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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% female  86% White, other races not reported  Pain: 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% female  96% White, other races not reported  Pain: 45% low back pain, 21% arthritis or  fibromyalgia, 14% joint pain, 10% pelvic or abdominal pain, 7% neck or upper back pain | n=263 | ORT PMQ SOAPP-R  Clinician assessment | Self-report; clinician interview | Subsequent opioid discontinuation due to abuse | ORT score >4: 8  PMQ score >30:  13  SOAPP-R score  >17: 20  Clinician assessment of high-risk: 27 |
| Moore 2009 | Retrospective cohort | New adult patients at a pain clinic | Mean age 44 years (SD 11)  60% female  Race not reported Pain not reported | n=48 | SOAPP DIRE ORT  Clinician assessment | Self-report (SOAPP, DIRE,  ORT); clinician interview | Subsequent opioid discontinuation due to abuse | SOAPP: 35  DIRE: 8  ORT: 21  Clinical 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 0.52  to 0.81) | SOAPP score ≥8: 0.39 (95% CI 0.29  to 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:  19  PMQ score >30:  41  SOAPP-R score  >17: 65  Clinician assessment of high-risk: 57 | ORT score >4:  142  PMQ score >30:  134  SOAPP-R score  >17:  Clinician assessment of high-risk: 84 | ORT score >4:  33  PMQ score >30:  25  SOAPP-R score  >17:  Clinician assessment of high-risk: 11 | ORT score >4:  0.20 (95% CI 0.15  to 0.27)  PMQ score >30:  0.34 (95% CI 0.20  to 0.51)  SOAPP-R score  >17: 0.39 (95% CI  0.26 to 0.54)  Clinician assessment of high-risk: 0.71  (95% CI 0.54 to  0.84) | ORT score >4: 0.88  (95% CI 0.82 to  0.93)  PMQ score >30:  0.77 (95% CI 0.69  to 0.80)  SOAPP-R score  >17: 0.69 (95%  0.63 to 0.75)  Clinician assessment of high- risk: 0.60 (95% CI  0.51 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 to  2.34) | 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 to  0.81) | ORT 0.53  PMQ 0.57 SOAPP-R 0.54 | Poor |
| Moore 2009 | Not calculable | Not calculable | SOAPP: 13  DIRE: 40  ORT: 27  Clinical interview: 11 | SOAPP score ≥6: 0.73  DIRE score <14:  0.17  ORT score >4:  0.45  Clinical 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% female  Race not reported  Pain: 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): 1  ORT score 4-7 (moderate risk): 35  ORT 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): 17  ORT score 4-7 (moderate risk): 88  ORT score high (≥8): 4 | ORT score 1-3  (low risk): 92  ORT score 4-7 (moderate risk): 21  ORT score high (≥8): 105 | ORT score 1-3  (low risk): 75  ORT score 4-7 (moderate risk): 41  ORT score high (≥8): 36 | ORT score ≥4: 0.99 (95% CI 0.92  to 0.999) | ORT score ≥4: 0.16 (95% CI 0.10 to  0.24) | 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 |