Evidence at the Point-of-Care

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DynaMed Plus (DMP) is a collection of the most current evidence curated from over 500 medical journals & presented in a bulleted summary. Ideal for making clinical decisions at the point-of-care.
What makes a “good” point of care tool?

From CKN Stakeholder Engagement Report June 2018
The Most Current Evidence

DynaMed Plus is updated 24/7/365 with evidence from primary literature and worldwide guideline publishers. Content is organized by disease state using standardised templates.

Multiple sclerosis (MS)

Overview and Recommendations

Background

- Multiple sclerosis (MS) is an inflammatory and neurodegenerative disease of the brain and spinal cord resulting in one or more episodes of neurologic dysfunction with a variable course of recovery as well as disease progression.
- Central nervous system lesions are disseminated in time and space. In MS new lesion formation on MRI, clinical relapses, and disease progression are the most common course over years.
- MS is thought to be an autoimmune disease likely due to a combination of genetic predisposition and environmental influence. MS is more common in northern European populations but has a worldwide distribution.
- Clinical onset of MS is usually in adulthood before age 50 years but can occur in childhood or over the age of 60. MS is more common in women.
The Most Current Evidence

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**Multiple sclerosis (MS)**

-stress-related disorder associated with increased risk of multiple sclerosis (JAMA 2018 Jun 19) view update

**Overview and Recommendations**

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06/26/2018 11:59:00 AM (ET)
Transcatheter PFO closure plus medical therapy may reduce recurrence of stroke compared to medical therapy alone.
Topic: Secondary prevention of stroke

06/26/2018 11:58:00 AM (ET)
Topic: Secondary prevention of stroke

06/26/2018 11:46:00 AM (ET)
Probucol may reduce risk of recurrent stroke in Asian adults with previous ischemic stroke and high risk of cerebral hemorrhage
Topic: Secondary prevention of stroke
Email Alerts

• Quickly scan updates & click link to DMP topic for details
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Following: All Categories and Practice Changing Updates
Daily Update Jun 29, 2018

1. Jun 28, 2018 4:46 PM
crizotinib reported to achieve objective response in 50% of patients with locally advanced or metastatic inflammatory myofibroblastic tumor and anaplastic lymphoma kinase-positive status (Lancet Respir Med 2018 Jun)
Topics: General management of soft tissue sarcomas

To view this update, you may need login credentials. If you have them, you can access directly via the link(s) above. If you need login credentials, please contact your librarian or DynaMed Plus administrator.

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DynaMed Plus contains more than 4,700 medical graphics and images to help clinicians answer clinical questions. DynaMed Plus graphics and images include: Tables, Clinical photos, Radiological imaging, Algorithms, Illustrations & Microscopic images.
Clinicians can view the **Overviews & Recommendations** section of *DynaMed Plus* topics to get a quick summary of the topic and recommended actions based on the most current evidence. Recommendations should be developed by clinical experts (without conflicts of interest) using systematic methods applying value judgments with a critical understanding of current comprehensive evidence.

### Asthma exacerbation in adults and adolescents

**Overview and Recommendations / Management / General treatment measures**

- **Steroids:**
  - Guidelines differ on the use of systemic corticosteroids.
    - Global guidelines recommend systemic corticosteroids for all exacerbations (unless very mild) to speed resolution of exacerbation and prevent relapse (**Strong recommendation**).
    - American guidelines recommend systemic corticosteroids for patients with moderate or severe exacerbations and patients who do not respond completely to initial short-acting beta agonist (**Strong recommendation**).
    - British guidelines recommend systemic corticosteroids in all cases of acute asthma (**Strong recommendation**).
  - Consider high-dose inhaled corticosteroids in the emergency department (**Weak recommendation**).
    - Magnesium sulfate 2 g IV over 20 minutes may reduce hospital admission in adults with acute asthma. (nec of Frequently Used Medications)
Levels of Evidence using GRADE*

- We use the Grading of Recommendations Assessment, Development and Evaluation (GRADE) to classify synthesized recommendations as Strong or Weak.
  
  - **Strong recommendations** are used when, based on the available evidence, clinicians (without conflicts of interest) consistently have a high degree of confidence that the desirable consequences (health benefits, decreased costs and burdens) outweigh the undesirable consequences (harms, costs, burdens).

  - **Weak recommendations** are used when, based on the available evidence, clinicians believe that desirable and undesirable consequences are finely balanced, or appreciable uncertainty exists about the magnitude of expected consequences (benefits and harms). Weak recommendations are used when clinicians disagree in judgments of relative benefit and harm, or have limited confidence in their judgments. Weak recommendations are also used when the range of patient values and preferences suggests that informed patients are likely to make different choices.

- *DynaMed Plus* (DMP) synthesized recommendations (in the Overview & Recommendations section) are determined with a systematic methodology:
Levels of Evidence for studies

Quickly find and determine the quality of the evidence - representing research results addressing clinical outcomes and meeting an extensive set of quality criteria which minimizes bias. *DynaMed Plus* provides easy-to-interpret Level of Evidence labels so users can quickly find and determine the quality of the best available evidence.

Obesity in adults

- **Epidemiology**
  - **Likely risk factors**
    - **Stress**
      - *stress associated with increased likelihood of obesity in Australian women living in socioeconomically disadvantaged areas* (level 2 [mid-level] evidence)
        - based on prospective cohort study
        - 1,382 women (aged 18-46 years) from socioeconomically disadvantaged areas of Victoria, Australia were surveyed in 2007-2008 and at 3-year follow-up (Resilience for Eating and Activity Despite Inequality study)
        - perceived stress assessed with 4-item Perceived Stress Scale (PSS) (total score range in this study 4 [not stressed] to 20 [very stressed])
        - obesity in 20.9% at baseline and 23.6% at follow-up (no p value reported)
        - increase of 1 unit in baseline perceived stress associated in multivariate analysis with
          - increased likelihood at follow-up of obesity (odds ratio [OR] 1.11, 95% CI 1.1-2.3)
          - decreased likelihood at follow-up of leisure time physical activity
            - for 53 minutes to 4 hours weekly (OR 0.93, 95% CI 0.88-0.98)
            - for ≥ 5 hours weekly (OR 0.89, 95% CI 0.84-0.94)
          - no associations found between baseline perceived stress and follow-up measures of likelihood of being overweight, sitting time, drinking nondiet soft drinks, or eating salty snacks, candy, cakes, pastries, or pizza
      - Reference - BMC Public Health 2013 Sep 11;13:828 EBSCOhost Full Text full-text
Levels of Evidence using GRADE

Evidence may be labelled in one of three levels:

Levels of Evidence

Quickly find and determine the quality of the evidence.

DynaMed Plus provides easy-to-interpret Level of Evidence labels so users can quickly find and determine the quality of the best available evidence. Evidence may be labeled in one of three levels:

Level 1 (likely reliable) Evidence

Representing research results addressing clinical outcomes and meeting an extensive set of quality criteria which minimizes bias.

There are two types of conclusions which can earn a Level 1 label: levels of evidence for conclusions derived from individual studies and levels of evidence for conclusions regarding a body of evidence.

Download the full Level 1 criteria.

Level 2 (mid-level) Evidence

Representing research results addressing clinical outcomes, and using some method of scientific investigation, but not meeting the quality criteria to achieve Level 1 evidence labeling.

Level 3 (lacking direct) Evidence

Representing reports that are not based on scientific analysis of clinical outcomes. Examples include case series, case reports, expert opinion, and conclusions extrapolated indirectly from scientific studies.
Asthma in adults and adolescents

Treatment / Medications / Immunotherapy

- Five-grass tablet SLIT may prevent epidemic thunderstorm asthma in adults (level 2 [mid-level] evidence)
  - Based on nonrandomized trial
  - 34 adults with ryegrass pollen (RGP)-sensitized seasonal allergic rhinitis (SAR) and exposure to a thunderstorm epidemic in Australia were treated with 1 of 2 regimens
    - 17 treated with commercial five-grass tablet sublingual immunotherapy (SLIT; Oralair) for 4 months prior to spring thunderstorm epidemic season for 2-3 years
    - 17 treated with pharmacotherapy alone
  - Asthma exacerbations during thunderstorm epidemic in 0% with SLIT vs. 41% with pharmacotherapy alone (p < 0.05)
  - Mean rhinitis symptoms (by visual analogue scale)
    - Reduced from 72.8 at baseline to 34.4 after SLIT (p < 0.01)
  - No significant difference after pharmacotherapy alone
- Reference - Am J Respir Crit Care Med. 2018 Feb 20. Early online

Active tuberculosis in patients with HIV infection

Epidemiology / Incidence/Prevalence / Global

Global

- World Health Organization (WHO) global tuberculosis (TB) statistics for 2015
  - Estimated 10.4 million people developed TB (incidence of 142 cases per 100,000 persons)
  - Estimated 1.4 million deaths attributed to TB
  - Estimates among patients with HIV
    - 1.2 million (11%) new cases of TB occurred
    - 390,000 deaths attributed to TB
- Reference - WHO Global Tuberculosis Report 2016 PDF
Rheumatic heart disease (RHD), the long-term sequel of acute rheumatic fever, is a leading cause of heart disease in children in low and middle-income countries.1,2 Poverty and overcrowding are known risk factors for RHD,3,4 and with improvements in socioeconomic conditions, the disease has essentially disappeared in industrialized countries, with the exceptions of the indigenous populations of Australia and New Zealand.6 Indigenous Australians continue to experience among the highest rates in the world, with an acute rheumatic fever incidence of up to 180 per 100,000 children aged 5-14 years, and an estimated RHD prevalence of 0.5 per 100 children in this age group.7 A recent government report showed that young indigenous Australians (≤ 15 years) in the Northern Territory have a 322% greater prevalence of RHD than non-indigenous Australians.8

In populations with high prevalence of RHD, several of the criteria for a disease to be diagnosed as "rheumatic" have been modified. "Rheumatic" has been defined as a process that causes the development of heart disease due to acute infection with the group A β-hemolytic streptococcus. "Rheumatic" is a term that applies to both acute ("rheumatic fever") and chronic ("rheumatic heart disease") processes. In the diagnosis of RHD, the presence of certain clinical and echocardiographic findings is essential. Clinical manifestations include fever, myalgia, arthritis, carditis, and subcutaneous nodules. Echocardiographic findings include thickening of the mitral and aortic valves, regurgitant jets, and perivalvular abnormalities. The diagnosis of RHD is made when these clinical and echocardiographic findings are present in the absence of another cause of valvular heart disease.

The prevention of RHD is a critical component of controlling the disease. The incidence of RHD can be significantly reduced by effective control of group A streptococcal infections, particularly by early diagnosis and prompt treatment of streptococcal pharyngitis. In addition, the use of antibiotics after streptococcal infections can prevent the development of RHD.

Utility of auscultatory screening for detecting rheumatic heart disease in high-risk children in Australia's Northern Territory

**Objective:** To evaluate the utility of auscultatory screening for detecting rheumatic heart disease in children aged 5-14 years in Australia's Northern Territory.

**Setting:** Twelve rural and remote communities in the Northern Territory.

**Participants:** 18 children who have a high risk of developing rheumatic heart disease, based on the presence of clinical and echocardiographic features consistent with rheumatic heart disease.

**Screening:** Auscultatory screening was performed by trained healthcare providers using a stethoscope to auscultate the heart for murmur or other cardiac sounds.

**Results:** All children had a murmur, but only 10 children had a murmur that was consistent with RHD. The sensitivity, specificity, and positive predictive value of auscultatory screening were 100%, 95%, and 100%, respectively. The negative predictive value was not calculated due to the small sample size.

**Conclusion:** Auscultatory screening is a feasible and effective method for identifying children at risk for RHD in Australia's Northern Territory. Further research is needed to evaluate the long-term outcomes of children identified through auscultatory screening.
Cognitive screening tests for dementia

KICA tools appear to help detect or rule out dementia in Indigenous Australian adults aged ≥ 45 years (level 2 [mid-level] evidence)
- based on systematic review without meta-analysis
- systematic review of 5 diagnostic cohort studies published in 4 articles each indicating dementia in 1,133 Indigenous Australian adults aged ≥ 45 years with comparable standard using Diagnostic and Statistical Manual of Mental Disorders II Mental State Examination and Rowland Universal Dementia Assessment
- studies were population-based and not in adults with suspected dementia
- KICA tools were KICA-Cog and KICA-Carer in 1 study, KICA-Screen in another (developed for use in urban and rural settings) in 2 studies
- in 1 study with 349 adults and overall 12% dementia prevalence and 8% without dementia
  - KICA-Cog with cutoff < 34 points had sensitivity 93% and specificity 95%
  - KICA-Carer with cutoff > 2 points had sensitivity 76% and specificity 89%
  - KICA-COG with cutoff < 34 points and KICA-Carer with cutoff > 1 had sensitivity 94%
  - KICA-Screen with cutoff < 22 points had sensitivity 82% and specificity (intentionally oversampling for cognitive impairment) with overall 51% diagnostic accuracy for cognitive impairment without dementia prevalence
- in 1 validation study with 336 adults aged > 60 years (43% urban, mainly female) with
  - < 34 points had sensitivity 57% and specificity 99%
  - > 37 points had sensitivity 86% and specificity 90%
Diabetes mellitus type 2 in adults

Guidelines and Resources / Guidelines / International guidelines

- International Diabetes Organizations joint statement on metabolic surgery in treatment algorithm for type 2 diabetes can be found in Diabetes Care 2016 Jun;39(6):861 EBSCOhost Full Text full-text or in Surg Obes Relat Dis 2016 Jul;12(6):1144, summary can be found in JAMA 2017 Feb 14;317(6):635 EBSCOhost Full Text
- International Association of Gerontology and Geriatrics/European Diabetes Working Party for Older People/International Task Force of Experts in Diabetes position statement on diabetes mellitus in older people can be found in J Am Med Dir Assoc 2012 Jul;13(6):497, commentary can be found in J Am Med Dir Assoc 2013 Feb;14(2):136
- Diabetes Surgery Summit (DSS) consensus statement on use of gastrointestinal surgery for treatment of type 2 diabetes mellitus can be found in Ann Surg 2010 Mar;251(3):399
- International expert consensus on practical guidance to insulin management can be found in Prim Care Diabetes 2010 Apr;4 Suppl 1:S43
- International Society for Pediatric and Adolescent Diabetes (ISPAD) 2014 clinical practice consensus guideline on assessment and monitoring of glycemic control in children and adolescents with diabetes can be found in Pediatr Diabetes 2014 Sep;15 Suppl 20:102 PDF
- International Society for Pediatric and Adolescent Diabetes (ISPAD) clinical practice guideline on diagnosis and management of monogenic diabetes in children and adolescents can be found in Pediatr Diabetes 2014 Sep;15 Suppl 20:47
- Global Task Force on Glycaemic Control consensus statement on intensive glucose therapy and clinical implications of recent data can be found in Int J Clin Pract 2009 Oct;63(10):1421, editorial can be found in Int J Clin Pract 2009 Oct;63(10):1408
Local Guidelines

Gestational diabetes mellitus (GDM)

Guidelines and Resources / Guidelines / Australian and New Zealand guidelines

Australian and New Zealand guidelines

- Queensland Health guideline on gestational diabetes mellitus can be found at Queensland 2015 Aug PDF
- Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) guideline on diagnosis of gestational diabetes mellitus (GDM) and diabetes mellitus in pregnancy can be found at RANZCOG 2014 Jul PDF

Review articles
- review can be found in Am Fam Physician 2009 Jul 15;80(2):152-159
- review can be found in Lancet 2009 May 23;374(9691):684
- review can be found in J Fam Pract 2007 Sep;56(9):570-577
Local Guidelines

Adult preventative health

Guidelines and Resources / Guidelines / Australian and New Zealand guidelines

Australian and New Zealand guidelines

- Queensland Health Chronic Conditions Manual: lifestyle modifications can be found at Queensland 2015 PDF
- Queensland Health Primary Clinical Care Manual guidelines on
  - patient assessment and transport can be found at Queensland 2016 PDF
  - adult health checks can be found at Queensland 2015 PDF
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**Metformin**

**Black Box Warning**

- Oral (Tablet; Tablet, Extended Release; Solution): Death, hypothermia, hypotension, and resistant bradyarrhythmias have been reported due to metformin-associated lactic acidosis. Onset may be subtle and include nonspecific symptoms such as malaise, myalgia, respiratory distress, somnolence, and abdominal distress; laboratory abnormalities include low pH, increased anion gap and elevated blood lactate. The risk of lactic acidosis increases with renal or hepatic impairment, aged 65 years or older, having a radiological study with contrast, surgery, or other procedures, hypoxic states, and excessive alcohol intake. If lactic acidosis is suspected, metformin hydrochloride should be discontinued, supportive measures started in a hospital setting. Prompt hemodialysis is recommended.

**Contraindications/Warnings**

Contraindications

- Acute or chronic metabolic acidosis including diabetic ketoacidosis with or without coma
- Hypersensitivity to metformin
- Severe renal impairment (eGFR below 30 mL/min/1.73 m²)
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