

## Details of Included Studies

Author and year RCTs/participants R-AMSTAR Disease group	R-AMSTAR Explicit/Implied SM	Intervention TH intervention Focus and components	Results (Disease control) Meta-reviews report summary statistics Narrative syntheses: denominator is number of RCTs reporting outcome
<b>Diabetes Reviews</b>			
<b>Type 1 Diabetes Reviews</b>			
* <b>Baron 2012</b> [19] 2 RCTs, n=1303	R-AMSTAR = 28 Implied SM	<b>TH:</b> Mobile TM of blood glucose Focus: monitoring and provision of action plan	0/2 RCTs showed a significant improvement in HbA1c
* <b>Currell</b> 2000[23] 2 RCTs, n=148	R-AMSTAR = 38 Implied SM	<b>TH:</b> Internet and telephone interventions Focus: monitoring and provision of action plan	1/2 RCTs showed significant improvement in HbA1c
** <b>De Jongh</b> 2012 [24] 2 RCTs, n = 130	R-AMSTAR = 36 Explicit SM	<b>TH:</b> Mobile phone messaging for SM support Information and education (n=1), Adherence support (n=2)	Meta-analysis of HbA1c: no significant improvement vs control (MD -0.15%, 95%CI -0.77 to 0.47)
<b>Montori 2004</b> [41] 8 RCTs, n=391	R-AMSTAR = 24 Implied SM	<b>TH:</b> TH facilitated communication with professional Focus: monitoring with action plan	Meta-analysis of HbA1c: no significant difference vs usual care (MD 0.2%, 95%CI -0.2 to 0.6%)
* <b>Sutcliffe 2011</b> [48] 9 RCTs	R-AMSTAR = 36 Implied SM	<b>TH:</b> TH aimed at improving access and management of young people with T1DM Focus of SR was clinical review and advice; psychological support (n=2)	2/10 RCTs showed significant improvement in HbA1c
** <b>Viana 2016</b> [49] 6 RCTs, n=494	R-AMSTAR = 35 Explicit SM	<b>TH:</b> Telemonitoring of blood glucose and telephone support Focus: adherence support; information and education (n=2); monitoring and action plan (n=4)	Meta-analysis of HbA1c: no significant difference vs usual care (MD -0.124, 95%CI -0.268 to 0.020)
<b>Type 2 Diabetes Reviews</b>			
* <b>Baron 2012</b> [19] 10 RCTs, n=1303	R-AMSTAR = 28 Implied SM	<b>TH:</b> Mobile TM of blood glucose Focus: monitoring and provision of action plan	6/10 RCTs showed a significant improvement in HbA1c
*** <b>Beatty 2013</b> [21] 5 RCTs, n=1627	R-AMSTAR = 31 Explicit SM	<b>TH:</b> Internet based SM Focus: lifestyle advice/support	0/4 RCTs showed a significant improvement in HbA1c
** <b>Cassimatis</b> 2012 [22] 13 RCTs	R-AMSTAR = 26 Explicit SM	<b>TH:</b> Behavioural support via video/telephone support Focus: lifestyle advice/support; Adherence support (n=8)	4/13 RCTs showed a significant improvement in HbA1c
*** <b>Farmer 2016</b> [26] 11 RCTs, n=4820	R-AMSTAR = 37 Explicit SM	<b>TH:</b> Messaging and/or monitoring Focus: adherence support	Meta-analysis of impact on adherence (5RCTs): 'moderate' effect, not statistically significant
** <b>Graziano 2009</b> [29] 8 RCTs, n=2105	R-AMSTAR = 23 Explicit SM	<b>TH:</b> Isolated telephone interventions Focus: information and education and clinical review with advice	3/8 RCTs showed significant reduction in HbA1c
** <b>Greenwood</b>	R-AMSTAR = 21	<b>TH:</b> Remote TM to support self-	HbA1c was improved in those

2014 [30] 15 RCTs	Explicit SM	monitoring of glucose Focus: information and education; monitoring and action plan; clinical review and advice; and lifestyle advice/support	RCTs incorporating at least 5 of 7 pre-specified SM components. Greater reductions were seen in those with 6 of 7 components.
<b>** Medical Advisory Secretariat 2009 [42]</b> 8 RCTs, n=2269	R-AMSTAR = 36 Implied SM	<b>TH:</b> Home telemonitoring Focus: monitoring and action plan; lifestyle advice/support (n=7)	Meta-analysis of HbA1c: significant reduction vs usual care (MD -0.48%, 95%CI -0.70 to -0.26)
<b>* Mushcab 2015 [43]</b> 9 RCTs	R-AMSTAR = 25 Explicit SM	<b>TH:</b> Web-based transmission of self-monitored blood glucose Focus: monitoring and action plan	4/9 RCTs showed significant reduction in HbA1c
<b>** Safari 2014 [46]</b> 10 RCTs, n=960	R-AMSTAR = 36 Explicit SM	<b>TH:</b> Mobile text-messaging Focus: information and education	Meta-analysis of HbA1c: significant reduction vs control (MD -0.595%, 95% CI -0.833 to -0.356)
<b>** Wens 2008 [52]</b> 2 RCTs	R-AMSTAR = 34 Explicit SM	<b>TH:</b> TH mediated education interventions Focus: information and education and adherence support	1/2 showed a significant reduction in HbA1c
<b>*** Wu 2010 [53]</b> 7 RCTs, n=1764	R-AMSTAR = 38 Explicit SM	<b>TH:</b> Telephone follow-up Monitoring and action plan (n=5); clinical review and advice (n=5); psychological support (n=2); lifestyle advice/support (n=2)	Meta-analysis of HbA1c: no significant difference vs usual care (MD -0.44%, 95%CI -0.93 to 0.06). Planned subgroup analysis of more intensive interventions showed significant improvement (MD -0.84% 95%CI -1.67 to 0.0)
<b>** Zhai 2014 [54]</b> 35 RCTs	R-AMSTAR = 38 Implied SM	<b>TH:</b> Home telemonitoring Focus of SR was monitoring and action plan	Meta-analysis of HbA1c: significant reduction vs control (MD -0.37%, 95%CI -0.49% to -0.25%)
<b>Mixed Diabetes Reviews</b>			
<b>* Beratarrechea 2014 [20]</b> 3 RCTs	R-AMSTAR = 31 Implied SM	<b>TH:</b> Mobile interventions in developing countries Information and education (n=2), monitoring and action plan (n=1)	2/3 RCTs showed a significant improvement in 'glycaemic control', but unclear how this was measured
<b>*** Farmer 2005 [25]</b> 12 RCTs, n=1038	R-AMSTAR = 36 Explicit SM	<b>TH:</b> TM supporting blood glucose self-monitoring Focus: monitoring and provision of action plan	Meta-analysis of HbA1c (9RCTs): No significant reduction in HbA1c vs control (MD -0.1%, 95%CI -0.4% to 0.04)
<b>** Flodgren 2015 [27]</b> 21 RCTs, n=3412	R-AMSTAR = 44 Implied SM	<b>TH:</b> Interactive TH excluding telephone-only interventions Focus: clinical review and advice; information and education (n=11)	Meta-analysis of HbA1c (16RCTs): Significant reduction vs usual care (MD -0.31, 95%CI -0.37 to -0.24)
<b>** Garzia-Lizana 2007 [28]</b>	R-AMSTAR = 22 Explicit SM	<b>TH:</b> TH intervention excluding telephone-only	1/7 RCTs showed significant reduction in HbA1c

7 RCTs, n=1044		Information and education (n=3); Monitoring and action plan (n=4)	
<b>** Hamine 2015 [31]</b> 26 RCTs	R-AMSTAR = 23 Explicit SM	<b>TH:</b> Mobile interventions Focus of SR was medication adherence support	11/26 RCTs showed improved glycaemic control
<b>* Holtz 2012 [32]</b> 7 RCTs, n=417	R-AMSTAR = 22 Explicit SM	<b>TH:</b> Mobile interventions Information and education (n=3); monitoring and action plan (n=6)	2/7 RCTs showed a significant improvement in HbA1c
<b>** Huang 2015 [33]</b> 18 RCTs, n=3798	R-AMSTAR = 33 Implied SM	<b>TH:</b> Transmission of self-monitored blood glucose Focus: monitoring with action plan	Meta-analysis of HbA1c: significant reduction vs control (MD -0.54%, 95%CI -0.75 to -0.34)
<b>* Jaana 2007 [34]</b> 13 RCTs, n=889	R-AMSTAR = 20 Implied SM	<b>TH:</b> Home telemonitoring Focus of SR was monitoring and action plan; lifestyle advice/support (n=3)	7/13 showed significant improvements in HbA1c
<b>** Kok 2011 [37]</b> 9 RCTs, n=2223	R-AMSTAR = 28 Explicit SM	<b>TH:</b> TH intervention for SM education Focus: information and education; monitoring and action plan (n=4)	8/9 showed significant improvement in HbA1c (5 were intervention plus usual care, 4 were intervention in place of usual care)
<b>* Krishna 2008 [35]</b> 8 RCTs, n=271	R-AMSTAR = 21 Explicit SM	<b>TH:</b> Mobile phone SM support Focus of SR was information and education support and monitoring with action plan	5/6 showed significant improvement in HbA1c Intermediate outcomes reported as improved self-efficacy in 1/1 RCT
<b>* Krishna 2009 [36]</b> 9 RCTs, n=331	R-AMSTAR = 19 Explicit SM	<b>TH:</b> Mobile phone SM support and education Focus of SR was information and education; monitoring and action plan (n=7); adherence support (n=7); and lifestyle advice (n=7)	7/8 RCTs showed significant improvement in HbA1c
<b>*** Kujipers 2012 [16]</b> 11 RCTs	R-AMSTAR = 31 Explicit SM	<b>TH:</b> Web based interventions Focus: psychological support and lifestyle advice/support	3/6 RCTs showed significant improvement in self-efficacy
<b>*** Liang 2011 [38]</b> 11 RCTs n=1060	R-AMSTAR = 34 Explicit SM	<b>TH:</b> Mobile phone interventions Focus of SR was lifestyle advice/support; "most studies" included monitoring and action plan	Meta-analysis of HbA1c: significant reduction vs usual care (MD -0.5%, 95% CI -0.2 to -0.8%) Effect more marked for T2DM than T1DM
<b>* Lieber 2014 [39]</b> 5 RCTs	R-AMSTAR = 22 Implied SM	<b>TH:</b> TM of self-monitored blood glucose Focus of SR was monitoring with action plan	1/5 RCTs showed significant improvement in HbA1c
<b>** Marcolino 2013[40]</b> 13 RCTs, n=4207	R-AMSTAR = 39 Implied SM	<b>TH:</b> TH facilitated communication with professional Focus of SR was information and education and clinical review with advice	Meta-analysis of HbA1c: significant reduction versus control (MD -0.44%, 95%CI -0.61 to -0.26%). Effect more marked for T1DM
<b>** Polisena 2009 [44]</b>	Implied SM R-AMSTAR = 38	<b>TH:</b> Home TH (subdivided telemonitoring and telephone	Meta-analysis of HbA1c in home telemonitoring:

16 RCTs, n=1671		support) Information and education (n=5), monitoring and action plan (n=13), lifestyle advice/support (n=4)	significant reduction vs usual care (MD -0.21%, 95%CI -0.35% to -0.08%)*
<b>*** Small 2013 [45]</b> 7 RCTs, n=1807	R-AMSTAR = 34 Explicit SM	<b>TH:</b> Telephone interventions using peer support or “lay health workers” Focus of SR was information and education; psychological support (n=3), lifestyle advice/support (n=4)	Meta-analysis of HbA1c: significant reduction vs control (MD -0.26, 95%CI -0.41 to -0.11)
<b>* Suksomboon 2014 [47]</b> 5 RCTs, n=953	Implied SM R-AMSTAR = 36	<b>TH:</b> Telephone-only interventions Information and education (n=2), Clinical review and advice (n=3), Adherence support (n=3)	Meta-analysis of HbA1c: no significant improvement vs usual care (MD -0.38%, 95%CI -0.91 to 0.16)
<b>* Verhoeven 2007 [50]</b> 11 RCTs	R-AMSTAR = 31 Implied SM	<b>TH:</b> Teleconsultation and videoconferencing Focus of SR was clinical review and advice	Meta-analysis of HbA1c: no significant reduction vs usual care (MD 0.03%, 95%CI -0.31 to 0.24%)
<b>** Verhoeven 2010 [51]</b> 28 RCTs	R-AMSTAR = 35  Implied SM	<b>TH:</b> Synchronous and Asynchronous teleconsultation Focus: clinical review and advice	Meta-analysis of HbA1c: no significant reduction vs controls (MD -0.10%, 95%CI -0.39 to 0.18%)
<b>Heart Failure Reviews</b>			
<b>* Beratarrechea 2014 [20]</b> 1 RCT	R-AMSTAR = 31 Implied SM	<b>TH:</b> Mobile phone interventions in developing countries Information and education (n=1), lifestyle advice/support (n=1)	Improved 6 minute walk test in 1 RCT
<b>** Chaudhry 2007 [55]</b> 5 RCTs, n=2623	R-AMSTAR = 34 Implied SM	<b>TH:</b> any telemonitoring or telephone intervention Focus: information and education and adherence support	0/5 showed reduced mortality vs control 3/5 showed reduced heart failure hospitalisation 2/5 showed reduced all-cause hospitalisation
<b>*** Ciere 2012 [56]</b> 11 RCTs	R-AMSTAR = 31 Explicit SM	<b>TH:</b> telehealth interventions excluding telephone-only Focus of SR was information and education and monitoring with action plans	Authors analysed evidence linking interventions to knowledge, self-care behaviours, and self-efficacy. Evidence was either lacking or too ambiguous to draw conclusions.
<b>* Clarke 2011 [57]</b> 13 RCTs, n=3480	R-AMSTAR = 27 Implied SM	<b>TH:</b> telemonitoring using specialised equipment Focus: monitoring with action plan and adherence support	Meta-analyses: significant reduction vs control in: mortality (RR 0.77 (95% CI 0.61 to 0.97)) – primary outcome, heart failure specific hospital admission (RR 0.73 (95% CI 0.62-0.87)) No significant reduction in: all- cause hospital admission (RR 0.99 (95% CI 0.88-1.11)), emergency dept. visits (RR1.04 (95% CI 0.86-1.26))

<b>** Garcia-Lizana 2007 [28]</b> 6 RCTs, n=1086	R-AMSTAR = 22 Explicit SM	<b>TH:</b> TH intervention excluding telephone-only information and education (n=1), monitoring and action plan (n=1), clinical review and advice (n=4)	2/3 showed reduced mortality 1/2 showed reduced hospitalisations 2/2 showed reduced emergency dept. visits 2/3 showed improved treatment adherence
<b>** Inglis 2015 [58]</b> 41 RCTs, n=13192	R-AMSTAR = 42 Implied SM	<b>TH:</b> structured telephone support and physiological telemonitoring Focus: monitoring and action plan and clinical review with advice; information and education (n=4)	Meta-analyses: both telemonitoring and telephone support reduced all-cause mortality (RR 0.80, 95%CI 0.68 to 0.94 and RR 0.87, 95% CI 0.77 to 0.98, respectively) and heart-failure hospitalisations (RR 0.71, 95% CI 0.60 to 0.83 and RR 0.87, 95% CI 0.77 to 0.98, respectively) but not all-cause hospitalisations (RR 0.95, 95% CI 0.90 to 1.00 and RR 0.95, 95% CI 0.89 to 1.01, respectively)
<b>** Kuijpers 2012 [16]</b> 3 RCTs, n=165	R-AMSTAR = 31 Explicit SM	<b>TH:</b> Web-based interventions Focus: lifestyle advice and support	1/1 RCT showed improved self-care in both intervention and control groups, but with no significant difference 0/1 RCT showed improved self-efficacy
<b>* Radhakrishnan 2012 [59]</b> 8 RCTs, n=835	R-AMSTAR = 25 Explicit SM	<b>TH:</b> Interactive telemonitoring or educational interventions information and education (n=4), clinical review and advice (n=4)	No sustained improvements in self-care in RCT data
<b>* Schmidt 2010 [60]</b> 19 RCTs	R-AMSTAR = 24 Implied SM	<b>TH:</b> Home telemonitoring Focus: monitoring with action plans	3/3 reported improved medication compliance with telemonitoring
<b>Asthma Reviews</b>			
<b>* Beratarrechea 2014 [20]</b> 2 RCTs	R-AMSTAR = 31 Implied SM	<b>TH:</b> Mobile phone interventions in developing countries Monitoring and action plan (n=2)	1/1 RCT reported improved FEV1 and symptoms scores 1/1 RCT reported reduced hospitalisation and emergency dept. visits
<b>** De Jongh 2012 [24]</b> 1 RCT, n=16	R-AMSTAR = 36 Explicit SM	<b>TH:</b> Mobile phone messaging interventions Monitoring and action plan (n=1), adherence support (n=1)	1 RCT reported improvements in symptom score, hospital admissions and PEF variability. Clinic visits higher in intervention group
<b>** Flodgren 2015 [27]</b> 5 RCTs, n=825	R-AMSTAR = 44 Explicit SM	<b>TH:</b> Interactive TH excluding telephone-only interventions Focus of SR was clinical review and advice; information and education (n=5)	0/4 showed improved symptom scores 0/3 showed improved spirometry tests 1/4 showed increased clinic visits in intervention group
<b>* Garcia-Lizana 2007 [28]</b>	R-AMSTAR = 22 Explicit SM	<b>TH:</b> TH interventions excluding telephone-only	2/5 reported improved symptom scores

5RCTs, n=733		Information and education (n=5)	2/4 reported reduced unscheduled healthcare utilisation
* <b>Jaana 2009 [61]</b> 7 RCTs	R-AMSTAR = 22 Explicit SM	<b>TH:</b> Home telemonitoring Monitoring and action plan (n=6); clinical review and advice (n=7); adherence support (n=3)	5/7 reported improved symptoms
* <b>Krishna 2009 [36]</b> 1 RCT, n=16	R-AMSTAR = 21 Explicit SM	<b>TH:</b> Mobile phone messaging with educational focus Focus of SR was clinical review and advice; education and information	1/1 reported improved symptoms and reduced medication use
** <b>Marcano Belisario 2013 [62]</b> 2 RCTs, n=408	R-AMSTAR = 39 Explicit SM	<b>TH:</b> Smartphone applications Focus: monitoring and action plans	0/1 reported improved symptoms 1/2 reported improved health-related QOL 1/2 reported reduced emergency dept. visits 0/2 showed reduced hospital admissions
** <b>McLean 2010 [63]</b> 21 RCTs, n=12038	R-AMSTAR = 42 Implied SM	<b>TH:</b> Home-based TH including telemonitoring and structured telephone support Focus: monitoring and action plans and information and education	Meta-analyses: significant reduction versus control in hospitalisation after 12 months (OR 0.21 (95%CI 0.0 to 0.61)). No significant reduction in emergency department visits or hospitalisation after 3 months (OR 1.16 (95%CI 0.52 to 2.58) and 0.47 (95%CI 0.01 to 36.46), respectively). Improvement in health-related QOL was below clinically significant threshold.
<b>COPD Reviews</b>			
* <b>Bolton 2011 [64]</b> 2 RCTs, n=139	R-AMSTAR = 32 Implied SM	<b>TH:</b> Interactive physiological telemonitoring Focus: monitoring and action plan; information and education (n=1)	1/1 reported improved QOL (St George's Respiratory Questionnaire) 1/1 reported fewer hospital admissions and emergency dept. visits No significant reduction in exacerbation frequency
* <b>Cruz 2014 [65]</b> 7 RCTs, n=392	R-AMSTAR = 36 Implied SM	<b>TH:</b> Home telemonitoring Focus: monitoring with action plan	Meta analyses: statistically significant improvement vs control in hospitalisation rate (– RR 0.72 (95%CI 0.53 to 0.98)) and QOL using SGRQ (SMD -0.53 (95%CI -0.97 to -0.09)) No significant difference in mean number of hospitalisations (SMD -0.06 (95%CI -0.32 to 0.19)) emergency dept. visits (RR

			0.68 (95%CI 0.38 to 1.18)) and mortality (RR=1.43, 95%CI 0.40-5.03)
<b>** Flodgren 2015 [27]</b> 3 RCTs, n=130	R-AMSTAR = 44 Explicit SM	<b>TH:</b> Interactive TH excluding telephone-only interventions Focus: clinical review and advice; information and education (n=3)	1/1 reported no difference in healthcare utilisation 1/1 reported no difference in symptom score 1/1 reported improved health related QOL
<b>* Franek 2012 [66]</b> 6 RCTs, n=310	R-AMSTAR = 33 Implied SM	<b>TH:</b> Home telemonitoring and telephone-only support Focus: monitoring and action plan; information and education (n=2)	2/6 reported reduced hospitalisation 1/3 reported reduced emergency dept. visits 2/2 reported improved health related QOL 0/1 reported improved mortality 0/1 reported reduced exacerbations 1/1 reported improved self-efficacy
<b>** Kuijpers 2012 [16]</b> 2 RCTs	R-AMSTAR = 31 Explicit SM	<b>TH:</b> Internet-based interventions Focus: lifestyle advice/support; psychological support (n=1)	1/2 reported significant improvement in self-efficacy
<b>** Lundell 2015 [67]</b> 9 RCTs, n=982	R-AMSTAR = 39 Explicit SM	<b>TH:</b> Interactive telemonitoring or counselling Focus: clinical review and advice	Meta-analyses: significant improvement vs control in time spent physically active (MD 64.7mins, 95%CI 54.4 to 74.9) No significant difference in exercise tolerance (MD 1.3 m (95% CI -8.1 to 5.5)) and dyspnoea score (MD 0.088 (95% CI 0.056 to 0.233))
<b>** McLean 2011 [68]</b> 10 RCTs, n=1004	R-AMSTAR = 43 Implied SM	<b>TH:</b> Home-based TH including telemonitoring and structured telephone support Focus: monitoring and action plan; information and education (n=4)	Meta-analyses: significant reduction vs control in hospitalisations (OR 0.27 (95% CI 0.11 to 0.66)) and emergency dept. visits OR 0.46 (95%CI 0.33 to 0.65) No significant difference in mortality (OR 1.05 (95%CI 0.63 to 1.75)) or QOL (MD in SGRQ. -6.57 (95%CI -13.62 to 0.48))
<b>* Polisena 2010 [69]</b> 7 RCTs, n=697	R-AMSTAR = 35 Implied SM	<b>TH:</b> Home telemonitoring and telephone support Focus: monitoring with action plan	Meta-analysis: no significant difference in mortality between telephone support and control (RR 1.07 (95% CI 0.70 to 1.62))* No overall improvement in QOL with home telemonitoring With telephone support 5/5 reported fewer

			hospitalisations and 4/4 reported fewer emergency dept. visits
<b>Cancer Reviews</b>			
<b>** Beatty 2013 [21]</b> 1 RCT, n=62 Breast cancer	R-AMSTAR=31 Explicit SM	<b>TH:</b> Moderated internet-based self-help Focus: lifestyle advice/support; psychological support (n=1)	0/1 showed improvements in QOL or 'emotional wellbeing'
<b>**Kuijpers 2012 [16]</b> 1 RCT, n=325 Breast cancer and prostate cancer	R-AMSTAR=31 Explicit SM	<b>TH:</b> Internet-based interventions Focus: lifestyle advice/support	No significant improvement in patient empowerment
<b>* McAlpine 2015 [70]</b> 4 RCTs Cancer (lung n=1, breast n=1, various n=2)	R-AMSTAR= 29 Explicit SM	<b>TH:</b> Online education programmes linking patient with clinician Focus: information and education	0/2 reported improved QOL 1/2 reported improved symptom scores
<b>Abbreviations</b> CI – confidence interval; COPD – Chronic Obstructive Pulmonary Disease; DM- diabetes mellitus; HF – heart failure; MD – mean difference; PEF – Peak expiratory flow; RCT – randomised controlled trial; RR – Relative risk; SGRQ - St George's Respiratory Questionnaire; SR – Systematic review; T1DM – type 1 diabetes mellitus; T2DM – type 2 diabetes mellitus; TH – Telehealth			
*The risk ratio was originally published as 1.21 (95%CI 0.84 to 1.75), however this was shown to have been the result of an error which was subsequently identified and corrected[71, 72].			