Table-2: Factors influencing decision making mapped to the socio-ecological framework.

	Categories	Explanation and Examples
Individual (Microsystem)	**Attitudes, Values, Preferences**	
	Values and Preferences	• Variable preference to use decision rules before ordering imaging tests (example - using the Wells or Geneva score before deciding if an imaging study is needed to diagnose pulmonary embolism versus going straight to imaging) • Values based on patient demographics (offering intra-cardiac devices for primary prevention to all versus selectively based on age and comorbidities)
	Comfort with uncertainty	• Perceived responsibility not to miss anything, leading to increased testing to increase certainty
	Patient advocacy	• Composing the history such that the symptoms sound more concerning than in physician's assessment to meet insurance preauthorization criteria
	Adaptability	• Ability to learn new rules, change practice and adapt to rapidly changing practice settings, reimbursement rules and regulations
	Knowledge, Awareness, Abilities	
	Physical exam	• Decreasing confidence in physical exam findings leads to increased testing
	Literature review skills	• Limited understanding of literature and ability to review further limits capacity for an evidence based plan
	Abilities	• Ability to apply knowledge to a patient care context (knowing versus doing)
	Time constraints	• Less time to talk to patients, easier to get a test than to discuss symptoms
	Experience, Perceptions, Practice routines	
	Past lawsuit	• Increased apprehension resulting in practicing defensive medicine
	Follow all/most conditional CPG - recommendations	• Feel compelled to consider conditional (class-II) recommendations due to fear of lawsuit in-case of negative outcome. • Overuse of tests without improving patient outcomes.
	Routines; fill testing schedule	• Patients routinely get an echo before every cardiology appointment. • Need to do more tests to make payments on testing equipment.
Inter	**Peer**	
	Community	• Peer pressure to conform to prevalent community practice which

	norms	may result in increased testing (yearly stress tests after PCI)
	Expectations and needs of collaboration	• Referring provider expects some testing if they refer patients to specialist. • Perform tests to satisfy collaborating physicians in other specialties.
	Issues of trust and power imbalance	• Lack of trust in primary care provider to test and treat effectively leading to increased/duplicate testing • Treating based on preference of the senior-physicians in the practice
	Patient	
	Expectations	• Patients expect tests to be performed, especially if they have insurance (return on investment)
	Satisfaction, reassurance	• Reassure patients, perform testing upon request; Need to keep patient in practice
	Ability to pay (out of pocket costs)	• Patients with high deductible insurance consider costs of testing in decisions. Drug costs
	Administrator	
	Practice managers and division chiefs may suggest increased testing to increase revenue (or decrease testing if DRG/bundled payments). Influenced by the manager or chief's values.	
Organizational (Exosystem)	**Evidence, CPG, AUC**	
	Trust in EBM and CPG recommendations	• Mistrust of relevant evidence, mistrust of the CPG-panel members (conflicts of interest, perception of panelists as academic purists without experience treating patients in a busy practice)
	Number and complexity of the guidelines	• Numerous guidelines on a topic with varying, sometimes discordant recommendations. Too long, too detailed (miss the forest for the trees), even executive summaries are complex.
	Limited AUC Adoption	• Concerns with appropriateness of AUC (wishy-washy, too watered down). Most based on expert opinion, not evidence
	Practice Environment	
	Private-Practice	• Fee for service, increased revenue with increased testing
	Academic	• Productivity based bonuses, RVU-expectations
	Hospital practice	• Efforts to decrease length of stay, decrease tests and consults

	Number of procedures	• Need to meet minimum number of procedures to maintain proficiency in interpretation for accreditation
	Protocols	• Following algorithms leads to increased unnecessary testing
	Cost comparison with peers	• Hospitals provide feedback to cardiologists about their costs compared to their peers to modify prescription behavior.
	Teaching/Learning, Oversight	
	Impact of trainees	• Need to stay current if participating in a teaching program.
	Lack of checks and balances	• Inadequate quality controls for physicians in practices; no consistent mechanisms to assess quality of care provided. Recertification and CME requirements insufficient to ensure high-quality practice.
	Costs, Insurance Coverage	
	Insurance company rules and restrictions	• Cardiologists practice within the confines of insurance industry rules. Sometimes rules applied inappropriately due to overlapping clinical scenarios and indications for testing and treatment. • Less testing with HMO patients,
	Restrictions	• Preauthorization, formulary restrictions, co-pays, deductible
	Selective referrals	• Insurance encourage referrals to specialists who provide care at lower cost (ability to drill down costs attributable to individual provider)
Environmental and Sociopolitical (Macrosystem)	**Medicolegal concerns**	
	Varies locally and legislation varies in different states in the USA, physician specialty. Interviewees eluded to change in ordering behavior based on medicolegal concerns.	
	Pharmaceutical and Device companies	
	Marketing	• Aggressive push to prescribe for off-label indications
	Patient incentives	• Pharmaceutical companies cover patient copays, provide coupons etc.
	Divergent views on best approach to affordable healthcare	
	Based on sociopolitical views, state supported insurance programs (Medicaid) vary across states.	
	Varied and divergent views on what constitutes best practices, on what is wrong with the current system and potential solutions to improve health care quality and efficiency (noted during interviews). Personal political views may influence practice pattern.	

Abbreviations: EBM – evidence based medicine; CPG – clinical practice guidelines; AUC – appropriate use criteria; PCI – percutaneous coronary Intervention; RVU – relative value unit (a measure to calculate productivity); CME – continuing medical education; HMO – health maintenance organization