

Curriculum Vitae and Bibliography

Matthew Alexander Rank, MD

1. Personal Information

2. Present Academic Rank and Position

Consultant - Division of Allergy, Asthma, and Clinical Immunology, Department of Internal Medicine, Mayo Clinic, Scottsdale, Arizona	07/2012 - Present
Staff member and co-director, Severe Asthma Clinic - Phoenix Children's Hospital, Phoenix, Arizona Along with the pediatric pulmonology division at PCH, I co-direct this clinic that is designed for children with severe asthma	01/2013 - Present
Teaching/Examining Privileges in Clinical & Translational Science - Mayo Clinic Graduate School of Biomedical Sciences, Mayo Clinic College of Medicine and Science	10/2013 - Present
Consultant (Joint Appointment) - Department of Otolaryngology Head & Neck Surgery/Audiology, Mayo Clinic, Phoenix, Arizona	12/2014 - Present
Chair - Division of Allergy, Asthma, and Clinical Immunology, Department of Internal Medicine, Mayo Clinic, Scottsdale, Arizona	12/2016 - Present
Professor of Medicine - Mayo Clinic College of Medicine and Science	10/2020 - Present

3. Education

University of Wisconsin, Madison, Madison, Wisconsin - BS, Genetics and History	1994 - 1998
University of Wisconsin School of Medicine, Madison, Wisconsin - MD	1998 - 2002
Ohio State University, Columbus, Ohio - Resident, Internal Medicine/Pediatrics	2002 - 2006
Mayo School of Graduate Medical Education, Mayo Clinic College of Medicine, Rochester, Minnesota - Fellow, Allergy/Immunology	2006 - 2008
Allergy and Immunology, Programs in Rochester, Mayo School of Graduate Medical Education, Mayo Clinic College of Medicine, Rochester, Minnesota - Resident	07/2006 - 06/2008

4. Certification

Board Certifications

American Board of Allergy and Immunology (ABAI)

Allergy and Immunology	2008 - Present
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American Board of Internal Medicine (ABIM)

Internal Medicine	2006 - Present
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American Board of Pediatrics

Pediatrics	2006 - Present
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Other Certifications

Mayo Clinic Quality Academy

Mayo Clinic Quality Fellow: Bronze Level Certification	2009
Mayo Clinic Quality Fellow: Silver Level Certification	2011

5. Licensure

Minnesota	49088 (Medical)	2006 - 2014
Arizona	45678 (Medical)	2012 - Present

6. Honors and Awards

Medical Student Association Leadership Award-MEDIC Council - University of Wisconsin School of Medicine	01/2000
Resident Teaching Award - Columbus (Nationwide) Children's Hospital	06/2006
Clemens von Pirquet Abstract Award, 2nd place - American College of Allergy, Asthma & Immunology	01/2007
Clemens von Pirquet Award, Mentor - American College of Allergy, Asthma & Immunology	01/2009
Department of Medicine 2009 Laureate Award - Mayo Clinic Rochester Department of Medicine, Mayo Clinic	11/2009
Teacher of the Year, Allergic Diseases - Mayo Fellows Association, Mayo School of Graduate Medical Education, Mayo Clinic College of Medicine, Rochester, Minnesota	05/2010
Young Scholars' Research Award - Foundation of the American College of Allergy, Asthma, and Immunology	11/2010 - 10/2011
Health Care Delivery Scholar-Robert D. and Patricia E. Kern Center for the Science of Healthcare Delivery, Mayo Clinic - Mayo Clinic Healthcare Delivery Research Program	07/2012 - 06/2014
Edward J. O'Connell Memorial Lectureship - American College of Allergy, Asthma, and Immunology	11/2019
Distinguished Clinician Award - Mayo Clinic	11/2022
Department of Medicine Teaching Award - Mayo Clinic Arizona	05/2024

7. Previous Professional Positions and Major Appointments

Instructor of Medicine - Mayo Clinic College of Medicine and Science	06/2008 - 04/2010
Senior Associate Consultant - Division of Allergic Diseases, Department of Internal Medicine, Mayo Clinic, Rochester, Minnesota	06/2008 - 06/2011
Assistant Professor of Medicine - Mayo Clinic College of Medicine and Science	05/2010 - 08/2015
Consultant - Division of Allergic Diseases, Department of Internal Medicine, Mayo Clinic, Rochester, Minnesota	06/2011 - 07/2012
Co-director, Multidisciplinary Clinic for Challenging Sinus Disease - Department of Otolaryngology and Medicine, Phoenix, Arizona Co-direct a specialty clinic with Dr. Devyani Lal of ENT focused on providing care with complex sinus disease	07/2012 - 07/2019
Associate Program Director, Research Scholars Program - Mayo Clinic Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery, Rochester, Minnesota	07/2014 - 06/2015
Program Director - Mayo Clinic Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery, Rochester, Minnesota Research Scholars Program	07/2015 - 06/2021
Associate Professor of Medicine - Mayo Clinic College of Medicine and Science	09/2015 - 09/2020
Associate Program Director - Allergy-Immunology Fellowship Training Program, Mayo Clinic, Phoenix, Arizona	07/2016 - 06/2022
Chair - Allergy Immunology Special Council, Mayo Clinic Enterprise	01/2021 - 10/2024
Interim Chair - Division of Rheumatology, Department of Internal Medicine, Mayo Clinic, Phoenix, Arizona	03/2021 - 07/2022
Program Director - Allergy-Immunology Fellowship Training Program, Mayo Clinic, Phoenix, Arizona	07/2022 - 07/2024

8. Service

Military**Community Memberships and Services**

Arizona Asthma Coalition		
Volunteer		2016 - Present
St. Vincent de Paul Clinic		
Volunteer Physician		07/2022 - Present
US Food and Drug Administration		
Pulmonary-Allergy Advisory Committee		
Member		10/2023 - Present

9. Professional Memberships and Societies**Professional Memberships and Services**

AcademyHealth		
Member		01/2012 - 01/2014
American Academy of Allergy, Asthma and Immunology		
Member		03/2007 - Present
Fellow		03/2011 - Present
Annual Meeting Program Subcommittee		
Member		11/2014 - 11/2020
Health Care Delivery and Quality Planning Committee		
Member		07/2012 - Present
Secretary/Treasurer		11/2014 - 03/2017
Vice Chair		03/2017 - 03/2019
Chair		03/2019 - 03/2021
Immunotherapy Committee		
Member		01/2008 - 11/2014
Rhinitis, Rhinosinusitis, and Ocular Allergy Committee		
Member		01/2010 - 11/2014
Interest Section Coordinating Committee		
Member		11/2014 - 11/2019
Joint Task Force for Practice Parameters		
Member		10/2016 - Present
Co-Chair		07/2024 - Present
Needs assessment and outcomes subcommittee		
Member		11/2014 - 03/2016
Quality Measures Stewardship Committee		
Chair		03/2023 - Present
American College of Allergy, Asthma & Immunology		
Member		01/2006 - Present
Fellow		06/2019 - Present
American Thoracic Society		
Member		01/2008 - 01/2012
Food Allergy and Anaphylaxis Network		
Member		01/2008 - 01/2012

Journal Editorial Responsibilities

American Journal of Rhinology & Allergy		
Editorial Board Member		07/2015 - 07/2017

Journal of Allergy and Clinical Immunology: In Practice

Board Member 07/2014 - Present

June 2022 Issue

Coordinating Editor 06/2022

Journal Other Responsibilities

Allergy		
Reviewer	01/2009 - Present	
Annals of Allergy, Asthma & Immunology		
Reviewer	01/2007 - Present	
Clinical and Experimental Allergy		
Article Reviewer	07/2012 - Present	
European Respiratory Journal		
Referee/Reviewer	07/2012 - Present	
International Forum for Allergy & Rhinology		
Reviewer	11/2016 - Present	
Journal of Allergy and Clinical Immunology		
Article Reviewer	07/2014 - Present	
Journal of Allergy and Clinical Immunology: In Practice		
Article Reviewer	07/2012 - Present	
Laryngoscope		
Reviewer	01/2016 - Present	
Mayo Clinic Proceedings		
Article Reviewer	07/2008 - Present	

10. Education Interests and Accomplishments**A. Curriculum and Course Development**

Development of Web curriculum for Allergy-Immunology and Emergency Medicine	2006
Ohio State University	
Ohio	
Writing Allergen Immunotherapy Prescriptions	2009 - 2012
Mayo Clinic	
Vaccine allergy evaluation	2009 - 2012
Mayo Clinic	
Rhinitis and Rhinosinusitis: For Boards and Beyond	2009 - 2012
Mayo Clinic	
Practical Aspects of Allergen Immunotherapy: A novel web-based educational tool	2009 - 2012
Development of a web-based module that includes interactive features to be used by allergy and immunology trainees throughout the country.	
Mayo Clinic	
Rhinoscopy for Allergy Fellows	07/2011 - 07/2012
Mayo Clinic	
Allergy and Immunology Board Review for ENT	2012 - Present
Tackling Problematic Sinusitis, Course co-director	03/2013 - 03/2018
Co-director with Dr. Devyani Lal of ENT for annual CME event that attracts world experts and 100 attendees/year	
Mayo School CME	
AAAAI HEDQ Quality improvement web site	01/2014 - 01/2016
We created a web site with QI resources and a platform for QI project registry within the Allergy-Immunology field	
Patient Centered Care Domain, Co-leader	07/2014 - Present

Along with co-leader Dr. Natt, we are developing the patient-centered care domain for the science of healthcare delivery domain for the Mayo Medical School Mayo Medical School

AAAAI Asthma Practice Improvement Module
Tool for members to obtain MOC and improve their asthma management

B. Teaching

Cost effective medicine	06/2006
Ohio State University Medical Grand Rounds	
Columbus, Ohio	
Board Review Session for Pediatrics Residency	04/2007
Mayo Clinic	
Rochester, Minnesota	
Allergen immunotherapy prescription writing	2008
Allergy fellows	
Mayo Clinic	
Skin disease and allergy testing: Indications, interpretation, and avoiding malnutrition	10/2008
Dermatology grand rounds	
Mayo Clinic	
Vaccine allergy evaluation	2009
Allergy fellows	
Mayo Clinic	
Allergy Testing	02/2009
Pediatric Residency lecture	
Mayo Clinic	
Anaphylaxis and Urticaria in the inpatient setting	02/2013
Acute Care for the complex hospitalized patient for nurse practitioners and physician assistants	
Chronic asthma management: Stepping down	03/2013
Department of Medicine Grand Rounds	
Food allergy: myths, fads, and data	03/2013
Update on women's health	
Update in Asthma	04/2013
Multidisciplinary update in pulmonary and critical care medicine	
Medical management for chronic rhinosinusitis: from simple to Samter's Endoscopic and Skull based surgery	04/2013
Pollen food allergy syndrome	09/2013
Dermatology Grand Rounds	
ENT Grand Rounds; Chronic rhinosinusitis, an allergy-immunology perspective	03/2015
Mayo	
Severe Asthma Diagnosis and Management	04/2015
A-I Fellows Educational Session	
Mayo	
Chronic Rhinosinusitis Management	04/2015
A-I fellows educational session	
Mayo	
Pulmonary Eosinophilia: Narrowing a broad differential diagnosis	04/2015
Annual Mayo Pulmonary CME course	
Mayo CME	
Work-Life Balance	04/2016
Kern Scholar Retreat	
Rochester, Minnesota	

ANCA-associated sinusitis	09/09/2016
ENT Grand Rounds	
MCR/MCF/MCA	
Chronic rhinosinusitis: Evidence for medical management and case studies	09/21/2016
A-I Fellow Educational Series	
MCR/MCF/MCA	
Subtyping Asthma	03/31/2017
Tackling Problematic Sinusitis	
Phoenix, Arizona	
Combined Allergy and ENT Sinus Clinics	03/31/2017
Tackling Problematic Sinusitis	
Phoenix, Arizona	
Rhinitis for the IM Boards	04/03/2017
Mayo Internal Medicine Residency program lecture series	
Scottsdale, Arizona	
Asthma: The Allergy Perspective	04/09/2017
Mayo Pulmonary CME course	
Scottsdale, Arizona	
Using Observational Data to Improve Asthma Care	05/04/2017 - Present
Mercy Care Plan Board Meeting	
Loss of smell, taste, and hearing	10/17/2017 - Present
Mayo Clinic Enterprise wide allergy case conference	
Asthma Care in Maricopa County: Observational Data to Population-level Action Center for the Science of Healthcare Delivery Works-in-Progress	01/08/2018
The Unified Airway Hypothesis: Clinical Implications	03/23/2018
Mayo ENT CME	
Chronic Rhinosinusitis: Learning Through Exposure to Clinical Cases	03/23/2018
Mayo Clinic Arizona Medical Grand Rounds	
Aspirin Desensitization Interactive Workshop	03/24/2018
Mayo ENT CME	
(Re) Ordering Treatment for Atopic Dermatitis	04/10/2018
Mayo Enterprise-Wide Allergy Case Conference	
Scotts Valley, California	
Why and How to Step Down Asthma Medications	04/15/2018
Mayo Pulmonary CME	
Asthma	07/2018
Internal Medicine Residents Noon Conference	
Mayo Clinic	
Using Evidence to Choose Management for Patients with Eosinophilic Esophagitis	09/2018
Allergy Grand Rounds	
Mayo Clinic	
Kern Scholars Program	03/2019
Kern Center Grand Rounds	
Mayo Clinic	
The Full Evaluation at Mayo Clinic	03/2019
Allergy Grand Rounds	
Mayo Clinic	
Asthma	09/2019
Pulmonary Grand Rounds	
Mayo Clinic	
How to Avoid Pitfalls While Efficiently and Effectively Serving as a Journal Reviewer	10/2019
Tuesday Case Conference, Allergy Tri-Site - Faculty Development Series	

Mayo Clinic

Biologics for Nasal Polyposis
 Allergy Grand Rounds
 Mayo Clinic
 Phoenix, Arizona

02/2020

New Asthma Guidelines
 Medicine Grand Rounds
 Mayo Clinic
 Jacksonville, Florida

07/2020

Uncommon Allergy-Immunology Problems
 Allergy Grand Rounds
 Mayo Clinic
 Phoenix, Arizona

08/2020

Asthma
 Internal Medicine Residents' Noon Conference
 Mayo Clinic
 Phoenix, Arizona

08/2020

C. Academy of Educational Excellence

D. Mentorship

Individual and Position	Timeframe	Outcomes	Current Status
Harish, Amitha Allergy/Immuno logy Fellow	1/2008 - 1/2010	1 presentation at a national meeting	Private Practice Allergy, Portsmouth, NH
Shah, Kunal Allergy/Immuno logy Fellow	1/2008 - 1/2010	2 abstract presentations at national meetings, 1 original publication in a peer-reviewed journal	Staff allergist, Mayo Clinic Southwest Region, Mankato, MN
Elias, Martha Allergy/Immuno logy Fellow	1/2008 - 1/2011	2 abstracts presented together at national meetings	Assistant Professor of Medicine and Pediatrics, Dartmouth University, Lebanon, NH
Fox, Stephanie Allergy/Immuno logy Fellow	7/2009 - 6/2011	2 Abstract Presentations at national meetings	Staff Allergist, HealthEast, St Paul, MN
Patel, Sujan Allergy/Immuno logy Fellow	1/2010 - 1/2012	2 abstracts presented at national meetings	Assistant Professor of Allergy and Immunology, New York Eye and Ear Infirmary, New York, NY, Staff allergist
Podjasek, Jenna Allergy/Immuno logy Fellow	1/2011 - 7/2013	1 abstract presented at a national meeting; 2 original articles submitted for publication	Private Practice, A-I, Chicago, IL
Samant, Shefali Allergy/Immuno logy Fellow	1/2011 - 7/2013	3 abstracts at national meetings; 3 original manuscripts submitted	Currently at staff at Kaiser Permanente Southern California and active academically
Bauer MD, Cindy Clinical Mentee	7/2013 - Present	Serving as mentor for Dr. Bauer as she sets up a new clinical allergy-immunology practice at a large children's hospital; 1 presentation and 1 publication completed	Clinical Associate Professor of Pediatrics, Assistant Professor of Medicine (Mayo Clinic),

together.

Clinical Professor of Pediatrics (University of Arizona), and Staff Allergist, Phoenix Children's Hospital

Davis, Destinee	7/2013 - 3/2018	Presentation at PCH research day; Admitted to PA school	Physician's Assistant Student
Hines, Brittany Resident Mentee	7/2013 - 6/2018	2 abstracts presented at national meetings	Allergy-Immunology Fellow at Mayo Clinic
Gionfriddo, Michael Research Mentee	1/2014 - 1/2017	4 original manuscripts written together, served on PhD thesis committee prior to his current faculty position	Investigator I, Center for Pharmacy Innovation and Outcomes, Geisinger Precision Health Center, Forty-Fort, PA
Wright, Benjamin Research Mentee	7/2015 - Present	Clinical research mentee, meet weekly, multiple IRB protocols, research presentations, and publications	Assistant Professor of Medicine (Mayo) and Clinical Professor of Pediatrics (University of Arizona), and Staff Allergist-Immunologist, Phoenix Children's Hospital
Doyle, Alfred Postdoctoral Research Fellow	7/2017 - Present	Multiple papers/presentations	Principal Technologist
Jacobsen, Elizabeth	7/2017 - Present	Multiple papers/presentations	Associate Consultant I
Freeman, Catherine Allergy/Immuno logy Fellow	7/2019 - Present	Multiple papers/presentations	Allergy-Immunology Fellow
Maddux, Jacob Allergy/Immuno logy Fellow	7/2019 - Present	Multiple papers/presentations	Allergy-Immunology Fellow
Lam, Regina Medical Student	1/2020 - Present Mentor for Masters of Science of Health Care Delivery Degree		Mayo Clinic Alix School of Medicine - Arizona
Gonzalez- Estrada MD, Alexei	7/2022 - Present		Assistant Professor, Mayo Clinic Arizona
Wonnapharhown MD, Alex	7/2022 - Present		Assistant Professor, Mayo Clinic Arizona
Gleeson MD, MSCE, Patrick	8/2022 - Present		Assistant Professor, University of Pennsylvania
Akenroye MBCHB, MPH, PhD, Ayobami	7/2023 - Present		Assistant Professor, Harvard Medical School
Rusk MD, Ann	10/2023 - Present		Assistant Professor, Mayo

E. Academic Career Development

Faculty Enhancement and Education Development Program in Core Clinical Teaching Mayo Clinic Rochester, Minnesota	01/2010
Certificate in Clinical and Translational Science Research certificate program, completed >12 credits in courses like statistics, epidemiology, trial design, ethics, etc. Center for Translational Science Activity, Mayo Clinic Rochester, Minnesota	02/2011
Instructional Framework: Novice to Experts Faculty Development Workshop Mayo Medical School Arizona Campus Scottsdale, Arizona	08/2015
Helping Struggling Learners: A SOAP Approach Faculty Development Workshop Mayo Medical School Arizona Campus Scottsdale, Arizona	09/2015
Artistic Renderings of MMS Arizona – Human Factors Mayo Medical School Arizona Campus Scottsdale, Arizona	11/2015
FERPA Faculty Development Workshop Mayo Medical School Arizona Campus Scottsdale, Arizona	11/2015
AAAI Leadership Institute Faculty Development - Developed to cultivate next generation of AAAI leaders; group session participation was by invitation AAAI Annual Meeting Houston, Texas	11/2015
AAAI Leadership Institute Faculty Development - Developed to cultivate next generation of AAAI leaders; group session participation was by invitation AAAI Annual Meeting Los Angeles, California	11/2016
Distilling Your Message - Walter Dishell Faculty Development	11/2016
Enough About Burnout: Let's Talk Well Being and the Role of Coaching - Kerri Palamara Faculty Development Mayo Clinic Phoenix, Arizona	06/2017
Teaching Diagnostic Reasoning in the Clinical Setting - Adam Cifu, MD Faculty Development Mayo Clinic Phoenix, Arizona	11/2017
Medical Reversal - Adam Cifu, MD Faculty Development Mayo Clinic Phoenix, Arizona	11/2017
One Minute Preceptor Faculty Development Take 5 Video	11/2017

How to Write Letters of Recommendation - Amy Oxentenko, MD Faculty Development Take 5 Video	02/2018
Selecting for Emotional Intelligence in Interviews - Josyln Vaught Faculty Development Workshop Mayo Clinic School of Graduate Medical Education Scottsdale, Arizona	07/2018
Teaching, Self Directed Learning & Reflection - Rick Nishimura, MD Faculty Development Take 5 Video - Allergy Division Meeting	04/2019
Allergy Tri-Site - Dr. Lily Pien Faculty Development Series Mayo Clinic Tuesday Case Conference	10/2019
Teaching High Value Care - Stephanie Starr, MD Faculty Development Take 5 Video	11/2019
Overcoming Unconscious Bias Faculty Development Online Module	06/2020
Stereotype Threat Faculty Development Online Module	06/2020
Strategies to Support Learners Seeking Help - Lotte Dyrbye, MD, MHPE Faculty Development Take 5 Video	09/2020
Joy of Teaching - Mary Hedges, MD Faculty Development Take 5 Video	01/2021

F. Educational Activities

(1) Teaching residents, fellows, and multidisciplinary teams about diagnosis and management of airway disease, specifically chronic rhinosinusitis and asthma; (2) Curriculum development and teaching of the science of healthcare delivery, current activity in the Mayo Medical School; (3) Involved in the development of a MCA Allergy-Immunology fellowship to begin in 2017; (4) Involved in multiple educational efforts at the national level in the AAAAI, including multiple committees responsible for delivering content at the annual meeting and in other methods; (5) Co-director of annual Mayo Sinus CME course

11. Institutional/Departmental Administrative Responsibilities, Committee Memberships and Other Activities

Mayo Clinic

Arizona Center for the Science of Healthcare Delivery Member Review requests for research funding as part of a 5 person committee for projects specific to the science of healthcare delivery at MCA	11/2014 - 2019
Mayo Clinic Kern Center Kern Society Affiliate - Kern Center Scholars, Scholar Alumni and mentors of current scholars	09/25/2018 - Present

Mayo Clinic in Rochester

Department of Internal Medicine Division of Allergic Diseases Allergic Diseases Rhinitis and Sinusitis Clinic Physician Leader I led the development of a specialty clinic for rhinitis/sinusitis, including the procedural development of rhinoscopy in the division of allergy	06/2008 - 06/2012
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Research Committee		
Member	01/2008 - 06/2012	
As a committee member, we met monthly to review research issues directly related to the allergy division		
Vaccine Allergy Clinic		
Physician Leader	01/2009 - 06/2012	
We started a vaccine allergy clinic in response to patient and institution need		
QUEST Assembly		
Member	11/2009 - 06/2012	
I served on the Quality board in the department of medicine in Mayo Clinic Rochester		
Mayo Clinic Rochester Committees		
Clinical Practice Committee - Rochester		
Pharmacy and Therapeutics Subcommittee - Rochester		
Drug Desensitization Protocols Development		
Participant	01/2008 - 06/2012	
We developed standardized drug desensitization protocols for the hospital practice		
Mayo Clinic in Arizona		
Mayo Clinic Arizona Committees		
Executive Operations Team - Arizona		
Research Operations Management Team - Arizona		
Clinical Research Subcommittee		
Clinical Trial Review Group		
Member	01/2017 - Present	
Scottsdale Campus Transformation Project		
Phase 2/3		
Co-Chair	07/2023 - 08/2023	
Multidisciplinary Disease Oriented Group (DOG)		
Member	07/2012 - Present	
Vice Chair	12/2014 - 12/2016	
Chair	01/2017 - 01/2020	

Activities at Other Institutions

Arizona State Allergy Society		
Member	2012 - Present	
Phoenix Children's Hospital Breathmobile		
Research Director	2016 - Present	

12. Presentations Extramural

National or International

Invited

Aspirin and antibiotic desensitization	02/2015
AAAAI Annual Meeting	
Houston	
Quality and Safety in Allergy	02/2015
AAAAI annual meeting	
Houston, Texas	
GRADING Eosinophilic Esophagitis Guidelines for the Allergist	11/2019
Plenary Presentation	

AAAAI National Meeting
Houston, Texas

Biologics in Nasal Polyps: Who & When
ENT Update 2020 & Tackling Problematic Sinusitis 2020
Sedona, Arizona

ENT-Allergy Partnership for CRS Rx
ENT Update 2020 & Tackling Problematic Sinusitis 2020
Sedona, Arizona

Oral

Nearly Half of Systemic Reactions (SRs) to Allergen Immunotherapy (AIT) Occurred
More Than 30 Minutes After the Injection
American College of Allergy, Asthma & Immunology (ACAAI)
Philadelphia, Pennsylvania

Allergen immunotherapy education project: a randomized study of a web based
intervention
Allergy and Immunology Program Directors' Meeting
San Antonio, Texas

Medication interference with allergy skin tests: Which medications are true culprits?
American College of Allergy, Asthma, and Immunology
Miami Beach, Florida

Negative vaccine allergy skin testing strongly predicts future vaccine tolerance
American College of Allergy, Asthma, and Immunology
Miami Beach, Florida

Smell disturbance distinguishes CRS from NAR in an allergy-based subspecialty
clinic for patients with sinonasal symptoms
American College of Allergy, Asthma, and Immunology
Miami Beach, Florida

False positive skin tests to influenza vaccine are more common in patients with egg
allergy than in patients without egg allergy
American College of Allergy, Asthma, and Immunology (ACAAI)
Phoenix, Arizona

Systemic mediator release in systemic and large local reactions to subcutaneous
allergen immunotherapy
American College of Allergy, Asthma, and Immunology (ACAAI)
Phoenix, Arizona

How Commonly does symptom severity vary by season in nonallergic rhinitis
American College of Allergy, Asthma, and Immunology
Boston, Massachusetts

The right dose allergen immunotherapy project: Establishing error rates and
process mapping
American Academy of Allergy, Asthma, and Immunology (AAAAI)
San Francisco, California

A randomized controlled trial of a web-based educational intervention for teaching
allergen immunotherapy
American Academy of Allergy, Asthma, and Immunology (AAAAI)
San Francisco, California

The risk of asthma exacerbation after stopping low-dose inhaled corticosteroids: a
systematic review and meta-analysis of randomized controlled trials
AAAAI Annual Meeting
Anaheim, California

Practical tips for accurate diagnosis of allergy and immunology disorders
Presented twice
Internal Medicine Update
Sedona, Arizona

Update on Asthma Treatment: Evidence-Based Recommendations for 2016
 "Asthma Step Down"
 Session #4815: (Symposium presentation)
 American Academy of Allergy, Asthma, and Immunology Annual Meeting
 Los Angeles, California

Diagnostic testing in recalcitrant chronic rhinosinusitis Tackling Problematic Sinusitis 2016 Phoenix, Arizona	03/2016
Opportunities to Improve Asthma Care in Arizona: A Role for All of Us Keynote Arizona Asthma Coalition Annual Meeting	10/2017
How to Link your Chronic Rhinosinusitis Evaluation to Actionable Treatment Seminar AAAAI, 2018	03/05/2018
Aspirin Exacerbated Respiratory Disease Mayo Clinic Allergy CME Course Coronado, California	07/2018
Re-ordering Treatment for Atopic Dermatitis Mayo Clinic Allergy CME Course Coronado, California	07/2018
New Biologicals for Asthma Vasculitis Foundation Phoenix, Arizona	04/2019
Factors Associated with Dysfunctional Breathing Journal of Allergy and Clinical Immunology In Practice Journal Club Webinar	06/2019
Asthma Yardstick: Measure Up! ACAAI Webinar	07/2019
Top 10 Allergy Topics Mayo Clinic CME Sedona, Arizona	10/2019
Diet vs. Steroids for Eosinophilic Esophagitis AAAAI National Meeting Houston, Texas	11/2019
The Asthma Step-down Yardstick AAAAI National Meeting Houston, Texas	11/2019
Complex Cases in Aspirin Exacerbated Respiratory Disease Mayo Allergy-Immunology CME Coronado, California	08/2021
Biologics Before Surgery Presented Virtually Mayo ENT CME Course Hawaii	08/2022
Biologics: Which, When to Start, and How to Stop Presented Virtually Mayo ENT CME Course Hawaii	08/2022
Asthma in Athletes Mayo Sports Medicine CME Course Phoenix, Arizona	01/2023
Biologics in Airway Disease Mayo Allergy-Immunology CME Course Half Moon Bay, California	08/2023

Relationships of Endotypes and Phenotypes with Biologics for Chronic Rhinosinusitis
 Presented Virtually
 AAAAI Annual Meeting
 Washington, District of Columbia

02/2024

Person Centered Care
 Mayo Health System Science Course
 Phoenix, Arizona

03/2024

Cough in Patients with CRS
 Mayo ENT CME Course
 Scottsdale, Arizona

04/2024

Multidisciplinary Approach and Paradigms for Biologics in CRS
 Mayo ENT CME Course
 Scottsdale, Arizona

04/2024

Change is Hard: New Approaches for Managing Asthma
 Mayo Pulmonary CME Course
 Paradise Valley, Arizona

05/2024

Poster

A Case of Food allergy Due To Longan Fruit
 American College of Allergy, Asthma & Immunology (ACAAI)
 Philadelphia, Pennsylvania

2006

Identification of Risk Factors for Systemic Reactions to Allergen Immunotherapy
 American College of Allergy, Asthma & Immunology (ACAAI)
 Dallas, Texas

2007

Management of Asthma Exacerbation in a Patient With Wiskott Aldrich Syndrome
 American College of Allergy, Asthma & Immunology (ACAAI)
 San Diego, California

2007

Antidepressant and Anxiolytic Prescription in Patients on Allergen Immunotherapy
 American College of Allergy, Asthma & Immunology (ACAAI)
 Philadelphia, Pennsylvania

2008

Cardioselective β -blocker Prescription in Aged Asthmatics
 American Thoracic Society International Meeting
 Toronto, Ontario, Canada

2008

Activation of Dendritic Cells by IL-33 initiates a Th2 response
 American Academy of Allergy, Asthma, and Immunology (AAAAI)
 Washington, District of Columbia

2009

Antihistamine interference with allergy skin tests: how long should we wait?
 American Academy of Allergy, Asthma, and Immunology (AAAAI)
 Washington, District of Columbia

2009

Desensitization to trimethoprim/sulfamethoxazole in non-HIV patients
 American Academy of Allergy, Asthma, and Immunology (AAAAI)
 Washington, District of Columbia

2009

A clinical prediction rule for long term outcomes after stepping down asthma controller medications
 KI-Mayo Scientific Meeting
 Rochester, Minnesota

09/2014

Adherence to Topical Medications for Chronic Rhinosinusitis: Medication Possession Ratio and Description of Adherence Barriers
 American Academy of Allergy, Asthma, and Immunology 2016
 Los Angeles, California

2016

Nasal and Pharyngeal Eosinophil Peroxidase Levels Represent Surrogate Biomarkers for the Presence of Lower Airway Eosinophils in Adults with Poorly Controlled Asthma

02/2016

American Academy of Allergy, Asthma, and Immunology 2016
Los Angeles, California

Omalizumab Utilization Trends for Asthma in the U.S. from 2003-2015
02/2017
AAAI Annual Meeting
Atlanta, Georgia

Step Down of Asthma Biologics
06/2019
AcademyHealth
Virtual

Asthma Biologic Persistence
03/2020
AAAI Annual Meeting
Virtual

Regional

Invited

Medication Allergies: The Essentials for Busy Providers
09/2011
NP/PA Mayo Clinic Review
Rochester, Minnesota

Diagnosis and Management of Chronic Rhinosinusitis
10/2011
Mayo Clinical Reviews 2011
Rochester, Minnesota

United Airways: An Integrated Approach to Airway Disorders
10/2011
Mayo Clinical Reviews 2011
Rochester, Minnesota

Asthma in old age, pregnancy, and obesity
10/2013
Arizona Asthma Coalition
Mesa, Arizona

Best practices in pediatric sinusitis
12/2014
Phoenix Children's Hospital Pulmonary Grand Rounds
Phoenix, Arizona

Keynote-Opportunities to Improve Asthma Care in Maricopa County and Statewide
10/2017
Arizona Asthma Coalition Annual Conference

Asthma care in Maricopa County: Observational Data to Population-level action
01/2018
Science of Healthcare Delivery Presentation
Mayo Clinic, Scottsdale, AZ, Arizona

Lower Respiratory Disease in Young Adults
05/2020
Grand Rounds
Arizona State University
Tempe, Arizona

New Guidelines for Asthma: Changing How We Do Things
09/2020
Arizona State Asthma Coalition Annual Meeting
Virtual

Should We Be SMARTer About How We Use Inhalers?
10/2020
Asthma Toolbox
Phoenix Children's Hospital
Phoenix, Arizona

Oral

Pharmacological Therapy Through the Lifespan Part II: Adults, Pregnancy &
10/2015
Geriatrics
Arizona Asthma Coalition Meeting
Mesa, Arizona

A Maricopa County Study of Utilization and Outcomes Among Children with Asthma
04/2016
and Medicaid Insurance
Phoenix Children's Research Day

Allergy the New and the Shiny
 Arizona State University Grand Rounds
 Tempe, Arizona

05/2019

Learning About New Asthma Guidelines Using a Case-Based Approach
 Grand Rounds (Presented Virtually)
 Summit Healthcare
 Lakeside, Arizona

10/2021

New Asthma and Sinusitis Guidelines to Help Your Patients
 Grand Rounds (Presented Virtually)
 University of Arizona - Phoenix
 Phoenix, Arizona

04/2022

SMART for Asthma?
 Phoenix Children's Hospital Pulmonary Conference
 Phoenix, Arizona

07/2022

Guidelines on the Management of Eosinophilic Esophagitis
 Presented Virtually
 Mercy Children's COLA Series
 Kansas City, Missouri

08/2023

Poster

Aortic Valve Injury in a Patient that Presented with Cardiogenic Shock Ninety-Five Days Following Blunt Chest Wall Trauma
 Ohio State University Research Day
 Columbus, Ohio

2005

Unclassified

Oral

Chronic cough: Difficult Cases
 AAAAI
 San Francisco, California

03/2012

Advances in allergen immunotherapy and upper airway diseases
 AAAAI Webinar
 AAAAI

05/2012

Quality Improvement and Safety in Allergy and Immunology
 AAAAI
 San Antonio, Texas

02/2013

13. Visiting Professorship

Cleveland Clinic
 Pediatric Grand Rounds: "Chronic asthma medication management: Stepping Down" Allergy Grand Rounds: "Cases from the Multidisciplinary Clinic for Challenging Sinus Disease"
 Pediatric and Allergy Grand Rounds
 Cleveland, Ohio

10/08/2013

Great Expectations: What to Expect from our Allergy-Immunology Interventions
 Presented Virtually
 Northwestern University
 Evanston, Illinois

06/2021

14. Clinical Practice, Interests, and Accomplishments

Clinical Practice: Adult and pediatric allergy, asthma and immunology Clinical Interests: Chronic rhinosinusitis; Nasal polyposis; Asthma; Allergen immunotherapy; Allergic and Nonallergic rhinitis; Chronic cough; Vaccine allergy; Drug allergy; Food allergy; Rhinoscopy Clinical Accomplishments: Served as physician champion in the initiation of the Rhinitis-Sinusitis clinic and the Vaccine allergy clinic. Currently initiating 2 new clinics: The Multidisciplinary Center for Challenging Sinus Disease (ENT-Allergy interdepartmental clinic) and the Pediatric Severe Asthma Clinic (partnership with pediatric pulmonology at Phoenix Children's Hospital)

15. Quality Initiatives

Quality Improvement Projects

Increasing Provider Recording of a Standardized Patient-Reported Measure of Asthma Control (Silver Project) Bridget E. Wilson, MD (Team Lead), Matthew A. Rank, MD.	07/04/2024
Allergy Skin Testing and Patient Antihistamine Use (Silver Project) Rachel K. Lord (Team Lead), Brandy A. Jacobson, MSN, RN, Matthew A. Rank, MD , Susan A. Kinate, PA-C, MS.	08/13/2024
Standardize Ordering Process for Patient Challenges (Silver Project) Catherine R. Weiler, M.D., Ph.D. (Project Editor), gerald W. Volcheck, M.D., Kimberly (Kim) L. Poe, MBA/HCM, R.N., N.E.-B.C., Matthew A. Rank, M.D..	08/16/2013

Quality

Served as Division of Allergic Diseases Quality Chair, Bronze and Silver level certified, helped developed Quality Corner for AAAAI, and serves as mentor for trainee QI projects	07/2008 - 07/2012
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16. Research Interests and Accomplishments

1. Asthma healthcare delivery and costs
2. Outcomes of stepping down asthma medication
3. Asthma quality measurement
4. Asthma management tools
5. Chronic rhinosinusitis triggers and epidemiology
6. Chronic rhinosinusitis management
7. Allergen immunotherapy safety

17. Research Grants Awarded

Active Grants

Federal

Co-Investigator	Pulmonary Response to Ozone-exposed Ragweed Pollen Grains. Funded by National Institute of Allergy and Infectious Diseases. (R21 AI182888)	06/2024 - 04/2026
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Federal sub award

Program Director / Principal Investigator	Precision Interventions for Severe Asthma (PrecISE). Funded by National Institutes of Health. (HL138998)	07/2019 - 06/2025
Program Director / Principal Investigator	Southwest Health Equity Research Collaborative (SHERC). Funded by National Institute on Minority Health and Health Disparities. (MD012388)	09/2022 - 05/2027
Co-Investigator	NOVEL DIAGNOSTIC FOR MANAGING ASTHMA AT POINT OF CARE. Funded by National Heart, Lung, and Blood Institute. (HL176373)	09/2024 - 07/2026

Foundation

Co-Investigator	Modifying Adverse Gastrointestinal Complications During Milk Oral Immunotherapy (MAGIC). Funded by Stanford University. (Stanford Milk Allergy)	01/2021 - 12/2025
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Completed Grants

Federal

Program Director / Principal Investigator	Bending the asthma cost curve: Is optimizing medication the answer?. Funded by Agency for Healthcare Research and Quality. (R03 R03 HS022126)	09/2013 - 09/2014
Program Director / Principal Investigator	Step down of asthma biologics in real-world practice settings. Funded by National Institutes of Health. (R21 R21 HL140287)	08/2018 - 08/2021
Co-Investigator	The Pathogenesis of Chronic Rhinosinusitis. Funded by National Institute of Allergy and Infectious Diseases. (R56 AI 49235)	07/2012 - 06/2014
Co-Investigator	Type 2 Innate Lymphoid Cells and Asthma. Funded by National Heart, Lung, and Blood Institute. (R01 HL117823)	07/2020 - 06/2023

Federal sub award

Program Director / Principal Investigator	Using the Asthma APGAR to translate guidelines into practice. Funded by Agency for Healthcare Research and Quality. (HS 018431-01A1)	09/2010 - 09/2015
Program Director / Principal Investigator	The Pathogenesis of Chronic Rhinosinusitis. Funded by National Institutes of Health. (R56 AI049235)	07/2012 - 12/2013
Program Director / Principal Investigator	Assessing decision maker tools for Asthma: the Asthma APGAR. Funded by Agency for Healthcare Research and Quality. (R01 HS018431)	08/2013 - 07/2015
Program Director / Principal Investigator	Gut Microbiome Manipulation for Precision Treatment of Asthma. Funded by Flinn Foundation. (Subagreement No. 1003860-01)	11/2018 - 07/2019
Program Director / Principal Investigator	Data, Modeling, and Coordination Center for PrecISE Network. Funded by National Institutes of Health. (U24HL138998)	01/2020 - 06/2021
Co-Program Director / Principal Investigator	Precision Interventions for Severe Asthma (PrecISE) - CORE. Funded by National Heart, Lung, and Blood Institute. (HL139054)	07/2019 - 06/2025

Foundation

Program Director / Principal Investigator	Identifying biomarkers that predict systemic reactions to allergen immunotherapy. Funded by American College of Allergy, Asthma, and Immunology. (ACAAI 001)	11/2010 - 10/2012
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Industry

Program Director / Principal Investigator	Nocturnal avoidance of inhalant indoor allergen exposures in asthmatic children sensitized to dust mite, dog, or cat allergen: Clinical benefits of a novel Personal Air Quality System (Purezone). Funded by PureZone Technologies	10/2009 - 09/2010
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Mayo Clinic

Principal Investigator	A randomized, controlled trial of a novel web-based educational intervention for allergen immunotherapy that compares introductory pre-test questions with a traditional outline format. Funded by EI-10	01/2009 - 12/2009
Program Director / Principal Investigator	14-009369 A home-based airway inflammation assay for predicting asthma stability following a reduction in chronic asthma medications". Funded by MEGA Program - MCA Internal Funds	01/2015 - 06/2016
Program Director / Principal Investigator	14-009369/ Protocol Amendment #1/ A home-based airway inflammation assay for predicting asthma stability following a reduction in chronic asthma medications". Funded by MEGA Program - MCA Internal Funds. (FP00080424-A1)	01/2015 - 06/2016
Program Director / Principal Investigator	2016 AZ Opportunity Fund - Utilization trends of omalizumab for asthma in real-world practice settings. Funded by MEGA Program - MCA Internal Funds. (2016 AZ Opportunity Fund)	10/2016 - 12/2016
Program Director / Principal Investigator	Imaging of Functionally Distinct Leukocyte Subtypes within Tissue Biopsies Using Gene Expression Profiling and a Multiple RNA Targeting Approach. Funded by ASU collaborative fund	01/2017 - 06/2018
Program Director / Principal Investigator	Mayo/PCH Center for Food Allergies - Donald R Levin Family Fund. Funded by Development - Gifts from benefactors. (Levin Gift - Lee, J.)	01/2017 - 12/2021
Program Director / Principal Investigator	Point-of-care technology for tailoring asthma treatment. Funded by CCaTS Office of Translation to Practice – Advance the Practice Research Award	01/2019 - 12/2019
Program Director / Principal Investigator	Novel in-vitro nanoallergen-IgE-testing for drug allergy diagnosis. Funded by Department of Medicine Team Science. ()	09/2021 - 08/2022
Co-Investigator	Comparison between ACT and ACA in Children. Funded by SGP	04/2011 - 04/2013

18. Inventions, Commercialization and Offering

A. Patents

Patent Number Country Date Filed Date Issued

B. Other

19. Bibliography

Peer-reviewed Articles

1. **Rank MA**, Kelkar P, Oppenheimer J. Taming chronic cough. *Ann Allergy Asthma Immunol*. 2007 Apr; 98 (4):305-13; quiz 313-4, 348. PMID: 17458425
2. **Rank MA**, Volcheck GW. A 38-year-old woman with dyspnea and wheezing following exercise despite asthma therapy. *Chest*. 2007 Jul; 132(1):351-3. PMID: 17625098
3. **Rank MA**, Park MA. Anaphylaxis to piperacillin-tazobactam despite a negative penicillin skin test. *Allergy*. 2007 Aug; 62(8):964-5. PMID: 17620077 DOI: 10.1111/j.1368-9995.2007.01418.x
4. **Rank MA**, Li JT. Allergen immunotherapy. *Mayo Clin Proc*. 2007 Sep; 82(9):1119-23. PMID: 17803880 DOI: 10.4065/82.9.1119
5. **Rank MA**, Li JT. Beta-blocker prescription in elderly patients with asthma. *J Allergy Clin Immunol* 2008 Apr; 121 (4):1061-2 Epub 2008 Mar 04 PMID: 18289652 DOI: 10.1016/j.jaci.2007.12.1163
6. **Rank MA**, Oslie CL, Krogman JL, Park MA, Li JT. Allergen immunotherapy safety: characterizing systemic reactions and identifying risk factors. *Allergy Asthma Proc*. 2008 Jul-Aug; 29: (4)400-5. PMID: 18702889 DOI: 10.2500/aap.2008.29.3141
7. **Rank MA**, Volcheck GW, Li JT, Patel AM, Lim KG. Formulating an effective and efficient written asthma action plan. *Mayo Clin Proc*. 2008 Nov; 83(11):1263-70. PMID: 18990325 DOI: 10.4065/83.11.1263
8. **Rank MA**, Adolphson CR, Kita H. Antifungal therapy for chronic rhinosinusitis: the controversy persists. *Curr Opin Allergy Clin Immunol*. 2009 Feb; 9 (1):67-72 PMID: 19532095 PMCID: PMC3914414 DOI: 10.1097/ACI.0b013e328320d279
9. **Rank MA**, Kobayashi T, Kozaki H, Bartemes KR, Squillace DL, Kita H. IL-33-activated dendritic cells induce an atypical TH2-type response. *J Allergy Clin Immunol*. 2009 May; 123 (5):1047-54 Epub 2009 Apr 10 PMID: 19361843 PMCID: PMC2711963 DOI: 10.1016/j.jaci.2009.02.026
10. **Rank MA**, Li JT. Clinical pearls for preventing, diagnosing, and treating seasonal and 2009 H1N1 influenza infection in patients with asthma. *J Allergy Clin Immunol*. 2009 Nov; 124(5):1123-6. Epub 2009 Oct 09. PMID: 19818998 DOI: 10.1016/j.jaci.2009.09.028
11. **Rank MA**, Li JT. Reply. *J Allergy Clin Immunol*. 2010; 125(4):952. PMID: 0 DOI: 10.1016/j.jaci.2010.01.027
12. **Rank MA**, Wollan P, Kita H, Yawn BP. Acute exacerbations of chronic rhinosinusitis occur in a distinct seasonal pattern. *J Allergy Clin Immunol* 2010 Jul; 126 (1):168-9 PMID: 20641152 PMCID: PMC3919526 DOI: 10.1016/j.jaci.2010.03.041
13. Lim KG, **Rank MA**, Li JT, Patel A, Volcheck GW, Branda ME, Cabanelo R, Naessens JM, Shah ND, Wagie A, Beebe T. How well does patient self-report predict asthma medication possession? Implications for medication reconciliation and adherence assessment. *J Asthma*. 2010 Oct; 47(8):878-82. PMID: 20831462 DOI: 10.3109/02770903.2010.491143
14. * Shah KM, **Rank MA**, Dave SA, Oslie CL, Butterfield JH. Predicting which medication classes interfere with allergy skin testing. *Allergy Asthma Proc*. 2010 Nov-Dec; 31 (6):477-82 PMID: 21708059 DOI: 10.2500/aap.2010.31.3382
15. **Rank MA**, Wollan P, Li JT, Yawn BP. Trigger recognition and management in poorly controlled asthmatics. *Allergy Asthma Proc*. 2010 Nov-Dec; 31 (6):99-105 Epub 2010 Oct 25 PMID: 20977834 PMCID: PMC3233838 DOI: 10.2500/aap.2010.31.3405
16. * McClimon B, **Rank MA**, Li J. The predictive value of skin testing in the diagnosis of local anesthetic allergy. *Allergy Asthma Proc*. 2011 Mar-Apr; 32: (2)95-8. PMID: 21439161 DOI: 10.2500/aap.2011.32.3417
17. Lim KG, **Rank MA**, Kita H, Patel A, Moore E. Neuropeptide levels in nasal secretions from patients with and without chronic cough. *Ann Allergy Asthma Immunol*. 2011 Oct; 107 (4):360-3 Epub 2011 Sept 08 PMID: 21962097 DOI: 10.1016/j.anai.2011.07.010
18. **Rank MA**, Liesinger JT, Ziegenfuss JY, Branda ME, Lim KG, Yawn BP, Shah ND. The impact of asthma medication guidelines on asthma controller use and on asthma exacerbation rates comparing 1997-1998 and 2004-2005. *Ann Allergy Asthma Immunol*. 2012 Jan; 108 (1):9-13 Epub 2011 Nov 02 PMID: 22192958 DOI: 10.1016/j.anai.2011.09.009
19. **Rank MA**, Volcheck GW, Swagger T, Cook DA. Pretests or advance organizers for Web-based allergy-immunology medical education? A randomized controlled trial. *Allergy Asthma Proc*. 2012 Mar-Apr; 33: (2)191-6. PMID: 22525397 DOI: 10.2500/aap.2012.33.3511
20. Lim KG, **Rank MA**, Cabanelo RL, Furst JW, Rohrer JE, Liesinger J, Muller L, Wagie AE, Naessens JM. The

asthma ePrompt: a novel electronic solution for chronic disease management. *J Asthma*. 2012 Mar; 49(2):213-8. Epub 2012 Feb 03. PMID: 22304226 DOI: 10.3109/02770903.2012.654419

21. **Rank MA**, Liesinger JT, Ziegenfuss JY, Branda ME, Lim KG, Yawn BP, Li JT, Shah ND. Asthma expenditures in the United States comparing 2004 to 2006 and 1996 to 1998. *Am J Manag Care*. 2012 Sep; 18 (9):499-504 PMID: 23009300

22. Greenhawt MJ, Spergel JM, **Rank MA**, Green TD, Mansoor D, Sharma H, Bird JA, Chang JE, Parikh DS, Teich E, Kelso JM, Sanders GM. Safe administration of the seasonal trivalent influenza vaccine to children with severe egg allergy. *Ann Allergy Asthma Immunol*. 2012 Dec; 109(6):426-30. Epub 2012 Oct 24 PMID: 23176882 DOI: 10.1016/j.anai.2012.09.011

23. Yawn BP, Wollan P, **Rank M**. Exacerbations in the pre- and post-COPD diagnosis periods. *Pragmat Obs Res*. 2013; 4:1-6 Epub 2013 Apr 30 PMID: 27774019 PMCID: PMC5045011 DOI: 10.2147/POR.S41778

24. **Rank MA**, Hagan JB, Samant SA, Kita H. A proposed model to study immunologic changes during chronic rhinosinusitis exacerbations: data from a pilot study. *Am J Rhinol Allergy*. 2013 Mar-Apr; 27 (2):98-101 PMID: 23562196 PMCID: PMC3610944 DOI: 10.2500/ajra.2013.27.3850

25. **Rank MA**, Hagan JB, Park MA, Podjasek JC, Samant SA, Volcheck GW, Erwin PJ, West CP. The risk of asthma exacerbation after stopping low-dose inhaled corticosteroids: a systematic review and meta-analysis of randomized controlled trials. *J Allergy Clin Immunol*. 2013 Mar; 131 (3):724-9 Epub 2013 Jan 12 PMID: 23321206 DOI: 10.1016/j.jaci.2012.11.038

26. Lim KG, **Rank MA**, Hahn PY, Keogh KA, Morgenthaler TI, Olson EJ. Long-term safety of nebulized lidocaine for adults with difficult-to-control chronic cough: a case series. *Chest*. 2013 Apr; 143: (4)1060-1065. PMID: 23238692 DOI: 10.1378/chest.12-1533

27. **Rank MA**, Ziegenfuss JY, Shah KM, Jenkins SM, Lackore KA, Eton DT, Shah ND. Factors associated with decisions to step down asthma medications. *J Allergy Clin Immunol Pract*. 2013 May-Jun; 1 (3):312-4 Epub 2013 Apr 09 PMID: 24565495 DOI: 10.1016/j.jaip.2013.02.005

28. **Rank MA**, Branda ME, McWilliams DB, Johnson SK, Samant SA, Podjasek JC, Park MA, Volcheck GW. Outcomes of stepping down asthma medications in a guideline-based pediatric asthma management program. *Ann Allergy Asthma Immunol*. 2013 May; 110(5):354-358.e2. Epub 2013 Mar 15. PMID: 23622006 DOI: 10.1016/j.anai.2013.02.012

29. * Podjasek JC, **Rank MA**. Have expert guidelines made a difference in asthma outcomes? *Curr Opin Allergy Clin Immunol*. 2013 Jun; 13(3):237-43. PMID: 23571409 DOI: 10.1097/ACI.0b013e32836093c3

30. **Rank MA**, Ziegenfuss JY, Shah KM, Jenkins SM, Lackore KA, Eton DT, Shah ND. Is patient assessment of asthma care delivery associated with publicly reported performance measures? *J Asthma*. 2013 Oct; 50(8):908-14. Epub 2013 Jul 18. PMID: 23777573 DOI: 10.3109/02770903.2013.816966

31. * Ravi A, **Rank MA**. Reducing and managing systemic reactions to immunotherapy. *Curr Opin Allergy Clin Immunol*. 2013 Dec; 13 (6):651-5 PMID: 24145315 DOI: 10.1097/ACI.0b013e328364c876

32. * Pyle RC, Butterfield JH, Volcheck GW, Podjasek JC, **Rank MA**, Li JT, Harish A, Poe KL, Park MA. Successful outpatient graded administration of trimethoprim-sulfamethoxazole in patients without HIV and with a history of sulfonamide adverse drug reaction. *J Allergy Clin Immunol Pract*. 2014 Jan-Feb; 2(1):52-8. PMID: 24565769 DOI: 10.1016/j.jaip.2013.11.002

33. **Rank MA**, Bernstein DI. Improving the safety of immunotherapy. *J Allergy Clin Immunol Pract*. 2014 Mar-Apr; 2(2):131-5. Epub 2013 Dec 19. PMID: 24607038 DOI: 10.1016/j.jaip.2013.09.017

34. * Hagan JB, Samant SA, Volcheck GW, Li JT, Hagan CR, Erwin PJ, **Rank MA**. The risk of asthma exacerbation after reducing inhaled corticosteroids: a systematic review and meta-analysis of randomized controlled trials. *Allergy*. 2014 Apr; 69 (4):510-6 Epub 2014 Feb 26 PMID: 24571355 DOI: 10.1111/all.12368

35. **Rank MA**, Bertram S, Wollan P, Yawn RA, Yawn BP. Comparing the Asthma APGAR system and the Asthma Control Test in a multicenter primary care sample. *Mayo Clin Proc*. 2014 Jul; 89(7):917-25. Epub 2014 May 05. PMID: 24809759 DOI: 10.1016/j.mayocp.2014.02.016

36. * Bauer CS, **Rank MA**. Comparative efficacy and safety of subcutaneous versus sublingual immunotherapy. *J Allergy Clin Immunol*. 2014 Sep; 134(3):765-765.e2. PMID: 25171871 DOI: 10.1016/j.jaci.2014.07.024

37. **Rank MA**, Shah ND. Multiple chronic conditions and asthma: implications for practice and research. *J Allergy Clin Immunol Pract*. 2014 Sep-Oct; 2(5):518-24. Epub 2014 Aug 03. PMID: 25213044 DOI: 10.1016/j.jaip.2014.06.020

38. **Rank MA**, Peters SP. The risks, benefits, and uncertainties of stepping down asthma medications. *J Allergy Clin Immunol Pract*. 2014 Sep-Oct; 2(5):503-9; quiz 510. Epub 2014 May 01. PMID: 25213042 DOI: 10.1016/j.jaip.2014.03.004

39. Hagan JB, **Rank MA**. Assessing the risks and benefits of step-down asthma care: a case-based approach. *Curr Allergy Asthma Rep.* 2015 Apr; 15 (8):503 PMID: 25687171 DOI: 10.1007/s11882-014-0503-z

40. * Divekar RD, Samant S, **Rank MA**, Hagan J, Lal D, O'Brien EK, Kita H. Immunological profiling in chronic rhinosinusitis with nasal polyps reveals distinct VEGF and GM-CSF signatures during symptomatic exacerbations. *Clin Exp Allergy.* 2015 Apr; 45 (4):767-78 PMID: 25429844 PMCID: PMC4459602 DOI: 10.1111/cea.12463

41. Lal D, Rounds AB, **Rank MA**, Divekar R. Clinical and 22-item Sino-Nasal Outcome Test symptom patterns in primary headache disorder patients presenting to otolaryngologists with "sinus" headaches, pain or pressure. *Int Forum Allergy Rhinol.* 2015 May; 5: (5)408-16. PMID: 25755224 DOI: 10.1002/alr.21502

42. **Rank MA**, Gionfriddo MR, Pongdee T, Volcheck GW, Li JT, Hagan CR, Erwin PJ, Hagan JB. Stepping down from inhaled corticosteroids with leukotriene inhibitors in asthma: a systematic review and meta-analysis. *Allergy Asthma Proc.* 2015 May-Jun; 36 (3):200-5 PMID: 25976437 PMCID: PMC4405599 DOI: 10.2500/aap.2015.36.3839

43. * Gionfriddo MR, Hagan JB, Hagan CR, Volcheck GW, Castaneda-Guarderas A, **Rank MA**. Stepping down inhaled corticosteroids from scheduled to as needed in stable asthma: Systematic review and meta-analysis. *Allergy Asthma Proc.* 2015 Jul-Aug; 36 (4):262-7 PMID: 26108083 PMCID: PMC5561078 DOI: 10.2500/aap.2015.36.3850

44. **Rank MA**, Johnson R, Branda M, Herrin J, van Houten H, Gionfriddo MR, Shah ND. Long-term Outcomes After Stepping Down Asthma Controller Medications: A Claims-Based, Time-to-Event Analysis. *Chest.* 2015 Sep; 148 (3):630-639 PMID: 25997080 PMCID: PMC4556120 DOI: 10.1378/chest.15-0301

45. Yawn BP, **Rank MA**, Bertram SL, Wollan PC. Obesity, low levels of physical activity and smoking present opportunities for primary care asthma interventions: an analysis of baseline data from The Asthma Tools Study. *NPJ Prim Care Respir Med.* 2015 Oct 1; 25:15058 Epub 2015 Oct 01 PMID: 26426429 PMCID: PMC4590305 DOI: 10.1038/nppjpcrm.2015.58

46. Divekar R, Patel N, Jin J, Hagan J, **Rank M**, Lal D, Kita H, O'Brien E. Symptom-Based Clustering in Chronic Rhinosinusitis Relates to History of Aspirin Sensitivity and Postsurgical Outcomes. *J Allergy Clin Immunol Pract.* 2015 Nov-Dec; 3 (6):934-40.e3 Epub 2015 July 26 PMID: 26216252 PMCID: PMC4641837 DOI: 10.1016/j.jaip.2015.06.018

47. Azadeh N, **Rank MA**, Lewis JC, Wesselius LJ, Cheng MR, Blair JE. Wheezes and desert breezes: when asthma and valley fever collide. *J Asthma.* 2016; 53: (2)125-32. PMID: 26312545 DOI: 3109/0277090320151070861

48. Yawn BP, **Rank MA**, Cabana MD, Wollan PC, Juhn YJ. Adherence to Asthma Guidelines in Children, Tweens, and Adults in Primary Care Settings: A Practice-Based Network Assessment. *Mayo Clin Proc.* 2016 Apr; 91 (4):411-21 Epub 2016 Mar 01 PMID: 26944837 PMCID: PMC6334649 DOI: 10.1016/j.mayocp.2016.01.010

49. **Rank MA**, Ochkur SI, Lewis JC, Teaford HG 3rd, Wesselius LJ, Helmers RA, Lee NA, Nair P, Lee JJ. Nasal and pharyngeal eosinophil peroxidase levels in adults with poorly controlled asthma correlate with sputum eosinophilia. *Allergy.* 2016 Apr; 71 (4):567-70 Epub 2015 Dec 24 PMID: 26645423 PMCID: PMC4803514 DOI: 10.1111/all.12817

50. Lal D, B Golisch K, Chang YH, **A Rank M**. Baseline clinical characteristics predict follow-up clinic attendance in patients undergoing endoscopic sinus surgery for chronic rhinosinusitis. *Int Forum Allergy Rhinol.* 2016 May; 6 (5):508-513 Epub 2016 Jan 11 PMID: 31595733 DOI: 10.1002/alr.21701

51. **Rank MA**, Liesinger JT, Branda ME, Gionfriddo MR, Schatz M, Zeiger RS, Shah ND. Comparative safety and costs of stepping down asthma medications in patients with controlled asthma. *J Allergy Clin Immunol.* 2016 May; 137 (5):1373-1379.e3 Epub 2015 Oct 21 PMID: 26506020 DOI: 10.1016/j.jaci.2015.08.035

52. Alpern ML, Campbell RL, **Rank MA**, Park MA, Hagan JB. A case of vibratory anaphylaxis. *Ann Allergy Asthma Immunol* 2016 Jun; 116 (6):588-9 Epub 2016 May 04 PMID: 27156745 DOI: 10.1016/j.anai.2016.04.009

53. Lal D, Jategaonkar AA, Borish L, Chambliss LR, Gnagi SH, Hwang PH, **Rank MA**, Stankiewicz JA, Lund VJ. Management of rhinosinusitis during pregnancy: systematic review and expert panel recommendations. *Rhinology.* 2016 Jun; 54 (2):99-104 PMID: 26800862 PMCID: PMC5797655 DOI: 10.4193/Rhino15.228

54. Divekar R, Hagan J, **Rank M**, Park M, Volcheck G, O'Brien E, Meeusen J, Kita H, Butterfield J. Diagnostic Utility of Urinary LTE4 in Asthma, Allergic Rhinitis, Chronic Rhinosinusitis, Nasal Polyps, and Aspirin Sensitivity. *J Allergy Clin Immunol Pract.* 2016 Jul-Aug; 4 (4):665-70 Epub 2016 Apr 12 PMID: 27080204 PMCID: PMC5103699 DOI: 10.1016/j.jaip.2016.03.004

55. Larenas-Linnemann DES, Hauswirth DW, Calabria CW, Sher LD, **Rank MA**. American Academy of Allergy, Asthma & Immunology membership experience with allergen immunotherapy safety in patients with specific medical conditions Allergy And Asthma Proceedings. 2016 Sep-oct; 37: (5)E112-22.

56. Lal D, Golisch KB, Elwell ZA, Divekar RD, **Rank MA**, Chang YH. Gender-specific analysis of outcomes from

endoscopic sinus surgery for chronic rhinosinusitis. *Int Forum Allergy Rhinol.* 2016 Sep; 6 (9):896-905 Epub 2016 Apr 15 PMID: 27080452 DOI: 10.1002/alr.21773

57. **Rank MA**, Hoxworth JM, Lal D. Sorting out "sinus headache". *Journal Of Allergy And Clinical Immunology-In Practice.* 2016 Sep-Oct; 4(5):1013-4. Epub 1900 Jan 01.

58. Calabria CW, Hauswirth DW, **Rank M**, Sher L, Larenas-Linnemann D. American Academy of Asthma, Allergy & Immunology membership experience with venom immunotherapy in chronic medical conditions and pregnancy, and in young children. *Allergy Asthma Proc.* 2017 Mar 01; 38: (2)121-129. PMID: 28234049 DOI: 10.2500/aap.2017.38.4024

59. Divekar R, **Rank M**, Squillace D, Kita H, Lal D. Unsupervised network mapping of commercially available immunoassay yields three distinct chronic rhinosinusitis endotypes. *Int Forum Allergy Rhinol.* 2017 Apr; 7 (4):373-379 Epub 2017 Jan 02 PMID: 28042687 DOI: 10.1002/alr.21904

60. Lal D, Keim P, Delisle J, Barker B, **Rank MA**, Chia N, Schupp JM, Gillece JD, Cope EK. Mapping and comparing bacterial microbiota in the sinonasal cavity of healthy, allergic rhinitis, and chronic rhinosinusitis subjects. *Int Forum Allergy Rhinol.* 2017 Jun; 7 (6):561-569 Epub 2017 May 08 PMID: 28481057 DOI: 10.1002/alr.21934

61. Hagan JB, Laidlaw TM, Divekar R, O'Brien EK, Kita H, Volcheck GW, Hagan CR, Lal D, Teaford HG 3rd, Erwin PJ, Zhang N, **Rank MA**. Urinary Leukotriene E4 to Determine Aspirin Intolerance in Asthma: A Systematic Review and Meta-Analysis. *J Allergy Clin Immunol Pract.* 2017 Jul - Aug; 5 (4):990-997.e1 Epub 2017 Feb 12 PMID: 28202405 DOI: 10.1016/j.jaip.2016.11.004

62. Barrick BJ, Jalan S, Tollefson MM, Milbrandt TA, Larson AN, **Rank MA**, Lohse CM, Davis DMR. Associations of self-reported allergic diseases and musculoskeletal problems in children: A US population-based study. *Ann Allergy Asthma Immunol.* 2017 Aug; 119 (2):170-176 Epub 2017 June 28 PMID: 28668547 DOI: 10.1016/j.anai.2017.06.002

63. Starr SR, Agrwal N, Bryan MJ, Buhrman Y, Gilbert J, Huber JM, Leep Hunderfund AN, Liebow M, Mergen EC, Natt N, Patel AM, Patel BM, Poole KG Jr, **Rank MA**, Sandercock I, Shah AA, Wilson N, Johnson CD. Science of Health Care Delivery: An Innovation in Undergraduate Medical Education to Meet Society's Needs. *Mayo Clin Proc Innov Qual Outcomes.* 2017 Sep; 1 (2):117-129 Epub 2017 Aug 02 PMID: 30225408 PMCID: PMC6135021 DOI: 10.1016/j.mayocpiqo.2017.07.001

64. * Gionfriddo MR, Hagan JB, **Rank MA**. Why and how to step down chronic asthma drugs. *BMJ.* 2017 Oct 16; 359:j4438 PMID: 29038166 DOI: 10.1136/bmj.j4438

65. Azar A, **Rank MA**, Zarka MA, Chang YH, Lal D. Gender-specific differences in serum immunoglobulin E levels and prevalence of fungus in sinonasal tissue noted in patients with chronic rhinosinusitis who underwent endoscopic sinus surgery. *Am J Rhinol Allergy.* 2017 Nov 1; 31 (6):370-375 PMID: 29122081 DOI: 10.2500/ajra.2017.31.4471

66. Dykewicz MS, Wallace DV, Baroody F, Bernstein J, Craig T, Finegold I, Huang F, Larenas-Linnemann D, Meltzer E, Steven G, Bernstein DI, Blessing-Moore J, Dinakar C, Greenhawt M, Horner CC, Khan DA, Lang D, Oppenheimer J, Portnoy JM, Randolph CR, **Rank MA**. Treatment of seasonal allergic rhinitis an evidence-based focused 2017 guideline update *Annals Of Allergy Asthma & Immunology.* 2017 Dec; 119(6):489-511.e41. Epub 1900 Jan 01.

67. * Wright BL, Fernandez-Becker NQ, Kambham N, Purington N, Tupa D, Zhang W, **Rank MA**, Kita H, Shim KP, Bunning BJ, Doyle AD, Jacobsen EA, Boyd SD, Tsai M, Maecker H, Manohar M, Galli SJ, Nadeau KC, Chinthrajah RS. Baseline Gastrointestinal Eosinophilia Is Common in Oral Immunotherapy Subjects With IgE-Mediated Peanut Allergy. *Front Immunol.* 2018; 9:2624 Epub 2018 Nov 22 PMID: 30524424 PMCID: PMC6261984 DOI: 10.3389/fimmu.2018.02624

68. * Wright BL, Ochkur SI, Olson NS, Shim KP, Jacobsen EA, **Rank MA**, Dellon ES, Lee JJ. Normalized serum eosinophil peroxidase levels are inversely correlated with esophageal eosinophilia in eosinophilic esophagitis. *Dis Esophagus.* 2018 Feb 1; 31 (2) PMID: 29228243 PMCID: PMC7373170 DOI: 10.1093/dote/dox139

69. Yawn BP, Wollan PC, **Rank MA**, Bertram SL, Juhn Y, Pace W. Use of Asthma APGAR Tools in Primary Care Practices: A Cluster-Randomized Controlled Trial. *Ann Fam Med.* 2018 Mar; 16 (2):100-110 PMID: 29531100 PMCID: PMC5847347 DOI: 10.1370/afm.2179

70. * Hines BT, **Rank MA**, Wright BL, Marks LA, Hagan JB, Straumann A, Greenhawt M, Dellon ES. Minimally invasive biomarker studies in eosinophilic esophagitis: A systematic review. *Ann Allergy Asthma Immunol.* 2018 Aug; 121 (2):218-228 Epub 2018 May 16 PMID: 29753832 PMCID: PMC6104633 DOI: 10.1016/j.anai.2018.05.005

71. Miglani A, Divekar RD, Azar A, **Rank MA**, Lal D. Revision endoscopic sinus surgery rates by chronic rhinosinusitis subtype. *Int Forum Allergy Rhinol.* 2018 Sep; 8 (9):1047-1051 Epub 2018 May 31 PMID: 29851243 DOI: 10.1002/alr.22146

72. Jeffery MM, Shah ND, Karaca-Mandic P, Ross JS, **Rank MA**. Trends in Omalizumab Utilization for Asthma: Evidence of Suboptimal Patient Selection. *J Allergy Clin Immunol Pract*. 2018 Sep-Oct; 6 (5):1568-1577.e4 Epub 2017 Sept 22 PMID: 28958746 DOI: 10.1016/j.jaip.2017.07.034

73. Storlie CB, Branda ME, Gionfriddo MR, Shah ND, **Rank MA**. Prediction of individual outcomes for asthma sufferers. *Biostatistics*. 2018 Oct 1; 19 (4):579-593 PMID: 29121247 DOI: 10.1093/biostatistics/kxx055

74. **Rank MA**, Landman N, Harootunian G, Winscott M, Jain N, Frey K, Wilson G, Drewek R, Parra-Roide L, Wilson C, Smoldt R, Cortese D. Variability in asthma quality and costs in children with different Medicaid insurance plans in Maricopa County. *J Asthma*. 2019 Feb; 56 (2):152-159 Epub 2018 Feb 16 PMID: 29451814 DOI: 10.1080/02770903.2018.1432644

75. Chipps BE, Bacharier LB, Murphy KR, Lang D, Farrar JR, **Rank MA**, Oppenheimer J, Zeiger RS. The Asthma Controller Step-down Yardstick. *Ann Allergy Asthma Immunol*. 2019 Mar; 122 (3):241-262.e4 Epub 2018 Dec 12 PMID: 30550809 DOI: 10.1016/j.anai.2018.12.004

76. **Rank MA**, Oppenheimer JJ. Asthma biologics: Underuse, overuse, and best use? *Ann Allergy Asthma Immunol*. 2019 Apr; 122 (4):358-359 Epub 2018 Dec 19 PMID: 30578858 DOI: 10.1016/j.anai.2018.12.016

77. * Doyle AD, Mukherjee M, LeSuer WE, Bittner TB, Pasha SM, Frere JJ, Neely JL, Kloeber JA, Shim KP, Ochkur SI, Ho T, Svenningsen S, Wright BL, **Rank MA**, Lee JJ, Nair P, Jacobsen EA. Eosinophil-derived IL-13 promotes emphysema. *Eur Respir J*. 2019 May; 53(5). Epub 2019 May 30. PMID: 30728205 PMCID: PMC7313423 DOI: 10.1183/13993003.01291-2018

78. Lal D, Wright BL, Shim KP, Zarka MA, Lee JJ, Chang YH, Ochkur SI, Divekar R, Doyle AD, Jacobsen EA, Kita H, **Rank MA**. Eosinophil peroxidase, GATA3, and T-bet as tissue biomarkers in chronic rhinosinusitis. *J Allergy Clin Immunol* 2019 Jun; 143 (6):2284-2287.e6 Epub 2019 Feb 08 PMID: 30738839 DOI: 10.1016/j.jaci.2019.01.038

79. Inselman JW, Jeffery MM, Maddux JT, Shah ND, **Rank MA**. Trends and Disparities in Asthma Biologic Use in the United States. *J Allergy Clin Immunol Pract*. 2020 Feb; 8 (2):549-554.e1 Epub 2019 Aug 28 PMID: 31472294 PMCID: PMC7012665 DOI: 10.1016/j.jaip.2019.08.024

80. Shaker MS, Wallace DV, Golden DBK, Oppenheimer J, Bernstein JA, Campbell RL, Dinakar C, Ellis A, Greenhawt M, Khan DA, Lang DM, Lang ES, Lieberman JA, Portnoy J, Stukus DR, Wang J, Riblet N, Bobrownicki AMP, Bontrager T, Dusin J, Foley J, Frederick B, Fregene E, Hellerstedt S, Hassan F, Hess K, Horner C, Huntington K, Kasireddy P, Keeler D, Kim B, Lieberman P, Lindhorst E, McEnany F, Milbank J, Murphy H, Pando O, Patel AK, Ratliff N, Rhodes R, Robertson K, Scott H, Snell A, Sullivan R, Trivedi V, Wickham A, Shaker MS, Wallace DV, Shaker MS, Wallace DV, Bernstein JA, Campbell RL, Dinakar C, Ellis A, Golden DBK, Greenhawt M, Lieberman JA, Stukus DR, Wang J, Shaker MS, Wallace DV, Golden DBK, Bernstein JA, Dinakar C, Ellis A, Greenhawt M, Horner C, Khan DA, Lieberman JA, Oppenheimer J, **Rank MA**, Shaker MS, Stukus DR, Wang J, Collaborators//Chief Editors//Workgroup Contributors//Joint Task Force on Practice Parameters Reviewers. Anaphylaxis-a 2020 practice parameter update, systematic review, and Grading of Recommendations, Assessment, Development and Evaluation (GRADE) analysis. *J Allergy Clin Immunol*. 2020 Apr; 145 (4):1082-1123 Epub 2020 Jan 28 PMID: 32001253 DOI: 10.1016/j.jaci.2020.01.017

81. Hirano I, Chan ES, **Rank MA**, Sharaf RN, Stollman NH, Stukus DR, Wang K, Greenhawt M, Falck-Ytter YT, AGA Institute Clinical Guidelines Committee//Joint Task Force on Allergy-Immunology Practice Parameters. AGA institute and the joint task force on allergy-immunology practice parameters clinical guidelines for the management of eosinophilic esophagitis. *Ann Allergy Asthma Immunol*. 2020 May; 124 (5):416-423 PMID: 32336462 PMCID: PMC8135034 DOI: 10.1016/j.anai.2020.03.020

82. Hirano I, Chan ES, **Rank MA**, Sharaf RN, Stollman NH, Stukus DR, Wang K, Greenhawt M, Falck-Ytter YT, AGA Institute Clinical Guidelines Committee//Joint Task Force on Allergy-Immunology Practice Parameters. AGA Institute and the Joint Task Force on Allergy-Immunology Practice Parameters Clinical Guidelines for the Management of Eosinophilic Esophagitis. *Gastroenterology*. 2020 May; 158 (6):1776-1786 PMID: 32359562 PMCID: PMC9473154 DOI: 10.1053/j.gastro.2020.02.038

83. Hirano I, Sharaf R, Stollman N, Wang K, Falck-Ytter Y, Chan E, **Rank M**, Stukus D, Greenhawt M. Spotlight: Treatment of Eosinophilic Esophagitis (EoE). *Gastroenterology*. 2020 May; 158 (6):1788 Epub 2020 Apr 06 PMID: 32272086 DOI: 10.1053/j.gastro.2020.03.069

84. Patel A, Singh S, **Rank MA**, Sharaf RN, Furuta GT, Aceves SS, Greenhawt M, Spergel JM, Falck-Ytter YT, Dellon ES, AGA Institute. Electronic address: clinicalpractice@gastro.org//Joint Task Force on Allergy-Immunology Practice Parameters collaborators. Electronic address: drdanawallace@gmail.com//AGA Institute//Joint Task Force on Allergy-Immunology Practice Parameters collaborators. Technical review on the management of eosinophilic esophagitis: a report from the AGA institute and the joint task force on allergy-immunology practice parameters. *Ann Allergy Asthma Immunol*. 2020 May; 124 (5):424-440.e17 PMID: 32336463 PMCID: PMC8171057 DOI: 10.1016/j.anai.2020.03.021

85. **Rank MA**, Sharaf RN, Furuta GT, Aceves SS, Greenhawt M, Spergel JM, Falck-Ytter YT, Dellon ES, AGA Institute. Electronic address: clinicalpractice@gastro.org//Joint Task Force on Allergy-Immunology Practice Parameters collaborators. Electronic address: drdanawallace@gmail.com//AGA Institute//Joint Task Force on Allergy-Immunology Practice Parameters collaborators. Technical Review on the Management of Eosinophilic Esophagitis: A Report From the AGA Institute and the Joint Task Force on Allergy-Immunology Practice Parameters. *Gastroenterology*. 2020 May; 158 (6):1789-1810.e15 PMID: 32359563 PMCID: PMC9473155 DOI: 10.1053/j.gastro.2020.02.039

86. Shaker MS, Oppenheimer J, Wallace DV, Golden DBK, Lang DM, Lang ES, Bernstein JA, Campbell RL, Chu D, Dinakar C, Ellis AK, Greenhawt M, Horner C, Lieberman JA, **Rank MA**, Stukus DR, Wang J, Joint Task Force for Allergy Practice Parameters//Contributors. Making the GRADE in anaphylaxis management: Toward recommendations integrating values, preferences, context, and shared decision making. *Ann Allergy Asthma Immunol*. 2020 Jun; 124 (6):526-535.e2 Epub 2020 Mar 19 PMID: 32199979 DOI: 10.1016/j.anai.2020.03.009

87. Farmer A, Mirea L, Carter J, **Rank M**, Bulloch B, Vaidya V, Drewek R. Inhaled corticosteroids prescriptions increased in the ED for recurrent asthma exacerbations by automated electronic reminders in the ED. *J Asthma*. 2020 Oct; 57 (10):1140-1144 Epub 2019 July 08 PMID: 31226000 DOI: 10.1080/02770903.2019.1635152

88. Dykewicz MS, Wallace DV, Amrol DJ, Baroody FM, Bernstein JA, Craig TJ, Dinakar C, Ellis AK, Finegold I, Golden DBK, Greenhawt MJ, Horner CC, Khan DA, Lang DM, Larenas-Linnemann DES, Lieberman JA, Meltzer EO, Oppenheimer JJ, Shaker MS, Shaw JL, Steven GC, Stukus DR, Wang J, Dykewicz MS, Wallace DV, Dinakar C, Ellis AK, Golden DBK, Greenhawt MJ, Horner CC, Khan DA, Lang DM, Lieberman JA, Oppenheimer JJ, **Rank MA**, Shaker MS, Stukus DR, Wang J, Dykewicz MS, Wallace DV, Amrol DJ, Baroody FM, Bernstein JA, Craig TJ, Finegold I, Hagan JB, Larenas-Linnemann DES, Meltzer EO, Shaw JL, Steven GC, Chief Editor(s)//Joint Task Force on Practice Parameters://Workgroup Contributors:. Rhinitis 2020: A practice parameter update. *J Allergy Clin Immunol*. 2020 Oct; 146 (4):721-767 Epub 2020 July 22 PMID: 32707227 DOI: 10.1016/j.jaci.2020.07.007

89. Greenhawt M, Shaker M, Wang J, Oppenheimer JJ, Sicherer S, Keet C, Swaggart K, **Rank M**, Portnoy JM, Bernstein J, Chu DK, Dinakar C, Golden D, Horner C, Lang DM, Lang ES, Khan DA, Lieberman J, Stukus D, Wallace D. Peanut allergy diagnosis: A 2020 practice parameter update, systematic review, and GRADE analysis. *J Allergy Clin Immunol*. 2020 Dec; 146 (6):1302-1334 Epub 2020 Aug 15 PMID: 32810515 DOI: 10.1016/j.jaci.2020.07.031

90. Freeman CM, **Rank MA**, Bolster LaSalle CM, Grys TE, Lewis JC. Effectiveness of Physical Distancing: Staying 6 Feet Over to Put Respiratory Viruses 6 Feet Under. *Mayo Clin Proc*. 2021 Jan; 96 (1):148-151 PMID: 33413811 DOI: 10.1016/j.mayocp.2020.10.040

91. Gonzalez-Estrada A, Carrillo-Martin I, Renew JR, **Rank MA**, Campbell RL, Volcheck GW. Incidence of and risk factors for perioperative or periprocedural anaphylaxis in the United States from 2005 to 2014. *Ann Allergy Asthma Immunol*. 2021 Feb; 126 (2):180-186.e3 Epub 2020 Oct 14 PMID: 33068738 DOI: 10.1016/j.anai.2020.10.001

92. Maddux JT, Inselman JW, Jeffery MM, Lam RW, Shah ND, **Rank MA**. Adherence to Asthma Biologics: Implications for Patient Selection, Step Therapy, and Outcomes. *Chest*. 2021 Mar; 159 (3):924-932 Epub 2020 Oct 24 PMID: 33558205 PMCID: PMC7965652 DOI: 10.1016/j.chest.2020.10.050

93. * Wright BL, Doyle AD, Shim KP, Pai RK, Barshow SM, Horsley-Silva JL, Luo H, **Rank MA**, Jacobsen EA, Katzka DA, Kita H, Dellon ES. Image Analysis of Eosinophil Peroxidase Immunohistochemistry for Diagnosis of Eosinophilic Esophagitis. *Dig Dis Sci*. 2021 Mar; 66 (3):775-783 Epub 2020 Apr 04 PMID: 32248390 PMCID: PMC7541435 DOI: 10.1007/s10620-020-06230-5

94. Inselman JW, **Rank MA**, Zawada SK, Jeffery MM. Which people with asthma are most likely to be hospitalized with COVID-19 in the United States? *J Allergy Clin Immunol Pract*. 2021 May; 9 (5):2080-2082 Epub 2021 Mar 05 PMID: 33684636 PMCID: PMC7934792 DOI: 10.1016/j.jaip.2021.02.050

95. * Wright BL, Fernandez-Becker NQ, Kambham N, Purington N, Cao S, Tupa D, Zhang W, Sindher SB, **Rank MA**, Kita H, Katzka DA, Shim KP, Bunning BJ, Doyle AD, Jacobsen EA, Tsai M, Boyd SD, Manohar M, Chinthurajah RS. Gastrointestinal Eosinophil Responses in a Longitudinal, Randomized Trial of Peanut Oral Immunotherapy. *Clin Gastroenterol Hepatol*. 2021 Jun; 19 (6):1151-1159.e14 Epub 2020 May 17 PMID: 32434067 PMCID: PMC8445108 DOI: 10.1016/j.cgh.2020.05.019

96. Jeffery MM, Inselman JW, Maddux JT, Lam RW, Shah ND, **Rank MA**. Asthma Patients Who Stop Asthma Biologics Have a Similar Risk of Asthma Exacerbations as Those Who Continue Asthma Biologics. *J Allergy Clin Immunol Pract*. 2021 Jul; 9 (7):2742-2750.e1 Epub 2021 Feb 27 PMID: 33652135 PMCID: PMC8277704 DOI: 10.1016/j.jaip.2021.02.031

97. Bajpai S, Marino MJ, **Rank MA**, Donaldson AM, O'Brien EK, Lal D. Benefits of biologic therapy administered for asthma on co-existent chronic rhinosinusitis: A real-world study. *Int Forum Allergy Rhinol*. 2021 Aug; 11

(8):1152-1161 Epub 2021 Feb 01 PMID: 33527730 DOI: 10.1002/alr.22774

98. Freeman CM, **Rank MA**. Optimal use of intranasal corticosteroids and intranasal saline, is there a clear answer? *Curr Opin Allergy Clin Immunol*. 2021 Aug 1; 21 (4):394-400 PMID: 34016810 DOI: 10.1097/ACI.0000000000000752

99. Greenhawt M, Abrams EM, Shaker M, Chu DK, Khan D, Akin C, Alqurashi W, Arkwright P, Baldwin JL, Ben-Shoshan M, Bernstein J, Bingemann T, Blumchen K, Byrne A, Bognanni A, Campbell D, Campbell R, Chagla Z, Chan ES, Chan J, Comberiati P, Dribin TE, Ellis AK, Fleischer DM, Fox A, Frischmeyer-Guerrero PA, Gagnon R, Grayson MH, Horner CC, Hourihane J, Katalaris CH, Kim H, Kelso JM, Lang D, Ledford D, Levin M, Lieberman J, Loh R, Mack D, Mazer B, Mosnaim G, Munblit D, Mustafa SS, Nanda A, Oppenheimer J, Perrett KP, Ramsey A, **Rank M**, Robertson K, Sheikh J, Spergel JM, Stukus D, Tang MLK, Tracy JM, Turner PJ, Whalen-Browne A, Wallace D, Wang J, Waserman S, Witry JK, Worm M, Vander Leek TK, Golden DBK. The Risk of Allergic Reaction to SARS-CoV-2 Vaccines and Recommended Evaluation and Management: A Systematic Review, Meta-Analysis, GRADE Assessment, and International Consensus Approach. *J Allergy Clin Immunol Pract*. 2021 Oct; 9 (10):3546-3567 Epub 2021 June 18 PMID: 34153517 PMCID: PMC8248554 DOI: 10.1016/j.jaip.2021.06.006

100. Gonzalez-Estrada A, Campbell RL, Carrillo-Martin I, Renew JR, **Rank MA**, Volcheck GW. Incidence and risk factors for near-fatal and fatal outcomes after perioperative and periprocedural anaphylaxis in the USA, 2005-2014. *Br J Anaesth*. 2021 Dec; 127 (6):890-896 Epub 2021 July 28 PMID: 34330411 DOI: 10.1016/j.bja.2021.06.036

101. Lam RW, Inselman JW, Jeffery MM, Maddux JT, **Rank MA**. National decline in asthma exacerbations in United States during coronavirus disease 2019 pandemic. *Ann Allergy Asthma Immunol*. 2021 Dec; 127 (6):692-694 Epub 2021 Sept 25 PMID: 34582946 PMCID: PMC8464023 DOI: 10.1016/j.anai.2021.09.017

102. Maddux JT, Inselman JW, Jeffery MM, Lam RW, Shah ND, **Rank MA**. Persistence of asthma biologic use in a US claims database. *Ann Allergy Asthma Immunol*. 2021 Dec; 127 (6):648-654 Epub 2021 May 07 PMID: 33971361 PMCID: PMC8572312 DOI: 10.1016/j.anai.2021.04.026

103. Yaphe H, Wallace D, **Rank MA**, Lang E. Systematic Review and Meta-Analysis: Pearls for Interpretation, Appraisal, and Application in Clinical Practice. *J Allergy Clin Immunol Pract*. 2021 Dec; 9 (12):4209-4220 Epub 2021 Aug 21 PMID: 34428565 DOI: 10.1016/j.jaip.2021.08.009

104. Hagan JB, Ender E, Divekar RD, Pongdee T, **Rank MA**. Risk for Postmarket Black Box Warnings in FDA-Approved Monoclonal Antibodies. *Mayo Clin Proc Innov Qual Outcomes*. 2022 Feb; 6(1):69-76. Epub 2021 Dec 28. PMID: 35024565 PMCID: PMC8724853 DOI: 10.1016/j.mayocpiqo.2021.11.009

105. Lam RW, Inselman JW, Jeffery MM, Maddux JT, Shah ND, **Rank MA**. Asthma biologic trial eligibility and real-world outcomes in the United States. *J Asthma*. 2022 Dec; 59 (12):2352-2359 Epub 2021 Dec 06 PMID: 34818955 PMCID: PMC9575703 DOI: 10.1080/02770903.2021.2010749

106. Khan DA, Banerji A, Blumenthal KG, Phillips EJ, Solensky R, Bernstein JA, Chu DK, Ellis AK, Golden DBK, Greenhawt MJ, Horner CC, Ledford D, Lieberman JA, Oppenheimer J, Shaker MS, Stukus DR, Wallace D, Wang J, Khan DA, Golden DBK, Shaker M, Stukus DR, Khan DA, Banerji A, Blumenthal KG, Phillips EJ, Solensky R, White AA, Bernstein JA, Chu DK, Ellis AK, Golden DBK, Greenhawt MJ, Horner CC, Ledford D, Lieberman JA, Oppenheimer J, **Rank MA**, Shaker MS, Stukus DR, Wallace D, Wang J, Chief Editor (s)://Workgroup Contributors://Joint Task Force on Practice Parameters Reviewers:. Drug allergy: A 2022 practice parameter update. *J Allergy Clin Immunol*. 2022 Dec; 150 (6):1333-1393 Epub 2022 Sept 17 PMID: 36122788 DOI: 10.1016/j.jaci.2022.08.028

107. Bognanni A, Chu DK, **Rank MA**, Bernstein J, Ellis AK, Golden D, Greenhawt M, Hagan JB, Horner CC, Ledford DK, Lieberman J, Luong AU, Marks LA, Orlandi RR, Samant SA, Shaker M, Soler ZM, Stevens WW, Stukus DR, Wang J, Peters AT. Topical corticosteroids for chronic rhinosinusitis with nasal polyposis: GRADE systematic review and network meta-analysis. *J Allergy Clin Immunol*. 2022 Dec; 150 (6):1447-1459 Epub 2022 Aug 12 PMID: 35970310 DOI: 10.1016/j.jaci.2022.07.023

108. Kim SL, **Rank MA**, Peters AT. The chronic rhinosinusitis practice parameter. *Ann Allergy Asthma Immunol*. 2022 Dec 17 [Epub ahead of print] PMID: 36538974 DOI: 10.1016/j.anai.2022.12.022

109. Doyle AD, Masuda MY, Pyon GC, Luo H, Putikova A, LeSuer WE, Flashner S, **Rank MA**, Nakagawa H, Kita H, Wright BL. Detergent exposure induces epithelial barrier dysfunction and eosinophilic inflammation in the esophagus. *Allergy*. 2023 Jan; 78 (1):192-201 Epub 2022 Aug 08 PMID: 35899466 PMCID: PMC9797443 DOI: 10.1111/all.15457

110. Ponda P, Carr T, **Rank MA**, Bousquet J. Nonallergic Rhinitis, Allergic Rhinitis, and Immunotherapy: Advances in the Last Decade. *J Allergy Clin Immunol Pract*. 2023 Jan; 11 (1):35-42 Epub 2022 Sept 21 PMID: 36152989 DOI: 10.1016/j.jaip.2022.09.010

111. **Rank MA**, Chu DK, Bognanni A, Oykhman P, Bernstein JA, Ellis AK, Golden DBK, Greenhawt M, Horner CC,

Ledford DK, Lieberman J, Luong AU, Orlandi RR, Samant SA, Shaker MS, Soler ZM, Stevens WW, Stukus DR, Wang J, Peters AT. The Joint Task Force on Practice Parameters GRADE guidelines for the medical management of chronic rhinosinusitis with nasal polyposis. *J Allergy Clin Immunol*. 2023 Feb; 151 (2):386-398 Epub 2022 Nov 09 PMID: 36370881 DOI: 10.1016/j.jaci.2022.10.026

112. Inselman JW, Jeffery MM, Maddux JT, Lam RW, Shah ND, **Rank MA**, Ngufor CG. A prediction model for asthma exacerbations after stopping asthma biologics. *Ann Allergy Asthma Immunol*. 2023 Mar; 130 (3):305-311 Epub 2022 Dec 09 PMID: 36509405 PMCID: PMC9992017 DOI: 10.1016/j.anai.2022.11.025

113. Gleeson PK, Morales KH, Hvistad C, LaCava AF, Harhay MO, **Rank MA**, Apter AJ, Himes BE. Factors Associated With Asthma Biologic Prescribing and Primary Adherence Among Adults in a Large Health System. *J Allergy Clin Immunol Pract*. 2023 Jun; 11 (6):1834-1842.e4 Epub 2023 Mar 10 PMID: 36907354 PMCID: PMC10330036 DOI: 10.1016/j.jaip.2023.03.003

114. Brake DR, Yaman RN, Camargo AR, Marks LA, Maddux JT, Ochkur SI, **Rank MA**. Meteorological and environmental factors that impact pollen counts, allergenicity, and thresholds: A scoping review. *Allergy Asthma Proc*. 2023 Jul 1; 44 (4):229-236 PMID: 37480203 DOI: 10.2500/aap.2023.44.230022

115. Wright BL, Masuda MY, Ortiz DR, Dao A, Civello B, Pyon GC, Schulze AR, Yiannas JA, **Rank MA**, Kita H, Doyle AD. Allergies Come Clean: The Role of Detergents in Epithelial Barrier Dysfunction. *Curr Allergy Asthma Rep*. 2023 Aug; 23 (8):443-451 Epub 2023 May 26 PMID: 37233851 PMCID: PMC10527525 DOI: 10.1007/s11882-023-01094-x

116. LeSuer WE, Kienzl M, Ochkur SI, Schicho R, Doyle AD, Wright BL, **Rank MA**, Krupnick AS, Kita H, Jacobsen EA. Eosinophils promote effector functions of lung group 2 innate lymphoid cells in allergic airway inflammation in mice. *J Allergy Clin Immunol*. 2023 Aug; 152 (2):469-485.e10 Epub 2023 Apr 06 PMID: 37028525 PMCID: PMC10503660 DOI: 10.1016/j.jaci.2023.03.023

117. Kim SL, **Rank MA**, Peters AT. The chronic rhinosinusitis practice parameter. *Ann Allergy Asthma Immunol*. 2023 Sep; 131 (3):307-310 Epub 2022 Dec 17 PMID: 37667905 DOI: 10.1016/j.anai.2022.12.022

118. Gansert E, Morgenstern-Kaplan D, Donaldson AM, **Rank MA**, Gonzalez-Estrada A. One- versus 2-day aspirin desensitization in aspirin exacerbated respiratory disease: A quality improvement project. *J Allergy Clin Immunol Glob*. 2023 Nov; 2(4):100158. Epub 2023 Jul 26. PMID: 37781671 PMCID: PMC10509838 DOI: 10.1016/j.jacig.2023.100158

119. **Rank MA**, Wonnapharhown AM, Freeman CM. Recent guidelines addressing chronic rhinosinusitis with nasal polyps: practical aspects. *Pol Arch Intern Med*. 2023 Nov 29; 133 (11) Epub 2023 Nov 21 PMID: 37987636 DOI: 10.20452/pamw.16611

120. Golden DBK, Wang J, Waserman S, Akin C, Campbell RL, Ellis AK, Greenhawt M, Lang DM, Ledford DK, Lieberman J, Oppenheimer J, Shaker MS, Wallace DV, Abrams EM, Bernstein JA, Chu DK, Horner CC, **Rank MA**, Stukus DR. Anaphylaxis: A 2023 practice parameter update. *Annals of Allergy, Asthma and Immunology*. 2024; 132 (2):124-76

121. Idler BM, Iijima K, Ochkur SI, Jacobsen EA, **Rank MA**, Kita H, Lal D. Eosinophil Peroxidase: A Biomarker for Eosinophilic Chronic Rhinosinusitis Agnostic of Polyp Status. *Laryngoscope*. 2024 Jan; 134 (1):69-78 Epub 2023 May 31 PMID: 37255054 PMCID: PMC10687314 DOI: 10.1002/lary.30787

122. Rusk AM, Paul M, Kelleher DP, Tilburt J, Northfelt D, **Rank M**, Cartin-Ceba R, Capossela G, Jackson T, Sabaque C, Chamberlain AM, Ortega VE, Benzo R, Kennedy C. Identifying pragmatic solutions to reduce cigarette smoking prevalence in Indigenous North Americans: A sequential exploratory mixed-methods study protocol. *PLoS One*. 2024; 19 (11):e0306512 Epub 2024 Nov 11 PMID: 39527530 PMCID: PMC11554222 DOI: 10.1371/journal.pone.0306512

123. Chu DK, Schneider L, Asiniwasis RN, Boguniewicz M, De Benedetto A, Ellison K, Frazier WT, Greenhawt M, Huynh J, Kim E, LeBovidge J, Lind ML, Lio P, Martin SA, O'Brien M, Ong PY, Silverberg JI, Spergel JM, Wang J, Wheeler KE, Guyatt GH, Capozza K, Begolka WS, Chu AWL, Zhao IX, Chen L, Oykman P, Bakaa L, Golden D, Shaker M, Bernstein JA, Greenhawt M, Horner CC, Lieberman J, Stukus D, **Rank MA**, Wang J, Ellis A, Abrams E, Ledford D, Chu DK, AAAAI/ACAAI JTF Atopic Dermatitis Guideline Panel//Patient Groups: Global Parents for Eczema Research//National Eczema Association//Evidence in Allergy Group//AAAI/ACAAI Joint Task Force on Practice Parameters. Atopic dermatitis (eczema) guidelines: 2023 American Academy of Allergy, Asthma and Immunology/American College of Allergy, Asthma and Immunology Joint Task Force on Practice Parameters GRADE- and Institute of Medicine-based recommendations. *Ann Allergy Asthma Immunol*. 2024 Mar; 132 (3):274-312 Epub 2023 Dec 18 PMID: 38108679 DOI: 10.1016/j.anai.2023.11.009

124. Masuda MY, Pyon GC, Luo H, LeSuer WE, Putikova A, Dao A, Ortiz DR, Schulze AR, Fritz N, Kobayashi T, Iijima K, Klein-Szanto AJ, Shimonosono M, Flashner S, Morimoto M, Pai RK, **Rank MA**, Nakagawa H, Kita H, Wright BL, Doyle AD. Epithelial overexpression of IL-33 induces eosinophilic esophagitis dependent on IL-13.

J Allergy Clin Immunol. 2024 May; 153 (5):1355-1368 Epub 2024 Feb 03 PMID: 38310974 PMCID: PMC11070306 DOI: 10.1016/j.jaci.2024.01.017

125. Gonzalez-Estrada A, Park MA, Accarino JJO, Banerji A, Carrillo-Martin I, D'Netto ME, Garzon-Siatoya WT, Hardway HD, Joundi H, Kinate S, Plager JH, **Rank MA**, Rukasin CRF, Samarakoon U, Volcheck GW, Weston AD, Wolfson AR, Blumenthal KG. Predicting Penicillin Allergy: A United States Multicenter Retrospective Study. *J Allergy Clin Immunol Pract*. 2024 May; 12 (5):1181-1191.e10 Epub 2024 Jan 17 PMID: 38242531 DOI: 10.1016/j.jaip.2024.01.010
126. Bracken AC, Oppenheimer JJ, Mosnaim GS, **Rank MA**. Simplifying asthma management in a university setting: A perspective. *Ann Allergy Asthma Immunol*. 2024 May; 132 (5):561-563 Epub 2024 Jan 20 PMID: 38253123 DOI: 10.1016/j.anai.2024.01.012
127. Gonzalez-Estrada A, Carrillo-Martin I, Morgenstern-Kaplan D, Rukasin CRF, **Rank MA**, Park MA, Yee CI, Volcheck GW. A US-Based Multicenter Retrospective Report of Perioperative Anaphylaxis, 2010-2021. *J Allergy Clin Immunol Pract*. 2024 Jun; 12 (6):1594-1602.e9 Epub 2024 Apr 03 PMID: 38580206 DOI: 10.1016/j.jaip.2024.02.042
128. Shah D, Ford L, Ochkur S, Kosiski S, Fineman S, Virant F, **Rank M**. Accuracy of spring pollen forecasts in five U.S. cities using National Allergy Bureau reporting as a gold standard. *J Allergy Clin Immunol Pract* 2024 Jun; 12 (6):1633-1635 Epub 2024 Feb 27 PMID: 38423292 DOI: 10.1016/j.jaip.2024.02.020
129. Krase IZ, Rukasin CRF, Sacco K, **Rank MA**, Volcheck GW, Gonzalez-Estrada A. Incidence of and risk factors for paediatric perioperative anaphylaxis in the USA. *Br J Anaesth*. 2024 Sep; 133 (3):584-590 Epub 2024 July 03 PMID: 38965012 DOI: 10.1016/j.bja.2024.05.025
130. Nopsopon T, Brown A, Hahn G, **Rank M**, Huybrechts KF, Akenroye A. Temporal variation in the effectiveness of biologics in asthma: Effect modification by changing patient characteristics. *Respir Med*. 2024 Nov-Dec; 234:107802 Epub 2024 Sept 10 PMID: 39260678 PMCID: PMC11588503 DOI: 10.1016/j.rmed.2024.107802
131. Gonzalez-Estrada A, Carrillo-Martin I, Garzon-Siatoya WT, Joundi H, Morgenstern-Kaplan D, Renew JR, Powers HR, Nelson JD, Bosch W, Epps KL, Gonzalez-Estrada A, Kinate S, **Rank MA**, Rukasin CRF, Volcheck GW, Park M. The Immediate and Delayed Maximal Nonirritating Skin Testing Concentrations of beta-Lactam Antibiotics. *J Allergy Clin Immunol Pract*. 2024 Nov; 12 (11):3016-3024.e14 Epub 2024 July 30 PMID: 39089437 DOI: 10.1016/j.jaip.2024.07.022
132. Pyon GC, Masuda MY, Putikova A, Luo H, Gibson JB, Dao AD, Ortiz DR, Heiligenstein PL, Bonellos JJ, LeSuer WE, Pai RK, Garg S, **Rank MA**, Nakagawa H, Kita H, Wright BL, Doyle AD. Tissue-specific inducible IL-33 expression elicits features of eosinophilic esophagitis. *J Allergy Clin Immunol*. 2024 Dec; 154 (6):1545-1553.e2 Epub 2024 Sept 10 PMID: 39265877 PMCID: PMC11625005 DOI: 10.1016/j.jaci.2024.08.026
133. Rayner DG, Ferri DM, Guyatt GH, O'Byrne PM, Brignardello-Petersen R, Foroutan F, Chipps B, Sumino K, Perry TT, Nyenhuis S, Oppenheimer J, Israel E, Hoyte F, Rivera-Spoljaric K, McCabe E, Rangel S, Shade LE, Press VG, Hall L, Sue-Wah-Sing D, Melendez A, Orr H, Winders T, Gardner DD, Przywara K, **Rank MA**, Bacharier LB, Mosnaim G, Chu DK. Inhaled Reliever Therapies for Asthma: A Systematic Review and Meta-Analysis. *JAMA*. 2025 Jan 14; 333 (2):143-152 PMID: 39465893 PMCID: PMC11519786 DOI: 10.1001/jama.2024.22700

Non-Peer-reviewed Articles

Conference Reports

Books

Book Chapters

1. **Rank MA**. Clinical Features, Virus Identification, and Sinusitis. In: Cabana MD, Ed. *Yearbook of Pediatrics* 2017.1st ed. Elsevier;2016 Nov.
2. Schatz Michael, **Rank MA**. Adolescent and Adult Asthma. In: Bope E, Kellerman R, Editors. *Conn's Current Therapy*.1st ed. Elsevier;
3. **Rank MA**, Schatz M. Adolescent and Adult Asthma. In: *Conn's Therapeutics*.2017.
4. Schatz M, **Rank MA**. Asthma in Adolescents and Adults. In: Kellerman RD, Bope ET, editor(s). *Conn's Current Therapy* 2018. 1st ed. Elsevier; 2017 Dec. p. 785-792.
5. Schatz M, **Rank MA**. Asthma in Adolescents and Adults. In: Kellerman RD, Rakel DP, editor(s). *Conn's Current Therapy* 2019. 1st ed. Philadelphia, PA: Elsevier; 2018 Dec. p. 798-804.
6. Mertz LE, Divekar R, **Rank MA**. Managing Frontal Sinusitis from Systemic Inflammatory Disease. In: Lal D, Hwang PH, editor(s). *Frontal Sinus Surgery*. 1st ed. Chapter 19. Springer; 2019.

7. **Rank MA**, Schatz M. Asthma in adolescents and adults. In: Kellerman RD, Rakel D, editor(s). Conn's Current Therapy 2020. Philadelphia: Elsevier; 2020. p. 819-825.
8. **Rank MA**, Schatz M. Asthma in adolescents and adults. In: Kellerman RD, Rakel D, editor(s). Conn's Current Therapy 2021. Philadelphia: Elsevier; 2021. p. 843-849.
9. **Rank MA**, Schatz M. Asthma in adolescents and adults. In: Kellerman RD; Rakel D editors., Conn's current therapy 2022. Philadelphia: Elsevier; 2022. p. 859-65.
10. **Rank MA**, Schatz M. Asthma in adolescents and adults. In: Kellerman RD, Rakel D, editor(s). Conn's Current Therapy 2023. Philadelphia: Elsevier; 2023. p. 879-887.

Edited Books

Editorials

1. **Rank MA**. Preparing for the Next Big Thing in Asthma Management. *J Allergy Clin Immunol Pract* 2015 Nov-Dec; 3 (6):991-2
2. Wright BL, **Rank MA**. Adults who present for evaluation of multiple food allergies *J Allergy Clin Immunol Pract*. 2019 Jan; 7(1):341. Epub 1900 Jan 01.
3. Lal D, Borish L, Detwiler KY, Gray ST, Joshi S, Kern RC, Laidlaw TM, Marino MJ, Payne SC, Peters AT, Soler ZM, **Rank MA**. The Rationale for Multidisciplinary Management of Chronic Rhinosinusitis with Nasal Polyposis. *J Allergy Clin Immunol Pract* 2020 May; 8 (5):1565-1566 Epub 2020 Mar 12
4. Lal D, Borish L, Detwiler KY, Gray ST, Joshi S, Kern RC, Laidlaw TM, Marino MJ, Payne SC, Peters AT, Soler ZM, **Rank MA**. A case for multidisciplinary management of chronic rhinosinusitis with nasal polyposis. *Int Forum Allergy Rhinol* 2020 May 3 Epub 2020 May 03
5. Hagan JB, **Rank MA**. Bioassays for Objectively Monitoring Systemic Corticosteroid Use in Severe Asthma: Ready for Precision Medicine? *Chest* 2021 Jul; 160 (1):5-6
6. **Rank M**, Mullol J. Chronic Rhinosinusitis: Forward! *J Allergy Clin Immunol Pract* 2022 Jun; 10 (6):1472-1473
7. **Rank MA**, Shaker MS. Biologics for chronic rhinosinusitis with nasal polyposis: What should we do now without direct comparison trials? *Ann Allergy Asthma Immunol* 2022 Aug; 129 (2):136-137

Commentaries

1. Li JT, **Rank MA**, Squillace DL, Kita H. Ovalbumin content of influenza vaccines. *J Allergy Clin Immunol*. 2010 Jun; 125(6):1412-3; author reply 1413-4. Epub 2010 May 07. PMID:20451987 DOI:10.1016/j.jaci.2010.03.009

Audio/Video/CD-ROM/etc.

Abstracts

1. **Rank MA**, Hagan JB. Management of asthma exacerbation in a patient with Wiskott Aldrich syndrome. *J Allergy Clin Immunol*. 2007 Jan; 119(1 Suppl S):S173.
2. * McClimon BJ, **Rank MA**, Volcheck GW. Antidepressant & Anxiolytic prescriptions among patients receiving allergen immunotherapy. *J Allergy Clin Immunol*. 2008 Feb; 121(2 Suppl 1):S125.
3. **Rank MA**, Oslie CL, Krogman JL, Park MA, Li JT. Nearly half of systemic reactions (SRs) to allergen immunotherapy (AIT) occurred more than 30 minutes after the injection. *J Allergy Clin Immunol*. 2008 Feb; 121 (2 Suppl 1):S142.
4. Joshi A, Park M, Hagan J, Boyce T, Li J, Reed A, Maddox D, Hartz M, Volcheck G, **Rank M**, Katzmann J, Snyder M, Abraham R. Decrease in class-switched memory B cells is associated with malignancy in common variable immunodeficiency (CVID). *Clin Immunol*. 2009; 131:S136-7.
5. **Rank MA**, Kobayashi T, Bartemes KR, Kita H. Activation of dendritic cells by IL-33 initiates a Th2 response. *J Allergy Clin Immunol*. 2009 Feb; 123(2 Suppl S):S53.
6. * Shah KM, Dave SA, **Rank MA**, Krogman J, Oslie CL, Butterfield JH. Antihistamine interference with allergy skin tests: how long should we wait? *J Allergy Clin Immunol*. 2009 Feb; 123(2 Suppl S):S203.
7. * Harish A, **Rank MA**. Desensitization to trimethoprim/sulfamethoxazole in non-HIV patients. *J Allergy Clin Immunol*. 2009 Feb; 123(2 Suppl S):S236.
8. * Shah KM, **Rank MA**, Krogman J, Oslie CL, Butterfield JH. Patients on multiple medications who need allergy skin tests: which medications should be held? *J Allergy Clin Immunol*. 2010 Feb; 125(Suppl 1):AB167.

9. **Rank MA**, Volcheck GW, Swagger T. A randomized controlled trial of a web-based educational intervention for teaching allergen immunotherapy. *J Allergy Clin Immunol*. 2011 Feb; 127(S):AB42.
10. * Patel S, Oslie CL, Williams B, Rossow K, Montgomery LD, Li JT, **Rank MA**. The right dose allergen immunotherapy project: establishing error rates and process mapping. *J Allergy Clin Immunol*. 2011 Feb; 127 (S):AB46.
11. * Patel S, Rossow KL, LaCanne P, Poe K, Li JTC, **Rank MA**. Allergen immunotherapy administration errors: assessing the reporting measure. *J Allergy Clin Immunol*. 2012 Feb; 129(2):AB195.
12. * Samant SA, Patel S, Hagan JB, **Rank MA**. How commonly does symptom severity vary by season in nonallergic rhinitis? *J Allergy Clin Immunol*. 2012 Feb; 129(2):AB238.
13. * Samant S, **Rank MA**, Hagan JB, Kita H. A proposed model to study immunologic changes during chronic rhinosinusitis exacerbations: data from a pilot study. *J Allergy Clin Immunol*. 2013 Feb; 131(2):AB59.
14. **Rank MA**, Hauswirth DW, Calabria CW, Sher LD, Larenas Linnemann DES. AAAAI membership experience with allergen immunotherapy (ait) safety in young children and pregnant women. *J Allergy Clin Immunol*. 2013 Feb; 131(2):AB186.
15. Linnemann DESL, Hauswirth DW, Calabria CW, Sher LD, **Rank MA**. AAAAI survey on allergen immunotherapy (AIT) in patients with specific medical conditions. *J Allergy Clin Immunol*. 2013 Feb; 131 (2):AB229.
16. * Pyle R, Park MA, Volcheck GW, Poe K, Podjasek J, **Rank MA**, Butterfield JH. Induction of drug tolerance to trimethoprim/sulfamethoxazole in non-HIV patients with a history of sulfonamide allergy. *J Allergy Clin Immunol*. 2013 Feb; 131(2):AB171.
17. Calabria C, Hauswirth D, Sher L, **Rank M**, Larenas-Linnemann D. AAAAI membership experience with venom immunotherapy regarding dosing, premedication, and use in pregnancy and young children. *Allergy*. 2013 Sep; 68:635.
18. Calabria C, Hauswirth D, Sher L, **Rank M**, Larenas-Linnemann D. AAAAI membership experience with venom immunotherapy use in specific chronic medical conditions. *Allergy*. 2013 Sep; 68:635.
19. Larenas-Linnemann DE, **Rank M**, Calabria CW, Sher LD, Hauswirth D. Trans-continental survey on allergen immunotherapy in patients with cancer in remission or stable cancer under treatment. *Allergy*. 2013 Sep; 68:588.
20. **Rank MA**, Hauswirth DW, Calabria CW, Sher LD, Linnemann DESL. Allergen immunotherapy safety while using "high risk" medication: a survey of aaaai members. *J Allergy Clin Immunol*. 2014 Feb; 133(2):AB219.
21. * Samant S, **Rank MA**, Hagan JB, O'Brien E, Lal D, Kita H. Immunologic changes during chronic rhinosinusitis exacerbations compared to controls. *J Allergy Clin Immunol*. 2014 Feb; 133(2):AB237.
22. Hauswirth DW, **Rank MA**, Linnemann DESL, Sher LD, Calabria CW. Venom immunotherapy use with contraindicated medication: a survey of aaaai member's experience. *J Allergy Clin Immunol*. 2014 Feb; 133 (2):AB220.
23. Linnemann DESL, **Rank M**, Calabria CW, Sher LD, Hauswirth DW. AAAAI membership experience with allergen immunotherapy (ait) safety in patients with special medical conditions varies according to practice characteristics. *Allergy*. 2014 Sep; 69:510-1.
24. **Rank MA**, Liesinger JT, Branda ME, Gionfriddo MR, Schatz M, Zeiger R, Shah ND. Bending the asthma cost curve: the costs of care associated with stepping down asthma medication American Journal Of Respiratory And Critical Care Medicine. 2015; 191:
25. Azadeh N, **Rank MA**, Lewis JC, Wesselius L, Cheng MR, Blair JE. Pulmonary coccidiomycosis is associated with worse asthma outcomes: a case control study American Journal Of Respiratory And Critical Care Medicine. 2015; 191:
26. Divekar RD, O'Brien E, Jin J, Patel NS, **Rank MA**, Hagan JB, Kita H. Symptom-based clustering in chronic rhinosinusitis reveals phenotypic heterogeneity. *J Allergy Clin Immunol*. 2015; 135(2):AB55.
27. * Hines BT, **Rank MA**, Lal D. Action plans for managing of chronic rhinosinusitis exacerbations: a patient interview study. *J Allergy Clin Immunol*. 2015 Feb; 135(2):AB56.
28. **Rank MA**, Liesinger J, Branda M, Gionfriddo M, Schatz M, Zeiger RS, Shah N. Comparative effectiveness of stepping down asthma medications in a nationally representative sample. *J Allergy Clin Immunol*. 2015 Feb; 135(2):AB169.
29. Alpern ML, Campbell RL, **Rank MA**, Park MA, Hagan JB. A case of vibratory anaphylaxis Ann Allergy Asthma

Immunol.2015;115: Abstract no.P86.

30. * Hines BT, Lal D, **Rank MA**, Lewis JC, Teaford HG. Adherence to topical medications for chronic rhinosinusitis: medication possession ratio and description of adherence barriers Journal Of Allergy And Clinical Immunology. 2016 Feb; 137(2):AB264. Epub 1900 Jan 01.

31. **Rank MA**, Ochkur SI, Lewis JC, Teaford HG, Wesselius LJ, Helmers RA, Lee NA, Nair PK, Lee JJ. Nasal and pharyngeal eosinophil peroxidase levels represent surrogate biomarkers for the presence of lower airway eosinophils in adults with poorly controlled asthma Journal Of Allergy And Clinical Immunology. 2016 Feb; 137: (2)AB108.

32. Hagan JB, Laidlaw TM, Divekar RD, O'Brien E, Kita H, Volcheck GW, Hagan CR, Lal D, Teaford HG, Erwin PJ, **Rank MA**. The diagnostic testing accuracy of urinary leukotriene e4 in determining aspirin intolerance in asthma: a systematic review and meta-analysis Journal Of Allergy And Clinical Immunology. 2016 Feb; 137: (2)AB390.

33. Yawn BP, **Rank MA**. Integration of the asthma apgar into primary care practices improves patient reported asthma outcomes and practices' adherence to elements of asthma guidelines: a randomized controlled trial Journal Of Allergy And Clinical Immunology. 2017 Feb; 139: (2)AB389.

34. **Rank MA**, Jeffery MM, Ngufor CG, Shah ND. Omalizumab utilization trends for asthma in the us from 2003-2015 Journal Of Allergy And Clinical Immunology. 2017 Feb; 139: (2)AB90.

35. * Wright BL, **Rank MA**, Shim KP, Doyle AD, Jacobsen EA, Manohar M, Bunning BJ, Chinthrajah RS, Zhang W, Nadeau KC. Esophageal IgG4 and Eosinophilic Inflammation Correlate in Subjects Undergoing Peanut Oral Immunotherapy J Allergy Clin Immunol. 2018 Feb; 141(2 Suppl):AB404.

36. * Hines B, **Rank MA**, Wright BL, Marks L, Greenhawt MJ, Dellon ES. Failure to Consider Atopic Status Limits Existing Minimally-Invasive Biomarker Studies in Eosinophilic Esophagitis: A Systematic Review J Allergy Clin Immunol. 2018 Feb; 141(2, Suppl):AB139.

37. * Hines BT, **Rank MA**. A case of cutaneous t-cell lymphoma in a patient with Netherton syndrome Journal Of Clinical Immunology. 2018 Apr; 38(3):331. Epub 1900 Jan 01.

38. Carrillo-Martin I, Garzon-Siatoya W, Morgenstern-Kaplan D, **Rank M**, Volcheck G, Park M, Gonzalez-Estrada A. THE NONIRRITATING DELAYED INTRADERMAL CONCENTRATIONS OF COMMONLY USED BETA-LACTAM CONTAINING ANTIBIOTICS OTHER THAN PENICILLIN Annals of Allergy, Asthma & Immunology. 2021; 127(5):S26. Abstract no. P034.

39. Reddy K, Avila K, Ismael I, Chiarella S, Divekar R, Garzon W, Morgenstern-Kaplan D, Park M, **Rank M**, Rezaee M, Volcheck G, Gonzalez-Estrada A. Effectiveness of Laboratory Testing in the Management of Chronic Urticaria/Angioedema Journal of Allergy and Clinical Immunology. 2022; 149(2). Abstract no. 177.

40. Gleeson P, Morales K, Hvisdas C, Lacava AF, Harhay MO, **Rank MA**, Apter AJ, Himes BE. Factors associated with asthma biologic prescribing and adherence among adults in a major multi-hospital health system. American Journal of Respiratory and Critical Care Medicine. 2023 May 1; 207(Suppl):A6010

Letters

1. **Rank MA**, Li JT. A case of food allergy due to longan fruit. Ann Allergy Asthma Immunol. 2007 Apr; 98(4):402. PMID:17458440 DOI:
2. **Rank MA**. Finding the Right Treatment for Chronic Cough. Physician's Weekly. 2007 Oct 8; XXIV(No. 38).
3. **Rank MA**, Kita H, Li JT, Butterfield JH. Systemic reactions to allergen immunotherapy: a role for measuring a PGD2 metabolite? Ann Allergy Asthma Immunol. 2013 Jan; 110(1):57-8. Epub 2012 Nov 08. PMID:23244662 DOI:10.1016/j.anai.2012.10.009
4. * Patel S, Rossow KL, Williams BJ, Li JT, **Rank MA**. Errors in allergen immunotherapy administration: a systems assessment. Ann Allergy Asthma Immunol. 2013 Mar; 110(3):205-6. Epub 2013 Jan 04. PMID:23548534 DOI:10.1016/j.anai.2012.12.005
5. **Rank MA**. Mepolizumab for episodic angioedema with eosinophilia. J Allergy Clin Immunol 2024 Sep 20 Epub 2024 Sept 20 PMID:39306791 DOI:10.1016/j.jaci.2024.07.028
6. Gonzalez-Estrada A, Carrillo-Martin I, Garzon-Siatoya WT, Joundi H, Morgenstern-Kaplan D, Renew JR, Powers HR, Nelson JD, Bosch W, Epps KL, Gonzalez-Estrada A, Kinate S, **Rank MA**, Rukasin CRF, Volcheck GW, Park M. Reply to "Higher may not be better". J Allergy Clin Immunol Pract 2025 Jan; 13 (1):250-251 PMID:39788709 DOI:10.1016/j.jaip.2024.10.043

Stamp Vignettes

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* Indicates the primary author was a mentee of this author.

Indicates the authors contributed equally.