**Additional file 1 Search strategies**

**一. P****ubmed (Search date: April 9, 2019)**

# 1 Pregnant Women[mh] OR Pregnancy[mh] OR Pregnan\*[tiab] OR conception[tiab] OR gravid\*[tiab] OR gestation\*[tiab] OR Childbearing[tiab] OR Child bearing[tiab] OR parturient[tiab] OR parturition[tiab]

# 2 Papilloma[mh] OR Papillomaviridae[mh:noexp] OR Alphapapillomavirus[mh] OR Papilloma\*[tiab] OR Alphapapillomavirus\*[tiab] OR HPV[tiab]

# 3 observation\*[tiab] OR cross section\*[tiab] OR cross-section\*[tiab] OR case-control[tiab] OR case control[tiab] OR cohort\*[tiab] OR follow-up[tiab] OR follow up[tiab] OR longitudinal[tiab] OR prospective[tiab] OR retrospective[tiab] OR clinical trial\*[tiab] OR Controlled Trial\*[tiab] OR RCT[tiab]OR database\*[tiab] ORregist\*[tiab] OR surveillance[tiab]

# 4 (#1 and #2 and #3)

**二. Embase (Ovid) (Search date: April 9, 2019)**

# 1 exp named groups by pregnancy/ or exp pregnancy/ or (Pregnan\* or conception or gravid\* or gestation\* or Childbearing or Child bearing or parturient or parturition).ab,kw,ti.

# 2 papilloma/ or papillomaviridae/ or exp alphapapillomavirus/ OR (Papilloma\* or Alphapapillomavirus\* or HPV).ab,kw,ti.

# 3 (observation\* or cross section\* or cross-section\* or case-control or case control or cohort\* or follow-up or follow up or longitudinal or prospective or retrospective or clinical trial\* or Controlled Trial\* or RCT or database\* or regist\* or surveillance).ab,kw,ti.

# 4 (#1 and #2 and #3)

**三. Cochrane Central Register of Controlled Trials (CENTRAL) (Ovid) (Search date: April 9, 2019)**

#1 MeSH descriptor: [Pregnant Women] explode all trees

#2 MeSH descriptor: [Pregnancy] explode all trees

#3 Pregnan\*:ti,ab,kw or conception:ti,ab,kw or gravid\*:ti,ab,kw or gestation\*:ti,ab,kw or Childbearing:ti,ab,kw or Child bearing:ti,ab,kw or parturient:ti,ab,kw or parturition:ti,ab,kw

#4 (#1 or #2 or #3)

#5 MeSH descriptor: [Papilloma] explode all trees

#6 MeSH descriptor: [Papillomaviridae] explode all trees

#7 MeSH descriptor: [Alphapapillomavirus] explode all trees

#8 Papilloma\*:ti,ab,kw or Alphapapillomavirus\*:ti,ab,kw or HPV:ti,ab,kw

#9 (#5 or #6 or #7 or #8)

#10 observation\*:ti,ab,kw or cross section\*:ti,ab,kw or cross-section\*:ti,ab,kw or case-control:ti,ab,kw or case control:ti,ab,kw or cohort\*:ti,ab,kw or follow-up:ti,ab,kw or follow up:ti,ab,kw or longitudinal:ti,ab,kw or prospective:ti,ab,kw or retrospective:ti,ab,kw or clinical trial\*:ti,ab,kw or Controlled Trial\*:ti,ab,kw or RCT:ti,ab,kw

#11 (#4 and #9 and #10)