**Atopic Dermatitis Phenotype Algorithm at the Center for Applied Genomics**

Background: Atopic Dermatitis is a chronic inflammatory skin disease that affects adults and children with worldwide prevalence rates of 1-20%. The prevalence in the United States is around 11%. The condition is characterized by intense pruritus and a course marked by exacerbations and remissions. The vast majority of cases have an onset before 5 years of age.

Case inclusion criteria:

-Individuals 60 days old or older with relevant ICD9 code for Atopic Dermatitis (691.8) in two or more in person visits, on separate calendar days.

 *Plus*

- Individual’s medical record includes two or more prescriptions Atopic Dermatitis-related medications (see Table 1)

 *Or*

- Individuals 60 days old or older with relevant ICD9 code for Atopic Dermatitis (691.8) in three or more in person visits, on separate calendar days.

Case exclusion criteria:

* Individual’s medical record includes one or more of the ICD9 codes shown in Table2.

Controls:

 - Individuals 60 days old or older

 - Must have two or more in person visits in the last 5 years

 - No diagnosis code for atopic dermatitis (691.8)

 - No history of relevant medications (see Table 4)

 - No exclusionary ICD 9 codes (see Table 3)

Covariates:

 -Age

 -Gender

 -Ethnicity

 -Race

 -History of asthma (icd9code)

 -History of allergic rhinitis (icd9code)

 -History of allergic rhinoconjuctivitis(icd9code)

 -History of contact dermatitis (icd9code)

 -History of dermatitis due to substances taken internally (icd9code)

 -History of seborrheic dermatitis (icd9code)

 -History of psoriasis and similar disorders (icd9code)

 -Allergy tests

 -History of atopic dermatitis related medications

 -Age in days of all in-person visits per EMR

Table 1- Medications related to Atopic Dermatitis

|  |
| --- |
| Topical Corticosteroids |
| Generic name |  |
| **Betamethasone dipropionate**  | Diprolene, Diprosone |
| **Clobetasol propionate**  | Temovate, Clobex, Olux-E, Olux, Cormax  |
| **Halobetasol propionate**  | Ultravate |
| **Fluocinonide** | Vanos, Lidex |
|  **Flurandrenolide**  | Cordran |
| **Diflorasone diacetate**  | Psorcon, ApexiCon, Florone |
| **Amcinonide**  | Cyclocort, Amcort |
|  **Halcinonide**   | Halog |
| **Desoximetasone**  | Topicort |
| **Triamcinolone acetonide**  | Kenalog, Triderm, Aristocort HP, Aristocort A |
| **Betamethasone valerate**  | Valisone, Luxiq, Beta-Val |
| **Fluticasone propionate**  | Cutivate |
| **Mometasone furoate**  | Elocon |
| **Fluocinolone acetonide** | Synalar, Capex, Derma-Smoothe/FS |
| **Hydrocortisone valerate**  | Westcort |
| **Clocortolone pivalate**  | Cloderm |
| **Prednicarbate**  | Dermatop |
| **Desonide**  | DesOwen, Tridesilon ,Desonate , LoKara, Verdeso |
| **Hydrocortisone butyrate**  | Locoid, Cortizone10 |
| **Hydrocortisone probutate**  | Pandel |
| **Alclometasone dipropionate**  | Aclovate |
|  **Hydrocortisone**  | Hytone , Nutracort ,Texacort , Cortaid, Synacort, Aquinil HC, Sarnol HC, Cortizone-10, Noble, Scalp relief |
| **Hydrocortisone acetate** with pramoxine 1 percent combination  | Pramosone, Analpram HC, Epifoam |
| Topical calcineurin inhibitors |
| Generic name |  |
| **Tacrolimus** | Protopic |
| **Pimecrolimus** | Elidel |
| Emollients |
| Generic name |  |
| **Emollient** | Aquaphor, Cerave, Atopiclair… |
| Antihistamines |
| Generic name |  |
| **Hydroxyzine** | Vistaril,Atarax |
| **Diphenhydramine** | Benadryl,Sominex, Hydramine |
| **Clemastine Fumarate** | Tavist |
| **Cyproheptadine** | Periactin,Peritol |
| **Chlorpherinamine** | Chlor-Trimeton, Phenetron, Antagonate |
| **Promethazine** | Phenergan |
| **Cetrizine** | Zyrtec |
| **Loratadine** | Claritin |
| **Fexofenadine** | Allegra |
| **Mizolastine** | Mistamine, Mizollen |
| **Desloratadine** | Clarinex |
| Oral Costicosteroids |
| Generic name |  |
| **Hydrocortisone** | Cortef, Hydrocortone |
| **Prednisone** | Orasone |
| **Prednisolone** | Delta-Cortef, Prelone, Orapred, Pediapred, |
| **Methylprednisolone** | Medrol |
| **Dexamethasone** | Decadron, Dexpak |
| **Triamcinolone** | Aristocort |
| Phototherapy |
| Generic name |  |
| **UVA, UVAB,BB-UVB,nb-UVB,PUVA** |  |
| Other |
| Generic name |  |
| **Cyclosporine (CyA)** | Restasis, Neoral, Sandimmune, Gengraf |
| **Interferon gamma** | Actimmune |
| **Doxepin (Topical)** | Zonalon, Prudoxin, Xepin |
| **Azathioprine** | Imuran, Azasan |
| **Methotrexate** | Trexall |
| **Mycophenolate mofetil** | Cellcept |

Table 2- Case exclusion criteria

|  |  |
| --- | --- |
| **ICD9** |  |
| 133.0 | Scabies |
| 279.12 | Wiskott-Aldrich Syndrome |
| 287.0 | Allergic Purpura |
| 757.1 |  Ichtyosis congenita |
| 758.x | Chromosomal anomalies |

Table 3- Control exclusion criteria

|  |  |
| --- | --- |
| **ICD9** |  |
| 690.x | Erythematosquamous dermatosis |
| 692.x | Contact dermatitis and other eczema |
| 693.x | Dermatitis due to substances taken internally |
| 694.x | Bullous dermatoses |
| 695.x | Erythematous conditions  |
| 696.x | Psoriasis and similar disorders  |
| 697.x | Lichen |
| 698.x | Pruritus and related conditions |
| 691.0 | Diaper or Napkin rash |
| 133.0 | Scabies |
| 279.x | Disorders involving the immune mechanism |
| 260-269 | Nutritional deficiencies |
| 172.x | Malignant melanoma of skin |
| 173.x | Other and unspecified malignant neoplasm of skin |
| 232.x | Carcinoma in situ of skin |
| 287.0 | Allergic purpura |
| 288.1 | Functional disorders of polymorphonuclear neutrophils |
| 493.x | Asthma |
| 372.14 | Other chronic allergic rhinoconjunctivitis |
| 477.x | Allergic rhinitis |
| 684 | Impetigo |
| 708.x | Urticaria |
| 782.1 | Rash and other nonspecific skin eruption |
| 995.2x | Unspecified adverse effect of drug medicinal and biological substance not elsewhere classified |
| 995.3 | Allergy,unspecified |
| 757.1 | Ichtyosis congenita |
| 758.x | Chromosomal anomalies |
| V13.3 | Personal Hx of dieases of skin and subcutaneous tissue |
| V14.x | Personal Hx of allergy to medicinal agents |
| V15.0x | Personal Hx of allergy, other than to medicinal agents |
| V10.82 | Personal Hx of malignant melanoma of skin |
| V10.83 | Personal Hx of malignant neoplasm of skin |

Table 4- Medications for control exclusion

|  |
| --- |
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| **Betamethasone dipropionate**  | Diprolene, Diprosone |
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| **Methotrexate** | Trexall |
| **Mycophenolate mofetil** | Cellcept |