

Wells Criteria For Pulmonary Embolism:

Clinical signs and symptoms of PE Probability (points)*

- 3.0 * Evidence of DVT (leg swelling and pain with palpation)
- 1.5 * Heart rate higher than 100 beats per minute
- 1.5 * Previous objectively diagnosed DVT or pulmonary embolism
- 1.5 * Immobilization for three or more consecutive days or surgery in previous four weeks
- 1.0 * Hemoptysis
- 1.0 * Malignancy
- 3.0 * Pulmonary embolism as a highly likely diagnosis

*--Probability of pulmonary embolism:

- <2 points = low
- 2 to 6 points = moderate
- >6 = high.

ACTION PLAN FOR PE:

Test	Sens	Spec	Pretest probability of PE by Wells' clinical prediction rules (%)					
			High risk: %		Intermediate risk: 27.8%		Low risk: 3.4%	
			PPV	NPV	PPV	NPV	PPV	NPV
CT	77	89	96	52	73	91	20	99
MRI	77	87	96	51	70	91	17	99
ECHO	68	89	96	43	70	88	18	99
TEE	70	81	93	43	59	88	12	99
SimpliRed	89	59	89	60	46	93	7	99
VQS	98	10	80	58	30	93	3	99

Wells Clinical Prediction Rule for DVT

- 1 *Active cancer (treatment within 6 months, or palliation).
 - 1 *Paralysis, paresis, or immobilization of lower extremity
 - 1 *Bedridden for more than 3 days because of surgery (within 4 weeks)
 - 1 *Localized tenderness along distribution of deep veins
 - 1 *Entire leg swollen
 - 1 *Unilateral calf swelling of greater than 3 cm (below tibial tuberosity)
 - 1 *Unilateral pitting edema
 - 1 *Collateral superficial veins
 - (-2)*Alternative diagnosis as likely as or more likely than DVT
- Risk score interpretation (probability of DVT):
 >=3 points: high risk (75%)
 1 to 2 points: moderate risk (17%)
 <1 point: low risk (3%).

ACTION PLAN FOR DVT:

In Low Risk, do D-Dimer and then U/S only if Positive.
 In Moderate to High risk, do U/S. If Negative, do D-Dimer do if positive, repeat U/S. A double negative (U/S & DD) virtually excludes the disease.

San Francisco Syncope Rule to Predict Serious Outcomes in Syncope

- ANY OF...**
- Congestive Heart Failure history?
 - Hematocrit < 30%
 - ECG Abnormal ?
 - Shortness of Breath History?
 - Systolic BP < 90 mmHg at Triage

TIMI SCORE FOR ACS (RISK OF EVENT @ 14d)

One Point For Each Risk Factor

- age 65 years or older
- 2. at least 3 risk factors for coronary artery disease
- 3. prior coronary stenosis of 50% or more
- 4. ST-segment deviation on electrocardiogram at presentation
- 5. at least 2 anginal events in prior 24 hours
- 6. use of aspirin in prior 7 days
- 7. elevated serum cardiac markers

Risk Per Score:

- 0-1= 4.7%
- 2= 8.3%
- 3= 13.2%
- 4= 19.9%
- 5= 26.2%
- 6-7= 40.9%

TIMI SCORE FOR STEMI (30D MORTALITY)

- Age 65-74 2
- >75 3
- Syst. B/P <100 3
- Heart Rate >100 2
- Killip II-IV 2
- Ant STE or LBBB 1
- DM or Hx HTN
- Or Hx Angina 1
- Weight <67 1
- Time to Rx >4hr 1

Mortality % at 30 Days

- 0= 0.8%
- 1= 1.5%
- 4= 7% (Average Mortality)
- 5= 12%
- 6= 16%
- 7= 23%
- 8= 28%
- >8= 36%

KLIPP CLASSIFICATION of CHF

- Killip I -no symptoms with normal activity, clear lungs
- Killip II -normal activities initiate symptoms, but subside at rest
- Killip III -symptoms on minimal activity or rest/pulmonary edema
- Killip IV -cardiogenic shock

TABLE 10-3 Pediatric Glasgow Coma Scale

SCORE	EYE OPENING	
	0-1 YEAR	>1 YEAR
4	Spontaneously	Spontaneously
3	To shout	To verbal command
2	To pain	To pain
1	No response	No response
SCORE	BEST MOTOR RESPONSE	
	0-1 YEAR	>1 YEAR
6	Localizes pain	Obeys command
5	Flexion withdrawal	Localizes pain
4	Decorticate	Flexion withdrawal
3	Decerebrate	Decorticate
2	Decerebrate	Decerebrate
1	No response	No response
SCORE	BEST VERBAL RESPONSE	
	0-2 YEARS	>5 YEARS
5	Appropriate cry	Appropriate words
4	Smiles, coos and phrases	and phrases
3	Cries	Inappropriate words
2	Inappropriate cry	Disoriented, converses
1	Grunts	Incomprehensible sound
0	No response	No response

PARAMETER	0	1	2
Color	Blue, pale	Body pink, extremities blue	Tachy pink
Muscle tone	None, limp	None, limp	Active, good flexion
Heart rate	Absent	< 100	> 100
Respiration	Absent	Slow, irregular	Strong, regular
Reflex irritability (response to nasal catheter)	None	Some grimace	Good grimace, crying

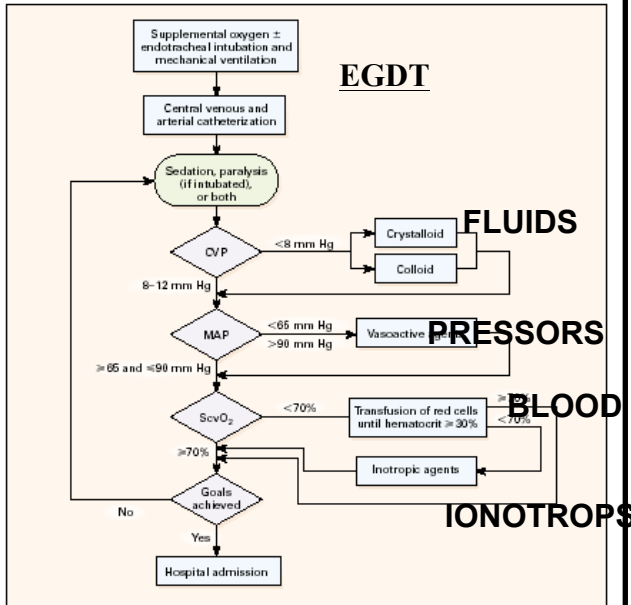
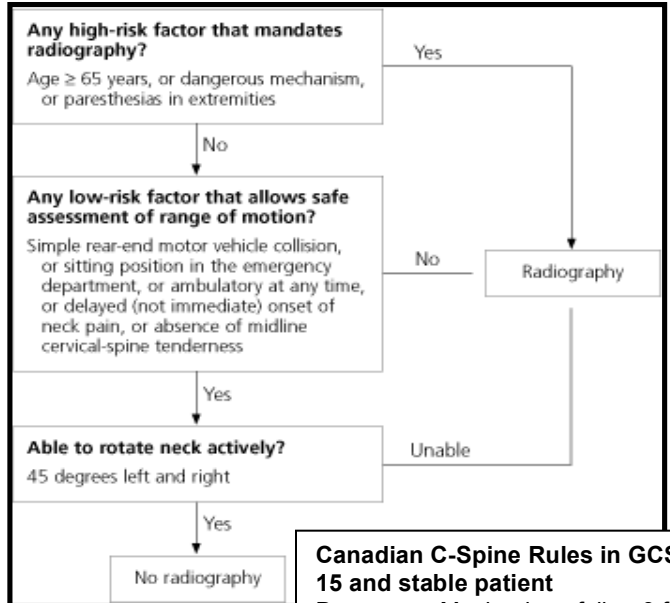


Figure 2. Protocol for Early Goal-Directed Therapy. CVP denotes central venous pressure, MAP mean arterial pressure, and ScvO₂ central venous oxygen saturation.

Some Useful Clinical Decision Rules

ABCD TIA Risk Score		
Risk factor	Category	
Age	Age≥60	1
	Age<60	0
Blood pressure at assessment	SBP>140 or DBP≥90	1
	Other	0
Clinical Features	Unilateral weakness	2
	Speech disturbance (no weakness)	1
	Other	0
Duration	≥60 minutes	2
	10-59 minutes	1
	<10 minutes	0
Diabetes		1
TOTAL		7

Risk of Completed Stroke in the Next 7 Days
 Scores 0-3: low risk
 Scores 4-5: moderate risk
 Scores 6-7: high risk



Canadian C-Spine Rules in GCS 15 and stable patient
 Dangerous Mechanism=fall ≥3 ft or 5 steps, Axial load, MVC>100km/hr, Rollover, Ejection, ATV, bicycle collision

Canadian CT Head Rules

Findings that should prompt CT evaluation by the standards of the CCHR include:

- * GCS score less than 15 at two hours or more after the injury
 - * Suspected open or depressed skull fracture
 - * Any sign of basal skull fracture
 - * Two or more episodes of vomiting
 - * Age, 65 years or older
 - * More than 30 minutes of amnesia of events prior to the injury
 - * Dangerous Mechanism of Injury
- Dangerous Mechanism of Injury Include:*
1. Automobile vs pedestrian crash
 2. Ejection from a motor vehicle
 3. Fall from more than three feet
 4. Fall from five or more stairs.
- *****
 The CCHR does not apply to persons younger than 16 years old or those with a hypocoagulable state

NEXUS C-Spine Rules

Cervical-spine radiography is indicated for patients with trauma unless they meet all of the following criteria:
 No posterior midline cervical-spine tenderness,
 No evidence of intoxication,
 A normal level of alertness,
 No focal neurologic deficit,¶
 No painful distracting injuries.

AHA/ACC 2004 STEMI GUIDLINES:

- Absolute Contraindications
- Any prior intracranial hemorrhage
 - Known structural cerebral vascular lesion (e.g., arteriovenous malformation)
 - Known malignant intracranial neoplasm (primary or metastatic)
 - Ischemic stroke within 3 months EXCEPT acute ischemic stroke within 3 hours
 - Suspected aortic dissection
 - Active bleeding or bleeding diathesis (excluding menses)
 - Significant closed-head or facial trauma within 3 months
- Relative Contraindications
- History of chronic, severe, poorly controlled hypertension
 - Severe uncontrolled hypertension on presentation (SBP greater than 180 mm Hg or DBP greater than 110 mm Hg)†
 - History of prior ischemic stroke greater than 3 months, dementia, or known intracranial pathology not covered in contraindications
 - Traumatic or prolonged (greater than 10 minutes) CPR or major surgery (within less than 3 weeks)
 - Recent (within 2 to 4 weeks) internal bleeding
 - Noncompressible vascular punctures
 - For streptokinase/anistreplase: prior exposure (more than 5 days ago) or prior allergic reaction to these agents
 - Pregnancy
 - Active peptic ulcer
 - Current use of anticoagulants: the higher the INR, the higher the risk of bleeding

Rochester Criteria for Identifying Febrile Infants at Low Risk for Serious Bacterial Infection

- 1- Infant appears generally well
- 2- Infant has been previously healthy:
 - Born at term (>=37 weeks of gestation)
 - No perinatal antimicrobial therapy
 - No treatment for unexplained hyperbilirubinemia
 - No previous antimicrobial therapy
 - No previous hospitalization
 - No chronic or underlying illness
 - Not hospitalized longer than mother
- 3- Infant has no evidence of skin, soft tissue, bone, joint or ear infection
- 4- Infant has these laboratory values:
 - White blood cell count of 5,000 to 15,000 per mm³ (5 to 15 x 10⁹ per L)
 - Absolute band cell count of <=1,500 per mm³ (<=1.5 x 10⁹ per L)
 - Ten or fewer white blood cells per high-power field on microscopic examination of urine
 - Five or fewer white blood cells per high-power field on microscopic examination of stool in infant with diarrhea

Mclsaac Criteria for GAS Pharyngitis

- History of temp >38
- Absence of Cough
- Tender Anterior LAP
- Tonsillar swelling or excaudate
- Age 3-14 15-44 (0) >45 (-1)
- RISK of GAS 0=1%, 1=10%, 2=17%, 3=35%, 4-5=50%

Some Useful Clinical Decision Rules

Table 1. Croup scoring system of Westley et al¹

Symptoms	Croup score				
	0	1	2	3	5
Stidor at rest	None	Audible with stethoscope	Audible without stethoscope	-	-
Retractions	None	Mild	Moderate	Severe	-
Air entry	Normal	Decreased	Severely decreased	-	-
Cyanosis	None	With agitation	At rest	-	-
Level of consciousness	Normal	-	-	-	Altered

>4 Mild
 4-6 Mod
 >6 Severe

The Fine Pneumonia Severity Index

- Demographic factors**
- Age:
 - o Males: Age (in years)
 - o Females: Age (in years) -10
 - Nursing home resident+10
- Comorbid illnesses**
- Neoplastic disease: +30
 - Liver disease: +20
 - Congestive heart failure: +10
 - Cerebrovascular disease: +10
 - Renal disease: +10
- Physical examination findings**
- Altered mental status: +20
 - Respiratory rate 30/minute or more: +20
 - Systolic blood pressure <90 mmHg: +20
 - Temperature <35 degrees C or 40 degrees C or more: +15
 - Pulse 125/minute or more: +10
- Laboratory findings**
- pH <7.35: +30
 - BUN >10.7 mmol/L: +20
 - Sodium <130 mEq/L: +20
 - Glucose >13.9 mmol/L: +10
 - Hematocrit <30 percent: +10
 - PO2 <60 mmHg (2): +10
 - Pleural effusion: +10

Stratification of Risk Score for Prediction Model

Risk	Risk Class	Based on
Low	I	Algorithm
Low	II	70 or fewer total points
Low	III	71-90 total points
Moderate	IV	91-130 total points
High	V	> 130 total points

Ottawa knee rules

- Age 55 years or older
- Tenderness at head of fibula
- Isolated tenderness of patella
- Inability to flex knee to 90 degrees
- Inability to walk four weight-bearing steps immediately after the injury and in the emergency department

Pittsburgh decision rules

- Blunt trauma or a fall as mechanism of injury plus either of the following:
 - Age younger than 12 years or older than 50 years
 - Inability to walk four weight-bearing steps in the emergency department

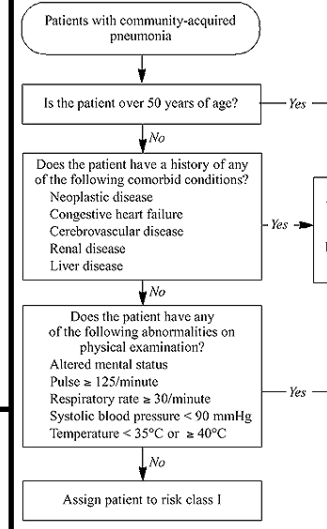
OTTAWA ankle and foot rules

(not for pregnant or children)

X-rays are only required if there is any pain in the malleolar or midfoot area, and any one of the following:

- * Bone tenderness along the distal 6 cm of the posterior edge of the tibia or tip of the medial malleolus
- * Bone tenderness along the distal 6 cm of the posterior edge of the fibula or tip of the lateral malleolus
- * Bone tenderness at the base of the fifth metatarsal (for foot injuries).
- * Bone tenderness at the navicular bone (for foot injuries).
- * An inability to bear weight both immediately and in the emergency department for four steps.

Algorithm for Prediction Model



PERC rule

- Age <50
 - HR <100
 - SaO2 >94%
 - No unilateral leg swelling
 - No hemoptysis
 - No recent trauma/surgery
 - No prior PE/DVT
 - No hormone use
- (if all 8 criteria are negative, pretest probability of PE is low)

Notes and Equations:

- Child Wt=8+(age x 2)
- ET in child=4+Age/4
- ET Placement=size x 3
- SBP child=70+Age x 2
- AaGradient=710 x FiO2 - PCO2/0.8 - PaO2
- Anion Gap= Na - Cl - NaHCO3
- Burn Parkland ml/24hr=4 x Wt x BSA%
- Ca correction =SCa + 0.02 (40 - Alb)
- QTC=QT/sqr (R-R in Sec)
- Osmolar gap=S. Osm - (2xNa+G+BUN+ETOH)
- Na deficit =0.6 x (140 - S. Na)
- Na Daily req=Wt x 3-4 mEq/d
- K Req= Wt x 2-3 mEq/d
- Factional Na excre=(U.Na/S.Na)/(U.Cr/S.Cr)x100%

Asthma CAEP Classification

		Mild	Moderate	Severe	Near Death
Adult	Osat			<90	<90
	FEV1	>60% >2.1	40-60%	<40% (<1.6)	N/A
Child	PEFR	>300	200-300	<200	N/A
	Osat	>95%	92-95%	80-92%	<80%
	FEV1/PEFR	>75%	50-75%	<50%	N/A
	Speech	Normal	Normal	Difficut	Silent Chest
	Mentation	Normal	Normal	Anxious agitated	Confused
	Other	Night/exercise symptoms	No full relief with SABA	Tachy, labored	Brady

CHADS2 score

- C congestive heart failure 1
- H hypertension (BP>140/90) 1
- A age ≥75 1
- D diabetes 1
- S2 stroke/TIA 2

CHA2DS2-VASc score

- C congestive heart failure 1
- H hypertension (BP>140/90) 1
- A2 age ≥75 2
- D diabetes 1
- S2 stroke/TIA 2
- V vascular d/s (PVD, MI etc) 1
- A age 65-74 1
- Sc female gender 1

Annual Stroke Risk

- CHADS2: 0 → 1.9%
- 1 → 2.8%
- 2 → 4.0%
- 3 → 5.9%
- 4 → 8.5%
- 5 → 12.5%
- 6 → 18.2%

Anticoagulation based on CHADS2 score

- 0 Aspirin
- 1 Warfarin/Aspirin
- 2 Warfarin

Anticoagulation based on CHA2DS2-VASc score

- 0 no therapy/Aspirin
- 1 Dabigatran/Warfarin/Aspirin
- 2 Dabigatran/Warfarin

Some Useful Clinical Decision Rules

PE severity index

Predictors:	Score:	Low Risk (can treat with LMWH as out-patient)	
Demographics		≤ 65: class I	overall 90 day mortality 0.7%
Age	years	66-85: class II	1.2%
Male sex	+10		
Co-morbidities		High Risk	
Cancer	+30	86-105: class III	4.8%
Heart failure	+10	106-125: class IV	13.6%
Chronic lung disease	+10	> 125: class V	25.0%
Clinical Findings			
HR > or = 100	+20		
SBP < 100 mmHg	+30		
RR > or = 30	+20		
Temperature <36C	+20		
Altered LOC	+60		
SaO2 < 90%	+20		