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| **Appendix Table E13. Prospective Studies on Use of Screening Instruments To Predict the Risk of Aberrant Drug-Related Behaviors** |
| **Author, Year** | **Study Design** | **Eligibility Criteria** | **Population Characteristics** | **N** | **Instrument** | **Method of Administration** | **Reference Standard** | **True Positives (n)** |
| Akbik 2006 | Prospective cohort | Chronic pain patients attending one of two pain clinics | Mean age 43 years (SD 9.6)33% female86% White, other races not reportedPain: 39% back | n=155 (with reference standard, of 397 enrolled) | SOAPP | Self-report | Positive urine screening | SOAPP score≥8: 30 |
| Jones 2012(Study 2) | Retrospective cohort | Consecutive pain clinic patients being evaluated for risk of opioid addiction prior to opioid initiation | Mean age 48 years (SD 13)56% female96% White, other races not reportedPain: 45% low back pain, 21% arthritis orfibromyalgia, 14% joint pain, 10% pelvic or abdominal pain, 7% neck or upper back pain | n=263 | ORT PMQ SOAPP-RClinician assessment | Self-report; clinician interview | Subsequent opioid discontinuation due to abuse | ORT score >4: 8PMQ score >30:13SOAPP-R score>17: 20Clinician assessment of high-risk: 27 |
| Moore 2009 | Retrospective cohort | New adult patients at a pain clinic | Mean age 44 years (SD 11)60% femaleRace not reported Pain not reported | n=48 | SOAPP DIRE ORTClinician assessment | Self-report (SOAPP, DIRE,ORT); clinician interview | Subsequent opioid discontinuation due to abuse | SOAPP: 35DIRE: 8ORT: 21Clinical interview: 37 |

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| **Author, Year** | **False Positives (n)** | **True Negatives (n)** | **False Negatives (n)** | **Sensitivity** | **Specificity** | **Positive Likelihood Ratio** | **Negative Likelihood Ratio** | **AUROC** | **Quality** |
| Akbik 2006 | SOAPP score≥8: 59 | SOAPP score≥8: 37 | SOAPP score≥8: 14 | SOAPP score ≥8: 0.68 (95% CI 0.52to 0.81) | SOAPP score ≥8: 0.39 (95% CI 0.29to 0.49) | SOAPP score≥8: 1.11 (95%CI 0.86 to 1.43) | SOAPP score ≥8:0.83 (95% CI 0.52 to 1.31) | Not reported | Fair |
| Jones 2012(Study 2) | ORT score >4:19PMQ score >30:41SOAPP-R score>17: 65Clinician assessment of high-risk: 57 | ORT score >4:142PMQ score >30:134SOAPP-R score>17:Clinician assessment of high-risk: 84 | ORT score >4:33PMQ score >30:25SOAPP-R score>17:Clinician assessment of high-risk: 11 | ORT score >4:0.20 (95% CI 0.15to 0.27)PMQ score >30:0.34 (95% CI 0.20to 0.51)SOAPP-R score>17: 0.39 (95% CI0.26 to 0.54)Clinician assessment of high-risk: 0.71(95% CI 0.54 to0.84) | ORT score >4: 0.88(95% CI 0.82 to0.93)PMQ score >30:0.77 (95% CI 0.69to 0.80)SOAPP-R score>17: 0.69 (95%0.63 to 0.75)Clinician assessment of high- risk: 0.60 (95% CI0.51 to 0.68) | ORT score >4:1.65 (95% CI 0.78 to 3.51) PMQ score >30:1.46 (95% CI 0.87 to 2.45) SOAPP-R score>17: 1.27 (95%CI 0.86 to 1.90)Clinician assessment of high-risk: 1.76(95% CI 1.32 to2.34) | ORT score >4:0.91 (95% CI 0.78 to 1.06) PMQ score >30:0.86 (95% CI 0.68 to 1.08) SOAPP-R score>17: 0.88 (95%CI 0.70 to 1.10)Clinician assessment of high-risk: (0.49(95% CI 0.29 to0.81) | ORT 0.53PMQ 0.57 SOAPP-R 0.54 | Poor |
| Moore 2009 | Not calculable | Not calculable | SOAPP: 13DIRE: 40ORT: 27Clinical interview: 11 | SOAPP score ≥6: 0.73DIRE score <14:0.17ORT score >4:0.45Clinical interview assessment medium or high risk: 0.77 | Not reported | Not reported | Not reported | Not reported | Poor |

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| **Author, Year** | **Study Design** | **Eligibility Criteria** | **Population Characteristics** | **N** | **Instrument** | **Method of Administration** | **Reference Standard** | **True Positives (n)** |
| Webster 2005 | Prospective cohort | New chronic pain patients at a pain clinic | Mean age 44 years (SD 13)58% femaleRace not reportedPain: 45% back; 18% head;16% neuropathic; 16%musculoskeletal; 5% visceral | n=185 | ORT | Self-report | Documentation of aberrant behavior during followup | ORT score 1-3(low risk): 1ORT score 4-7 (moderate risk): 35ORT score ≥8 (high risk): 40 |
| Note: The references are located in Appendix C.AUROC=area under receiver operating characteristic curve; CI=confidence interval; DIRE= Diagnosis, Intractability, Risk and Efficacy Inventory; ORT=Opioid Risk Tool; PMQ=Pain Medication Questionnaire; SOAPP-R= Revised Screener and Opioid Assessment for Patients with Pain |

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| **Author, Year** | **False Positives (n)** | **True Negatives (n)** | **False Negatives (n)** | **Sensitivity** | **Specificity** | **Positive Likelihood Ratio** | **Negative Likelihood Ratio** | **AUROC** | **Quality** |
| Webster 2005 | ORT score 1-3(low risk): 17ORT score 4-7 (moderate risk): 88ORT score high (≥8): 4 | ORT score 1-3(low risk): 92ORT score 4-7 (moderate risk): 21ORT score high (≥8): 105 | ORT score 1-3(low risk): 75ORT score 4-7 (moderate risk): 41ORT score high (≥8): 36 | ORT score ≥4: 0.99 (95% CI 0.92to 0.999) | ORT score ≥4: 0.16 (95% CI 0.10 to0.24) | ORT score ≥4:1.17 (95% CI 1.07 to 1.27) ORT score 1-3 (low risk): 0.08 (95% CI 0.01 to 0.62)ORT score 4-7 (moderate risk):0.57 (95% CI 0.44 to 0.74) ORT score ≥8 (high risk): 14.34 (95% CI 5.35 to 38) | ORT score ≥4:0.08 (95% CI 0.01 to 0.65) | Not reported | Fair |