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65**Appendix:****Supplementary Table 1.** SNOMED Concept code groupings for asthma, wheezing, eczema, allergic rhinitis, and food allergy

Group	Concept
Asthma Concepts	Acute asthma
	Acute exacerbation of allergic asthma
	Acute exacerbation of asthma
	Acute exacerbation of asthma co-occurrent with allergic rhinitis
	Acute exacerbation of chronic asthmatic bronchitis
	Acute exacerbation of chronic obstructive airways disease with asthma
	Acute exacerbation of intrinsic asthma
	Acute exacerbation of mild persistent asthma
	Acute exacerbation of moderate persistent asthma
	Acute severe exacerbation of allergic asthma
	Acute severe exacerbation of asthma
	Acute severe exacerbation of asthma co-occurrent with allergic rhinitis
	Acute severe exacerbation of intrinsic asthma
	Acute severe exacerbation of mild persistent allergic asthma
	Acute severe exacerbation of mild persistent allergic asthma co-occurrent with allergic rhinitis
	Acute severe exacerbation of mild persistent asthma
	Acute severe exacerbation of moderate persistent allergic asthma
	Acute severe exacerbation of moderate persistent asthma
	Acute severe exacerbation of moderate persistent asthma co-occurrent with allergic rhinitis
	Acute severe exacerbation of severe persistent allergic asthma
	Acute severe exacerbation of severe persistent asthma
	Acute severe exacerbation of severe persistent asthma co-occurrent with allergic rhinitis
	Allergic asthma
	Allergic asthma due to <i>Dermatophagoides farinae</i>
	Allergic asthma due to <i>Dermatophagoides pteronyssinus</i>
	Allergic-infective asthma
	Aspirin-induced asthma
	Aspirin-sensitive asthma with nasal polyps
	Asthma
	Asthma-chronic obstructive pulmonary disease overlap syndrome
	Asthma in mother complicating childbirth
	Asthmatic bronchitis
	Asthma with irreversible airway obstruction

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4 Asthma without status asthmaticus
5 Bakers' asthma
6 Brittle asthma
7 Byssinosis
8 Byssinosis grade 3
9 Cheese-makers' asthma
10 Chemical-induced asthma
11 Childhood asthma
12 Chronic asthmatic bronchitis
13 Chronic asthma with fixed airflow obstruction
14 Chronic obstructive asthma co-occurrent with acute exacerbation of
15 asthma
16 Colophony asthma
17 Cough variant asthma
18 Detergent asthma
19 Drug-induced asthma
20 Exacerbation of asthma
21 Exacerbation of intermittent asthma
22 Exacerbation of mild persistent asthma
23 Exacerbation of moderate persistent asthma
24 Exacerbation of severe persistent asthma
25 Exercise-induced asthma
26 Extrinsic asthma without status asthmaticus
27 Flax-dressers' disease
28 Hay fever with asthma
29 IgE-mediated allergic asthma
30 Intermittent asthma
31 Intermittent asthma co-occurrent with allergic rhinitis
32 Intermittent asthma uncontrolled
33 Intrinsic asthma
34 Intrinsic asthma without status asthmaticus
35 Isocyanate induced asthma
36 Late onset asthma
37 Meat-wrappers' asthma
38 Mild asthma
39 Mild intermittent asthma
40 Mild persistent allergic asthma
41 Mild persistent asthma
42 Mild persistent asthma co-occurrent with allergic rhinitis
43 Millers' asthma
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4		Mixed asthma
5		Moderate asthma
6		Moderate persistent allergic asthma
7		Moderate persistent asthma
8		Moderate persistent asthma co-occurrent with allergic rhinitis
9		Non-IgE mediated allergic asthma
10		Occasional asthma
11		Occupational asthma
12		Platinum asthma
13		Printers' asthma
14		Seasonal asthma
15		Severe asthma
16		Severe persistent allergic asthma
17		Severe persistent asthma
18		Severe persistent asthma co-occurrent with allergic rhinitis
19		Steroid dependent asthma
20		Substance induced asthma
21		Sulfite-induced asthma
22		Tea-makers' asthma
23		Uncomplicated asthma
24		Uncomplicated mild persistent asthma
25		Uncomplicated moderate persistent asthma
26		Uncomplicated severe persistent asthma
27		Weavers' cough
28		Wood asthma
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40	Wheeze Concepts	
41	Wheezing	Respiratory symptom
42		Tracheobronchial disorder
43		Wheezing
44	Bronchiolitis	Acute bronchiolitis
45		Acute bronchitis
46		Bronchitis
47	Influenza	Influenza with respiratory manifestation other than pneumonia
48	Cough Concepts	Allergic cough
49		Barking cough
50		Brassy cough
51		C/O - cough
52		Chesty cough
53		Chronic cough
54		Cough
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4 Cough after eating
5 Cough at rest
6 Cough on exercise
7 Cough with fever
8 Does cough
9 Does cough up sputum
10 Dry cough
11 Early morning cough
12 Effective cough
13 Episodic dry cough
14 Hacking cough
15 Increasing frequency of
16 Morning cough
17 Nocturnal cough
18 Nocturnal cough / wheez
19 Non-productive cough
20 Painful cough
21 Paroxysmal cough
22 Persistent cough
23 Postviral cough
24 Productive cough
25 Productive cough -clear
26 Productive cough -green
27 Productive cough-yellow
28 Reflux cough
29 Respiratory tract conge
30 Spasmodic cough
31 Unexplained cough

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44 **Allergic Rhinitis**
45 **Concepts**

46 Acute exacerbation of asthma co-occurrent with allergic rhinitis
47 Acute severe exacerbation of asthma co-occurrent with allergic rhinitis
48 Acute severe exacerbation of mild persistent allergic asthma co-occurrent
49 with allergic rhinitis
50 Acute severe exacerbation of moderate persistent asthma co-occurrent
51 with allergic rhinitis
52 Acute severe exacerbation of severe persistent asthma co-occurrent with
53 allergic rhinitis
54 Allergic rhinitis
55 Allergic rhinitis caused by feathers
56 Allergic rhinitis caused by insects
57 Allergic rhinitis caused by mold
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- Allergic rhinitis due to animal dander
 - Allergic rhinitis due to animal hair and dander
 - Allergic rhinitis due to animals
 - Allergic rhinitis due to *Dermatophagoides farinae*
 - Allergic rhinitis due to *Dermatophagoides pteronyssinus*
 - Allergic rhinitis due to food
 - Allergic rhinitis due to grass pollen
 - Allergic rhinitis due to house dust mite
 - Allergic rhinitis due to pollen
 - Allergic rhinitis due to tree pollen
 - Allergic rhinitis due to weed pollen
 - Hay fever with asthma
 - Intermittent asthma co-occurrent with allergic rhinitis
 - Mild persistent asthma controlled co-occurrent with allergic rhinitis
 - Mild persistent asthma co-occurrent with allergic rhinitis
 - Mild persistent asthma uncontrolled co-occurrent with allergic rhinitis
 - Moderate persistent asthma co-occurrent with allergic rhinitis
 - Moderate persistent asthma uncontrolled co-occurrent with allergic rhinitis
 - Moderate persistent controlled asthma co-occurrent with allergic rhinitis
 - Perennial allergic rhinitis
 - Perennial allergic rhinitis with seasonal variation
 - Seasonal allergic rhinitis
 - Severe persistent asthma controlled co-occurrent with allergic rhinitis
 - Severe persistent asthma co-occurrent with allergic rhinitis
 - Severe persistent asthma uncontrolled co-occurrent with allergic rhinitis
- Eczema Concepts**
- Acantholytic vesicular dermatitis
 - Acute cheiropodopompholyx
 - Acute constitutional eczema
 - Acute constitutional hand eczema
 - Acute eczema
 - Acute eczematoïd otitis externa
 - Acute hand eczema
 - Acute infantile eczema
 - Acute-on-chronic vesicular eczema of feet
 - Acute-on-chronic vesicular eczema of hands
 - Acute-on-chronic vesicular eczema of hands and feet
 - Acute-on-chronic vesicular eczema of hands and/or feet
 - Acute podopompholyx
 - Acute vesicular dermatitis

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5 Acute vesicular eczema of hand
6 Acute vesicular eczema of hands and/or feet
7 Adult atopic dermatitis
8 Adult atopic dermatitis commencing in adult life
9 Adult atopic dermatitis persistent from childhood
10 Adult atopic dermatitis recurrent in adult life
11 Allergic inhalant dermatitis
12 Annular seborrheide
13 Apron pattern of vesicular eczema of hands
14 Asteatotic eczema
15 Atopic dermatitis
16 Atopic dermatitis aggravated by type 1 immune reaction
17 Atopic dermatitis due to animal dander
18 Atopic dermatitis of eyelid
19 Atopic dermatitis of face
20 Atopic dermatitis of hands
21 Atopic dermatitis of scalp
22 Atopic neurodermatitis
23 Atopy as co-factor in hand eczema
24 Ballooning vesicular dermatitis
25 Besnier's prurigo
26 Brachioradial pruritus
27 Brocq's neurodermatitis
28 Childhood atopic dermatitis
29 Chronic constitutional eczema
30 Chronic constitutional hand eczema
31 Chronic eczema
32 Chronic eczema of external auditory canal
33 Chronic hand eczema
34 Chronic infantile eczema
35 Chronic lichenified atopic dermatitis
36 Chronic podopompholyx
37 Chronic relapsing vesiculosquamous hand eczema
38 Chronic superficial scaly dermatitis
39 Chronic vesicular eczema of hands
40 Chronic vesicular eczema of hands and feet
41 Chronic vesicular eczema of hands and/or feet
42 Constitutional discoid hand eczema
43 Constitutional eczema
44 Constitutional eczema of feet
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4 Constitutional eczema of hands
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6 Constitutional eczema of hands and feet
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8 Constitutional/endogenous eczema of hands and/or feet
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10 Constitutional factors as co-factor in hand eczema
11 Constitutional fingertip eczema
12 Constitutional predisposition as co-factor in eczema
13 Contact hand eczema
14 Contact with irritant as co-factor in eczema
15 Contact with irritant as co-factor in hand eczema
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17 Crusted eczema
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19 Cumulative irritant contact dermatitis of hands
20 Cumulative irritant contact dermatitis of hands due to wet work
21 Dermatitis and eczema
22
23 Dermatitis due to sweating and friction
24 Desiccation eczema
25
26 Diffuse neurodermatitis of Brocq
27 Discoid atopic dermatitis
28 Discoid eczema of hand
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30 Discoid eczema of hands and feet
31 Discoid pattern atopic hand dermatitis
32 Disseminated secondary eczema
33 Distinctive exudative discoid AND lichenoid chronic dermatosis of
34 Sulzberger and Garbe
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36 Dry discoid eczema
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38 Dry eczema
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40 Eczema
41 Eczema craquele due to acute edema
42 Eczema herpeticum
43 Eczema of ear lobe
44 Eczema of external auditory canal
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46 Eczema of face
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48 Eczema of finger
49 Eczema of leg
50 Eczema of nipple
51 Eczema of wrist
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53 Eczematid-like purpura of Doucas and Kapetanakis
54 Eczematized psoriasis
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56 Eczematous cheilitis
57 Eczematous dermatitis of eyelid
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59 Eczematous dermatitis of lower eyelid
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4	Eczematous dermatitis of upper eyelid
5	Eczematous drug eruption
6	Eczema vaccinatum
7	Erythemasquamous dermatosis
8	Erythrodermic atopic dermatitis
9	Erythrodermic eczema
10	Exacerbation of eczema
11	Excoriated eczema
12	Exogenous eczema of hands and/or feet
13	Exogenous foot eczema
14	Exogenous hand eczema
15	Exposure to skin irritant as co-factor in eczema
16	Exudative discoid eczema
17	Exudative eczema
18	Facial eczema
19	Fingertip eczema
20	Flexural atopic dermatitis
21	Flexural eczema
22	Follicular atopic dermatitis
23	Foot eczema
24	Frictional lichenoid eruption
25	Friction eczema
26	Friction palmar eczema
27	Generalized atopic dermatitis
28	Generalized eczema
29	Generalized eczema due to systemically administered drug
30	Genitocrural intertrigo
31	Hand and/or foot eczema
32	Hand eczema
33	Hyperkeratotic eczema of hands and feet
34	Hyperkeratotic eczema of hands and/or feet
35	Hyperkeratotic eczema of palms
36	Hyperkeratotic eczema of soles
37	Hyperkeratotic fissured hand eczema
38	Impetiginized atopic dermatitis
39	Infantile atopic dermatitis
40	Infantile eczema
41	Infected discoid eczema
42	Infected eczema
43	Infectious eczematoid dermatitis
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- Infective dermatitis co-occurrent and due to human T-cell lymphotropic virus 1 infection
- Infective eczematoid dermatitis
- Inverse pattern atopic dermatitis
- Irritant contact hand eczema
- Juvenile plantar dermatosis
- Kaposi's varicelliform eruption due to vaccinia virus
- Lichenification and lichen simplex chronicus
- Lichenified eczema
- Lichen nuchae
- Lichen simplex chronicus
- Lichen simplex of perianal skin
- Lichen simplex of scrotum
- Lichen simplex of vulva
- Lip-licking eczema
- Localized eczema due to systemically administered drug
- Neurodermatitis
- Neurodermatitis of external ear
- Nonallergic eczema
- Nummular eczema
- Occupational allergic contact dermatitis
- Occupational eczema
- O/E - pompholyx
- Papular eczema with elimination of papillary edema
- Papuloerythroderma of Ofuji
- Parakeratosis
- Photoaggravated atopic dermatitis
- Photosensitive atopic dermatitis
- Pityriasiform seborrheide
- Podopompholyx
- Polymorphous light eruption, eczematous type
- Post-traumatic eczema
- Pruriginous atopic dermatitis
- Prurigo pattern atopic dermatitis
- Psoriasiform eczema
- Psoriasiform napkin eruption
- Psoriasis-eczema overlap condition
- Pustular eczema
- Scaling eczema
- Seborrheic eczema-like eruption

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Seborrhoeide
Secondary eczematous condition
Senile asteatotic eczema
Senile xeroderma
Site-specific eczema
Unclassifiable eczema
Varicose eczema
Varicose veins of leg in long saphenous vein distribution with eczema
Varicose veins of leg in short saphenous vein distribution with eczema
Varicose veins of the leg with eczema
Varicose veins of the leg with ulcer and eczema
Vesicular eczema
Vesicular eczema of hands and/or feet
Vesicular hand eczema
Vesiculosquamous hand eczema
Vulval eczema

**Food Allergy
Concepts**

Allergy to almond
Allergy to almond oil
Allergy to apple juice
Allergy to banana
Allergy to barley
Allergy to bean
Allergy to beef
Allergy to carrot
Allergy to casein
Allergy to cashew nut
Allergy to celery
Allergy to cherry
Allergy to chicken meat
Allergy to cinnamon
Allergy to citrus fruit
Allergy to clam
Allergy to coconut oil
Allergy to corn
Allergy to dairy product
Allergy to dietary mushroom
Allergy to dietary mustard
Allergy to eggs
Allergy to fish

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- 4 Allergy to fruit
- 5 Allergy to hazelnut
- 6 Allergy to legumes
- 7 Allergy to lobster
- 8 Allergy to lupine
- 9 Allergy to macadamia nut
- 10 Allergy to marine crustacean
- 11 Allergy to meat
- 12 Allergy to mollusk
- 13 Allergy to nut
- 14 Allergy to oats
- 15 Allergy to oyster
- 16 Allergy to peanuts
- 17 Allergy to pineapple
- 18 Allergy to pork
- 19 Allergy to potato
- 20 Allergy to red meat
- 21 Allergy to rye
- 22 Allergy to seafood
- 23 Allergy to seed
- 24 Allergy to shrimp
- 25 Allergy to soya
- 26 Allergy to strawberries
- 27 Allergy to tomato
- 28 Allergy to walnut
- 29 Allergy to watermelon
- 30 Allergy to wheat
- 31 Arachis oil allergy
- 32 Cheese allergy
- 33 Chocolate allergy
- 34 Cow's milk protein sensitivity
- 35 Egg protein allergy
- 36 Fish oils allergy
- 37 Food allergy
- 38 Gastrointestinal disorder due to food allergy
- 39 Gastrointestinal food allergy
- 40 Gelatin allergy
- 41 Glycine allergy
- 42 Guar gum allergy
- 43 Olive oil allergy
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Omega 3-marine triglycerides allergy
Pollen-food allergy
Salmon calcitonin allergy
Shellfish allergy
Soy protein sensitivity
Tryptophan allergy

Supplementary Table 2: Age-level effect on asthma diagnosis (reference: Age 6-9 months):

Age (months)	Odds Ratio	95% CI	P-value
9	0.96	0.90-1.02	0.178
12	1.08	1.02-1.15	0.010
15	1.03	0.97-1.10	0.306
18	0.91	0.85-0.97	0.002
21	0.75	0.71-0.80	< 0.001
24	0.82	0.77-0.88	< 0.001
27	0.66	0.62-0.70	< 0.001
30	0.59	0.55-0.63	< 0.001
33	0.52	0.48-0.56	< 0.001
36	0.67	0.62-0.71	< 0.001
39	0.53	0.49-0.57	< 0.001
42	0.46	0.43-0.50	< 0.001
45	0.43	0.39-0.46	< 0.001
48	0.54	0.50-0.58	< 0.001
51	0.43	0.39-0.46	< 0.001
54	0.34	0.31-0.37	< 0.001
57	0.31	0.28-0.34	< 0.001
60	0.38	0.35-0.42	< 0.001
63	0.30	0.27-0.33	< 0.001
66	0.24	0.22-0.27	< 0.001
69	0.22	0.20-0.24	< 0.001
72	0.27	0.25-0.30	< 0.001
75	0.19	0.17-0.22	< 0.001
78	0.18	0.16-0.20	< 0.001
81	0.15	0.14-0.17	< 0.001
84	0.20	0.18-0.22	< 0.001
87	0.18	0.16-0.21	< 0.001
90	0.21	0.18-0.23	< 0.001
93	0.27	0.23-0.31	< 0.001