PRESENTATION OBJECTIVES

• Overview Contact Dermatitis (Prevalence, Types, Symptoms)
  • Define Patch Testing, "The Gold Standard" for the diagnosis of Allergic Contact Dermatitis (ACD)
  • Determine WHO, WHEN, and WHY to Patch Test
  • Outline the initial Steps of Patch Testing
  • Describe the Patch Test Clinic Set Up
  • Run Through the patch Testing Process
• Review the Support Material, References and Resources
An important change in terminology

When is an ‘ALLERGEN’ not an ‘ALLERGEN’?

WHEN IT IS A ‘HAP TEN’!

In Contact Dermatitis Patch Testing, the traditionally used “Allergen” should be replaced by the correct descriptor “Hapten”.
Why should “Hapten” be used?

First, it is the correct scientific description for the substances used in patch testing.

Second, it is important to differentiate “hapten” from “allergen" for regulatory clarity and correct classification.
Haptens are substances incapable of inducing an immunologic reaction in diagnostic *in vivo* testing as a stand-alone compound. A hapten needs to bind with a protein, forming a hapten-protein complex, to become an antigen capable of eliciting a Type 4 allergic reaction. The formation of this bond depends on individual biological factors in the patient being patch tested.

An allergen is a high molecular compound defined as a full antigen with a capability to elicit a Type 1 allergic reaction during the prick test procedure. Some examples of common allergens are pollens, cat dander and dust mites.
CONTACT DERMATITIS

Dermatitis accounts for approximately 25% of visits to dermatologists, ½ of these ICD or ACD
20-35% of dermatitis affects hands, more prevalent in occupational setting
>6 million chemicals in the environment
>3700 known allergens

“In a particular clinic incidence of allergic Contact Dermatitis is determined by the interest the dermatologist takes in allergic Contact Dermatitis”

Hjorth & Fregert
TYPES OF CONTACT DERMATITIS

♦ IRRITANT CONTACT DERMATITIS (ICD)

♦ ALLERGIC CONTACT DERMATITIS (ACD)
♦ IRRITANT CONTACT DERMATITIS (ICD)

- Results from harsh chemicals, solvents
  - The reaction is almost immediate
- Will subside once the exposure has stopped
ALLERGIC CONTACT DERMATITIS (ACD)

- Manifestation of allergic response caused by contact with causative substances (fragrance, nickel, preservatives, etc.)
- ACD is acquired, it can occur after many months or years of exposure.
- Once occurred, allergy is permanent.
FLARE UP SITES
Hands
FLARE UP SITES

Feet
FLARE UP SITES

Eyelids
FLARE UP SITES

Face
FLARE UP SITES

Lips
FLARE UP SITES

Neck
Patch testing has gained a wide acceptance as a very reliable diagnostic tool for allergic contact dermatitis (ACD).

Patch testing helps identify the causitive substances.

Comprehensive patch testing has demonstrated repeatedly to have a higher probability of yielding a correct diagnosis.
WHO, WHEN, WHY TO PATCH TEST

PATIENTS WITH SUSPECTED CONTACT DERMATITIS

To confirm a specific hapten (even when “obvious”)

When Allergic Contact Dermatitis is strongly suspected based on history and clinical presentation

When question of work-relatedness is involved
Special situations ( “photo” dermatitis, urticaria)
WHO, WHEN, WHY TO PATCH TEST (cont.)

Patients with acute onset of an explosive papulo-vesicular dermatitis
When an individual with atopic dermatitis suddenly gets much worse, or does not respond to treatment
The pattern and distribution of usual allergic dermatitis changes
To prove or disprove an occupational component of the Dermatitis
Patch Testing is the most reliable diagnostic tool
PATCH TESTING STEPS

PATH TESTING IS AN INVOLVED PROCESS

* Patient History/ Physical Examination
* Patient Counseling
* Selecting Haptens
* Preparing Panels
* Applying Haptens to the patient’s back
* Removing the panels at 48 hours
* Reading and Recording the reactions
* Conducting additional readings at 72 or 96 hours, if necessary
* Advising the patient of the results
* Providing Patient Information Documents about the reactive Haptens, avoidance techniques resources for alternative products
INITIAL PATIENT COUNSELING

PROPER EXPLANATION OF THE PROCEDURES WILL ENSURE GREATER COMPLIANCE

♦ PLACEMENT OF CHAMBERS
♦ DURATION
♦ WHAT TO EXPECT – ITCHING
♦ CLOTHING
♦ BATHING
♦ EXERCISING
♦ “DO”s and “DON’T”s
♦ MEDICATIONS TO AVOID
♦ INSTRUCTIONS LETTER
ADVISE THE PATIENT

• He/she will have strips of chambers filled with allergens will be placed on their back. Thin strips of tape will be applied to mark the rows and series of the allergens to their respective locations. The chambers will be removed 48 hours later, the panels will be outlined with a skin marker prior to removal. The results will be interpreted and recorded. A second reading at 96-120 hours will be necessary.
• They may occasionally develop redness, blistering or itching under one or more of the chambers.

Avoid scratching, as scratching might alter the test results.
• Should wear light tee shirts, loose clothing. Wear a shirt to bed which prevents panels from sticking to bedding and being removed during sleep.
• Keep the area dry for the duration of the test and reading. Take shallow baths only and wash hair over the sink.

• Avoid heavy exercises that could cause excessive perspiration.
ADVISE THE PATIENT (cont.)

- They must abstain from taking oral cortisone or other immunosuppressive medications for at least two weeks prior to testing if possible.
- Anti histamines may be used as recommended by the clinic.
ADVISE THE PATIENT (cont.)

• Should avoid direct sunlight/sunburn on the back for at least a one week.
You are being patch tested to determine if your eczema is caused by an allergic reaction to any specific substances. This will involve several visits to the clinic. On your first visit an examination and evaluation of potential causes will be undertaken so we can identify potential suspect substances. On your next visit you will have strips of chambers filled with the suspect antigens placed on your back. This may occasionally feel uncomfortable, and you may develop itching under one or more of the chambers. Try to avoid scratching as itching is normally an indication of a positive reaction and scratching might alter the test results. If pain occurs call the clinic. It is recommended that you keep the area dry during this time period while avoiding heavy and physical exercises that could cause excessive perspiration and detachment of the test unit. We also recommend that you wear loose clothing, and a t-shirt in bed as this helps to prevent the patches from peeling or loosening from the skin. (If you notice such a loosening have someone pressure the adhesive onto the skin. If necessary, you can also apply additional tape to the edges of the chamber units.) Abstain from taking cortisone containing medications, and avoid prolonged sun exposure. The chamber units will be removed in 48 hours with the first reading being done 20-30 minutes after removal. Your physician will advise you if additional readings are necessary over the next 5 to 7 days. Upon completion of this procedure you will be provided with the results, advised of any allergies you may have and how to minimize possible reoccurrence.
Patch Testing Children: Although opinions vary, the overall consensus is that children can be patch tested safely. The only consideration is technical; how many patches you can apply on their small back? Irritant reactions seem to be more frequent with children under 5 years of age. Compliance is reduced with kids under 5 years.

Patch testing During pregnancy: Patch testing during pregnancy should be avoided mainly for legal reasons. There is no evidence that patch testing is harmful; it is selective however and can wait till after pregnancy is completed.
SETTING UP
A PATCH TEST CLINIC
CLINIC LAYOUT

♦ A TABLE OR A COUNTER AREA FOR PREPARATION

♦ A REFRIGERATOR FOR HAPten STORAGE

♦ STORAGE AREA FOR SUPPLIES
CHEMOTECHNIQUE
HAPTENS
REFRIGERATION

5-8°C / 41-46°F
The Superior Patch Test Chamber ‘IQ’
- The only “closed-cell and leak-free” chamber on the market
- Aluminum free
- Most economical chamber system

available in two formats....

IQ Ultra™
Medical grade carrier tape

IQ Ultimate™
Water resistant, elastic carrier tape

Spot tests
- Chemo Nickel Test™
- Chemo Cobalt Test™

Accessories
- Reading plate for IQ Ultra / IQ Ultimate
- Application Device for IQ Ultra / IQ Ultimate
- Chemo Skin Marker™
APPLICATION PLATE FOR ADVANCE FILLING OF HAPTENS
SKIN MARKERS
PATCH TESTING PROCESS
PREPARING HAPTENS
APPLICATION SITES
Skin Preparation

- The skin must be dry and clean
- Avoid active ACD on back
- Excessively hairy patients must shave the area prior to testing
- The skin should be free of fragrances, creams
- The skin may be cleaned with warm water and dried gently
APPLICATION
MARKING
REMOVING
PATIENT’S BACK IMMEDIATELY AFTER TAPE REMOVAL
READING THE TEST RESULTS
**BASIC INTERPRETATIONS**

<table>
<thead>
<tr>
<th>IR</th>
<th>Irritant reaction</th>
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<tr>
<td>++</td>
<td>Extreme Positive reaction</td>
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<tr>
<td>+++</td>
<td>Bullous or ulcerative reaction</td>
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<tr>
<td>+</td>
<td>Strong positive reaction</td>
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<tr>
<td>+</td>
<td>Weak positive reaction</td>
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<tr>
<td>?+</td>
<td>Doubtful reaction</td>
</tr>
<tr>
<td>N</td>
<td>Negative</td>
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- Discrete patchy, erythema, no infiltration
- Coalescing vesicle
- Erythema
- Papules
- Infiltration
- Discrete vesicle
- Erythema
- Papules
- Infiltration
- Faint macular
- No infiltration
- Homogenous erythema
- Negative
ACD to Hair Dyes
Allergens in Shoes

- 1930-1950 leather and dyes most common
- Since 1950 rubber allergens and adhesives
- Rubber chemicals: thiurams, benzothiazoles, carbamates, PPD derivatives in rubber or adhesives
- Colophony in adhesives
- Formaldehyde leather tanning
- Ni decoration
- Lanolin polishes
- Potassium Dichromate in leather
### RECORDING THE TEST RESULTS

**PATCH TESTING : PATIENT TEST RESULTS**

Patient Name: ___________  ID#: ___________

Panel Placement: ___________ (date/time)  Panel Removal: ___________ (date/time)

Read Date #1: ___________  Read Date #2: ___________  Read Date #3: ___________  Read Date #4: ___________

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<th>Article#</th>
<th>Description</th>
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<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>Comments</th>
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<td>B-004</td>
<td>Benzocaine 5.0 pet</td>
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<td>2</td>
<td>N-003B</td>
<td>2-Ethylhexanol/acetate (MBT) 1.0 pet</td>
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<td>C-620</td>
<td>Colchicum / (Colchicine) 20.0 pet</td>
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<td>P-006</td>
<td>4-Phenylmethylamine base 1.0 pet</td>
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<td>1-001A</td>
<td>Imidazolidin/ urea (darmall 115) 2.0 pet</td>
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<td>C-014</td>
<td>Cinnamal / (Cinnamaldehyde) 1.0 pet</td>
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<td>A-004</td>
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<td>VX-06</td>
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<td>N-001</td>
<td>Neomycin sulfate 20.0 pet</td>
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<td>10</td>
<td>MX-31</td>
<td>Thiuram mix 1.0 pet</td>
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<td>11</td>
<td>C-028</td>
<td>Glutathione-1-propionate 1.0 pet</td>
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<td>E-005</td>
<td>Ethyleneamine dihydrochloride 1.0 pet</td>
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<td>E-002</td>
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<td>14</td>
<td>C-074B</td>
<td>Quaternium-15 (Dowicil 200) / 1-(3-Chlorothy)-3,5,7-triaz-5-azoxiaadamanetane chloride) 3.0 pet</td>
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<tr>
<td>15</td>
<td>B-024</td>
<td>4-Bromo-Butylphenylethylamine resin 1.0 pet</td>
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<td>16</td>
<td>MX-05B</td>
<td>Mecrobic 1.0 pet</td>
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<td>I-004</td>
<td>N-Isopropyl-N-phenyl-4-cyanobenzylamine 0.1 pet</td>
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<td>P-014B</td>
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<td>B-001</td>
<td>Myristyl palmitate resin (Balcon Peru) 25.0 pet</td>
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<td>20</td>
<td>N-002B</td>
<td>Nitrilafate hydrate 2.5 pet</td>
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<td>21</td>
<td>D-044C</td>
<td>Dacoleucyl (Germin II) 1.0 pet</td>
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<td>22</td>
<td>T-036</td>
<td>dl-Alpha Tocopherol 100.0</td>
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<td>B-032B</td>
<td>Bacitracin 20.0 pet</td>
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<td>24</td>
<td>MX-2A</td>
<td>Mixed diacetyl tartaric 1.0 pet</td>
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<td>25</td>
<td>D-022</td>
<td>Disopropil Orange 5.0 pet</td>
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<td>26</td>
<td>MX-033A</td>
<td>Paraben Mix 12.0 pet</td>
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<td>27</td>
<td>D-049E</td>
<td>Methylchlorosulfolanitole (MCS) 0.5 pet</td>
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<td>28</td>
<td>MX-07</td>
<td>Fragrance mix 8.0 pet</td>
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<td>29</td>
<td>G-003B</td>
<td>Guaiacol / (Guaiacol) 0.5 pet</td>
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<td>30</td>
<td>B-015B</td>
<td>2-Bromo-2-nitropropane-3-diol (Bromopol) 0.5 pet</td>
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<td>31</td>
<td>MX-1B</td>
<td>Sesquiterpenic lactone mix 0.1 pet</td>
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<td>32</td>
<td>T-047X</td>
<td>Thimerosal (Merthiolate) 0.1 pet</td>
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<td>33</td>
<td>A-022</td>
<td>Propolis 10.0 pet</td>
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<td>34</td>
<td>H-014C</td>
<td>Benzoxahemine-3 / [2-Hydroxy-4-methoxybenzohemines] 10.0 pet</td>
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<td>35</td>
<td>C-010B</td>
<td>Chloroxacine (PCXV) / (4-Chloro-3,5-syvel (PCMX)) 1.0 pet</td>
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<td>36</td>
<td>MX-16</td>
<td>Ethyleneurea, melamine formaldehyde mix 5.0 pet</td>
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</table>
PATIENT COUNSELING

PATIENT INFORMATION SHEET

Abitol

Your patch testing results indicate that you have a contact allergy to Abitol. It is important that you familiarize yourself with this chemical and take steps to avoid coming in contact with it.

What is Abitol and where is it found?
This chemical is an organic alcohol derived from wood rosin. It is used in adhesives, mascara, inks and sealants. It is also used as a plasticizer in plastic materials and non-structural coatings. Further research may identify additional product or industrial usages of this chemical.

What else is Abitol called?
This chemical can be identified by different names, including:
- Di(hydroxyethyl) Alcohol
- Hydroxyethyl Alcohol

This may not be a complete list as manufacturers introduce and delete chemicals from their product lines.

THINGS YOU CAN DO TO HELP MANAGE YOUR CONTACT ALLERGY

☐ Be vigilant ... read the product label. Always take the time to read the ingredient listing on product packages. This should be your first step each time you purchase a product as manufacturers sometimes change product ingredients. If you have any concerns ask your pharmacist or your doctor.
☐ Test the product first. If you have purchased a new product you should test it on a small skin area to see if you get a reaction before using the product on larger skin areas.
☐ Advise people you obtain services from of your contact allergy. This should include people like your pharmacist, doctor, hairdresser, florist, veterinarian, etc.
☐ Inform your employer if the source of your contact allergy is work related. You should identify the specific source of the chemical and take the necessary steps to avoid further exposure. Protective wear may be adequate or you may need to make a change in your work activities. Both you and your employer benefit when the cause of your occupational dermatitis is eliminated.
☐ “Google” it. The internet is an excellent source of ingredient information that can be searched by product, by company and by specific chemical. Some helpful independent internet links include:
  - www.cosmeticsinfo.org (Cosmetic Industry Category Ingredient Database)
  - www.whatisaidecjohnson.com (Information on all B.C. Johnson product ingredients)

If you have any future contact dermatitis concerns or questions, please call the doctor’s office.

DISCLAIMER: Every effort is made to ensure the accuracy of the information provided herein. However, DORMER LABORATORIES INC. and/or CHIMOTECHEQUE DIAGNOSTICS AB make no warranties or representations of any kind as to its accuracy, currency or completeness. Such information is provided for informational purposes only and is not meant to be a substitute for physician or health professional advice.

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ACDS MISSION STATEMENT

The objectives of this Society are to promote, support, develop and stimulate information about contact dermatitis and occupational skin disease; to provide a forum for the exchanging of this information; to promote the education of physicians by encouraging courses in contact dermatitis, occupational dermatology and other related topics at scientific meetings and dermatology training centers, and to promote investigative research into these fields.
Membership Benefits

Access to valuable databases including the ACDS Contact Allergen Management Program (CAMP). ACDS CAMP provides patients with lists of personal care products that are free of allergens. Only qualified physician members (or physician assistants under physician supervision) may distribute CAMP lists to patients.

Promote research in contact dermatitis with research fellowships.

Up-to-date information on the state-of-the-art research and practice.

Earn CME’s at the Annual Meeting conveniently schedule one-day prior to the American Academy of Dermatology Annual Meeting.
Meet and network with a select group of your national and international peers who share an interest in contact dermatitis.

A subscription to Dermatitis – the official journal of the ACDS—included FREE with your membership (Fellows, Associates, Affiliates and Residents).

Recognition of achievement with awards & fellowships.

Programs to encourage young residents and researchers to pursue careers in contact dermatitis research, education and practice.

Reduced fees for residents and medical students.
CAMP

Contact Allergen Management Program

The CAMP system is provided as a service to the American Contact Dermatitis Society (ACDS) members. The system is designed to help patients with allergic contact dermatitis find personal care products that are free of the ingredients that are causing their allergic reactions. Each list generated is personalized for the patient. The list is not exhaustive, but is an excellent starting point for patients to find products that will relieve their allergic reactions.

The products included have been uploaded by CAMP administrators using publicly available information or voluntarily provided by personal care product companies who are committed to patient safety.
WORKING TOGETHER...ADVANCING PATCH TESTING