**Additional file 3 Sample search strategies**

**1. PubMed search strategy**

Avalable via https://pubmed.ncbi.nlm.nih.gov

Preliminary search date: 02 Aug 2020

Articles retrieved: 3,386

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| **No.** | **Searches** | **Preliminary search** |
| #1 | "Knee"[MeSH] OR "Knee"[Title/Abstract] | 146,527 |
| #2 | "osteoarthritis"[MeSH] OR "osteoarthritis"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR osteoarthr\*[Title/Abstract] OR "degenerative arthritis"[Title/Abstract] OR "OA"[Title/Abstract] | 106,661 |
| #3 | "knee OA"[Title/Abstract] OR "KOA"[Title/Abstract] | 6,795 |
| #4 | "prediction model"[Title/Abstract] OR predict\*[Title/Abstract] OR progn\*[Title/Abstract] OR "risk prediction"[Title/Abstract] OR "risk score"[Title/Abstract] OR "risk calculation"[Title/Abstract] OR "risk assessment"[Title/Abstract] OR "c statistic"[Title/Abstract] OR "discrimination" [Title/Abstract] OR "calibration" [Title/Abstract] OR "AUC"[Title/Abstract] OR "area under the curve"[Title/Abstract] OR "area under the receiver operator characteristic curve"[Title/Abstract] | 2,309,086 |
| #5 | ((#1 AND #2) OR #3) AND #4 | 3,386 |

((("Knee"[MeSH] OR "Knee"[Title/Abstract]) AND ("osteoarthritis"[MeSH] OR "osteoarthritis"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR osteoarthr\*[Title/Abstract] OR "degenerative arthritis"[Title/Abstract] OR "OA"[Title/Abstract])) OR "knee OA"[Title/Abstract] OR "KOA"[Title/Abstract]) AND ("prediction model"[Title/Abstract] OR predict\*[Title/Abstract] OR progn\*[Title/Abstract] OR "risk prediction"[Title/Abstract] OR "risk score"[Title/Abstract] OR "risk calculation"[Title/Abstract] OR "risk assessment"[Title/Abstract] OR "c statistic"[Title/Abstract] OR "discrimination" [Title/Abstract] OR "calibration" [Title/Abstract] OR "AUC"[Title/Abstract] OR "area under the curve"[Title/Abstract] OR "area under the receiver operator characteristic curve"[Title/Abstract])

**2. Embase search strategy**

Available via https://www.embase.com

Preliminary search date: 03 Aug 2020

Articles retrieved: 5,618

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| **No.** | **Searches** | **Preliminary search** |
| #1 | 'knee'/exp OR 'knee':ab,ti | 198,955 |
| #2 | 'osteoarthritis'/exp OR 'osteoarthritis':ab,ti OR 'osteoarthrosis':ab,ti OR 'degenerative arthritis':ab,ti OR osteoarthr\*:ab,ti OR "OA":ab,ti | 171,015 |
| #3 | 'knee oa':ab,ti OR 'KOA':ab,ti | 12,446 |
| #4 | 'prediction model':ab,ti OR predict\*:ab,ti OR progn\*:ab,ti OR 'risk prediction':ab,ti OR 'risk score':ab,ti OR 'risk calculation':ab,ti OR 'risk assessment':ab,ti OR 'c statistic':ab,ti OR 'discrimination':ab,ti OR 'calibration':ab,ti OR 'auc':ab,ti OR 'area under the curve':ab,ti OR 'area under the receiver operator characteristic curve':ab,ti | 3,142,089 |
| #5 | ((#1 AND #2) OR #3) AND #4 | 5,618 |

((('knee'/exp OR 'knee':ab,ti) AND ('osteoarthritis'/exp OR 'osteoarthritis':ab,ti OR 'osteoarthrosis':ab,ti OR 'degenerative arthritis':ab,ti OR osteoarthr\*:ab,ti OR "OA":ab,ti)) OR ('knee oa':ab,ti OR 'KOA':ab,ti)) AND ('prediction model':ab,ti OR predict\*:ab,ti OR progn\*:ab,ti OR 'risk prediction':ab,ti OR 'risk score':ab,ti OR 'risk calculation':ab,ti OR 'risk assessment':ab,ti OR 'c statistic':ab,ti OR 'discrimination':ab,ti OR 'calibration':ab,ti OR 'auc':ab,ti OR 'area under the curve':ab,ti OR 'area under the receiver operator characteristic curve':ab,ti)

**3. Cochrane Library search strategy**

Available via https://www.cochranelibrary.com

Preliminary search date: 03 Aug 2020

Articles retrieved: 2,612

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| **No.** | **Searches** | **Preliminary search** |
| #1 | “knee”:ti,ab,kw | 28,510 |
| #2 | “osteoarthritis”:ti,ab,kw OR “osteoarthrosis”:ti,ab,kw OR “degenerative arthritis”:ti,ab,kw OR “osteoarthr\*”:ti,ab,kw OR “OA”:ti,ab,kw | 18,229 |
| #3 | “knee oa”:ti,ab,kw OR “KOA”:ti,ab,kw | 2,947 |
| #4 | “prediction model”:ti,ab,kw OR predict\*:ti,ab,kw OR progn\*:ti,ab,kw OR “risk prediction”n:ti,ab,kw OR “risk score”:ti,ab,kw OR “risk calculation”:ti,ab,kw OR “risk assessment”:ti,ab,kw OR “c statistic”:ti,ab,kw OR “discrimination”:ti,ab,kw OR “calibration”:ti,ab,kw OR “auc”:ti,ab,kw OR “area under the curve”:ti,ab,kw OR “area under the receiver operator characteristic curve”:ti,ab,kw | 384,077 |
| #5 | ((#1 AND #2) OR #3) AND #4 | 2,612 |

(((“knee”:ti,ab,kw) AND (osteoarthritis”:ti,ab,kw OR “osteoarthrosis”:ti,ab,kw OR “degenerative arthritis”:ti,ab,kw OR “osteoarthr\*”:ti,ab,kw OR “OA”:ti,ab,kw)) OR (knee oa”:ti,ab,kw OR “KOA”:ti,ab,kw)) AND (“prediction model”:ti,ab,kw OR predict\*:ti,ab,kw OR progn\*:ti,ab,kw OR “risk prediction”n:ti,ab,kw OR “risk score”:ti,ab,kw OR “risk calculation”:ti,ab,kw OR “risk assessment”:ti,ab,kw OR “c statistic”:ti,ab,kw OR “discrimination”:ti,ab,kw OR “calibration”:ti,ab,kw OR “auc”:ti,ab,kw OR “area under the curve”:ti,ab,kw OR “area under the receiver operator characteristic curve”:ti,ab,kw)

**4. Web of Science search strategy**

Available via https://apps.webofknowledge.com

Preliminary search date: 03 Aug 2020

Articles retrieved: 11,350

|  |  |  |
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| **No.** | **Searches** | **Preliminary search** |
| #1 | TS=(knee) | 311,651 |
| #2 | TS=(osteoarthritis) OR TS=(osteoarthrosis) OR TS=(degenerative arthritis) OR TS=(osteoarthr\*) OR TS=(OA) | 216,352 |
| #3 | TS=(knee OA) OR TS=(KOA) | 19,938 |
| #4 | TS=(prediction model) OR TS=(predict\*) OR TS=(progn\*) OR TS=(risk prediction) OR TS=(risk score) OR TS=(risk calculation) OR TS=(risk assessment) OR TS=(c statistic) OR TS=(discrimination) OR TS=(calibration) OR TS=(auc) OR TS=(area under the curve) OR TS=(area under the receiver operator characteristic curve) | 7,818,898 |
| #5 | ((#1 AND #2) OR #3) AND #4 | 11,350 |

(((TS=(knee)) AND (TS=(osteoarthritis) OR TS=(osteoarthrosis) OR TS=(degenerative arthritis) OR TS=(osteoarthr\*) OR TS=(OA))) OR (TS=(knee OA) OR TS=(KOA))) AND (TS=(prediction model) OR TS=(predict\*) OR TS=(progn\*) OR TS=(risk prediction) OR TS=(risk score) OR TS=(risk calculation) OR TS=(risk assessment) OR TS=(c statistic) OR TS=(discrimination) OR TS=(calibration) OR TS=(auc) OR TS=(area under the curve) OR TS=(area under the receiver operator characteristic curve))

**5. Scopus search strategy**

Available via https://www.scopus.com

Preliminary search date: 03 Aug 2020

Articles retrieved: 6,582

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| **No.** | **Searches** | **Preliminary search** |
| #1 | TITLE-ABS-KEY(knee) | 238,725 |
| #2 | TITLE-ABS-KEY(osteoarthritis) OR TITLE-ABS-KEY(osteoarthrosis) OR TITLE-ABS-KEY(“degenerative arthritis”) OR TITLE-ABS-KEY(osteoarthr\*) OR TITLE-ABS-KEY(OA) | 160,253 |
| #3 | TITLE-ABS-KEY(“knee OA”) OR TITLE-ABS-KEY(KOA) | 7,691 |
| #4 | TITLE-ABS-KEY(“prediction model”) OR TITLE-ABS-KEY(predict\*) OR TITLE-ABS-KEY(progn\*) OR TITLE-ABS-KEY(“risk prediction”) OR TITLE-ABS-KEY(“risk score”) OR TITLE-ABS-KEY(“risk calculation”) OR TITLE-ABS-KEY(“risk assessment”) OR TITLE-ABS-KEY(“c statistic”) OR TITLE-ABS-KEY(discrimination) OR TITLE-ABS-KEY(calibration) OR TITLE-ABS-KEY(auc) OR TITLE-ABS-KEY(“area under the curve”) OR TITLE-ABS-KEY(“area under the receiver operator characteristic curve”) | 6,339,922 |
| #5 | ((#1 AND #2) OR #3) AND #4 | 6,582 |

(((TITLE-ABS-KEY(knee)) AND (TITLE-ABS-KEY(osteoarthritis) OR TITLE-ABS-KEY(osteoarthrosis) OR TITLE-ABS-KEY(“degenerative arthritis”) OR TITLE-ABS-KEY(osteoarthr\*) OR TITLE-ABS-KEY(OA))) OR (TITLE-ABS-KEY(“knee OA”) OR TITLE-ABS-KEY(KOA))) AND (TITLE-ABS-KEY(“prediction model”) OR TITLE-ABS-KEY(predict\*) OR TITLE-ABS-KEY(progn\*) OR TITLE-ABS-KEY(“risk prediction”) OR TITLE-ABS-KEY(“risk score”) OR TITLE-ABS-KEY(“risk calculation”) OR TITLE-ABS-KEY(“risk assessment”) OR TITLE-ABS-KEY(“c statistic”) OR TITLE-ABS-KEY(discrimination) OR TITLE-ABS-KEY(calibration) OR TITLE-ABS-KEY(auc) OR TITLE-ABS-KEY(“area under the curve”) OR TITLE-ABS-KEY(“area under the receiver operator characteristic curve”))

**6. CINAHL and SportDiscus search strategy**

Available via http://search.ebscohost.com

Preliminary search date: 03 Aug 2020

Articles retrieved: 2,741

|  |  |  |
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| **No.** | **Searches** | **Preliminary search** |
| #1 | TI knee OR AB knee OR SU knee | 128,483 |
| #2 | (TI osteoarthritis OR AB osteoarthritis OR SU osteoarthritis) OR (TI osteoarthrosis OR AB osteoarthrosis OR SU osteoarthrosis) OR (TI “degenerative arthritis” OR AB “degenerative arthritis” OR SU “degenerative arthritis”) OR (TI osteoarthr\* OR AB osteoarthr\* OR SU osteoarthr\*) OR (TI OA OR AB OA OR SU OA) | 50,909 |
| #3 | (TI “knee OA” OR AB “knee OA” OR SU “knee OA”) OR (TI KOA OR AB KOA OR SU KOA) | 4,233 |
| #4 | (TI “prediction model” OR AB “prediction model” OR SU “prediction model”) OR (TI predict\* OR AB predict\* OR SU predict\*) OR (TI progn\* OR AB progn\* OR SU progn\*) OR (TI risk prediction” OR AB risk prediction” OR SU risk prediction”) OR (TI “risk score” OR AB “risk score” OR SU “risk score”) OR (TI “risk calculation” OR AB “risk calculation” OR SU “risk calculation”) OR (TI “risk assessment” OR AB “risk assessment” OR SU “risk assessment”) OR (TI “c statistic OR AB “c statistic OR SU “c statistic) OR (TI discrimination OR AB discrimination OR SU discrimination) OR (TI calibration OR AB calibration OR SU calibration) OR (TI auc OR AB auc OR SU auc) OR (TI area under the curve” OR AB area under the curve” OR SU area under the curve”) OR (TI “area under the receiver operator characteristic curve” OR AB “area under the receiver operator characteristic curve” OR SU “area under the receiver operator characteristic curve”) | 632,567 |
| #5 | ((#1 AND #2) OR #3) AND #4 | 2,741 |

(((TI knee OR AB knee OR SU knee) AND ((TI osteoarthritis OR AB osteoarthritis OR SU osteoarthritis) OR (TI osteoarthrosis OR AB osteoarthrosis OR SU osteoarthrosis) OR (TI “degenerative arthritis” OR AB “degenerative arthritis” OR SU “degenerative arthritis”) OR (TI osteoarthr\* OR AB osteoarthr\* OR SU osteoarthr\*) OR (TI OA OR AB OA OR SU OA)

)) OR ((TI “knee OA” OR AB “knee OA” OR SU “knee OA”) OR (TI KOA OR AB KOA OR SU KOA))) AND ((TI “prediction model” OR AB “prediction model” OR SU “prediction model”) OR (TI predict\* OR AB predict\* OR SU predict\*) OR (TI progn\* OR AB progn\* OR SU progn\*) OR (TI risk prediction” OR AB risk prediction” OR SU risk prediction”) OR (TI “risk score” OR AB “risk score” OR SU “risk score”) OR (TI “risk calculation” OR AB “risk calculation” OR SU “risk calculation”) OR (TI “risk assessment” OR AB “risk assessment” OR SU “risk assessment”) OR (TI “c statistic OR AB “c statistic OR SU “c statistic) OR (TI discrimination OR AB discrimination OR SU discrimination) OR (TI calibration OR AB calibration OR SU calibration) OR (TI auc OR AB auc OR SU auc) OR (TI area under the curve” OR AB area under the curve” OR SU area under the curve”) OR (TI “area under the receiver operator characteristic curve” OR AB “area under the receiver operator characteristic curve” OR SU “area under the receiver operator characteristic curve”))