Fisher Lecture

Anthony A. Gaspari, M.D.

Dr. Anthony A. Gaspari is a Shapiro Professor of Dermatology at the University of Maryland School of Medicine and a Professor of Microbiology and Immunology at the University of Maryland Medical Center. His special interests and expertise include immunology and skin allergies.

As a board certified dermatologist, Dr. Gaspari has practiced for over 35 years while specializing in bullous diseases, collagen vascular disease, cutaneous allergies, cutaneous T-cell lymphoma and general dermatology.

Dr. Gaspari is a past president of the American Contact Dermatitis Society and was the first chair of the Mentoring Award.

The Immunology of Contact Dermatitis… or Something to do with T-Cells

An overview of the immunology of contact dermatitis with an emphasis on recent advances in the field and how this relates to patients with dermatitis.

Breakfast Symposium

Understanding and Avoiding Nickel Allergy

Katherine Heim, PhD, DABT
Author Affiliations: Nickel Producers Environmental Research Association (NiPERA)

Nickel is a common dermal allergen, with approximately 12-15% of women and 1-2% of men being sensitized in industrialized countries. Raising awareness and communicating information on nickel allergic contact dermatitis (NACD) will help reduce the NACD reactions, whether they are elicitation reactions in nickel-sensitized individuals or induction reactions in non-nickel-sensitized individuals. Both types of NACD reactions have thresholds and can be prevented by avoiding direct and prolonged contact with items that release nickel levels above threshold amounts to cause an allergic reaction (induction or elicitation). Three conditions must be true for a NACD reaction to occur: 1) direct skin contact, 2) prolonged skin contact, and 3) release of a sufficient amount of nickel to cause a NACD reaction. Nickel content is not an accurate predictor of nickel release, which is the key factor triggering NACD. Items made of materials such as surgical stainless steels can contain nickel yet not cause NACD reactions. Regulation in Europe is therefore based on release of nickel, not nickel content. Similar regulation does not exist in North America. While restriction on nickel release has decreased the prevalence of nickel sensitized people in Europe, raising awareness and public education by communicating accurate information is likely to be effective in reducing NACD reactions worldwide.

Risk Reporting and Mitigation in Consumer Products for the Skin: The role of Government and Industry

Meet the panelists
Moderator: Howard Maibach, MD

Adverse Event Reporting for Cosmetic Products and Tattoos

Linda M. Katz, MD, MPH
Director, Office of Cosmetics and Colors, Acting Chief Medical Officer Center for Food Safety and Applied Nutrition, Food and Drug Administration

Linda Katz, MD, MPH is the Director for the Office of Cosmetics and Colors (OCAC), in FDA's Center of Foods and Applied Nutrition (CFSAN); a position that she has held since 2002. Dr. Katz establishes the priorities and missions of OCAC focusing on cosmetic safety, compliance, certification of color additives, and research such as nanotechnology, phototoxicity and percutaneous absorption. Dr. Katz is the Agency's liaison for nanotechnology issues pertaining to food and cosmetics. She is a member of the FDA Nanotechnology Task Force and other FDA nanotechnology working groups. She has had numerous presentations and publications, including those related to nanotechnology regarding cosmetics and foods issues.

Dr. Katz received her B.A. in biology from the University of Pennsylvania; a M.P.H. in epidemiology from the University Of Michigan School Of Public Health, and her M.D. from the University of Connecticut. She completed her internship and residency in Internal Medicine, and fellowship in Rheumatology at the George Washington University Medical Center, in Washington, D.C.

Risk Management of Cosmetics through ingredient Safety and Labeling

Beth Lange, PhD
Personal Care Products Council

Beth Lange, Ph.D., is Chief Scientist and Executive Vice President of Science at the Personal Care Products Council. Lange joined the Council in 2014. In this capacity, she is responsible for providing scientific direction and support for the Council and the personal care products industry. This includes direct management of scientific programs and activities, serving as liaison to other trade associations and representing the U.S. cosmetics interests to public and private stakeholders.

Previously, Beth Lange, Ph.D., was Chief Scientific Officer at Mary Kay Inc. from 2008-2014. She has been granted more than 20 U.S. and European patents in her career and has published her scientific expertise in newspapers, such as *The New York Times* and *The Wall Street Journal.* She has also appeared on the "Today Show."

Dr. Lange earned a Bachelor of Science degree in nuclear medicine from Oakland University in Rochester, Mich., and a doctorate in radiation biology from the University of Iowa College of Medicine in Iowa City, Iowa.

How the Cosmetic and Personal Care Products Industry Self Regulates for Claims Substantiation

Annie Ugurlayan, JD
Senior Staff Attorney, National Advertising Division

Annie Ugurlayan is a Senior Staff Attorney at the National Advertising Division of the Advertising Self-Regulatory Council. Since 2003, she has handled over 200 cases and has successfully argued appeals before the National Advertising Review Board. Annie is also a frequent lecturer at conferences nationwide and abroad, particularly those with a focus on cosmetics and personal care products. She is also a published author. Annie is actively involved in various bar associations, serves on the Board of Directors of the New York Women's Bar Association Foundation and is a Fellow of the American Bar Foundation. She is fluent in French and Armenian and proficient in Romanian. Annie is a graduate of Hamilton College (B.A., *magna cum laude* -- French and World Politics) and Hofstra University School of Law.

Development of New Methods and Risk Assessment Approaches for Assessing the Skin Sensitization Safety of New and Existing Chemicals

Frank Gerberick, PhD
Proctor & Gamble

Dr. Gerberick has been employed at the Procter & Gamble (P&G) Company since 1986. Prior to joining P&G, he was a postdoctoral fellow at The Johns Hopkins School of Medicine working in the field of pulmonary immunology. While working at P&G, Dr. Gerberick has focused his career working in the field of dermatotoxicology. In 2004, Dr. Gerberick was appointed to the P&G Victor Mills Society, which is the highest technical honor for P&G scientists. He has over 175 publications and has co-authored a book entitled *Toxicology of Contact Dermatitis*. His laboratory's research is focused primarily on elucidating the chemical, cellular and molecular mechanisms underlying skin allergy in hope of developing *in vitro* test methods for skin sensitization testing. Recently, Dr. Gerberick has begun research efforts in the area of respiratory allergy and is interested in understanding the role of the microbiome in human health. In the past, his laboratory was actively involved in the development and validation of the LLNA. For his effort, he has been a co-recipient of two prestigious international awards: the SmithKline Beecham Laboratory Animal Welfare Prize and the Society of Toxicology's Animal Welfare Award. More recently, he was awarded the William and Eleanor Cave Award and Lush Black Box Prize for advancing skin sensitization alternatives. The Direct Peptide Reactivity Assay developed in Dr. Gerberick's laboratory has

been successfully evaluated by the European Union Reference Laboratory for Alternatives to Animal Testing and adopted as OECD test guideline.

8:30 AM - Survey Examining Photopatch Test and Phototest Methodologies of Contact Dermatologists in the United States: Platform for the Development of a Consensus.

Eseosa Asemota, MD, MPH[1], Carrie Kovarik, MD[2], Glen Crawford, MD[3] & Bruce Brod, MD[1]
Author Affiliations: 1) University of Pennsylvania, 2) Dermatology, Dermatopathology, and Infectious Diseases, University of Pennsylvania, 3) Contact Dermatitis Clinic ,University of Pennsylvania

Introduction: There is currently no standardized protocol for photopatch testing and phototesting in the United States, thus limiting their use and impacting comparability and consistency of test results. Our study aimed at investigating practices of US dermatologists, to provide relevant information for development of a national consensus on testing methodology.

Methods: A cross-sectional questionnaire-based study was conducted among US contact dermatologists. Based on a literature search conducted on differences in testing methodologies, we constructed a questionnaire. The survey was distributed at the American Contact Dermatitis Society (ACDS) annual meeting, and via the ACDS website. Standard descriptive analysis was performed on data obtained.

Results: Of 117 participating dermatologists, 64 (54.8%) conduct photopatch testing. Testing materials vary, with sunscreen, NSAIDS, fragrances, and patient's product being widely tested. 48.5% of dermatologists preferably place patches 1 day before irradiation, while 46.5% opt for 2 days. 10 J/cm2 was the preferred irradiation dose (37.5%). Multiple intervals are used for test readings, with highest percentages recording pre-irradiation (56.3%) and 48 hours post-irradiation (71.9%). 64.1% of dermatologists "always" or "sometimes" perform phototesting in conjunction with photopatch testing. 87.5% use the slide-projector bulb as light source for visible-light phototesting.

Conclusion: The results confirm that a variety of techniques and testing materials are used. Similar to the procedure in other countries, it is recommended that a panel of expert contact dermatologists be created, and using this research findings, establish a formal consensus.

8:40 AM – Patch Testing in Oncology Patients with Suspected Dermatitis

Brienne D. Cressey, MD[1], Viswanath Belum, MD[2], Mario Lacouture, MD[2] & Jonathan H. Zippin, MD, PhD[1]
Author Affiliations: 1) Weill Cornell Medical Center, New York, NY 2) Memorial Sloan-Kettering Cancer Center, New York, NY

BACKGROUND: While allergic contact dermatitis (ACD) incidence and positive allergen prevalence are known for the general population and many occupations, knowledge regarding ACD in cancer patients is limited.

OBJECTIVE: To evaluate ACD incidence in oncology patients

METHODS: We conducted an IRB-approved five-year retrospective analysis of oncology patients with suspected contact dermatitis.

RESULTS: 69 patients with suspected contact dermatitis were patch tested. 76%(53/69) had at least one positive reaction. In comparison, according to 2011-2012 NACDG data 63.8% of patients had at least one positive patch test reaction. Of the top ten most common allergens recently reported by the NACDG, only two were among the top ten in our study. Unexpected commonly positive allergens included: carmine(37%), dodecyl gallate(23%), amerchol L101(22%), benzoyl peroxide(22%), and oleoamidopropyl dimethylamine(20%). The most frequent cancer diagnoses in our study were breast cancer(30) and lymphoma(4).

CONCLUSIONS: The cancer patient population has a rate of ACD that might exceed the general population. While some common positive allergens were shared between our study population and the NACDG data, cancer patients appear to have a higher rate of sensitization to allergens less common in the general population. Further studies are needed to determine if this shift in allergen incidence is due to the unique exposures of cancer patients or the result of immune alterations in this population.

8:50 AM- Pediatric Patch Test Registry

Alina Goldenberg, MAS, MD[1] & Sharon E. Jacob, MD[2]
Author Affiliations:1) UC San Diego, San Diego, California 2) Loma Linda University, Loma Linda, California

Objective: Pediatric contact dermatitis is widely under-reported, despite a significant physical, psychological and financial burden. The Loma Linda University Pediatric Contact Dermatitis Registry aims to quantify and qualify this disease within the US.

Methods: US providers completed an online, secure registration survey addressing demographics and clinical practice essentials, and entered cases of pediatric patch tests.

Results: 239 US-based providers registered, representing 48 states and the District of Columbia. Majority of registrants are MDs (79.1%), and PA's (17.2%); 79.9% specialize in dermatology, 39% focus on pediatric dermatology; 90 (37.7%) were members of ACDS. Via provider self-report, 1834 to 4722 children are patch tested per year. Optional patch test case entry was completed by 46 (19.6%) of the registrants. Of the 333 cases currently entered for 2014, ≥1 positive patch test (PPT) and ≥1 relevant positive patch test (RPPT) frequencies were 36% and 45.9%, respectively. PPT and RPPT frequencies were highest with nickel sulfate (10.5/15.9). Atopic dermatitis (AD) was present in 166 (49.8%) of cases. Patients with AD had 6.1 higher odds of having a RPPT than those without AD (p=0.013).

Conclusion: Loma Linda Pediatric contact dermatitis registry has become one of the largest provider-collaborative registries in the field of dermatology. Pediatric ACD is commonly seen by US providers, nickel is the most prevalent contact allergen, and AD may play a significant role in ACD pathogenesis.

9:00 AM- Descriptive Analysis of the Microbiome in Atopic Dermatitis and Allergic Contact Dermatitis

Margaret Hammond, Pranab Mukherjee, Jyotsna Chandra, Mauricio Retuerto, Mahmoud Ghannoum, & Susan Nedorost
Author Affiliations: University Hospitals, Case Western Reserve University, Cleveland, OH

Background: The pathogenesis of atopic dermatitis (AD) includes compromised barrier integrity, Th2-skewed immune dysregulation, and immune response to abnormal microbiome. The impact of microbial colonization could be amplified through a biofilm.

Objective: To conduct a descriptive analysis of the skin bacterial microbiome (BM) and fungal mycobiome (FM) of patients with either childhood onset dermatitis without relevant positive patch test (AD), childhood onset dermatitis with relevant positive patch test (AD+CD), or adult onset dermatitis with relevant positive patch test (CD).

Methods: Following an IRB-approved protocol, we swabbed affected and unaffected skin of thirteen patients in the above cohorts. DNA was extracted, PCR-amplified, and sequenced for bacterial and fungal sequences. Richness, diversity, abundance, and frequency of BM and FM were generated.

Results: The BM and FM of AD affected sites had decreased richness and diversity compared to AD unaffected sites. AD+CD and CD affected sites had decreased BM and FM richness but increased diversity compared to unaffected sites. Staphylococcus was higher in AD affected sites than unaffected sites ($p \leq .038$). Halomonas was more abundant in all AD sites than CD sites. 12/77 fungal genera identified were unique to AD affected sites including Alternaria and Cladosporium.

Conclusion: AD is associated with specific changes in BM and FM, the study of which will drive microbial-directed therapeutics for dermatitis patients.

9:10 AM – Prevalence of Allergy to Polymyxin B among Patients Referred for Patch Testing

Maisa Alfalah, Zargham H, Linda Moreau[1], Monica Stanciu[1], & Denis Sasseville[2]
Author Affiliations: 1) McGill University Health Centre 2) Montreal General Hospital

Background: Polymyxin B is not included in most standard contact allergen series.
The aim of this study was to determine the prevalence of contact sensitization to polymyxin B in a population of patients referred for patch testing.

Methods: A retrospective cohort study design was used to collect data on 795 patients referred to the contact dermatitis clinic of the McGill University Health Centre, as well as to the office of one of the authors (LM), between March 2014 and November 2015. Patients were patch tested to the NACDG baseline series and polymyxin B sulfate 3% in petrolatum.

Results: Out of 795 tested individuals, 18 were allergic to polymyxin B, for a prevalence of 2.3%. The eruptions affected almost all body parts, but mostly the face.
The degree of reaction ranged from 1+ to 2+. Isolated reactions to polymyxin B occurred in 9 (50%) patients, while reactions to bacitracin and polymyxin B were seen in the other 9. Only one patient reacted to bacitracin, polymyxin B and neomycin (11.1%). Most reactions (12/18) were from past exposure to polymyxin B.

Conclusions: Allergic reactions to polymyxin B are not rare, and this antibiotic warrants inclusion in standard patch testing series

9:20 AM- Airborne Allergic Contact Dermatitis to Methylisothiazolinone in Ironing Water

Ravinder Kaur Atkar, MBBS BSc MRCP

We present 4 cases of allergic contact dermatitis from methylisothiazolinone found in ironing water. Case 1 is a 47-year-old woman who presented with a 6-month history of an eczematous eruption affecting the face, neck and hands. She was a housewife, which included cooking, cleaning and ironing. She started to notice that the facial eczema was exacerbated with a few hours of using Comfort VaporesseÂ® ironing water. In a similar way, a 35-year-old Army officer presented with a 4-month history of an itchy, erythematous rash on his arms and face. He noticed that this flared up after he ironed his shirts and wore them. Finally we present 2 middle-aged women that reported a flare of their eczema especially on the face; they both worked as household cleaners, which involved ironing. Interestingly they were also using Comfort Vaporesse ironing water. Patch testing to the European Standard series was performed for all these patients with positive results to methylisothiazolinone, also known as kathon, which is interesting found in Comfort Vaporesse ironing water.These findings are consistent with an air borne allergic contact dermatitis to methylisothiazolinone found in ironing water; this has not been commonly reported with only one other case in the literature. The facial rashes have all resolved since avoiding exposure to the product. Methylisothiazolinone is a preservative with antibacterial and anti fungal properties; it is widely used in cosmetics and body care products. It also has wide industrial uses including paint, adhesives and glues. Undoubtedly cases of contact sensitisation will continue to emerge as the use of methylisothiazolinone grows.

9:30 AM- STANDARDIZING THE DELIVERY OF 20 µL DURING PATCH TESTING

Annika Selvick, Kari Stauss, Lauren Taylor, Alexandra Picard, Katrina Strobush, Andrea Doll, & Dr. Margo Reeder
Author Affiliations: UW School of Medicine and Public Health, UW School of Engineering, Morgridge Institute for Research

OBJECTIVE: To create a device that accurately and efficiently dispenses 20 µL and to compare the design to the current hand dispensing technique.

METHODS: A device was created using Solid Works program. The device consists of a threaded plunger that inserts into a 1cc syringe with threads that were designed with a specific

pitch that correlates to one revolution dispensing 20 µL. Five nurses in our Contact Dermatitis Clinic were asked to load 10 Finn chambers using the current technique and also using the new device, called The Revolution. Assembly time, volume of hapten, and accuracy of placement were measured. After the three trials, the nurses completed a survey, which consisted of 10 questions that were specific to the usefulness and accuracy of each device.

RESULTS: The amount dispensed using the current technique ranged from 16 µL to 85 µL, with an average of 41.39 µL. The Revolution design dispensed an average of 19.78 µL. Both designs had nearly equal timing. The Revolution received the highest total score on the survey.

CONCLUSION: The current hand dispensing technique is not accurate and does not allow the nurses to consistently dispense 20 µL. In contrast, the Revolution has the potential to be an accurate and consistent method that can help standardize the patch testing method.

9:40 AM – Responsiveness of p-phenylenediamine Allergic Volunteers to a Hair Dye containing 2-Methoxymethyl-p-phenylenediamine using the Allergy Alert Test

Amir Zahir[1], Carsten Goebel[2], & Anthony Gaspari[1]
Author Affiliations: 1) Department of Dermatology, University of Maryland School of Medicine, Baltimore, Maryland, USA. 2) The Procter & Gamble Co., Central Product Safety, Schwalbach am Taunus, Germany

Background and Objective: 2-Methoxymethyl-*p*-phenylenediamine (ME-PPD) is a *p*-phenylenediamine (PPD) derivative formed by adding a methoxymethyl side chain to PPD. A recent study conducted in the Netherlands revealed a reduced degree of cross-elicitation when the hair dye product contained ME-PPD instead of PPD. The current study uses this test design (allergy alert test) to investigate the cross-elicitation response to ME-PPD to skin types of different ethnicities who have a history of ACD to PPD. We hypothesize that exposure to ME-PPD will result in a reduced cross-elicitation response in PPD-allergic patients, regardless of skin type.

Methods: Twenty adults with a history of ACD to PPD were tested with PPD and ME-PPD under conditions simulating hair dyeing. The formulations were placed on the forearm and rinsed off with water after thirty minutes. A dye free test product was used as a control. A diagnostic patch test containing 1% PPD in petrolatum was also performed. Allergy alert scoring was performed immediately following removal of the formulations, at 48 hours, and at 72 hours.

Results: Seventy-five percent of PPD patch test positive subjects reacted to PPD allergy alert test. Thirty percent reacted to ME-PPD.

Conclusions: ME-PPD causes a lower degree of cross-elicitation responses, compared to PPD, in PPD-allergic subjects.

9:50 AM – Contact Sensitivity to Topical Anesthetic Pramocaine occurs in three percent of Patch Test Patients

Mariam Abbas, Kunimasa Suzuki, & John F. Elliott
Author Affiliations: Division of Dermatology, Department of Medicine, University of Alberta, Edmonton, AB, Canada.

Objective: We recently reported that for patch testing to the topical anesthetic agent pramocaine (also called PramoxineHCl), 2% in petrolatum is optimal, and that contact allergy occurs more frequently than was previously believed. The present study determined sensitization rates in a much larger sample of patients.

Methods: We tested 495 consecutive patients seen in our tertiary patch test clinic between May 2014 and August 2015 to pramocaine 2% in pet using test material generated in our laboratory from high purity chemicals (Sigma) and IQ Ultra chambers (Chemotechnique). Responses were evaluated at 48 and 96h, using the ICDRG scoring system. Incidence rates and Clopper-Pearson Exact 95% Confidence Intervals were calculated.

Results: Fourteen patients demonstrated a 1+ response to pramocaine and one patient had a 2+ response (3.03% overall response [95% CI: 1.71%-4.95%], with no significant gender difference. The mean age of positive patients was 39 years (range 11-69 years). Four patients showed concomitant responses to another anesthetic agent: two to dibucaine and two to lidocaine.

Conclusion: Contact sensitization to pramocaine is relatively common, but historically has been rarely reported, due to the lack of commercially available patch test material (but this has now changed). Since Pramocaine/PramoxineHCl is found in many popular anti-itch products, it should be included when patch testing chronic eczema patients.

Funding: Canadian Dermatology Foundation

10:30 AM - A Potential Technique for Reducing Active Sensitization with PPD

KE. Andersen, MD, PhD,[1] F. Andersen MD, PhD,[1] CR. Hamann, MD,[2] E. Sager, BS[3], CP. Hamann, MD[4,5]Author Affiliations: 1) DIS, Department of Dermatology, University of Southern Denmark, Odense, Denmark 2) Department of Internal Medicine, Loma Linda University, California 3) School of Medicine, Loma Linda University, California 4) School of Dentistry, Loma Linda University, California 5) SmartPractice, Arizona

Concern about causing active sensitization when patch testing with p-paraphenylenediamine (PPD) 1% in petrolatum has led to a recommendation to use 0.30% PPD as a potentially safer preparation. However, the dose of allergen delivered, and hence risk of active sensitization, depends on the amount dispensed into the patch test chamber, which can vary widely. We compared patch test reactions of 17 known PPD-sensitive subjects to different volumes of petrolatum and concentrations of PPD that deliver the same allergen dose per unit area (6 mg of 1% and 20 mg of 0.3% PPD in petrolatum in Finn chambers, both equivalent to ~0.09

mg/cm2, the same dose of PPD used on T.R.U.E. Test). Eleven patients (65%) had positive reactions to both doses. Two patients (12%) were positive to only one dose (one each). Four patients (24%) had negative reactions. This 88% concordance suggests that dose/unit area is more important in determining reactions to allergens than volume. Because the same dose/unit area can be obtained by dispensing a smaller volume of a higher concentration of PPD, patch testing with a smaller amount of 1% PPD is a reasonable alternative to testing with 20 mg of the 0.3% concentration.

10:40 AM – An Interesting case of Allergic Contact Dermatitis to Yee Tin Medical Oil, a Prized Holistic Chinese Herbal Medicament

Christopher D. Sibley & Melanie D. Pratt
Affiliation: University of Ottawa, Ottawa, Canada

Yee Tin Medical Oil, a complex elixir of plant extracts, is a popular product in Asia revered for its broad applications in treating headaches, dizziness, congestion, nausea, bites, myalgias, and skin irritation. We report a case of dramatic, explosive dermatitis following a single application of Yee Tin Medical Oil to a primary herpes simplex infection on the neck. The rash was so florid and rapidly progressive that the patient was treated with intravenous antibiotics for one week for presumed cellulitis. Following a lack of response to antibiotics and development of an auto eczematization reaction, he ultimately convalesced over three months. Patch testing results revealed positive reactions to Yee Tin Medical Oil (3+++) using a semi-open test with a miniscule amount of product, peppermint oil (3+), orange oil (3+), propolis (3+), rosin (2+), bacitracin (2+), limonene (2+), and linalool (2+). Therefore, the etiology of his dramatic presentation resulted from an allergy to at least one constituent of Yee Tin Medical Oil, peppermint (*Menta piperita*) oil. Contact with an adhesive bandage (possibly containing rosin) may have been an exacerbating factor. Interestingly, the patient is an avid peppermint tea drinker. This case highlights that Yee Tin Medical Oil can be a potent contact sensitizer resulting in severe allergic contact dermatitis.

10:50 AM- Germicidal Agents and Irritant Contact Dermatitis: Four Interesting Cases in a Specialty Occupational Contact Dermatitis Clinic

Alexandra Hudson, HBSc, MD Candidate[1,2], Pilar Gomez, BScOT, OH&S Dip[2,3], Irena Kudla, HBSc, MHSc, CIH[2,4], & Sandy Skotnicki, MD, FRCPC[2,5]
Author Affiliations: 1) School of Medicine, Faculty of Health Sciences, Dalhousie University, Halifax, Nova Scotia, Canada; 2) Department of Occupational and Environmental Health, St. Michael's Hospital; 3) Department of Occupational Sciences & Occupational Therapy, University of Toronto; 4) Dalla Lana School of Public Health, University of Toronto; 5) Department of Medicine, University of Toronto, Toronto, Canada

Background: Germicidal agents are used as disinfecting and sterilizing agents in many public workplaces. These procedures and have been heightened over the past years due to a global nature of pathogen exposure. These germicidal agents may be a potential source of occupational contact dermatitis.

Objective: To describe four cases of Irritant Contact Dermatitis to Germicidal agents in a specialty Occupational Contact Dermatitis clinic.

Method: All patients were assessed in our occupational clinic, a detailed exposure review was done by our occupational hygienist, and appropriate patch testing was completed.

Results: All cases were negative for allergy and a diagnosis of Irritant Contact Dermatitis was made. Occupational relevance was established using Mathias Criteria.

Conclusion: Germicidal agents exposure is becoming more common in public workspaces due a heightened fear of pathogen exposure; in the case of the paramedics, the Ebola virus. Proper use of these agents is essential and due to the widespread nature of their use in the form of sprays, skin irritation is not uncommon.

11:00 AM – CONTACT DERMATITIS IN NORTH AMERICAN PRODUCTION WORKERS: A CROSS-SECTIONAL ANALYSIS OF DATA FROM THE NORTH AMERICAN CONTACT DERMATITIS GROUP (NACDG) 1998-2014.

Solveig L. Hagen BA[1,-3], Erin M. Warshaw MD MS[1-3], NACDG Members
Author Affiliations: 1) University of Minnesota Medical School, Department of Dermatology, Minneapolis, MN 2) Parkside Occupational and Contact Dermatitis Clinic, Minneapolis, MN 3) Minneapolis Veterans Affairs Medical Center, Minneapolis, MN

Background: Little is known about the epidemiology of contact dermatitis in production workers (PWs).

Objective: (1) Estimate the prevalence of contact dermatitis and (2) characterize clinically relevant and occupationally-related allergens among North American PWs.

Methods: Retrospective cross-sectional analysis of NACDG data from 1998-2014.

Results: Of 38,784 patch tested patients, 2,732 (7.0%) were PWs. Among PWs, most were male (62.4%) and Caucasian (83.9%), whereas history of childhood eczema was uncommon (11.3%). Prevalent occupations included miscellaneous machine operators (13.8%), assemblers (12.6%), and machinists (9.5%). The most frequent sites of dermatitis were hands (53.8%), arms (29.4%), and face (20.8%). Occupationally-related skin disease and irritant dermatitis were common (51.4% and 32.7%, respectively). Epoxy (11.0%), carbamate (7.3%), thiuram (6.8%), nickel (6.3%), formaldehyde (6.2%), and cobalt (6.0%) were the most frequent occupationally-related allergens. The top allergen sources included adhesives/glues (35.7%), metalworking fluids/cutting oils (12.4%), and coatings (6.3%).

Conclusions: Not surprisingly, irritant dermatitis and involvement of exposed areas (hands, arms, face) were common among PWs. Interestingly, this group displayed lower prevalence of atopy than non-PWs. Common allergens included adhesives/glues, rubber accelerators, metals, and preservatives.

Acknowledgement: This study was funded by an ACDS Nethercott Clinical Research Award.

11:10 AM- Return to Work for Nurses with Hand Dermatitis

Jennifer Chen[1], Pilar Gomez[2, 3], Sandy Skotnicki[2, 4], Joel DeKoven[2.4], D Linn Holness[2, 4-6]
Author Affiliations: 1) Faculty of Medicine and Dentistry, University of Alberta, 2) Department of Occupational and Environmental Health, St Michael's Hospital, Departments of 3) Occupational Therapy, 4) Medicine and 5) Dalla Lana School of Public Health, University of Toronto, and 6) Li Ka Shing Knowledge Institute, St Michael's Hospital, Toronto, CANADA.

Background: Occupational skin disease is common in nurses. If the healthcare worker develops moderate to severe dermatitis, stay-at-work or return-to-work (RTW) may be challenging.

Objective: To review the impact of a RTW program on the work status of nurses with occupational hand dermatitis and identify successful intervention methods and strategies.

Methods: The study received Research Ethics Board approval. Nurses who received RTW services were identified and information related to their diagnosis and return to work was abstracted.

Results: 18 nurses with irritant hand dermatitis received RTW services. 72% were performing paperwork duties when admitted to the RTW program, with others performing different roles or off work. A graduated RTW trial was commonly implemented with optimized skin care management and monitoring by physicians and the RTW Coordinator. Upon discharge, 78% had returned to their nursing roles with direct patient care and 17% had transitioned into non-patient care roles.

Conclusions: A graduated return-to-work trial to reduce the cumulative irritant exposure is a crucial strategy to facilitate nurse patients' transition back to work in their nursing roles.

Acknowledgements: Jennifer Chen was supported by the Centre for Research Expertise in Occupational Disease.

11:20 AM- Overview of the National Institute for Occupational Safety and Health Effects Laboratory Division (HELD) Dermal Allergic Sensitization Research

Paul D. Siegel & Stacey E. Anderson,
Author Affiliations: NIOSH, Morgantown WV.

The role of dermal exposure to chemicals in not only allergic diseases, but also in systemic sensitization leading to subsequent elicitation of immune mediated diseases in distal organs such as the lung has become apparent from multiple laboratory studies reported in the literature. Researchers within HELD/NIOSH are presently investigating mechanisms of immunological sensitization and adjuvancy of multiple chemicals using murine models. Diisocyanates, used in the production of polyurethane, cause both contact allergy and asthma. Proteomic studies have identified albumin and keratins as the most abundant haptenated species in the skin. Immunochemical techniques demonstrated that haptenated proteins can be detected on the skin 2 weeks post exposure and the hair follicle as an important haptenated

protein reservoir for antigen presentation. Mechanistic studies suggest microRNAs (miRNAs) can alter Treg lymphocyte development and functions in the skin and draining lymph nodes contributing to diisocyanate sensitization. Widely used disinfectants, such as quaternary ammonium compounds and triclosan, were found to be dermal irritants, adjuvants and some, contact sensitizers. These chemicals increase danger signals such as thymic stromal lymphopoietin (TSLP), a pleiotropic cytokine, important in Th2 contact hypersensitivity responses and the progression of atopic dermatitis to asthma. In summary, the skin is an important site of immunological sensitization that can lead to both dermal and extra-dermal hypersensitivity diseases. All studies were approved by the NIOSH IACUC.

11:30 AM- Workplace Screening for Hand Dermatitis

Dr. Kathryn Nichol [1-4] ,Dr. D. Linn Holness[3-5] , Dr. Ray Copes[3,4,6] & Ms. Karon Kersey[1]
Author Affiliations: 1) University Health Network, 2) Sunnybrook Health Sciences Centre, 3) University of Toronto, 4) Centre for Research Expertise in Occupational Disease, 5) St. Michael's Hospital, 6) Public Health Ontario

Background: Workers exposed to wet work are at an increased risk for occupational contact dermatitis and may benefit from screening to detect early disease.

Objectives: To assess the validity of the Hand Dermatitis Screening Tool and the feasibility of implementing workplace screening in healthcare.

Methods: Following institutional ethics approval, employees at three large hospitals in Ontario, Canada, completed a survey evaluating risk factors. Subsequently, they were screened for hand dermatitis using the Hand Dermatitis Screening Tool either by an occupational health nurse (OHN) or by self-screening. Following screening, participants completed a feasibility evaluation. *Results:* Of the 539 (284 self-screen, 255 OHN-screen) workers who participated, 31% had a positive screen for hand dermatitis. Individuals with a positive screen were more likely to engage in wet work and have a history of eczema, dermatitis, or other rash. 81% of OHNs and those who self-screened indicated that using the tool took <1 minute and 98% indicated the tool was easy to use.

Conclusions: The risk factors for hand dermatitis identified in the present study are consistent with the literature focused on healthcare. Overall, screeners indicated that the tool was feasible to use in a busy hospital setting.

Funding: Ontario Ministry of Labour Research Grant.

11:50 AM - The ACDS Contact Allergy Management Program (CAMP) App (and camp update)

Andrew Scheman, M.D[1]. & Scott Johnson[2]
Author Affiliations: 1) Northwestern University Medical Center 2) University of Kentucky

The ACDS CAMP (contact allergy management program) app is designed to access the CAMP database so that the patient's own individualized CAMP list of up to 5000 safe products is displayed on their Apple or Android smart phone. Safe lists can then be sorted by product type, brand name or product name. There is also a search function to help search for products using specified criteria. Favorite products can be chosen and selectively displayed. The app also displays a list of the allergens found positive when the patient was patch tested.

In order to use the CAMP app, patients must first obtain their individualized CAMP safe product list and user ID codes from a participating ACDS doctor.

This presentation will also include an update on the use of CAMP for epidemiologic and industry research. A booth manned by the CAMP data analyst (David Severson) and one of the CAMP app designers (Scott Johnson) will be open today in the exhibit area so that ACDS members can ask questions about how to use CAMP or the CAMP app.

2:00 PM - Methylchloroisothiazolinone/Methylisothiazolinone (MCI/MI) and Methylisothiazolinone (MI) in Common Personal Care Products in the American Market

Mari Paz Castanedo-Tardan[1]; Malin Engfeldt[2]; Kathryn A. Zug[3]; & Magnus Bruze[2]
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2) Department of Occupational and Environmental Dermatology, Skåne University Hospital, Lund University, Malmö, Sweden 3) Section of Dermatology, Dartmouth-Hitchcock Medical Center, Lebanon, NH USA

Background:
MCI/MI and MI are frequent skin sensitizers found as preservatives in a wide range of personal care products.

Objectives:
To investigate the presence and concentrations of MCI/MI and MI on common USA-made personal care products, and to verify the accuracy of labeling and compliance with regulations.

Materials and Methods:
One hundred USA-made personal care products from different brands were randomly selected. The ingredients labels were examined and the products were analyzed with high-performance liquid chromatography (HPLC) for the content of MCI/MI and MI.

Results:
All products contained a list of ingredients. According to labeling, twenty products (20%) contained MCI/MI and fifteen products (15%) contained MI alone. Three products not labeled to contain MCI/MI or MI showed positive results on HPLC. Of 35 products labeled to contain

MCI/MI or MI, five showed negative results upon HPLC analysis. Of the 15 products labeled to contain MI, five contained MI > 100 ppm.

Conclusions:
Personal care products are an important source of exposure to MCI/MI and MI. Labeling inaccuracies and concentrations above the maximum allowed were identified in a percentage of personal care products available in the American market.

Acknowledgments: ACDS Mentoring Award.

2:10 PM - Epidemiology and Co-reactivity of Novel Surfactant Allergens: A Double –Blind Randomized Controlled Study

Katherine R. Grey BA[1-2], Jamie L. Hanson BS[1], Solveig L. Hagen BA[1-2], Sara A. Hylwa MD[1-2], & Erin M. Warshaw MD MS[1-2]
Author Affiliations: 1) University of Minnesota Medical School, Department of Dermatology, Minneapolis, MN 2) HCMC Parkside Occupational and Contact Dermatitis Clinic, Minneapolis, MN

Objective: To identify positivity rates to three novel surfactants and co-reactivity with other surfactants in patients with known surfactant sensitivity.

Methods: Previously patch-tested, surfactant-positive patients were identified via chart review and invited to participate in this IRB approved study. Participants were patch tested to standard surfactants (cocamidopropyl betaine, amidoamine, dimethylaminopropylamine, coconut diethanolamide, oleamidopropyl dimethylamine, and decyl glucoside) as well as three novel surfactants: sodium lauroyl sarcosinate 0.5% and 1.0% aq, isostearmidopropyl morpholine lactacte 0.5% and 1.0 % aq, and disodium lauroamphodiacetate 1.0 and 2.0% aq, and a hypoallergenic liquid cleanser (tested semi-open). Patients and clinicians were blinded.

Results: As of 11/12/15, 7 participants have completed the study. We continue to enroll participants and plan to meet our recruitment goal of 50 participants in the next few months. Of the novel surfactants, positive reactions were most common to isostearamidopropyl morpholine lactate (5/7). Two patients had doubtful reactions to sodium lauroyl sarcosinate.

Conclusions: Preliminary data indicates that isostearamidopropyl morpholine lactate may be an important allergen. Further analyses will investigate the co-reactivity of this novel surfactant allergen with other amidopropyl surfactants.

Acknowledgement: This study was funded by an American Contact Dermatitis Society Clinical Research Award.

2:20 PM – Different Patch Test Products give Different Response Rates to Hydroperoxides of Limonene

John F. Elliott[1], Mariam Abbas[1], Shaundon Holmstrom[1], Kunimasa Suzuki[1], Wayne Moffat[2], and Joel DeKoven[3]

Author Affiliations: 1) Division of Dermatology, Department of Medicine 2) Department of Chemistry, University of Alberta, Edmonton, AB. 3) Division of Dermatology, Sunnybrook Hospital, University of Toronto, Toronto, ON, Canada.

Objective: Hydroperoxides of limonene represent an important fragrance-related allergen, but there is no published data regarding rates of positivity for Canadian populations. We explored rates and reasons for differences between two patch test clinics in Canada, one in Toronto and the other in Edmonton.

Results: Edmonton began testing to hydroperoxides of limonene in August 2014, with 484 patients tested to October 2015. A total of 37 patients showed a positive response at 96 hours (thirty-1+, six-2+, one-3+), with an Overall Response Rate (ORR) of 7.6% [Clopper-Pearson 95% CI: 5.4%-10.4%]. Sunnybrook began testing hydroperoxides of limonene in March 2015, with 196 patients tested to October 2015; two patients were positive (both 2+) giving an ORR of 1.024% [Clopper-Pearson 95% CI: 0.12%-3.64%]. Surprisingly, a statistically significant difference between the two sites (Edmonton and Sunnybrook) was demonstrated [$X2\ (1) = 10.13$, $p < .0008$]. Further inquiry revealed that Sunnybrook had used exclusively Allergeaze allergen, whereas Edmonton had used exclusively Chemotechnique. Gas chromatographic/mass spectroscopic analysis showed that whereas the Chemotechnique syringe contained all of the expected molecules, the Allergeaze syringe contained none of them.

Conclusion: Since the Allergeaze product does not contain hydroperoxides of limonene, it fails to detect this allergy.

Funding: Canadian Dermatology Foundation

2:40 PM- Photopatch and Patch Test in 101 Suspected Chronic Actinic Dermatitis Patients from India

Vinod Kumar Sharma, Neetu Bhari, Ashok Wadhwani, & Riti Bhatia

Author Affiliations: Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi

Background: Many patients of chronic actinic dermatitis are positive to multiple contact allergens and have a background of preexisting allergic contact dermatitis.

Material and Methods: Patients with dermatitis and lichenification primarily located on photoexposed areas, with or without photosensitivity, were suspected of chronic actinic dermatitis (CAD). A detailed history regarding age, gender, skin type, occupation, site of onset and involvement, mean duration of symptoms, presence of atopy, photosensitivity, seasonal variation, exposure to *Parthenium hysterophorus* weed and use of hair dye, was recorded. Detailed cutaneous and systemic examination was performed. Patch and photopatch test was carried out by standard methods. Photo patch test was

performed by using Scandinavian photopatch antigen series with the addition of parthenium (1:100 and 1: 200 acetone extract). Phototesting was not carried out.

Results: One hundred and one patients were included (69 males, 32 females) with mean age of 49.94 years (range 21 to 78 years). Lichenified hyperpigmented plaques over photoexposed sites was the most common presentation. Photosensitivity was recorded in 64 (63.4%) patients and summer exacerbation in 52 (51.5%) patients. Exposure to parthenium was recorded in 70 (69.3%), hair dye application in 27 (26.7%) and history of atopy was present in 20 (19.8%) patients. Patch test results were available in all the patients and photopatch test results in 86 patients. Photopatch test was positive in 12 (13.9%) and patch test was positive in 71 (70.3%) patients. Photopatch tests showed positive results for parthenium and perfume mix in 3 patients each, balsam of Peru in 2 patients ,each. On patch test parthenium was positive in 52 (51.48%) patients, followed by parthenolide in 10, colophony in 6, fragrance mix and p-phenylenediamine (PPD) base in 5 patients each.

Conclusion: In the Indian population, parthenium and fragrance mix are the most common photoallergens in the suspected CAD patients and parthenium, colophony, fragrance mix and PPD are the common allergens on patch test.

POSTER PRESENTAION ABSTRACTS

What does Ontario Health Insurance Plan Data tell us about Patch Testing in Ontario?

Victoria H Arrandale[1], D Linn Holness[1-3]
Author Affiliations: 1) Dalla Lana School of Public Health 2) Department of Medicine, University of Toronto, 3) Department of Occupational Health and Centre for Research in Inner City Health, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Canada.

Background: Information about the use of patch testing comes primarily from surveys of physicians. These may be limited because not all physicians who are patch testing reply. An alternate source of information is health insurance data.

Objectives: To utilize Ontario Health Insurance Plan (OHIP) data to analyse patch testing in Ontario.

Methods: This study was approved by the St. Michaels' Hospital Research Ethics Board. The study involves the use of OHIP data, provided by the Institute for Clinical and Evaluative Sciences (ICES), an Ontario research institute that holds a number of health care administrative databases including the billing data of the OHIP. Data related to patch testing performed and specialty of physician was analysed from 1992 to 2014.

Results: There were 51,576 patch test billings, 48,416 non-work related and 3,160 work-

related. The specialties billing for patch testing included dermatologists, allergists and clinical immunologists, internists, paediatricians and family physicians.

Conclusions: Use of OHIP data provides a more complete understanding of patch test utilization and, over time, can be used to track patch testing practices.

Acknowledgements: Supported by Centre for Research Expertise in Occupational Disease, funded by the Ontario Ministry of Labour.

Throwing Light on Photosensitivity in Children: A Review of the Literature

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Background: Photosensitivity disorders, while rare, can occur in childhood. This abstract aims to provide a cohesive summary of the literature on pediatric photodermatoses.

Methods: Literature search was conducted via Pubmed, MEDLINE, and Research Gate. Peer-reviewed manuscripts were identified, appraised, and significant findings synthesized.

Findings: Pediatric photosensitivity disorders can be due to genetic causes, systemic disorders, metabolic defects, connective tissue diseases, nutritional deficiencies, secondary to topical or systemic agents or idiopathic. Polymorphic Light Eruption is the most prevalent condition in children. Children may present with vesicobullous lesions, blisters, erythema, hyperpigmentation, swelling, eczematous lesions, scaly plaques, or poikilodermatous changes. These typically occur on photo-exposed areas. Diagnosis is made from history, correlated with physical examination and investigation. A detailed history should include age of onset, course of disease, seasonal variation, history of exposure to photosensitizing agents, and systemic involvement. Photopatch testing and Phototesting are important diagnostic tools. However, they are seldom performed in children. Management includes photoprotection with sunscreens, proper clothing and avoiding sun exposure. However, some children may have photoallergy or contact allergy to sunscreen. Short term topical or systemic corticosteroids may be given. Photosensitivity disorders may impact the child's quality of life, due to limitation on outdoor activities, and change in lifestyle. Counseling patient and parents is vital.

Conclusion: Prompt diagnosis and management of photodermatoses is essential to minimize complications. Photopatch testing and phototesting should be considered in children presenting with features of photosensitivity.

Promoting Workplace Health among Nail Technicians

Irene Chen1, Victoria H Arrandale2, & D Linn Holness2-4
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Background: Nail technicians are often vulnerable immigrant workers with exposure to skin hazards.

Objectives: To describe the occupational health concerns, barriers to improving workplace health, and perceived resource needs among Chinese immigrant women working as nail technicians.

Methods: A qualitative study was conducted in Chinese using semi-structured interviews with five immigrant Chinese women in the nail salon industry who work in Toronto, Canada. Ethics approval was granted by the University of Toronto Ethics Review Board.

Results: Nail technicians were concerned with chemical exposures. Barriers to addressing their workplace health concerns included a lack of self-protection knowledge, the desire to keep their job, and the precarious nature of salon work. Nail technicians would find print resources in simple language and that were visually pleasing to be helpful and informative.

Conclusions: Immigrant Chinese nail salon workers have a number of health concerns, including skin exposure to chemicals. Attitudes toward their job, salon owners, and how to cope with difficulties are barriers to addressing these health concerns. Findings from this study will further inform resource development and knowledge dissemination among this vulnerable population.

Acknowledgements: Irene Chen was supported by the Centre for Research Expertise in Occupational Disease.

Systemic Contact Dermatitis After Implantation with a Titanium Alloy Plate In A Vanadium Allergic Patient

Sarah (Sally) Engelhart, MSIII[1] & Robert Segal, MD[2]
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Allergy as a cause of adverse outcomes in patients with implanted orthopaedic hardware is controversial. Allergy to titanium-based implants has not been well researched, as titanium is traditionally thought to be inert. This poster highlights the case of a patient who developed systemic contact dermatitis and implant failure after surgical placement of a titanium alloy (Ti6Al4V) plate. The hardware was removed and the rash cleared in the following weeks. The plate and screws were submitted for metallurgy analysis. The elemental composition of both the plate and screws included titanium, aluminum, and vanadium, as well as trace elements. The plate and screws had different microstructures, which might contribute to release of vanadium in vivo. The patient was patch tested to the components of the implant and had a positive patch

test reaction only to vanadium trichloride (VCl_3). These findings support a diagnosis of vanadium allergy and suggest that clinicians should consider including vanadium when patch testing patients with a suspected allergic reaction to vanadium-containing implants.

Clinical Utilization of Repeated Open Application Test (ROAT) among American Contact Dermatitis Society Members

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Objective: To assess how the repeated open application test (ROAT) is utilized in clinical and research settings in suspected cases of allergic contact dermatitis.

Methods: We distributed a survey regarding ROAT practice to the American Contact Dermatitis Society (ACDS) and conducted a literature review of ROAT utilization.

Results: The survey included 67 ACDS members. Respondents most frequently recommended application of leave-on products twice daily (46.0%), and rinse-off products once daily (43.5%). The most commonly used anatomical sites include forearm (38.7%) and antecubital fossa (32.3%). Most respondents continued ROAT for 1 (49.2%) or 2 weeks (31.7%). Literature review of 32 studies (26 leave-on, 6 rinse-off) revealed that application frequency is most common at twice daily for both leave-on (96.2%) and rinse-off (50.0%) products. The most common anatomical site is the forearm (62.5%), with an overall study duration of 3-4 weeks (65.6%).

Conclusions: When comparing ROAT clinical and research practice, the majority trend was consistent for leave-on product application frequency and anatomical site, but not for rinse-off product application frequency or overall duration. Further research is needed to determine best practice recommendations.

Allergic Contact Dermatitis from Ethylhexylglycerin

Solveig L. Hagen BA[1-2], Erin M. Warshaw MD MS[1-2]
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Ethylhexylglycerin is an emollient and emulsifier that is increasingly used in personal care products.

We report a healthy 34-year-old female with a history of childhood eczema and severe hand dermatitis. Previous patch testing in 2010 revealed positive reactions to neomycin, bacitracin, formaldehyde-related preservatives, methyldibromo glutaronitrile, decyl glucoside, benzalkonium chloride, and ethyleneurea melamine formaldehyde. Her dermatitis improved

significantly with avoidance, but then flared again with additional affected body sites (face, neck, trunk, elbows, and legs).

Additional testing in 2015 included North American Contact Dermatitis Group (NACDG) standard series, corticosteroids, cosmetics, preservatives, vehicle, perfumes/flavors, plants/woods, rubber, textiles, and 24 personal items.

Newly identified positive reactions included ethylhexylglycerin, group B steroids (budesonide, amcinonide), cocamidopropopyl betaine, shellac, and limonene. She also reacted to several personal products, including a baby lotion containing ethylhexylglycerin.

Ethylhexylglycerin sensitivity has been reported sporadically in Europe. This is the third reported case in North America. The NACDG added it to their screening series in 2013. We present this case to raise awareness of potential reactions to this relatively newly-identified allergen which is increasingly utilized in North American products.

The Scourge of the Spurge – An Underappreciated cause of Irritant Contact Dermatitis

Kimberly Huerth, M.Ed[1], Douglas Powell, MD[2],Jason Hawkes, MD[2] & Lawrence Meyer, MD, PhD[2]
Author Affiliations: 1) University at Buffalo, Buffalo, NY 2) University of Utah, Salt Lake City, UT

Spurges (*Euphorbiaceae*) are a large, diverse, and widely distributed family of plants that encompass around 300 genera and over 8000 species. Their attractiveness and hearty nature have made them popular for both indoor ornamentation and outdoor landscaping. Yet, despite their ubiquity, the spurge's potential to cause irritant contact dermatitis (ICD) is often overlooked in favor of more notorious causes of phytodermatitis, which they can clinically mimic. For example, Rhus dermatitis, which is caused by such North American native *Toxicodendron* species as poison ivy, poison oak, and poison sumac, is often reflexively implicated when a pattern of linear or angulated plaques and vesicles is observed on exposed body surfaces. Although spurge-induced ICD has been sporadically described in the literature, a lack of familiarity with this condition nevertheless persists among many. We examined case reports spanning forty years and discovered that spurge-induced ICD tends to primarily befall children and middle-aged adults who unwittingly encounter the plant though play and/or horticulture. Clinical findings are pleomorphic, with erythema, edema, burning, vesicles, and pruritus of acute onset and rapid resolution frequently observed. We present an illustrative case of spurge-induced ICD in a 12-year old female following exposure to *Euphorbia myrsinites*, which closely resembled Rhus dermatitis. We also discuss *Euphorbiaceae* from a historical perspective, and examine advances in our understanding of the pathomechanism by which the major irritant compounds found in spurges (diterpene esters) exert their effects. In doing so, we highlight the fact that irritant skin reactions to the *Euphorbiaceae* family are an important, often underrecognized imitator of Rhus dermatitis.

Assessing Quality of Life Disturbance from Contact Dermatitis in a Patch Testing Clinic

Robert Kantor, BS, Derek Y. Hsu, BS, Supriya Immaneni, BS, Brianna Rusniak, RN & Jonathan I. Silverberg, MD, PhD, MPH
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Contact dermatitis is associated with significant morbidity and impaired quality of life (QOL). However, few studies have examined how contact dermatitis impacts QOL. We sought to determine the feasibility of incorporating QOL assessment in a patch testing clinic. Further, we aimed to determine the impact of contact dermatitis on QOL. We tested the feasibility of assessing QOL in 27 patients using the self-administered Dermatology Life Quality Index (DLQI) prior to physician encounter. The questionnaire was completed by all patients in <3 minutes, did not interrupt the clinical workflow with good patient and provider satisfaction. We prospectively studied 350 adults (20-85 years of age) from the Northwestern Medicine patch testing clinic (January to December 2014). Demographics and clinical characteristics were recorded. The mean ± std. dev. DLQI score was 5.9 ± 5.2, with 45.2% reporting moderate to extreme effects on QOL (DLQI score >5). In ordinal logistic regression models controlling for age, gender, race/ethnicity, country of birth, insurance and history of atopic dermatitis, QOL impairment was significantly higher in patients with ≥10 body parts (adjusted odds ratio [95% confidence interval]: 2.50 [1.31-4.75]) affected by dermatitis compared with only a single body part, but not 2-9 body parts affected (1.26 [0.76-2.07]). In models that controlled for the abovementioned covariates and number of body parts affected, total DLQI scores were not worse in patients with a specific body part affected (P≥0.06 for all), higher intensity of itch (P=0.12), or prolonged duration of dermatitis (P=0.09). The distribution of dermatitic lesions was associated with different patterns of QOL disturbance. For example, genital lesions were associated with significantly higher odds of sexual dysfunction (2.94 [1.15-7.52]). In conclusion, assessing QOL impairment in contact dermatitis using DLQI is feasible and can be used to guide therapeutic management. Finally, contact dermatitis is associated with poor QOL, particularly extensive disease.

Pediatric Eczema is Associated with Sedentary Behavior in 2 US Population-based Cohorts

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Eczema is a chronic, pruritic, inflammatory skin disorder that can negatively impact all aspects of patients' lives. Adult eczema has previously been found to be associated with lower rates of vigorous physical activity and higher rates of cardiovascular risk factors. Since most cases of eczema begin in childhood, it may be that children with eczema already demonstrate sedentary behavior. In the present study, we sought to determine levels of physical activity and sedentary behaviors in pediatric eczema. We analyzed data from 2 different US population-based cohorts, the 2003-2004 and 2007-2008 National Survey of Children's health, including 131,783 children. In multivariate models adjusting for socio-demographics, eczema was associated with decreased odds of 3 or more days of physical activity per week (adjusted odds ratio [95%

confidence interval]: 0.89 [0.81–0.99], P=0.03). In NSCH 2007-2008, severe eczema was associated with significantly increased odds of 5 or more hours of daily television or video games (2.49 [1.14–5.45], P=0.02) and decreased odds of participation in sports (0.50 [0.31–0.81], P=0.005). Compared to children with either eczema or sleep disturbance, children with both eczema and sleep disturbance had even lower odds of 3 or more days of physical activity per week (0.47 [0.35–0.62], P<0.0001) and sports participation (0.69 [0.52–0.92], P=0.001) and higher odds of 5 or more hours of daily television/video games usage (3.09 [1.94–4.90], P<0.0001). The results of this study suggests that children with eczema may perform less physical activity and more sedentary behaviors.

"Tulip Finger" Dermatitis in Nursery Workers: Recognition of ACD to *Hydrangea*

Shalini Thiru, BSc, BA, Stephanie Vakaljan, BSc & Jason Ohayon, MD, FRCPC
Author Affiliations: McMaster University.

Background: The presentation of occupational dermatitis to plant allergens is commonly observed in nursery workers. Often their dermatitis is considered irritant; however, allergic sensitization to plant components, *phytodermatitis*, can also arise. "Tulip fingers" are a potential sign of allergic contact dermatitis (ACD). We present a case for ACD of "tulip fingers" in a non-tulip plant grower of *Hydrangea*.

Case Presentation: A 58 year old male presented with chronic dryness, redness and fissuring on his right thumb, index, and middle finger. With time, his dermatitis had spread to his upper torso. He owned a nursery that specialized in growing two specific plants: *Anthurium*, imported from the Netherlands, and locally-grown *Hydrangea*. Medications included Crestor and ASA, predating his rash by many years. Fungal scrapings were negative, and blood work returned negative for markers of systemic inflammation and autoimmunity.

Patch testing to the NACDG panel was negative. As *Anthurium* and *Hydrangea* were unavailable as commercial extracts, fresh samples of the root, stem, leaf and petals of *Anthurium* and *Hydrangea* were patched. At 96 hours, a strong positive was seen to the *Hydrangea* leaf. Recommendations of barrier methods were provided in addition to mid-potency topical steroid therapy.

Discussion: As the *Hydrangea* leaf appeared to be the main source of the sensitizing protein, the result likely represents the presence of hydrangenol within the leaf – known to be a contact sensitizer. With the increase of *Hydrangea* in North American nurseries, awareness of this leaf's sensitizing potential is vital in the differential of "tulip dermatitis" presenting in non-tulips.

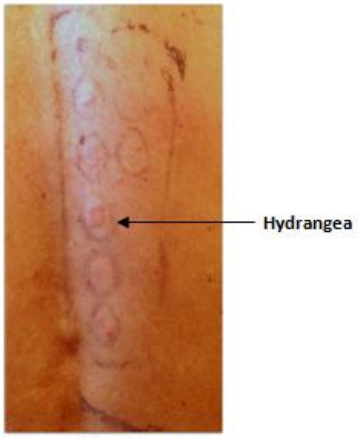

Figure 1. Photo of patient's back at 96 hours following APT to floral panel.

Is it the FOOD? The Role of Food Patch Testing in Chronic Hand Dermatitis in Food Industry Workers.

Stephanie Vakaljan BSc, Shalini Thiru, BSc & Jason Ohayon MD FRCPC,
Author Affiliations: McMaster University.

Background: Food industry workers with chronic hand dermatitis are exposed to a variety of potential contact triggers. Allergic sensitization to foods may help identify triggers in persistent cases.

Case presentation: A 51 year old female chef presented with a 5 year history of chronic hand dermatitis. Treatment with topical steroid creams and barrier nitrile gloves while working provided ineffective relief. An allergy consultation was requested. Skin prick tests to common food and inhalant allergens were negative. Patch testing to the NACDG panel yielded positives to Balsam of Peru, Formaldehyde, Imidazolidinyl urea, Quaternium-15, Sesquiterpene lactone, DMDM hydantoin, Fragrance Mix II, and Methyldibromo glutaronitrile. Allergen avoidance information and an ACDS safe list of products were provided. The patient continued to suffer from persistent hand dermatitis despite allergen avoidance measures. Given the patient's occupational history, patch testing was completed to the common foods handled in the work environment. At 72 hours, strong positive responses were seen to garlic, as well as green, red, and Vidalia onion. Other positives were seen to spring lettuce, lemon, tomato, and raw bacon. Subsequent barrier methods while working with the foods provided incomplete resolution of the hand dermatitis. Elimination of all hand contact to the above foods resulted in complete resolution of the hand dermatitis.

Discussion: Food industry workers with persistent chronic hand dermatitis, despite barrier and treatment methods, may benefit from food patch testing to identify contact triggers to avoid.

A Preliminary Evaluation of Cosmetic Adverse Event reports Submitted to FDA'S Medwatch System

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Cosmetic manufacturers are not required by law to report adverse events (AE) to the FDA. Because of the voluntary nature of cosmetic AE reporting, the quality of these reports can vary. Additionally, the voluntary nature of the reporting system leads to under-reporting. FDA maintains an adverse event monitoring system known as CAERS (CFSAN Adverse Events Reporting System) to track adverse events associated with CFSAN regulated products, including cosmetics. OCAC reviewers monitor, evaluate and assess the frequency and seriousness of the cosmetic product AE reports. FDA's preliminary analysis of adverse events has identified some of the following: since 2011, OCAC has received between 30-50 AEs on average per month, averaging around 390 AEs per year; reporters consist of consumers (60%-70%), industry (20%-22%), local/state government (1%-6%), and health professionals (1%-3%); predominant AEs include skin irritation, allergic reaction, and hair loss; 30% of reported AEs are

internally designated as “Serious”; products that are more frequently reported to FDA with AEs include hair smoothing products, men’s hair and beard dyes, anti-aging products, deodorants, and tattoos. Because of the significant limitations in the current voluntary AE reporting system for cosmetics, FDA lacks robust information in order to draw adequate conclusions regarding the safety of certain categories of cosmetics associated with adverse events.

Workplace Training Experiences of Workers with Contact Dermatitis: A Qualitative Study

Bethany Zack[1], Victoria H Arrandale[1], D Linn Holness[1-3]
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Background: Contact dermatitis is a common work-related disease. Workplace training may help to prevent dermatitis. Limited information is available on existing training programs.

Objectives: The purpose of this study was to gather information on the training experience of workers with suspected occupational contact dermatitis.

Methods: This qualitative study was approved by the St. Michaels’ Hospital Research Ethics Board. Fourteen patients with suspected occupational contact dermatitis participated in semi-structured interviews. An inductive thematic analysis approach was used to identify themes.

Results: Several themes identified related to workplace training: content, format, perceived effectiveness, employer attitude toward training, and suggestions for improvement. Other themes included the impact of dermatitis on the worker’s physical, psychological, emotional and financial well-being, and health care and workers’ compensation experiences.

Conclusions: Although workers with contact dermatitis describe workplace training, some question its perceived value and effectiveness. Results from this study have been used to design a survey on training experiences, prevention knowledge, and workplace health and safety culture that is being used in the clinical setting.

Acknowledgements: Bethany Zack was supported by graduate student awards from the Centre for Research Expertise in Occupational Disease and the Institute for Work and Health.