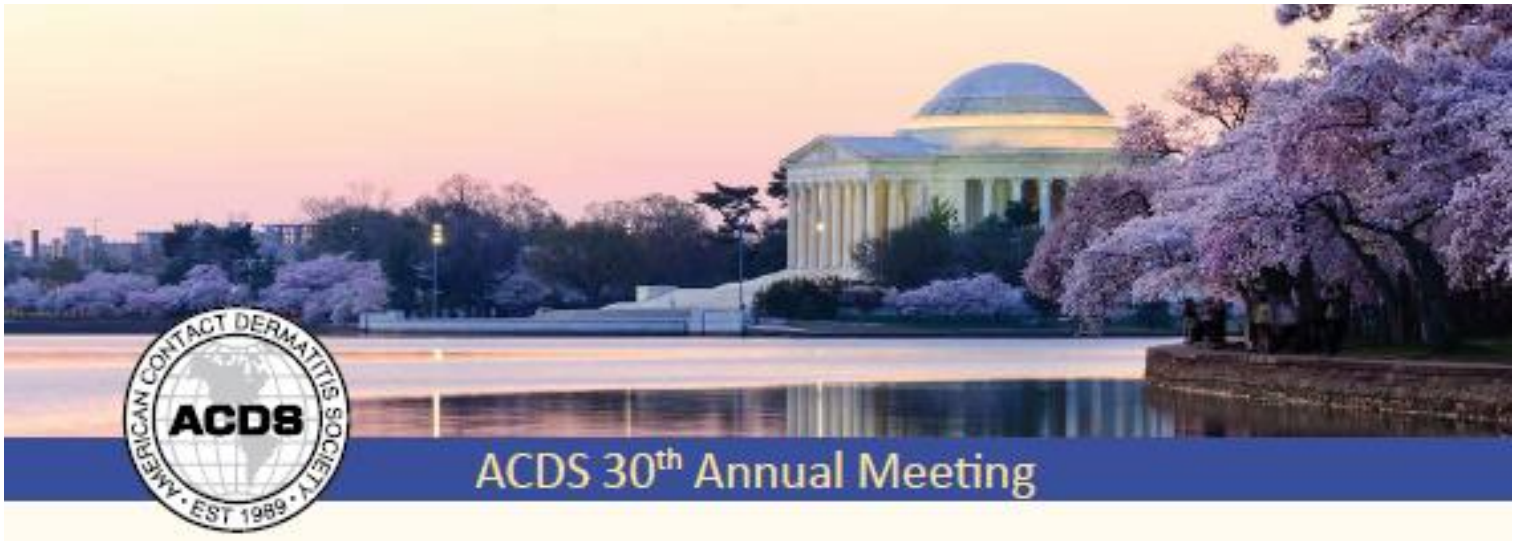

Abstracts

American Contact Dermatitis Society

Thursday, February 28, 2019 ● 7:30am to 4:00pm

The Mayflower Hotel
1127 Connecticut Avenue NW, Washington DC

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Poster Presentations (in order of location)**:** **East Ballroom**

Fisher Presentations

The Final Patch Test Read: Day 5 or Day ≥8?

Authors: Hafsa M. Chaudhry, M.D.[a], Lisa A. Drage, M.D.[a], Matthew R. Hall, M.D.[b], Jill M. Killian, B.S.[c], James A. Yiannias, M.D.[d], Mark D.P. Davis, M.D.[a]

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Abstract

Background: A major question in patch testing is when to perform the final patch test reading. Our standard is to place patches on day 1, and remove on day 3. Readings are performed on days 3 and 5, and for certain allergens, on day 8 or later. We have previously published that new reactions may be detected (metals, some preservatives, neomycin) if readings are performed on day ≥8.

Objectives: To identify allergens with positive reactions on day 5 that disappeared by day ≥8.

Methods: With IRB approval, we reviewed 411 patients who underwent patch testing between 2008 and 2016 at the Mayo Clinic with readings on day 5 and days 8 through 14. We analyzed the 195 allergens tested in at least 50 patients.

Results: A total of 131 allergens had positive reactions on day 5 that were negative by day≥8 while 58 allergens had negative reactions on day 5 that were positive on day ≥8.

Conclusions: Many patch test reactions (p-phenylenediamine, corticosteroids, fragrances) may be missed if day 5 readings are skipped, and only day ≥8 readings are performed.

Comparative Analysis of Allergy Patch Test Reading Using the NACDG and ICDRG Scoring Systems

Feras M. Ghazawi MD, PhD, Amin Bahubeshi MD, Derek To MD and Melanie Pratt MD, FRCPC
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Scoring systems developed by both the North American Contact Dermatitis Group (NACDG) and the International Contact Dermatitis Research Group (ICDRG) are well established systems and are widely used for objective and comprehensive evaluation, scoring and validation of allergic reactions. These scoring systems are based on visual and palpation assessment of the degree of edema and presence of papules, vesicles, bullae and erythema at the patch-test sites. While the different scoring systems have been regarded by many as comparable, there is still controversy concerning patch test readings using different scoring systems. To address this, we conducted a thorough comparative examination of allergy patch test readings using the NACDG and ICDRG scoring systems, where 13 patients with positive patch result findings were graded by members of NACDG and ICDRG at the Ottawa Contact Dermatitis Meeting in Ottawa, Canada in June 2018 using both scoring systems. We will present the results of this study, highlighting similarities and disparities between results from both grading systems. It is imperative to standardize patch test readings for better communication and to minimize false positive test reactions. The results of the presented study may allow for optimization of the different scoring systems, transferability of clinical results and may reduce the inter-individual and systemic variations in patch test readings.

Measuring quality of life in allergic contact dermatitis

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Introduction:
The ACD-11 is a novel, validated 11-item instrument for measuring quality of life (QOL) in allergic contact dermatitis (ACD). Two questions developed concurrently with the ACD-11, the "global questions," (GQs) assess the patient's sense of their own level of disease and disability. We sought to determine whether these two GQs alone reflect the results of the 11-item tool and whether they measure similar change in QOL before and after patch testing and allergen avoidance.

Methods:
100 patch-test-positive patients were administered the IRB-approved ACD-11 and the GQs; 48 completed the questionnaire both before and 2 months after allergen avoidance. We compared the severity of disease measured by the ACD-11 and the GQs by stratifying patients according to ACD-11 score and GQ likert scale category. We calculated a Cohen's Kappa to determine intertest agreement between severity measures by both indexes. Finally we measured the amount of change in QOL before and after allergen avoidance with a paired T-test.

Results:
ACD-11 and GQs measured disease severity in a matching manner, with the average ACD-11 severity score increasing linearly per patient population in each GQ severity category. There was high inter-test agreement on both instruments' measure of disease severity, with Cohen's Kappa ranging from 0.68-0.81. The indexes measured responsiveness of QoL to patch testing in a similar manner, with QoL improving at the 2-month post patch test follow-up. After patch testing, more patients were categorized as having "mild" disease and fewer had "moderate" or "severe/very severe" disease.
Conclusions:
In the 48 patients who took the questionnaire, the ACD-11 and the GQs demonstrated similar measured severity of disease. Both the ACD-11 and GQs showed similar capacity to measure change in QOL before and after patch testing.

Contact Dermatitis to Personal Care Products in Males: Retrospective Analysis of North American Contact Dermatitis Group (NACDG) Data 1996-2016

EMWarshaw[1-3], JPSchlarbaum[1-2,4], NACDG members

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2. Minneapolis Veteran Affairs Medical Center
3. University of Minnesota, Department of Dermatology
4. University of Minnesota Medical School

Background: Cosmetic corporations are increasingly marketing skin/hair products to men.

Objective: To characterize allergic (ARs) and irritant (IR) reactions associated with personal care product (PCP) sources in males.

Methods: Retrospective cross-sectional analysis of 48,472 patients patch tested by the North American Contact Dermatitis Group (NACDG) from 1996-2016. PCP sources for all ARs and IRs and were analyzed by sex.

Results: Of the 17,429 individuals with ≥1 PCP-related ARs/IRs, 4,687 (26.9%) were males. Compared to females with PCP-related dermatitis, males were more likely to be older (M:52 years, F:49 years). Males with PCP-related dermatitis were also more likely to have scattered/generalized (M:21.1%, F:12.1%), hand (M:20.0%, F:15.3%), or foot dermatitis (M:5.1%, F:2.0%) but were less likely to have facial involvement (M:8.4%, F:19.2%) (all *P*-values<0.0001). There were a total of 30,160 PCP-related ARs; 8,868 (29.4%) were in males. The most identified PCP sources of NACDG ARs for both sexes were moisturizers/lotions/creams (M:18.0%, F:14.9%) and shampoos (M:6.4%, F:8.0%). PCPs causing ACD with a high representation in males included pumice soaps (23/26), waterless hand cleansers (64/74), and deodorants (129/209). Common allergens for both sexes were methylisothiazolinone (M:28.8%, F:21.4%), fragrance mix I (M:22.2%, F:20.1%), and Balsam of Peru (M:18.4%, F:14.1%).

Conclusion: Demographics of males and females with PCP-associated ARs are distinct. While many PCP-related allergens are similar, frequencies and sources of allergens differed between sexes.

Accuracy of Product Ingredient Labeling: Comparing Drugstore Products with Online Databases and Online Retailers

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[2]Department of Dermatology, Madison, WI

Background: Patients with allergic contact dermatitis (ACD) rely on ingredient lists published in databases and online retailers to find safe skincare products.

Objective: The aim of this study was to determine the accuracy of product ingredient labeling by comparing product labels in drugstores to ingredient lists published online.

Methods: Amazon was queried for top selling items in several categories of skincare, generating a list of 93 products. These products were then found at Target and Walgreens as well as online on CAMP (Contact Allergen Management Program), SkinSAFE, and CPID (Consumer Product Information Database). Ingredients listed on drugstore products were compared with ingredients available online and analyzed for errors, using the drugstore product labels as the standard.

Results: We found that of the 256 ingredient lists available online, 71/256 (27.7%) contained at least one omission or addition. There were 31 occurrences in which an allergen listed in the 2017 ACDS Core Allergen Series was omitted from an online ingredient list.

Conclusions: Definitive treatment of ACD is avoidance of allergens found on patch testing. This data suggests that patients may be at risk for inadvertent exposure to allergens from products which are supposedly deemed safe. An improved mechanism to ensure product ingredient safety is needed.

Abstract Title: Anogenital Dermatitis in Patients Referred for Patch Testing

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Objectives: To characterize patients with anogenital dermatitis referred for patch testing and identify implicated allergens.

Methods: Retrospective, cross-sectional analysis of North American Contact Dermatitis Group (NACDG) database, 2005-2016.

Results: Of the 28,481 patients tested, the anogenital area was coded as the only site involved in 449(1.78%) (AG, anogenital only patients). Of AG, 211(46.99%) had allergic contact dermatitis (ACD) as one of up to three final diagnoses; 152(33.85%) had ACD as the only diagnosis. Anogenital involvement was significantly associated with male sex (P= 0.0009; RR 1.37; 95%CI 1.14-1.66) and negatively associated with atopy (P<0.012; RR 0.77, 95%CI 0.63- 0.94). Of AG, 227(50.56%) had >1 currently relevant allergen. The 10 most common were methylisothiazolinone, balsam of Peru, fragrance mix I, methylisothiazolinone/ methylchloroisothiazolinone, nickel sulfate, fragrance mix II, iodopropynyl butylcarbamate, quaternium-15, dibucaine, and neomycin sulfate. Allergens that were significantly more frequent in AG included methylisothiazolinone/methylchloroisothiazolinone, dibucaine, benzocaine, triamcinolone acetonide, budesonide, lidocaine, and desoximetasone (p<0.04 for all). Common sources of relevant allergens included cosmetics, food products, wipes, steroids, unknown sources, and pain relief/analgesics/antipruitics.

Conclusions: Approximately half of AGOP referred for patch testing had ACD. Specific allergens found in products which contact the anogenital area were more common in patients with anogenital dermatitis.

Formaldehyde Release From Baby Wipes: Analysis Using the Chromotropic Acid Method

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Background: Formaldehyde is a common preservative and strong sensitizer.

Study Aim: To evaluate the presence of formaldehyde in baby/toddler wipes using the chromotropic acid method (CAM).

Methodology: An online search of best-selling baby wipes was conducted. Fifty-one baby/toddler wipes were purchased, none of which declare formaldehyde or formaldehyde releasing preservatives. Standard CAM procedures were utilized: a 1x1 inch square of a fresh wipe was placed in bottle with an open vial of 4mg/1mL chromotropic acid and sulfuric acid solution, sealed, and stored for 48 hours at room temperature. Formalin and water served as controls. A blinded investigator graded color change (negative, indeterminant, mild, moderate, and strong). For quality control, all positive samples were repeated and 20% of all samples were retested in a systematic manner.

Results: CAM testing showed formaldehyde release from 12 (24%) wipes (8 mild, 4 moderate/strong). Thirty (59%) were negative and 9 (18%) had indeterminant test results.

Conclusion: Almost one-quarter of “formaldehyde-free” baby/toddler wipes released formaldehyde when evaluated with CAM. Patients and clinicians should be aware of this potential source of formaldehyde.

Pramoxine: An Under-Recognized Cause of Allergic Contact Dermatitis

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2. Veteran Affairs Medical Center
3. University of Minnesota Dermatology Department

Minneapolis MN USA

Background: Pramoxine is an analgesic found in many topical medications. While allergy to lidocaine and benzocaine are well-known, allergy to pramoxine is less commonly recognized.

Objective: To describe recent cases of allergy to pramoxine.

Methods: We reviewed records of 6 individuals with relevant reactions to pramoxine.

Results: Cases were comprised of 4 women and 2 men (aged 29-63) with positive reactions to purified pramoxine hydrochloride 2% pet. 5 patients had strong reactions (++/+++), while 1 had a mild reaction (+). 4 pramoxine-containing products were also tested eliciting significant reactions (+/++). Clinical relevance was "current" in 4 patients who were using one or more products containing pramoxine. In these patients' personal products, pramoxine was declared in triple antibiotic ointment (n=2), topical anti-itch lotions (n=3), and hemorrhoid cream (n=1). Past relevance was noted for 2 patients who had likely previously used triple antibiotic ointment suspected to contain pramoxine.

Discussion: These cases illustrate contact allergy to an under-appreciated allergen which is present in a variety of over-the-counter, commonly used topical medications. This case series highlights the importance of testing to this emerging allergen.

Occupationally Induced Allergic Contact Dermatitis Among Bottled Water Workers

L. Claire Hollins, MD, Katherine Hallock, MD, Max Disse, MD, Christopher Chu, MD, James Marks, MD and Alexandra Flamm, MD

Penn State Hershey Medical Center
Hershey, Pennsylvania, USA

BACKGROUND:
Methylchloroisothiazolinone/methylisothiazolinone (MCI/MI) allergy has increased over the last decade, mostly due to high concentrations in cosmetics, but also because of its use as a biocide in industrial settings.

OBJECTIVE:
We report an outbreak of allergic contact dermatitis in eight workers at a water bottling plant secondary to excess levels of MCI/MI in the cooling system, found to be at levels five times the manufacturer's recommendations.

METHODS:
Of 15 workers in the plastic bottle manufacturing area, eight developed dermatitis, and four were referred for patch testing using a 100 allergen panel applied and interpreted in the standardized method according to the North American Contact Dermatitis Group.

RESULTS:
Four workers had a positive reaction to MCI/MI. An investigation at the plant revealed the concentration of MCI/MI was 365 ppm. The manufacturer's recommended level was 48 ppm. The cooling system was subsequently flushed and biocide levels decreased to recommended levels. Afterwards, all the affected workers experienced clearance of their allergic contact dermatitis.

CONCLUSIONS:
Occupational sensitization to MCI/MI is on the rise, due in this instance from excess levels in the cooling system. Our findings demonstrate the continued need for awareness of the allergenicity of this preservative in the occupational setting.

Acknowledgement: Rosemary Szollas, MD, Occupational Medicine Director, St. Luke's University Network, Bethlehem, PA

Occupationally-Related Nickel Reactions: Retrospective Cross-Sectional Analysis of North American Contact Dermatitis Group (NACDG) Data 1998-2016

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1. Park Nicollet Dermatology, Minneapolis, MN USA
2. Minneapolis Veteran Affairs Medical Center
3. University of Minnesota, Department of Dermatology
4. University of Minnesota Medical School

Background: The epidemiology of nickel sensitivity in occupational settings is not well understood.

Objective: To characterize occupationally-related nickel sensitivity (ORNS).

Methods: Retrospective cross-sectional analysis of 44,378 patients patch tested by the North American Contact Dermatitis Group (NACDG) from 1998-2016. Characteristics of occupationally-related nickel reactions were compared to non-occupationally related reactions. Occupation/industry were grouped using 1990 US Census classification codes.

Results: Of the 44,378 patients patch tested, 7,928 (17.9%) were positive to nickel. 268 (3.4%) had ORNS. ORNS was associated with male sex (41.0% vs. 12.9%, $P<0.0001$), a younger average age (41 years vs. 44 years), a diagnosis of irritant contact dermatitis (22.4% vs. 12.0%, $P<0.0001$), and no history of eczema (81.7% vs. 75.7%, $P=0.0229$). The most common sites of dermatitis in individuals with ORNS were hand (39.9%, $P<0.0001$) and arm (18.1%, $P<0.0001$). 16 categories of industry and 23 categories of occupation were identified; the most common industries were durable goods manufacturing (24.6%) and personal services (15.7%) while the most common occupations were hairdressers/cosmetologists (13.1%), operators (9.4%), and healthcare workers (7.1%). Of 215 occupational sources specifically identified, instruments/phones/other equipment (16.3%), vehicles/machinery (15.9%), and tools (15.4%) were the most common.

Conclusion: ORNS is distinct from non-occupational nickel sensitivity.

General Session Presentations

ACDS CAMP 2018: The Relative Prevalence of Contact Allergens in North America

Scheman A*, Patel K*, Jacob S**, Nedorost S***, Brod B****, Watsky K*****, Lloyd R******, Silverberg J*, West D*.

From *Northwestern University, Chicago, IL ** Loma Linda University, Loma Linda, CA, *** Case Western Reserve, Cleveland, Ohio, **** University of Pennsylvania, Philadelphia, PA, ***** Yale University, New Haven CT, ****** University of Wisconsin, Madison, WI

Object: To determine the relative prevalence of allergy to specific contact allergens in North America and to stratify these results by patient age, sex, atopic history and by the allergen screening panel used for patch testing. Methods; 2018 data from the ACDS CAMP database is utilized to determine the relative prevalence of contact allergy to individual allergens in North America. This data is stratified by patient age, sex, atopic history and by the specific screening patch test panel utilized. Approved by the IRB at Northwestern University Feinberg School of Medicine, Chicago, IL

Targeting the Enemy: Food Patch Testing (FPT) for Eosinophilic Esophagitis (EoE) as Targeted Therapy

Sydney Scheffler[1], Stephanie Vakaljan[1], Vince Wu[1,2], and Jason Ohayon, MD[1,2]

Author Affiliations: Hamilton Allergy, Hamilton, ON, Canada[1]; McMaster University, Hamilton, ON, Canada[2]

Background:
EoE is an allergic, inflammatory condition characterized by difficulty swallowing, food impaction, and vomiting. FPT is used to identify potential inflammatory triggers and to develop dietary modifications tailored to the individual. Treatment of this condition requires collaboration between gastroenterology, allergy, and dermatology.

Methods:
A retrospective chart review was conducted over a 2-year period identifying 46 pediatric patients diagnosed with EoE and referred to an allergy clinic for patch testing. The aim of this review was to determine whether FPT was effective in identifying food triggers for EoE flares and whether patients improved on targeted elimination diets. An elective Google Forms survey was sent to all identified patients and responses were received from 22 participants (48%).

Results:
The survey questions focused on the status of each patients' EoE and success of targeted food elimination for symptom management. Participants were categorized based on dietary avoidance: no avoidance, 2-, 4-, or 6-food elimination diets, and targeted avoidance. Seventeen of 22 patients implemented targeted avoidance diets based on FPT results: eleven (64%) of which reported doing very well, 3 (18%) reported partial improvement, and 3 (18%) did not improve on a modified diet.

Conclusion:
FPT plays a role in targeted elimination therapy in EoE. Symptom improvement can be achieved through food patch testing in this population.

Safety Checks in Patch Clinic: Five Hurdles in the Patch Testing Obstacle Course

Authors: GPoole[1], NOrlioglo[1], EMWarshaw[1,2], SAHylwa[1,2]

Affiliations:

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2. University of Minnesota, Department of Dermatology, Minneapolis, Minnesota

Background:

Accuracy in patch testing is critical for correct identification of allergens. The multi-step process of patch testing increases the likelihood of medical errors. Checklists can increase efficiency, consistency, and safety.

Objectives:

To outline workflows developed over 20 years of patch test experience which maximize productivity among team members and minimize system errors.

Methods:

We recommend organizing patch safety into “Five Key Steps” and outline the specificities of safety in each step via the use of checklists, easy visual cues, and double-verification.

- Inventory (stocking sufficient antigens, maintaining chemical viability through appropriate storage, systematizing correct antigen identification)
- Patch Preparation (consistent order communication, standardizing conformation and numbering of patches, accurate placement of antigens on the patch)
- Application (maximizing patch contact with suitable skin on patient, minimizing risk of interference with patch test reactions)
- Documentation (accurate maps, avoiding “frame shift” misreads)
- Education (promoting patient partnership in process so as to not inadvertently jeopardize the results of testing)

Discussion and Conclusions:

Safety checks reduce the risk of error and inaccurate test results. They are crucial and worthwhile to ensure quality of patient care during patch testing and can be easily incorporated into a patch test system and culture.

Putting the Spin on Patch Test Relevance

Joel DeKoven Division of Dermatology, Department of Medicine, University of Toronto, Toronto, Ontario Canada and the North American Contact Dermatitis Group

Introduction: The North American Contact Dermatitis Group in consecutive 2-year data cycles has attempted to examine the relationship between prevalence and degree of clinical relevance of the 70 haptens included in its standard patch test series.

Objectives: 1. To examine the usefulness of a composite index combining prevalence and degree of clinical relevance 2. To investigate the impact that "doubtful" patch test reactions have on positive final interpretations.

Methods: Using the NACDG patch test data set for 2015-2016, the results of a composite index combining prevalence and degree of clinical relevance (Significance-Prevalence Index Numbers - SPIN) were calculated for each NACDG hapten. In addition, the impact was examined for haptens where patch test reactions were determined to be "doubtful" by morphology, but were ultimately interpreted as representing positive patch test reactions.

Results: Composite measures of prevalence and clinical relevance such as SPIN can provide useful surveillance information. Methylisothiazolinone achieved the highest SPIN ever recorded by the NACDG. Methylisothiazolinone, Fragrance mix 1 and *Myroxolyn pereirae* had the highest number of doubtful reads interpreted as being positive, whereas for Propylene glycol 30%, iodopropynyl butyl carbamate 0.5% and lanolin alcohol amerchol L 101, equivocal second reads made up the highest percentage of positive final interpretations.

Conclusions: Distinctions between positive and irritant reactions and clinical relevance often rely on educated judgments.

Patients Allergic to Disperse Blue 106/124 Actually React to a Diverse Set of Molecules All Containing a Specific Structural Motif

John F. Elliott[1], Fabricio Mosquera[2], Karsten Sturmay[2], John Vederas[2], Béla Reiz[2], Wayne Moffat[2], Shaundon Holmstrom[1], Kunimasa Suzuki[1]

[1]Division of Dermatology, Departments of Medicine & Medical Microbiology and Immunology, University of Alberta and [2]Department of Chemistry, University of Alberta, Edmonton Canada

Ryberg described that commercial disperse dyes are impure, and that many patients who patch tested positive to Disperse Blue (DB)106 and 124 also reacted strongly to a relatively lower mobility 'pink spot' seen when DB106/124 were fractionated by thin-layer chromatography (TLC). We fractionated DB106 and DB124 over silica columns and by HPLC and patch tested all fractions on a single patient who was highly allergic to both blue dyes. Multiple fractions gave a positive response, and all of these were analyzed by high-resolution LC-MS. Although the active fractions did not all contain the same molecule, we noted that all of the active fractions did contain as a probable constituent at least one molecule with a single sulphur. This suggested that the patient might be responding to a family of molecules all structurally related to DB106/124 and containing a single sulphur atom (i.e. structurally related to the 2-azo-5-nitrothiazole portion of DB106/124). The patient was patch test negative to 2-azo-5-nitrothiazole. However, when we used classical synthetic chemistry methods to create a series of simple azo derivatives of 2-amino-5-nitrothiazole, all of these gave a positive patch test response in patients allergic to DB106/124.

OCCUPATIONAL CONTACT DERMATITIS: THROUGH THE LENS OF INDUSTRY

D Linn Holness, Joel DeKoven, Sandy Skotnicki

Division of Occupational Medicine, Department of Medicine, St Michael's Hospital and University of Toronto, Toronto, Canada

Introduction: Workers may be exposed to skin irritants and allergens in their workplace, resulting in occupational contact dermatitis (OCD). Understanding those at high risk and the exposures of concern can help prevention, diagnosis and return to work.

Objectives: To examine the diagnostic information of workers with OCD to determine relevant industries and exposures of risk.

Methods: Five years of data from the St Michael's Hospital (SMH) Patch Test Database were analyzed by industry sector. 852 workers were identified with a diagnosis of OCD. Workplace Safety and Insurance Board (WSIB) statistics were also explored.

Results: The percentage of workers by industry sector and the most common work-related allergen are presented in Table 1. Workers in the healthcare sector were more likely to have irritant contact dermatitis.

Sector	SMH - % from sector	SMH - % with Allergic OCD	SMH – most common allergen	WSIB - % from sector
Services	25%	56%	Methylisothiazolinone	19%
Manufacturing	22%	58%	Epoxy	16%
Healthcare	21%	33%	Carba	10%
Automotive	12%	51%	Epoxy	12%
Construction	5%	65%	Chromium	10%

Conclusions: High risk industries were identified. There were discrepancies between the patch test data and WSIB data, suggesting variation in healthcare utilization and claims submission.

Acknowledgements: Funding from the Ontario Ministry of Labour

A FOCUSED PATCH TEST SERIES FOR WET WORKERS?

D Linn Holness, Sandy Skotnicki, Joel DeKoven

Division of Occupational Medicine, Department of Medicine, St Michael's Hospital and University of Toronto, Toronto, Canada

Introduction: Healthcare workers are at risk for occupational contact dermatitis. Though irritants are the more common cause, a significant proportion also develop contact allergy. As new causative agents are being detected ongoing, agents of special interest in the healthcare environment may not be included in the standard screening series or specialized series for particular types of work or exposure.

Objectives: To examine the results of using a specialized collection of haptens related to wet work exposures.

Methods: The results of patch testing using a wet work tray between 2012 and 2016 were examined.

Results: The composition of the tray changed over time with additional haptens being added. 66% of the individuals tested with the wet work tray were health care workers and 20% service sector workers. 24% had a diagnosis of allergic contact dermatitis, most commonly related to carbamates, thiurams and methylisothiazolinone. There were relatively few positives to the additional haptens tested. The most common positive on the wet workers tray was d-limonene. 51% were tested with their own gloves and 9% were positive.

Conclusions: Testing with custom-made trays focused on particular exposures provides the opportunity to assess newly emerging allergens. Ongoing review and modification is important to understand the changing exposures and is facilitated by an electronic database.

Acknowledgements: Funding from the Ontario Ministry of Labour

Occupational Allergic Contact Dermatitis: Patch Testing Results From Brigham and Women's Hospital

Chotinij Lertphanichkul, MD, Pamela Scheinman, MD

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Background: Occupational contact dermatitis is the most common occupational skin disease affecting millions of workers in the United States.

Objective: To study clinically relevant allergens in occupational allergic contact dermatitis (OACD).

Methods: A prospective study of consecutive dermatitis patients patch tested at our Contact Dermatitis Clinic from 7/16/2018-12/30/2018 was performed. Demographic data, occupation, history of atopy, location of rash, and patch testing results including relevance of allergens were collected for those patients we diagnosed with OACD on their final visit. This study was approved by our IRB.

Results: Eight patients (3.29%) out of 243 were diagnosed as OACD, with mean age of 48, 62.5% were atopic, and 50% male. Patch testing results revealed some unanticipated relevant occupational allergens including: (1) red dye relevant for a dental technician's clinic hand soap, (2) blue dye relevant for a blue scrub shirt of a pharmaceutical technician, (3) carba mix relevant for rubber bands a postal worker used in bundling envelops, and (4) ammonium persulfate in a cleaner/housekeeper who cleaned a hair salon. Despite only a reaction to nickel on our standard series, a nursing assistant showed positive reactions to her own hand soap/sanitizer and rubber gloves.

Conclusions: Taking a thorough history and testing to patients' own products are essential to unveiling relevant allergens, leading to accurate allergen avoidance and hopefully, ultimately resulting in resolution of occupational rashes.

Poster Presentations

MEDICARE PATCH TEST BILLING DATA BY DERMATOLOGISTS AND ALLERGISTS FROM 2012-2016

Dathan Hamann, MD, Myron Zhang, MD, James Taylor, MD

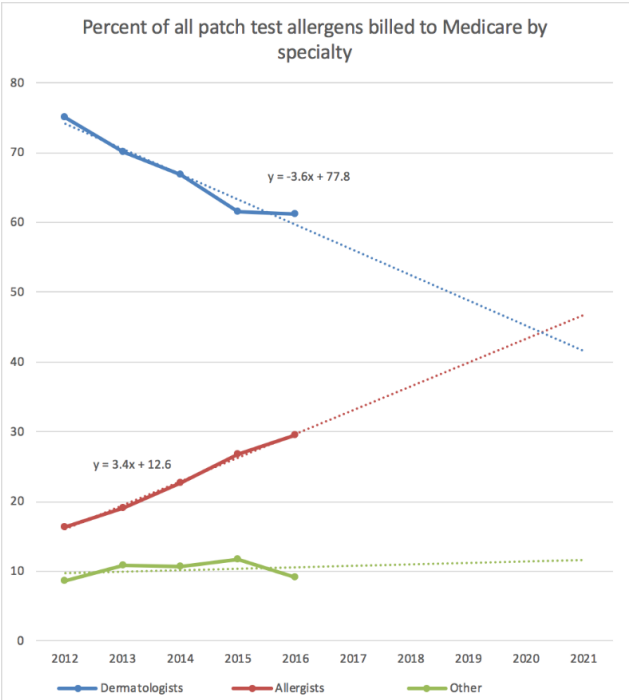
(The Contact Dermatitis Institute, Phoenix, AZ; Weill Cornell Medical College Department of Dermatology, New York, NY; The Cleveland Clinic, Cleveland, OH)

Introduction: Medicare data has been used to describe patch testing geographical heterogeneity and patch testing by advanced practice professionals. Comparing dermatologist and allergist billing trends has not been reported.

Methods: Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File from 2012 through 2016 was queried for the 95044 procedure code and the total number and percent performed by dermatologists, allergists/immunologists, and other were calculated.

Results: The total number of individual patch test allergens billed increased from 398,845 in 2012 to 560,087 in 2016. The number of patch test allergens billed by dermatologists increased from 299,699 in 2012 to 343,137 in 2016. The number of patch test allergens billed by allergists increased from 64,871 in 2012 to 165,563 in 2016. From 2012-2016, the percentage of patch test allergens billed by dermatologists decreased from 75.1% to 61.3%. From 2012-2016, the percentage of patch test allergens billed by allergists increased from 16.3% to 30.0%.

Discussion: While the absolute number of patch test allergens billed by dermatologists and allergists are increasing, the percentage of allergens billed to Medicare by Dermatologists is decreasing. If the rates of change observed from 2012-2016 continue, the percentage of patch test allergens billed allergists will overtake dermatologists in the next 2 years (2020).



MEDICARE PATCH TEST REIMBURSEMENT BY COUNTY FOR THE UNITED STATES FOR 2018

Dathan Hamann, MD, Curt Hamann, MD

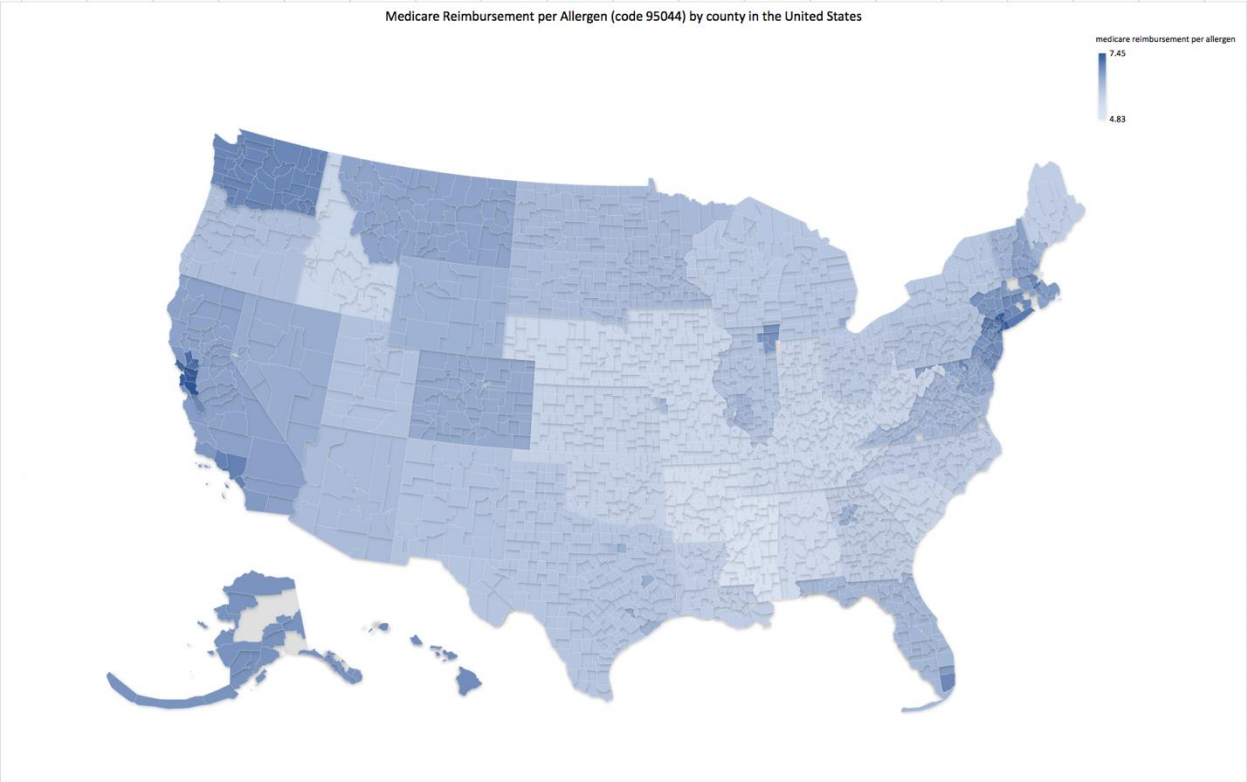
(The Contact Dermatitis Institute, Phoenix, AZ)

Introduction: The Medicare Physician Fee Schedule (MPFS) assigns a reimbursement value to procedural terminology (CPT) codes and are also by location to reflect cost of living. MPFS reimbursement rates often guide private insurers reimbursement rates.

Methods: MPFS reimbursement data for 95044 CPT code was searched and reported by county through the Medicare Administrative Contractors (MAC) websites: Novitas, Noridian, Wisconsin Physician Services, National Government Services, and Palmetto.

Results: Reimbursement per allergen ranges from $4.83 in Mississippi to $7.45 in Santa Clara County, California. (Figure 1) The mean reimbursement across all counties is $5.37.

Discussion: There is significant variation in Medicare reimbursement by county. We are unaware of other reporting and discussing of patch test reimbursement over time. These data provide a baseline to track changes longitudinally and investigate patch test utilization by reimbursement. Additionally, reimbursement may require additional increases if regulation raises the cost of patch test materials.



Retrospective Review of Patch Testing Insurance Coverage

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3. GW University Statistics Department, Washington, DC
4. GW MFA, Washington, DC

Background
There is a paucity of data describing insurance limitations for patients undergoing patch testing.

Objective
To characterize the burden of insurance limitations and its impact on differences in management and execution of patch testing.

Methods
A retrospective chart review was performed on patients with contact dermatitis (ICD-9 code 692) who received patch testing (CPT code 95044) at the George Washington Dermatology Clinic between January 1, 2015 and June 30, 2017. Variables including allergen limitations were compared between government-sponsored insurance and private insurance providers (Insurers A, B, C, and D).

Results
A total of 371 records were identified. Government-sponsored insurances instituted allergen limitations more frequently than private insurances (86.8% vs. 14.2%, $p<0.0001$). Insurer C and D patients were least likely to encounter allergen limitations (1.2% vs. 0%, $p<0.0001$) and were tested to the most allergens (mean = 146 vs. 152, $p<0.0001$). Insurer A patients had the least allergens tested amongst those privately insured.

Conclusion
Given the cost and quality of life burden of contact dermatitis, there is a need to consider the modification of insurance policies to ensure optimal and complete patch testing for patients.

Utilization and Cost of Patch Testing by Dermatologists and Allergists/Immunologists from 2012-2015

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[1]Dept. of Dermatology, Emory University School of Medicine, Atlanta, GA

Allergic contact dermatitis (ACD) can lead to chronic skin disease that decreases quality of life (QOL), and to loss of productivity and increased health expenditure, if not diagnosed promptly. Patch testing, the gold standard for the diagnosis of ACD, is underutilized, limiting patient access to this service. As use of patch testing expands outside dermatology, further characterization of its use and cost is critical to optimize patient access and testing, and to estimate cost burden. This national study utilizes Medicare Part B fee-for-service data to track patch testing use and cost over time. Dermatologists received payment of $433 per 10,000 enrollees and performed 90 patch tests per 10,000 enrollees, in 2012. By 2015, reimbursement to dermatologists decreased to $417 per 10,000 enrollees, while number of patch tests performed increased to 92 patch tests per 10,000 enrollees. In 2012, allergists/immunologist administered 15% of patch tests at 19 tests per 10,000 enrollees. By 2015, allergists/immunologist performed 25% of patch tests at 40 per 10,000 enrollees. Medicare payment amounts to allergist/immunologists per 10,000 enrollees increased from $93 to $178, between 2012 and 2015. Considering the cost-effectiveness and QOL benefits, and the underutilization of patch testing, growing use by non-dermatologist providers may broaden access to this service. Additionally, efforts towards advocacy for reimbursement for patch testing may be beneficial for patient access.

GEOGRAPHICAL DISTRIBUTION AND DENSITY OF US PATCH TESTERS

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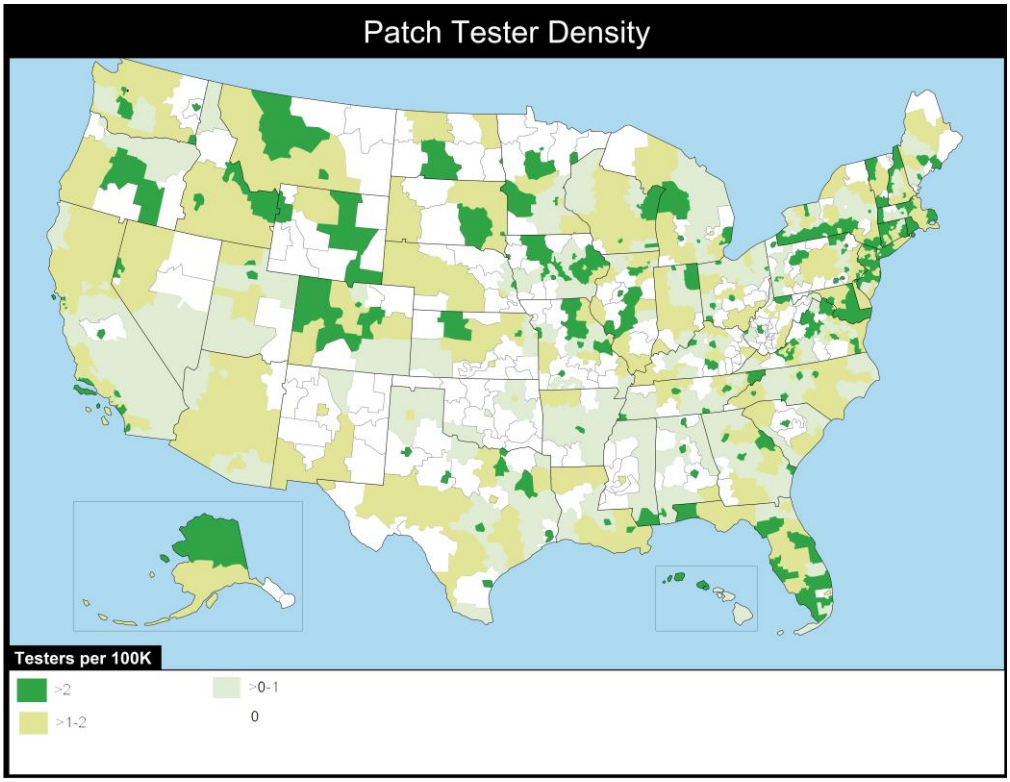
Objective: To assess the geographical distribution and density of US patch testers

Methods: De-identified zip code data for patch test customers was collected from SmartPractice and Chemotechnique/Dormer Laboratories, the two companies selling patch test supplies in the US. Patch tester to population ratios were calculated using population data obtained from US Census Bureau data for 3-digit ZIP section codes.

Results: 668 (68%) ZIP section codes out of 989 contain at least 1 patch tester. (Figure 1) 321 (32%) ZIP codes with approximately 8.5% of the US population do not have a patch tester. 778 (79%) Zip codes with approximately 72% of the US population have fewer than 2 patch testers per 100,000 population.

Conclusions: In 2013, 4.17% of 85 million skin-complaint visits were for contact dermatitis for an estimated incidence of 35 cases per 100,000 population. It remains unclear how many patch testers are needed in the US, but many Americans live in areas without a patch tester and most live in an area with few patch testers relative to population. Patch testers are unevenly geographically distributed. Apart from the northeast, the distribution does not clearly parallel dermatologist-dense areas near big cities or large academic centers.



Facial Dermatitis in Males Referred for Patch Testing: Retrospective Cross-Sectional Analysis of North American Contact Dermatitis Group (NACDG) Data 1994-2016

EMWarshaw[1-3], JPSchlarbaum[1-2,4], NACDG members

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2. Minneapolis Veteran Affairs Medical Center
3. University of Minnesota, Department of Dermatology
4. University of Minnesota Medical School

Background: Facial allergic contact dermatitis (ACD) due to women's cosmetics is well-recognized.

Objective: To characterize allergens and sources responsible for facial ACD in males.

Methods: Retrospective cross-sectional analysis of 50,507 patients patch tested by the North American Contact Dermatitis Group (NACDG) from 1994-2016. Males with facial dermatitis (MFD) were compared to those without facial involvement (MNO).

Results: 15,064 males referred for patch testing had either facial dermatitis (1,332; 9.4%) or non-facial dermatitis (13,732; 91.6%). Compared to MNO, MFD were associated with younger age (47 vs. 50 years), non-Caucasian race (17.7% vs. 10.8%) and non-occupationally-related skin disease (89.5% vs. 78.7%) (all *P*-values <0.0001). The most common facial sites were generalized face (48.9%), eyelids (23.5%), and lips (12.6%). 80 distinct allergens were clinically relevant; compared to MNO, the most common allergens in MFD included methylisothiazolinone (9.9% vs. 11.7%, *P*=0.4002), fragrance mix (8.5% vs. 8.6% *P*=0.9275), and Balsam of Peru (6.8% vs. 9.1%, *P*=0.0042). Of sources containing NACDG-allergens, 60.5% were personal care products. The most common specific sources of allergens were topical medications (10.1%) and hair care products (9.3%). Of the 139 males with occupationally-related facial dermatitis, the most common occupations were machine operators/assemblers/inspectors (28.4%), precision production workers (10.4%), and mechanics & repairers (9.7%).

Conclusion: Males with facial dermatitis represent a distinct population with unique allergens and sources.

IDENTIFYING GAPS IN CONTACT DERMATITIS KNOWLEDGE AND EDUCATION

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Background: Social media platforms facilitate patient engagement and provide users a resource to discuss conditions, treatments, and general advice. Since 2012, the percentage of all adult social media users has grown from 8% to 74%, representing an unprecedented rise of 66%. Currently, there are 17 contact dermatitis specific Facebook groups and an assortment of contact dermatitis associated hashtags across Facebook, Twitter, and Instagram.

Purpose: To identify gaps in contact dermatitis education and uncover future opportunities for contact dermatitis outreach via social media platforms.

Methods: Posts made between March 2016 and October 2018 on Facebook, Twitter, and Instagram were sorted by contact dermatitis specific groups, hashtags and categorized by content.

Results: The majority of posts made by social media users fell into one of the following categories: patch testing advice and recommendations, specific allergen questions, pictures of dermatitis, and advice concerning consumer products.

Conclusion: Approximately 80% of adults using the internet to access health information making social media an increasing avenue for patient-learner engagement, feedback, and collaboration. By characterizing the types of social media posts being made relating to contact dermatitis, future education and outreach initiatives can be tailored to have a greater impact.

COMPARISONS OF PATCH TEST EDUCATION REQUIREMENTS IN TRAINING PROGRAMS IN THE UNITED STATES AND THE UNITED KINGDOM

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Amber Atwater

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Introduction: Comparisons of current patch testing curriculum requirements across graduate medical education programs in the United States and the United Kingdom have not been discussed in recent memory.

Methods: The program requirements regarding competency, faculty, presence of a clinic/dedicated resources, didactic/lecturing, and case log/accountability were investigated in the American Council for Graduate Medical Education (ACGME) program requirements for dermatology, allergy/immunology, the American College of Occupational and Environmental Medicine (ACOEM) Competencies for OEM training with a focus on skin disease, and the Joint Royal College of Physicians (JRCP) program requirements for dermatology.

Results: All programs examined include patch testing as a required competency. US Allergy/Immunology, US Occupational Medicine with a skin disease focus, and UK Dermatology programs have patch test clinic/resource requirements. US Allergy/Immunology and UK Dermatology programs specifically require patch testing didactic education and have either procedure logs or required expert faculty evaluation of trainee-performed patch testing.

Discussion: American training in dermatology have low or relatively non-specific requirements for patch test education compared to other US Allergy/immunology, US Occupational Medicine, or UK Dermatology curricula. Further investigation into US patch testing resident training may be warranted.

THE CURRENT LANDSCAPE OF ANTIMICROBIAL SOAPS

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Introduction: In 2017, the FDA banned triclosan and triclocarban from antibacterial soaps, citing inefficacy and concerns of systemic absorption and antibacterial resistance. In light of the FDA ruling, we aim to survey the prevalence of triclosan-containing products as well as anti-bacterial alternatives.

Method: Individual and industrial sources of soap products were surveyed and soap ingredients were documented. Major consumer outlets such as Amazon, CVS, Target, and Walmart soap products were appraised. Hospitals in a 30 miles radius of the Denver Metropolitan Area were surveyed for their soap products.

Results: Triclosan, chlorhexidine, and benzalkonium chloride were identified as the most common antimicrobial agents in consumer products. Triclosan, chlorhexidine and chloroxylenol were the major antimicrobial ingredients identified in hospital soaps.

Conclusions: Despite the FDA ruling, both consumer and medical distributors of anti-bacterial soaps continue to use triclosan in their products. Although it is difficult to appraise the rate at which distributors will phase out triclosan, there is an anticipated rise in contact allergies to anti-bacterial alternatives. Additional study is needed to determine the safety and efficacy of antimicrobials in soap. Until more information is available, consumers should be encouraged to wash hands with regular soap and water.

CROSS REACTIVITY OF PROPYLENE GLYCOL AND CYCLOSPORINE CAPSULES

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A 44 year-old woman with a pruritic rash on the face and arms who failed topical steroids presented for patch-testing. Testing revealed allergic contact dermatitis (ACD) carba-mix, mercapto-mix, gold sodium thiosulfate, Thimerosal, and propylene glycol (PG). Patient was placed on cyclosporine had worsening of her existing rash. Improvement was seen after medication discontinuation. PG is a ubiquitous ingredient found in cosmetics, fragrances, personal care products, beverages, topical drug products, medications, liquid cooling systems. Although originally used as a solvent, it is now widely used as an emulsifier, preservative, humectant and vehicle to enhance drug penetration. The incidence of ACD to PG is low (3.5% per North American Contact Dermatitis Group), but increasing. There have been many reports of ACD to PG in topical medications including topical steroids. However, it is also important to keep in mind potential systemic contact dermatitis (SCD) to PG as ingestion of certain foods and capsules. Cyclosporine, both modified and non-modified versions, contains PG. In patients who require treatment with cyclosporine, it is important to be aware of the potential SCD to the PG component. Warning signs include flare-ups at previous ACD and patch testing sites. In patients treated with cyclosporine and not improving or worsening, it is important to consider this phenomenon and switch medications.

Allergic Contact Dermatitis to a Self-Adherent Bandage Wrap in a Formaldehyde-Allergic Patient

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A 59 year old male presented for patch testing with complaint of a persistent itchy rash on his bilateral medial thighs. In addition, he reported a history of dermatitis to a self-adherent wrap applied after a blood draw as well as a reaction to another bandage product applied after a biopsy. He was patch tested to 216 allergens including our screening series in addition to corticosteroids, emulsifiers, preservatives, textiles, and 11 personal items. On day 7, strong (+++/++) reactions were noted to formaldehyde (1% and 2%), quaternium-15, diazolidinyl urea, and DMDM Hydantoin. Mild (+) reactions were noted to Grotan BK, melamine formaldehyde resin, Balsam of Peru, Methylisothiazolinone/Methylchloroisothiazolinone, cocamidopropyl betaine, oleamidopropyl dimethylamine, and a self-adherent wrap. Due to patient's strong sensitivity to formaldehyde, we hypothesized that formaldehyde may be present in self-adherent wraps. Two different types of self-adherent bandage wraps, 3M™ Coban™ Latex-Free and Andover Co-Flex® NL plus each of their plastic packagings were evaluated using the chromotropic acid method (CAM). Andover Co-Flex® NL bandage tested mildly positive for formaldehyde release. 3M™ Coban™ Latex-Free bandage and the plastic packaging of both bandages were negative. Patients and clinicians should be aware of self-adherent bandages as a potential source of formaldehyde.

Allergic Contact Dermatitis to Rosin

Annie Langley (1) & Melanie Pratt (1)
1- The Ottawa Hospital, Ottawa Canada

We present the case of a 12 year old high level ballerina with airborne allergic contact dermatitis to rosin. She presented with a 3-month history of severe, explosive eczematous dermatitis on the face (including upper eyelids), scalp, neck and occasionally more widespread, on a background of atopic dermatitis. At the time of presentation, she was on prednisone 10mg OD and cyclosporine 100mg BID and unable to stop these medications without having an explosive flare. Prior to this, she had been managed with topical corticosteroids, doxepin, and a few courses of Prednisone.

Flares of her dermatitis corresponded with exopsure to rosin in grip powder applied to ballet slippers at her studio. Presumably, this could lead to airborne rosin exposure, consistent with the dermatitis distribution with which she presented. Other potential exposures to rosin on history included adhesives in her hair prostheses (for her concomitant alopecia areata). Patch testing revealed a 3+ reaction to rosin dust pieces from her studio at 120hr.

The patient's parents advocated to have her dance studio remove all rosin and her flare subsequently settled. Unfortunately, she still encounters rosin at dance competitions. Given her level of skill and commitment to the sport, the patient and her family continued to attend competitions despite ongoing rosin exposure and eczema flares. Flares were initially managed with short courses of Prednisone, and eventually proved resistant to combinations of this with cyclosporine, cellcept, methotrexate and phototherapy. The patient was approved for dupilumab in late 2018; within a couple of weeks of the loading dose she reported a significant improvement of her dermatitis and itch. We eagerly await whether her alopecia improves with Dupilumab given recent reports in the literature.

Rosin is a common cause of ACD, and is derived from pines, cedars, spruce, ferns and juniper trees. Common products containing this allergen include chewing gum, varnishes and adhesives. The spectrum of rosin allergy will be reviewed in this presentation.

ACTINIC PRURIGO: UPDATES IN DIAGNOSIS AND MANAGEMENT

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University of Southern California, Los Angeles, CA

Background: Actinic prurigo (AP) is an uncommon photodermatosis predominantly affecting people of Native American and Mestizo heritage and strongly associated with HLA-DR4. AP presents in childhood (less commonly adulthood) with erythematous papules and nodules in sun-exposed areas, along with characteristic cheilitis and conjunctivitis. Phototesting is abnormal in two-thirds of patients.

Objectives: Los Angeles's diverse population positions us to study AP with the goal of advancing patient care. We present representative pediatric and adult cases of AP and review updates in diagnosis (emphasizing phototesting and histology) and therapeutics.

Methods: Two Hispanic patients, a 13-year-old female and a 48-year old male, presented for evaluation of persistent photodistributed dermatitis and cheilitis. Workup included laboratory studies, patch and phototesting, biopsies, and genetic testing in one case.

Results: For the pediatric patient, patch and phototesting were normal. Histopathology of the lower lip demonstrated characteristic follicular cheilitis of AP. She responded to hydroxychloroquine and photoprotection. The adult patient exhibited unremarkable laboratory studies (including porphyrins), nonspecific histology, negative patch testing, normal minimal erythema dose to UVA but markedly decreased MED to UVB, and HLA-DR4 positivity. He responded to thalidomide and photoprotection.

Conclusion: Prompt diagnosis of AP by synthesizing clinicopathologic, phototesting, and genetic data permits therapeutic intervention to improve quality of life in patients with this unique photodermatosis.

Acute Generalized Exanthematous Pustulosis Induced by Topical Application of Lidocaine with 10% Morphine Combination and Confirmed by Patch Testing

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We report a case of acute generalised exanthematous pustulosis (AGEP) after topical application of a combination of lidocaine with 10% morphine, confirmed by a positive patch test. A healthy 72-year-old woman, presented to her general practitioner with back pain and was prescribed with lidocaine with 10% morphine combination to be applied topically. Within 10-days, she developed a severe generalized pustular erythema with a fever of 39^0C. The histological examination of a lesional biopsy showed periadnexal inflammation, epidermal spongiosis and subcorneal/superficial epidermal pustules. The clinical and histological findings were consistent with AGEP. The symptoms resolved within days after discontinuation of the topical solution and initiation of a short course of oral prednisone. Patch test was robustly positive to lidocaine with 10% morphine solution. Notably, the patient was tested twice to lidocaine cream in the NACDG series and had no reactions, confirming morphine was indeed the culprit drug. While oral or intravenous administration of morphine had been demonstrated to trigger AGEP in three case reports, to our knowledge this is the first reported case of AGEP associated to topical application of morphine solution and confirmed by patch testing.

A Classic Case of SDRIFE

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A 41-years-old female presented with a pruritic eruption involving her intertriginous areas. It began in her infra-abdominal folds, before progressing to the other intertriginous sites. One day prior, she had broken an old mercury thermometer and ingested a few drops by accident. She was otherwise well. She is also taking naproxen.

Physical exam revealed a well-circumscribed, symmetrical, deep-red confluent patch in the intertriginous areas of her infra-mammary, infra-abdomen, inguinal, antecutebital and popliteal fossae. A skin biopsy showed orthokeratosis without spongiosis nor interface inflammation. There was intense neutrophilic infiltrate surrounding the capillaries in the upper and mid- reticular dermis, along with red cell extravasation, focal fibrinoid necrosis and nuclear dust. Deeper in the biopsy, there was chronic perivascular inflammation with lymphocytes and eosinophils. She was patch tested to the following: NACDG, textile, hair dyes, thimersol, naproxen 30% pet, mercury 0.5% pet, mercuric chloride 0.1% pet and mercury ammonium chloride 1% pet. Her results showed 2+ to mercury, mercuric chloride and mercury ammonium chloride.

SDRIFE, previously termed “mercury exanthem”, was first reported in 1983 in a series of fifteen patients who developed symmetrical, pruritic or burning rashes in their intertriginous areas after mercury exposure from broken thermometers. Our patient had no history of mercury exposure, but could have been sensitized through exposure to thimerosal in vaccinations. The management of SDRIFE involves identification and avoidance of the inciting agent, and symptomatic treatment.

Double-Blind, Randomized Controlled Tolerability Trial of Six Hair Cleansing Products (HCPs)

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UMN, ParkNicollet Dermatology, Minneapolis, MN USA

Background: There have been consumer reports of scalp dermatitis with use of Wen® cleansing conditioner. The aim of this study was to evaluate the skin tolerability of Wen®.

Methods: Double-blind, randomized, controlled, IRB-approved clinical trial of 6 HCPs using Repeat Open Application Tests (ROATs) and Semi-Open (SO) patch tests. For ROAT, 200 healthy adult volunteers applied 0.2 ml of product to 6 separate, randomized locations on the forearms per standardized protocol. Exposure time was increased (5-15 minutes) over 5 weeks. Participants and investigators were blinded to product locations. Application was discontinued at ROAT component score>6(10 maximum) or global score>4(6 maximum). SO testing was performed at week 4 and graded at week 5 in a double-blind randomized fashion. Primary outcomes included ROAT and SO scores for each HCP.

Results: 200 volunteers were enrolled (81% female; 48.7 years mean age; 39.5% atopic dermatitis/asthma/allergic rhinitis). 9% of participants achieved stopping point (total ROAT>6) for one product (Neutrogena® T-Sal); only one other HCP (L'Oreal EverCreme Cleansing Conditioner) was discontinued. Neutrogena® T-Sal resulted in ROAT scores of >1 and SO score > doubtful for 43.5% and 7.0% of participants, respectively. In contrast the remaining 5 HCPs had frequencies of <9.3% and <2.7%; Wen® Sweet Almond Mint Cleansing Conditioner had corresponding frequencies of 2.0% and 2.5%.

Conclusion: As measured by ROAT and SO, Wen® Sweet Almond Mint Cleansing Conditioner had similar tolerability to 4 other HCP and significantly better tolerability than Neutrogena® T-Sal.

Funding: Wen®by Chaz Dean

Toxicodendron Dermatitis Big Data in the United States

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Background/Objective: Toxicodendron dermatitis (TD), or allergic contact dermatitis (ACD) to poison ivy, oak and sumac, commonly causes ACD in the United States (US). As there are few studies of utilization patterns and costs, we aimed to study this using Truven Health Marketscan, a US commercial claims and insurance database containing approximately 28 million unique patients.

Methods: The ICD-10 code for ACD due to plants was accessed for 2016 to determine TD incidence and characterize data on the population affected by TD, the setting of diagnosis - emergency room (ER), urgent care clinic (UC) or outpatient clinic (OC) – and treatment given.

Results: TD was diagnosed 72,225 times, 85% in OCs, 9% in UCs, and 3% in ERs. Cost per person per visit and for treatment on average was highest in ERs, $613.83, and lowest in UCs, $159.71. No treatment was prescribed in 45% of cases; oral steroids were prescribed in 30% and topical steroids in 18% of cases. Seasonal diagnosis variation was noted, peaking in June.

Conclusions: TD is frequently seen, generally with peak incidence in summer. As cost in ERs is almost four times that in OCs and UCs, access to OCs is important to containing cost. Family practice, internal medicine, and pediatric clinics may be the best specialties to target for increasing awareness on how to recognize and prevent TD.

OCCUPATIONAL CONTACT DERMATITIS IN PHYSICAL THERAPISTS

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Dermatology Service. Hospital of Navarra. SPAIN

Background. Physical therapy is an underreported profession with risk of occupational allergic dermatitis (OACD).

Methods. Patients studied at our Contact Clinic from 2013-2018 whose profession was Physical Therapist were recruited, and their data analyzed.

Results. Nine physical therapists were studied: 8 female, 3 atopic, median age 30 (range 23-52), and average experience of 8.5 years. All had lesions involving their hands; lesions were of acute/subacute eczematous type, dyshidrosiform in four; median duration of symptoms: 7 months. Seven patients were diagnosed with OACD, and two with irritant dermatitis aggravating AD. Allergens detected were preservatives of creams, massage oils, wet bandages or soaps (6 patients), vehicles of these same products (2), fragrances (1), rubber additives (1).

Discussion. Likelihood of an OACD depends largely on the peculiarities of the exposure. Physical therapists spend long working hours with hands in direct contact with potential allergens in topical products, and wash hands frequently. Few case reports and small series of OACD in these workers have been published, mainly reporting allergy to essential oils and fragrances contained in massage oils.

Conclusion. Our typical patient was a 30-year-old woman with a subacute disabling hand eczema. Patch tests were able to demonstrate a sensitization of professional relevance in 78% of physical therapists studied. A high load of wet work and insufficient protection of their hands were common risk factors in these workers.

ALLERGIC CONTACT DERMITITIS TO PARTHENOLIDE

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A 69-year-old man presented with a 1-year history of non-pruritic, scaly, keratotic plaques involving bilateral hands and trachyonychia of his fingernails. He denied exposure to irritants but acknowledged being an avid gardener. He was initially diagnosed with hand dermatitis and treated with topical steroids and UV phototherapy. He reported no improvement with this regimen. Biopsy of a plaque on his hand showed spongiotic dermatitis consistent with contact dermatitis and eczema. A 36-patch TRUE test revealed an extremely positive reaction (3+) to #34 parthenolide. Thus, a diagnosis of allergic contact dermatitis to parthelonide was established. The patient was counseled on avoidance practices and provided a list of safe products from the American Contact Dermatitis Society. Parthenolides are allergenic compounds found in the Compositae plant family, which includes chrysanthemum, a plant that was present in the patient's garden. Compositae contact dermatitis is associated with occupational exposures to flowers, usually with vesicular or keratotic eruptions involving the hands, face, or both. Parthenolide sensitization detected by patch testing is rare, with incidence described to be less than 0.1%. Strict avoidance of the allergen, coupled with halobetasol under occlusion, resulted in significant improvement of the patient's condition. In conclusion, parthenolide sensitization should be considered in patients with history suggestive of Compositae dermatitis.

Illegal Itch Relief: Prescription-Strength Topical Corticosteroids (TCs) Sold Over-the-Counter in US Stores

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Background: TCs are a foundational treatment for allergic contact dermatitis. Inappropriate use of TCs can cause adverse effects; hydrocortisone ≤1.0% is the only FDA-approved over-the-counter TC in the US. While there has been a report of a US store specializing in African merchandise selling an illegal TC, the scope of availability has not been explored.

Objective: To evaluate the over-the-counter availability of prescription-strength TCs.

Methods: 10 stores selling Latin-American, African, or Asian wares including pharmaceuticals were visited in Minneapolis/St. Paul, Minnesota. Store personnel were asked if they sold topicals for the treatment of an "itchy rash." Products were then examined.

Results: All 10 stores sold over-the-counter "anti-itch" preparations containing illegal TCs. Potencies of TCs included low, lower-mid, upper-mid, and super-potent (n=1 for each). The primary preparations available were: betamethasone dipropionate 0.05%/gentamicin/clotrimazole, fluocinolone acetonide 0.01%/clioquinol, betamethasone valerate 0.001%/gentamicin, betamethasone dipropionate 0.05%/neomycin, and betamethasone valerate 0.1%. Some preparations were available in multiple brands. Additionally, one store sold innumerable "skin-lightening creams" containing clobetasol propionate 0.05%. Prices ranged from $5-40 USD.

Conclusions: Clinicians should be cognizant that patients can obtain potent and illegal TCs with relative ease. This underscores the importance of questioning patients about any over-the-counter treatments and physically examining these products for specific ingredients.

Prevalence of Nickel Sensitivity in a Population of Patients with Nitinol Patent Foramen Ovale Closure Devices.

Authors: Rosemary DeShazo, MD, Crystal Davis, RN and Douglas Powell, MD

Nickel sensitivity is common and well recognized as a contact allergy. Nickel sensitivity is estimated at approximately 20% prevalence in the U.S. population. The presentation of nickel contact dermatitis is well recognized clinically, often with pruritic scaly red plaques adjacent to nickel-containing jewelry or clothing. Nickel allergy to internally implanted devices is more controversial, particularly regarding association of symptoms with metal allergy. Our study presents the prevalence of nickel sensitivity in a population of patients with implanted nitinol patent foramen ovale (PFO) closure devices. The University of Utah Hospital Contact Dermatitis Clinic evaluated 264 patients (Female=234 Male=30) with PFO closure devices presenting with various temporally related symptoms, including chest pain, palpitations, migraines and fatigue. The patients were tested to nickel sulfate 2.5% and 5% by patch, as well as by scratch testing. Results of patch testing are as follows: Nickel patch positive: 82. Nickel prick positive: 74. Both nickel patch/prick positive: 31. Prevalence of nickel hypersensitivity by either patch or prick testing in the PFO cohort 47.3% (n=125, p=<0.01). The increase in prevalence of nickel sensitivity in this population supports the theory that implanted devices can sensitize patients. There is certainly bias in our patient population due to recent lawsuits regarding complications of implanted devices due to nickel allergy. Almost all of our patients obtained their PFO closure devices for the purpose of treating migraines and/or transient ischemic attack, and many continued to have no relief of their symptoms in spite of PFO closure device placement. Most patients referred to us for nickel testing were contacted by a law firm regarding there device, and advised of concern about nickel allergy. Systemic symptoms related to nickel allergy are controversial. Several of the patients with nickel allergy subsequently proceeded with device removal and primary surgical closure of their PFO. A prospective study about resolution of systemic symptoms after PFO closure device removal, including histologic evaluation of the removed device, would be helpful to correlate allergy and symptoms.

Looking Beyond Nickel: A Review of Clinical Relevance of Metal Hypersensitivity Testing.

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Background: Metal hypersensitivity as a trigger for contact dermatitis is widely reported, and often suspects Nickel as an allergen. This study aimed to identify common triggers amongst metal allergens.

Methods: A retrospective chart review from September 2016-2018 was conducted for patients evaluated for suspected hypersensitivity to metals, tested with a standard series of 70 allergens and a metal panel.

Results: Of 79 patients identified, 69 patients (87%) tested positive to a contact allergen. Among those 69, 37 (46%) reacted to Nickel, 14 (18%) reacted to Cobalt, and 19 (24%) reacted to Palladium. Positives were seen to both Nickel and Cobalt (n=13, 16%), Nickel and Palladium (n=17, 21%), Cobalt and Palladium (n=1, 1%), and all three allergens (n=5, 6%). The most common non-metal allergens seen were Propylene Glycol (n=14, 5 sensitized to both metals and PG), and Methylisothiazolinone (n=16, 9 sensitized to both metals and MI). For those with metal positives, there were also positive responses seen to Chromium (n=3), Titanium (n=1), Gold (n=3), and Mercury (n=3). Cobalt was identified as a source in vitamin B12 supplements (n=3), orthopedic implants (n=3), and tattoo ink (n=1). Nickel was identified in dietary sources and implants, while Palladium was less clinically relevant.

Conclusion: Positive results to Nickel and Palladium were more prevalent; however, Cobalt was the most clinically relevant allergen.

Allergic Contact Dermatitis to Aluminum: Four Cases

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Abstract:

Allergic contact dermatitis (ACD) to aluminum is relatively rare. Aluminum is a problematic allergen, requiring ionization in order to illicit an immune response; therefore, patch testing is usually performed with aluminum salts rather than elemental aluminum. We describe four cases of ACD to elemental aluminum detected by Finn Chambers®: 1) a 6-year-old boy who was patch tested for a rash on the face, neck, and forearms; 2) a 15-year-old boy who was patch tested to an implant series prior to a Nuss bar placement for correction of pectus excavatum; 3) a 47-year-old male who was patch tested for a persistent rash on bilateral hands; and 4) a 20-year-old female who was patch tested for persistent rash on the face, forearms, and legs. All four patients were patch tested per standard clinic protocol by applying antigens in Finn Chambers®. In all cases, the final reading was complicated by ring reactions (red papules in a circular pattern with central clearing) at more than one third of patch test sites. Reactions to aluminum chloride hexahydrate were confirmed in two patients and subsequent testing to an empty Finn Chamber® was positive in two patients. Clinical relevance was present in two patients (antiperspirant intolerance and rash after work exposure to aluminum pipes). Clinicians should be aware of this potential complication of patch testing.

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