Pediatric Identification & Immune Support for Childhood Illnesses

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Disclosures

Relevant Financial Relationships:

- This lecture is sponsored by Lhasa OMS
- Employed at Veteran's Administration in Florida
- Employed at Serenity Family Wellness as Clinical Director and Instructor
- Co-Founder of Fusion Care

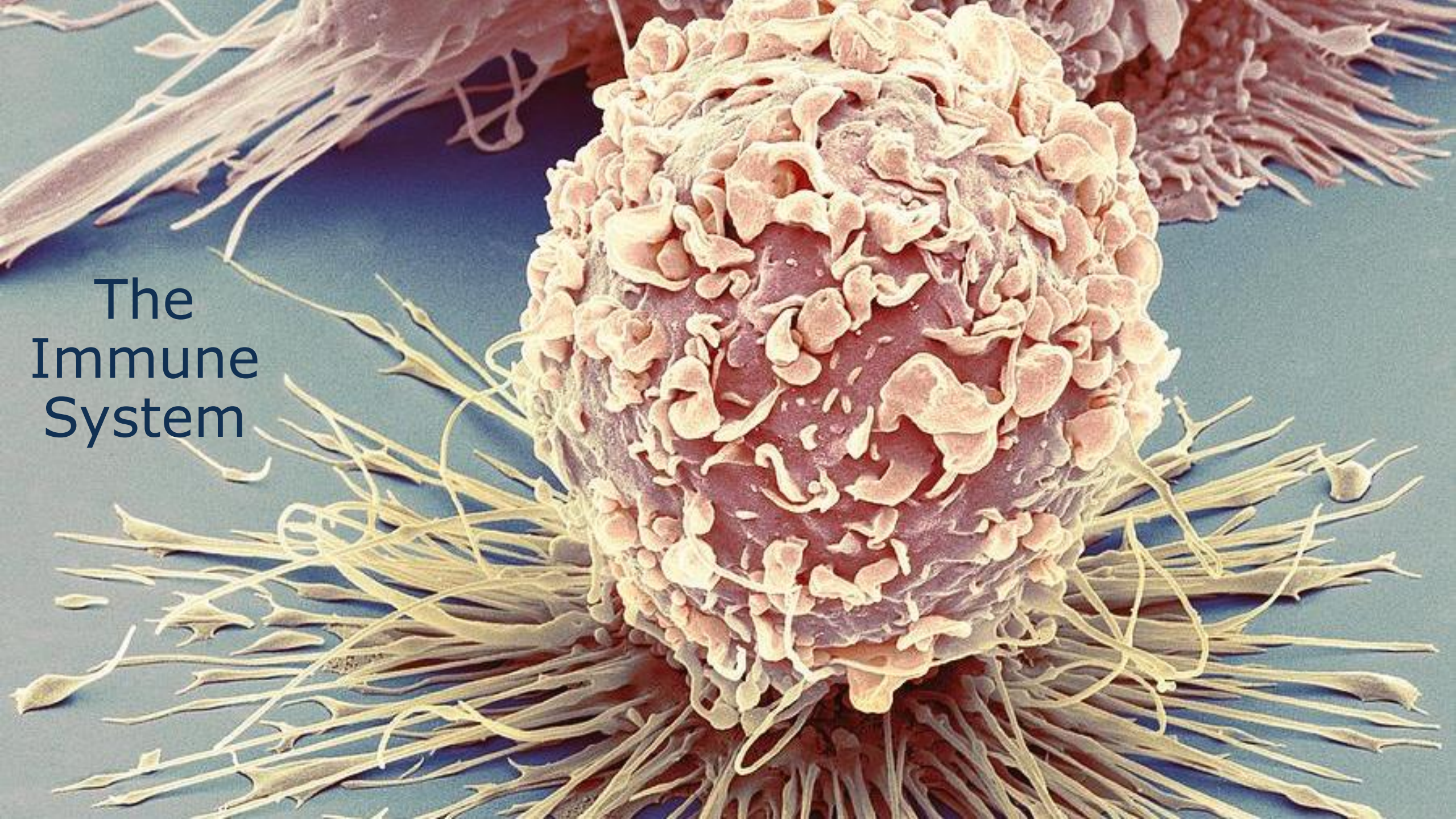
Relevant Nonfinancial Relationships

- Past President of the ACA Acupuncture Council
- Former member of the IDFPR Acupuncture Board
- Educational co- coordinator for the ACA Pediatric Council

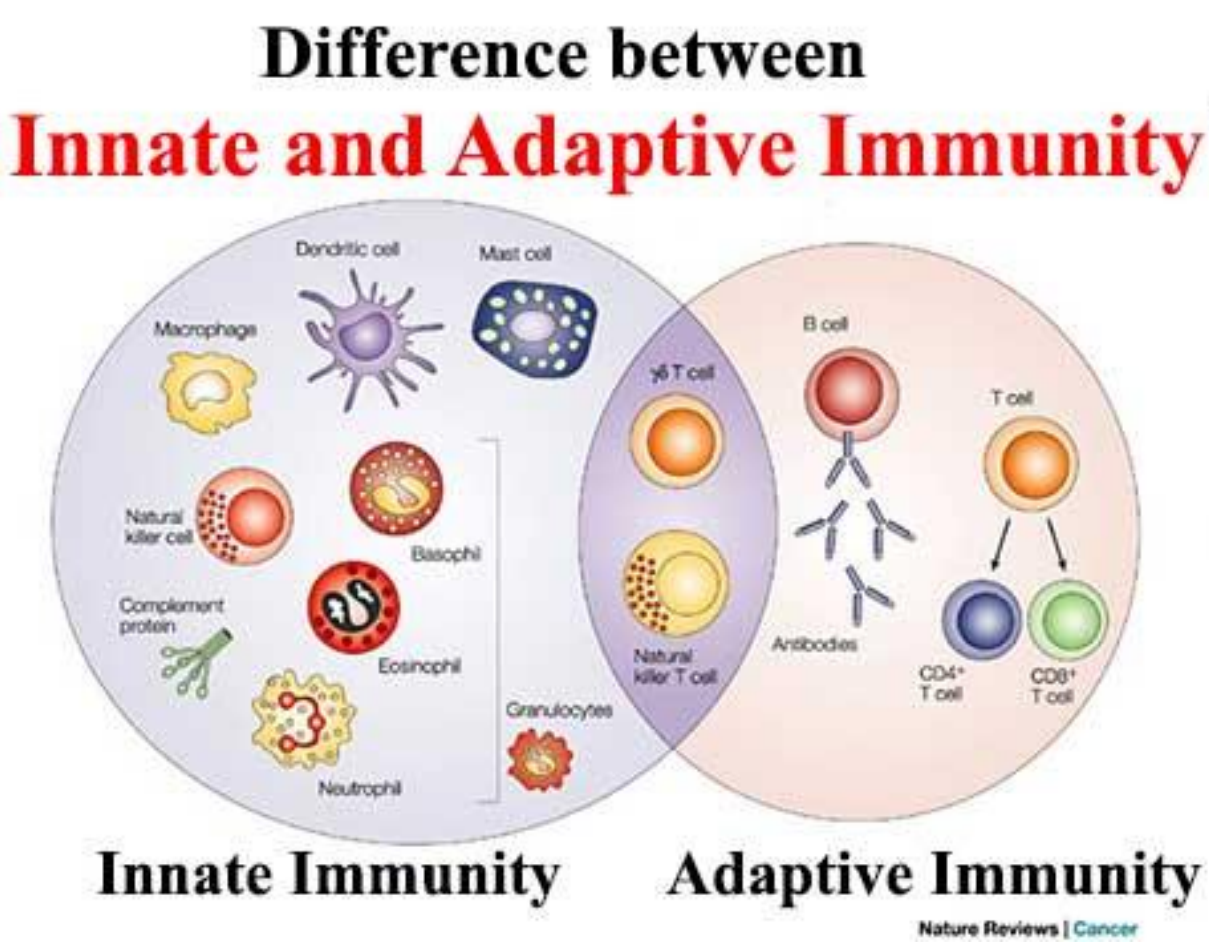
The information within this presentation will be given fairly and without major bias

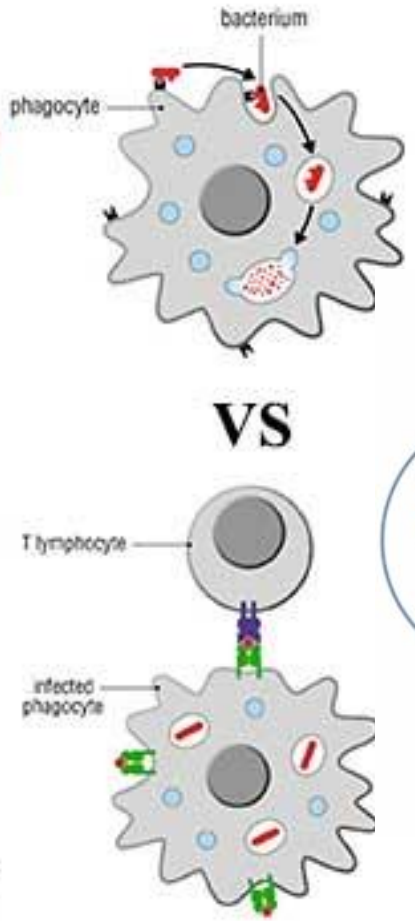
Course Objectives

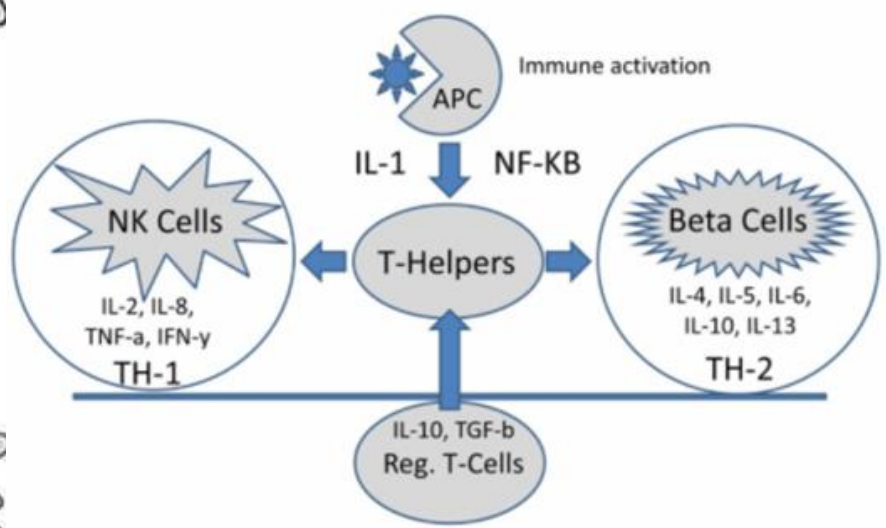
1. Review the adaptive and innate immune systems and how they work to fight infection
2. Discuss TH1 & TH2 balance and herbal therapies to support both immune system arms
3. Examine the traditional and delayed vaccination schedule
4. Describe how to identify adverse vaccine reactions and how to report them
5. Discuss differences in presentation of common childhood conditions


The
Immune
System

Innate VS Adaptive Immune System



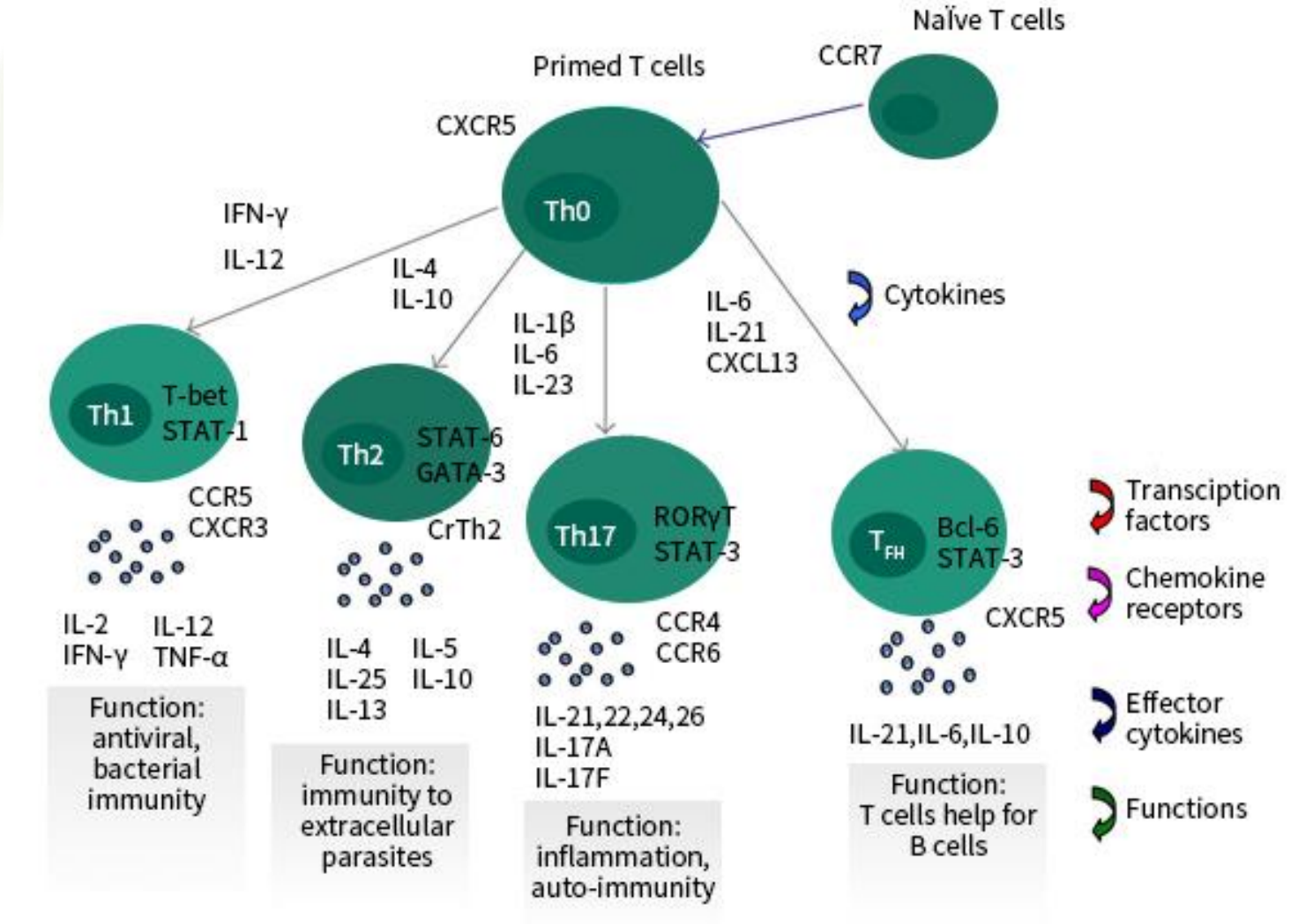




Characteristics	Innate Immunity	Adaptive immunity
Presence	Already present in the body	Created in response to foreign substance exposure
Specificity	Non-Specific	Specific
Response	Fights **any** foreign invader	Fight **only specific** infection
Response	Rapid	Slow (1-2 weeks)
Potency	Limited and Lower potency	High potency
Time span	Once activated (specific antigen), the immunity remains throughout the life	Developed immunity can be lifelong or short
Inheritance	Generally inherited from parents / passed to offspring	Not passed from the parents to offspring (cannot be inherited)
Memory	Cannot react with equal potency upon repeated exposure to the same pathogen	Remembers specific pathogens it has previously encountered
Presence	Present at birth	Develops during a lifetime / can be short-lived
Allergic Reaction	None	Immediate and Delay hypersensitivity
Used Against	For microbes	Microbes / non-microbial substances called antigens
Memory	No memory	Long term memory
Diversity	Limited	High
Speed	Faster response	Slower response
Complement system	Alternative and lectin pathways	Classical pathway
Anatomic and physiological barriers	Skin, mucus membranes, temperature, pH, chemicals, etc.	Lymph nodes, spleen, mucosal associated lymphoid tissue
Composition	Physical and chemical barriers, phagocytic leukocytes, dendritic cells, natural killer cells, and plasma proteins	B cells and T cells
Development	Evolutionary, older and is found in both vertebrates and invertebrates	Developed recently; only found in vertebrates
Example	White blood cells fighting bacteria, causing redness and swelling, when you have a cut	Mumps infection or vaccination so immune system recognizes and remembers the mumps virus to kill it thus not getting ill

Cytokines

- Pleiotropic, redundant, proteins that are produced in response to an antigen or injury
- Chemical messengers to regulating innate & adaptive immune systems
  - Produced by all cell but esp. T-helper (Th) lymphocytes
  - Activation of cytokine-producing cells triggers them to synthesize and secrete their cytokines
  - Can be antagonistic or synergistic to others

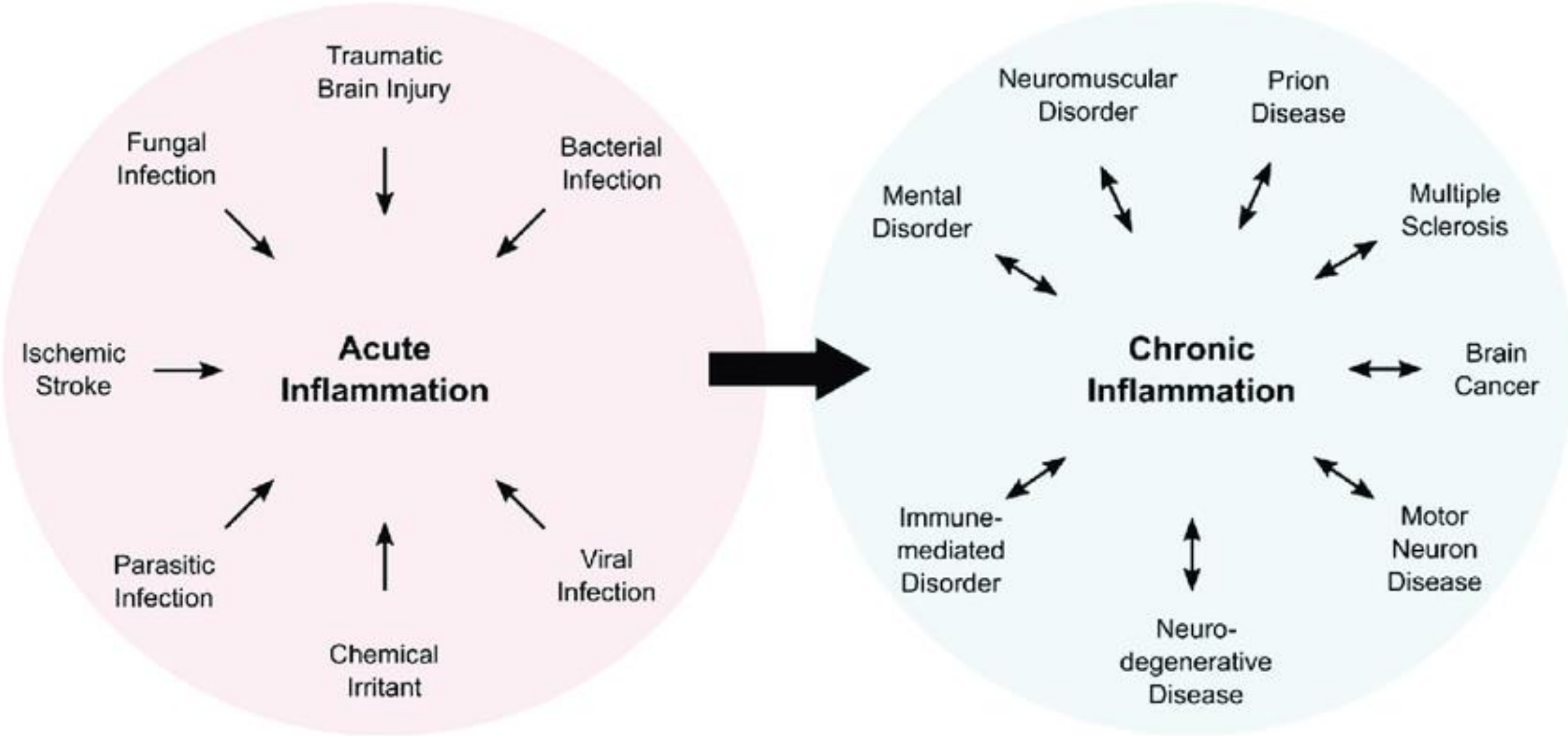


Cytokine	Classification	Main Sources	Receptor	Target Cell	Major Function
Erythropoietin		Endothelium	EpoR	Stem cells	Red blood cell production
G-CSF	Pro-inflammatory	Fibroblasts, endothelium	CD114	Stem cells in BM	Granulocyte production
GM-CSF	Adaptive immunity	T cells, macrophages, fibroblasts	CD116, CDw131	Stem cells	Growth and differentiation of monocytes, and eosinophil, granulocytes production
IL-1	Pro-inflammatory	Macrophages, B cells, DCs	CD121a	B cells, NK cells, T-cells	Pyrogenic, pro-inflammatory, proliferation and differentiation, BM cell proliferation
IL-2	Adaptive immunity	Th1 cells	CD25	Activated T and B cells, NK cells	Proliferation of B cells, activated T cells, NK cell function
IL-3	Adaptive immunity	T cells	CD123, CDw131	Stem cells	Hematopoietic precursor proliferation / differentiation
IL-4	Adaptive immunity	Th Cells	CD124	B cell, T cell, macrophages	Proliferation of B and cytotoxic T cells, enhances MHC class II expression, stimulates IgG and IgE production
IL-5	Adaptive immunity	Th2 Cells and mast cells	CDw125, 131	Eosinophils, B-cells	B-cell proliferation and maturation, stimulates IgA and IgM production
IL-6	Pro-inflammatory	Th Cells, macrophages, fibroblasts	CD126, 130	B-cells, plasma cells	B-cell differentiation
IL-7	Adaptive immunity	BM stromal cells, epithelial cells	CD127	Stem cells	B and T cell growth factor
IL-8	Pro-inflammatory	Macrophages	IL-8R	Neutrophils	Chemotaxis for neutrophils and T cells
IL-9	Adaptive immunity	T cells	IL-9R, CD132	T cell	Growth and proliferation
IL-10	Anti-inflammatory	T cells, B cells, macrophages	CDw210	B cells, macrophages	Inhibits cytokine production & mononuclear cell function
IL-11	Pro-inflammatory	BM stromal cells	IL-11Ra, CD130	B cells	Differentiation, induces acute phase proteins
IL-12	Anti-inflammatory	T cells, macrophages, monocytes	CD212	NK cells, macrophages, tumor cells	Activates NK cells, phagocyte cell activation, endotoxic shock, tumor cytotoxicity, cachexia
IL-17	Pro-inflammatory	Th17 cells	IL-17R	Monocytes, neutrophils	Recruit monocytes / neutrophils to infection site. Activation of IL-17 activates downstream cytokines

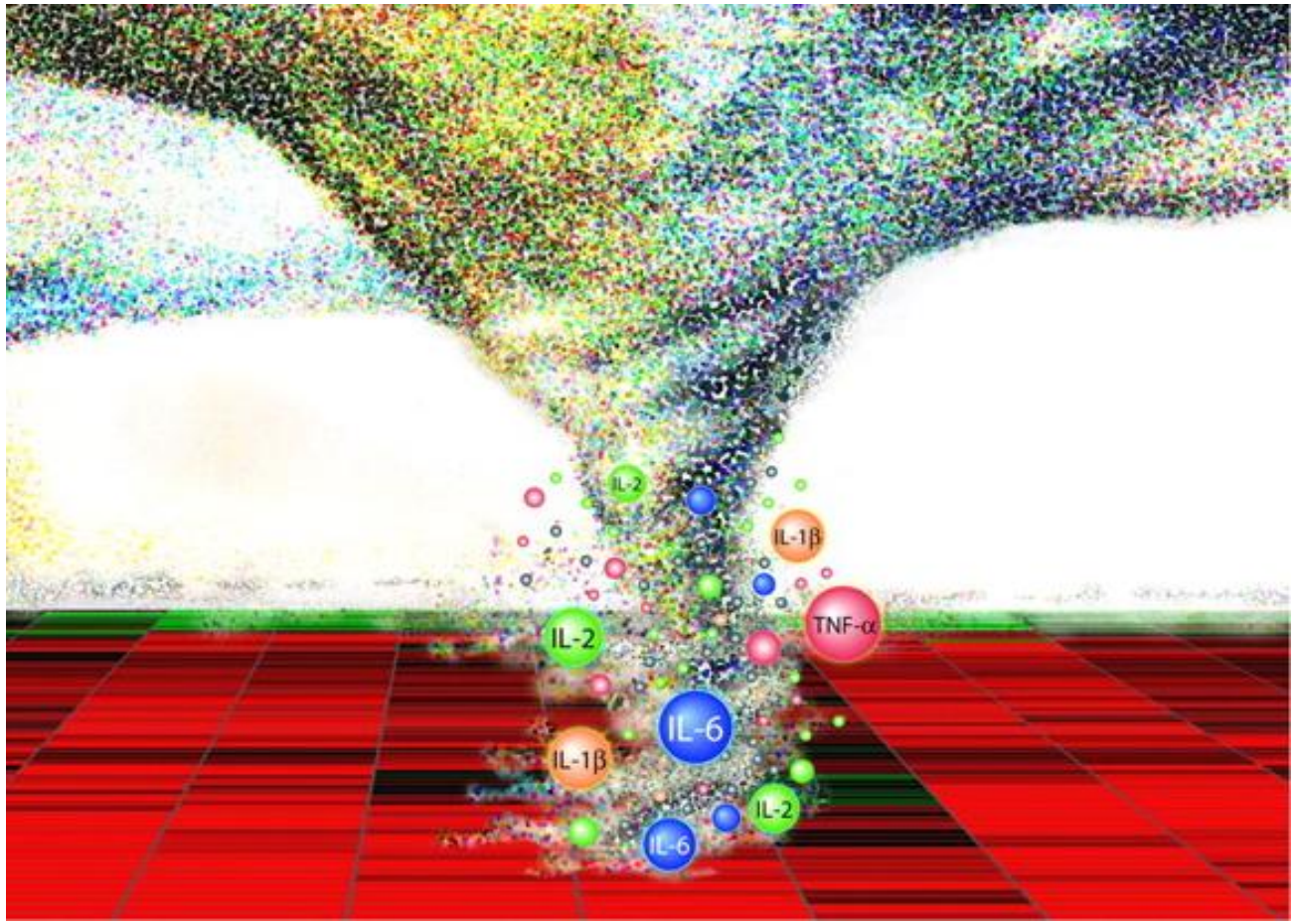
Cytokine	Classification	Main Sources	Receptor	Target Cell	Major Function
IL-18	Pro-inflammatory	Macrophages, dendritic cells, and epithelial cells	CD218a (IL-18Ra)	Monocytes and T cells	Recruits monocytes and T lymphocytes. Synergist with IL-12 in the induction of IFN- γ production and inhibition of angiogenesis.
IL-22	Anti-inflammatory	Activated T-cells and NK cells	IL-22R	Stromal and epithelial cells	Stimulation of cell survival, proliferation
IL-37 (1L-1F7)	Anti-inflammatory	B-cells, NK cells, and monocytes	CD218a (IL-18Ra) and potentially SIGGR		Believed to act as a negative regulator inside the cell where it interacts with SMAD3 that is activated downstream of TGFβ activity.
IL-38 (IL-1F10)	Anti-inflammatory	B cells and macrophages	IL-1R1		Unknown
IFN-α	Pro-inflammatory	Macrophages, neutrophils, and some somatic cells	CD118 (IFNAR1, IFNAR2)	Various	Anti-viral
IFN-β	Pro-inflammatory	Fibroblasts	CD118 (IFNAR1, IFNAR2)	Various	Anti-viral, anti-proliferative
IFN-γ	Pro-inflammatory	T Cells and NK cells	CDw119 (IFNG R1)	Various	Anti-viral, macrophage activation, increases neutrophil and monocyte function, MHC-I and -II expression on cells
M-CSF	Adaptive immunity	Fibroblasts, endothelium	CD115	Stem cells	Monocyte production and activation
TGF-β	Anti-inflammatory	T cells and B cells	TGF-βR1, 2, 3	Activated T and B cells	Inhibits T and B cell proliferation, inhibits hematopoiesis, promote wound healing
TNF-α	Pro-inflammatory	Macrophages	CD120a,b	Macrophages	Phagocyte cell activation, endotoxic shock
TNF-β	Pro-inflammatory	T Cells	CD120a,b	Phagocytes, tumor cells	Chemotactic, phagocytosis, oncostatic, induces other cytokines

Abbreviations: IL; interleukin, TNF; tumor necrosis factor, IFN; interferon, G-CSF; granulocyte colony stimulating factor, GM-CSF; granulocyte macrophage colony stimulating factor, M-CSF; macrophage colony stimulating factor, TGF; transforming growth factor, CD; cluster of differentiation; CDw; cluster of differentiation designated by only one monoclonal antibody, BM; bone marrow, DC; dendritic cells

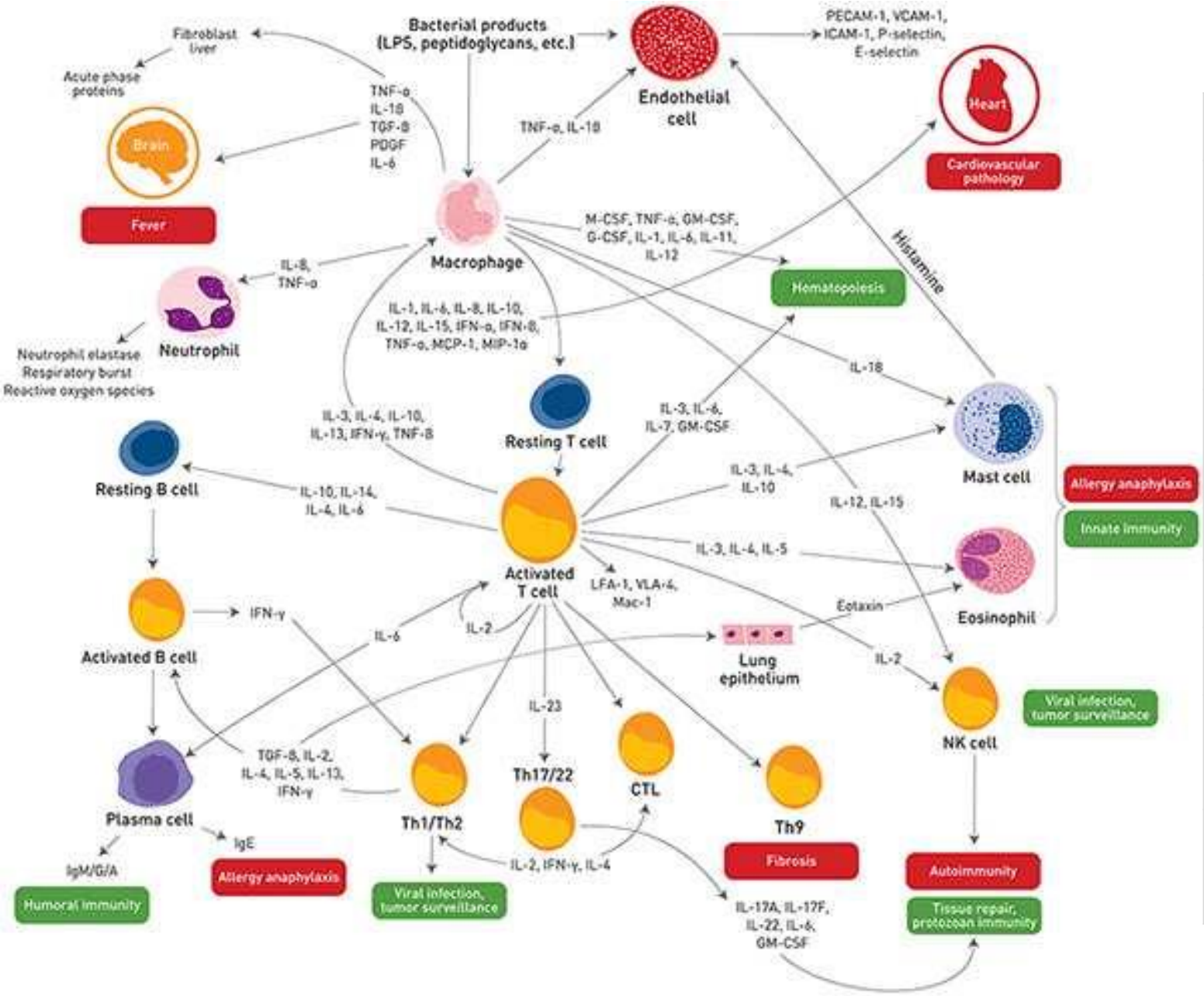
Is Inflammation Bad?


Traumatic Brain Injury
Fungal Infection
Bacterial Infection
Ischemic Stroke
Acute Inflammation
Parasitic Infection
Viral Infection
Chemical Irritant
Neuromuscular Disorder
Prion Disease
Mental Disorder
Multiple Sclerosis
Chronic Inflammation
Brain Cancer
Immune-mediated Disorder
Motor Neuron Disease
Neuro-degenerative Disease

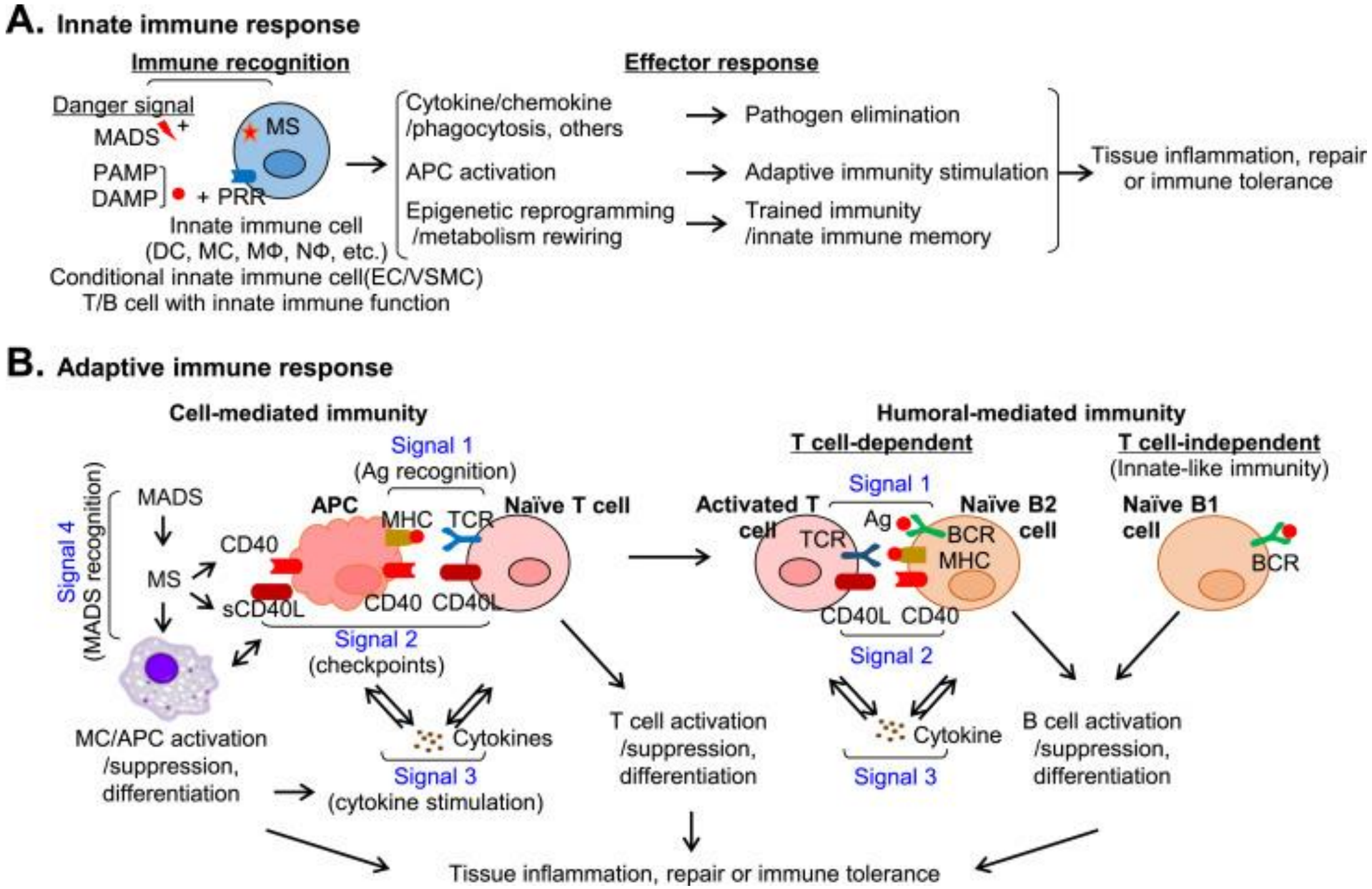
What is a Cytokine Storm?



- Excessive or uncontrolled release of proinflammatory cytokines
  - Associated with a wide variety of infectious and noninfectious diseases – from SARS, COVID, eczema, EOE, graft VS host….
- Big players IL-6, TNF-a and IL1B
- Worse with micronutrient deficiencies, lead to aging and low grade endotoxemia
  - A, C, E, D, Zn, Fe, Se, B2, B6, B12 and folic acid
- Take-home = decrease excessive inflammation
  - OTCs like Elderberry will NOT induce



PAMP examples	DAMP examples
Microbial nucleic acids	Mitochondrial DNA (mtDNA)
Unmethylated CpG motifs	Uric acid
Double stranded RNA	S100 proteins
Single stranded RNA	Heat shock proteins
Peptidoglycans	Fibronectin
Lipoteichoic acid	β amyloid (Aβ)
Lipopolysaccharide (LPS)	Advanced glycation end products (AGEs)
Glycosylphosphatidyl inositol	Histones


A. Innate immune response
Immune recognition
Effector response
Danger signal
MADS
PAMP
DAMP
+ PRR
MS
Innate immune cell
(DC, MC, MΦ, NΦ, etc.)
Conditional innate immune cell(EC/VSMC)
T/B cell with innate immune function
Cytokine/chemokine
/phagocytosis, others
APC activation
Epigenetic reprogramming
/metabolism rewiring
Pathogen elimination
Adaptive immunity stimulation
Trained immunity
/innate immune memory
Tissue inflammation, repair
or immune tolerance
B. Adaptive immune response
Cell-mediated immunity
Humoral-mediated immunity
T cell-dependent
T cell-independent
(Innate-like immunity)
Signal 1
(Ag recognition)
Signal 4
(MADS recognition)
MADS
MS
APC
MHC
TCR
Naïve T cell
CD40
sCD40L
CD40 CD40L
Signal 2
(checkpoints)
Cytokines
Signal 3
(cytokine stimulation)
MC/APC activation
/suppression,
differentiation
T cell activation
/suppression,
differentiation
Activated T
cell
TCR
Ag
Signal 1
Naïve B2
cell
BCR
MHC
CD40L CD40
Signal 2
Cytokine
Signal 3
Naïve B1
cell
BCR
B cell activation
/suppression,
differentiation
Tissue inflammation, repair or immune tolerance

Danger signal
(DAMP/PAMP/MADS)

Immune response

Innate immune cell, conditional Innate immune cell
T/B cell with innate immune function

(Innate immunity)

- Pathogen elimination
- Trained immunity

APC activation

APC Activation:

Naïve CD8⁺ T cell — **APC** — Naïve CD4⁺ T cell

Immune checkpoint (signal 2):

TCR — Ag — MHCII — Signal 2 — Signal 2

(Adaptive immunity)

Activated T cell /Tfh — Naïve B cell

Signal 2

Metabolic Reprogramming and Redox Regulation

(1) Energy production & biosynthesis reprogramming: ↑Glycolysis, ↓OXPHOS, ↑Biosynthesis
(2) Epigenetic reprogramming: ↑Acetylation, ↓Methylation
(3) ROS production: ↑Glycolysis, ↓OXPHOS →↑cytosol/mitochondrial ROS
↑ NOX/OX → ↑Intracellular/extracellular ROS or ROS-derived products

Immune cell subsets:

CTL

Infl. MC/MΦ subsets (6)
CD14⁺⁺CD16⁺
CD14⁺CD40⁺
CD1b+Ly6C+(m)
M1, M4, Mox

T cell subsets (7)
Th1 Th9 Th17 Th22 Th2 Treg Tfh

Plasma B cell — Memory B cell — Re-infection

Effector molecules:

Perforin
Granzyme

IL-1β/6/12/23
TNFα, MCP1
↑ROS

TNF
IFN-γ

IL9/10
/21

IL17/21
/22

IL22

IL4/5/6
/10/13

IL10/35
TGF-β

IL4/10/21
IFN-γ
STAT3

Help B cell activation

IgG/IgA/IgE

Lyse infected/tumor cell

Pro-inflammatory

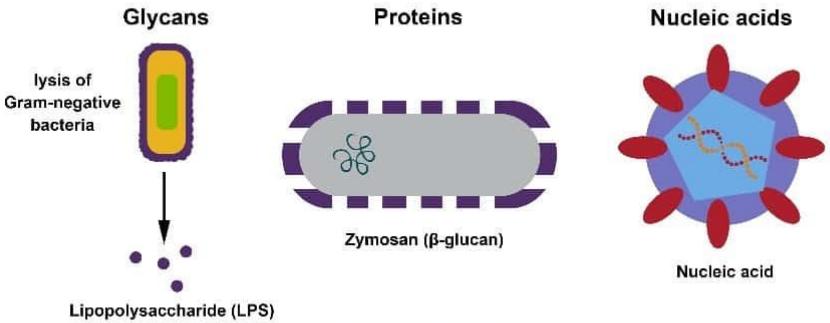
Allergy

Anti-inflammatory

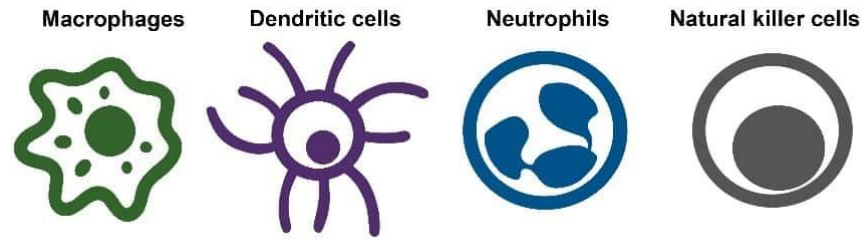
Eliminate antigen

Tissue inflammation, immune resolution, tissue repair or immune tolerance

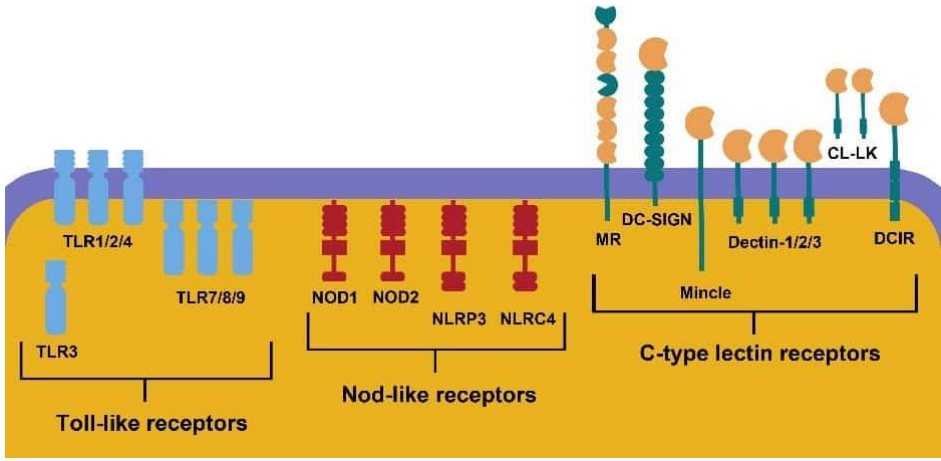
Pathogen- or damage-associated molecular patterns (PAMPs and DAMPs)



Innate immune cells

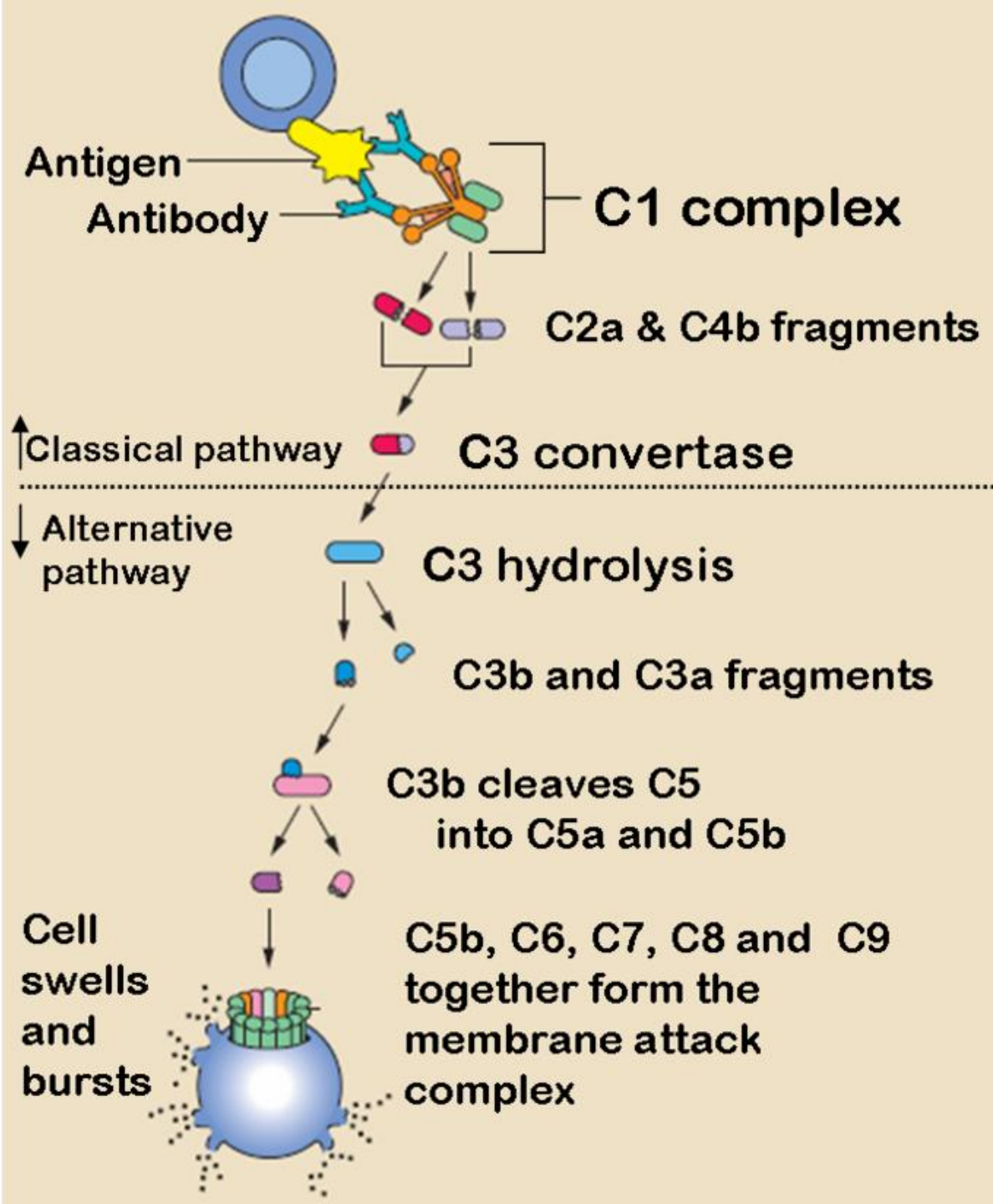


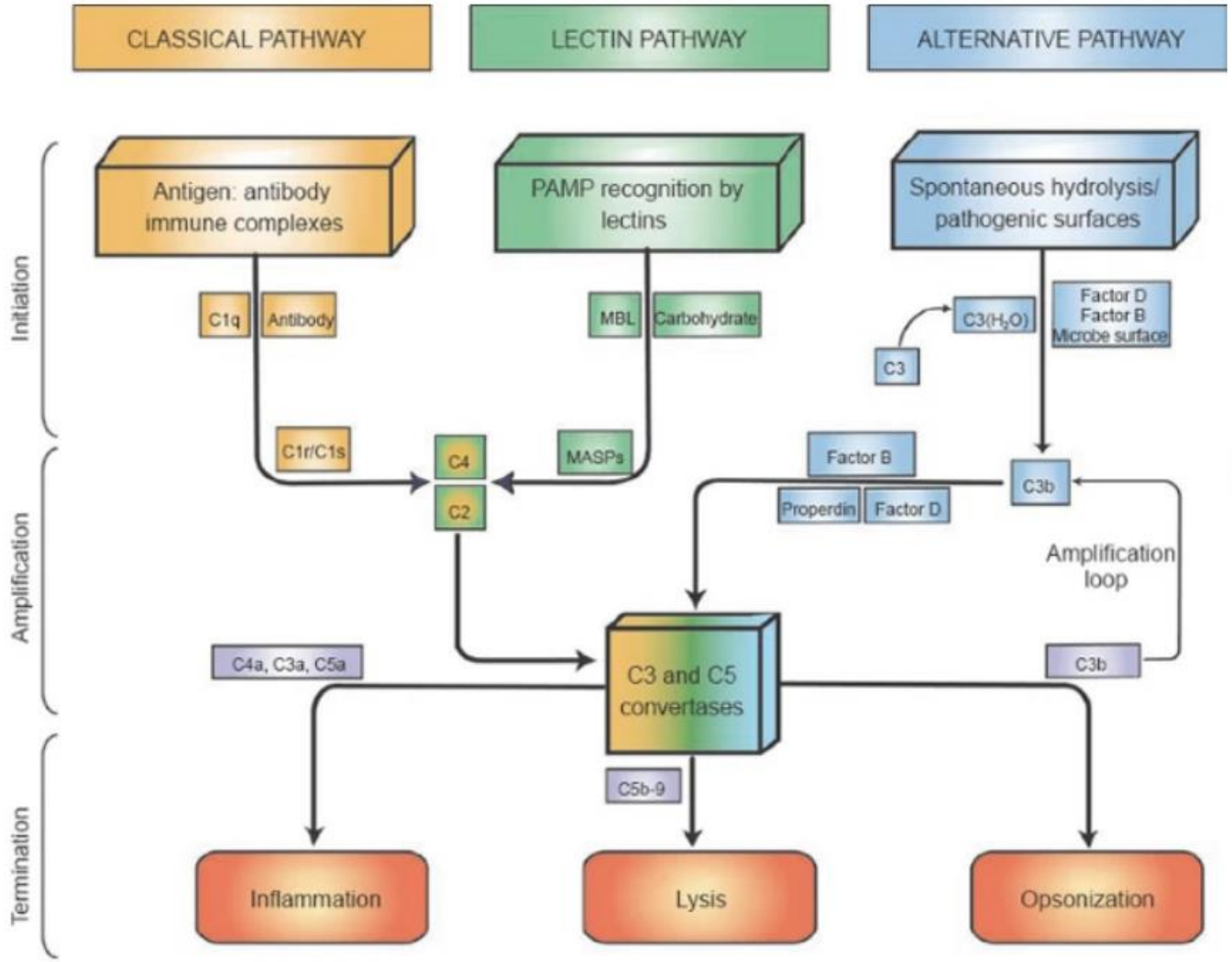
Immune cell pattern recognition receptors

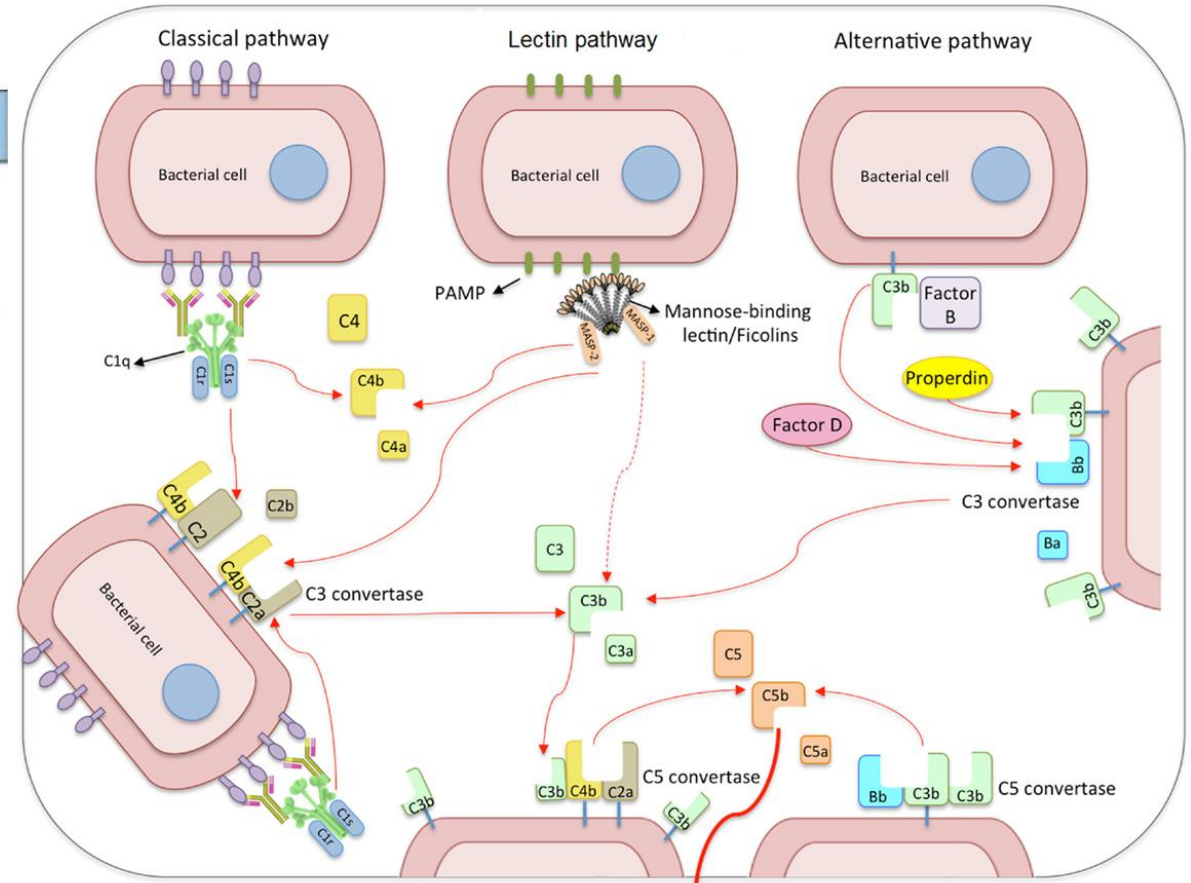


Complement Pathway

- Plays in both innate and adaptive immune responses
- Helps antibodies and phagocytes clear pathogen
- Proteins produced by the acute phase reaction in the liver during inflammation
- Regulated by complement control proteins, such as decay accelerating pathway, which prevent complement proteins from forming MAC on the body's cells.
- Three Complement Pathways:
  - Classical: antibody binding causes a cascade reaction of complement proteins that gradually form a membrane attack complex (MAC)
  - Alternative: pathogen antigens / toxins bind cleaving C3 until there is enough to continue the steps of the classical complement pathway from the C5 convertase step
  - Lectin: homologous to classical pathway, but with the opsonin, mannose-binding lectin (MBL), and ficolins, instead of C1 from the antibody; uses proteases on the MBL to form C3 convertase, which continues the steps of the classical complement pathway from the C3 convertase step
- Plays a role in diseases with an immune component (CNS)
  - Complement protein deficiency is a primary immunodeficiency




CLASSICAL PATHWAY
LECTIN PATHWAY
ALTERNATIVE PATHWAY
Initiation
Amplification
Termination
Antigen: antibody immune complexes
PAMP recognition by lectins
Spontaneous hydrolysis/ pathogenic surfaces
C1q
Antibody
MBL
Carbohydrate
C3
C3(H2O)
Factor D
Factor B
Microbe surface
C1r/C1s
C4
C2
MASPs
Factor B
Properdin
Factor D
C3b
Amplification loop
C4a, C3a, C5a
C3 and C5 convertases
C3b
C5b-9
Inflammation
Lysis
Opsonization


Classical pathway
Lectin pathway
Alternative pathway
Bacterial cell
C1q
C1r
C1s
C4
C4b
C4a
PAMP
MASP-2
MASP-1
Mannose-binding lectin/Ficolins
C3b
Factor B
Properdin
Factor D
Bb
C3 convertase
Ba
C4b
C2
C2b
C4b2a
C3
C3a
C5
C5b
C5a
C5 convertase
Bb
Terminal Pathway
C7
C6
C8
C5b
MAC
80 x 55Å
Poly-C9

Simple TH-1 VS TH-2 Cytokine Reactions

TH-1 Reactions (CD4+)

- Activate cellular immune response - to externalize infections
- Mediate cytotoxicity and local inflammatory
  - Promote Tc cells, produce IgG2a, and delayed hypersensitivity
  - Recruiting macrophages and other effector cells to destroy infected or cancerous cells
  - Characterized by the production of pro-inflammatory cytokines IFNγ, IL-2 & TNFα
- Perpetuating autoimmune responses
  - Can lead to uncontrolled tissue damage

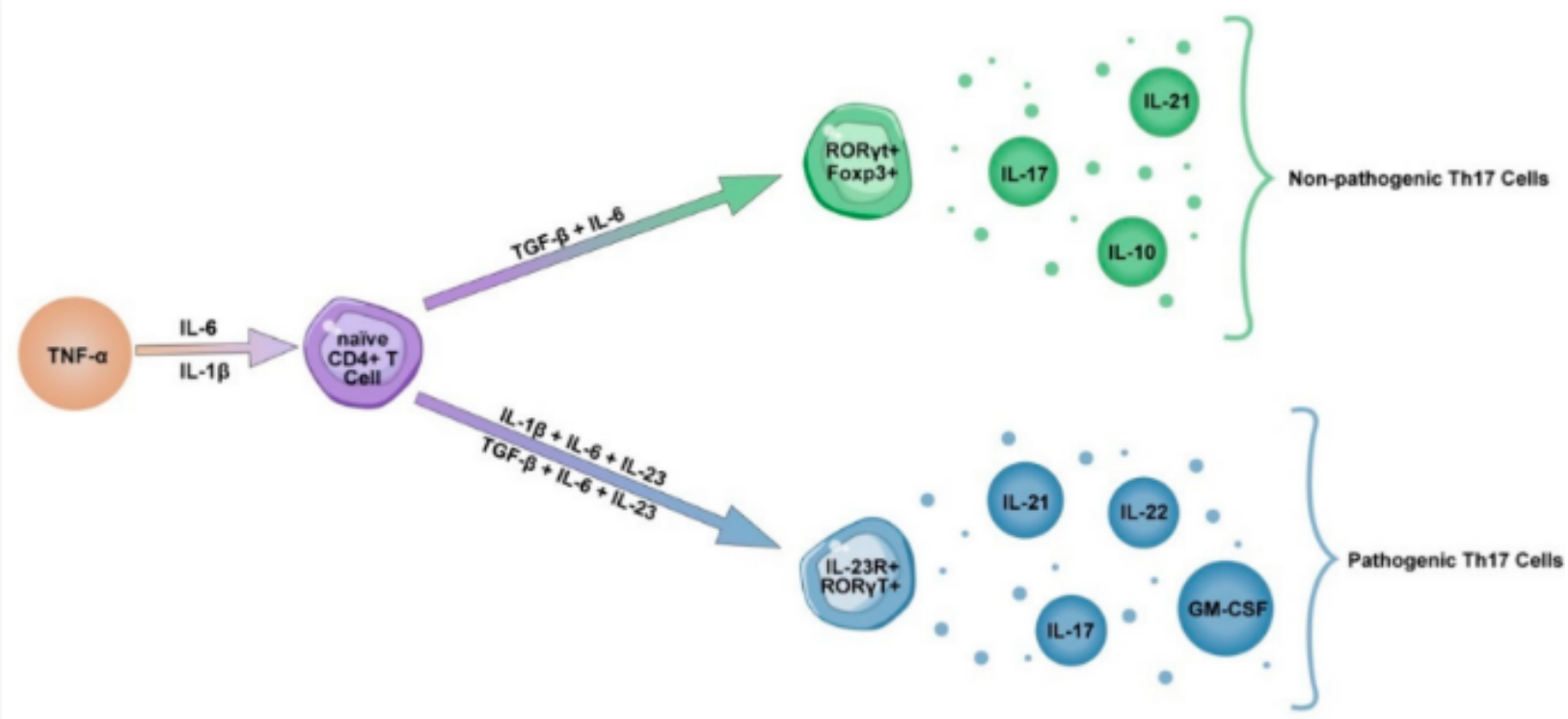
TH-2 Reactions

- Activate antibody-mediated immune response – specific / not as good for infected cell
- Recruiting B cells to produce antibodies that can neutralize or destroy pathogens
- Produce IL-13 to activate B cells and other immune cells
  - Th2-type adaptive immune cytokines IL-4, IL-5, IL-6 and IL-13 are associated with promotion of IgE and eosinophilic responses in atopy
- Anti-inflammatory cytokines IL-10, IL-21, IL-22, and TGFβ inhibit the activation of macrophages and other effector cells

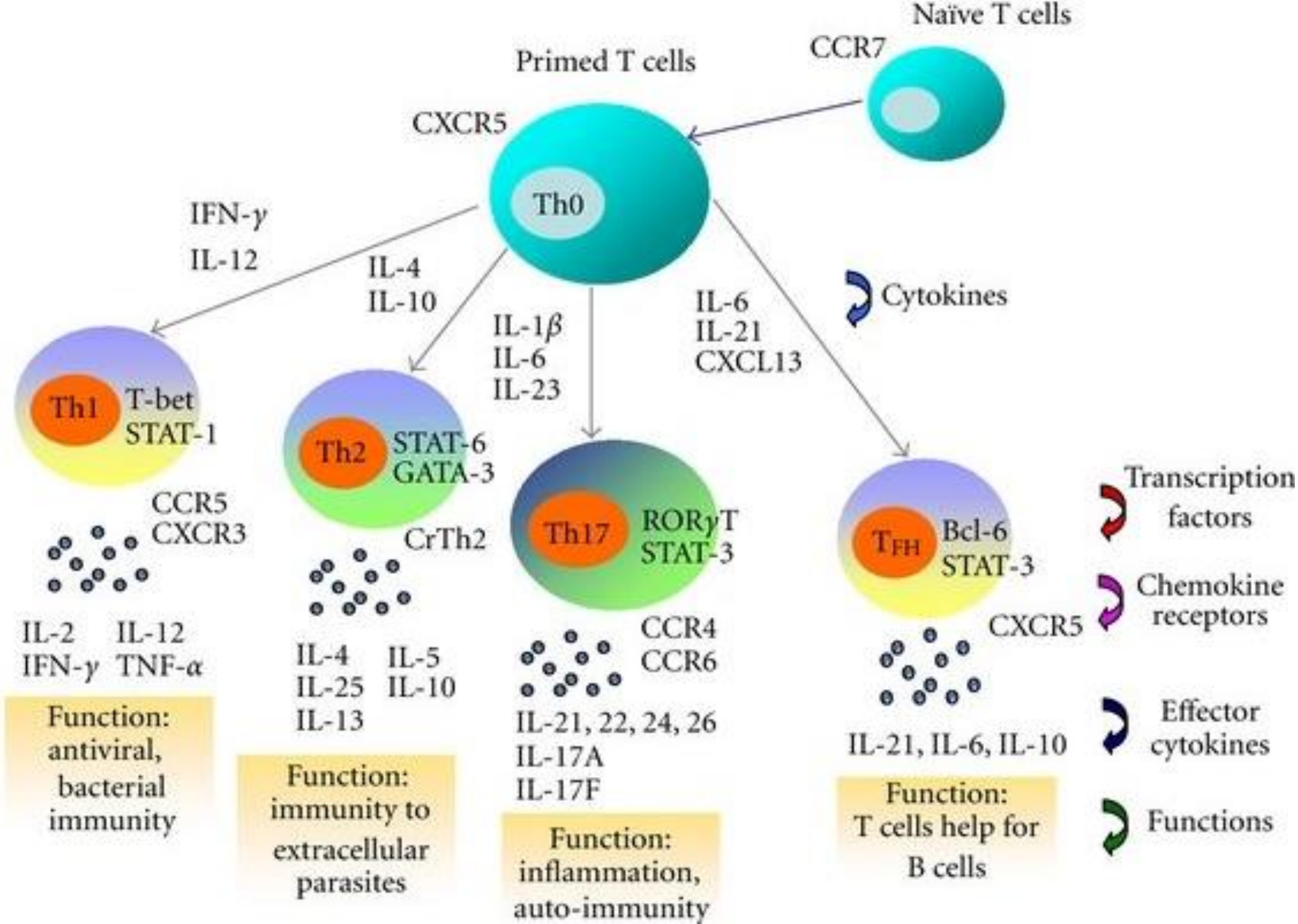
Optimal scenario = well balanced Th1 and Th2 response, suited to the immune challenge

TH-17 Pathway

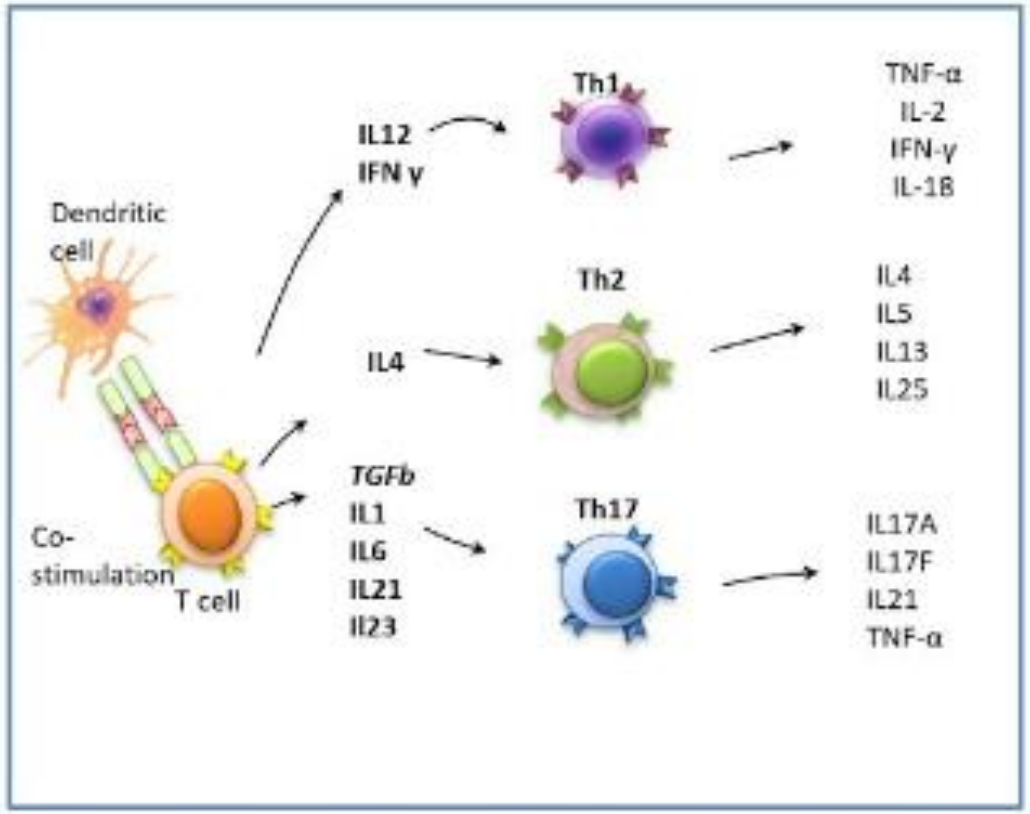
Figure 1. Development of pathogenic Th17 cells. Synergistic exposure to TGF-β and IL-6 induces transcription factors RORγt and Foxp3 to produce IL-17, IL-21 and an anti-inflammatory cytokine IL-10. Another way of inducing Th17 cells is synergistic exposure to IL-6 and IL-1β, which are produced under influence of TNFα. However, exposure to IL-23 induces receptor IL-23R to produce IL-17, IL-21, IL-22 and GM-CSF, therefore making Th17 cells pathogenic. Furthermore, it has been shown that IL-23 reduces the concentrations of IL-10, additionally contributing to Th17 pathogenicity.



TH1
TH2
&
TH17


Naïve T cells
CCR7
Primed T cells
CXCR5
Th0
IFN-γ
IL-12
IL-4
IL-10
IL-1β
IL-6
IL-23
IL-6
IL-21
CXCL13
Cytokines
Th1
T-bet
STAT-1
CCR5
CXCR3
IL-2
IFN-γ
IL-12
TNF-α
Function:
antiviral,
bacterial
immunity
Th2
STAT-6
GATA-3
CrTh2
IL-4
IL-25
IL-13
IL-5
IL-10
Function:
immunity to
extracellular
parasites
Th17
RORγT
STAT-3
CCR4
CCR6
IL-21, 22, 24, 26
IL-17A
IL-17F
Function:
inflammation,
auto-immunity
TFH
Bcl-6
STAT-3
CXCR5
IL-21, IL-6, IL-10
Function:
T cells help for
B cells
Transcription
factors
Chemokine
receptors
Effector
cytokines
Functions

Why You Should Care with Vaccines

Th effector phenotype:	Cytokines	Key target cell	Associated Response	Mechanism
		 Macrophages  Eosinophils  Neutrophils	**Th1:** Intracellular pathogens: Bacteria, Virus, mycobacteria Tissue Repair, Foreign bodies **Th2:** Parasites, Allergens Drug as Antigens **Th17:** Extracellular pathogens: Candida, Fungi, Bacteria	**Th1:** Phagocytosis Killing Granuloma Formation *Hypersensitivity Type IV* **Th2:** Atopic: IgE Antibody-Mediated: IgG or IgM Mast-cell Degranulation *Hypersensitivity Type I-III* **Th17:** Anti-microbial Peptides Inflammation Barrier Integrity *Hypersensitivity Type IV*


How can we see this?

Complete Blood Count &....

Test	Normals	Differential Diagnoses
WBC	3.8-10.8 10^3/ul	▲: infection, inflammation, necrosis, malignancy, hyperleukocytosis, leukostasis, thyrotoxicosis, eclampsia, vasculitis, medications (i.e. steroids), cigarette smoke, stress, idiopathic, multiple myeloma, hypersensitivity reactions ▼: infection, cytotoxic drugs, malignancy, medications, autoimmune diseases, malnutrition, HIV/AIDs, systemic disease, stress
Hgb **Hct**	Hgb: 13.2-17.1 g/dl Hct: 38.5 – 50%	▲: polycythemia ruba vera, myeloproliferative disorder, chronic hypoxia, dehydration, burns ▼: anemia
Platelets	140-400 10^3/uL	▲: polycythemia vera, leukemia, myelodysplastic syndrome, infection, inflammation, stress, splenectomy ▼: ITP, TTP, HUS, HITTS, DIC, HELLP, antiphospholipid syndrome, bone marrow failure, infection, chronic liver disease, malnutrition
MCV	80-100 fL	Used to classify types of anemia ▲: folate/B12 deficiency, EtOH abuse, chronic liver disease Normal: chronic disease, chronic renal failure, hemolysis, bone marrow failure, aplastic anemia, paroxysmal nocturnal hemoglobinemia, G6PD deficiency, immune hemolytic anemia, malaria, spherocytosis, sickle cell, hemoglobin C deficiency ▼: iron deficiency anemia, thalassemia, sideroblastic anemia, lead poisoning
MCH	27-33 pg	Used to classify types of anemia ▲: macrocytosis ▼: iron deficiency anemia, thalassemia
MCHC	32-36 g/dL	Used to classify types of anemia ▲: spherocytosis, hemolytic anemia ▼: iron deficiency anemia, thalassemia
MPV	7.5-11.5 fL	Use in conjunction with platelet count ▲: increased bone production, ITP, congenital thrombocytopenia, myelodysplastic syndrome ▼: bone marrow suppression, congenital thrombocytopenia

WBC Differential

40%-60%	**Neutrophil count**	1500-7800/uL	▲: infection (bacterial > viral), inflammation, malignancy, thyrotoxicosis, eclampsia, vasculitis, steroid use, cigarette smoke, stress, idiopathic ▼: infection (bacterial > viral), cytotoxic drugs, medications (beta-lactams, NSAIDs), malignancy, splenic dysfunction, autoimmune diseases, malnutrition
25%-40%	**Lymphocyte count**	850-3900/uL	▲: infection (viral > bacterial), leukemia/lymphoma, multiple myeloma, thyrotoxicosis, hypersensitivity reactions, DRESS, stress, idiopathic ▼: infection (viral > bacterial), HIV/AIDs, systemic disease, cytotoxic drugs, steroid use, stress
<7%	**Monocyte count**	200-950/uL	▲: infection (viral, parasitic, bacterial), TB, subacute bacterial endocarditis, leukemia, lymphoma, inflammatory conditions (IBD, sarcoidosis), steroid use, myelodysplasia, pregnancy. ▼: steroid use, leukemia, aplastic anemia
<3%	**Eosinophil count**	15-500/uL	▲: infection (parasite > fungal > viral), malignancy, vasculitis (Churg Strauss), hypereosinophilic syndrome, DRESS, acute interstitial nephritis, adrenal insufficiency, allergies ▼: sepsis, COPD exacerbation, ICH
<3%	**Basophil count**	0-200/uL	▲: infection (viral > bacterial), leukemia, myeloproliferative disorders, systemic macrocytosis, hemolysis, hypothyroidism, allergies, inflammatory conditions (IBD, sarcoidosis) ▼: infection, malignancy, severe injury

Measuring Complement

Blood test and can be done but if not routine unless…

- Recurrent microbial infections
- Unexplained inflammation or edema
- Autoimmune symptoms
- Monitor a known acute or chronic condition that affects the complement system

Th1 DOMINANT CONDITIONS		Th2 DOMINANT CONDITIONS	
COMMON CLINICAL PRESENTATIONS		COMMON CLINICAL PRESENTATIONS	
Rheumatoid arthritis	Coeliac disease	Allergies	Graves' disease
Multiple sclerosis	Polymyalgia rheumatica	Hayfever, rhinitis, sinusitis	Ulcerative colitis
Type 1 diabetes mellitus	Hashimoto's thyroiditis	Asthma	Scleroderma
Psoriasis	Vitiligo	Eczema	Systemic Lupus Erythematosus (SLE)
Crohn's disease	Sjogren's syndrome	Urticaria	CREST syndrome
Sarcoidosis	Ankylosing spondylitis		

TH1: Hashimoto's, Viral infections

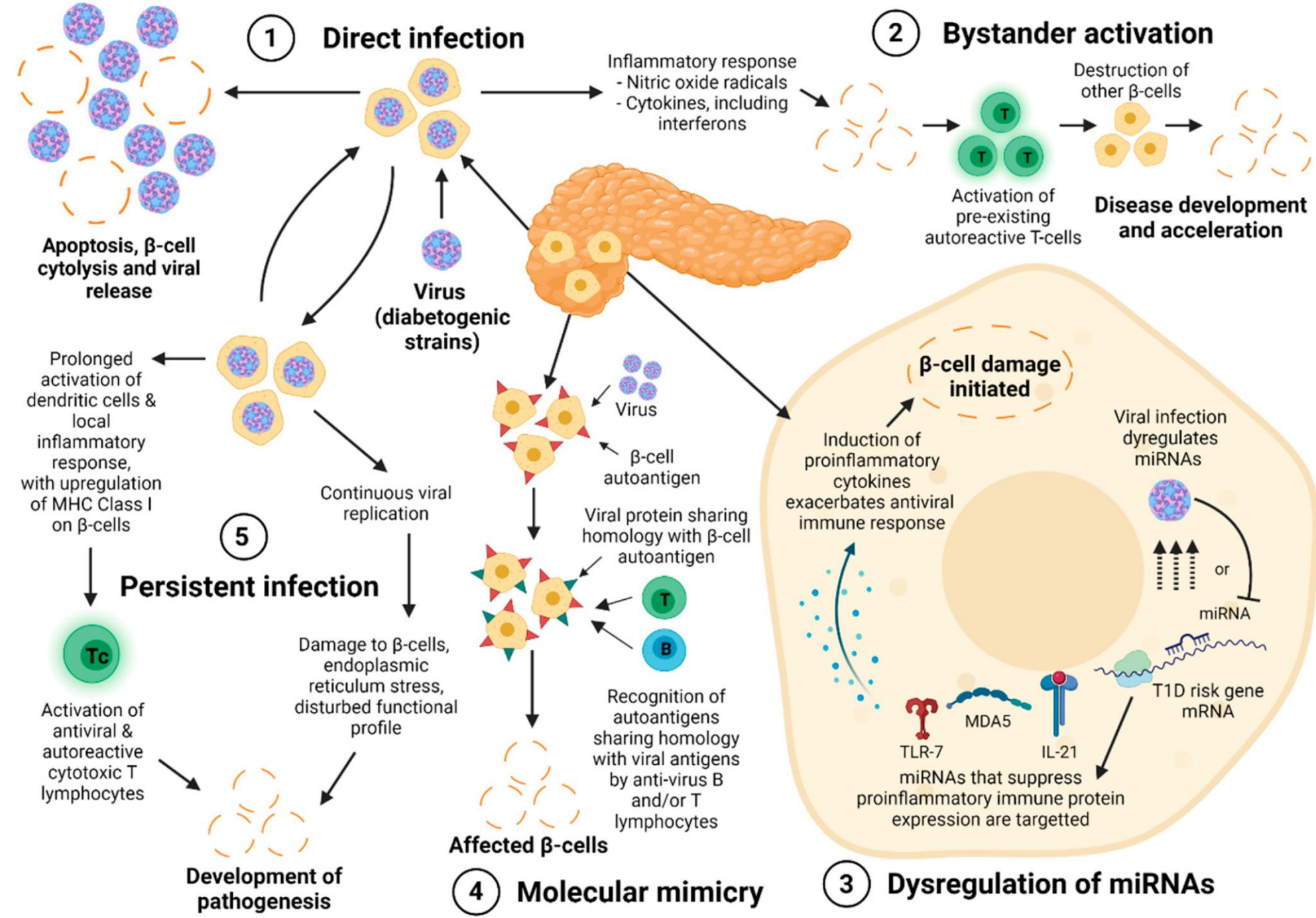
TH2: Chemical sensitivities

People with elevated TH_2>TH_1 suffer from more chronic / autoimmune diseases

TH1 & TH2: Restore Balance

- Support overall health
  - Adjust as needed
  - SLEEP / rest
  - Movement / exercise
  - Regulate unstable blood sugar
  - Eliminate gut infections
  - Support poor adrenal
  - Removing garbage and allergen from the diet
    - M/C in kids - gluten, diary, eggs, soy, nuts (ground or tree) and corn

Molecular Mimicry


1
Direct infection
Apoptosis, β-cell cytolysis and viral release
Virus (diabetogenic strains)
Inflammatory response
- Nitric oxide radicals
- Cytokines, including interferons
2
Bystander activation
Destruction of other β-cells
Activation of pre-existing autoreactive T-cells
Disease development and acceleration
Prolonged activation of dendritic cells & local inflammatory response, with upregulation of MHC Class I on β-cells
Continuous viral replication
5
Persistent infection
Tc
Activation of antiviral & autoreactive cytotoxic T lymphocytes
Damage to β-cells, endoplasmic reticulum stress, disturbed functional profile
Development of pathogenesis
Virus
β-cell autoantigen
Viral protein sharing homology with β-cell autoantigen
T
B
Recognition of autoantigens sharing homology with viral antigens by anti-virus B and/or T lymphocytes
Affected β-cells
4
Molecular mimicry
β-cell damage initiated
Induction of proinflammatory cytokines exacerbates antiviral immune response
Viral infection dyregulates miRNAs
or
miRNA
T1D risk gene mRNA
MDA5
TLR-7
IL-21
miRNAs that suppress proinflammatory immune protein expression are targetted
3
Dysregulation of miRNAs

Supplements to Restore Balance

T reg modulators – please measure levels

- Vitamin D (cholecalciferol)
- Vitamin A and E
- Colostrum – breast feed is best
- Probiotics – more is not always better
- Glutathione
- Alpha Lipoic Acid

Supplements that dampen IL-1 inducing inflammation

- Boswellia
- Pancreatic enzymes
- Turmeric / Curcumin

- Supplements dampening TNFα and NF-kB
  - Resveratrol

Supplement Dosing for Kids

Healthy Child, Whole Child: Integrating the Best of Conventional and Alternative Medicine to Keep Your Kids Healthy:

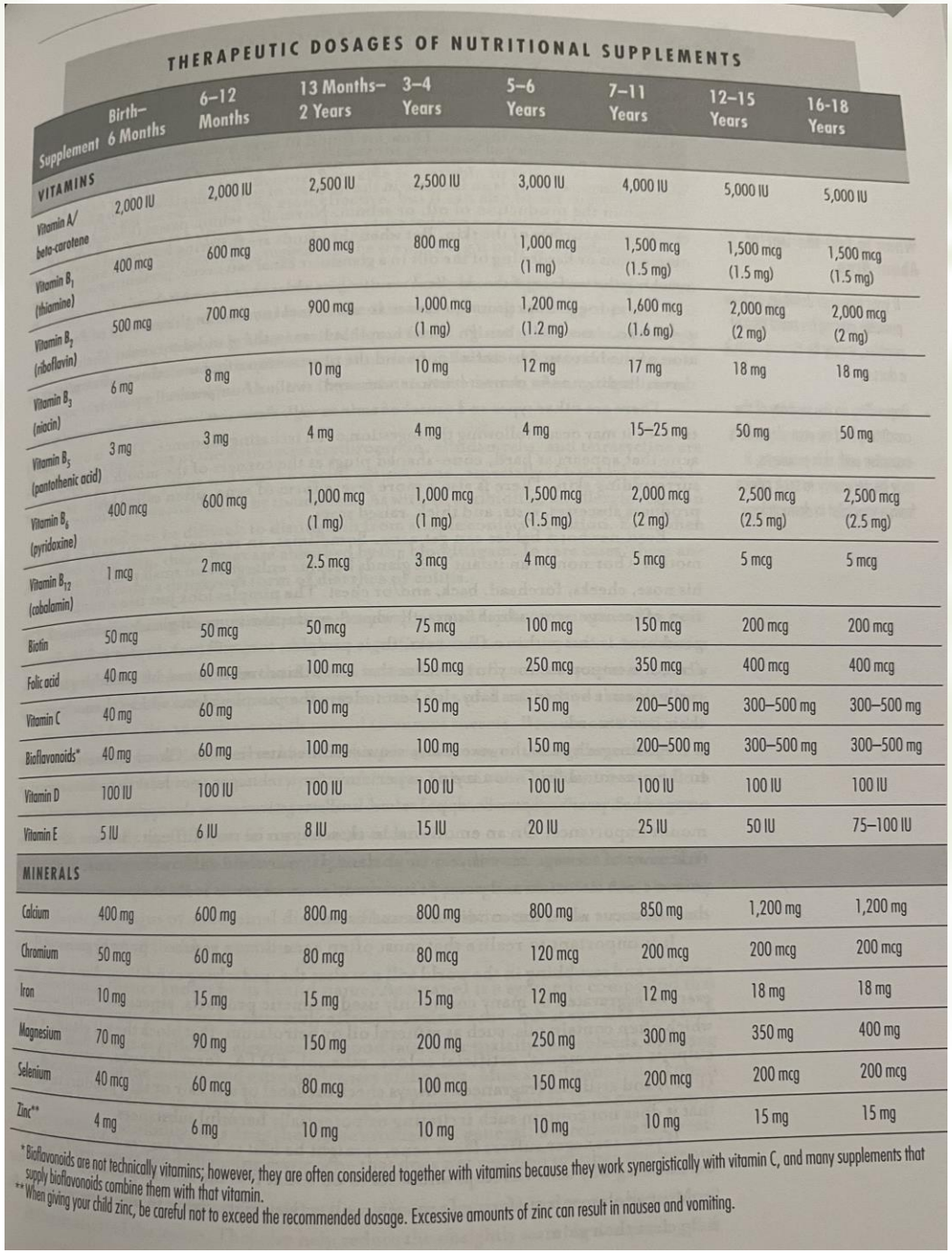
- Age 0-1: 1/8 adult dose
- Age 1-2: 1/4 adult dose
- Age 2-6: 1/3 adult dose
- Age 6-12: 1/2 adult dose
- Multivitamins with antioxidants and EPA/DHA
  - 4-12: no more than 50% of the adult RDA (especially fat-soluble ones A, D, E, and K
  - After12: adult dosage

- Homeopathy: www.abchomeopathy.com
- Be aware that high alcohol levels in tinctures

Smart Medicine for a Healthier Child

Herbs

- 0-2 yoa: one dose = 3 drops tincture dilutes in ¼ cup H2O, breastmilk, formula or 2-3 tsp of herbal tea
  - Breastfeeding can take adult dose to transfer into milk)
- 2-6 yoa: one dose = 6-10 drops tincture in ¼ cup water or tea
- 6-12 yoa: one dose= 10-20 drops tincture in ½ cup tea
- 12-adult: one dose = 20-40 drops tincture in 1 cup tea



THERAPEUTIC DOSAGES OF NUTRITIONAL SUPPLEMENTS

Supplement	Birth–6 Months	6–12 Months	13 Months–2 Years	3–4 Years	5–6 Years	7–11 Years	12–15 Years	16–18 Years
VITAMINS								
Vitamin A/beta-carotene	2,000 IU	2,000 IU	2,500 IU	2,500 IU	3,000 IU	4,000 IU	5,000 IU	5,000 IU
Vitamin B_1 (thiamine)	400 mcg	600 mcg	800 mcg	800 mcg	1,000 mcg (1 mg)	1,500 mcg (1.5 mg)	1,500 mcg (1.5 mg)	1,500 mcg (1.5 mg)
Vitamin B_2 (riboflavin)	500 mcg	700 mcg	900 mcg	1,000 mcg (1 mg)	1,200 mcg (1.2 mg)	1,600 mcg (1.6 mg)	2,000 mcg (2 mg)	2,000 mcg (2 mg)
Vitamin B_3 (niacin)	6 mg	8 mg	10 mg	10 mg	12 mg	17 mg	18 mg	18 mg
Vitamin B_5 (pantothenic acid)	3 mg	3 mg	4 mg	4 mg	4 mg	15–25 mg	50 mg	50 mg
Vitamin B_6 (pyridoxine)	400 mcg	600 mcg	1,000 mcg (1 mg)	1,000 mcg (1 mg)	1,500 mcg (1.5 mg)	2,000 mcg (2 mg)	2,500 mcg (2.5 mg)	2,500 mcg (2.5 mg)
Vitamin B_{12} (cobalamin)	1 mcg	2 mcg	2.5 mcg	3 mcg	4 mcg	5 mcg	5 mcg	5 mcg
Biotin	50 mcg	50 mcg	50 mcg	75 mcg	100 mcg	150 mcg	200 mcg	200 mcg
Folic acid	40 mcg	60 mcg	100 mcg	150 mcg	250 mcg	350 mcg	400 mcg	400 mcg
Vitamin C	40 mg	60 mg	100 mg	150 mg	150 mg	200–500 mg	300–500 mg	300–500 mg
Bioflavonoids*	40 mg	60 mg	100 mg	100 mg	150 mg	200–500 mg	300–500 mg	300–500 mg
Vitamin D	100 IU	100 IU	100 IU	100 IU	100 IU	100 IU	100 IU	100 IU
Vitamin E	5 IU	6 IU	8 IU	15 IU	20 IU	25 IU	50 IU	75–100 IU
MINERALS								
Calcium	400 mg	600 mg	800 mg	800 mg	800 mg	850 mg	1,200 mg	1,200 mg
Chromium	50 mcg	60 mcg	80 mcg	80 mcg	120 mcg	200 mcg	200 mcg	200 mcg
Iron	10 mg	15 mg	15 mg	15 mg	12 mg	12 mg	18 mg	18 mg
Magnesium	70 mg	90 mg	150 mg	200 mg	250 mg	300 mg	350 mg	400 mg
Selenium	40 mcg	60 mcg	80 mcg	100 mcg	150 mcg	200 mcg	200 mcg	200 mcg
Zinc**	4 mg	6 mg	10 mg	10 mg	10 mg	10 mg	15 mg	15 mg

* Bioflavonoids are not technically vitamins; however, they are often considered together with vitamins because they work synergistically with vitamin C, and many supplements that supply bioflavonoids combine them with that vitamin.

** When giving your child zinc, be careful not to exceed the recommended dosage. Excessive amounts of zinc can result in nausea and vomiting.

True Supplement Dosing

Young's rule is formulated using the **age** of the child		
Children's dose =	$\frac{\text{child's age in years}}{\text{child's age in years} + 12}$	**x** adult dose
e.g. if the child is 10 years old and the adult dose is 5g: 10/22 x 5 = 2.27. The child's dose is 2.27g.		

Clark's rule is formulated using the **weight** of the child		
Children's dose =	$\frac{\text{child's weight in kilograms}}{70}$	**x** adult dose
Please note that this method is only suitable if the child's weight is average for their age. *Recommended adult doses are based on 70kg adults. e.g. if the child weighs 35kg and the adult dose is 5g: 35/70 x 5 = 2.5; the dosage is half of the recommended adult dose, 2.5g.		

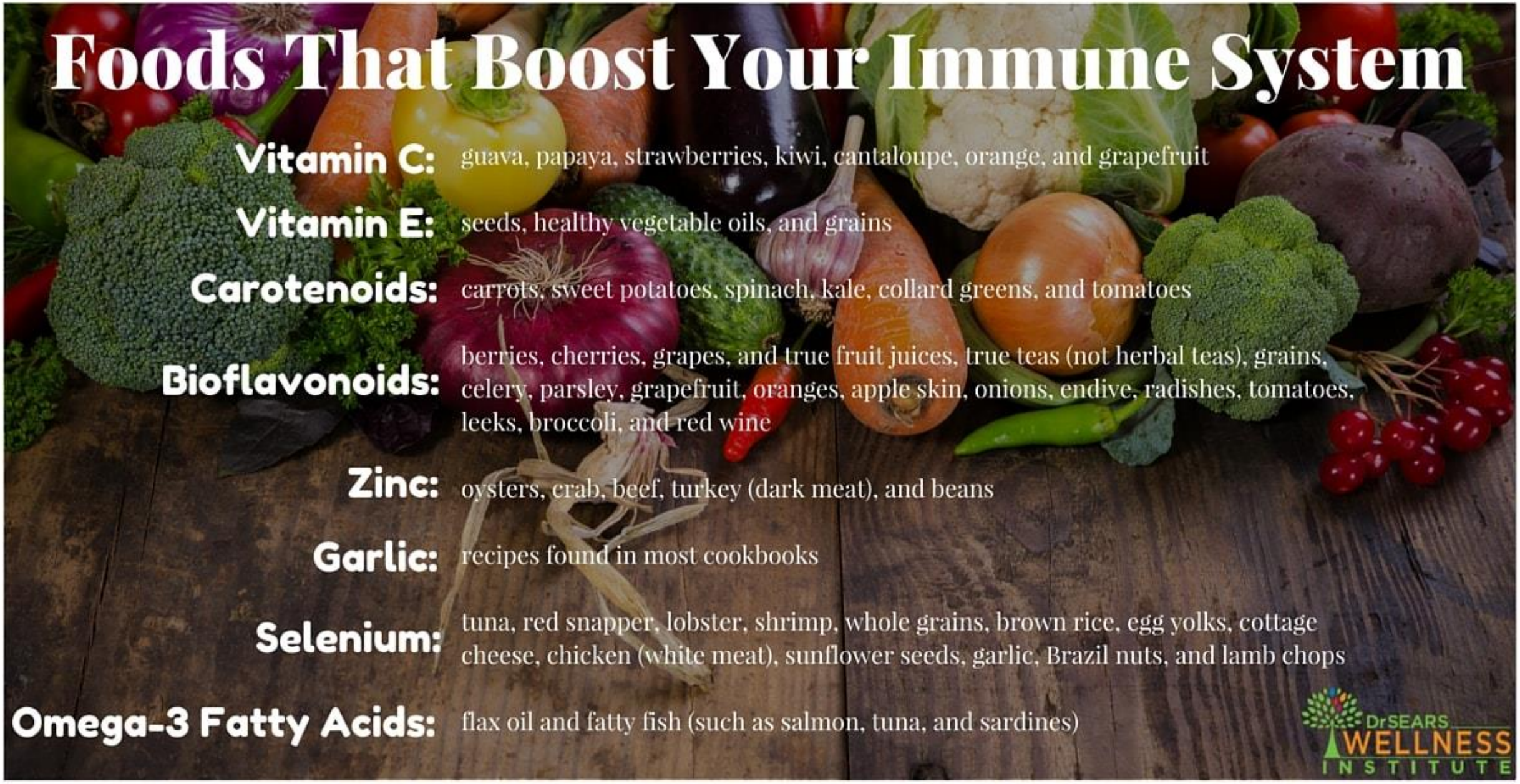
Vax Support: 3 days pre and 5 days post for kids 6 months+ old

Fat-soluble vitamins (A & D) pass to baby in breastmilk – therefore if mom's levels are OK – no need to supplement

- Vitamin A
  - Infants = 1,500 IUs
  - Toddlers and preschoolers = 2,500 IUs
- Vitamin C (buffered)
  - Infants = 150mg
  - Toddlers and preschoolers = 250mg
- Vitamin D
  - 1,000 IUs / 25#
- Probiotics – powdered and variety
- Fish oil
  - 0 months-1 year (0-15 lbs): 500 mg EPA+DHA QD
  - 1-3 years (~15-40 lbs): 800 mg EPA+DHA QD
  - 4-12 years: up to 2000 mg EPA+DHA QD


Eat a Rainbow Every Day!

Diet & Immune System



Usual Suspects for Illness

Bed rest, fluids, and fever control

- Hydration: water, herbal tea, broth / soup, diluted juice, fruit juice pops, “jello” made with juice and gelatin
  - AI tea: lemon balm, chamomile, peppermint, elderberry and licorice
  - NOTE: no mint around homeopathics
- Fevers: sock treatment or tepid baths
  - No aspirin or willow bark tea d/t risk of Reye’s Syndrome; NO alcohol or cold water rub downs
  - 4 Gate Acupressure

Vitamins A, C, D, Probiotics, fish oil

- Keep them on them if not vomiting / diarrhea – and can bolus for 2-5 days
- I also like SCFA

Mucigenic Foods – Lung Institute

Foods to Eat

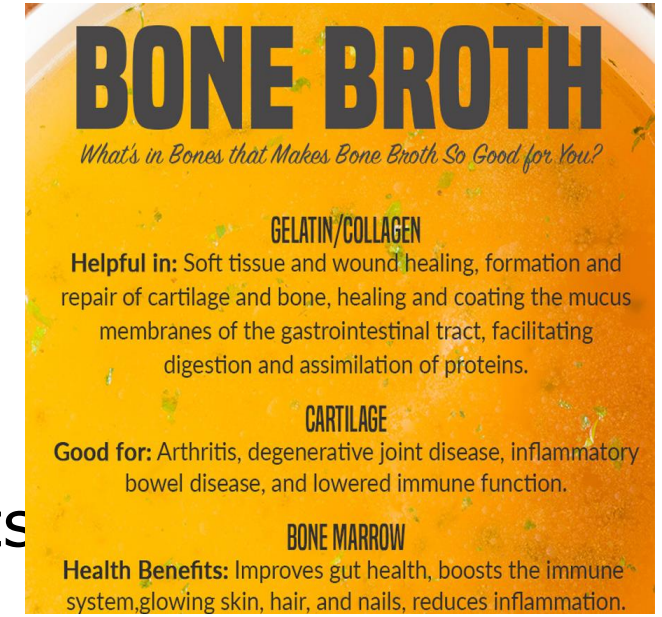
- Warm liquids
- Natural mucolytics / antimicrobial: garlic, celery, pickles, onions, lemons, ginger watercress, parsley
- High Omega-3 FA: mackerel, salmon, herring, tuna, trout, walnuts, flaxseeds, pumpkin seeds
- High Vitamin C / antioxidant: berries, citrus, cantaloupe, kiwi, tomatoes, leafy greens, bell peppers, broccoli and squash

Foods to Avoid

- Cold liquids
- Dairy
- Foods high in histamine (maybe): processed meat, dried fruits, avocados, tomatoes, spinach, mushrooms, eggplant, dairy, smoked fish, sardines, anchovies, and alcohol
- Common allergens (maybe): eggs, fish / shellfish, milk, tree nuts, corn, peanuts, wheat and soy

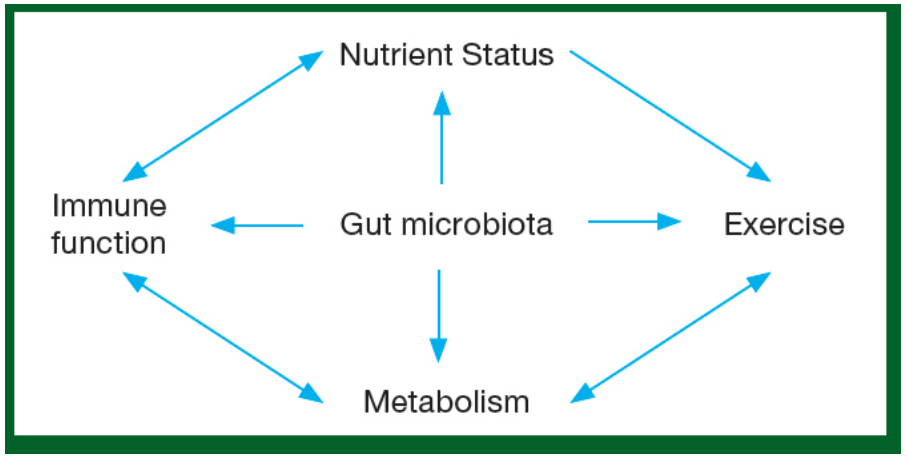
Chicken Soup Bone Broth

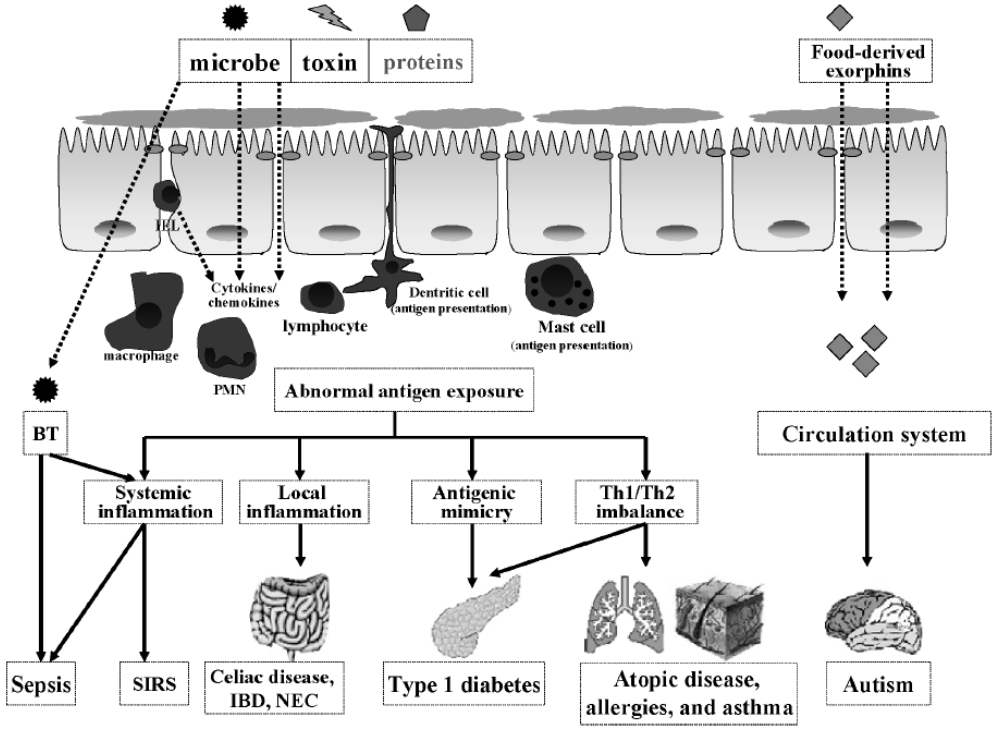
- 1. Is a hot liquid
- 2. Bowl of easily digestible nutrients
  - Zn, A, Cystine
- 3. Can put herbs in it / medicinal soup
  - Angelica
  - Garlic and Onion
  - Astragalus
  - Codonopsis
  - Goji berries / Red dates
- 4. Supports health GI microbiome
- 5. Its good for the soul



Healthy Gut = Healthy Immune System

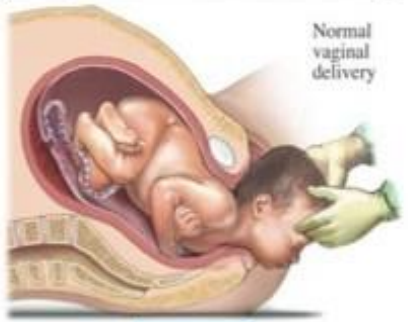
- Support T-reg cells to cool inflammation as needed
- Probiotic foods (fermented foods), lots of fiber from fruits and veggies with whole unprocessed grains, low sugar; adequate protein and more Omega-3 / monounsaturated fats





Gut Microbiome & Birth

Vaginal Delivery



Introduced to Vaginal Microbes: Lactobacillus

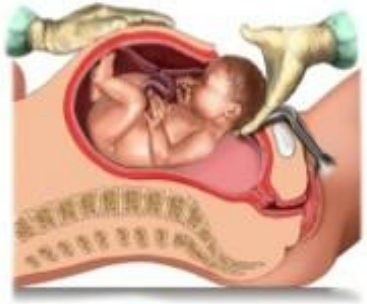
Normal Introduction of Gut Microbes

Normal Development of the Immune System
- Production of specific cytokines for proper immune system development

Richardson; 2013

VS.

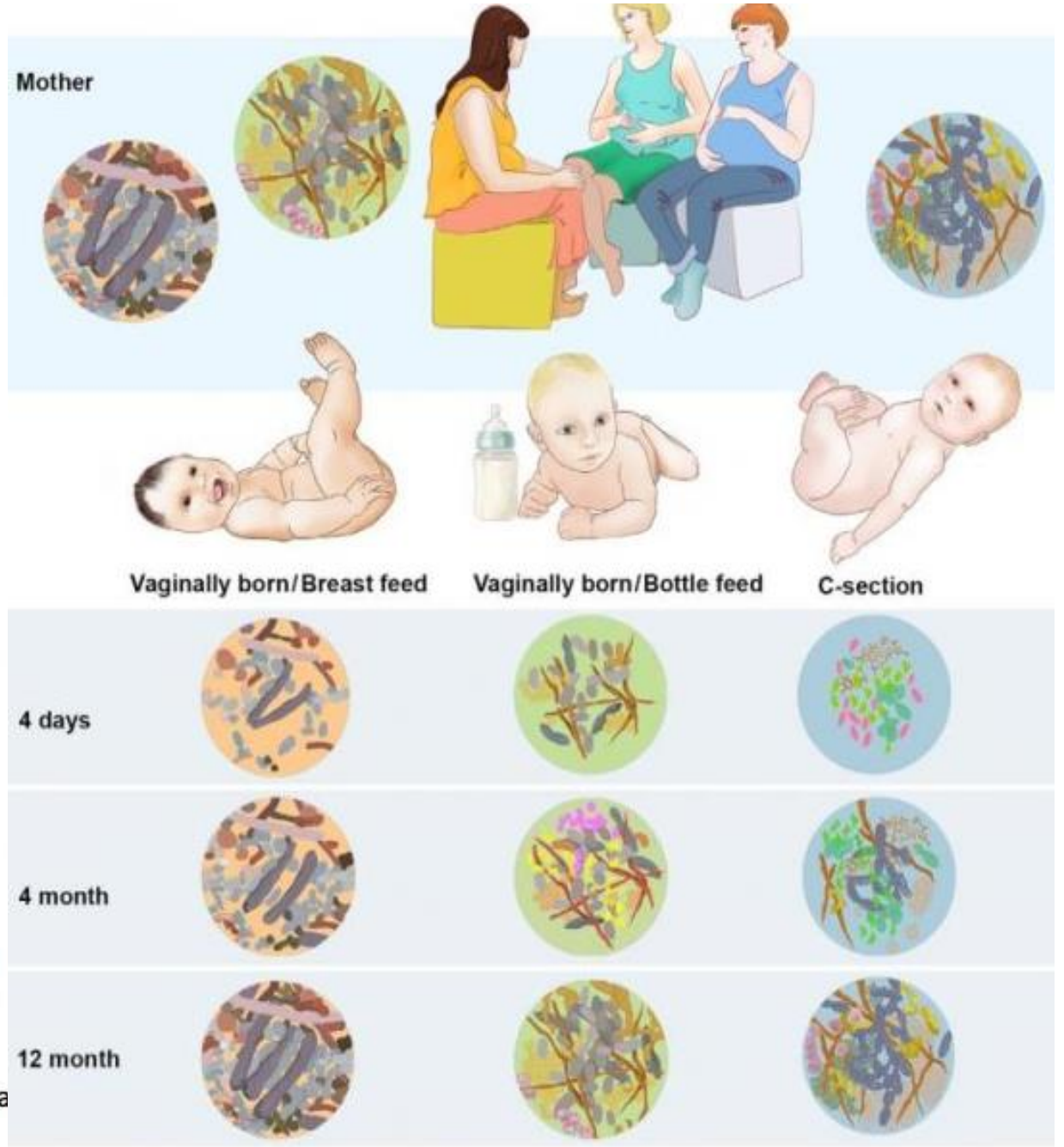
Cesarean Delivery



Introduced to Skin Flora: Staphylococcus

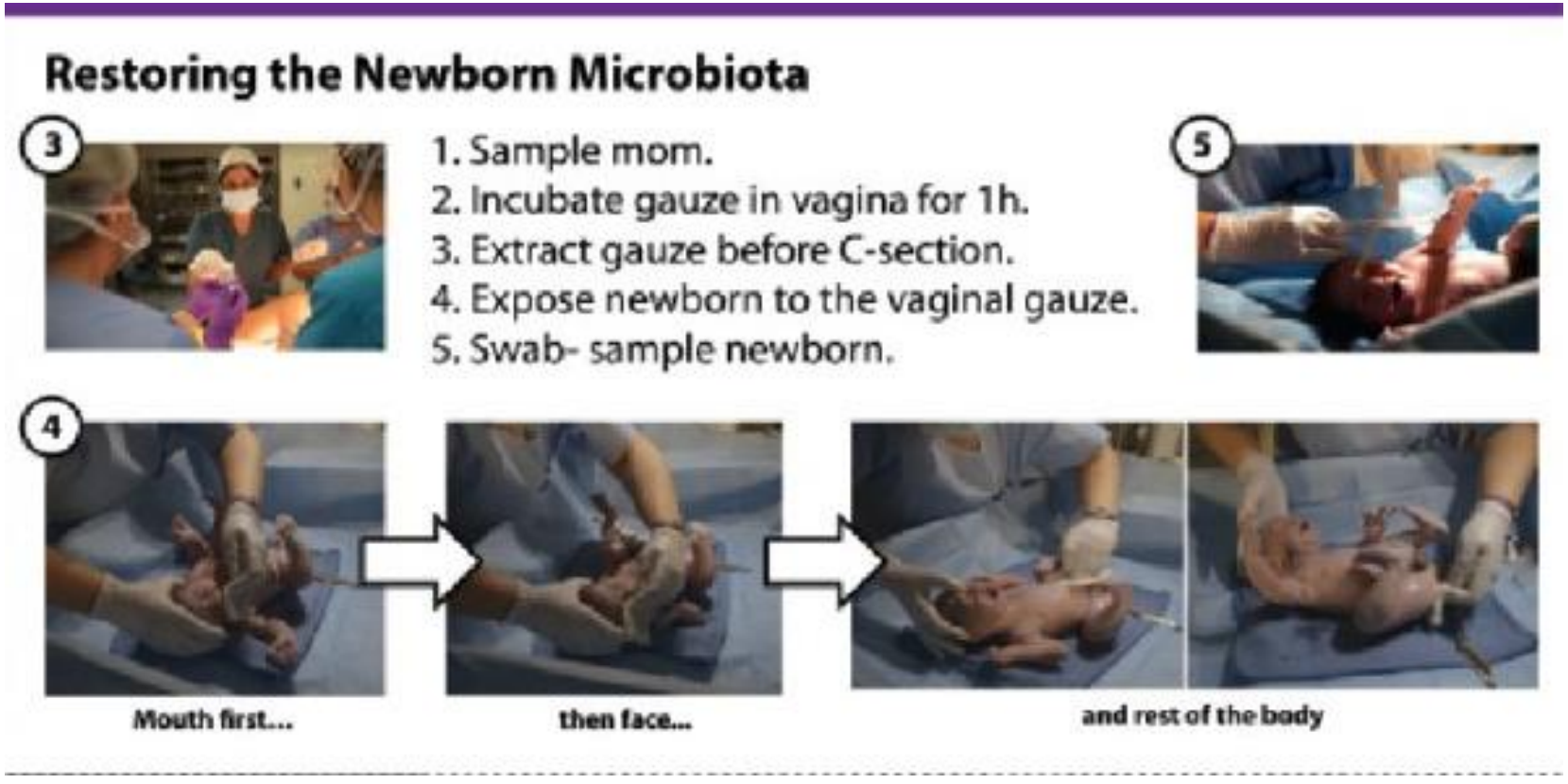
Abnormal Microbial Introduction

Disrupted Intestinal Microbial Colonization
- Increase risk for Atopic Diseases, Asthma, Allergic Rhinitis, and Celiac Disease
- Association: Delayed Onset of Lactation
  - Lack Breast Milk Support for Gut Flora



Solution? Gut Bacteria & Birth

Dr. Maria Gloria Dominguez-Bello associate professor in the Human Microbiome Program at NYU School of Medicine shows initial findings suggest using gauze to gather a mother's birth-canal bacteria to babies born by C-section does make those babies' bacterial populations more closely resemble vaginally born babies — though only partially

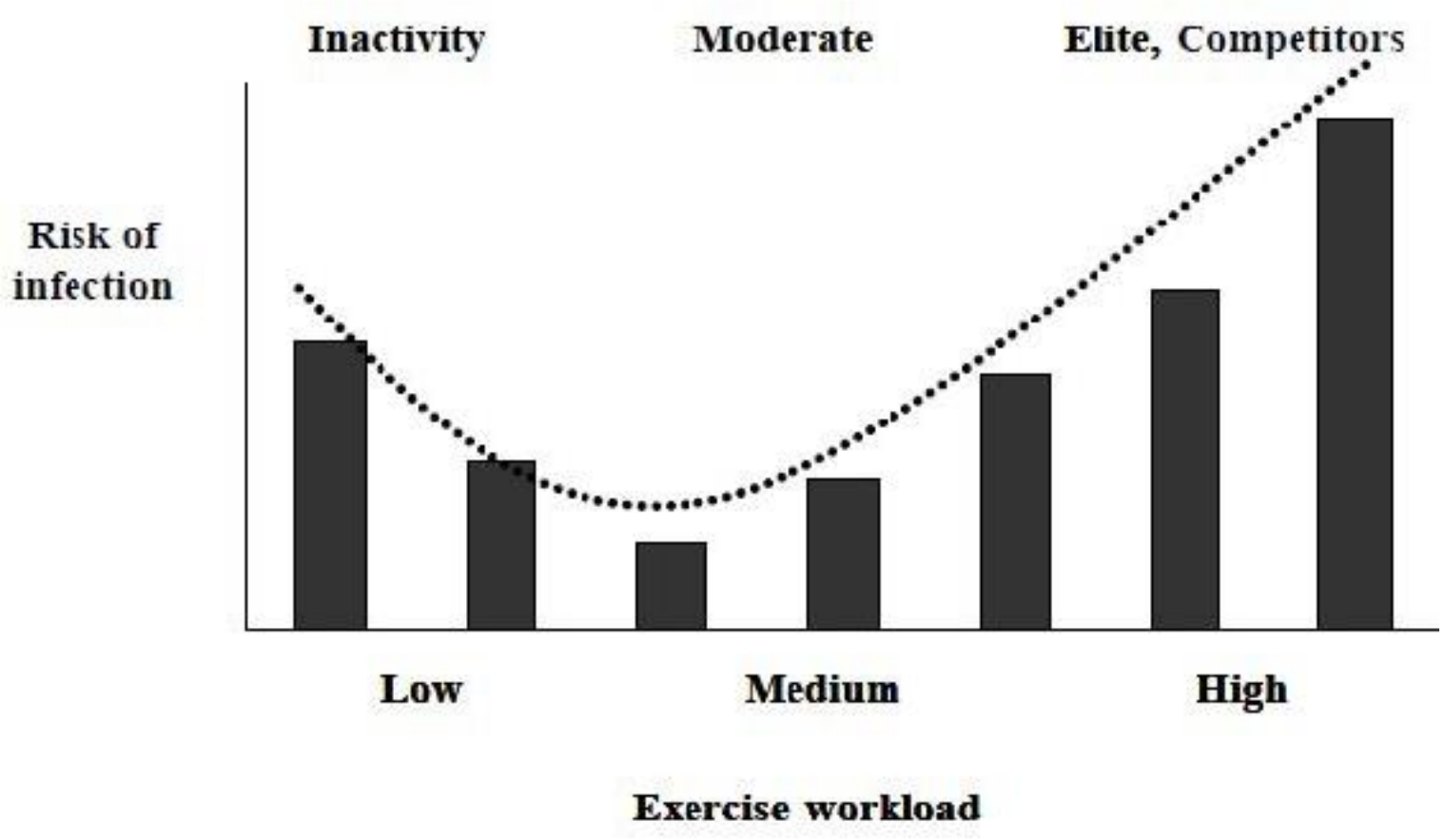


Stress & Immune System

- Short-term stress (minutes to hours) enhances immune responses
  - Changes in dendritic cell, neutrophil, macrophage, and lymphocyte trafficking, maturation, and function as well as local and systemic production of cytokines
  - Enhance wound healing, anti-infectious agent, anti-tumor, pro-inflammatory, autoimmune responses
- Long-term stress suppresses immune responses
  - Altering cytokine balance, inducing low-grade chronic inflammation, and suppressing immunoprotective cells
  - Increase susceptibility to some types of cancer by suppressing Type 1 cytokines and rates of brain decay, cardiovascular inflammation, etc.…

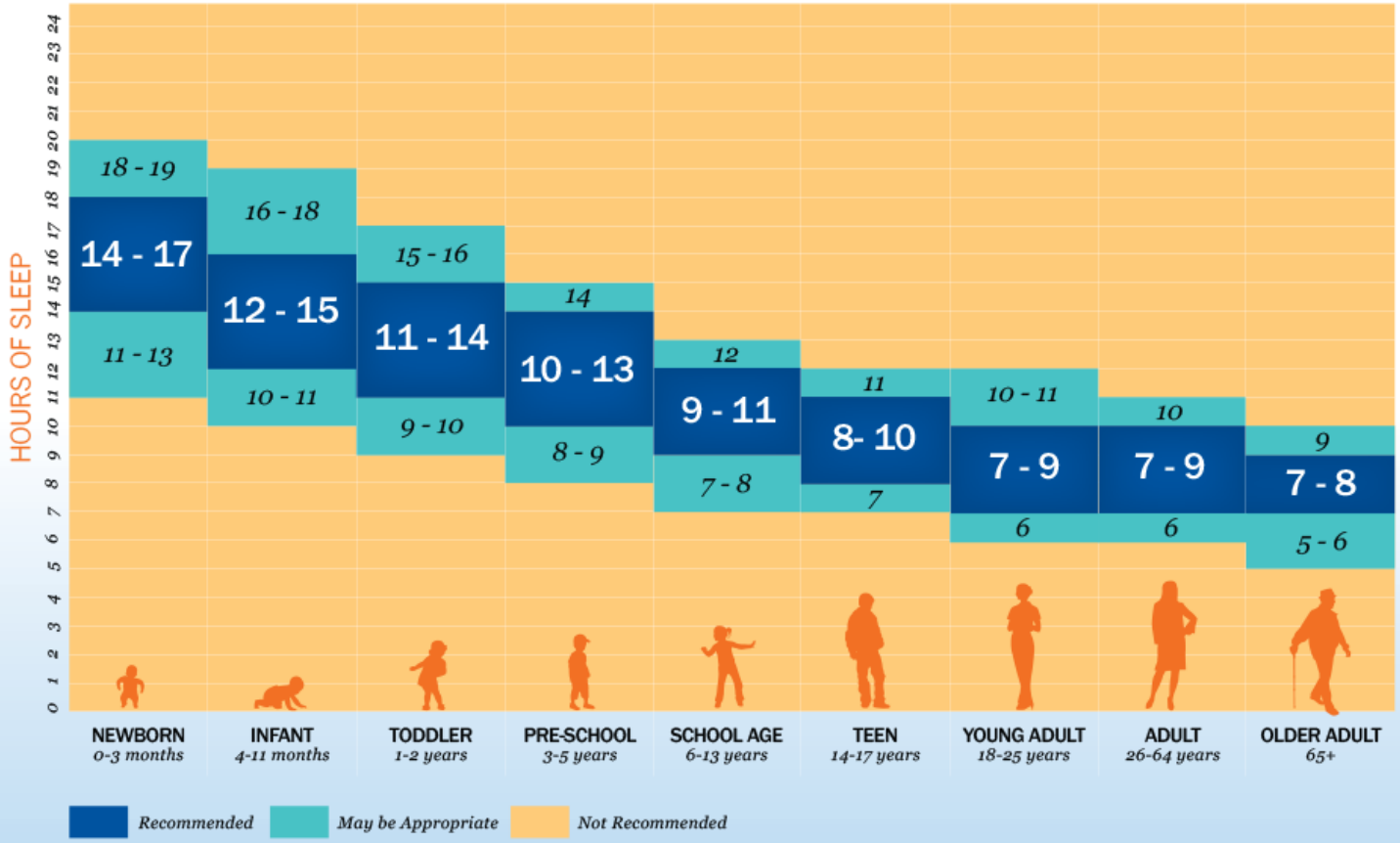
Effects of stress on immune function: the good, the bad, and the beautiful; http://link.springer.com/article/10.1007/s12026-014-8517-0

Exercise & Immune System



NATIONAL SLEEP FOUNDATION

SLEEP DURATION RECOMMENDATIONS



SLEEPFOUNDATION.ORG | SLEEP.ORG

Hirshkowitz M, The National Sleep Foundation's sleep time duration recommendations: methodology and results summary, Sleep Health (2015), http://dx.doi.org/10.1016/j.sleh.2014.12.010


IF YOU'RE
SICK
STAY HOME

Other factors

Avoid cigarette smoke – paralyze cilia

Get dirty - exposure to world's gram-bacteria / viruses

Wash hands with plain soap and water

Let a fever be – if controlled (> 101°F in kids >3 months)

- Brain preening
- Is under 3 months – take to ED

GET ADJUSTED (of course) and acupunctured (if allowed from licensure)

Medicina (Kaunas). 2019 Aug; 55(8): 448.
Published online 2019 Aug 7. doi: 10.3390/medicina55080448
PMCID: PMC6722922
PMID: 31394861

The Effects Induced by Spinal Manipulative Therapy on the Immune and Endocrine Systems

Andrea Colombi and Marco Testa*

▸ Author information ▸ Article notes ▸ Copyright and License information Disclaimer

Abstract

Go to: ▸

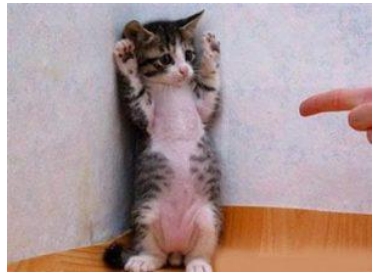
Background and Objectives: Spinal manipulations are interventions widely used by different healthcare professionals for the management of musculoskeletal (MSK) disorders. While previous theoretical principles focused predominantly on biomechanical accounts, recent models propose that the observed pain modulatory effects of this form of manual therapy may be the result of more complex mechanisms. It has been suggested that other phenomena like neurophysiological responses and the activation of the immune-endocrine system may explain variability in pain inhibition after the administration of spinal manipulative therapy (SMT). The aim of this paper is to provide an overview of the available evidence supporting the biological plausibility of high-velocity, low-amplitude thrust (HVLAT) on the immune-endocrine system. *Materials and Methods*: Narrative critical review. An electronic search on MEDLINE, ProQUEST, and Google Scholar followed by a hand and "snowballing" search were conducted to find relevant articles. Studies were included if they evaluated the effects of HVLAT on participants' biomarkers. *Results*: The electronic search retrieved 13 relevant articles and two themes of discussion were developed. Nine studies investigated the effects of SMT on cortisol levels and five of them were conducted on symptomatic populations. Four studies examined the effects of SMT on the immune system and all of them were conducted on healthy individuals. *Conclusions*: Although spinal manipulations seem to trigger the activation of the neuroimmunoendocrine system, the evidence supporting a biological account for the application of HVLAT in clinical practice is mixed and conflicting. Further research on subjects with spinal MSK conditions with larger sample sizes are needed to obtain more insights about the biological effects of spinal manipulative therapy.

Keywords: spinal manipulative therapy, immune system, endocrine system, back pain, neck pain, physiotherapy

Research

Dynamic Chiropractic summed it up

- An accumulation of evidence that indicates spinal manipulation may influence the immune system's response to various stimuli
  - Five studies: manipulation consistently reduced the production of pro-inflammatory mediators associated with tissue damage and pain from articular structures
  - Two studies: manipulation may induce and enhance production of immunoregulatory cytokine IL-2 and immunoglobulins



Childhood Illnesses and Vaccines

Vaccinations

- No one size fits all approach for vaccinations
- Our role is to inform parents of choice, provide information, support when ill and be a resource

Dr. Elisa Song's Take

As an integrative pediatrician & pediatric functional medicine expert, these are my current beliefs:

- I believe that vaccines are one of the most important public health inventions of the 20th century and can be effective in preventing vaccine-preventable disease.
- I believe that vaccines can cause long-term, serious, adverse effects in susceptible individuals and may be one of the factors in 21st century chronic disease.
- I believe that an integrative and functional medicine approach can optimize vaccine effectiveness while reducing risks.
- I believe that vaccines may be a way out of our current pandemic – if done in a rational, evidence-based, non-dogmatic way.
- I believe the risk/benefit analysis of vaccines for children is very different than for adults.
- I believe that whether or not you've been vaccinated, optimizing diet & lifestyle to maximize immune resilience is the KEY to getting through this pandemic.
- I believe that we can no longer live in fear (fear of getting sick vs. fear of getting vaccinated) and we must figure out how to feel safe re-entering society

Vaccinations

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

VAERS
Vaccine Adverse Event Reporting System
www.vaers.hhs.gov

- Book References
  - Stephanie Cave, “What Your Doctors May Not Tell You About Vaccinations”
  - Dr. Robert Sears, “The Vaccine Book: Making the Right Decision for Your Child”
  - Paul Thomas, “The Vaccinee Friendly Plan”
  - Thomas Cowan “Vaccines, Autoimmunity, and the Changing Nature of Childhood Illness”
  - Aviva Romm “Vaccinations: A Thoughtful Parent's Guide: How to Make Safe, Sensible Decisions about the Risks, Benefits, and Alternatives”

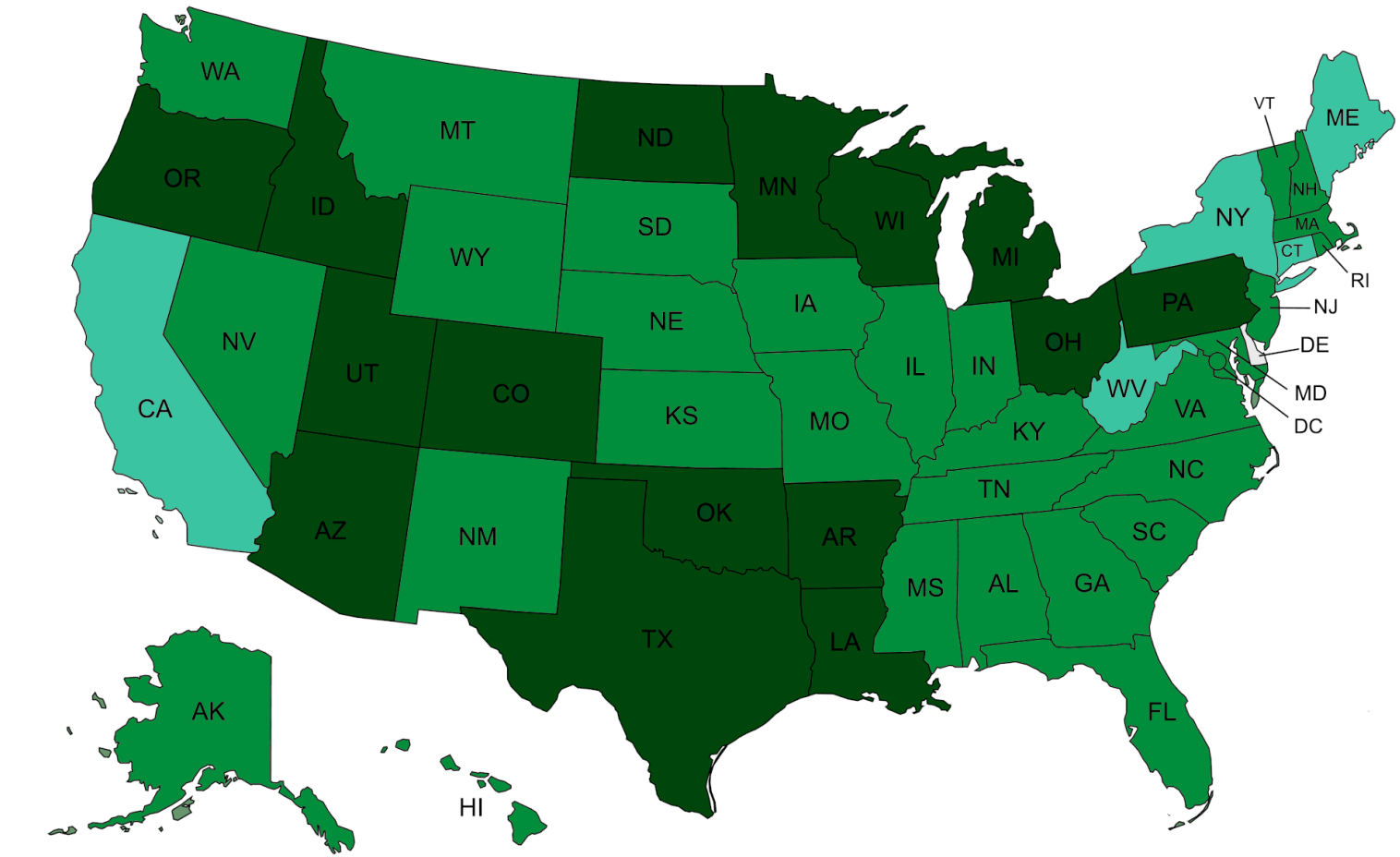
Vaccinations

- Stimulate TH_2 reactions
  - Support immune system as needed
- Normal immunity / course of infection stimulate TH_1 reactions
- If have a shift to increase TH_2, body naturally drops TH_1 = down regulate each other
  - "I got the flu after a flu vaccine"

Vaccinations

- Are they effective
  - Yes, possibly and temporarily
- Are they safe
  - Vaccine dose is the same for all kids regardless of age or weight (not so for other medications)
  - Testing?
- Is there really informed consent?
- Laws in my state
  - Illinois & Florida exemption - medical or religious; Michigan - all 3
- Do I know the natural course of the disease
  - Able to identify the illness and what to do if your child / patient has that illness

State Vaccine Exemptions: Medical, Religious, & Philosophical



medical, religious, & philosophical

medical & religious

medical only

Created with mapchart.net

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Available Vaccinations in the U.S.

- Adenovirus
- Anthrax
- Cholera
- COVID-19
- Diphtheria
- Hepatitis A
- Hepatitis B
- *Haemophilus influenzae* type b (Hib)
- Human Papillomavirus (HPV)
- Influenza
- Japanese encephalitis (JE)
- Measles
- Meningococcal
- Mumps
- Pertussis
- Pneumococcal
- Polio
- Rabies
- Respiratory Syncytial Virus (RSV)
- Rotavirus
- Rubella
- Shingles (Herpes Zoster)
- Smallpox
- Tetanus
- Tuberculosis (TB)
- Typhoid
- Varicella (Chickenpox)
- Yellow Fever

Complete List of Available Vaccines For Preventable Diseases According to the CDC

Types of Vaccines

- Whole Organism (Bacteria)
  - Live attenuated: Typhoid, Tuberculosis, old Pertussis
  - Inactivated: Anthrax, Cholera, Plague
- Viral Particles
  - Live attenuated: Measles, Mumps, Rubella, Rotavirus, Smallpox, Oral Polio (Sabin), Varicella, Yellow fever; Shingles (Zostavax)
  - Inactivated: Hep A, Influenza, Polio (Salk), Rabies
  - Messenger RNA (mRNA): COVID
- Purified Macromolecules – commonly need boosters
  - Toxoids: Diphtheria, Tetanus,
  - Capsular Polysaccharides: HIB, Meningococcal, Pneumococcal, Shingles (Shingrix), HPV, new Pertussis (acellular)
  - Surface Antigens: Hep B

Resurgence of Pertussis Linked With Switch to Acellular Vaccine JAMA. 2021;326(4)

- The US and many other countries switched from whole-cell pertussis vaccines to acellular vaccines in the mid-1990s.
  - Newer acellular vaccines are effective against severe disease / associated with fewer serious adverse events
  - Don’t prevent nasal colonization with bacterium and protection rapidly wanes
  - Early 2000s, pertussis cases reemerged despite high vaccination rates
  - Lack the common antigen pertactin = less effective vaccines

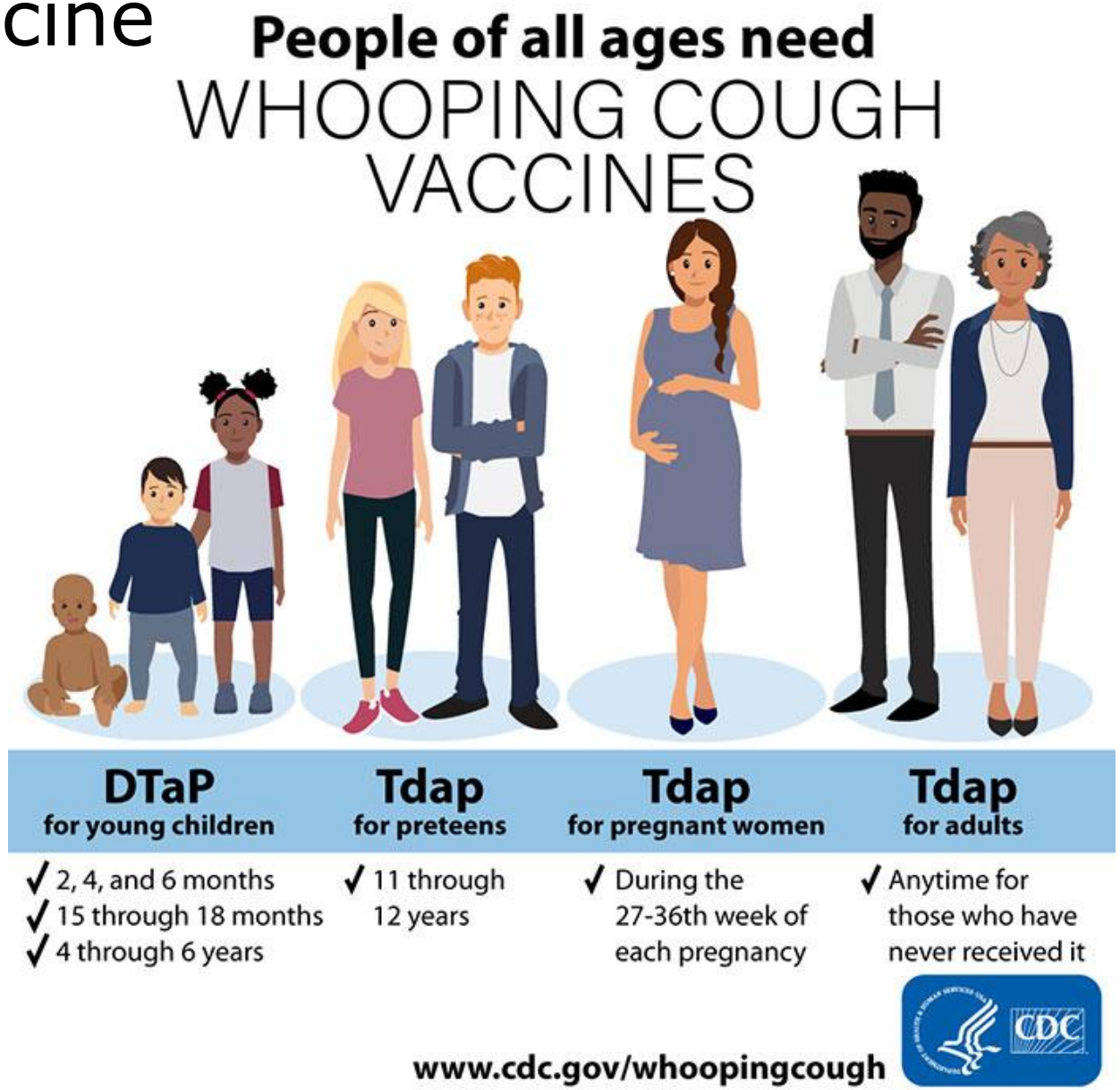


Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Respiratory syncytial virus (RSV-mAb [Nirsevimab])	1 dose depending on maternal RSV vaccination status, See Notes					1 dose (8 through 19 months), See Notes											
Hepatitis B (HepB)	1st dose	◄---- 2nd dose ----►			◄---------- 3rd dose ----------►												
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1st dose	2nd dose	See Notes												
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1st dose	2nd dose	3rd dose		◄---- 4th dose ----►					5th dose					
Haemophilus influenzae type b (Hib)			1st dose	2nd dose	See Notes		◄ 3rd or 4th dose, See Notes ►										
Pneumococcal conjugate (PCV15, PCV20)			1st dose	2nd dose	3rd dose		◄---- 4th dose ----►										
Inactivated poliovirus (IPV <18 yrs)			1st dose	2nd dose	◄---------- 3rd dose ----------►							4th dose					See Notes
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)					1 or more doses of updated (2023–2024 Formula) vaccine (See Notes)												
Influenza (IIV4)					Annual vaccination 1 or 2 doses								or	Annual vaccination 1 dose only			
or																	
Influenza (LAIV4)											Annual vaccination 1 or 2 doses			Annual vaccination 1 dose only			
Measles, mumps, rubella (MMR)					See Notes		◄---- 1st dose ----►					2nd dose					
Varicella (VAR)							◄---- 1st dose ----►					2nd dose					
Hepatitis A (HepA)					See Notes		2-dose series, See Notes										
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)														1 dose			
Human papillomavirus (HPV)														See Notes			
Meningococcal (MenACWY-CRM ≥2 mos, MenACWY-TT ≥2years)			See Notes											1st dose		2nd dose	
Meningococcal B (MenB-4C, MenB-FHbp)														See Notes			
Respiratory syncytial virus vaccine (RSV [Abrysvo])														Seasonal administration during pregnancy, See Notes			
Dengue (DEN4CYD; 9-16 yrs)														Seropositive in endemic dengue areas (See Notes)			
Mpox																	

Range of recommended ages for all children
Range of recommended ages for catch-up vaccination
Range of recommended ages for certain high-risk groups
Recommended vaccination can begin in this age group
Recommended vaccination based on shared clinical decision-making
No recommendation/ not applicable

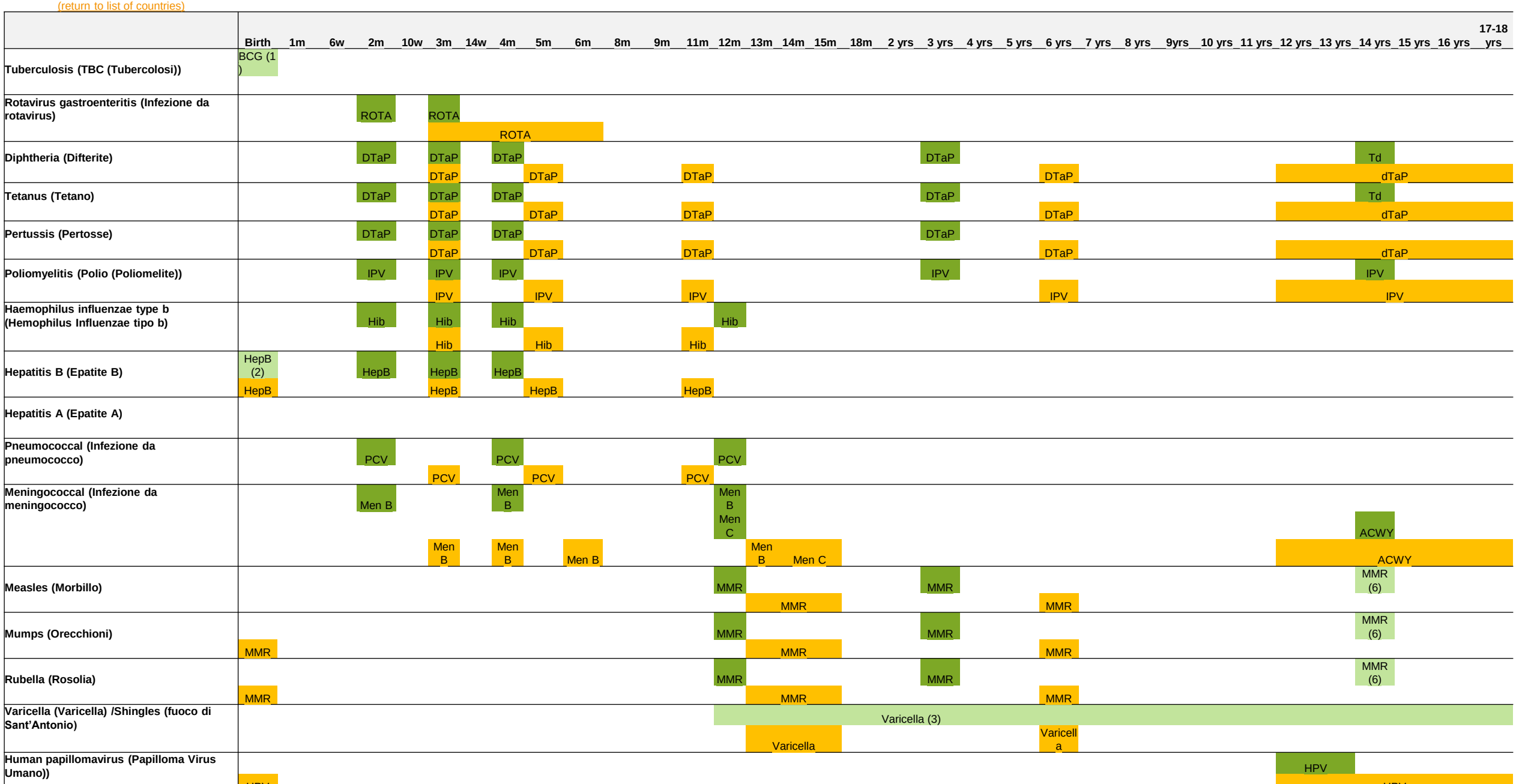
Italy

General recommendation for Italy

General recommendation for United Kingdom

Recommendation for specific groups only for United Kingdom

(return to list of countries)



Vaccine Plan

Dr. Paul Thomas, M.D., F.A.A.P.

Since 2008, Dr. Paul and the team at Integrative Pediatrics LLC have been using the plan outlined below. Combining this vaccine plan with exclusive breastfeeding, eating a diet of real food, getting enough vitamin D, exercising, and avoiding toxins like acetaminophen, aspartame, and glyphosate, the children in his practice have experienced superior health, and a significantly lower rate of autism (0 in 1176) than the national average, which is 1 in 45.

If you have autism in the family, a history of autoimmune disorders, or an MTHFR mutation: delay vaccines until at least age five.

Pregnancy:	**No vaccines** (No Tdap, No flu)
Birth:	**No Hep B**
2 months:	**Hib, DTaP** (No Hep B, Rotavirus, IPV)
3 months:	**Prevnar**
4months:	**Hib, DTaP** (No Rotavirus, IPV)
5 months:	**Prevnar**
6 months:	**Hib, DTaP** (No Hep B, Rotavirus, IPV)
7 – 9 months:	**Prevnar,**
1 year:	**Hib, Prevnar** (No MMR, Hep A, Varicella)
18 months:	**DTaP,**
2 years	(No Hep A)
3 years:	Consider MMR (always give MMR by itself)
4 - 6 years:	**DTaP,** (consider Varicella, IPV)
10 years:	**Tdap** (boost every 5 – 10 years)
11 years:	**Menveo or Menactra (meningococcal), Varicella**
12-14 years:	**Hepatitis B** (3 dose series)
16 – 18 Years:	**Menveo or Menactra** & consider meningococcal B, Hepatitis A

DR. SEARS ALTERNATE VACCINE SCHEDULE

This schedule is recommended by Dr. Sears. Note: M/M/R is no longer available as individual vaccines, which makes this schedule difficult to follow precisely.

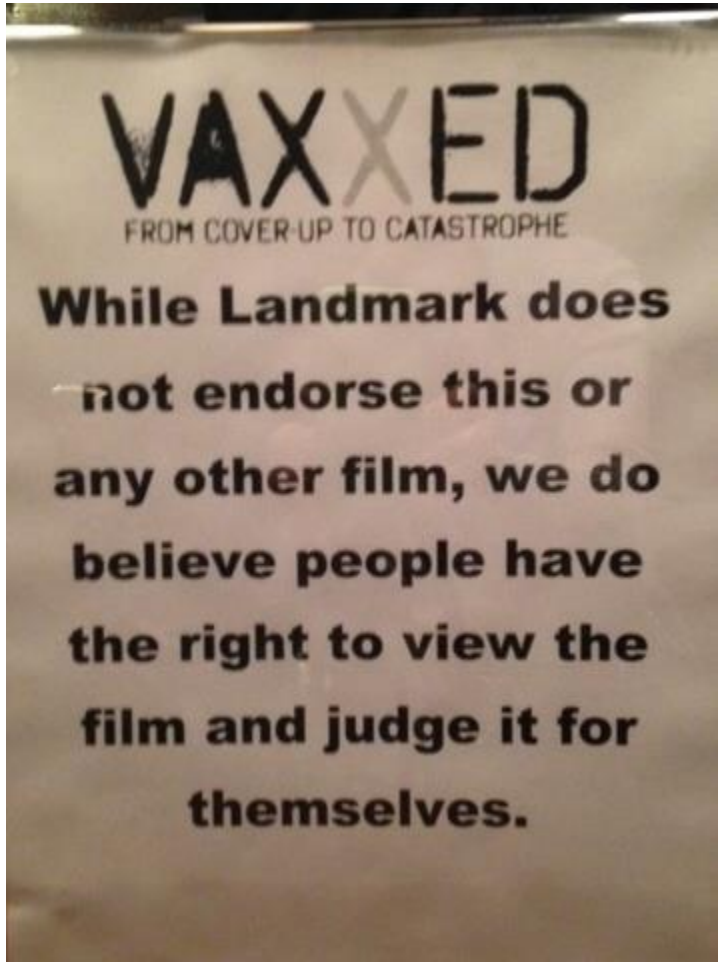
The schedule

- 2 months: DTaP (Diptheria, Tetanus, and acellular Pertussis), Rotavirus
- 3 months: PCV, Hib
- 4 months: DTaP, Rotavirus
- 5 months: PCV, Hib
- 6 months: DTaP, Rotavirus
- 7 months: PCV, Hib
- 8 months: none scheduled/catch-up
- 9 months: Polio, influenza (2 doses)
- 12 months: Mumps, Polio
- 15 months: PCV, Hib
- 18 months DTaP, Varicella
- 21 months: influenza (if flu season)
- 2 years: Rubella, Polio
- 2 years 6 months: Hep B, Hep A
- 3 years: Hep B, Measles, Flu
- 3 years 6 months: Hep B, Hep A
- 4 Years: DTaP, Polio, Flu
- 5 years: MMR, Flu
- 6 years: Varicella

More Controversy

1998**:** Andrew Wakefield, M.D. and colleagues in Britain published a study presenting clinical evidence for an association between MMR vaccine, intestinal bowel dysfunction and autism

- He NEVER said it MMR caused autism – just need to investigate
- Stated to watch for: family history of auto-immunity, food or milk allergies, illness at time of vaccination, recent or current antibiotic use, prior mercury exposure or simultaneous administration of other vaccines
  - Recent questions surround if he falsified the data of 12 children in the study (?) and payments to made to him in excess of £435,000 (approximately $674,000) from lawyers who were preparing lawsuits against drug companies that manufactured the vaccines, creating "experimenter bias" even before the study began
  - Lost his license


VAXXED
FROM COVER-UP TO CATASTROPHE
While Landmark does not endorse this or any other film, we do believe people have the right to view the film and judge it for themselves.


VAXXED
FROM COVER-UP TO CATASTROPHE


DOES NOT DISCRIMINATE
So WHY ARE YOU?
NO MANDATE NO ASSPORT
IF MASKS WORK
SAY NO TO DRUGS
MY BODY
Protect
IF THE PRODUCT IS FREE

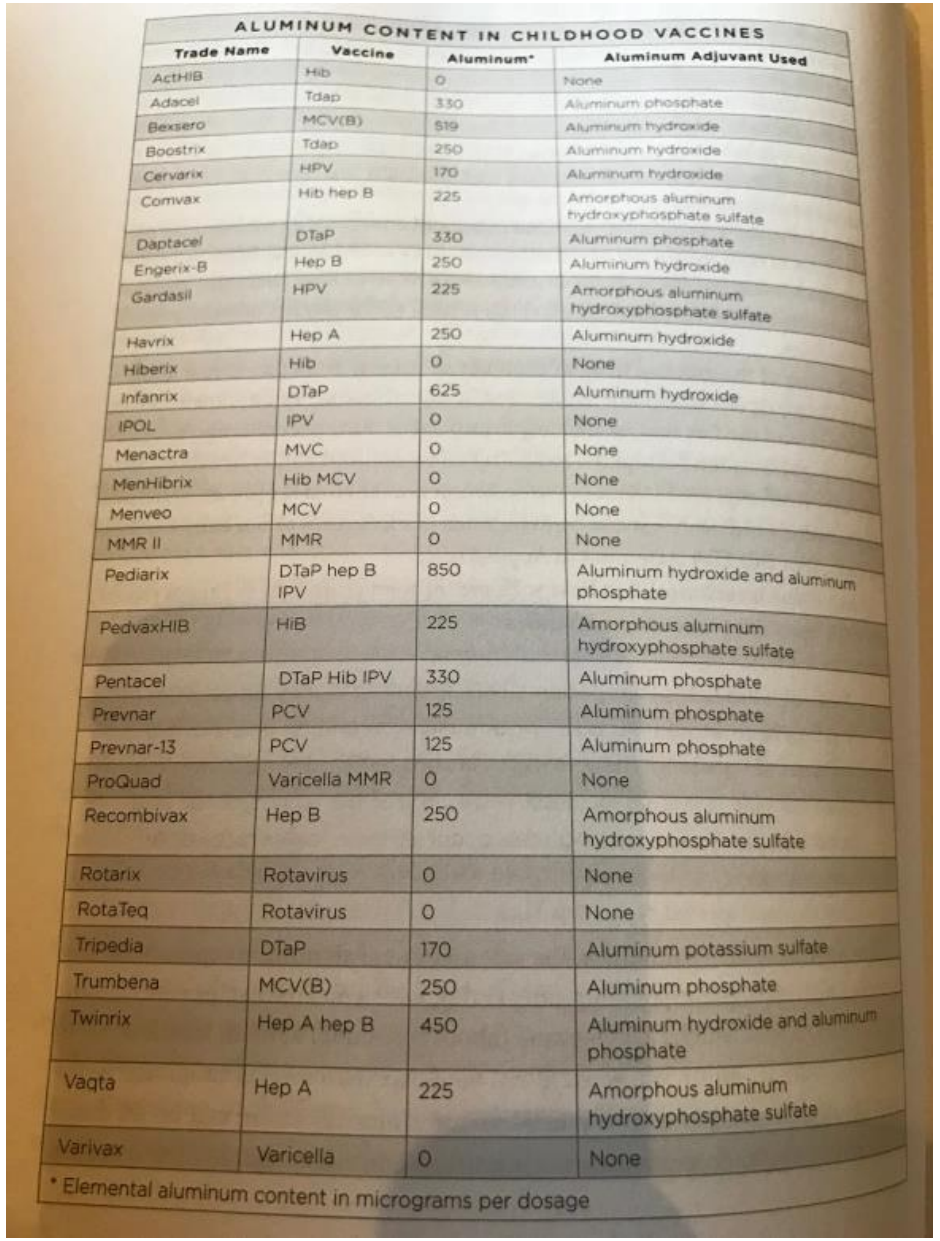
Adverse Vaccine Reactions

VAERS Vaccine Adverse Event Reporting System
www.vaers.hhs.gov

- CDC & FDA Safety surveillance system developed in 1990
- How to identify adverse vaccine reactions and how to report them
  - No reaction is too small
  - Need lot number of the vaccine
- 2 Ways to report – download the form
  - vaers.hhs.gov/resources/vaersform.pdf
  - 1. Online: https://vaers.hhs.gov/esub/index.jsp
  - 2. Writable PDF form: https://vaers.hhs.gov/uploadFile/index.jsp
  - **If you need further assistance with reporting to VAERS, please email info@VAERS.org or call 1-800-822-7967**

Vaccinations

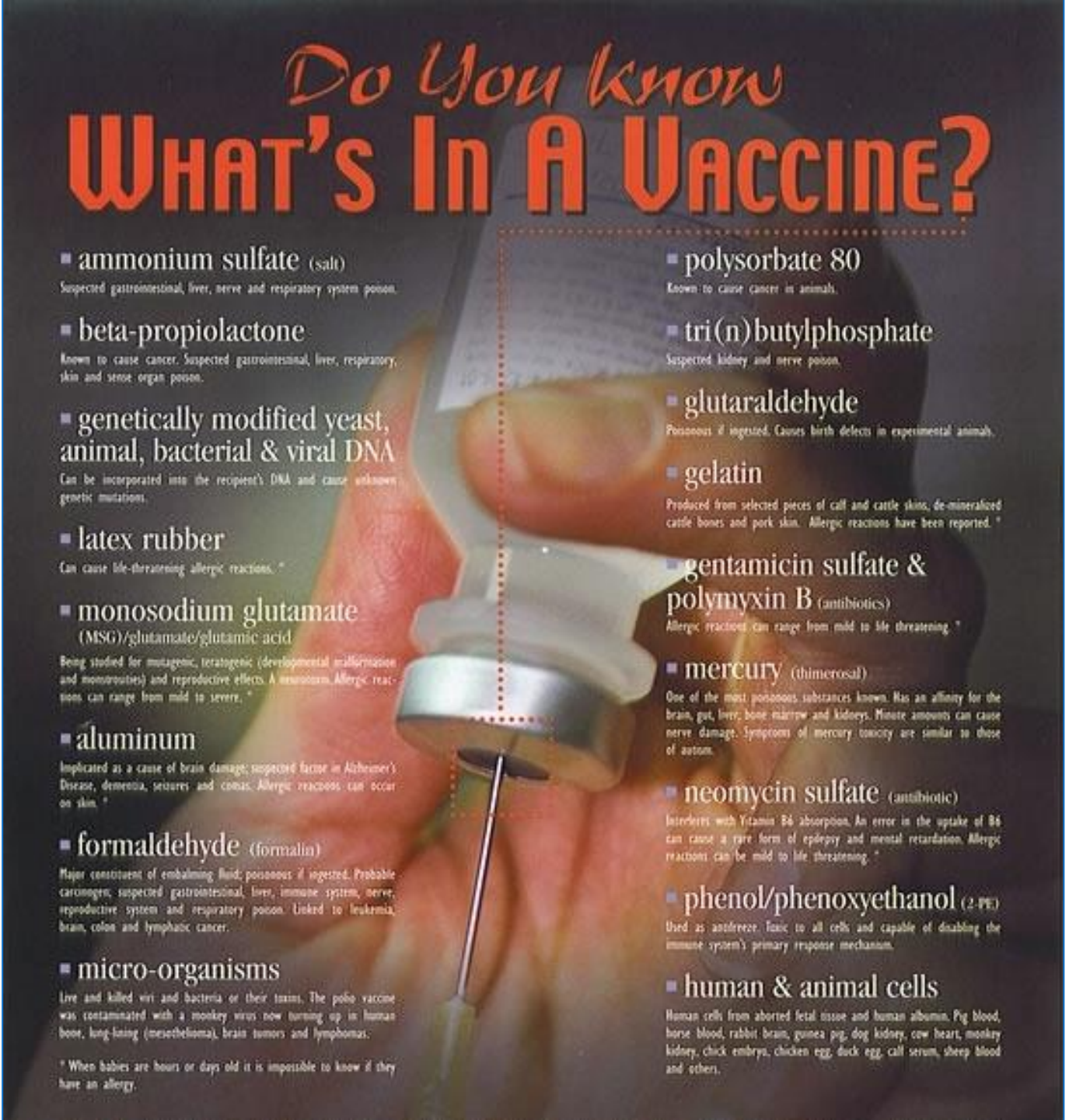
- Killed vaccines are killed in formaldehyde
- Ethyl mercury (Thimerosal) is 1000 times more toxic than lead
  - Kids under two fully vaccinated have 2,370X "safe limit)
  - Removed from many but not all (some flu and Td)
- Aluminum – biggest issue - liked to Alzheimer's / brain decline
- DpT linked to seizure disorders
  - Neurotoxins from the organism itself
- HPV vaccine
  - Pervious exposure + vaccination = increased risk of cervical cancer
- https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf



ALUMINUM CONTENT IN CHILDHOOD VACCINES

Trade Name	Vaccine	Aluminum*	Aluminum Adjuvant Used
ActHIB	Hib	0	None
Adacel	Tdap	330	Aluminum phosphate
Bexsero	MCV(B)	519	Aluminum hydroxide
Boostrix	Tdap	250	Aluminum hydroxide
Cervarix	HPV	170	Aluminum hydroxide
Comvax	Hib hep B	225	Amorphous aluminum hydroxyphosphate sulfate
Daptacel	DTaP	330	Aluminum phosphate
Engerix-B	Hep B	250	Aluminum hydroxide
Gardasil	HPV	225	Amorphous aluminum hydroxyphosphate sulfate
Havrix	Hep A	250	Aluminum hydroxide
Hiberix	Hib	0	None
Infanrix	DTaP	625	Aluminum hydroxide
IPOL	IPV	0	None
Menactra	MVC	0	None
MenHibrix	Hib MCV	0	None
Menveo	MCV	0	None
MMR II	MMR	0	None
Pediarix	DTaP hep B IPV	850	Aluminum hydroxide and aluminum phosphate
PedvaxHIB	HiB	225	Amorphous aluminum hydroxyphosphate sulfate
Pentacel	DTaP Hib IPV	330	Aluminum phosphate
Prevnar	PCV	125	Aluminum phosphate
Prevnar-13	PCV	125	Aluminum phosphate
ProQuad	Varicella MMR	0	None
Recombivax	Hep B	250	Amorphous aluminum hydroxyphosphate sulfate
Rotarix	Rotavirus	0	None
RotaTeq	Rotavirus	0	None
Tripedia	DTaP	170	Aluminum potassium sulfate
Trumbena	MCV(B)	250	Aluminum phosphate
Twinrix	Hep A hep B	450	Aluminum hydroxide and aluminum phosphate
Vaqta	Hep A	225	Amorphous aluminum hydroxyphosphate sulfate
Varivax	Varicella	0	None

* Elemental aluminum content in micrograms per dosage



- Safety studies are funded by the companies making the vaccines
  - Do not go beyond 2 weeks
  - Same people that recommended the vaccines to the government also report on safety and effectiveness
- Funding is for new vaccines not adverse reactions
  - Documented and listed in the Institute of Medicine Texts on adverse reactions

Vaccine Court

Vaccine Claims/Office of Special Masters

- The National Vaccine Injury Compensation Program (VICP - "Vaccine Program") comprises Part 2 of the National Childhood Vaccine Injury Act of 1986 ("Vaccine Act") – *i.e. you can not sure vaccinee manufacturers*
- The Vaccine Act became effective October 1, 1988. It establishes the Vaccine Program as a no-fault compensation program whereby petitions for monetary compensation may be brought by or on behalf of persons allegedly suffering injury or death as a result of the administration of certain compulsory childhood vaccines
- Congress intended that the Vaccine Program provide individuals a swift, flexible, and less adversarial alternative to the often costly and lengthy civil arena of traditional tort litigation

Annual awards

Fiscal year	Number of awards	Petitioners' award	Average amount
2006	68	$48,746,162.74	$716,855.33
2007	82	$91,449,433.89	$1,115,237.00
2008	141	$75,716,552.06	$536,996.82
2009	131	$74,142,490.58	$565,973.21
2010	173	$179,387,341.30	$1,036,921.05
2011	251	$216,319,428.47	$861,830.39
2012	249	$163,491,998.82	$656,594.37
2013	375	$254,666,326.70	$679,110.20
2014	365	$202,084,196.12	$553,655.33
2015	508	$204,137,880.22	$401,846.22
2016	689	$230,140,251.20	$334,020.68
2017	706	$252,245,932.78	$357,288.86
2018	521	$199,588,007.04	$383,086.39
2019	653	$196,217,707.64	$300,486.54
2020	734	$186,885,677.55	$254,612.64
Total	**5,646**	**$2,575,219,387.11**	**$456,113.95**

HRSA
Health Resources & Services Administration

National Vaccine Injury Compensation Program

Vaccines save lives by preventing disease

In fact, the Centers for Disease Control and Prevention (CDC) named immunizations as one of the ten most important public health achievements of the 20th century.

Most people who get vaccines have no serious problems, but like any medicine, they can cause side effects - most of which are rare and mild. In very rare cases, a vaccine can cause a serious problem, such as a severe allergic reaction.

In those instances, the National Vaccine Injury Compensation Program (VICP) provides individuals with an opportunity to file a petition or claim for financial compensation.

The VICP is a no-fault alternative to the traditional legal system for resolving vaccine injury petitions.

The National Childhood Vaccine Injury Act of 1986 created the VICP, which began on October 1, 1988, after a series of lawsuits threatened to cause vaccine shortages and reduce U.S. vaccination rates.

The following three organizations have a role in the VICP.

- The VICP is administered through the Department of Health and Human Services (HHS).
- The Department of Justice (DOJ) represents HHS in Court.
- The U.S. Court of Federal Claims (the Court) makes the final decision regarding whether a petitioner should be compensated.

Any individual, of any age, who received a covered vaccine and believes he or she was injured as a result, can file a petition. Parents, legal guardians and legal representatives can file on behalf of children, disabled adults and individuals who are deceased.

Please note that, with limited exceptions, all petitions must be filed within 3 years after the first symptom of the alleged vaccine injury, or within 2 years of the death and 4 years after the first symptom of the alleged vaccine injury that resulted in death. For information about additional requirements that must be met in order to pursue compensation, visit the VICP website, www.hrsa.gov/vaccinecompensation.

Did you know?

The risk of experiencing a severe allergic reaction from one of these commonly administered vaccines covered by the VICP – MMR, Hepatitis B, Diphtheria, Tetanus, and Pertussis-- *is 1 or less than 1 out of 1 million doses*, according to the CDC.

The Court makes the final decision regarding whether a petitioner should be compensated and the amount of compensation.

For more information about the VICP

Visit the website:
www.hrsa.gov/vaccinecompensation

1-800-338-2382

National Vaccine Injury Compensation Program

5600 Fishers Lane, 8N146B
Rockville, Maryland 20857

Revised March 5, 2019

How the claims process works

1. An individual files a petition with the Court. The Court sends a copy of the petition to DOJ and HHS.
2. An HHS healthcare provider reviews the petition, determines if it meets the medical criteria for compensation and makes a preliminary recommendation to DOJ. The government's position is included in DOJ's report, which is submitted to the Court.
3. The report is presented to a court-appointed special master, who decides whether the petitioner should be compensated.
4. The special master's decision may be appealed.
5. Petitioners who reject the decision of the Court (or those who withdraw their claims after certain timelines are met) may file a claim in civil court against the vaccine manufacturer and/or the health care provider who administered the vaccine.

An individual may contact the Court for more information about filing a petition, including the requirements that must be satisfied to pursue compensation. The petition does not have to be filed by a lawyer but most people use a lawyer. If certain requirements are met, the VICP generally will pay lawyer's fees and other legal costs related to the petition, whether or not the petitioner is paid for a vaccine injury or death. Visit the Court's website for a list of attorneys willing to file VICP petitions.

U.S. Court of Federal Claims
717 Madison Place, N.W.
Washington, DC 20005
202-357-6400
www.uscfc.uscourts.gov

Vaccines covered by the VICP

In order for a category of vaccines to be covered by the VICP, the category of the vaccine must be recommended for routine administration to children and/or pregnant women by the Centers for Disease Control and Prevention and subject to an excise tax. There are no age restrictions on who may file a petition with the VICP. Petitions may be filed on behalf of infants, children and adolescents, or by adults receiving VICP-covered vaccines. The following vaccines are covered by the VICP:

- Diphtheria and Tetanus vaccines (e.g., DTaP, DTP, DT, Td, or TT)
- Pertussis vaccines (e.g., DTP, DTaP, P, Tdap, DTP-Hib)
- Measles, Mumps, and Rubella vaccines (e.g., MMR, MR, M, R)
- Polio vaccines (e.g., OPV or IPV)
- Hepatitis A vaccines (e.g., HAV)
- Hepatitis B vaccines (e.g.,HBV)
- Haemophilus influenza type b vaccines (e.g., Hib)
- Varicella vaccines (e.g., VZV) [herpes zoster (shingles) vaccine is not covered]
- Rotavirus vaccines (e.g.,RV)
- Pneumococcal conjugate vaccines (e.g., PCV)
- Seasonal influenza vaccines (e.g., IIV3 standard dose, IIV3 high dose, IIV4, RIV3, LAIV3, LAIV4)
- Human Papillomavirus vaccines (e.g., HPV)
- Meningococcal vaccines (e.g., MCV4, MPSV4, recombinant)

This information reflects the current thinking of the United States Department of Health and Human Services (HHS) on the topics addressed. The fact sheet does not create or confer any rights for or on any person and does not operate to bind HHS or the public. The ultimate decision about the scope of the statutes authorizing the VICP is within the authority of the United States Court of Federal Claims, which is responsible for resolving petitions for compensation under the VICP.

Vaccinations

- It is neglect or unethical to
  - Ignore references pointing to adverse events
  - Minimize negative effects of vaccines by not reporting reactions
    - Less than 10% of reactions are reported to VAERS
    - Follow up on “hot lots”; recalls are few and only for manufacturing issues not for side effects
      - 2013 Gardasil recall for glass found in the vials
      - 2010 Rotavirus contaminated with Porcine circovirus (PCV type 1) a common pig virus (does not cause disease in animals or humans; exposure common in pork)
  - Avoid communicating with parents what to do before vaccinating
    - Assess their immune status before hand
  - Not providing a list of adverse reactions
  - Discuss how to recognize vaccine reactions
    - Inserts for each vaccine are found online

Vaccines as Medication Category

Table 1. FDA Drug Risk Classification

Category	Description
A	Controlled studies in humans show no risk to the fetus
B	No controlled studies have been conducted in humans; animal studies show no risk to the fetus
C	No controlled studies have been conducted in animals or humans
D	Evidence of human risk to the fetus exists; however, benefits may outweigh risks in certain situations
X	Controlled studies in both animals and humans demonstrate fetal abnormalities; the risk in pregnant women outweighs any possible benefit

Source: References 4-7.

- Food for thought
  - Flu = B
  - TDAP – C
- Questions on efficacy of nasal varieties
  - Lots of restrictions (flu)
- Most follow up studies for side effects do not go past 6 weeks

Vaccinations Done Better

Questions to ask before you vaccinate

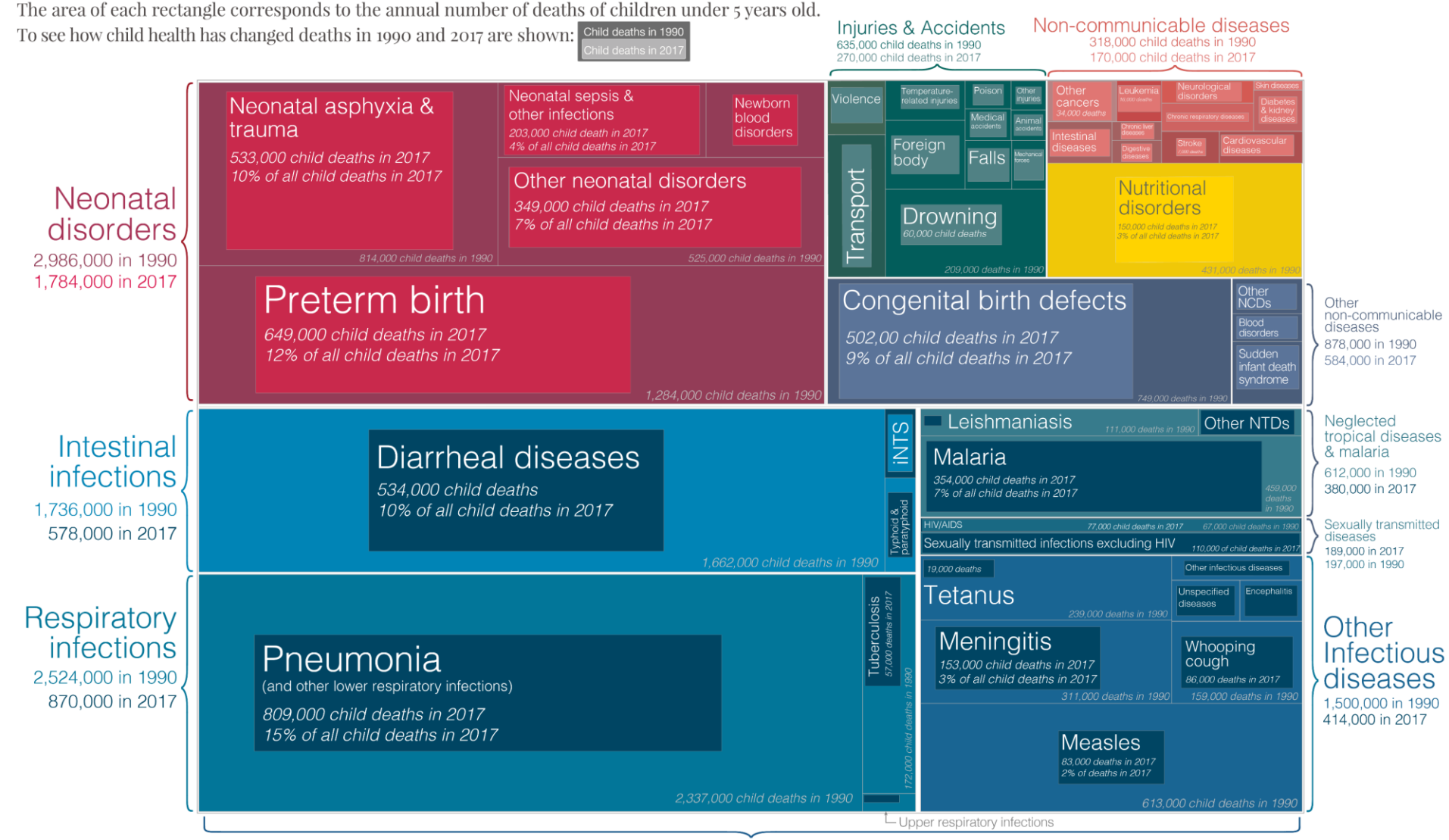
- Is my child sick right now?
- Was there a bad vaccine reaction before?
- Is there a personal / family history of:
  - Vaccine reactions
  - Convulsions or neurological disorders
  - Severe allergies
  - Immune system / GI / neurological disorders
- Can I identify a vaccine reaction?
- How do I report a vaccine reaction?
- Did a get the vaccine manufacturer's name and lot number?
- Do I have a choice?
- What is my plan if my child gets sick?

What do children die from?

And how have the causes of child death changed since 1990?

The area of each rectangle corresponds to the annual number of deaths of children under 5 years old.
To see how child health has changed deaths in 1990 and 2017 are shown: Child deaths in 1990 | Child deaths in 2017

Our World in Data



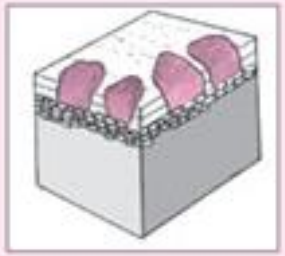
Data source: Global Burden of Disease – Institute for Health Metrics and Evaluation.

Common Childhood Conditions

- ID and treatment between in RSV, Croup, Measles, Mumps, Rubella, Roseola and Chicken Pox

- Let’s Talk Rashes – all of these are common and some vaccine preventable and usually have respiratory symptoms and/or fevers
  - How do we support if they coming into the office with these illnesses?

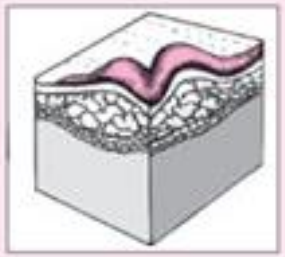
MACULE
A small (usually less than 1 cm in diameter), flat blemish or discoloration that can be brown, tan, red, or white and has same texture as surrounding skin



BULLA
A raised, thin-walled blister greater than 0.5 cm in diameter, containing clear or serous fluid

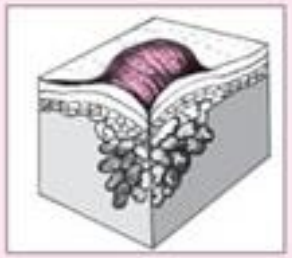
VESICLE
A small (less than 0.5 cm in diameter), thin-walled, raised blister containing clear, serous, purulent, or bloody fluid

PUSTULE
A circumscribed, pus- or lymph-filled, elevated lesion that varies in diameter and may be firm or soft and white or yellow

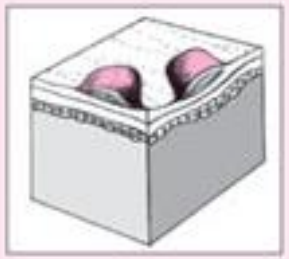


WHEAL
A slightly raised, firm lesion of variable size and shape, surrounded by edema; skin may be red or pale

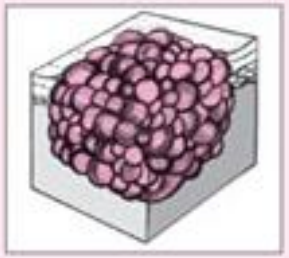
NODULE
A small, firm, circumscribed, elevated lesion 1 to 2 cm in diameter with possible skin discoloration

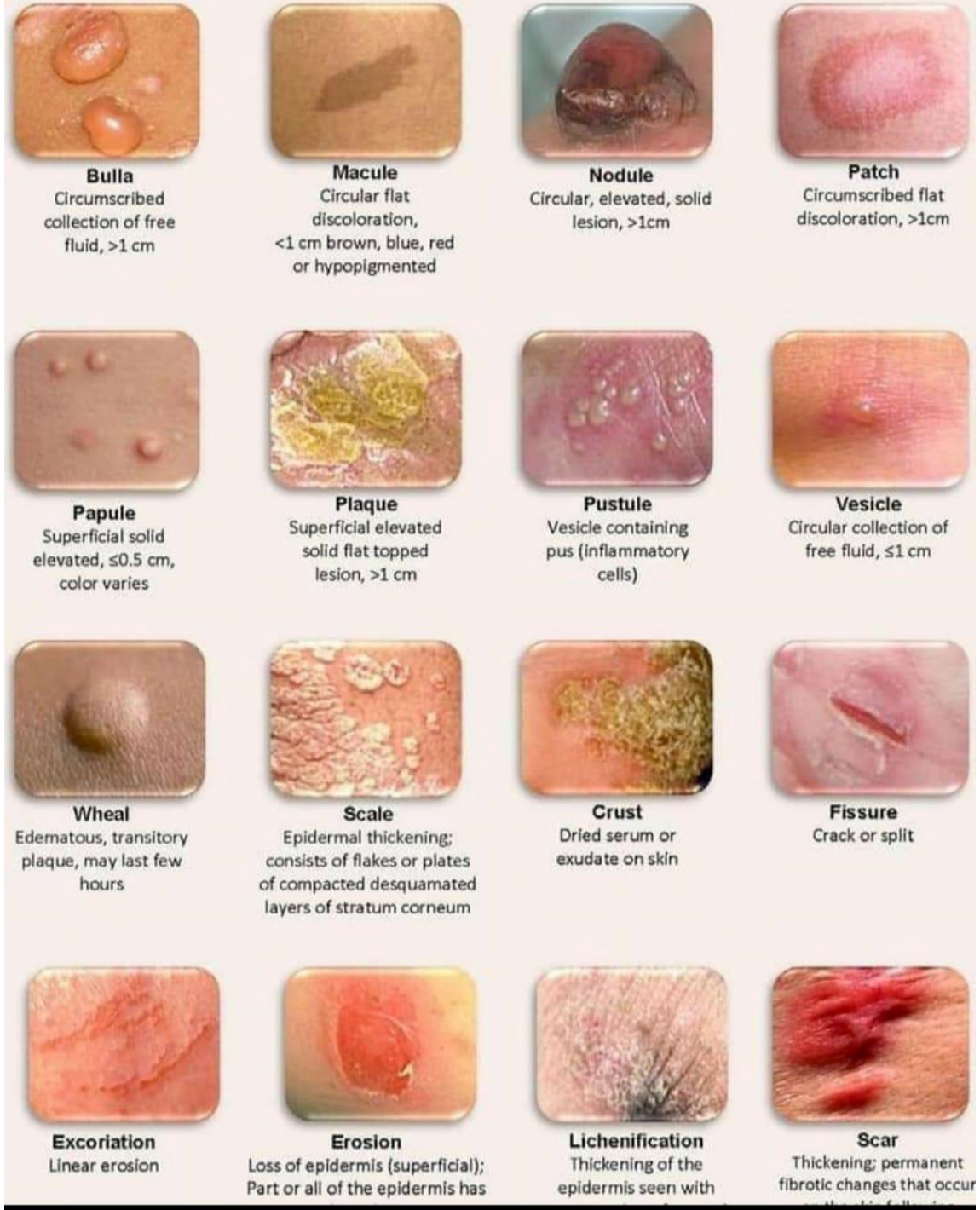


PAPULE
A small, solid, raised lesion less than 1 cm in diameter, with red to purple skin discoloration



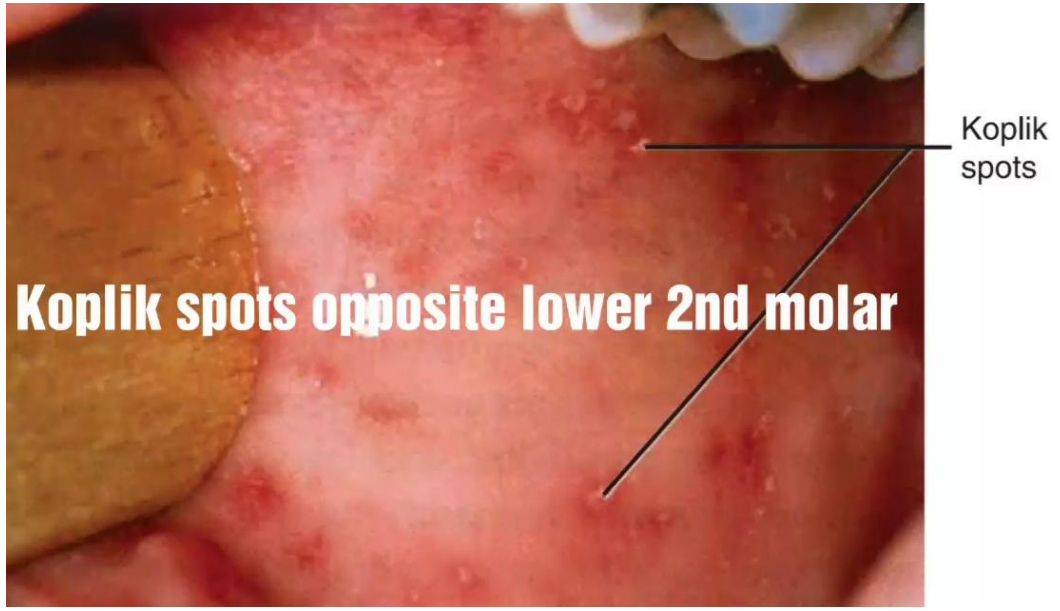
TUMOR
A solid, raised mass usually larger than 2 cm in diameter with possible skin discoloration

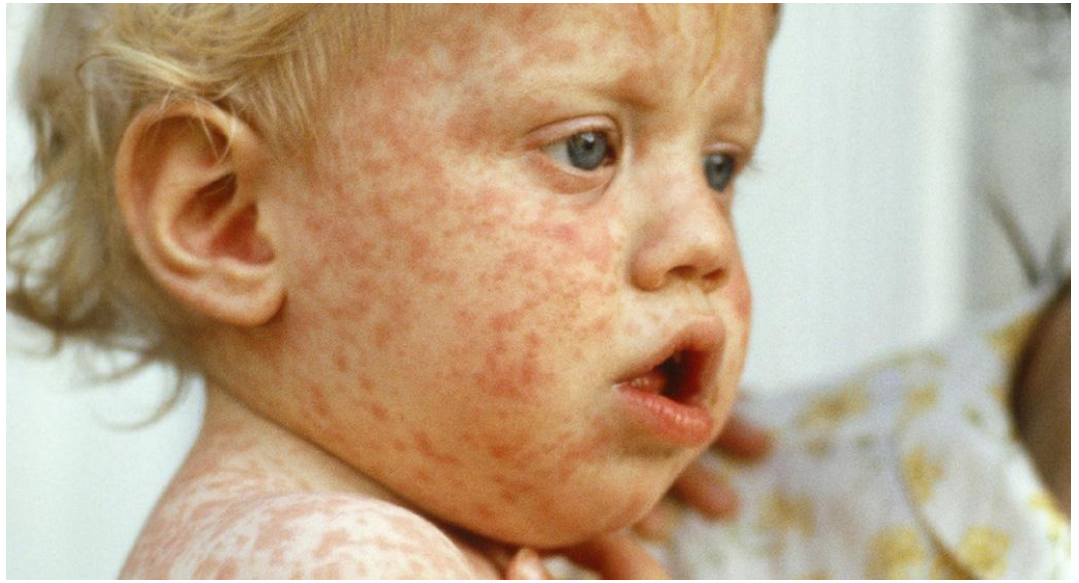




Measles - Rubeola

- Measles is a highly contagious single-stranded, enveloped RNA paramyxovirus virus with 1 serotype
- Prodrome (droplet): **high fever**, malaise, cough, coryza, and conjunctivitis **(3 Cs)** and pathognomonic **Koplik spots on buccal mucosa (~12 hours pre-rash)**
- 4-14 days later = **red brownish maculopapular rash spreads hairline / ears down the trunk to lower extremities; mild itch**
- Contagious from 4 days pre though 4 days post rash (last 4-7 days)





Integrative Measles Treatment

- Usual suspects, teas and hydration for fever + CMT
  - Can add astragalus and shitake mushrooms to broth
- High dose vitamin A with an echinacea / goldenseal formula
- Tepid oatmeal bath for the rash / fever
- Keeping child quiet / calm as possible to make it easier to breathe
- Eliminate hard to digest fats
- Zn 1 dose BID for 10 days (no more!)

- Homeopathy: all 30x or 9c one dose every 2 hours up to QID for 2 days
  - Apis mellifica: swollen throat, dyspnea, cough with chest pain and no thirst, dislikes the warmth
  - Arsenicum album: weak, restless, worse after midnight, itchy rash with diarrhea and wants frequent drinks
  - Belladonna: high fever, red eyes, flushed face, throbbing head and difficulty swallowing
  - Gelsemium: fever, droopy eyes, croupy cough, is chilly with runny nose, red itchy rash and HA
  - Pulsatilla: teary, sticky eye discharge, photophobia; thick yellow nasal mucus and dark red rash, dry night cough and upset stomach

Cochrane Database Syst Rev. 2002;(1):CD001479.

Vitamin A for treating measles in children.

D'Souza RM[1], D'Souza R.

Author information

Update in
Vitamin A for treating measles in children. [Cochrane Database Syst Rev. 2005]

Abstract

BACKGROUND: Measles is a leading cause of childhood morbidity and mortality. Vitamin A deficiency is a recognised risk factor for severe measles. The World Health Organization (WHO) recommends administration of an oral dose of 200,000 IU (or 100,000 IU in infants) of vitamin A per day for two days to children with measles in areas where vitamin A deficiency may be present.

OBJECTIVES: The purpose of this review is to determine whether vitamin A when commenced after measles has been diagnosed, is beneficial in preventing mortality, pneumonia and other complications in children.

SEARCH STRATEGY: MEDLINE and the Cochrane Library, Issue 4, 1999 were searched.

SELECTION CRITERIA: Only randomized controlled trials in which children with measles were given vitamin A or placebo along with standard treatment were considered.

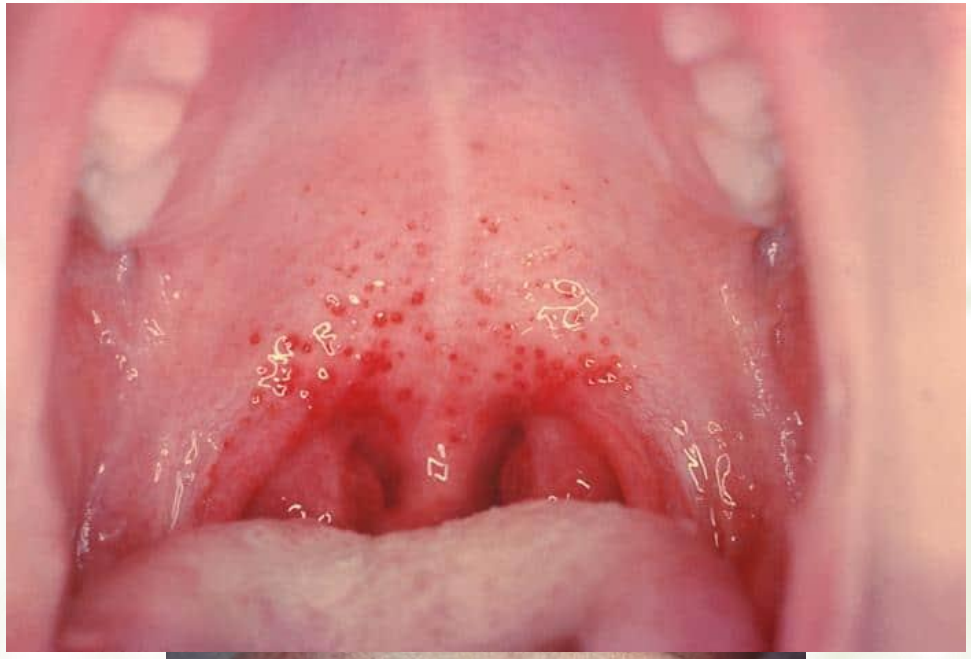
DATA COLLECTION AND ANALYSIS: Studies were assessed independently by two reviewers. The analysis of dichotomous outcomes was done using the StatXact software package. Sub-group analyses were done for dose, formulation, age, hospitalisation and pneumonia specific mortality. Weighted mean difference with 95% CI were calculated for continuous outcomes.

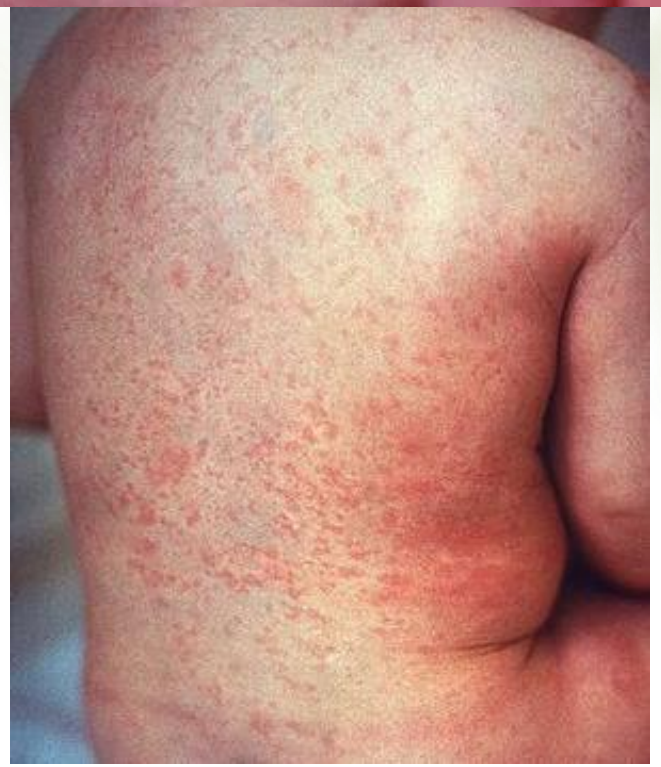
MAIN RESULTS: The relative risks (RR) and 95% Confidence Intervals (CI) are based on the estimates from the StatXact software package. There was no significant reduction in mortality in the vitamin A group when all the studies were pooled together (RR 0.60; 95% CI 0.32 to 1.12)(StatXact estimate). There was a 64% reduction in the risk of mortality in children who were given two doses of 200,000 IU of vitamin A (RR=0.36; 95% CI 0.14 to 0.82) as compared to placebo. Two doses of water based vitamin A were associated with a 81% reduction in risk of mortality (RR=0.19; 95% CI 0.02 to 0.85) as compared to 48% seen in two doses of oil based preparation (RR=0.52; 95% CI 0.16 to 1.40). Two doses of oil and water based vitamin A were associated with a 82% reduction in the risk of mortality in children under the age of 2 years (RR=0.18; 95% CI 0.03 to 0.61) and a 67% reduction in the risk of pneumonia specific mortality (RR=0.33; 95% CI 0.08 to 0.92). There was no evidence that vitamin A in a single dose of 200,000 IU was associated with a reduced risk of mortality among children with measles (RR=0.77; 95% CI 0.34 to 1.78). Sub-groups like age, dose, formulation, hospitalisation and case fatality in the study area were highly correlated and there were not enough studies to separate out the individual effects of these factors. There was a 47% reduction in the incidence of croup (RR=0.53; 95% CI 0.29 to 0.89), while there was no significant reduction in the incidence of pneumonia (RR=0.92; 95% CI 0.69 to 1.22) or of diarrhoea (RR=0.80; 95% CI 0.27 to 2.34). Duration of diarrhoea was measured in days and there was a reduction in its duration of almost two days WMD -1.92, 95% CI -3.40 to -0.44. Only one study evaluated otitis media and found a 74% reduction in its incidence (RR=0.26, 95% CI 0.05 to 0.92). We did not find evidence that a single dose of 200,000 IU of vitamin A per day, given in oil-based formulation in areas with low case fatality, was associated with reduced mortality among children with measles. However, there was evidence that the same dose given for two days was associated with a reduced risk of overall mortality and pneumonia specific mortality.

REVIEWER'S CONCLUSIONS: Although we did not find evidence that a single dose of 200,000 IU of vitamin A per day was associated with reduced mortality among children with measles, there was evidence that the same dose given for two days was associated with a reduced risk of overall mortality and pneumonia specific mortality. The effect was greater in children under the age of two years. There were no trials that compared a single dose with two doses, although the precision of the estimates of trials that used a single dose were similar to the trials that used two doses.

Rubella – 3-Day Measles or the German Measles

- Enveloped, positive-stranded RNA Rubivirus creating a mild, maculopapular rash along with **lymphadenopathy** (posterior auricular or suboccipital lymph nodes for 5-8 days) and a slight fever; droplets incubates up to 3 weeks
- **Transient pink – red maculopapular rash starts on face – spread cephalo-caudally**; generalized within 24 hours, lasts a median of 3 days
- **Forchheimer spots = rose colored on the soft palate**
- <u>Problem is pregnancy acquisition</u>
  - Miscarriage or birth defects
    - Deafness, cataracts, heart defects, brain disorders, mental retardation, bone alterations, liver and spleen damage





Integrative Rubella Treatment

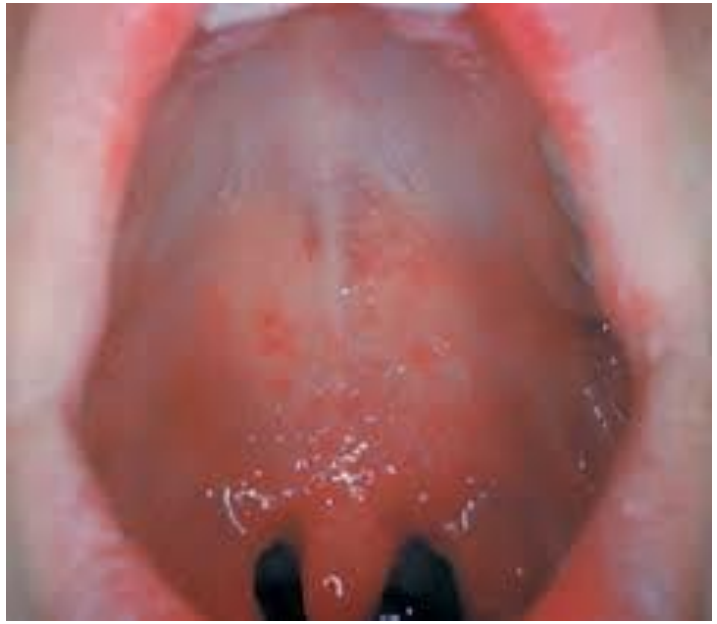
Disease is usually mild

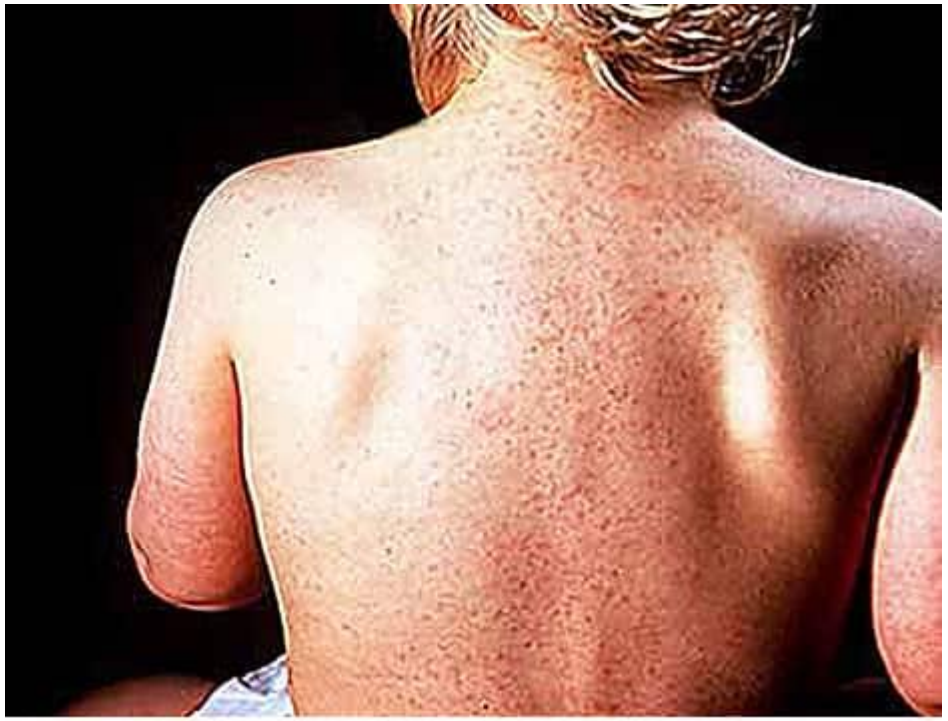
- Usual suspects + CMT
- Simple easy to digest diet with less fats
- Same a measles tx

- Homeopathy
  - Ferrum phosphoricum 12x or 6c – QID for 1 day - high fever
  - Natrum muriaticum 30x or 9c – TID-QID for 2 days – swollen glands, cancer sores and sore throat
  - Phytolacca 12x or 6C - TID-QID for 2 days - swollen glands, sore throat, eye pain and throat pain better after cold drinks
  - Pulsatilla 30x or 9c – TID for 2 days - cries easily and clingy

Roseola Infantum (not vaccine capable)

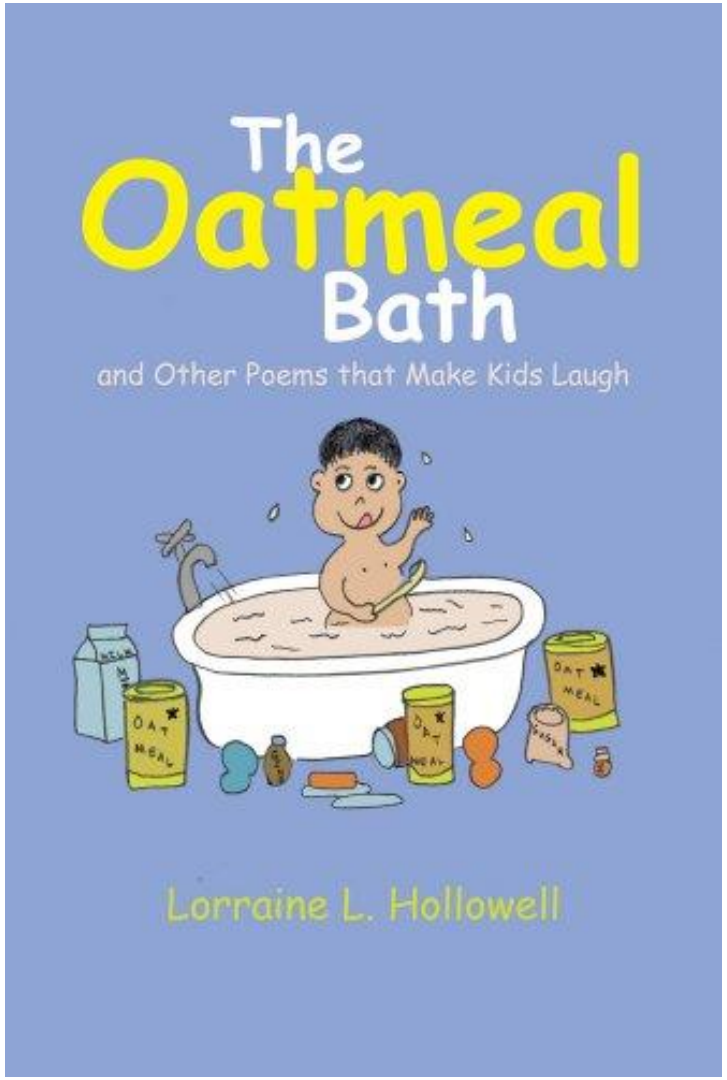
- 6th disease: mild droplet infection in caused by human herpes virus 6 or 7
  - Common in **6-36 months**
  - Incubation: 5 days to 2 weeks
- Prodrome: **Very abrupt high fever** before **non-itching macular** (some papular) **small spotted pink rash** starts on trunk, spread to neck and then to extremities (**not on the face**)
- (febrile seizure common)
  - Possible sore throat, runny nose and cough
  - Uvulopalatoglossal junctional macules or ulcers (**Nagayama spots**)

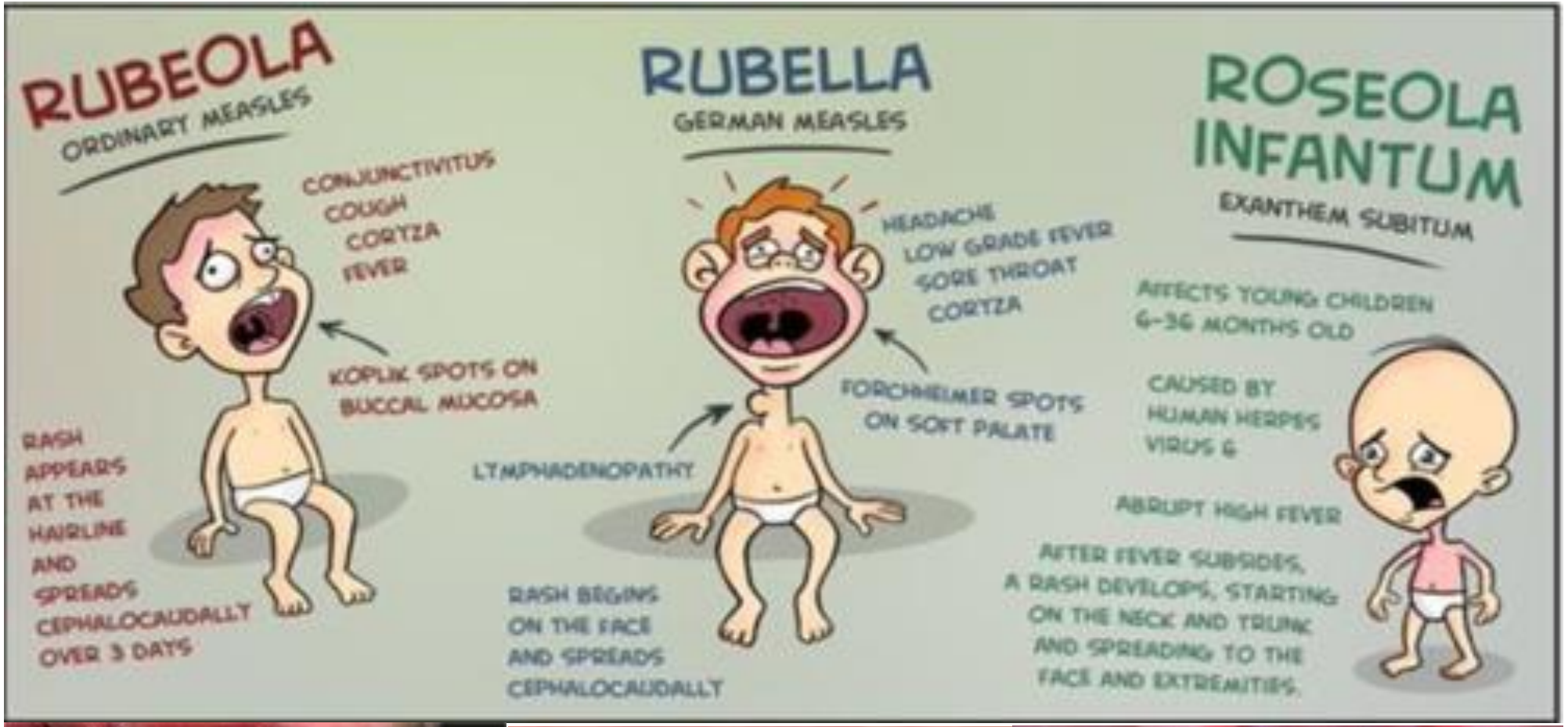


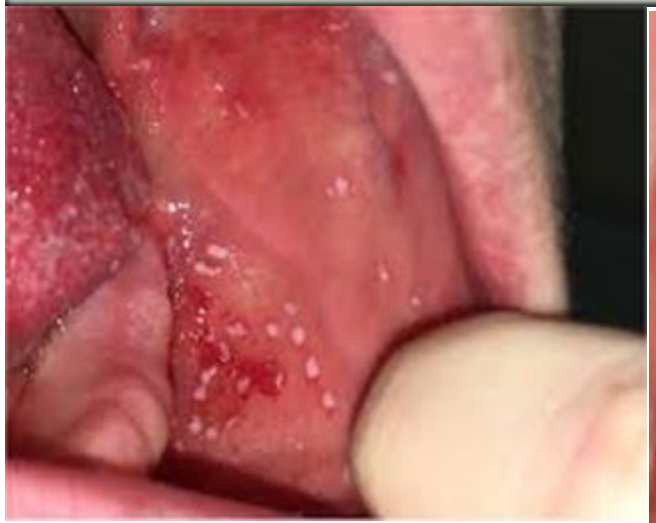


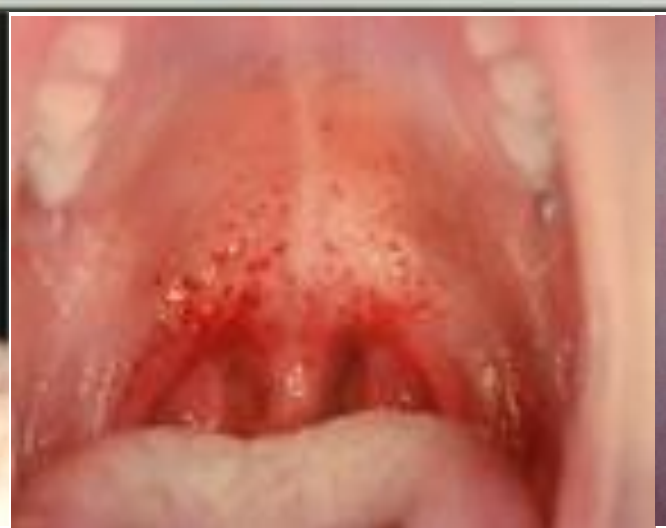
Integrative Roseola Treatment

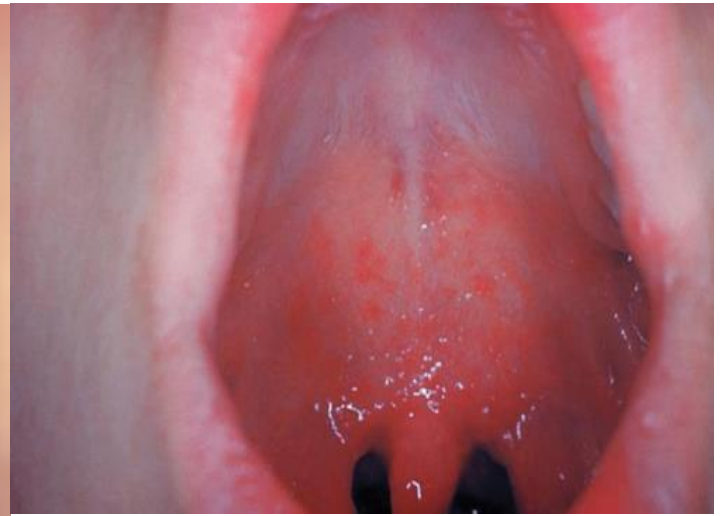
- Usual suspects + CMT
- Watch for the seizures (biggest issue / biggest sign) – take to ED
  - Bed rest + FLUIDS
- Echinacea / goldenseal formula
- Tepid oatmeal bath for the rash / fever
- Eliminate hard to digest fats
- Homeopathy:
  - Belladonna 200x or 15c – TID for 1 day - high fever and enlarged pupils
  - Phytolacca 12x or 6C – QID for 2 days - tender swollen glands
  - Pulsatilla 30x or 9c – TID for 3 days - cries easily and does not want to be left alone
  - Mercurius solubilis 12x or 6c – QID for 2 days - lingering illness with sore throat and bad breath




RUBEOLA
ORDINARY MEASLES
CONJUNCTIVITUS
COUGH
CORYZA
FEVER
KOPLIK SPOTS ON BUCCAL MUCOSA
RASH APPEARS AT THE HAIRLINE AND SPREADS CEPHALOCAUDALLY OVER 3 DAYS
RUBELLA
GERMAN MEASLES
HEADACHE
LOW GRADE FEVER
SORE THROAT
CORYZA
FORCHHEIMER SPOTS ON SOFT PALATE
LYMPHADENOPATHY
RASH BEGINS ON THE FACE AND SPREADS CEPHALOCAUDALLY
ROSEOLA INFANTUM
EXANTHEM SUBITUM
AFFECTS YOUNG CHILDREN 6-36 MONTHS OLD
CAUSED BY HUMAN HERPES VIRUS 6
ABRUPT HIGH FEVER
AFTER FEVER SUBSIDES, A RASH DEVELOPS, STARTING ON THE NECK AND TRUNK AND SPREADING TO THE FACE AND EXTREMITIES.

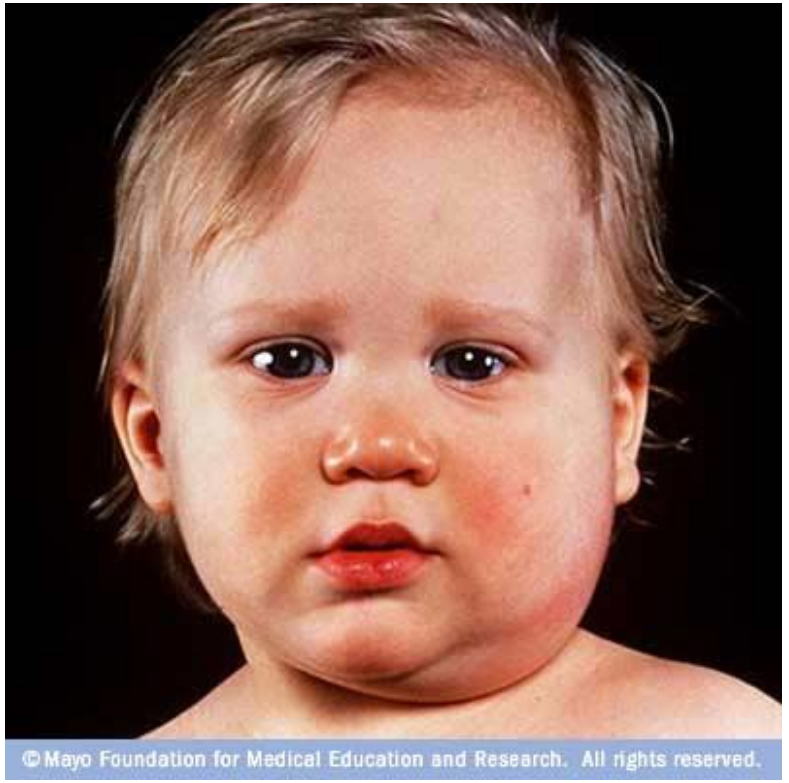






Mumps

- RNA Paramyxovirus causing parotiditis in one or both parotid salivary glands; 10% can be submandibular and sublingual also
  - Swelling peaks 1-3 days and then subsides during the next week
- Incubation: 16 to 18 days (average 12-25 days)
- Other symptoms that might begin a few days before parotitis include:
  - Fever
  - Headache
  - Myalgia
  - Malaise
  - Anorexia
- Complications: deafness, mastitis, oophoritis, orchitis, meningitis and encephalitis
  - May result in reduced fertility and rarely sterility



Mumps Treatment

Integrative

- Adjust – T1-T4 and cervical especially
- Using a cool mist humidifier
- Don’t lay flat
- Drinking lots of warm fluids
  - Bone Broth
- Chest rub
- Keeping your child as quiet and calm as possible to make it easier to breathe
- Herbs: licorice, thyme, ginger, and white horehound

Medical – if bad enough

- Inhaled medications – nebulized steroids
- Injected medications
- Oral medications (taken by mouth)

Integrative Mumps Treatment

- Usual suspects + CMT / possible lymph drain
- Ice or heat packs on the neck and scrotum, soft food, and gargling with warm salt water
- Probiotic (L acidophilus) for immune support
- Bromelain (between meals) and turmeric – as anti-inflammatory
- Green tea - decaffeinated as an antioxidant
- Elderberry - antiviral properties / strengthen the immune system.
- Soothing herbal teas: throat coat (marshmallow) to decrease pain / swelling
- Echinacea and goldenseal combination

- Homeopathy - all QID for 2 days
  - Belladonna (30x or 9C): R>L gland, high fever, flushed face, easy chilled
  - Rhus Toxicodendron (30x or 9c): L>R gland swelling, stiff and achy in AM
  - Mercurius (12x or 6c): swollen glands, sore throat, testicle swelling
  - Phytolacca (12x or 6c): mumps with hard swollen glands and ear pain
  - Pulsatilla: later stage mumps, especially in adults or children approaching puberty

Pertussis / Whooping Cough

- Bacterial infection droplet spread from Bordetella pertussis
- 5–10-day incubation; total course of disease = 6 weeks
- Has 3 stages
  - 1. Catarrhal
  - 2. Paroxysmal
  - 3. Convalescent
  - Avoid the 100-day cough
- Contagious for 3-4 weeks at the beginning of the cough

http://www.whoopingcough.net/cough-child-muchwhooping.wav

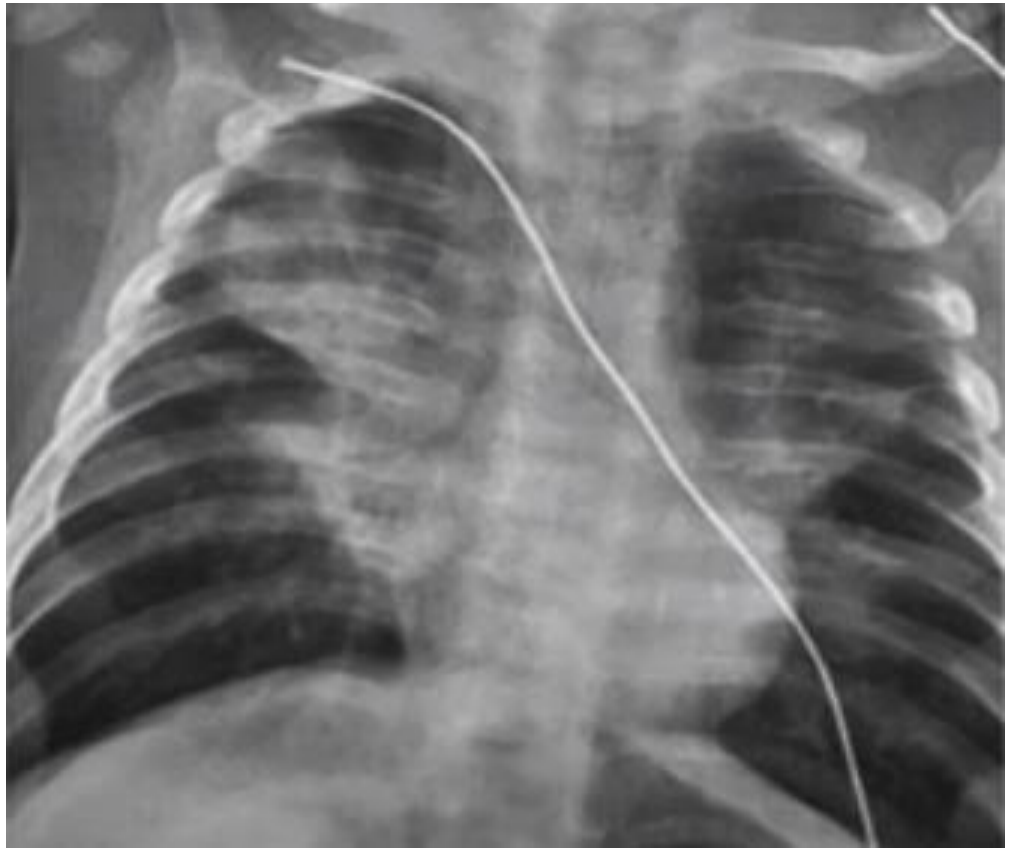
Table 1. Stages, Progression, and Presentation of Pertussis in Adolescents and Adults

Stage	*Duration*	*Signs and symptoms*
Catarrhal	One to two weeks	Insidious onset with gradual progression No or mild fever, rhinorrhea, lacrimation, dry cough, malaise Highly contagious
Paroxysmal	One to six weeks (up to 10 weeks)	Paroxysms (i.e., periods of coughing occurring in rapid succession during one exhalation) Inspiratory whoop may follow coughing spell Post-tussive emesis, cyanosis, and exhaustion Leukocytosis, lymphocytosis, and weight loss
Convalescent	Two to three weeks	Coughing lessens Susceptibility to respiratory tract infections

Information from references 6 and 7.

Pertussis / Whooping Cough

- In kids <2 can lead to complications
  - Bronchiolitis, atelectasis, broken ribs, pneumothorax, ear infections, pneumonia and hernias (coughing)
  - May need hospitalization – nebulizer, intubation with ventilation d/t oxygen deprivation (cyanosis)
  - X-ray = Butterfly chest

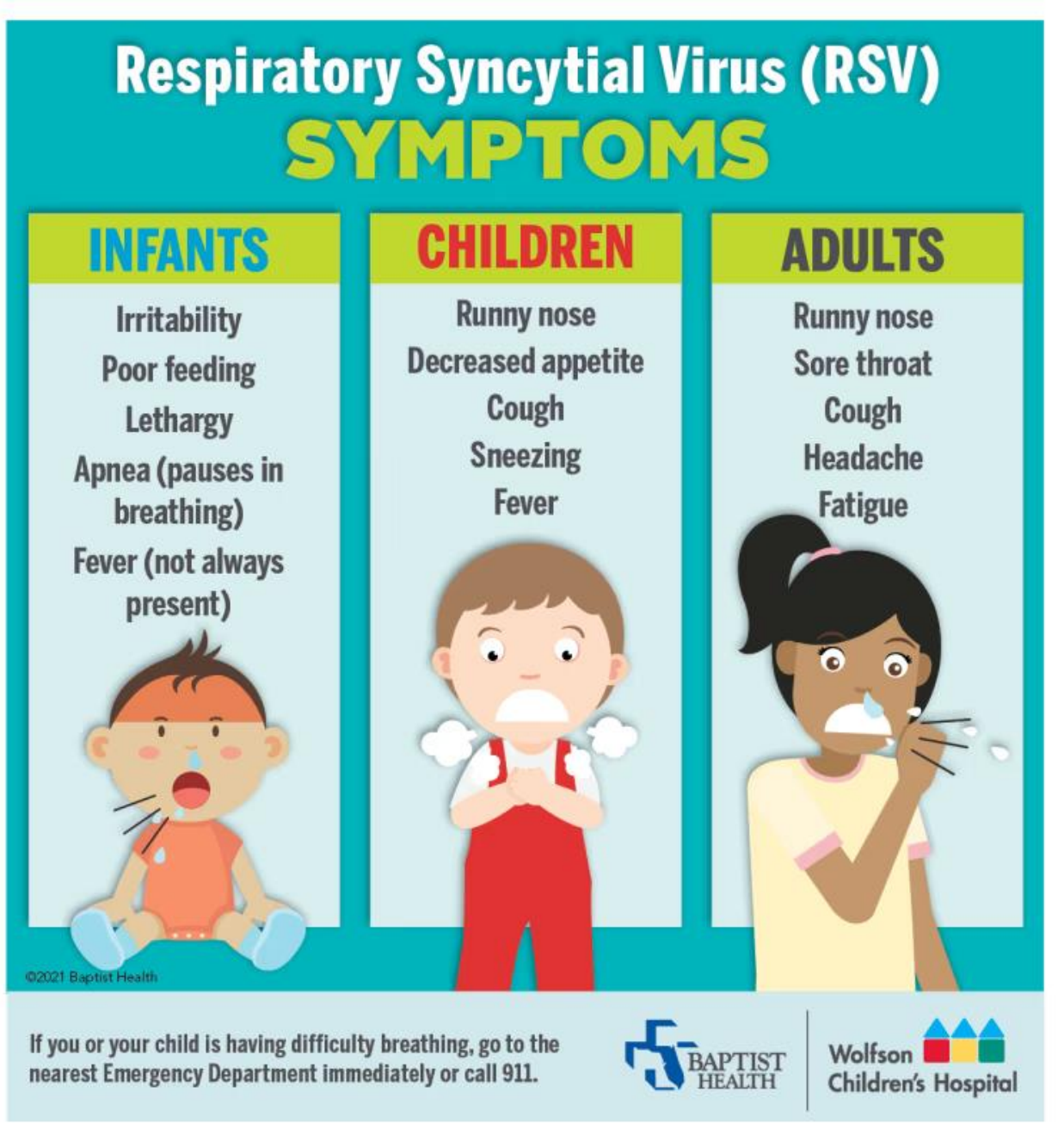


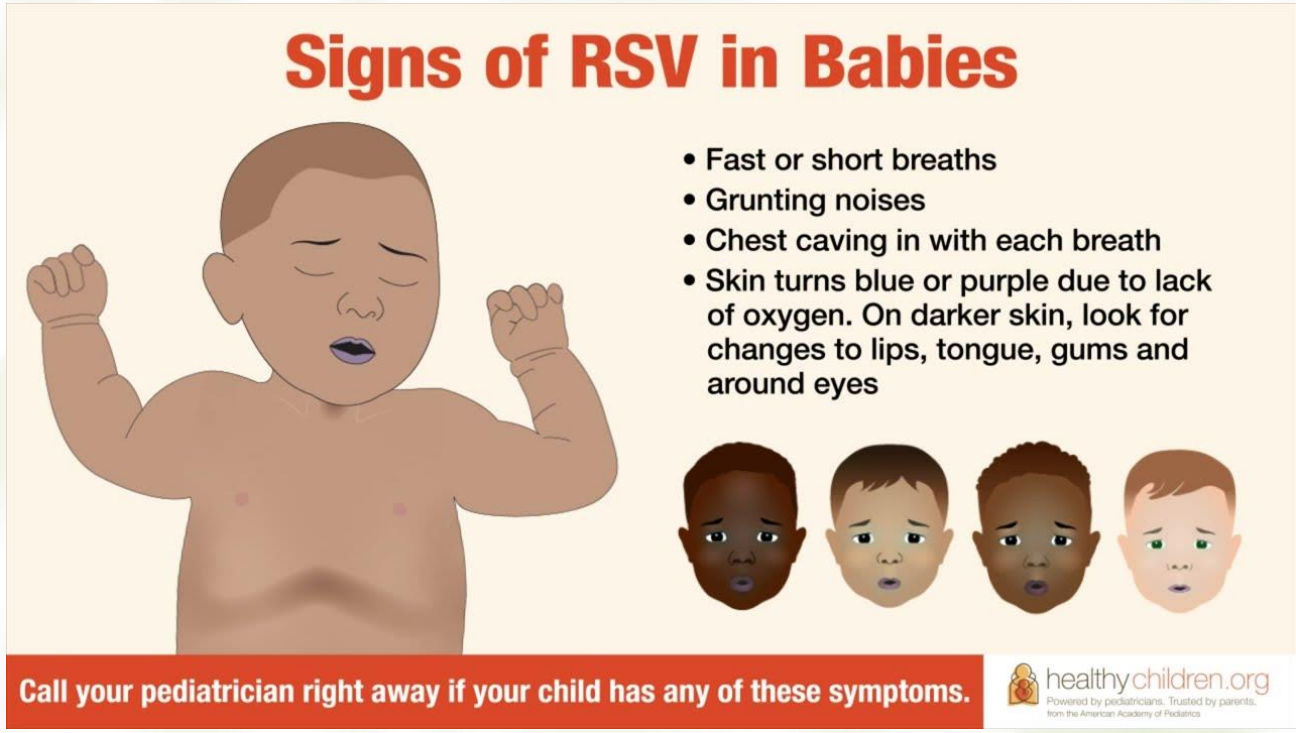
Pertussis / Whooping Cough Treatment & Sounds

- Usual suspects
  - Cough medicine not helpful here
- Teas – breathe deep (licorice, marshmallow and slippery elm)
  - Slippery elm lozenge
- Acupressure at PC6, CV17, LU1
- Homeopathy:
  - Antimonium tartaricum 12x or 6c – TID: no fever but moist rattling cough and pale
  - Belladonna 30x or 9c - QID: fever
  - Drosera 12x or 6c TID for 3 days: whooping dry cough with wheeze
  - Spongia 12x or 6c TID for 3 days: croup like cough with chest pain better with warm drinks

RSV - Respiratory Syncytial Virus

- Droplet spread orthopneumovirus
  - Early: rhinorrhea, anorexia wheezing and cough, apnea, decreased activity and irritability, cyanosis, nostril flaring and tachypnea
- Can lead to pneumonia or bronchiolitis – hospitalization
- Treatment looks like croup – see later slides



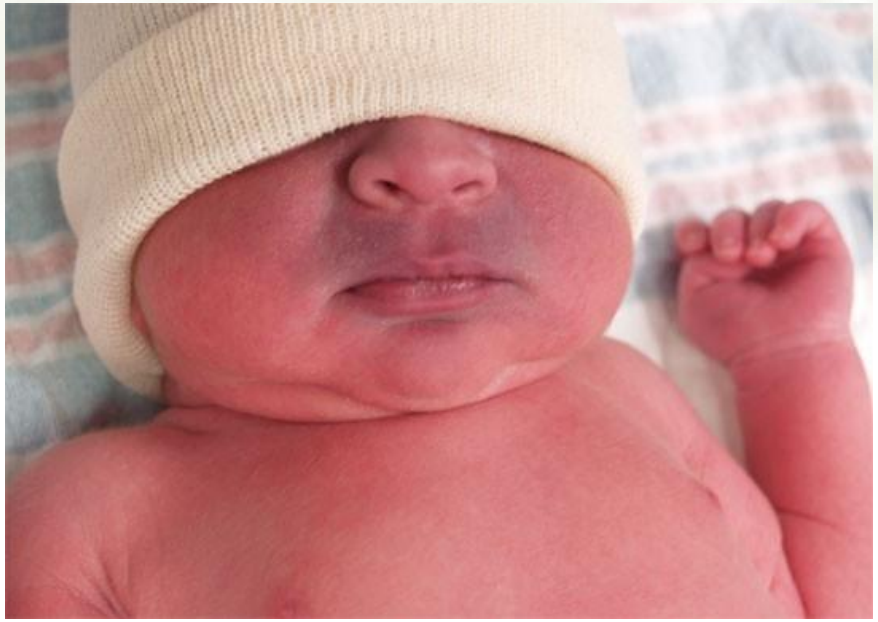


Fast Breathing / Tachypnea

Age	Go to Pediatric Office or ER Now
Under 2 months	> 60 breaths per minute
2 months to 12 months	> 50 breaths per minute
1-5 years	> 40 breaths per minute
6-12 years	> 30 breaths per minute
12 years and older	> 20 breaths per minute

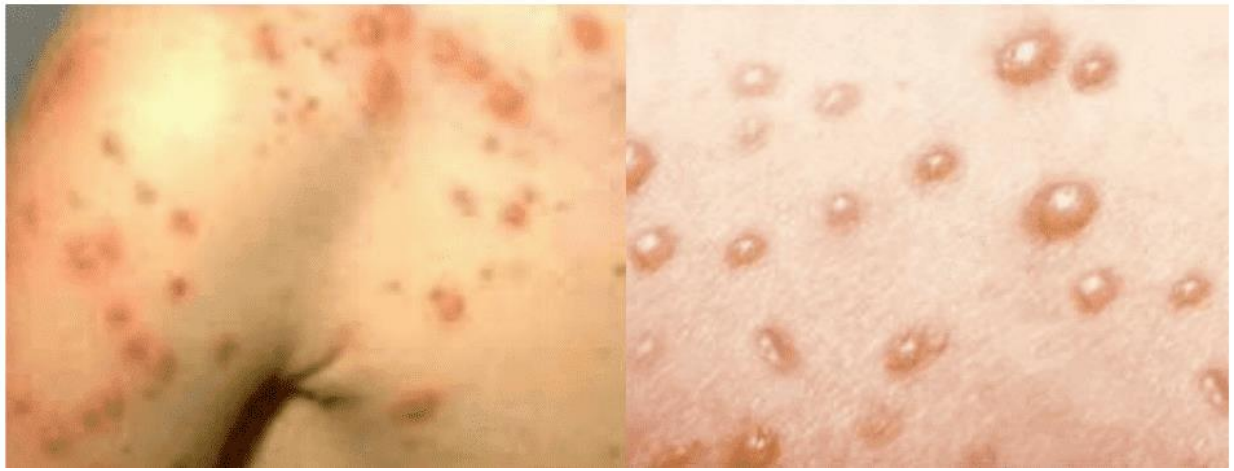
KidNurse

*Reference: Pediatric Telephone Protocols, Dr. Barton Schmitt



Chicken Pox

- Highly contagious droplet exposure with Varicella Zoster – most infectious before symptoms begin
  - Prodrome: Moderate fever, HA, fatigue, achiness and sore throat
  - 2 days later: Trunk eruption of macular to papular to tear drop shaped vesicular intensely itchy rash; next day spreads to extremities and face
    - Blisters form over 3-5 days until they scab 5-6 days after the lister appears and take 1-2 weeks to fall off

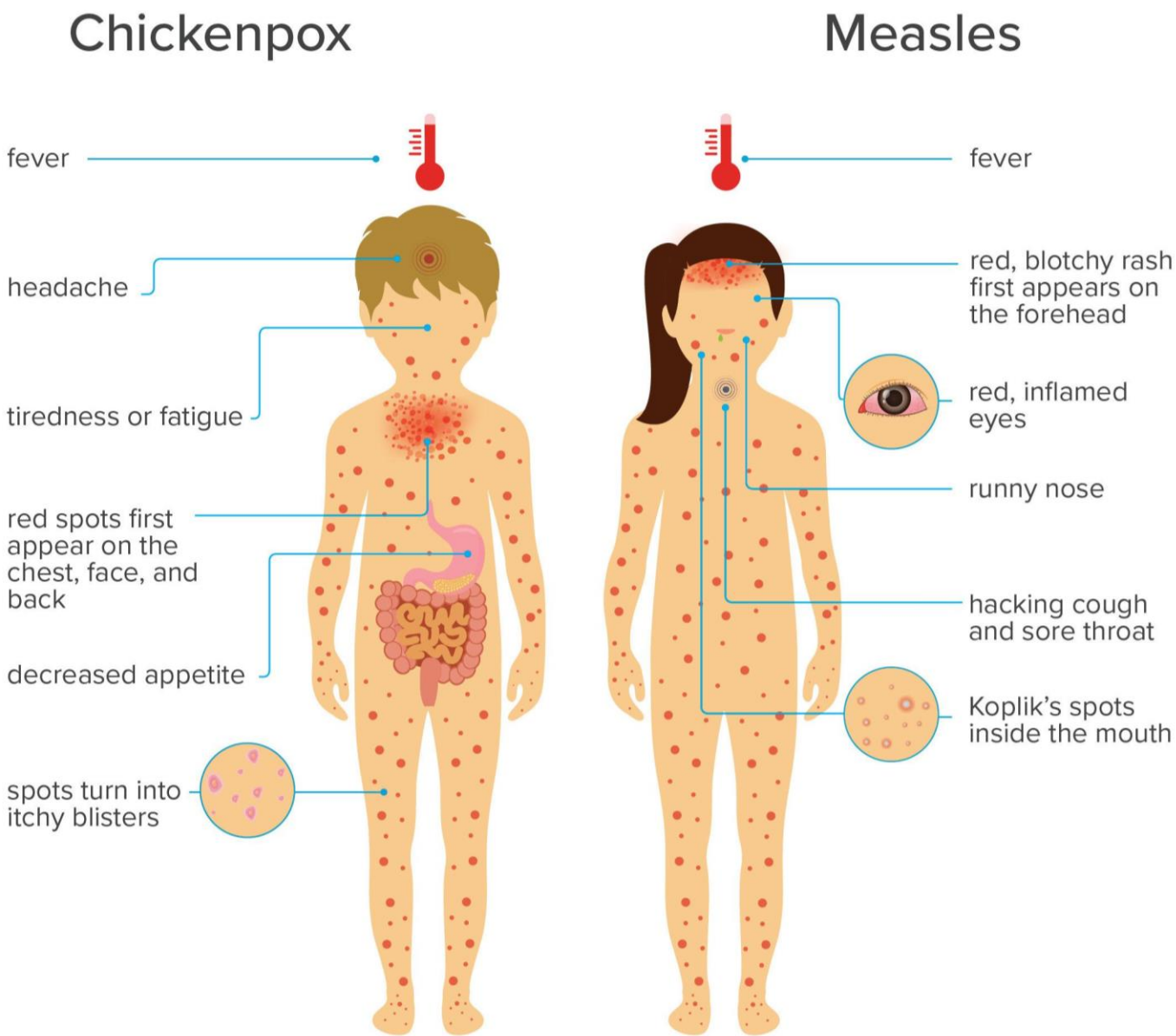


Chicken Pox Integrative Treatment

- Usual suspects with fluids, soup and tea - A, C, Zn immune / skin healing
- Oral NAC, Quercetin and Nettle mix for itching
  - Oatmeal baths (if needed OTCs like Benadryl)
  - Burow's solution (5% aluminum subacetate) relieves the itching helps dry + stop bacteria growth
- Ca/Mg for sleeping
  - Sleep with gloves for scratching
- Echinacea /Goldenseal tincture
- Burdock root to detoxify and heal skin
- Acupressure: LI4, LV3, LI11, SP10, ST36

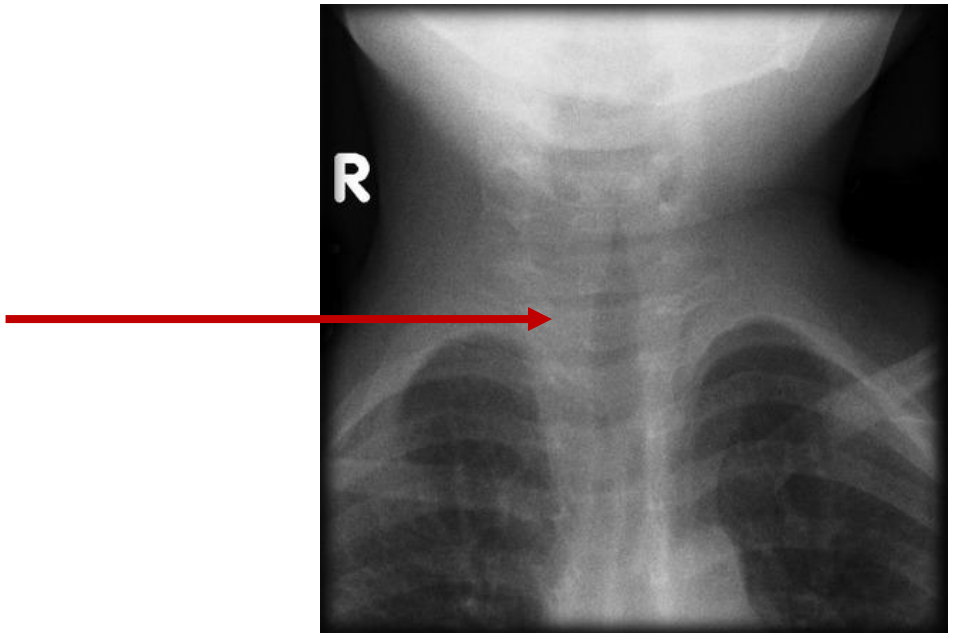
- Homeopathics:
  - Calendula: tincture, oil or gel – itching and healing
  - Grindelia tincture: itching
  - Rhus Toxicodendron 30x or 9c TID for 48 hours for itching
  - Sulphur 30x or 9cID for 3 days – red oozing itchy pox

Chickenpox vs. Measles



Croup – NO Vax

- Viral infection – kids 3 mo. - 5 years
- M/C in winter
- Person - person contact / particles infection with fever, runny nose, laryngitis – worse at night lasts 3-5 days
  - Parainfluenza virus
  - Respiratory syncytial virus (RSV)
  - Influenza virus
  - Adenovirus
  - Enteroviruses
- Swelling in the larynx and trachea - “seal barking cough”
  - High-pitched “creaking” or whistling sound on inhalation (stridor)
  - X-ray – steeple sign



Integrative Croup Treatment

- Usual suspects + CMT
- Using a cool mist humidifier
  - Warm steam for some
- Don’t lay flat
- Chest rub
- Acupressure LU1, PC6, CV17
- Keeping your child as quiet and calm as possible to make it easier to breathe
- tea: licorice, marshmallow, mullein and osha equal part BID
- Warm liquids and NO DAIRY

- Homeopathics:
  - Kali muriaticum 12x or 6c
  - Aconite 12x: develops after cold air / wind exposure
  - Ipecac 30x or 9c:if vomiting
  - Spongia 12x: dry rattling cough and loud breathing
  - Coughing at times:
    - 11pm-12am irritable with phlegm: Coccus cacti 30x or 9c
    - 2am dry spasmodic tickling cough: Drosera 12x or 6c
    - Suffocating or chocking fear: Cuprum metallicum 30x or 9c

Medical – if bad enough - Inhaled medications or nebulized steroids
Injected or oral corticosteroid

Homemade Herbal Vapor Rub Recipe

- 1/4 cup (2 oz.) organic almond oil (olive, almond, apricot kernel, or coconut oil are all good options)
- 1 tbsp. (1/2 oz.) organic beeswax pellets
- 20 drops Ravintsara Essential Oil
- 20 drops Eucalyptus Radiata Essential Oil
- 10 drops Lavender Essential Oil

	Croup	Pertussis	RSV
Causes	Infection of the upper airway caused by a virus, normally parainfluenza, but it also be caused by RSV	Respiratory infection caused by the bacteria Bordetella Pertussis. Often acquired from family members who have a milder form of the illness	Viral infection of the respiratory tract
Symptoms	Characterized by a low, barking cough reminiscent of a seal bark	Characterized by rapid, high-pitched coughing and a whooping sound while inhaling	Characterized by wheezing, rapid breathing, and a severe cough. Fever may also be present.
Treatments	Cool-mist vaporizer, Tylenol, steroids, and fluids, though hospitalization and breathing tube intubation may be needed in severe cases	Tylenol, fluids, and antibiotics, hospitalization and oxygen therapy may be required in serious cases	Tylenol, fluids, anti-viral medication, a bulb syringe to suction mucous, and a cool-mist vaporizer, though hospitalization may be required if the child is having difficulty breathing
Duration	Lasts 3-5 days but can last up to 2 weeks	Lasts weeks, sometimes up to a few months, potentially over 2 months if the child is young and has not been immunized	Lasts around 3-7 days, but some children may develop chronic lung disease

Exanthems – using information from http://www.pcds.org.uk/clinical-guidance/viral-exanthems and other sources including CDC and WHO. Typically direct/ airborne/ droplet spread.

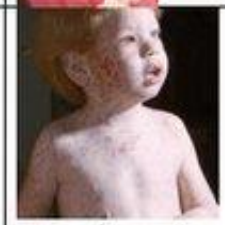
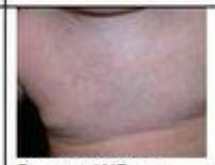
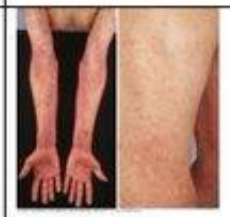
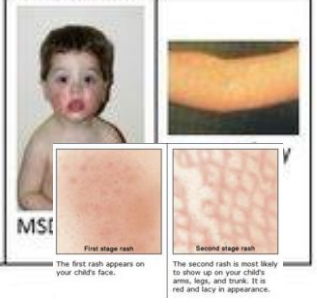
Condition	Infective agent	Incubation period	History	Rash morphology	Distribution	Infectivity	Complications	Images (also see excellent gallery on PCDS website)
Measles (aka rubeola) #VaccinesWork	Para-myxovirus Notifiable in UK	7-18 days Treat with High dose A; can get cellulitis	Preceded by fever, cough and very red eyes Older children may have photophobia Child often looks ill	Erythematous Maculopapular Lasts 4-7 days	**Face first** Then chest & abdo Then arms & legs **Koplik's spots** (red spots with blue-white centre) in mouth	From prodrome **until 4 days after onset of rash**	Otitis media Pneumonia Diarrhoea Convulsions Encephalitis (1:1000) Sub-acute sclerosing pan-encephalitis Death (1:5000) (mostly in children under 5)	 BBC | CMAJ (Koplik's spots) 
Rubella (aka German measles) #VaccinesWork	Rubella Notifiable in UK	14-21 days	Prodrome 1-5 days before rash: mild fever, conjunctivitis, URTI symptoms, tender post-auricular lymphadenopathy	Transient Pink or light red	**Face/neck first** Then trunk and limbs Forchheimer Spots in mouth	From 7 days before **until 4 days after onset of rash**	First 16 weeks of **pregnancy** - Learning disability, cataracts, deafness, cardiac, IUGR, inflammation of brain, liver, lungs, bone marrow 16-20 weeks – min risk of deafness 20+ weeks - no documented risk	 Historyofvaccines.org
Roseola (aka roseola infantum, exanthema subitum)	Human herpes virus 6 or 7	10-15 days Mac. Pap rash; NO face no itch	**Children up to 3 years of age** High fever for 3 days, settling when rash develops Occasionally URTI Abdo pain and malaise	Small pink-red macules Occasionally some papules	**Trunk first** Then arms & neck V little on face/legs Lasts 1-2 days Eyelid oedema in 30%	During **whole period** of diseases and maybe even before pyrexia	Rarely - encephalitis Conjunctivitis, acute otitis media, Uvulopalatoglossal junctional macules or ulcers (Nagayama spots), Rhinorrhea, Cough, Vomiting, Diarrhea, bulge fontanelle	 DermnetNZ.org
Scarlet fever (aka scarlatina)	Strep pyogenes Notifiable in UK (not Scotland)	1-7 days	Mainly childhood – **typically 2-8 years** Fever usually accompanied by sore throat, headache Nausea and vomiting may also occur	Fine popular red rash that **feels like sandpaper** As rash fades **peeling** affects fingertips, toes, groin	**Chest & stomach 1st** **Rapid spread** to other parts of body. **Facial flushing, perioral pallor** White→"**Strawberry tongue**"	**5-7 days**	Patients should be treated with 10 days of antibiotics **Early stages** – small risk of ear infection, throat abscess, sinusitis, pneumonia, meningitis **Rare later** – bone, joint, liver, renal, acute rheumatic fever	 Mayoclinic.org
Erythema infectiosum (aka Fifth disease, slapped cheek syndrome)	Parvovirus B19	4-14 days Lace like mac. Pap rash; NO hands or feet	**Mainly children aged 4-10 years** Common in winter and spring Occasionally mild prodrome – low grade fever, headache, pharyngitis, malaise, myalgias, nausea, diarrhoea, joint pain	Biphasic: **"Slapped cheeks" first** (spares nasal bridge and periorbital areas – fades over 1-4 days Then macular rash on trunk and extensor extremities – lasts 5-9 days (can recur for months eg with sunlight, exercise, temperature change, bathing, emotional stress)		**Not infectious once rash appears**	**Pregnancy** - associated with pregnancy loss (9% of pregnancies with infection in first 20 weeks), fetal death, rarely hydrops fetalis (from viral replication in bone marrow)	 MSI First stage rash The first rash appears on your child's face. Second stage rash The second rash is most likely to show up on your child's arms, legs, and trunk. It is red and lacy in appearance.

Table produced by Graham Mackenzie @gmacscotland, using information from the Primary Care Dermatology Society @PCDSUK "exanthems" webpage)


If you are always trying to be normal,
you will never know how
AMAZING
you can be.
Maya Angelou – American Poet

Lhasa OMS has generously given all attendees a one-time discount of 15% using code Tohtz1524 for the rest of 2024