pharmacy intern, Lifeline Hospitals, Chennai, India**

2011-2012

Taught paramedical staff about medication errors, adverse drug reactions, and various drug-related problems for better patient care.

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**PEER REVIEWED PUBLICATIONS**

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1. Farley JF, **Kumar A**, Urick BY. Measuring Adherence: A Proof of Concept Study for Multiple Medications for Chronic Conditions in Alternative Payment Models. *Pharmacy*. 2019 Sep; 7(3):81.
2. **Kumar A**, Talwar A, Farley JF, Muzumdar J, Schommer JC, Balkrishnan R, Wu W. Fondaparinux Sodium Compared with Low-Molecular-Weight Heparins for Perioperative Surgical Thromboprophylaxis: A Systematic Review and Meta-analysis. *Journal of the American Heart Association*. 2019 May 21;8(10):e012184.
3. Farley JF, **Kumar A**, Urick BY, Domino ME. Patient-Centered Medical Homes and Preventive Service Use. *American Journal of Managed Care*. 2019;25(5):e153-e159.
4. Devi BR, Syed-Abdul S, **Kumar A**, Iqbal U, Nguyen PA, Li YC, Jian WS. mHealth: An Updated Systematic Review with a Focus on HIV/AIDS and Tuberculosis Long Term Management Using Mobile Phones. *Computer Methods and Programs in Biomedicine*. 2015 Nov 1;122(2):257-65.

5. Lin HW, Tsai HH, Yu IW, **Kumar A**, Wu MP. Would It Matter to Expose Elderly Patients Who Took Digoxin to Chinese Medications? *Value in Health Regional Issues*. 2014 May 1;3: 211-21.
6. Praveen KG, **Kumar A**. Drug Utilization and Evaluation of HMG-Co-A Reductase Inhibitors in Tertiary Care Teaching Hospital. *Indian Journal of Pharmacy Practice*. 2013; 6(4).
7. Sathish R, Anbu J, Murgesan M, Ashwini A, **Kumar, A**. Toxicity Study on Siddha Formulation Mega Sanjeevi Mathirai in Albino Rats. *Int J Pharm Bio Sci*. 3(3), pp.121-30.

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#### PEER REVIEWED ABSTRACTS FROM SCIENTIFIC PRESENTATIONS

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1. **Kumar, A.**, Lutsey, P. L., Peter, W. S., Schommer, J. C., & Farley, J. F. (2021). PCV53 Trends in Prescription of P2Y12 Inhibitors Following Revascularization in Coronary Heart Disease. *Value in Health, 24*, S76-S77.
2. **Kumar, A.**, Berg, H., Rivers, Z., Mandic, P. K., Yang, J., & Farley, J. F. (2021). PNS15 Cost-Effectiveness Analysis of Pharmacogenetic Testing in Opioid Analgesia in Pediatric Population Undergoing Surgery. *Value in Health, 24*, S175.
3. **Kumar A**, Wu W. PCV102 Health-Related Quality of Life of Stroke Survivors Compared to Non-Stroke Individuals among African Americans in the United States: A Nationally Representative Propensity Score Matched Analysis. ISPOR 24<sup>th</sup> Annual International Meeting. May 18-22, 2019.
4. Li W, **Kumar A**, Muzumdar J, Wu W. PMU79 Association between Perceived Risk and Willingness to Pay Thresholds among Interventions for Common Diseases. ISPOR 24<sup>th</sup> Annual International Meeting. May 18-22, 2019.
5. **Kumar A**, Urick B, Domino ME, Farley JF. A Nationally Representative Examination of Preventative Service Use across Patient-Centered Medical Home Status among the Patients with Mental Illness. American Pharmacist Association Annual Meeting. Seattle, WA. March 22-25, 2019.
6. Farley JF, **Kumar A**, Urick B, Domino ME. Medical Home Enrollment and Quality of Care: Population Estimates from the U.S. Medical Expenditure Panel Survey. International Conference on Pharmacoepidemiology and Therapeutic Risk Management. Prague, Czech Republic. August 22-26, 2018.
7. **Kumar A**, Talwar A, Wu W, Farley JF. Fondaparinux Sodium Compared with Low Molecular Weight Heparins for Thromboprophylaxis among the Patients with Orthopedic Immobility: A Systematic Review and Meta-Analysis. American Pharmacist Association Annual Meeting. Nashville, TN. March 16-19, 2018.
8. **Kumar A**, Talwar A, Wu W. Fondaparinux Sodium Compared with Low Molecular Weight Heparins for Thromboprophylaxis among the Patients at Risk as per Virchow's Triad: A Systematic Review and Meta-analysis. ISPOR 22<sup>nd</sup> Annual International Meeting. Boston, MA. May 20-24, 2017.
9. **Kumar A**, Nili M, Wu W. Cost-Effectiveness of Apixaban Compared to Conventional Therapy for Stroke Prophylaxis among Renal Impaired Patients with Atrial Fibrillation from Perspective of US Third Party Payer. ISPOR 21<sup>st</sup> Annual International Meeting. Washington, DC. May 21-25, 2016.
10. Nili M, **Kumar A**, Wu W. Cost-effectiveness Analysis of Dilaglutide Compared with Insulin Glargine Add On to Insulin Lispro in Treatment of Type 2 Diabetes: A US third Party Payer Perspective. ISPOR 21<sup>st</sup> Annual International Meeting. Washington, DC. May 20-24, 2016.
11. **Kumar A**. Controversy in Using Proton Pumps Inhibitors with Clopidogrel in Myocardial Infarction Patients. Indian Pharmaceutical Congress Annual Conference. Manipal University, Udipi (Karnataka) on December 17-19, 2010.

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#### PROFESSIONAL SERVICES

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##### President

2019–Present

University of Minnesota ISPOR Student Chapter

- Engaged graduate students in SAPH program with ISPOR student network activities.
- Provided graduate students with all student networking resources for their professional development.
- Arranged guest lecturers and facilitated intellectual discussion in SAPH graduate-level seminars to advance student learning.

- Collaborated with different student bodies and chapters at the University of Minnesota to arrange lectures/sessions on various topics to help students professionally and intellectually.

**Vice President**

2018–2019

University of Minnesota ISPOR Student Chapter

- Represented the SAPH program at the MinneMUDAC Data Analysis Competition hosted by Optum and helped students apply their analytical skills to real-world healthcare-related data.
- Helped in the successful conduct of all the events at SAPH graduate program to help graduate students gain knowledge in various disciplines.

**College Representative**

2018–Present

Council of Graduate Students (COGS), University of Minnesota

- Represented the SAPH graduate program at COGS meetings.
- Cast votes for several student body elections, such as president and vice-president of COGS on behalf of SAPH graduate students.
- Contributed to several discussions at COGS on topics that matter to graduate students such as “Right to Proper Offer Letters,” “Sexual Misconduct Policies,” and “Mental Illness Awareness” realizing the value of our SAPH student voices and rights.

**HONORS AND AWARDS**

**Best Student Poster Research Presentation Award, ISPOR 2021**

05/2021

International Society of Pharmacoeconomics and Outcomes Research (ISPOR) Annual International Meeting 2021

Virtual

**St. Peter and Leiner Family Outcomes Research Fellowship**

09/2019

College of Pharmacy, University of Minnesota

Minneapolis, MN

- Awarded to students who show exceptional research skills in outcomes research discipline in the Social and Administrative Pharmacy (SAPH) graduate program at the University of Minnesota.

**Best Student Poster Research Presentation Award, ISPOR 2019**

05/2019

International Society of Pharmacoeconomics and Outcomes Research (ISPOR) Annual International Meeting 2019

New Orleans, LA

**ISPOR Travel Grant**

05/2019

ISPOR 24th Annual International Meeting

New Orleans, LA

**Best Student Poster Research Presentation Award, ISPOR 2017**

05/2017

International Society of Pharmacoeconomics and Outcomes Research (ISPOR) Annual International Meeting 2017

Boston, MA

**Taiwan Scholarship for Ph.D. Degree from Academic Years 2015 to 2019**

08/2014

Taipei Economic and Cultural Center in India, Ministry of Education, Taiwan

- Awarded to only 3-4 students across India each year for their doctoral studies in Taiwan (not accepted).

**PROFESSIONAL MEMBERSHIPS**

International Society of Pharmacoeconomics and Outcomes Research (ISPOR)

2015–Present

American Heart Association (AHA)

2019–2020