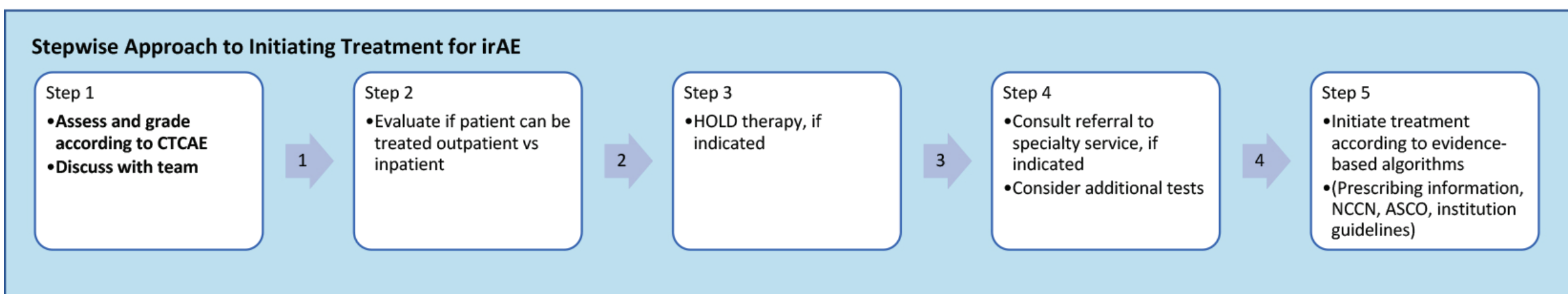


# Immune-related Toxicity Management Pocket Guide for Pharmacists and Nurses\*

Assessment of Immune-Related Adverse Events (irAE)				
Provocation/Palliation	Quality/Quantity	Region/Radiation	Severity Scale	Timing
-What makes it better? -What makes it worse/does not help at all?	-What does it feel like? -What does it look like? -Rate on scale	-Where is it?	-Does it prevent you from sleeping at night? -Does it impair your daily activities?	-When did it start? -How long does it last?
SYSTEM	INFLAMMATORY CONDITION (s)	ROUTINE MONITORING	ASSESSMENT USING GRADING CONSIDERATIONS	ADDITIONAL TESTING IF irAE SUSPECTED
GASTROINTESTINAL	COLITIS ENTERITIS	Baseline bowel habits Comprehensive metabolic panel (CMP) prior to each treatment	Increase in number of stools from baseline Oral intake of food and liquids Presence of blood or mucus in stool Weight changes Do symptoms interfere with instrumental ADLs? Self-care ADLs?	Stool culture Abdominal CT Scope (consider) Infectious stool evaluation (r/o other causes)
	HEPATITIS TRANSAMINITIS	Physical exam at each visit CMP prior to each treatment Changes in medications, nutritional supplements, social habits	Hepatic failure: RUQ Pain, pruritis, jaundice, asterixis, scleral icterus, bleeding Nausea/ Decreased appetite Pain Do symptoms interfere with instrumental ADLs? Self-care ADLs?	Infectious disease screening (Hepatitis A, B, C), HIV, as indicated Abdominal CT (consider) Liver MRI (consider) Hold hepatotoxic medications, foods, and supplements
	PANCREATITIS	CMP prior to each treatment	Epigastric pain/ pain severity Nausea/Vomiting Weakness, confusion	Amylase and lipase levels Abdominal CT MRCP (consider)
RESPIRATORY	PULMONITIS PNEUMONITIS	Physical exam at each visit O2 saturation PFTs (consider)	Cough (dry vs productive) Shortness of breath (when walking, talking, at rest) Do symptoms interfere with instrumental ADLs? Self-care ADLs? Fever Chest pain	Chest CT Bronchoscopy with BAL to rule out other causes
INTEGUMENTARY	DERMATITIS	Physical exam at each visit	Rash characteristics: color, pattern, raised/flat, blistering, peeling, location and extent of body affected (rule of 9s) Pruritis and/or hives Mucositis Onset/Duration Do symptoms interfere with instrumental ADLs? Self-care ADLs?	Dermatology referral Photographic documentation
ENDOCRINE	THYROIDITIS	TSH, Free T4 (every 4-6 weeks on therapy)	Fatigue/lethargy; % of day spent in bed, sleeping, sitting in chair Change in cognition Tachycardia Anxiety Tremor Constipation Feeling cold	TSH, Free T4
	DIABETES	Serum glucose prior to each treatment	Excessive thirst, frequent urination Weakness DKA symptoms	C-peptide with repeat serum glucose Evaluate for DKA A1C
	HYPOPHYSITIS	Morning cortisol level prior to each treatment (consider)	Acute onset headache Photophobia Nausea/Vomiting Fatigue; % of day spent in bed, sleeping, sitting in chair	TSH, Free T4 LH, FSH Testosterone (m), Estradiol (f) ACTH, Serum cortisol

			Muscle weakness Hypotension	Brain MRI
<b>MUSCULOSKELETAL</b>	MYOSITIS ARTHRITIS	Physical exam at each visit Functional assessment	Muscle pain Joint pain	CMP, anti-CCP ESR, CRP, RF, ANAN, anti-CCP CK Troponin X-ray, joint ultrasound, joint MRI
	GIANT CELL ARTERITIS	Physical exam at each visit	Visual changes Headache Scalp tenderness Jaw stiffness	ESR, CRP, RF, anti-CCP Temporal artery ultrasound (consider)
<b>NEUROLOGIC</b>	ENCEPHALITIS MENINGITIS	Baseline physical exam Neurologic exam	Headache Confusion Short-term memory loss Seizures Altered speech Neck stiffness Weakness Fever/Afebrile	Neurology evaluation/consult MRI brain/spine (consider) Lumbar puncture EEG CMP ESR, CRP, RF AChR antibodies EMG Tendon reflexes
	GUILLAIN-BARRÉ SYNDROME		Ascending muscle weakness Facial muscle changes Back and/or leg pain	
	MYASTHENIA GRAVIS		Progressive muscle weakness Facial muscle changes Altered breathing due to respiratory muscle changes	
	EPISCLERITIS UVEITIS	Baseline physical exam	Eye redness Blurred/distorted vision Itching Changes in color perception Eye pain/swelling Floaters Photophobia	Ophthalmology evaluation Vision testing (visual acuity, color vision, pupil size, shape, and reactivity, red reflex, fundoscopic exam)
<b>CARDIOVASCULAR</b>	MYOCARDITIS PERICARDITIS	Physical exam at each visit EKG (consider) ECHO (consider)	Chest pain (pain rating) Shortness of breath Fatigue: % of day spent in bed, sleeping, sitting in chair Irregular heartbeat Dizziness/ Fainting Do symptoms interfere with instrumental ADLs? Self-care ADLs? At rest?	Cardiology referral Cardiac biomarkers (troponin, CK, BNP, lipid panel), inflammatory markers, viral titers EKG, MRI, consider catheterization biopsy ECHO Telemetry monitoring
<b>RENAL</b>	NEPHRITIS/ ACUTE KIDNEY INJURY	Physical exam at each visit CMP prior to each treatment. Evaluate other potential etiologies.	Change in urine output	Hold nephrotoxic medications Dose adjust medications based on CrCl Spot urine protein/creatinine ratio.



**References:**

The NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Management of Immunotherapy-Related Toxicity.1.2022. © National Comprehensive Cancer Network, Inc. 2022. All rights reserved. Accessed September 16, 2022. To view the most recent and complete version of the guideline, go online to NCCN.org. Common Terminology Criteria for Adverse Events (CTCAE) Version 5. Published: November 27. US Department of Health and Human Services, National Institutes of Health, National Cancer Institute.

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\*This guide has been developed to accompany the CE activity titled, Optimizing the Management of Advanced Gastric Cancer: The Importance of Knowing When and How to Utilize Immune Checkpoint Inhibitors, on PowerPak at <https://www.powerpak.com/course/preamble/123182> and Medscape, September 2022. It is not intended as a standalone reference. The guide is provided to you solely as an educational resource for your personal use. Any commercial use or distribution of these materials or any portion thereof is strictly prohibited.