

## APPENDIX A. SEARCH STRATEGY

Search conducted in MEDLINE® via PubMed® on 12/9/2011

Concept	Search#	Search String	Citations
Non-Professional caregivers	#60	((“Family”[Mesh] OR “Caregivers”[Mesh]) OR “Home Nursing”[Mesh])	220979
	#77	(((caregiv*[Title/Abstract]) OR “care giving”[Title/Abstract]) OR “care giver”[Title/Abstract]) OR care givers[Title/Abstract]	28393
	#78	(#77) OR #60	235910
Mobile apps	#80	((“Computers, Handheld”[Mesh]) OR “Cellular Phone”[Mesh]) OR “wireless technology”[Mesh]	4152
	#81	iPad OR handheld OR interactive OR mobile computing OR smart phone* OR mobile phone* OR mobile technolog* OR m-health OR internet based OR personal digital assistant* OR online OR sms OR iphone OR android OR text messag* OR tablet computer OR informatics application OR app	100411
	#82	(#81) OR #80	101517
Union of concepts	#83	(#82) AND #78	2147

Search for specialized databases and grey literature conducted 12/9/2011 and 4/30/2012

Specialized Databases and Grey literature sources searched			
Database	Search	Hits	
<b>AMIA Proceedings</b> <a href="http://proceedings.amia.org">http://proceedings.amia.org</a> Searched 12/9/2011	“caregiv*”	268	
<b>IEEE Xplore</b> <a href="http://ieeexplore.ieee.org">http://ieeexplore.ieee.org</a> Searched 12/9/2011	“caregiv*”	266	
<b>Healthcare Information &amp; management Systems (HiMSS) conferences and website</b> <a href="http://www.himss.org/ASP/index.asp">http://www.himss.org/ASP/index.asp</a> Searched 4/30/2012	“caregiver” OR “caregiving”	2	
<b>Med 2.0 (abstracts from 2008 – 2012)</b> <a href="http://www.medicine20congress.com/ocs/index.php/med/med2012">http://www.medicine20congress.com/ocs/index.php/med/med2012</a> Searched 4/30/2012	“caregiver” OR “caregiving”	2	
<b>Health 2.0 (abstracts from 2007 – 2011)</b> <a href="http://www.health2con.com/conferences/">http://www.health2con.com/conferences/</a> Searched 4/30/2012	“caregiver” OR “caregiving”	No results	

## **APPENDIX B. INCLUSION/EXCLUSION CRITERIA**

1. Is the full text of the article in English?  
Yes..... Proceed to #2  
No ..... Code **X1**. STOP
2. Is the article a primary study that presents findings based on original data collection; or a systematic review of primary studies?  
Yes..... Proceed to #3  
No..... Code **X2**. Go to #6
3. Does the article evaluate the effectiveness of a targeted consumer health information technology (CHIT) intervention listed below in the PICOTS?  
Yes..... Proceed to #4  
No..... Code **X3**. Go to #5
4. Does the study population include non-professional, human/non-robot caregivers of patients with chronic illness or disability, or are caregiver-centered outcomes reported as a primary outcome?  
Yes, adult patients ..... Code **I3/A**. STOP  
Yes, child patients ..... Code **I3/C**. STOP  
No..... Code **X4**. Go to #6
5. Is the article a primary study or systematic review evaluating the effects of telephony, interactive voice response, or telehealth interventions?  
Yes..... Code **I5**. STOP  
No..... Code **X5**. Go to #6
6. Is the article possibly useful for background/discussion? .....Code **B**. STOP

### **PICOTS:**

**Population:** Non-professional, non-robot caregivers of adult patients with chronic illnesses, and/or parents of children with healthcare needs.

**Intervention:** Self-directed mobile applications for use on smart phones, personal digital assistants (PDAs) and tablet computers, including: interactive or individually tailored web-based interventions, decision aids, and risk assessment software; chat and online support groups; secure messaging; or other portable or home-based interactive information tools whose purpose is to facilitate communication, coordination, or tailored education in order to support the emotional, spiritual, organizational, management, and healthcare needs of non-professional caregivers of patients with chronic illnesses or health risk factors. Non-interactive educational media (e.g., E-pamphlet) that provide information only are excluded.

We excluded studies focused on telephony, interactive-voice-response, synchronous telehealth interventions, and fixed home-monitoring technologies such as smart-homes, vitals-monitoring, GPS and other location-monitoring, and monitoring for patient falls.

**Control:** Usual care (use of paper forms and educational materials, in-person visits).

Outcomes:

- 1) *Caregiver-centered outcomes*: caregiver satisfaction, caregiver burnout, caregiver access, caregiver quality of life scores, caregiver depression/anxiety scores.
- 2) *Patient-centered outcomes*: patient satisfaction, patient activation, functional status, quality of life; quality of patient-caregiver relationship.
- 3) *Process measures*: clinician satisfaction; caregiver perceptions of mobile technologies; usage, usability, and barriers to usage of technologies/tools/applications; communication with healthcare providers.
- 4) *Utilization outcomes*: hospitalizations, ER visits, outpatient/PCP visits.

Timing: No restrictions.

Setting: Outpatient (home, assisted living, adult foster care), excluding skilled nursing facilities.