# ****Additional File 2. Search Strategy****

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| PubMed | 1st 90 – Testing | ("hiv infections/diagnosis"[Mesh Terms] OR "hiv infections/prevention and control"[Mesh Terms] OR "hiv infections/prevention and control"[tiab] OR "hiv infections/diagnosis"[tiab])  AND ("diagnosis"[MeSH Major Topic] OR "hiv testing"[tiab] OR serostatus[tiab] OR "hiv status"[tiab] OR "point-of-care test"[tiab] OR "linkage to care"[tiab] OR "rapid test"[tiab])  AND ("africa south of the sahara"[MeSH Terms] OR subsaharan[tw] OR sub-saharan[tw] OR (sahara[tw] OR sahara'[tw] OR sahara's[tw] OR saharae[tw] OR saharagalago[tw] OR saharai[tw] OR saharal[tw] OR saharam[tw] OR saharan[tw] OR saharan'[tw] OR saharana[tw] OR saharanafrica[tw] OR saharanian[tw] OR saharanpur[tw] OR saharans[tw] OR saharastega[tw] OR saharatm[tw] OR saharatrade[tw] OR saharaui[tw] OR saharawi[tw] OR saharawis[tw]) OR central africa[tw] OR east africa[tw] OR eastern africa[tw] OR south africa[tw] OR southern africa[tw] OR west africa[tw] OR western africa[tw] OR angola[tw] OR Benin[tw] OR Botswana[tw] OR Burkina Faso[tw] OR Burundi[tw] OR cabo verde[tw] OR cameroon[tw] OR central african republic[tw] OR Chad[tw] OR congo[tw] OR Cote d'Ivoire[tw] OR djibouti[tw] OR Eritrea[tw] OR Ethiopia[tw] OR Equatorial Guinea[tw] OR Gabon[tw] OR Gambia[tw] OR Ghana[tw] OR Guinea[tw] OR Guinea-Bissau[tw] OR Ivory Coast[tw] OR Kenya[tw] OR Lesotho[tw] OR liberia[tw] OR mali[tw] OR Malawi[tw] OR Mozambique[tw] OR Mali[tw] OR Mauritania[tw] OR Namibia[tw] OR Niger[tw] OR Nigeria[tw] OR madagascar[tw] OR mauritius[tw] OR Rwanda[tw] OR Somalia[tw] OR Senegal[tw] OR Sierra Leone[tw] OR Sudan[tw] OR South Sudan[tw] OR "swaziland"[tw] OR tanzania[tw] OR togo[tw] OR uganda[tw] OR zambia[tw] OR zimbabwe[tw])  AND 2014[PDAT] : 2018[PDAT]  NOT (Letter[pt] OR Editorial[pt] OR Review[pt] OR News[pt] OR Meta-Analysis[pt] OR Guideline[pt]) |
| 2nd 90 – Treatment | ("hiv infections/diagnosis"[Mesh Terms] OR "hiv infections/prevention and control"[Mesh Terms] OR "hiv infections/prevention and control"[tiab] OR "hiv infections/diagnosis"[tiab])  AND (HAART[tiab] OR ART [tiab] OR ARV [tiab] OR cART [tiab] OR antiretroviral [tiab] OR "HIV treatment"[tiab] OR "linkage to care"[tiab] OR "treatment as prevention"[tiab] OR "access to care"[tiab] OR "treatment access"[tiab])  AND ("africa south of the sahara"[MeSH Terms] OR subsaharan[tw] OR sub-saharan[tw] OR (sahara[tw] OR sahara'[tw] OR sahara's[tw] OR saharae[tw] OR saharagalago[tw] OR saharai[tw] OR saharal[tw] OR saharam[tw] OR saharan[tw] OR saharan'[tw] OR saharana[tw] OR saharanafrica[tw] OR saharanian[tw] OR saharanpur[tw] OR saharans[tw] OR saharastega[tw] OR saharatm[tw] OR saharatrade[tw] OR saharaui[tw] OR saharawi[tw] OR saharawis[tw]) OR central africa[tw] OR east africa[tw] OR eastern africa[tw] OR south africa[tw] OR southern africa[tw] OR west africa[tw] OR western africa[tw] OR angola[tw] OR Benin[tw] OR Botswana[tw] OR Burkina Faso[tw] OR Burundi[tw] OR cabo verde[tw] OR cameroon[tw] OR central african republic[tw] OR Chad[tw] OR congo[tw] OR Cote d'Ivoire[tw] OR djibouti[tw] OR Eritrea[tw] OR Ethiopia[tw] OR Equatorial Guinea[tw] OR Gabon[tw] OR Gambia[tw] OR Ghana[tw] OR Guinea[tw] OR Guinea-Bissau[tw] OR Ivory Coast[tw] OR Kenya[tw] OR Lesotho[tw] OR liberia[tw] OR mali[tw] OR Malawi[tw] OR Mozambique[tw] OR Mali[tw] OR Mauritania[tw] OR Namibia[tw] OR Niger[tw] OR Nigeria[tw] OR madagascar[tw] OR mauritius[tw] OR Rwanda[tw] OR Somalia[tw] OR Senegal[tw] OR Sierra Leone[tw] OR Sudan[tw] OR South Sudan[tw] OR "swaziland"[tw] OR tanzania[tw] OR togo[tw] OR uganda[tw] OR zambia[tw] OR zimbabwe[tw])  AND 2014[PDAT] : 2018[PDAT]  NOT (Letter[pt] OR Editorial[pt] OR Review[pt] OR News[pt] OR Meta-Analysis[pt] OR Guideline[pt]) |
| 3rd 90 – Viral Suppression | ("hiv infections/diagnosis"[Mesh Terms] OR "hiv infections/prevention and control"[Mesh Terms] OR "hiv infections/prevention and control"[tiab] OR "hiv infections/diagnosis"[tiab])  AND ("viral suppression"[tiab] OR undetected[tiab] OR "viral load"[tiab] OR "virologic failure"[tiab] OR unsuppressed[tiab] OR "treatment failure"[tiab] OR "treatment adherence"[tiab] OR "ART adherence"[tiab])  AND ("africa south of the sahara"[MeSH Terms] OR subsaharan[tw] OR sub-saharan[tw] OR (sahara[tw] OR sahara'[tw] OR sahara's[tw] OR saharae[tw] OR saharagalago[tw] OR saharai[tw] OR saharal[tw] OR saharam[tw] OR saharan[tw] OR saharan'[tw] OR saharana[tw] OR saharanafrica[tw] OR saharanian[tw] OR saharanpur[tw] OR saharans[tw] OR saharastega[tw] OR saharatm[tw] OR saharatrade[tw] OR saharaui[tw] OR saharawi[tw] OR saharawis[tw]) OR central africa[tw] OR east africa[tw] OR eastern africa[tw] OR south africa[tw] OR southern africa[tw] OR west africa[tw] OR western africa[tw] OR angola[tw] OR Benin[tw] OR Botswana[tw] OR Burkina Faso[tw] OR Burundi[tw] OR cabo verde[tw] OR cameroon[tw] OR central african republic[tw] OR Chad[tw] OR congo[tw] OR Cote d'Ivoire[tw] OR djibouti[tw] OR Eritrea[tw] OR Ethiopia[tw] OR Equatorial Guinea[tw] OR Gabon[tw] OR Gambia[tw] OR Ghana[tw] OR Guinea[tw] OR Guinea-Bissau[tw] OR Ivory Coast[tw] OR Kenya[tw] OR Lesotho[tw] OR liberia[tw] OR mali[tw] OR Malawi[tw] OR Mozambique[tw] OR Mali[tw] OR Mauritania[tw] OR Namibia[tw] OR Niger[tw] OR Nigeria[tw] OR madagascar[tw] OR mauritius[tw] OR Rwanda[tw] OR Somalia[tw] OR Senegal[tw] OR Sierra Leone[tw] OR Sudan[tw] OR South Sudan[tw] OR "swaziland"[tw] OR tanzania[tw] OR togo[tw] OR uganda[tw] OR zambia[tw] OR zimbabwe[tw])  AND 2014[PDAT] : 2018[PDAT]  NOT (Letter[pt] OR Editorial[pt] OR Review[pt] OR News[pt] OR Meta-Analysis[pt] OR Guideline[pt]) |
| All 90s | ("hiv infections/diagnosis"[Mesh Terms] OR "hiv infections/prevention and control"[Mesh Terms] OR "hiv infections/prevention and control"[tiab] OR "hiv infections/diagnosis"[tiab])  AND ("90-90-90"[tiab] OR cascade[tiab] OR "fast-track"[tiab] OR "test and start"[tiab] OR "treatment as prevention"[tiab] )  AND ("africa south of the sahara"[MeSH Terms] OR subsaharan[tw] OR sub-saharan[tw] OR (sahara[tw] OR sahara'[tw] OR sahara's[tw] OR saharae[tw] OR saharagalago[tw] OR saharai[tw] OR saharal[tw] OR saharam[tw] OR saharan[tw] OR saharan'[tw] OR saharana[tw] OR saharanafrica[tw] OR saharanian[tw] OR saharanpur[tw] OR saharans[tw] OR saharastega[tw] OR saharatm[tw] OR saharatrade[tw] OR saharaui[tw] OR saharawi[tw] OR saharawis[tw]) OR central africa[tw] OR east africa[tw] OR eastern africa[tw] OR south africa[tw] OR southern africa[tw] OR west africa[tw] OR western africa[tw] OR angola[tw] OR Benin[tw] OR Botswana[tw] OR Burkina Faso[tw] OR Burundi[tw] OR cabo verde[tw] OR cameroon[tw] OR central african republic[tw] OR Chad[tw] OR congo[tw] OR Cote d'Ivoire[tw] OR djibouti[tw] OR Eritrea[tw] OR Ethiopia[tw] OR Equatorial Guinea[tw] OR Gabon[tw] OR Gambia[tw] OR Ghana[tw] OR Guinea[tw] OR Guinea-Bissau[tw] OR Ivory Coast[tw] OR Kenya[tw] OR Lesotho[tw] OR liberia[tw] OR mali[tw] OR Malawi[tw] OR Mozambique[tw] OR Mali[tw] OR Mauritania[tw] OR Namibia[tw] OR Niger[tw] OR Nigeria[tw] OR madagascar[tw] OR mauritius[tw] OR Rwanda[tw] OR Somalia[tw] OR Senegal[tw] OR Sierra Leone[tw] OR Sudan[tw] OR South Sudan[tw] OR "swaziland"[tw] OR tanzania[tw] OR togo[tw] OR uganda[tw] OR zambia[tw] OR zimbabwe[tw])  AND 2014[PDAT] : 2018[PDAT]  NOT (Letter[pt] OR Editorial[pt] OR Review[pt] OR News[pt] OR Meta-Analysis[pt] OR Guideline[pt]) |
| Embase | 1st 90 – Testing | ('human immunodeficiency virus infection'/exp OR 'human immunodeficiency virus infection')  AND ('diagnostic test'/mj OR serostatus OR 'point-of-care test' OR 'linkage to care'/mj OR 'rapid test'/mj)  AND ('africa'/exp OR 'africa')  NOT 'letter' NOT 'editorial' NOT 'review' NOT 'meta analysis'  AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)  AND (2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py) |
| 2nd 90 – Treatment | 'human immunodeficiency virus infection'/mj  AND (haart OR art OR cart OR antiretroviral OR 'hiv treatment' OR 'linkage to care' OR 'treatment as prevention' OR 'access to care' OR 'treatment access')  AND ('africa'/exp OR 'africa')  NOT 'letter' NOT 'editorial' NOT 'review' NOT 'meta analysis'  AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)  AND (2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py) |
| 3rd 90 – Viral Suppression | 'human immunodeficiency virus infection'/mj  AND ('viral suppression' OR undetected OR 'viral load' OR 'virologic failure' OR unsuppressed OR 'treatment failure' OR 'treatment adherence' OR 'art adherence')  AND ('africa'/exp OR 'africa')  NOT 'letter' NOT 'editorial' NOT 'review' NOT 'meta analysis'  AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)  AND (2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py) |
| All 90s | 'human immunodeficiency virus infection'/mj  AND ('90-90-90' OR cascade OR 'fast-track' OR 'test and start' OR 'treatment as prevention')  AND ('africa'/exp OR 'africa')  NOT 'letter' NOT 'editorial' NOT 'review' NOT 'meta analysis'  AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)  AND (2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py) |