



## Effectiveness of Seasonal Vaccines for Flu Prevention

1.

### How effective are the seasonal and H1N1 vaccines in preventing the flu?

Question submitted by:  
**Dr. Mark Krieger**  
Toronto, Ontario

The answer to this question varies from year to year, as the composition of the vaccine changes based on predictions of which strains will be most prevalent in the upcoming year. In general, when the predictions are correct, the vaccine provides approximately 70% protection. In years where a “mismatch” occurs, protection against strains not included in the vaccine is often quite low. Unfortunately, in those who are at most risk for serious morbidity from influenza, such as the elderly and the immune compromised, protection is typically inferior.

The efficacy of seasonal flu vaccines may improve with the recent approval of an “adjuvanted” vaccine for those 65-years-old and above. Canadians already have experience with an adjuvanted vaccine: the H1N1 vaccine used during the pandemic. It is not recommended for healthy, younger individuals — the increase in local reactions outweighs the overall benefit in this group of patients. Its role in immunocompromised individuals is not yet clear, but it may be considered.

Interestingly, the live intranasal vaccine, also recently approved in Canada for young, healthy adults, may be more effective in children than the standard vaccine.

The H1N1 “stand-alone” vaccine is no longer available. The H1N1 strain, still highly prevalent last season, has been included in the usual seasonal vaccine mixture.

Answered by:  
**Dr. Michael Libman**

## Any New Treatments for Parkinson's Disease?

2.

### Are there any new treatments available for Parkinson's disease?

Question submitted by:  
**Dr. Fernand Arseneau**  
Moncton, New Brunswick

Rasagiline is the newest drug, however, it has been available in Canada now since 2006. It is similar to selegiline (a monoamine oxidase inhibitor) and is used for early symptomatic treatment and also wearing off, the phenomenon of l-dopa demonstrating diminishing effect towards the end of the dosing period. Common side effects of rasagiline are joint pain, abdominal pain, weight loss, and hypotension.

Answered by:  
**Dr. Sarah A. Morrow**



## Significance of Burr Cells Found on a CBC Smear

3.

**What is the significance of burr cells found on a CBC smear in a 30-year-old female patient who is otherwise well, but has  $\beta$ -thalassemia trait?**

Question submitted by:  
**Dr. Meghan Davis**  
Hamilton, Ontario

Burr cells (echinocytes) can be found in association with a number of conditions that include metabolic disorders; uremia tops the list. Asplenia can also be associated with the appearance of burr cells. Both uremia and asplenia are not classically associated with thalassemia trait. In a healthy patient, the description of burr cells on CBC smear does not warrant thorough investigation, as it may be an artifact.

Answered by:

**Dr. Cyrus Hsia and**  
**Dr. Kang Howson-Jan**

## Managing Long-lasting Post-viral Coughs

4.

**How do you manage post-viral coughs that last from weeks to months?**

Question submitted by:  
**Dr. Maria Cortes**  
Montréal, Québec

Coughs that persist after an apparently viral upper respiratory tract infection are often caused by an irritable larynx. The larynx becomes irritated by the upper respiratory tract infection and the production of thick and excessive post-nasal secretions. After the upper respiratory infection has resolved, the larynx may be involved in a vicious cycle of irritation, leading to a cough which, in turn, irritates the larynx.

A similar situation occurs in someone with vocal cord irritation that resulted from gastroesophageal acid reflux; it may be aggravated or precipitated by coughing, leading to a separate irritating cycle. Treatment should address any residual post-nasal drain with nasal decongestants or nasal saline rinses, control acid reflux, which might require high dose proton pump inhibitor therapy and attempts to rest the larynx. Surprisingly, the most effective method involves suppression of the cough and avoiding throat clearing. Sipping water or sniffing can sometimes help to suppress a cough. Successful cough suppression will usually resolve the problem. Although inhaled corticosteroids are often prescribed for this condition, they are seldom useful, and the steroid deposition in the pharynx and larynx does, theoretically, have the potential to aggravate the situation.

Answered by:

**Dr. Robert Cowie**



## When to Treat Diastolic Hypertension

5.

**Is it necessary to treat diastolic hypertension if the systolic pressure is within normal limits, such as a blood pressure reading of 136/95 mmHg?**

Question submitted by:

**Anonymous**

Measurement of diastolic blood pressure (DBP) is less accurate than measurement of systolic blood pressure (SBP), due to observer problems and the subjectivity of determining the diastolic endpoint of the Korotkoff sounds.<sup>1</sup> Isolated elevation in DBP is relatively uncommon, occurring more often in younger patients. Studies have shown that mild isolated diastolic hypertension (IDH) does not carry an increased risk of CVD.<sup>2</sup> Moreover, patients with type 2 diabetes who have DBP < 70 mmHg have been found to have an elevated CVD risk.<sup>3</sup> Large epidemiological trials, such as the Multiple Risk Factors Intervention Trial (MRFIT) and the Framingham study, have shown that SBP is an independent, continuous, and modifiable risk for all CV complications and should be the primary target of antihypertensive therapy.<sup>4</sup> SBP increases progressively with age, and, in our ageing society, isolated systolic hypertension is the leading form of hypertension. The characteristic changes of systolic and diastolic blood pressure in relation to age lead to increases in pulse pressure (systolic minus diastolic), which has emerged as a new, independent CV risk factor.<sup>5</sup> Therefore, the greatest practical concern in blood pressure management is to adequately treat systolic hypertension.

### References

1. Beevers DG: Epidemiological, Pathophysiological and Clinical Significance of Systolic, Diastolic and Pulse Pressure. *Journal of Human Hypertension* 2004; 18(8):531–533.
2. Strandberg TE, Salomaa VV, Vanhanen HT, et al: Isolated Diastolic Hypertension: Pulse Pressure and Mean Arterial Pressure as Predictors of Mortality During a Follow-up of up to 32 Years. *J Hypertens* 2002; 20(3): 399–404.
3. Anderson RJ, Bahn GD, Moritz TE, et al: For the VADT Study Group. Blood Pressure and Cardiovascular Disease Risk in the Veterans Affairs Diabetes Trial. *Diabetes Care* 2011; 34(1):34–38.
4. Strandberg TE, Pitkala K: What is the Most Important Component of Blood Pressure: Systolic, Diastolic or Pulse Pressure? *Curr Opin Nephrol Hypertens* 2003; 12(3):293-297.
5. Franklin SS et al: Is Pulse Pressure Useful in Predicting Risk for Coronary Heart Disease? The Framingham Heart Study. *Circulation* 1999; 100(4):354–360.

Answered by:

**Dr. Theodore K. Fenske**



## Event Monitors (Recorders) vs. Holter Monitors

6.

### What is the difference between an event monitor and a Holter monitor?

Question submitted by:

**Dr. Glora Huang**  
*Vancouver, British Columbia*

Holter monitors and event monitors (recorders) are both types of ambulatory recording devices. They are primarily used to detect cardiac arrhythmias that were not detected by a standard electrocardiogram. Examples of such use include the assessment of palpitations and checking for arrhythmias that may cause syncope.

For both monitors, the patient is attached to the device by electrocardiographic wires similar to a standard electrocardiogram, but, in this case, only three leads are used. [The Holter monitor will record a continuous electrocardiographic rhythm strip over 24 to 48 hours.](#) The duration of recording is prolonged when the symptoms occur less frequently. The analyst will then have recordings of every heart beat and any rhythm disturbances over that period of time.

[The event monitor is used for events or symptoms that are perceived to occur infrequently, or at unpredictable times, over multiple days.](#) The recorder is a kind of “continuous loop recorder”; therefore, when the subject perceives he or she is having symptoms of interest, the record button is pressed. The device then records and freezes all the electrocardiographic activities for 30 seconds prior to the button being pressed, capturing the all-important onset of any rhythm abnormalities.

[A newer type of event monitor is a small implantable device that is usually inserted under the skin of the patient's chest.](#) This device is a “continuous loop recorder” that only saves electrocardiographic rhythm strips after the telemetry button carried by the patient is activated. It may store up to 40 minutes of activity after the button is pressed. The advantage of this type of device is that it can be used over 30 to 60 days while recording multiple events or taken out after the event in question has been clearly recorded.

Answered by:

**Dr. Wayne Warnica**

## Improving the Appearance of Stretch Marks

**7.**

**What can be done to ameliorate the stretch marks (mid-back) of a thin, but muscular and fit, teenage boy going through a period of rapid growth?**

Question submitted by:

**Dr. L. A. Jensen**

**Burnaby, British Columbia**

Stretch mark development may be lessened by avoiding rapid skin growth by moderating any sudden weight changes, avoiding skin stretching with “bulking up” as a result of weight training, and avoiding steroids both systemically and topically. In terms of therapy, not much works to reduce existing striae except topical retinoids. This tends to be irritating upon application, and it produces a modest improvement, at best. Ablative and nonablative CO<sub>2</sub> lasers, as well as dye tunable lasers, have been used with some success in cosmetically improving striae.

Answered by:

**Dr. Scott Murray**



## Is a Lactose- and Gluten-Free Diet Completely Beneficial?

8.

**What are the effects of allergy/intolerance to gluten? Is a diet without gluten and lactose helpful for people who are not intolerant to either substance?**

Question submitted by:  
**Dr. Marc Paquin**  
*Sainte-Agathe, Québec*

Celiac disease (CD) represents the most prominent immune-mediated enteropathy within an expanding spectrum of gluten-related gastrointestinal diseases. The clinical manifestations of true CD can be remarkably heterogeneous, including everything from being asymptomatic through to having severe systemic manifestations of the disorder. This can vary significantly according to age groupings.<sup>1</sup>

Pediatric patients can present with vomiting, irritability, anorexia, abdominal distension, diarrhea, and impaired growth.<sup>1</sup> Gastrointestinal symptoms in adult populations can include abdominal bloating and pain, diarrhea, steatorrhea, and weight loss.<sup>1,2</sup> Micro and macronutrient deficiencies may also be present with decreased iron, folate, vitamin B12, calcium, and numerous fat-soluble vitamins, resulting in a variety of clinical manifestations, including anemia, decreased bone density and neurological symptoms.<sup>1,2</sup> Other clinical manifestations include dermatitis herpetiformis, hypoproteinemia, and liver enzyme abnormalities.<sup>1,2</sup> Associations with other autoimmune diseases, mesenteric lymph node cavitation, splenic atrophy, intestinal ulceration, and malignancy (particularly lymphoma) have also been described.<sup>1,2</sup>

The mainstay of management of gluten-related enteropathy is a gluten-free diet (GFD).<sup>1,2</sup> Patients should be referred to a dietician for dedicated counselling on this diet, given the inherent complexity, adherence challenges, and potential for inadvertent gluten ingestion.<sup>1,2</sup> Lactose avoidance, or supplementation with lactase, has no proven benefit in managing CD, although severe enteropathy may result in relative deficiency of these enzymes and an associated, relative lactose intolerance.

### References

1. Green PH, Cellier C: Celiac Disease. *NEJM* 2007; 357(17):1731–1743.
2. Rashtak S, Murray JA: Celiac Disease in the Elderly. *Gastroenterol Clin N Am.* 2009; 38(3): 433–446.

Answered by:

**Dr. Theodore Xenodemetropoulos**

## Can ASA and Clopidogrel Be Combined for CBVD?

**9.**

### Can ASA and clopidogrel be combined for prevention of cerebrovascular disease?

Question submitted by:  
**Dr. Brian Fernandes**  
Edmonton, Alberta

The combination of ASA and clopidogrel is not recommended based on the MATCH study, published in Lancet 2004.<sup>1</sup> This study randomized 7,599 high-risk patients (with recent stroke or transient ischemic attack and at least one other risk factor for stroke) to either ASA and clopidogrel or clopidogrel alone. There was no significant benefit noted in reducing major vascular events in the combination group compared to the monotherapy group. Furthermore, there was an increased risk of life-threatening and major bleeding in the combination group.

#### Reference

1. Diener HC, Bogousslavsky J, Brass LM, et al: MATCH Investigators. Aspirin and Clopidogrel Compared with Clopidogrel Alone After Recent Ischaemic Stroke or Transient Ischaemic Attack in High-risk Patients (MATCH): Randomised, Double-blind, Placebo-controlled Trial. Lancet 2004; 364(9431):331–337.

Answered by:  
**Dr. Sarah A. Morrow**



## Prolonged QT Interval in the Absence of Hypocalcemia

10.

### What are the causes of prolonged QT interval in the absence of hypocalcemia and quinidine drugs?

Question submitted by:  
**Dr. Leonard Sadinsky**  
Toronto, Ontario

There are actually quite a few causes of prolonged QT intervals besides hypocalcemia (which we don't see very often) and quinidine (which we don't use anymore).

As you know, diagnoses of prolonged QT intervals are lumped under the term "long QT syndrome" (LQTS). The long QT syndrome may be either genetic or acquired. The more common Romano-Ward syndrome is inherited as an autosomal dominant condition, while the Jervell and Lange-Nielsen syndrome occurs as an autosomal recessive condition.

The acquired LQTS is usually secondary to drug therapy, hypocalcemia, or hypomagnesemia. In addition, hypokalemia and hypomagnesemia, as well as bradycardia, significantly increase the risk of developing a drug-induced LQTS.

There is a depressingly long list of drugs that may prolong the QT interval. This list includes antiarrhythmic drugs, such as quinidine, procainamide, amiodarone, dronedarone, and sotalol. Macrolide antibiotics; non-sedating antihistamines, such as terfenadine and astemizole, and certain psychiatric medications, such as thioridazine, the phenothiazines, tricyclic or tetracyclic antidepressants and haloperidol may also prolong the QT interval. Diuretics may contribute to the LQTS via precipitating hypokalemia and/or hypomagnesemia. Importantly, some antimicrobial drugs, particularly erythromycin and clarithromycin may cause the LQTS, especially when combined with other drugs, such as disopyramide.

It's important not to forget the metabolic causes of hypokalemia and the metabolic causes of LQTS. These include starvation, anorexia nervosa, liquid protein diets, and hypothyroidism. Bradyarrhythmias, such as ones with sinus node dysfunction and atrioventricular block, also prolong the QT interval, as does myocardial ischemia.

Risk factors for developing drug-induced LQTS include high concentrations of drugs which, as described above, have the potential to prolong the QT interval (except for quinidine where the QT prolongation is not related to drug levels), concurrent use of two drugs, both of which can prolong the QT interval, or drugs that slow drug metabolism due to inhibition of enzyme systems. Prolonged bradycardia, electrolyte disturbances (as I've described), impaired hepatic and renal function, underlying heart disease, recent cardioversion from atrial fibrillation, and female sex are all potential risk factors.

Answered by:  
**Dr. Wayne Warnica**



## The Latest on Administering Tetanus Boosters

**11.**

**How do you update a patient who received a tetanus vaccination more than 10 years ago?**

Question submitted by:  
**Dr. Bruno Tremblay**  
*Beauport, Québec*

As long as an individual has had their primary series of vaccinations against tetanus, whether during childhood or later, they seem to retain a robust ability to boost their immune response. This booster response is seen even decades after the last dose is administered. Thus, even though the recommendation to get a tetanus booster every ten years is widely ignored, the incidence of tetanus in developed countries is remarkably low. This suggests that the pragmatic approach of administering boosters at the time of injury, or at other opportune times, such as during a pretravel assessment, is reasonably effective.

Another option involves the current recommendation to give a booster with the acellular pertussis vaccine once to all adults. This vaccine is currently available only in combination with the diphtheria and tetanus vaccines. It is recommended to give this combination vaccine whenever convenient, regardless of how recently the last tetanus booster was given. Giving two tetanus boosters at an interval of less than ten years does not appear to increase the risk of adverse events.

Answered by:  
**Dr. Michael Libman**



12.

## Significance of Large Platelets in Routine Blood Work

**What is the significance of large platelets in a routine blood work report if the patient is asymptomatic?**

Question submitted by:  
**Dr. Nafisa Aptekar**  
**Brampton, Ontario**

Megathrombocytes have attracted the interest of hematologists for many years. They are frequently found on blood smears of patients with active idiopathic thrombocytopenic purpura. Some postulated that megathrombocytes were young platelets, analogous to reticulocytes being young erythrocytes. This idea, however, has not held up, though there is a reliable association between the prominence of megathrombocytes and any condition associated with increased platelet turnover. The list includes such entities as systemic lupus erythematosus (SLE), rheumatic heart disease with severe valvular damage, disseminated intravascular coagulation, chronic autoimmune thrombocytopenic purpura (now called immune thrombocytopenia) "in remission," and diabetes mellitus with retinopathy. The description of megathrombocytes in a blood smear with a normal platelet count does not require any further investigation.

Answered by:

**Dr. Cyrus Hsia and**  
**Dr. Kang Howson-Jan**

## Best Indication of Airway Obstruction

**13.**

**What is more indicative of airway obstruction Forced expiratory ratio (FER) or Forced vital capacity (FCV)?**

Question submitted by:  
**Dr. R.J. McCammon**  
*Winnipeg, Manitoba*

The Forced expiratory ratio (FER), is interchangeable with the more usually used, FEV1/FVC ratio and FVC, the Forced vital capacity FER or FEV1/FVC: Obstruction is defined by either the FER or FEV1/FVC. In younger people, the FER is normally greater than 0.79 and in older people greater than 0.74. Lower readings indicate obstruction, while a reading of less than 0.7 is diagnostic for chronic obstructive pulmonary disease (COPD).

The FVC is not helpful as an indication of airway obstruction. It can be normal or reduced in those with obstruction.

The FEV1 is, however, useful to characterize obstruction in those with a low FER. Readings of 80% or more of the predicted value suggest that the obstruction is mild, 50 to 79% that it is moderate, less than 50% severe, and less than 30% is considered to be very severe obstruction. It must be remembered that the FEV1 will also be reduced in patients with restrictive lung disease and that it is only used to assess the degree of obstruction in those with a low FER.

Answered by:  
**Dr. Robert Cowie**



## Pap Smears for Women Who Have Had a Partial Hysterectomy

14.

**How frequently and how to go about doing Pap smears in women who have had a partial hysterectomy for cervical cancer? Brooms do not get cells.**

Question submitted by:  
**Dr. Barbara Bennett**  
*Thunder Bay, Ontario*

Cervical cancer (CxCa) screening guidelines have been updated in most provinces and territories in Canada to reflect the need for continued annual surveillance and Pap smear screening in women who have been treated for a high-grade dysplasia during their lifetime. Women who have had CxCa are usually managed through a cancer centre for the first five years and seen at three- to six-month intervals, after which they are referred back to the community for annual review, including Pap smears.

Women with very **small CxCas** that are treated conservatively with cone biopsy [loop electrosurgical excision procedure (LEEP) or cold knife] are followed at least annually after they are discharged from their gynecologist's care. As they have their cervix present, standard Pap smear with brush or "broom" for liquid based cytology (LBC), or spatula and cytobrush for standard cytology, are used.

Where patients have had a **total hysterectomy** (cervix and uterine fundus removed), a Pap smear is taken from the vaginal vaults usually with a spatula.

For a **partial hysterectomy, (trachelectomy)**, where only the cervix has been removed and the fundus is left to preserve fertility, a Pap smear is taken of the most superior aspect at the vaginal vault with a brush (LBC) or spatula and cytobrush. With LBC medium, whatever cells are removed can be interpreted in the smear, regardless of the apparatus; thus, a spatula and cytobrush can be used and the top portion of each is placed in the LBC medium.

It is not unusual to see endometrial cells on pap smears in trachelectomy patients given the altered anatomy. This is considered normal unless there is cellular atypia or the patient has irregular bleeding, which would require further investigation. Following a total hysterectomy or trachelectomy for CxCa, the patient is still at risk for dysplasia and cancer at the vaginal vault and along the entire lower genital tract; hence, screening must be done annually.

Answered by:  
**Dr. Cathy Popadiuk**

15.

**Could you comment on the appropriateness of ordering C-reactive protein? Is it worthwhile?**

Question submitted by:  
**Dr. Larry Bobyn**  
*Kelowna, British Columbia*

First, it's important to order the "right" test for the "right" reason. Traditional C-reactive protein (CRP) assays have a detection limit of 3 to 5 mg/L and an upper limit of normal of around 10 mg/L. This type of test is useful for confirming the presence of inflammatory states due to infection, autoimmune disease, or vasculitis. High-sensitivity (hsCRP) assays have a detection limit of 1 mg/L or lower and have been touted as providing more prognostic information for CV events. However, the addition of hsCRP to the standard Framingham variables appears to add little value to populations as a whole.<sup>1</sup> So, for patients whose Framingham Risk Score places them in the low or high risk range, the presence of hsCRP would be unlikely to change management of the condition. For patients in the moderate risk range, hsCRP might be of value. In such patients with hsCRP above the median (2 mg/L), the Justification for the Use of Statins in Prevention: And Intervention on Trial Evaluation Rosuvastatin (JUPITER) study found that rosuvastatin lowered events from 1.36 to 0.77 per 100 person-years of follow-up.<sup>2</sup> Although this difference was statistically significant, the absolute risk reduction was small.

## References

1. Lloyd-Jones DM, Liu K, Tian L, *et al*. Narrative Review: Assessment of C-reactive Protein in Risk Prediction for Cardiovascular Disease. *Ann Intern Med* 2006; 145(1):35–42.
2. Ridker PM, Danielson E, Fonseca FA, *et al*: Rosuvastatin to Prevent Vascular Events in Men and Women with Elevated C-reactive Protein. *N Engl J Med* 2008; 359(21):2195–2207.

Answered by:  
**Dr. Thomas W. Wilson**



## Isolated Amylase Levels in an Otherwise Healthy Patient

16.

### What to do about isolated amylase (serum) levels in an otherwise healthy patient?

Question submitted by:  
**Dr. Javed Allo**  
Toronto, Ontario

Amylase elevation, in the absence of clinical or radiographic evidence of pancreatitis, can result from a number of potential etiologies. Indeed, serum amylase has an inherently poor specificity for acute pancreatitis.<sup>1</sup> Numerous conditions can result in increased serum amylase levels, including hepatic, hepatobiliary, intestinal, pulmonary, genitourinary, breast, prostatic, and central nervous system, as well as salivary diseases.<sup>1</sup> Metabolic disturbances resulting from ischemic states, renal failure, hepatic dysfunction, diabetic ketoacidosis, and anorexia and bulimia nervosa can also result in serum amylase elevations.<sup>1</sup> Endoscopic retrograde cholangiopancreatography (ERCP) can result in elevated levels in the absence of post-procedure pancreatitis as well.<sup>1</sup> Furthermore, abdominal and cranial trauma, medications, alcoholism, and HIV infection have been implicated in enzymatic elevations.<sup>1</sup> Asymptomatic hereditary hyperamylasemia has been described within certain family lineages.<sup>1</sup> Benign pancreatic hyperenzymemia has been recently characterized as a condition defined by an increase in serum pancreatic enzymes in the absence of pancreatic disease.<sup>2</sup>

The clinical significance of truly asymptomatic chronic hyperenzymemia has been presumed to be minimal, although data from a recent prospective cohort study has suggested that alterations in the pancreatic duct system, diagnosed radiographically by secretin-stimulated magnetic resonance pancreatography (s-MRCP), were identified in 50% of subjects and were clinically relevant in approximately 14% of cases (defined by subjects requiring surgery and/or follow-up for various pancreatic neoplasias).<sup>3</sup> *Although data in this clinical domain are limited, patients with increased serum amylase or lipase levels should undergo extensive and comprehensive investigation prior to establishing a diagnosis of nonpathological pancreatic hyperenzymemia.*

#### References

1. Yadav D, Agarwal N, Pitchumoni CS: A Critical Evaluation of Laboratory Tests in Acute Pancreatitis. *Am J Gastroenterol.* 2002; 97(6):1309–1318.
2. Gullo L: Benign Pancreatic Hyperenzymemia. *Dig Liver Dis* 2007; 39(7):698–702.
3. Amodio A, Manfredi R, Katsotourchi AM, et al: Prospective Evaluation of Subjects with Chronic Asymptomatic Pancreatic Hyperenzymemia. *Am J Gastroenterol* 2012; 107(7):1089–1095.

Answered by:

**Dr. Theodore Xenodemetropoulos**

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