

Design Domain <sup>51</sup>	Example factors and sample question prompts
User groups	<ul style="list-style-type: none"> <li>• Timing, benefits &amp; obstacles to using CDS for managing at-risk patients</li> <li>• Attitudes, beliefs, &amp; knowledge regarding treatment of at-risk patients</li> <li>• Potential impact of ED-TREAT on patient experience and needs during visit</li> </ul>
Tasks and technology	<ul style="list-style-type: none"> <li>• Potential formats and interfaces for ED-TREAT prototype</li> <li>• Types of data and information to be included in ED-TREAT</li> <li>• Clinician interface with EHR and clinical duties related to ED-TREAT recommendations</li> </ul>
System and organization	<ul style="list-style-type: none"> <li>• Potential effect of ED-TREAT on management of at-risk patients</li> <li>• Workflow and care coordination amongst team members that can impact ED-TREAT across user types</li> <li>• Facilitators &amp; barriers to implementing best practices for preventing agitation in real-world clinical environment</li> </ul>

Domain	Data elements
Patient factors	<ul style="list-style-type: none"> <li>• Violence history: presence of violence alert, Brøset Violence Checklist (BVC)<sup>54</sup></li> <li>• History: chief complaint, psychiatric/medical history, alcohol/substance use, # ED visits/year, medications</li> </ul>
Clinical data	<ul style="list-style-type: none"> <li>• Laboratory data: complete blood count, urine toxicology, point-of-care glucose &amp; alcohol, basic metabolic panel</li> <li>• Initial vital signs: heart rate, temperature, systolic/diastolic blood pressures, oxygen saturation, respiratory rate</li> <li>• Restraint characteristics: type/route/dose of chemical sedative(s) used, reasons for &amp; type of physical restraint</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Physical parameters: initial bed location assignment, hallway spot, time of day of presentation</li> <li>• Staff contact: initial staff contact, staff characteristics &amp; interactions, presence of security officers at arrival into ED</li> </ul>
System	<ul style="list-style-type: none"> <li>• Pre-arrival: mode of transport into ED, presence of law enforcement escort</li> <li>• Outpatient services: mental health visits, assertive community treatment, rehabilitation services</li> </ul>

Usability testing goals and objectives (P2)	Field testing observation task examples (P3)
<ul style="list-style-type: none"> <li>• Effectiveness: Ability of users to achieve task goals</li> <li>• Efficiency: Time/speed to complete tasks within tool</li> <li>• Satisfaction: Ease of use &amp; acceptability of ED-TREAT</li> <li>• Understandability: Users comprehending what ED-TREAT can do</li> <li>• Learnability: Training/time/effort to learn how to use ED-TREAT</li> <li>• Operability: Support of user and overcoming potential problems</li> <li>• Flexibility: Ability to accommodate for different situations/needs</li> <li>• Attractiveness: Motivation of user interest to explore/use system</li> </ul>	<ul style="list-style-type: none"> <li>• Triage assessment and room assignment</li> <li>• Initial contact at bedside and assessment</li> <li>• Potential structural biases and differential treatment plans</li> <li>• History and physical exam, monitoring and re-assessment</li> <li>• De-escalation and establishing rapport</li> <li>• Ordering of medications, laboratory &amp; imaging tests</li> <li>• Patient behaviors, responses, experiences</li> <li>• EHR documentation &amp; interface with ED-TREAT</li> </ul>