

# High Mortality Risk Diagnoses for Medicine Patients

High-Risk Syndromes	Primary Diagnoses*	Common Related Diagnoses/Complications	Additional Tips
<b>Sepsis</b> .sepsis	SIRS (any 2: T >38 or <36, HR >90, RR >20, WBC >12 or <4, Bands >10%, or AMS) Septicemia (SIRS + positive blood culture) Sepsis (SIRS + suspected infection) Severe sepsis (sepsis + end-organ damage) Septic shock (sepsis + hypotension despite fluids)	Acidosis, <i>acute organ damage/failure</i> (acute respiratory failure, ARF), comfort/palliative care, DNR status, invasive ventilation, NIPPV	<u>AVOID:</u> - Urosepsis - Bacteremia
<b>Shock</b> .shock	Cardiogenic Hypovolemic Septic	Acidosis, acute blood loss anemia, <i>acute organ damage/failure</i> , comfort/palliative care, DNR status, invasive ventilation, NIPPV	<u>INCLUDE:</u> - Decompensated systolic/diastolic HF <u>AVOID:</u> - Dehydration
<b>Respiratory Failure/Distress</b> .respiratoryfailure	Acute Respiratory Distress Syndrome (ARDS) Acute Respiratory Failure (Hypercapnic and/or Hypoxemic) Asthma/COPD Exacerbation (Mild, Mod, Severe, Life-threatening) Chronic Respiratory Failure	Acidosis, ARDS, CHF, OSA, PAH, PE, pulmonary edema, pneumonia, shock lung, status asthmaticus	<u>INCLUDE:</u> - Acuity - Vent or NIPPV
<b>Heart Failure</b> .heartfailure AKA .chf .hf	Systolic and/or Diastolic Left, Right, Biventricular Ischemic, Non-ischemic	<i>Arrhythmias</i> , cardiogenic shock, cardiomyopathy, CKD, DM, malignant HTN, prior MI/CAD, PAH, PVD, <i>valvular heart disease</i>	<u>INCLUDE:</u> - Acute or chronic - Systolic/Diastolic - NYHA class - LVEF %
<b>Liver Failure</b> .liverfailure AKA .esld .cirrhosis	Acute hepatic failure, Shock liver ESLD, Cirrhosis (alcohol, biliary, HCC) Hepatitis (viral, chronic)	Acute blood loss anemia, ascites, coagulopathy, encephalopathy, hepatorenal syndrome, portal HTN, portal vein thrombosis, varices	<u>INCLUDE:</u> - sx decompensation - MELD score
<b>Kidney Failure</b> .kidneyfailure AKA .aki .arf .ckd .esrd	ATN, AKI, AIN CKD (Stage I-IV) ESRD on PD/HD	Anemia, acidosis, bone-mineral disease, prior MI/CAD, electrolyte problems, malignant hypertension	<u>INCLUDE:</u> - Underlying etiology - CKD staging
<b>Coagulopathies and Cytopenias</b> .coagulopathy .anemia	Anemia (acute blood loss, aplastic, hemolytic) DIC Pancytopenia (due to chemo, due to disease) Thrombocytopenia, HIT, TTP-HUS	Acute blood loss anemia, chemotherapy, cirrhosis/ESLD, <i>malignancy</i> (sites, mets), transfusion dependence	<u>INCLUDE:</u> - Indication for transfusion(s)
<b>Altered Mental Status</b> .ams .stroke	Delirium (acute, subacute) Dementia Coma, Encephalopathy (metabolic, hepatic, toxic) Stroke (ischemic/embolic, hemorrhagic), TIA	Brain compression/herniation, cerebral edema, dementia, hemiplegia/paresis	<u>INCLUDE:</u> - Neurologic sequelae - Chronic disabilities
<b>Metabolic Syndromes</b> .diabetes	Acidosis, Alkalosis DM (Type 1, 2, MODY, steroid-induced) Hyponatremia, Hypernatremia	CAD/prior MI, dyslipidemia, ketoacidosis, nephropathy/CKD/ESRD, PVD, retinopathy, neuropathy	<u>INCLUDE:</u> - Last A1C, lipids - Severity of lytes or acid-base disturbance
<b>GI Syndromes/Malnutrition</b> .malnutrition	Acute or chronic malnutrition Anorexia nervosa Cachexia Obesity/Morbid Obesity	Decub ulcer (stage), dysphagia, gastric bypass, ileus, HIV/AIDS, end-stage organ disease, malignancy and/or chemotherapy, malabsorption, vitamin/mineral deficiencies	<u>INCLUDE:</u> - Malnutrition staging <u>AVOID:</u> - Failure to thrive
<b>Pneumonia</b> .pneumonia AKA .vap .hcap .cap	Aspiration pneumonia Bacterial/viral/fungal pneumonia Ventilator-associated pneumonia	Acute respiratory distress/failure, acidosis, delirium, dementia, encephalopathy, immunosuppression, invasive ventilation, NIPPV, <i>sepsis</i>	<u>INCLUDE:</u> - Causative organism or source

## Remember to include (as appropriate):

- **Primary diagnosis** (e.g. reason for admission after work-up. Avoid signs/symptoms if underlying diagnosis is known!)
- **Acuity** (e.g. acute, subacute, chronic, acute on chronic)
- **Severity** of disease (e.g. mild, moderate, severe)
- **Etiology** (e.g. due to...)
- **Complications** (e.g. secondary diagnoses, surgical or medical interventions)
- **Response/progression** (e.g. improving, stable, worsening)

\* For inpatients, if the dx is not certain, it is *ok to use qualifiers: possible, probable, likely* (except on D/C summary)

# High-Risk Diagnoses for Medicine Patients

## Sepsis

### Diagnostic Criteria for Sepsis

#### SIRS

- Any two: T >38 or <36, HR >90, RR >20, WBC >12 or <4, Bands >10%, or AMS

**Septicemia** SIRS + positive blood culture

**Sepsis** SIRS + suspected infection

**Severe Sepsis** Sepsis + end-organ damage

**Septic Shock** Sepsis + hypotension despite fluids

Adapted from Dellinger RP et al. Surviving sepsis campaign: international guidelines for management of severe sepsis and septic shock: [2012. Crit Care Med. 2013;41\(2\):580-637](#)

## Shock

### Hemodynamic Parameters in Types of Shock\*

	CO	SVR	SvO <sub>2</sub>	PCWP
<b>Cardiogenic</b>	↓	↑	↓	↑
<b>Hypovolemic</b>	↓	↑	↓	↓
<b>Distributive/Septic</b>	↑	↓	↑	↓ or ↔

\*In critically ill patients, use of the pulmonary arterial catheter neither increased overall mortality or days in hospital nor conferred benefit.

Adapted from Shah MR et al. Impact of the pulmonary artery catheter in critically ill patients: meta-analysis of randomized clinical trials. [JAMA. 2005;294\(13\):1664-1670](#)

## ARDS

### Berlin Staging

#### ARDS

- Acute lung injury (<1 week) after insult with progressive respiratory symptoms.
- Bilateral opacities on chest imaging not explained by other pathology
- Respiratory failure not explained by HF or edema
- Decreased arterial PO<sub>2</sub>/FiO<sub>2</sub> ratio.

**Mild\*** PaO<sub>2</sub>:FiO<sub>2</sub> 201 - 300 mmHg

**Moderate\*** PaO<sub>2</sub>:FiO<sub>2</sub> 101 - 200 mmHg

**Severe\*** PaO<sub>2</sub>:FiO<sub>2</sub> ≤ 100 mmHg

\*On PEEP 5+ (or CPAP 5+ for mild cases)

Adapted from The ARDS Definition Task Force. Acute Respiratory Distress Syndrome: The Berlin Definition. [JAMA. 2012;307\(23\):2526-2533](#)

## Heart Failure

### NYHA Staging

<b>NYHA I</b>	No limitation in activity
<b>NYHA II</b>	Slight limitation in physical activity
<b>NYHA III</b>	Marked limitation in physical activity
<b>NYHA IV</b>	Severe limitations; symptoms at rest

Adapted from Hunt SA et al. ACC/AHA Guidelines for the Evaluation and Management of Chronic Heart Failure in the Adult. [Circulation. 2001;104:2996-3007](#)

## Systemic Hypertension

### JNC Staging

<b>Prehypertension</b>	SBP 120-139 or DBP 80-89
<b>Stage I</b>	SBP 140-159 or DBP 90-99
<b>Stage II</b>	SBP ≥160 or DBP ≥100
<b>Accelerated (Urgency)</b>	SBP ≥180 or DBP ≥110 Minimal or no end-organ damage
<b>Malignant (Emergency)</b>	Any elevated BP Signs/symptoms of end-organ damage

Adapted from Chobanian et al. JNC 7. [Hypertension. 2003; 42: 1206-1252](#)

## Acute Renal Failure

### Differentiating Intrinsic Renal Disease\*

<b>AKI (ARF)</b>	↑Cr ≥0.3 mg/dl within 48 h ↑Cr ≥1.5x baseline (compared to 1 <sup>+</sup> wk prior) ↓Urine vol ≤0.5 mL/kg/h x 6 hours
<b>ATN</b>	↑FENa/FEUrea, UA: casts, ±RBCs
<b>AIN</b>	UA: WBCs, ±RBCs, ±eos, ±lymphs
<b>Small-vessel</b>	UA: ±RBCs, ±eos
<b>Nephritis</b>	UA: ±RBCs casts, ±dysmorphic RBCs

\*When appropriate, specify intrinsic disease (e.g. ATN, AIN, nephritis), or extrinsic disease (pre- or post-renal disease) to differentiate types of AKI.

Adapted from Mehta RL et al. Acute Kidney Injury Network: report of an initiative to improve outcomes in acute kidney injury. [Crit Care. 2007;11\(2\):R31](#)

## Chronic Kidney Disease

### Staging by GFR (mL/min/1.73 m<sup>2</sup>)

<b>Stage I</b>	GFR ≥90
<b>Stage II</b>	GFR 60-89
<b>Stage III</b>	GFR 30-59
<b>Stage IV</b>	GFR 15-29
<b>ESRD/Stage V</b>	GFR <15

Adapted from Levey AS et al. National Kidney Foundation Practice Guidelines for Chronic Kidney Disease: Evaluation, Classification, and Stratification. [Ann Intern Med. 2003;139\(2\):137-147](#)

## Decubitus Ulcer Staging

### NPUAP Clinical Staging

<b>Stage I</b>	Non-blanching erythema of the skin
<b>Stage II</b>	Partial-thickness ulceration; loss of epidermis
<b>Stage III</b>	Full-thickness ulceration; into subcu fat but not through deep fascia
<b>Stage IV*</b>	Deep ulceration through the muscle, tendons, bone/joints ; extensive tissue necrosis
<b>Unstageable**</b>	Covered by an eschar; depth undeterminable

\*Often with osteomyelitis

\*\*Often requires debridement for staging

Adapted from: [National Pressure Ulcer Advisor Panel, 2007](#)

## Chronic Malnutrition (>3 months)

### Staging with Clinical Indicators\*

	Alb	Prealb	Ideal Wt	Usual Wt	BMI
<b>Mild</b>	≤3	<15	<90%	<95%	<18.5
<b>Moderate</b>	≤2.5	<10	<80%	<85%	<17
<b>Severe</b>	<2	<5	<70%	<75%	<16
<b>Cachexia</b>	Weight loss >5% in 12mo w/ underlying illness; plus any three: decreased strength, fatigue, anorexia, lean tissue depletion, abnormal biochemistry (CRP >5, Alb <3.2, Hgb <12)				

\*At least two indicators should be present in addition to physical findings and high-risk clinical circumstances. Albumin and prealbumin are one indicator, not two, and should be interpreted with caution.

Adapted from White JV et al. Consensus Statement of the AND/ASPEN: Characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). [J Acad Nutr Diet. 2012;112:730-738](#), and Evans WJ et al. Cachexia: a new definition. [Clin Nutr. 2008;27:793-799](#)