Viral Respiratory tract infections

M.R. Kadivar , M.D
Professor of Pediatric Infectious Diseases
Shiraz University of Medical Science

Fars Pediatric Association

Man flu DOES exist: Why women deal wit...
express.co.uk

Influenza myth busters | ScienceNordic
sciencenordic.com

Stay Safer This Flu Season • HealthMint
healthmint.com.au

Decoding the Symptoms: Influe...
chcp.edu

Moss Vale Community Phar...
mvcp.com.au

MAHC Taking Additional Ste...
muskoka411.com

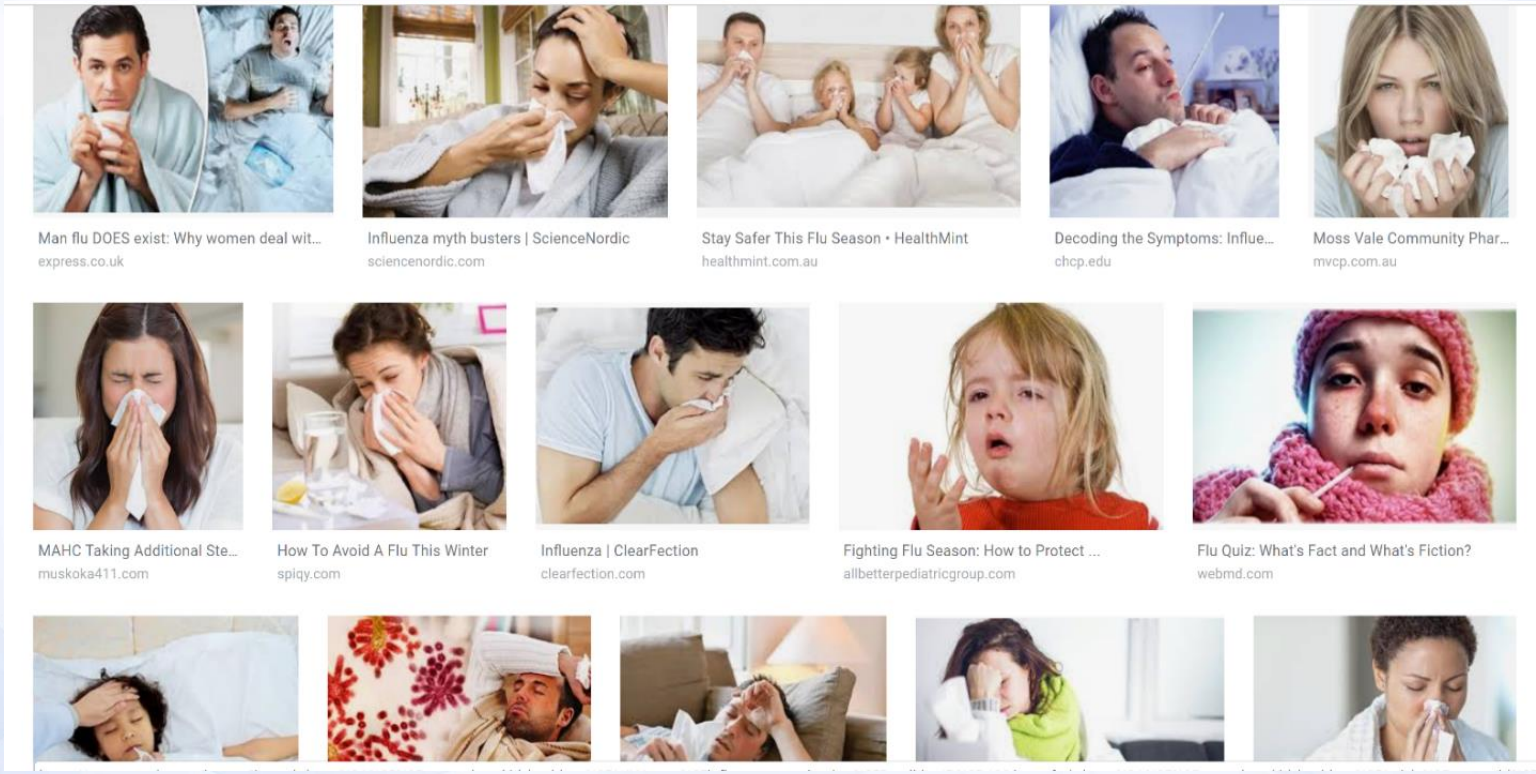
How To Avoid A Flu This Winter
spiqy.com

Influenza | ClearFection
clearfection.com

Fighting Flu Season: How to Protect ...
allbetterpediatricgroup.com

Flu Quiz: What's Fact and What's Fiction?
webmd.com

چه خواهید کرد؟



Rhinoviruse ...Influenza... coronaviruse

...RSV...Parainfluenza...

Common cold

Table 428.1 Pathogens* Associated with the Common Cold

ASSOCIATION	PATHOGEN	RELATIVE FREQUENCY**	OTHER COMMON SYMPTOMS AND SIGNS
Agents primarily associated with the common cold	Rhinoviruses	Frequent	Wheezing/bronchiolitis
	Coronaviruses, including SARS-CoV-2 variants	Frequent	
Agents primarily associated with other clinical syndromes that also cause common cold symptoms	Respiratory syncytial virus	Occasional	Bronchiolitis in children <2yr of age
	Human metapneumovirus	Occasional	Pneumonia and bronchiolitis
	Bocavirus	Occasional	Uncertain role
	Influenza viruses	Uncommon	Influenza-like illness, pneumonia, croup
	Parainfluenza viruses	Uncommon	Croup, bronchiolitis
	Adenoviruses	Uncommon	Pharyngoconjunctival fever (palpebral conjunctivitis, watery eye discharge, pharyngeal erythema)
	Enteroviruses Coxsackievirus A Other nonpolio enteroviruses	Uncommon	Herpangina (fever and ulcerated papules on posterior oropharynx) Aseptic meningitis

*It is not unusual to have one or more respiratory pathogens.
**Relative frequency of colds caused by the agent.

Table 428.2 Conditions that Can Mimic the Common Cold

CONDITION	DIFFERENTIATING FEATURES
Allergic rhinitis	Prominent itching and sneezing, nasal eosinophils; Hansel stain can aid diagnosis
Vasomotor rhinitis	May be triggered by irritants, weather changes, spicy foods, etc.
Rhinitis medicamentosa	History of nasal decongestant use
Foreign body	Unilateral, foul-smelling secretions
	Bloody nasal secretions
Sinusitis	Presence of fever, headache or facial pain, or periorbital edema or persistence of rhinorrhea or cough for longer than 10-14 days
Streptococcosis	Mucopurulent nasal discharge that excoriates the nares, no cough
Pertussis	Onset of persistent or severe paroxysmal cough
Congenital syphilis	Persistent rhinorrhea with onset in the first 3 mo of life

- Respiratory tract infections are the most reason of office visits
- Common colds account for one-third to one-half of all acute respiratory infections in humans.

Annual incidence (colds per year)

Children	6 to 8
Adults (16 to 45)	2 to 3
Adults (>45 years)	1

- The upper respiratory tract infection

  nasal stuffiness

  sneezing

  coryza

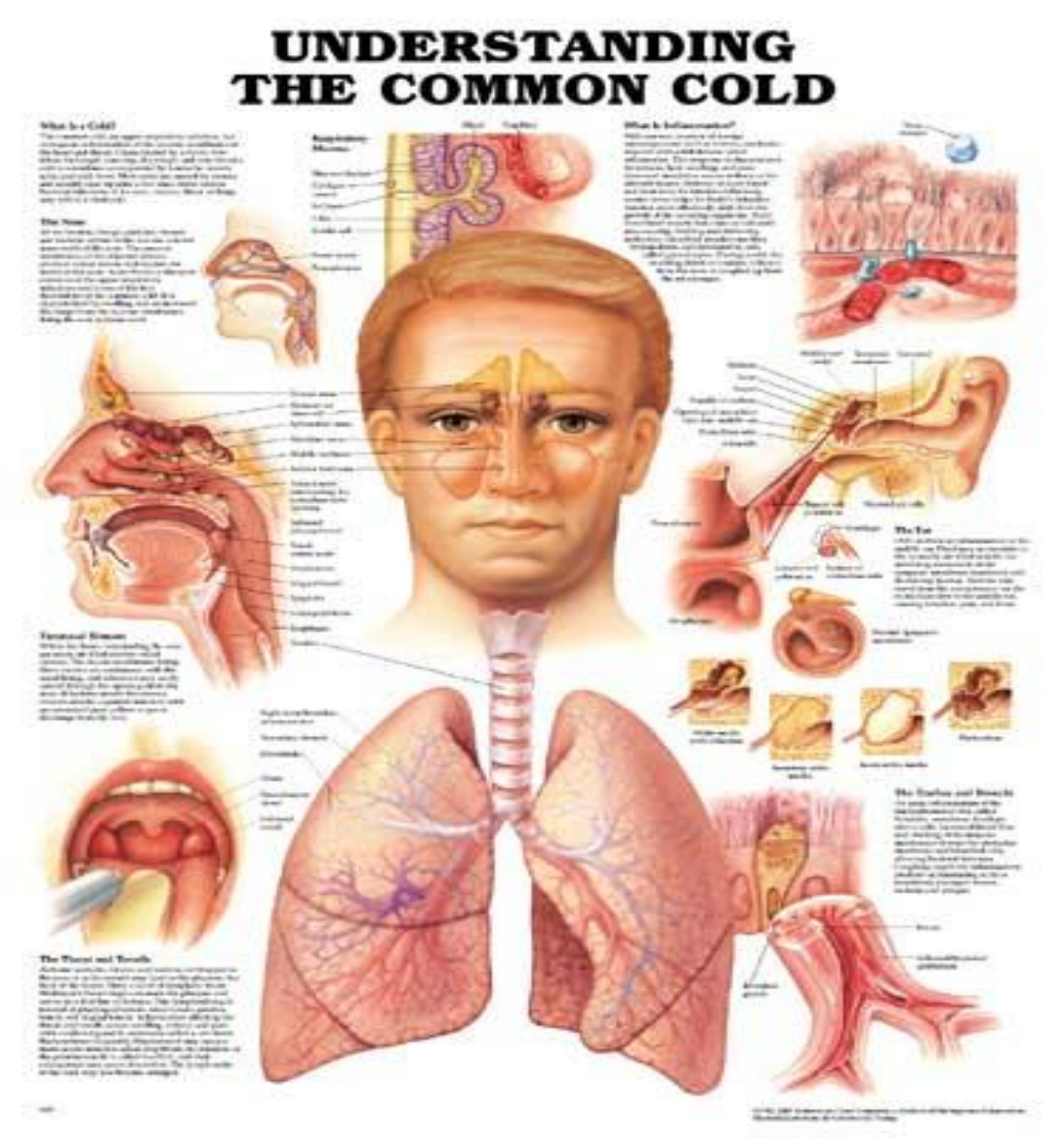
  throat irritation or sore throat

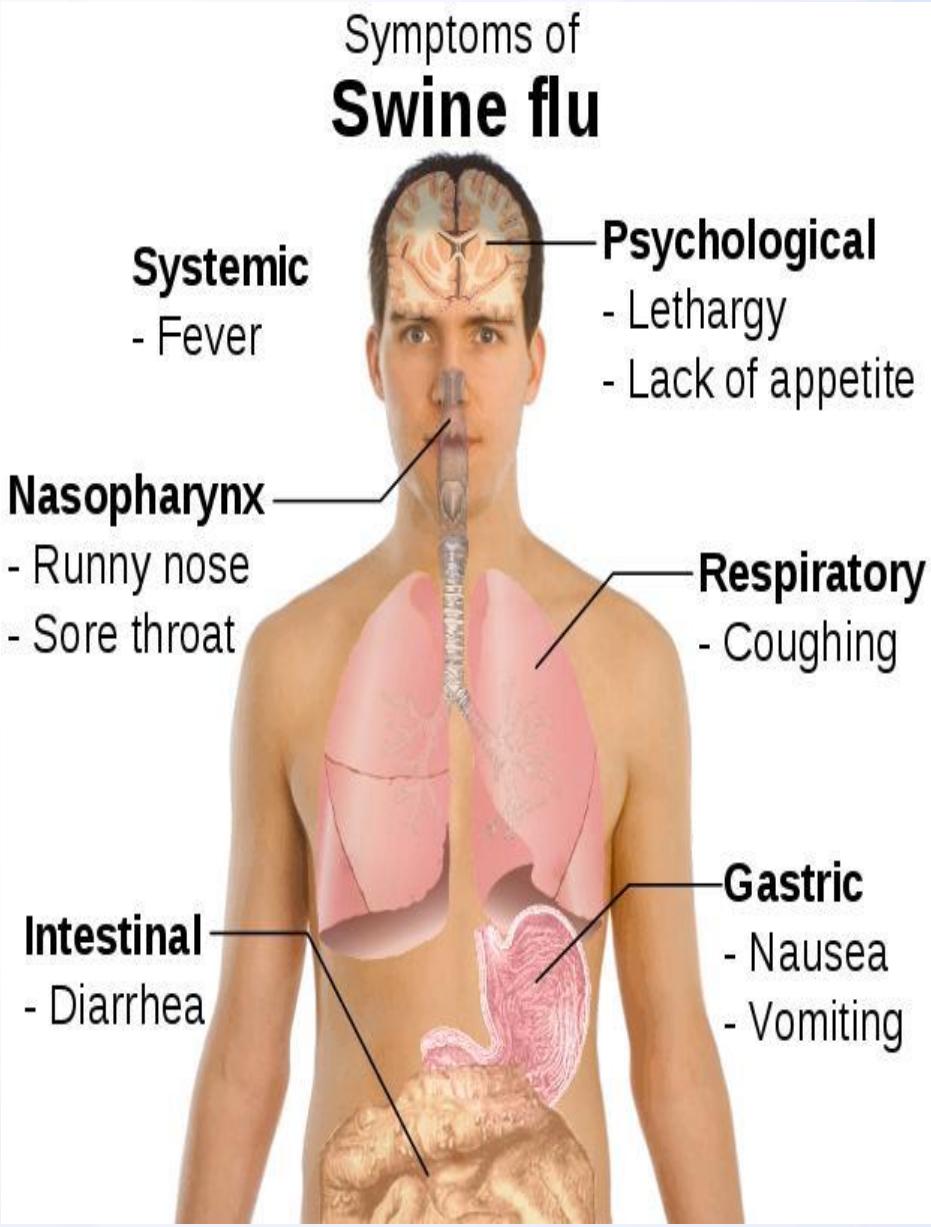
  fever

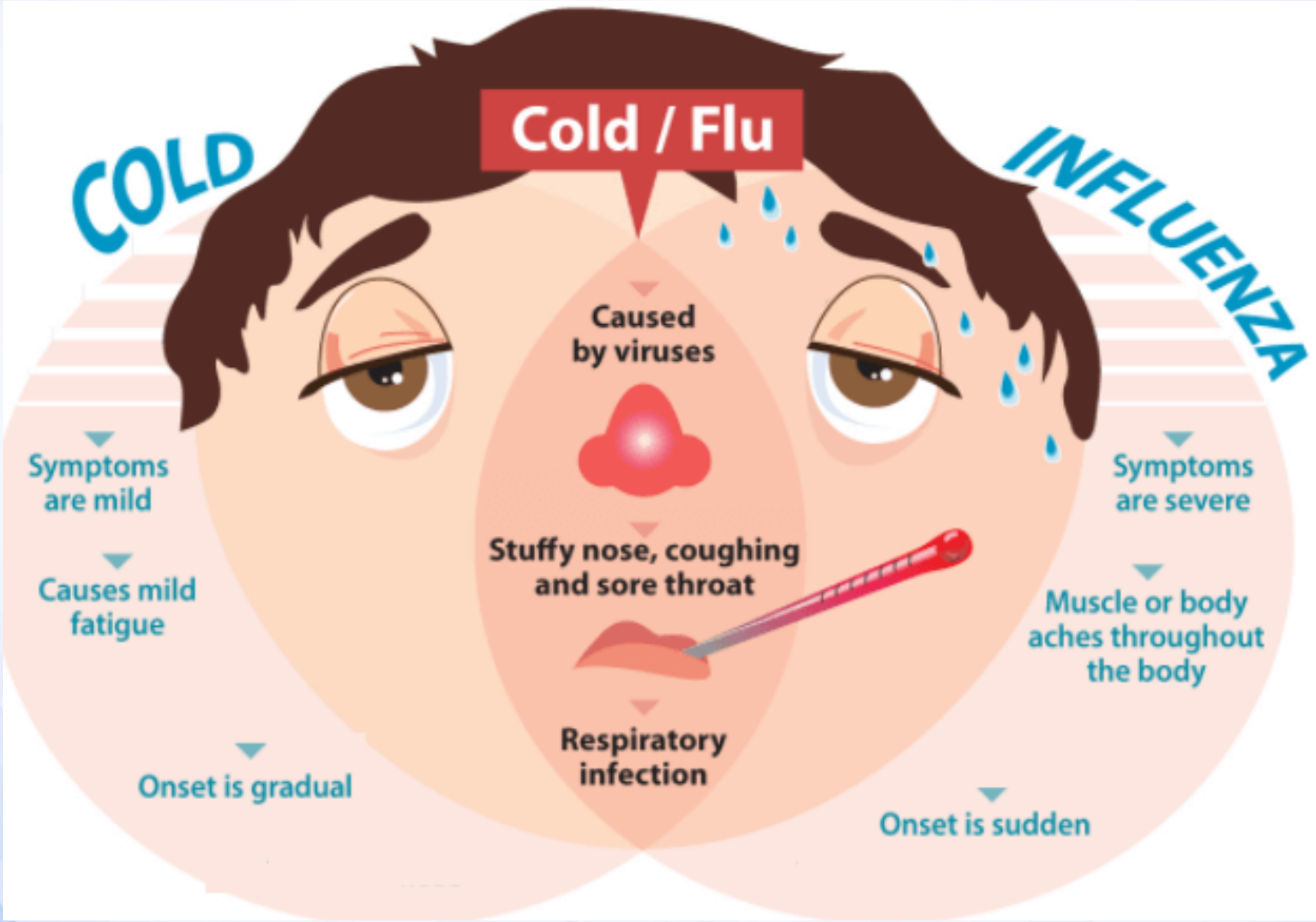
  myalgia

  malaise or loss of appetite

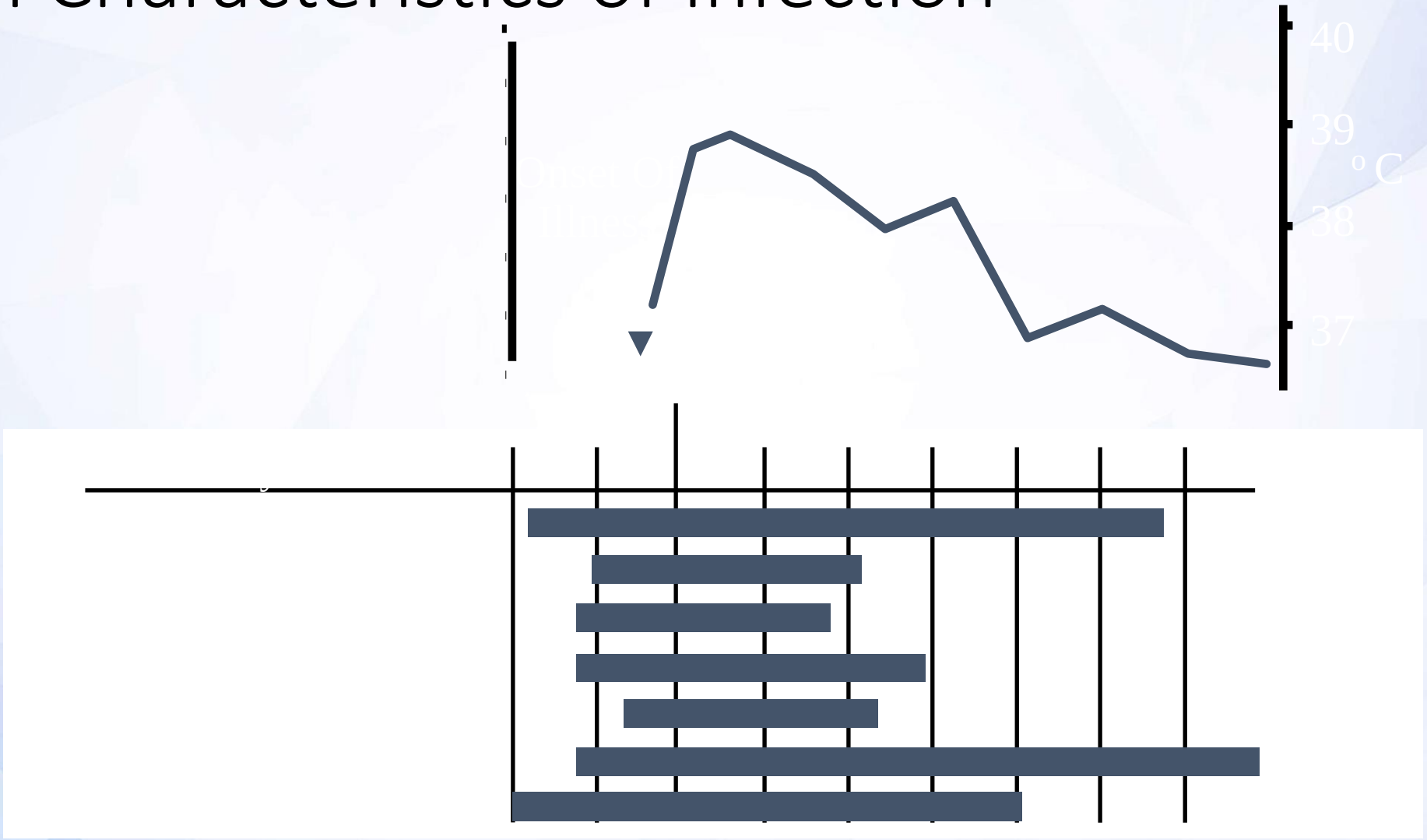
  .....


UNDERSTANDING
THE COMMON COLD


Symptoms of
Swine flu
Systemic
- Fever
Psychological
- Lethargy
- Lack of appetite
Nasopharynx
- Runny nose
- Sore throat
Respiratory
- Coughing
Intestinal
- Diarrhea
Gastric
- Nausea
- Vomiting


Cold / Flu
COLD
INFLUENZA
Caused by viruses
Symptoms are mild
Causes mild fatigue
Stuffy nose, coughing and sore throat
Symptoms are severe
Muscle or body aches throughout the body
Respiratory infection
Onset is gradual
Onset is sudden

Clinical Characteristics of Infection



Diagnosis

- Diagnosis is based on clinical signs and symptoms
  - Nasopharyngeal swab or aspirate can be obtained for a rapid antigen or PCR
- Chest x-ray usually normal


Rx
Oseltamivir Phosphate Capsules IP 75 mg
FLUVIR
10 Capsules
HETERO HEALTHCARE


Tamiflu®
Oseltamivir phosphate capsules
Gélules de phosphate d'oseltamivir
75 mg
10 capsules / gélules

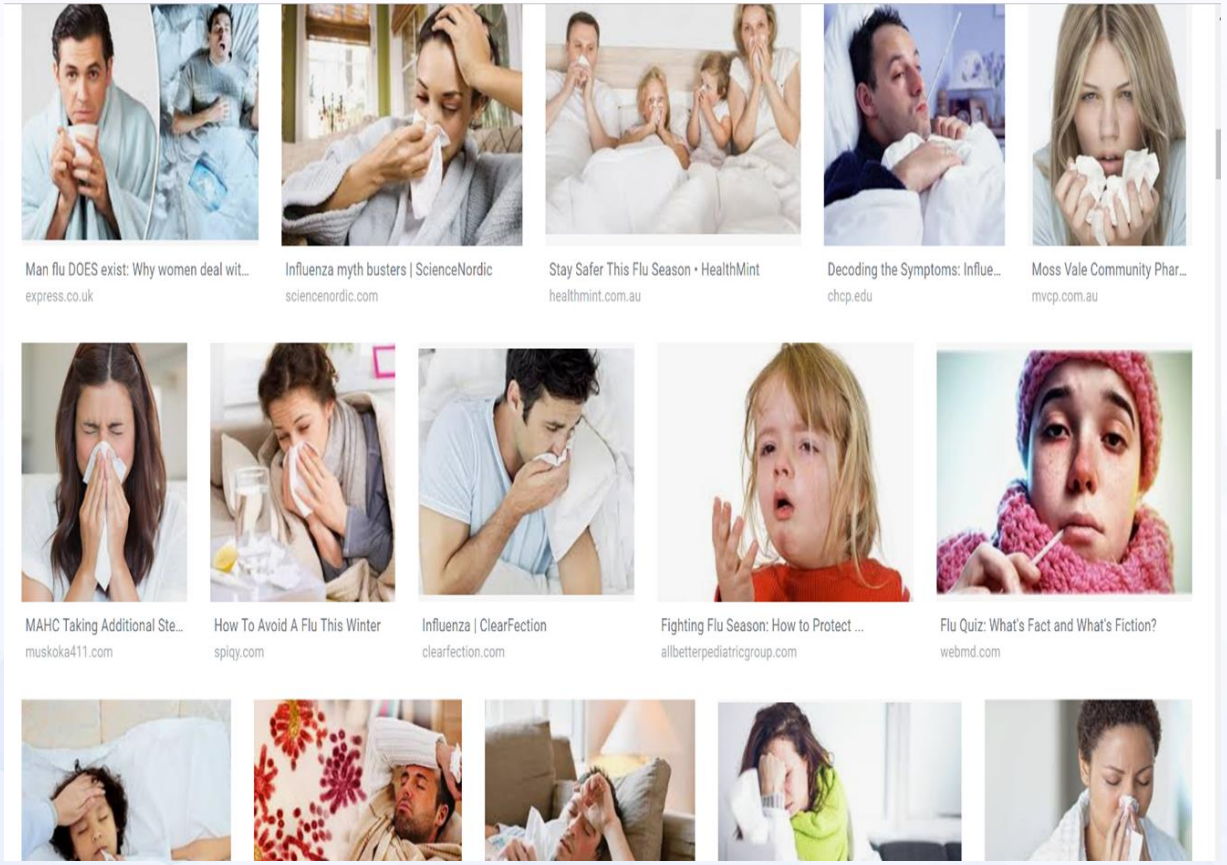
People at high risk of serious flu complications recommended for prompt antiviral treatment

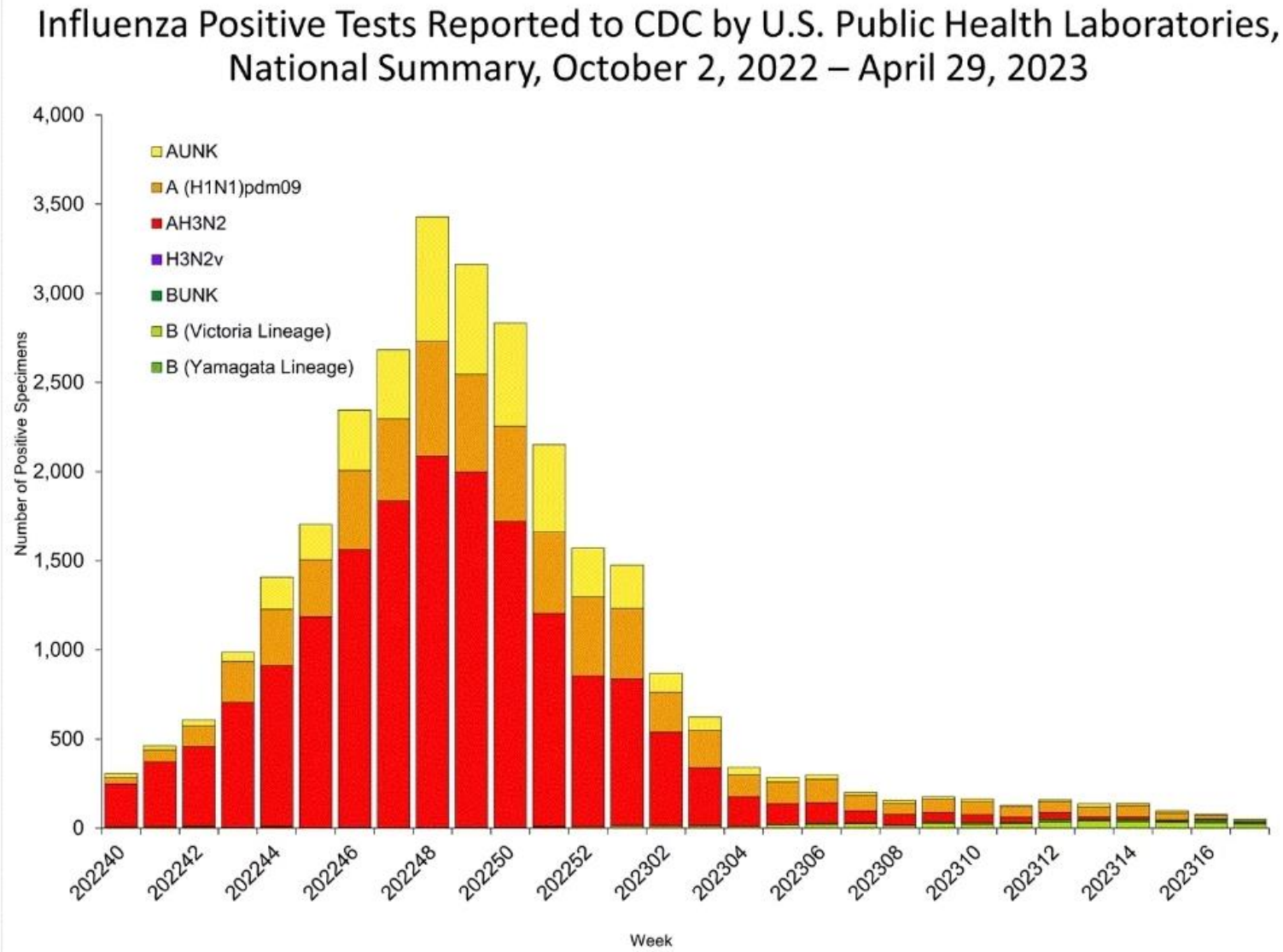
- Asthma
- Neurologic and neurodevelopment conditions
- Blood disorders (such as sickle cell disease)
- Chronic lung disease (such as chronic obstructive pulmonary disease [COPD] and cystic fibrosis)
- Endocrine disorders (such as diabetes mellitus)
- Heart disease (such as congenital heart disease, congestive heart failure and coronary artery disease)
- Kidney disorders
- Liver disorders
- Metabolic disorders (such as inherited metabolic disorders and mitochondrial disorders)

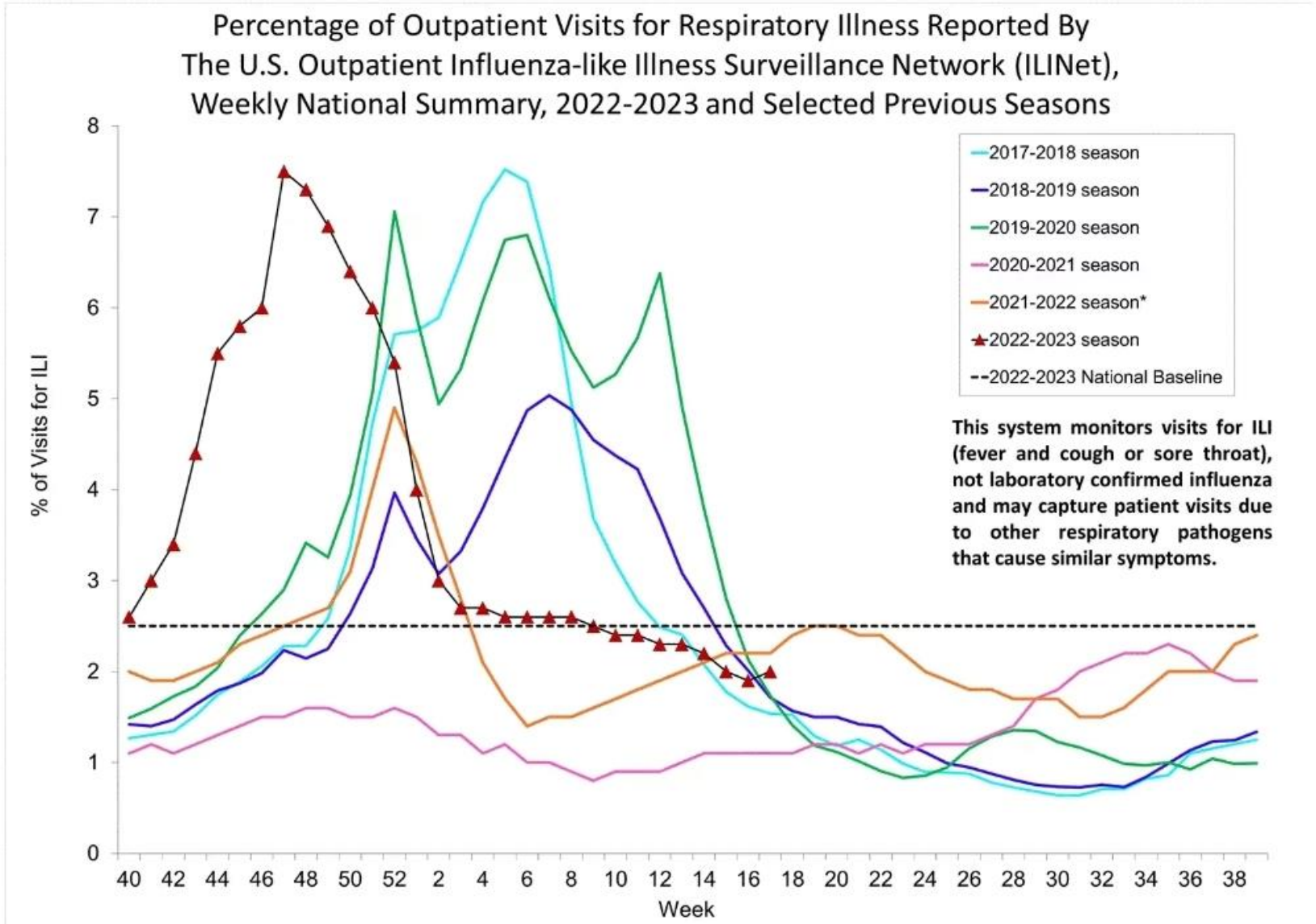
- People who are obese with a body mass index [BMI] of 40 or higher
- People younger than 19 years of age on long-term aspirin- or salicylate-containing medications.
- People with a weakened immune system due to disease (such as people with HIV or AIDS, or some cancers such as leukemia) or medications (such as those receiving chemotherapy or radiation treatment for cancer, or persons with chronic conditions requiring chronic corticosteroids or other drugs that suppress the immune system)

- **Other people at high risk from the flu:**
- Adults 65 years and older
- Although all children younger than 5 years old are considered at high risk for serious flu complications, the highest risk is for those younger than 2 years old, with the highest hospitalization and death rates among infants younger than 6 months old.
- Pregnant women and women up to 2 weeks after the end of pregnancy
- People who live in nursing homes and other long-term care facilities
- people who are very sick with flu (such as those with complicated, progressive illness or people hospitalized because of flu).Studies show that prompt treatment with antiviral drugs can prevent serious flu complications

آیا فصل و یا ماهی که در آن فردی بیماری تنفسی می گیرد در تشخیص شما مهم است؟




Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, October 2, 2022 – April 29, 2023
AUNK
A (H1N1)pdm09
AH3N2
H3N2v
BUNK
B (Victoria Lineage)
B (Yamagata Lineage)
Number of Positive Specimens
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
202240
202242
202244
202246
202248
202250
202252
202302
202304
202306
202308
202310
202312
202314
202316
Week


Percentage of Outpatient Visits for Respiratory Illness Reported By
The U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet),
Weekly National Summary, 2022-2023 and Selected Previous Seasons
% of Visits for ILI
Week
2017-2018 season
2018-2019 season
2019-2020 season
2020-2021 season
2021-2022 season*
2022-2023 season
2022-2023 National Baseline
This system monitors visits for ILI (fever and cough or sore throat), not laboratory confirmed influenza and may capture patient visits due to other respiratory pathogens that cause similar symptoms.

در پی شیوع پنومونی شدید در یک شیرخوارگاه ، دیروز در مرکز تحقیقات استاد البرزی با همکاری معاونت بهداشتی دانشگاه علوم پزشکی شیراز تعداد بیست و هشت نمونه از شیرخواران این محل به همراه بیست نمونه دیگر از شیرخواران بستری و سرپایی با پنومونی برای سه ویروس آنفلوانزا ، کوید و RSV تست PCR انجام شد که از این تعداد هیچ کدام برای آنفلوانزا و کوید مثبت نشدند ولی سیزده مورد برای RSV مثبت شدند.

در مرکز تحقیقات استاد البرزی امروز ۳۲ نمونه برای ویروس های تنفسی از بیماران علامت دار گذاشته شد.

نمونه های مثبت :

آنفولانزا-۱

کووید-۲

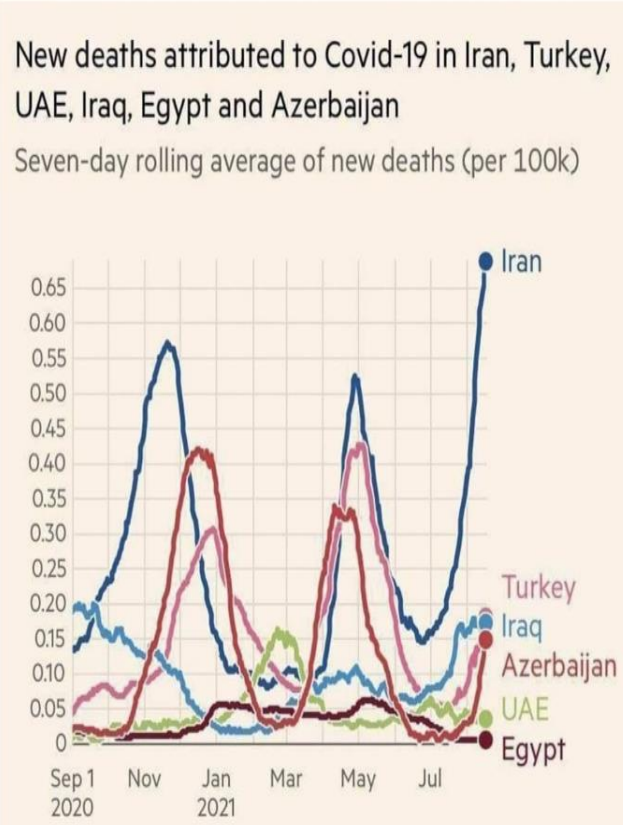
RSV- 5

پاراآنفولانزا-۱۱

مورد مثبت بودند.

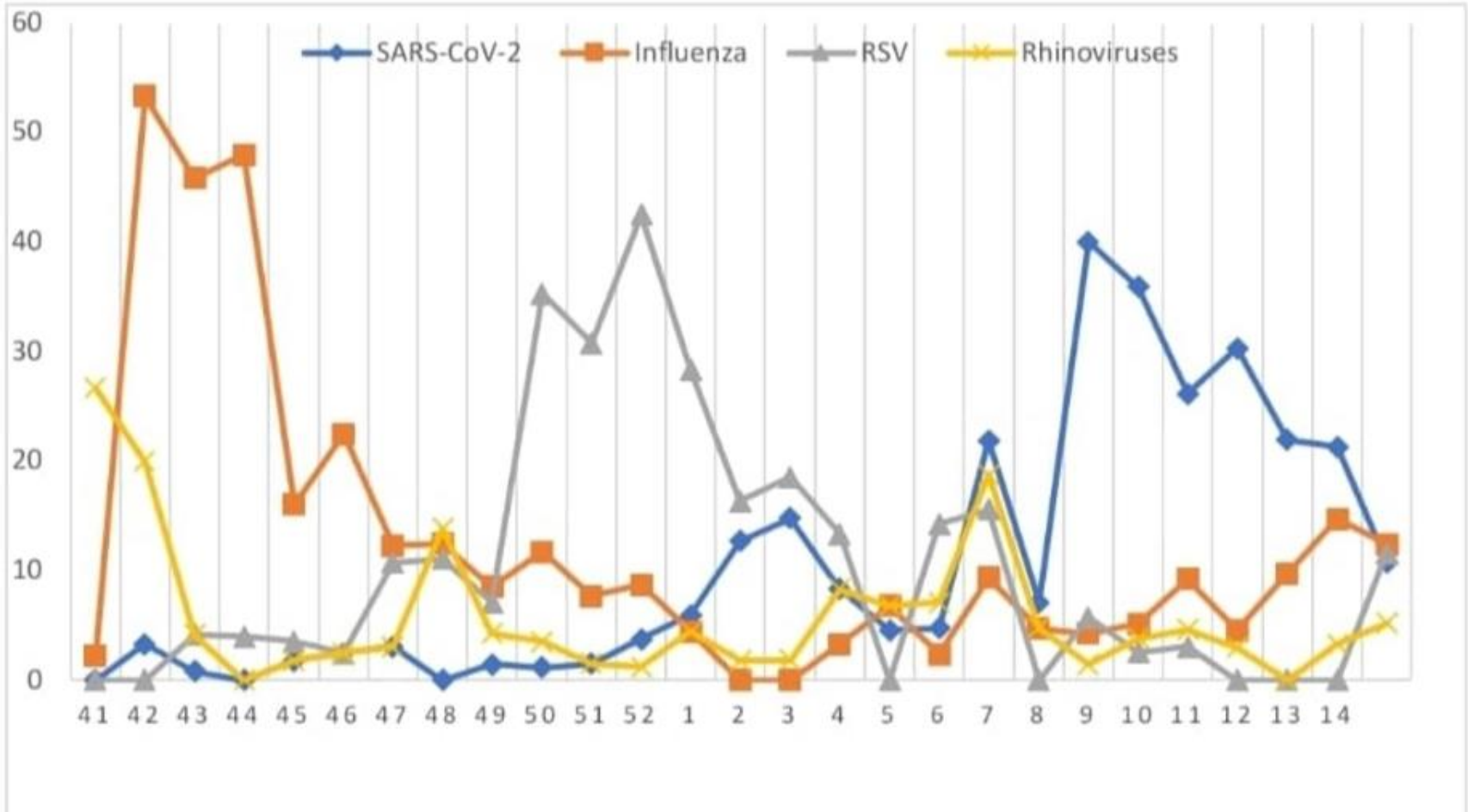
موج ششم؟

سخنگوی وزارت بهداشت از مشاهده نخستین مورد ابتلا به زیرسویه‌های جدید اومیکرون در کشور خبر داد.
او گفت: روز گذشته، سه مورد ابتلاء به زیرسویه‌های جدید اومیکرون که در بسیاری کشورهای جهان شایع است، در کشورمان مشاهده شد.
وی افزود: از این سه مورد، دو نمونه مربوط به زیرسویه BQ۱ و یک مورد مربوط به زیرسویه XBB است.
سخنگوی وزارت بهداشت افزود: این نمونه‌ها در آزمایشگاه مرجع دانشکده بهداشت دانشگاه علوم پزشکی تهران تشخیص داده شده است.
او اضافه کرد: با توجه به سرعت انتقال بالای این زیرسویه‌ها در روزهای آینده شاهد افزایش آمار ابتلاء به این زیرسویه‌های جدید خواهیم بود.



موج اول
موج دوم
موج سوم
موج چهارم
موج پنجم
موج .....

Figure 1. Virus detections in respiratory specimens received from October 11, 2022 to April 9, 2023 are shown by week of receipt.



۱۴۰۲/۰۶/۱۴ - تعداد بازدید: ۹ زمان مطالعه : ۱ دقیقه

حضور تیم‌های انستیتو پاستور ایران برای شناسایی بیماری‌های واگیر در ایام اربعین در عراق

انستیتو پاستور ایران و جمعیت هلال احمر جمهوری اسلامی ایران، بر اساسی هماهنگی های انجام شده یک تیم آزمایشگاهی تخصصی به همراه آزمایشگاه سیار برای مدت ۳ هفته در کشور عراق مستقر کردند.

You

Photo

سلام

با توجه به افزایش بیماری های تنفسی و گوارشی، لطفا به خاطر امام حسین هم که شده، برای سلامت زایران اطلاعات را لطف فرمایید 🙏🙏🙏🙏

09:26 ✓✓

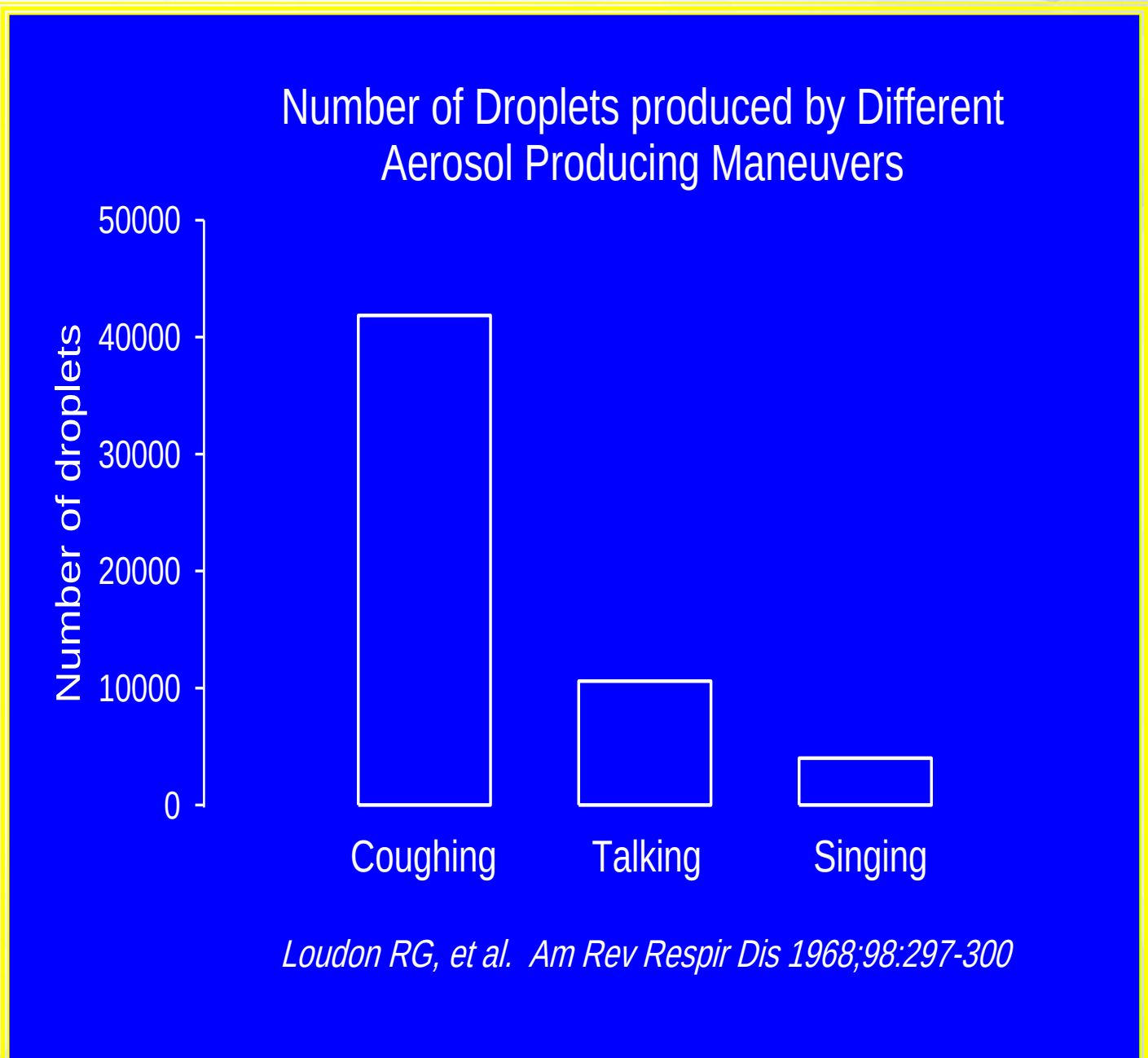
به گزارش ایسنا، دکتر شهنام عرشی رئیس مرکز مدیریت بیماری‌های واگیر وزارت بهداشت درباره رصد و پایش بیماری‌های تنفسی در کشور گفت: «سیستم دیده‌وری بیماری‌های تنفسی را در تابستان سال ۱۴۰۲ تقویت کردیم. به نحوی که برای اولین بار حدود ۲۱ ویروس تنفسی یا ویروس‌هایی که علائم تنفسی ایجاد می‌کنند در حداقل ۱۵ نقطه کشور را به صورت مرتب هفتگی نمونه‌برداری می‌کنیم و نوع ویروس‌ها شناسایی می‌شود که بدانیم چه ویروس‌هایی علائم سرماخوردگی و تنفسی را ایجاد می‌کنند.»

TAPSELL 12:38

سلام آیا ما هم جز ۱۵ مرکز هستیم؟
آیا از نتایج خبر دارید؟

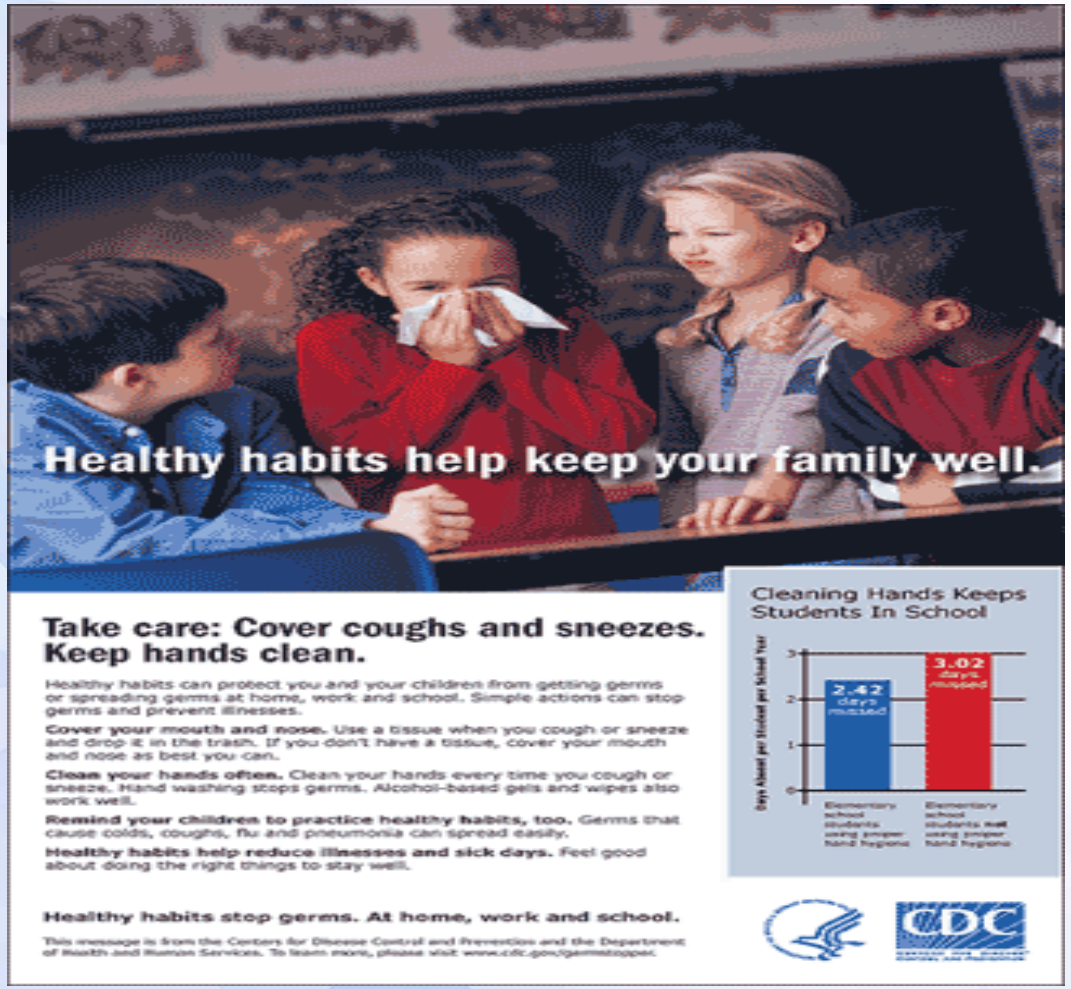
12:39

برای پیش گیری از بیماری های تنفسی چه باید کرد؟


Number of Droplets produced by Different Aerosol Producing Maneuvers
Number of droplets
50000
40000
30000
20000
10000
0
Coughing
Talking
Singing
Loudon RG, et al. Am Rev Respir Dis 1968;98:297-300

WASH YOUR HANDS

THE MOST IMPORTANT MEASURE FOR PREVENTING TRANSMISSION OF INFECTION



HAND HYGIENE

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 215.7).

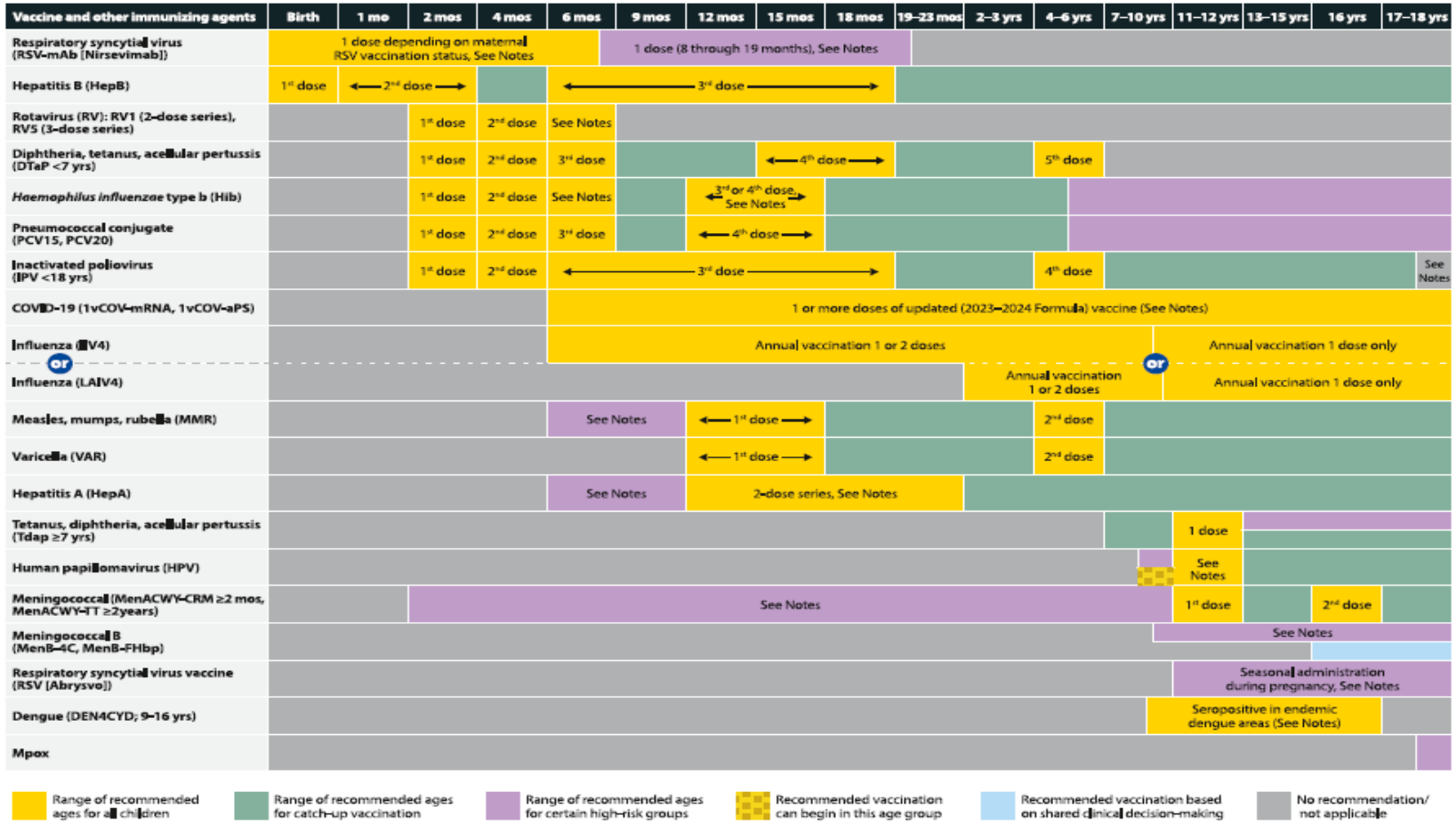


Fig. 215.1 Recommended immunization schedule for children and adolescents age 18 yr or younger—United States, 2024, including an appendix detailing contraindications and precautions for commonly used vaccines. *These recommendations must be read with the notes that follow.* For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the *green bars.* A new addendum section has been added to list any ACIP recommendations that occur by majority vote and are approved by CDC Director after the 2024 immunization schedules are approved and published. To determine minimum intervals between doses, see the Catch-Up Schedule (see Table 215.7). *(Courtesy U.S. Centers for Disease Control and Prevention, Atlanta, 2023. https://www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf; Appendix is adapted from the Advisory Committee on Immunization Practices [ACIP] General Best Practice Guidelines for Immunization: Contraindication and Precautions, Table 4-1, available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html and from the ACIP's Recommendations for the Prevention and Control of 2023-24 seasonal influenza with vaccines available at www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm.)*


Inactivated Influenza Vaccine (Surface Antigen) I.P. (Quadrivalent)
INFLUVAC TETRA 2023/2024
0.5 ml syringe Suspension for injection
Abbott India Limited
LATEST STRAIN FLU VACCINE


فلوگارد®
واکسن آنفلوانزا نوترکیب ۴ ظرفیتی
FluGuard®
Recombinant Seasonal Influenza Vaccine (Quadrivalent)


VaxigripTetra®
STRAINS 2017/2018
Suspension for injection in pre-filled syringe
QUADRIVALENT INFLUENZA VACCINE
(SPLIT VIRION, INACTIVATED)
1 pre-filled syringe (0.5 ml) with attached needle
Intramuscular (IM) or subcutaneous (SC) use
SANOFI PASTEUR

Recommendations For People Aged 6 Months and Older

People Who Have Not Had Any Previous COVID-19 Vaccines (Not vaccinated)

People aged 6 months and older who are moderately or severely immunocompromised and not vaccinated should get **2 or 3 doses of the same brand of updated COVID-19 vaccine**. They also may be able to get additional doses. None of the recommended updated COVID-19 vaccines is preferred over another.

People Who Got Previous COVID-19 Vaccines

People aged 6 months and older who are moderately or severely immunocompromised and got COVID-19 vaccines before September 12, 2023, should get **1 or 2 doses of updated COVID-19 vaccine**, depending on your age and the number of doses you got previously.

What You Need to Know

- CDC recommends the 2023–2024 updated COVID-19 vaccines: Pfizer-BioNTech, Moderna or Novavax to protect against serious illness from COVID-19. Everyone aged 6 months and older who is moderately or severely immunocompromised nee ds **at least 1 dose of a 2023-2024 updated COVID-19 vaccine**.

- Talk to your healthcare provider about getting additional doses of updated 2023-2024 COVID-19 vaccine if you are moderately or severely immunocompromised.
  - If you are aged 65 years and older and received 1 dose of any updated 2023-2024 COVID-19 vaccine, you **should** receive 1 additional dose of an updated COVID-19 vaccine at least 2 months after your last recommended updated dose.
  - If you are aged 6 months-64 years, you **may** receive 1 additional dose of an updated 2023-2024 COVID-19 vaccine at least 2 months after your last recommended updated dose.
  - Talk to your healthcare provider about whether further additional doses are needed.

Table 228.3 Recommended Routine Vaccination Schedule for 15- or 20-Valent Pneumococcal Conjugate Vaccine (PCV15 or 20) Among Infants and Children Who Have Not Received Previous Doses of Conjugate Vaccines, by Age at First Dose—United States, 2010

AGE AT FIRST DOSE (MO)	PRIMARY PCV15 OR PCV20 SERIES*	PCV15 OR PCV20 BOOSTER DOSE†
2-6	3 doses	1 dose at age 12-15 mo
7-11	2 doses	1 dose at age 12-15 mo
12-23	2 doses	—
24-59 (healthy children)	1 dose	—
24-71 (children with certain chronic diseases or immunocompromising conditions‡)	2 doses	—

*The minimum interval between doses is 8 wk except for children vaccinated at age <12 mo, for whom the minimum interval between doses is 4 wk. The minimum age for administration of the first dose is 6 wk.
†Given at least 8 wk after the previous dose.
‡See Table 228.1. If two doses of PCV15 are used, then 1 dose of PPSV23 vaccine is given ≥8 weeks later.

TABLE 228.4 CDC Advisory Committee on Immunization Practices Recommendations for Use of PCV in Children, June 2023

AGE AND RISK GROUP	RECOMMENDATIONS
Children age <24 mo	• Use of either PCV15 or PCV20 is recommended for all children age 2–23 mo according to previously recommended PCV dosing and schedules. • If only PCV13 is available when the child is scheduled to receive a PCV, PCV13 may be given as previously recommended. • If a child started the PCV series with PCV13, the child may complete the series with PCV15 or PCV20 without giving additional doses; the PCV series does not need to be restarted. • For children who have received all recommended dosing and schedules with PCV13 or PCV15, a supplemental dose of PCV20 is not indicated.
Healthy children age 24–59 mo with an incomplete PCV vaccination status*	• A single dose of either PCV15 or PCV20 is recommended. • A supplemental dose of PCV15 or PCV20 is not indicated for healthy children who have received 4 doses of PCV13 or who completed another age-appropriate PCV13 schedule.
Children age 24–71 mo with any risk condition†	• Use either PCV15 or PCV20 according to previously recommended PCV dosing and schedules. • If only PCV13 is available when the child is scheduled to receive a PCV, PCV13 may be given as previously recommended.
Children age 2–18 yr with any risk condition who completed a recommended PCV series before age 6 yr	• Completed series includes ≥1 dose of PCV20: o No additional doses of any pneumococcal vaccine are indicated. o This recommendation may be updated as additional data become available. • Completed series using PCV13 or PCV15 (no PCV20): o Either a single dose of PCV20 or PPSV23 using previously recommended dosing and schedules is recommended to complete the recommended vaccine series.
Children age 6–18 yr with any risk condition with no previous PCV13, PCV15, or PCV20 vaccination	• For children age 6–18 yr with any risk condition who have not received any dose of PCV (PCV13, PCV15, or PCV20) a single dose of either PCV15 or PCV20 is recommended. • If the child has previously received PCV7 and/or PPSV23, a single dose of either PCV15 or PCV20 is recommended ≥8 wk after the most recent dose of pneumococcal vaccination. o PCV15 should be followed by a dose of PPSV23 if not previously given. o PCV20 does not need to be followed by a dose of PPSV23.
Children who have received HSCT	• Children who received HSCT are recommended to receive three doses of PCV20, 4 wk apart starting 3–6 mo after HSCT. • A fourth PCV20 dose is recommended ≥6 mo after the third PCV20 dose, or ≥12 mo after HSCT, whichever is later. • HSCT recipients who have started their pneumococcal vaccine series with PCV13 or PCV15 may complete their 4-dose pneumococcal vaccine series with PCV20 without giving extra doses. • If PCV20 is not available, three doses of PCV15, 4 wk apart starting 3–6 mo after HSCT, followed by a dose of PPSV23 ≥12 mo after HSCT may be given. • For patients with chronic graft-versus-host disease who are receiving PCV15, a fourth dose of PCV15 can be given in place of PPSV23 since these children are less likely to respond to PPSV23. A patient's clinical team is best positioned to determine the appropriate timing of vaccination.

*Routine use of PCV is not recommended for healthy children age ≥5 yr.

†Risk conditions include: cerebrospinal fluid leak; chronic heart disease; chronic kidney disease (excluding maintenance dialysis and nephrotic syndrome, which are included in immunocompromising conditions); chronic liver disease; chronic lung disease (including moderate persistent or severe persistent asthma); cochlear implant; diabetes mellitus; immunocompromising conditions (on maintenance dialysis or with nephrotic syndrome; congenital or acquired asplenia or splenic dysfunction; congenital or acquired immunodeficiencies; diseases and conditions treated with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and solid organ transplant; HIV infection; and sickle cell disease or other with these conditions who received PCV13 or PCV15 are also recommended to receive 23-valent pneumococcal polysaccharide vaccine.

PCV, pneumococcal conjugate vaccine; PCV13, 13-valent PCV; PCV15, 15-valent PCV; PCV20, 20-valent PCV; PPSV23, 23-valent pneumococcal polysaccharide vaccine; HSCT, hematopoietic stem cell transplant.

From Centers for Disease Control and Prevention. ACIP updates: Recommendations for use of 20-valent pneumococcal conjugate vaccine in children—United States, 2023. *MMWR Morb Mortal Wkly Rep*. 2023;72(39):1072. (Table 1).

برای درمان بیماری های تنفسی چه باید کرد؟

- Upper respiratory illness from any viruse is generally common cold symptoms.

Signs and symptoms may include:

- fever
- runny nose
- cough
- sneezing
- sore throat

Other symptoms of HPIV illness may include:

- ear pain
- irritability
- decreased appetite

TREATMENT

- **Most viral upper RTI infections go away on their own** in a week or two
- **No available treatment shortens the course or hastens the resolution of symptoms.**

Management is **supportive** and should include:

- **hydration,**
- **Manage fever**
- **careful assessment of respiratory status,**
- **suction of the upper airway, as necessary.**
- **Supplemental oxygen** is recommended only when oxyhemoglobin saturation persistently decreases **below 90%** in a previously healthy infant.

Supportive Care and Symptomatic Treatment

- Cool, humidified air has not been well studied but may loosen nasal secretion. The World Health Organization suggests that neither steam nor cool-mist therapy be used in treatment of a cold.
- Because of the lack of direct evidence for effectiveness and the potential for unwanted side effects, it is recommended that nonprescription cough and cold products not be used for infants and children younger than 4 years of age.
- A decision whether to use these medications in older children must consider the likelihood of clinical benefit compared with the potential adverse effects of these drugs.

Nasal Obstruction

- Saline nose drops (wash, irrigation) can improve nasal symptoms.
- Either topical or oral adrenergic agents may be used as nasal decongestants in older children and adults. Effective topical adrenergic agents such as phenylephrine are not recommended for use in children younger than 6 years old. The oral adrenergic agents are less effective.
- Pseudoephedrine may be more effective than phenylephrine as an oral agent to treat nasal congestion—its benefit seems to be greatest in the first day of treatment; after this it does not show much benefit over placebo.
- Aromatic vapors (such as menthol) for external rub may improve the perception of nasal patency but do not affect spirometry.

Rhinorrhea

- The first-generation antihistamines may reduce rhinorrhea by 25–30%. The effect of the antihistamines on rhinorrhea appears to be related to the anticholinergic rather than the antihistaminic properties of these drugs, and therefore the second-generation or nonsedating antihistamines have no effect on common cold symptoms.
- The major adverse effects associated with the use of the antihistamines are sedation or paradoxical hyperactivity.
- Rhinorrhea may also be treated with ipratropium bromide, atopical anticholinergic agent. This drug produces an effect comparable to the antihistamines but is not associated with sedation.
- The most common side effects of ipratropium are nasal irritation and bleeding.

- Zinc, given as oral lozenges to previously healthy patients, reduces the duration but not the severity of symptoms of a common cold if begun within 24 hours of symptoms. The function of the HRV 3C protease, an essential enzyme for HRV replication, is inhibited by zinc, but there has been no evidence of an antiviral effect of zinc in vivo.
- The effect of zinc on symptoms has been inconsistent. Side effects are common and include decreased taste ,bad taste, and nausea.

Cough

- Cough suppression is generally not necessary in patients with colds.
- Cough treatment with a first-generation antihistamine may be helpful.
- Cough lozenges or hard candy may be temporarily effective and are unlikely to be harmful in children for whom they do not pose risk of aspiration (older than age 6 years).
- **Honey** has a modest effect on relieving nocturnal cough and is unlikely to be harmful in children older than 1 year of age.
- In some patients, cough may be a result of **virus-induced reactive airways disease**. These patients can have cough that persists for days to weeks after the acute illness and might benefit from bronchodilator or other therapy.
- Dextromethorphan hydrobromide has no effect on cough from colds and has potential enhanced toxicity.
- Expectorants such as guaifenesin are not effective antitussive agents.

Ineffective Treatments

- Vitamin C, guaifenesin, and inhalation of warm, humidified air are no more effective than placebo for the treatment of cold symptoms.
- Echinacea is not effective as a common cold treatment.
- Antibiotics cause significant adverse effects when given for acute purulent rhinitis.