Table s1. Search strategy: Medline format
1. (eHealth or e-Health).mp.
2. (mHealth or m-health or mobile health).mp.
3. Telemedicine/ or (telecare or telehealthcare or mobile telehealthcare or mobile telemedicine or mCare or m-care).mp.
4. apps or mobile applications/
5. (mobile communication or mobile technology or mobile devic*).mp.
6. Computers, Handheld/ or Microcomputers/ or (tablet computers or mobile tablet computers or mobile technolog*).mp.
7. Communication satellite.mp.
8. Cellular phone/ or (cellular phone* or cell phone or mobile phone).mp.
9. MP3 player*.mp.
10. Text Messaging/ or (texting or text messag* or messag* or text* or short message or SMS or multimedia technol* or multimedia messag* or multi-media messag).mp.
11. (Personal digital assistant* or PDA).mp.
12. (Smartphone or smart-phone).mp.
13. (podcast* or pod-cast*).mp.
14. Social media/ or Social networking/ or (Twitter or Facebook).mp.
15. (Global positioning system or GPS).mp.
16. Radio Frequency Identification Device/ or RFID.mp.
17. or/1-16
18. Pregnancy/ or Pregnant women/ or Pregnancy outcome/
19. Parturition/ or childbirth.mp.
20. Obstetrics/
21. Maternal Health Services/ or matern*
22. (pregnan* or maternal or maternal health).mp.
23. Labor, or Labour or Obstetric/
24. Delivery, Obstetric/
25. Midwifery/ or Traditional Birth Attendant.mp.
26. Postpartum period/ or puerperium.mp.
27. Delayed delivery.mp. or three delays.mp.
28. Pregnancy complications/ or Obstetric Labor complications/ or Obstetric Labor, Premature/ or Puerperal Disorders/ or Depression, Postpartum/ or Maternal Mortality/
29. Infant, Newborn/ or neonat*.mp.
30. Prenatal Care/ or Perinatal Care/ or Postnatal Care.mp.
31. (Antenatal care or intrapartum care or postpartum care or post-partum care or puerperal care).mp.
32. (Perinatal complication* or postnatal complication*).mp.
33. Birth injuries/
34. Breastfeeding/ or (breastfeeding or breast-feeding).mp.
35. or/18-34
36. Intervention studies/ or experimental studies.mp.
37. analytical stud*.mp.
38. Clinical trial/ or Controlled Clinical Trial/ or Randomized Controlled Trial/ or (clinical trial or controlled clinical trial or randomi?ed controlled trial).mp.
39. Double-Blind Method/ or Single-Blind Method/ or (double-blind design or single-blind design).mp.
40. Placebos/ or Random Allocation/ or random*.mp.
41. (Controlled before and after stud*).mp.
42. Interrupted time series.mp.
43. Cohort studies/ or (cohort stud* or cohort).mp.
44. (control or healthy control).mp.
45. Case-control studies/ or case-control stud*.mp.
46. or/36-45
47. 17 and 35 and 46
48. limit 47 to year="1990-2014"
49. limit 48 to human
Table s2. Search strategy: free-field format

(mHealth or m-Health or eHealth or telemedicine or mobile health or mobile telehealthcare or mobile phone or cellular phone or personal digital assistant or mobile tablet computers or smart phone or mobile technology or apps or mobile applications or text messag* or short messag* or SMS or multimedia messag*)
AND
(child* or infant* or baby or babies or neonatal or newborn* or preterm* or prematur* or pregnan* or pregnant women or mother* or obstetric labor or obstetric labour or obstetric delivery or obstetric labor complications or midwifery or traditional birth attendant or perinatal care or prenatal care or antenatal care or intrapartum care or postnatal care or perinatal complications or postnatal complications)
AND
(analytical stud* or epidemiologic* or compar* or evaluat* or follow-up or follow-up or prospective or retrospective observation* or cohort or case-control or trial* or RCT or controlled before and after study or interrupted time series or intervention* or prospective or retrospective or control* or double-blind or single-blind or random*)
<table>
<thead>
<tr>
<th>Study, year</th>
<th>Study Design</th>
<th>Adequate sequence generation</th>
<th>Allocation concealment 1.</th>
<th>Blinding/ patient-related outcomes</th>
<th>Incomplete outcome data addressed?</th>
<th>Free of selective reporting</th>
<th>Free of other bias</th>
<th>Overall Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheng et al, 2008</td>
<td>RCT</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Unclear</td>
<td>No</td>
<td>Yes</td>
<td>Unclear</td>
<td>High risk</td>
</tr>
<tr>
<td>Chuang et al, 2012</td>
<td>CCT</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Unclear</td>
<td>Moderate risk</td>
</tr>
<tr>
<td>Flax et al, 2014</td>
<td>RCT</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Moderate risk</td>
</tr>
<tr>
<td>Jareethum et al, 2008</td>
<td>RCT</td>
<td>Yes</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Moderate risk</td>
</tr>
<tr>
<td>Jiang et al, 2014</td>
<td>Quasi-RCT</td>
<td>Unclear</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>High risk</td>
</tr>
<tr>
<td>Khorshid et al, 2014</td>
<td>RCT</td>
<td>Yes</td>
<td>No</td>
<td>Unclear</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Moderate risk</td>
</tr>
<tr>
<td>Lin et al, 2012</td>
<td>RCT</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Low risk</td>
</tr>
<tr>
<td>Lund et al, 2012, 2014a, 2014b</td>
<td>RCT</td>
<td>Yes</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Yes</td>
<td>Yes</td>
<td>Moderate risk</td>
</tr>
<tr>
<td>Sellen et al, 2013*</td>
<td>RCT</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Low risk</td>
</tr>
<tr>
<td>Sharma et al, 2011</td>
<td>RCT</td>
<td>No</td>
<td>No</td>
<td>Unclear</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>High risk</td>
</tr>
<tr>
<td>Simonyan et al, 2013</td>
<td>Quasi-RCT</td>
<td>No</td>
<td>No</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Unclear</td>
<td>Unclear</td>
<td>High risk</td>
</tr>
</tbody>
</table>

**Abbreviations:**
*Abstract
CCT - controlled clinical trial
RCT - randomised controlled trial
## Table s4. Risk of bias assessment of included observational studies using the Effective Public Health Practice Project quality assessment tool

<table>
<thead>
<tr>
<th>Study, year</th>
<th>Study Design</th>
<th>Selection Bias</th>
<th>Study Design</th>
<th>Confounders</th>
<th>Blinding</th>
<th>Data Collection Method</th>
<th>Withdrawals and Dropouts</th>
<th>Global Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisore et al 2012</td>
<td>Cohort</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Oyeyemi et al 2014</td>
<td>Case-control</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Seidenberg et al 2012</td>
<td>Uncontrolled before and after study</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

EPHPP – the Effective Public Health Practice Project,
S – Strong,
M – Moderate,
W – Weak
<table>
<thead>
<tr>
<th>Author/ Country</th>
<th>Title of study</th>
<th>Study design</th>
<th>ClinicalTrials.gov identifier</th>
<th>Population (N)/Sample size (n)</th>
<th>Intervention/Exposure</th>
<th>Outcomes</th>
<th>Estimated date for reporting final results</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cesar de Palha et al. Mozambique</td>
<td>Evaluation of the impact of mobile phone messages on ART and PMTCT adherence in Mozambique: a randomized control trial</td>
<td>RCT</td>
<td>NCT01910493</td>
<td>1352 pregnant women, older than 18 years between 8-28 weeks of gestation</td>
<td>Behavioural: SMS reminders</td>
<td>Primary outcome Retention in ART care Secondary outcome Retention in PMTCT care</td>
<td>This study has been completed.</td>
<td>University of Eduardo Mondlane: Mozambique Ministry of Health: Mozambique</td>
</tr>
<tr>
<td>Kimani J et al. Kenya</td>
<td>Harnessing Mobile Phone Usage for HIV and Horizontal Health Systems Improvement: PMTCT</td>
<td>RCT</td>
<td>NCT01157442</td>
<td>856 pregnant women from 18 to 49 years with singleton pregnancy</td>
<td>Behavioural: cell phone SMS text messaging</td>
<td>Primary outcome: Increased nevirapine uptake in labour in pregnant HIV positive women from 60% to 70% Secondary outcome: HIV positive rates in infants born to mothers in the study; number of antenatal care visits; earlier identification and treatment of HIV positive infants; acceptability of cell phone SMS text messages for PMTCT related care</td>
<td>This study is currently recruiting participants.</td>
<td><a href="mailto:jkimani@csrtkenya.org">jkimani@csrtkenya.org</a></td>
</tr>
<tr>
<td>Lund S et al. Ethiopia</td>
<td>Evaluation of a Smartphone Application to Reduce Adverse Pregnancy Outcomes in Ethiopia: A Cluster-</td>
<td>RCT</td>
<td>NCT01945931</td>
<td>4770 10 to 45 years pregnant women in active labour</td>
<td>Safe Delivery Smartphone Application</td>
<td>Primary outcomes: Perinatal mortality (stillbirth and early neonatal death); Postpartum haemorrhage Secondary outcomes: Health workers clinical performance in active management of third stage of labour, postpartum haemorrhage</td>
<td>This study is currently recruiting participants.</td>
<td><a href="mailto:stine_lund@dadlnet.dk">stine_lund@dadlnet.dk</a></td>
</tr>
<tr>
<td>Study Title</td>
<td>Study Type</td>
<td>Study ID</td>
<td>Number of Participants</td>
<td>Intervention</td>
<td>Primary Outcomes</td>
<td>Recruitment Status</td>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
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<td>------------------------------------------------</td>
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<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Mazumder S et al. India mHealth – a novel approach to improve child nutrition in India</td>
<td>Intervention</td>
<td>NCT01645163</td>
<td>72 children aged 9-11 months</td>
<td>Mobile phone counselling – feasibility &amp; acceptability of using mobile phones to improve complementary feeding practices</td>
<td>Primary outcomes: mHealth to improve complementary feeding – before and after counselling.</td>
<td>Recruiting Estimated completion: August 2012</td>
<td>Contact: <a href="mailto:chrd@sas.org.in">chrd@sas.org.in</a></td>
<td></td>
</tr>
<tr>
<td>Mutarambirwa PC et al. Cameroon Using mobile phones to promote utilisation of reproductive healthcare services. The Lagdom Health pilot study</td>
<td>RCT</td>
<td>PACTR201210000424220</td>
<td>430 pregnant women aged 16 years and above, all stage of pregnancy</td>
<td>Use of calls, SMS and voicemails. Investigate the efficacy of mobile phones in increasing antenatal care service utilisation and reducing delays of pregnant women in distress in accessing</td>
<td>Primary outcomes: Antenatal clinic attendance rate. Time to see a skilled birth attendant.</td>
<td>Active recruitment</td>
<td>Contact: <a href="mailto:adra_cameroon@yahoo.fr">adra_cameroon@yahoo.fr</a></td>
<td></td>
</tr>
<tr>
<td>Study Authors</td>
<td>Study Title</td>
<td>Study Design</td>
<td>Study ID</td>
<td>Population</td>
<td>Intervention</td>
<td>Primary Outcomes</td>
<td>Secondary Outcomes</td>
<td>Time to Initiation of ARV prophylaxis/ART</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
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<td>------------</td>
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<td>--------------------------------------</td>
</tr>
<tr>
<td>Ong’ech J et al. Kenya</td>
<td>Mobile Phone Technology for Prevention of Mother-to-Child Transmission of HIV: Acceptability, Effectiveness, and Cost</td>
<td>RCT</td>
<td>NCT01645865</td>
<td>600 HIV-positive pregnant women up to 32 week of gestation seeking ANC at a study site</td>
<td>Behavioural</td>
<td><em>Primary outcomes:</em> The proportion of women who successfully complete key PMTCT transition points from antenatal to six weeks postpartum; Initiation of Infant prophylaxis, Facility delivery and receipt of results of 6 weeks early infant diagnosis by DNA PCR</td>
<td><em>Secondary outcomes:</em> Uptake ARV prophylaxis/ART during labour, delivery, and postpartum; Self-reported maternal adherence to ARV prophylaxis/ART during pregnancy; Time to initiation of ARV prophylaxis/ART uptake after initial identification of HIV seropositivity within ANC</td>
<td>April 2014</td>
</tr>
<tr>
<td>Unger J et al. Kenya</td>
<td>Mobile Phone One Way Short Message Service (SMS) Versus SMS Dialogue for Women’s and Child Health (Mobile WaCH) in Kenya: A Randomized Control Trial</td>
<td>RCT</td>
<td>NCT01894126</td>
<td>300 14 years and older pregnant women</td>
<td>Behavioural: Two-way SMS Dialogue; One-way SMS Messaging</td>
<td><em>Primary outcomes:</em> Contraceptive uptake; Facility Delivery</td>
<td><em>Secondary outcomes:</em> ANC attendance; Exclusive Breastfeeding; Infant Immunizations; Maternal morbidity; Infant morbidity</td>
<td>May 2015</td>
</tr>
</tbody>
</table>

**Abbreviations:**
- AIDS – acquired immune deficiency syndrome
ANC – antenatal care
ARV – antiretroviral
DNA PCR – DNA polymerase chain reaction
PMTCT – prevention of mother to child transmission of HIV
RCT – randomized controlled trial
SMS – short message service