

Supplementary Table 1. Characteristics of included studies

First Author, Year (Country)	Study type	Patient group	Trial length (approx. months)	Sample size (close out if avail)	Average/Mean age	M/F split	RPM device	Data collection type	Data review type (Active, Passive - alert)	Supplementary support modes	OUTCOME: All cause, condition-specific, both, or not specified	Outcome findings as reported by authors in article	Summary of RPM effect on acute care use
Achelrod, 2017 (Germany)	Cohort	COPD	Baseline 24, Follow up 12	651 intervention; 7047 control	64.24 (Int); 69.47 (control before); 64.24 (control after)	43.93% female (Int); 49.17 (control before); 43.93 (control after)	Dedicated RPM unit + peripheral devices	Manual	Passive	Telephone	All-cause and condition-specific	Hospitalisations due to all causes (-15.16 %, p<0.0001), due to COPD (-20.27 %, p<0.0001) and COPD-related ED presentations (-17.00 %, p<0.0001) were consistently lower in RPM patients, leading to fewer all-cause (-0.21, P<0.0001), COPD-related (-0.18, p\0.0001) and COPD-related ED presentations (-0.14, P<0.0001). On average, people in RPM group spent 3.1 (P<0.0001) and 2.07 (P<0.001) fewer days in hospital due to all causes and COPD, respectively, than control group.	Decreased
Agboola, 2015 (USA)	Cohort	Heart failure	4	174 intervention; 174 control	76.66 (10.71 SD) (Int); 76.76 (10.71 SD) (control)	58.62% male (Int & control)	Tablet + peripheral devices	Manual	Active	Telephone	All-cause	Compared with controls, hospitalisation rates decreased within first 30 days of program enrollment (HR = 0.52, 95% CI 0.31-0.86, P=.01); Mean LOS similar in both groups (7 (8.92) RPM vs. 8 (8.83) control, P = 0.92).	Decreased hospitalisation, no significant difference in LOS
Akar, 2015 (USA)	Cohort	Patients with CIEDs (unspecified)	6	20852 intervention; 16890 control	67.5 (SD 12.1, 21-89) (Int); 66.5 (SD 13.0, 21-89) (control)	70.9% male (Int); 72.6% male (control)	CIED	Automatic	Passive	Not stated	All-cause	Risk of rehospitalisation of RPM patients (n=9150, 60%) lower than those not using RPM (HR= 0.82, 95% CI 0.80–0.84, P<0.0001).	Decreased
Alshabani, 2019 (USA)	Cohort	COPD	12	39	68.6 (9.9)	M:F 20:19	Electronic inhaler monitoring device	Automatic	Passive	Not stated	All-cause and condition-specific	RPM associated with reduction in COPD-related ED presentations and hospitalisations combined per year - 2.2 (± 2.3) vs. 3.4 (± 3.2), p=0.01. All-cause this was also reduced, although difference was NS (3.4 (2.6) vs. 4.7 (4.1), P = 0.06).	Decreased condition-specific, no significant difference all-cause
Amara, 2017 (France)	RCT	Patients with CIEDs (unspecified)	12	291 intervention; 304 control	79 (±8) (all, Int, and control)	63% male (all); 64% male (Int); 61% male (control)	CIED	Automatic	Passive	Not stated	Condition-specific	In RPM group, 39 patients (13.4%) had CV-related hospitalisations vs. 42 patients (13.8%) in control group (NS); Mean LOS was 10 ± 14 days in the RPM vs. 11 ± 13 days in the control group (NS).	No significant difference
Amir, 2017 (Israel)	Cohort	Heart failure	Varied - <12	50	73.8 ± 10.3	62% male	Dedicated RPM unit + peripheral devices	Automatic	Passive	Not stated	Condition-specific	The HR for hospital readmission rates between the pre-RPM period and the RPM period was 0.07 (95% CI 0.01–0.54, P = 0.01).	Decreased
Bingler, 2018 (USA)	RCT	Heart disease - infants	Few months	31	1.44 (0.80 to 2.13) (1 month group); 0.70 (0.47 to 1.43) (2 month group)	56.2% female (1 month grp); 26.7% female (2 month group)	Tablet	Manual	Both	Not stated	Not specified	Higher risk of having a high resource utilisation admission in control than RPM group (RR = 2.19, 95% CI 1.16-4.12, P = 0.016); Total LOS per 100 interstage days was significantly lower with RPM vs usual care. Difference in admissions NS - RPM 26 (0.9) vs. control 19 (1.0) - P = 0.75; Total ED presentations (ED presentations per 100 interstage days) RPM 20 (0.7) vs. control 13 (0.7) (P = 0.96).	Decreased
Bohingamu Mudiysanella, 2019 (Australia)	RCT	COPD and/or Diabetes	12	86 intervention; 85 control	70.7 ± 11.56 (Int); 70.13 ± 13.26 (control)	60% male (Int); 47% male (control)	Tablet + peripheral devices	Manual	Both (out of hours alerts)	VC	Not specified	Lower mean acute hospital LOS over 12 months in RPM (4.6 vs. 8.7 days; 95% CI: -8.6 to 0.4); Difference in hospitalisations NS (proportion of participants who had at least one hospitalisation 53% vs. control 55%, P = 0.813).	Decreased LOS, no significant difference in hospitalisations
Böhm, 2016 (Germany)	RCT	Patients with CIEDs (HF)	~24	175 intervention; 167 control	66.1 ± 10.1 (Int); 66.4 ± 10.7 (control)	77.2% male (Int); 82.3% male (control)	CIED	Automatic	Passive	Not stated	All-cause and condition-specific (condition-specific result reported)	The number of HF hospitalisations per patient per year 0.24 for the RPM group and 0.30 for the control (P = 0.20).	No significant difference
Boriani, 2017 (Various - Europe and Israel)	RCT	Patients with CIEDs (HF)	~24	437 intervention; 428 control	66 ± 11 (Int); 67 ± 10 (control)	78.8% male (Int); 73.1% male (control)	CIED	Automatic	Passive	Not stated	All-cause and condition-specific	ED presentations (not followed by hospitalisation) significantly lower in RPM (IRR = 0.72, 95% CI 0.53–0.98, P = 0.04); Burden of CV-related healthcare resource utilization was 38% lower in RPM vs. control (IRR = 0.62, 95% CI 0.58–0.66, P<0.001); All-cause hospitalisation rates, estimated as the 2-year rate per 100 patients, were 96 (95% CI 86–106) and 90 (95% CI 80–100, P = 0.83), respectively. CV-related hospitalisations were 197 (111 due to HF) and 200 (103 due to HF) in RPM and control, respectively.	Decreased ED but increased unscheduled visits
Buchta, 2017 (Poland)	Cohort	Patients with CIEDs (unspecified)	24	287 intervention; 287 control	61.94 (53.25 – 70.75) (Int); 62.80 (56.04 – 69.51) (control)	84% male (both)	CIED	Automatic	Passive	Not stated	All-cause	No reduction in the number of defined medical contacts. Hospitalisations (P=NS) in control vs. RPM, respectively, in year 1, 2, 3 hospitalisations Year 1= 1.4 vs. 1.16; Year 2 = 0.74 vs. 0.42; Year 3= 0.55 vs. 0.36.	No significant difference
Bulava, 2016 (Czech Republic)	RCT	Patients with CIEDs (unspecified)	26	97 intervention; 101 control	66 ± 11 (Int); 68 ± 12 (control)	83.5% male (Int); 78.2% male (control)	CIED + dedicated RPM unit	Automatic	Passive	Telephone	Not specified	LOS shorter in RPM group (10.3 ± 8.1 days, median: 8.0 days) vs. control group (17.5 ± 19.9 days, with median of 10.5 days, P = 0.027); 213 hospitalisations in total: 124 (58.2%) in control group and 89 (41.8%) in RPM group (P = 0.127).	Decreased

Capucci, 2017 (Italy)	Cohort	Patients with CIEDs (HF)	12	499 intervention; 488 control	66 (12) (Int); 65 (13) (control)	77% male (both)	CIED	Automatic	Passive	Not stated	Not specified	Rate of hospitalisations in first 12 months of follow-up was 0.16 and 0.27/year in RPM and control group, respectively (RR = 0.59; P = 0.004).	Decreased
Celler, 2018 (Australia)	Cohort	Chronic conditions (unspecified)	9	114 intervention; 173 control	71.1 (9.3) (Int); 71.9 (9.4) (control)	64% male (Int); 56% male (control)	Dedicated RPM unit	Manual	NS	Not stated (But said reminded to record vitals)	Not specified	RPM patients significant (P = 0.006) reduction in rate of hospitalisations vs. controls (P = 0.869); After one year of RPM average expected LOS reduced by almost 68% from predicted value of 24.6 to 7.9 days.	Decreased
Chatwin, 2016 (UK)	RCT	Chronic lung disease (COPD and chronic resp failure)	6	38 intervention; 34 control	61.8 (11.9)	48% male	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone	Not specified	Respiratory hospitalisations for acute exacerbations at 6 months increased in RPM group — frequency 0.32 control vs. 0.63 RPM (mean difference 0.32, P = 0.026). Although time to first admission did not change, actual hospitalisations doubled from 18 to 36.	Increased
Clarke, 2018 (UK)	Cohort	COPD	3 monitor, 12 pre data	227	70.9 ± 8.9	50% male	Dedicated RPM unit + peripheral devices	Manual	Active	RM unit message	All-cause and condition-specific	Average LOS decreased in one group from 11.5 in period 12 months before to 6.5 days during RPM; In other group average LOS decreased 7.5 to 5.2 days; For all other causes there was a reduction in LOS during RPM period vs. period 12 months before (9%) but an increase (10%) vs. period immediately before RPM; COPD hospitalisations increased from 64 to 71; Other hospitalisations decreased 43 to 39.	Decreased LOS, variability in hospitalisations, and changed if compared to immediate pre or 12 months pre.
Comin-Colet, 2016 (Spain)	RCT	Heart failure	6	81 intervention; 97 control	74 ± 11 (Int); 75 ± 11 (control)	43% female (Int); 39% female (control)	Tablet	Manual	Active	Telephone, VC	All-cause and condition-specific	HF readmission (HR = 0.39, CI 0.19–0.77, P = 0.007) and CV readmission (HR = 0.43, CI 0.23–0.80, P = 0.008) were reduced in RPM group; mean LOS significantly reduced in RPM group for all cause, HF and CV readmissions. In patients hospitalised, mean LOS tended to be shorter in RPM group. In adjusted models, results were similar.	Decreased
Cross, 2019 (USA)	RCT	Inflammatory bowel disease	12	231 intervention; 117 control	40.1 ± 13.2 (Every other week [EOW] cohort; 36.4 ± 11.5 (Weekly cohort); 40.1 ± 11.7 (control). All = 38.9 ± 12.3 yrs)	41.7% male (Int every two weeks); 43.1% male (Int weekly); 45.3% male (control); All = 56.6% female	Smartphone	Manual	Passive	SMS	All-cause and condition-specific	IBD-related hospitalisations increased in the control group from 14.7 to 16.4; however in the RPM EOW and RPM Weekly, IBD-related hospitalisations decreased from 24.3 to 14.4 and 24.1 to 9.8 respectively. The difference in IBD-related hospitalisation was significant for the RPM weekly group only (P = 0.04); Non-IBD related hospitalisations increased from 3.4 to 11.2 in controls and decreased from 5.5 to 0.9 and 5.4 to 2.7 in the RPM EOW and weekly cohorts respectively (P = 0.02 in RPM EOW and p = 0.04 in RPM weekly; Decrease in hospitalisations but increase in non-invasive diagnostic tests, telephone calls and electronic encounters.	Decreased
D'Ancona, 2017 (Germany)	Cohort	Patients with CIEDs (unspecified)	12	720 RM capable devices (91 activated); 503 control	68 (58–75) (Int); 67 (57–75) (control)	20% female (Int); 21.5% female (control)	CIED	Automatic	Passive	Not stated	All-cause	RPM patients had higher re-hospitalisation rate (45.2% vs. 34.8%, P = 0.059).	Increased
Davis, 2015 (USA)	Cohort	HF, COPD	3	117 intervention; 233 control	COPD: 61 (11) (Int); 63 (15.8) (control) HF: 62 (16.6) (Int); 65 (14.6) (control)	COPD: 62.1% female (Int); 60.3% female (control) HF: 45.8% female (Int); 56% female (control)	Dedicated RPM unit	Manual	Passive	Telephone, Dedicated RM unit message	All-cause	30-day re-admissions were reduced 50% for both chronic disease cohorts vs. control (COPD, 10.3% vs. 21.8%, HF, 8.5% vs. 17%); 37% reduction in ED presentations in the 30-day postdischarge period for COPD cohort compared with control patients (6.9% vs. 10.9%), but 75% increase in ED presentations for the HF cohort (11.9% vs. 6.8%) in the 30 days after the index discharge; Admissions 150 to 49 in COPD but 50 to 52 in HF.	Decreased for COPD, increased ED and hospitalisations for HF
De Luca, 2016 (Italy)	RCT	Nursing home patients; Mental health	Not specified	32 intervention; 27 control	77 (71–80) (Int); 85 (79–89) (control)	34.4% male (Int); 29.6% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	VC	Not specified	Admission to health care service was higher ($\chi^2 = 3.96$, P<0.05) in control group (8/27) vs. RPM group (3/32).	Decreased
De Simone, 2015 (Italy)	Non-randomised controlled trial/Quasi-experimental	Patients with CIEDs (unspecified)	24	499 intervention; 488 control	66 ± 12 (Int); 66 ± 13 (control)	76% male (Int); 78% male (control)	CIED	Automatic	Passive	Not stated	All-cause and condition-specific	RPM reduced risk of all-cause hospitalisations (87 vs. 129; 0.15 vs. 0.28 events/year; IRR = 0.54, 95% CI 0.41–0.71, P < 0.001) and CV hospitalisations (60 vs. 89; 0.11 vs. 0.20 events/year; IRR = 0.54, 95% CI 0.38–0.75, P < 0.001) vs. control group; LOS was 517 days (0.91 days/year) in RPM group and 974 days (2.15 days/year) in control group.	Decreased
De Simone, 2019 (Italy)	Cohort	Patients with CIEDs (AF)	12	26 intervention; 45 control	82 [79–87] (Int); 85 [78–89] (control)	34.6% female (Int); 53.3% female (control)	CIED	Automatic	Passive	Not stated	All-cause	All-cause hospitalisations were 33, with lower event rate in RPM group vs. control (5.8; 95% CI 3.3–9.4 vs. 9.7; 95% CI 6.5–13.9 per 100 patient-months; P = 0.027); RR with RPM was significant for all-cause hospitalisation (RR= 0.44, 95% CI 0.21–0.93).	Decreased

Esteban, 2016 (Spain)	Cohort	COPD	24	120 intervention; 78 control	71.34 (Int); 70.1 (control) ALL: 70.83	86.6% male (Int); 87.2% male (control); All: 86.8% male	Smartphone	Manual	Active	Telephone	Condition-specific	After 2 years, both cohorts showed reduction in rate of hospitalisations (P<0.001) but reduction was significantly higher in RPM group (1.14 vs. 2.33, P<0.001); Significant differences in rate of ED presentations (pre-post = 0.4 (0.1–0.6) P = 0.006), cumulative LOS, and rate of 30-day readmission during study period; In multivariate analysis, being in the RPM group was independently associated with lower rates of hospitalisations (IRR = 0.38, 95% CI 0.27–0.54, P<0.0001), ED presentation (IRR = 0.56, 95% CI 0.35–0.92, P<0.02), and 30-day readmission (IRR = 0.46, 95% CI 0.29–0.74, P<0.001), as well as cumulative LOS (IRR = 0.58, 95% CI 0.46–0.73, P<0.0001).	Decreased
Flaherty, 2017 (USA)	RCT	Schizophrenia	3	20 intervention; 25 control	49.9 ± 12.7 (Int); 51.2 ± 11.1 (control)	90% male (Int); 96% male (control)	Dedicated RPM unit	Manual	Active	Telephone, In-person	Not specified	RPM group significantly less likely vs. control group to have at least one hospitalisation (5.0% vs. 32.0%, P<0.05). Also, RPM group had significantly lower average number of hospitalisations (0.10 ± 0.45 vs. 0.60 ± 1.19, Mann Whitney U=4.67, df=1, P<0.05). RPM group also had significantly lower mean LOS (0.70 ± 3.13 vs. 2.56 ± 6.11, Mann Whitney U,=4.59, df=1, P<0.05). No significant differences were found between groups in terms of numbers of psychiatric hospitalisations (0.65 ± 1.04 vs. 0.52 ± 0.77). Additionally, RPM and control groups did not differ on ED presentations (0.60 ± 1.23 vs. 0.92 ± 1.19).	Decreased hospitalisations, no significant difference on ED
Galinier, 2020 (France)	RCT	Heart failure	18	305 intervention; 327 control	70.0±12.4 (Int); 69.7±12.5 (Control)	73.4% male (Int); 71.0% male (control)	Electronic scales + Dedicated RPM unit	Manual	Passive	Telephone	All-cause and condition-specific	Mean±SD number of unplanned hospitalisations for HF was 0.59±1.26 for telemonitoring and 0.75±1.42 for SC (rate ratio 0.84, 95% CI 0.62–1.15; P = 0.28); RPM associated with 21% RR reduction in first unplanned hospitalisation for HF [hazard ratio (HR) 0.79, 95% CI 0.62–0.99; P = 0.044]; Mean±SD annualised cumulative number of days in hospital 36.3±54.4 (RPM) vs 34.1±47.0 (SC) P = 0.34. Among the secondary outcomes, telemonitoring reduced the relative risk of occurrence of first unplanned hospitalisation for HF by 21% after adjustment for known predictive factors. Median time to first HF hospitalisation was also numerically delayed by 18 days in the telemonitoring group, but the difference did not reach the level of statistical significance.	No significant difference
Geller, 2019 (Germany)	RCT	Patients with CIEDs (HF)	12	333 intervention; 331 control	ICD 65 [58–70]; CRT-D 68 [62–74]; (control not reported)	ICD 85.0% male; CRT-D 77.7% male; (control group not reported)	CIED	Automatic	Passive	Not stated	All-cause	Hospitalisations for worsening HF in RPM vs. control group was 14 vs. 13 (ICD) and 30 vs. 34 (CRT-D). Number of affected patients was 10 vs. 8 (ICD: 7.0% vs. 6.1%, P = 0.81) and 17 vs. 26 (CRT-D: 8.9% vs. 13.0%; P = 0.26), the median length of hospital stay was 9.0 vs. 7.0 days (ICD: P = 0.38) and 7.0 vs. 7.5 days (CRT-D: P = 0.43), respectively.	No significant difference
Gingele, 2019 (Netherlands)	RCT	Heart failure	12	197 intervention; 185 control	71.0 ± 11.9 (Int); 71.9 ± 10.5 (control)	58% male (Int); 60% male (control)	Dedicated RPM unit	Manual	Active	"contacted with advice" "twice had personal contact with specialist"	Condition-specific	RPM group had significantly fewer HF-related hospitalisations vs. control group (IRR = 0.54, 95% CI 0.31–0.88). However, HF-related LOS was not significantly shorter in RPM group (IRR = 0.60, 95% CI 0.33–1.07).	Decreased hospitalisations, no significant difference in LOS
Hale, 2016 (USA)	RCT	Heart failure	3	11 intervention; 14 control	68.4 (11.8) (intervention); 74.4 (10.4) (control)	64% male (both)	MedSentry electronic medication device	Automatic	Active	Telephone	All-cause and condition-specific	Approximately 9% (1/11) of RPM participants were hospitalised one or more times vs. 50% (7/14) control participants (P = 0.04), a relative risk reduction in hospitalisation of approximately 82%. RPM group had significantly fewer all-cause hospitalisation days vs. controls (4 vs 34, P = 0.03) and there was a reduction in the LOS for HF-related and non-HF-related hospitalisations (NS, P = 0.24). ED presentations all cause and HF-related were reduced (NS, 6 to 3 and 3 to 1, respectively).	Decreased
Hansen, 2018 (Germany)	RCT	Patients with CIEDs (HF)	13	102 intervention; 108 control	62.5 ± 12.2 (Telemetry); 64.7 ± 9.1 (remote + phone); 65.4 ± 11.1 (visit)	16.7% female (telemetry); 13.2% female (remote + phone); 16.4% female (visit)	CIED + dedicated RPM unit	Automatic	Passive	Website	Condition-specific	HF-hospitalisation occurred at similar rates in the RPM and control groups (9.8% vs. 12.0%, P = 0.605).	No significant difference
Heidbuchel, 2015 (Various - Europe)	RCT	Patients with CIEDs (unspecified)	24	159 intervention; 144 control	62.4 ± 13.1 (ALL); 62.0 ± 13.9 (Int); 62.9 ± 12.3 (control)	80.5% male (ALL); 78% male (Int); 83.3% male (control)	CIED	Automatic	Passive	Not stated	All-cause and condition-specific	Fewer CV hospitalisations and shorter LOS in RPM patients, but NS. CV hospitalisations control vs. RPM = 0.85 (1.43) vs. 0.67 (1.18), P = 0.233; LOS (days) 8.26 (18.6) vs. 6.31 (15.5), P = 0.266.	No significant difference

Ho, 2016 (Taiwan)	RCT	COPD	6	53 intervention; 53 control	81.4 ± 7.8 (Int); 79.0 ± 9.6 (control)	81% male (Int); 72% male (control)	Website	Manual	Active	Not stated	All-cause and condition-specific	RPM associated with a significant reduction in number of all-cause re-admissions from 0.68 to 0.23 per patient (P = 0.002). RPM patients had fewer ED presentations for all causes vs. control group (0.36 vs. 0.91 per patient, P = 0.006).	Decreased
Ishani, 2016 (USA)	RCT	CKD	12	451 intervention; 150 control	75.3 ± 8.1 (Int); 74.3 ± 8.1 (control)	98.7% male (Int); 98.0% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	VC	All-cause	RPM did not reduce the risk for hospitalisation or ED presentations vs. usual care; Hospitalisations HR = 1.15; 95% CI 0.80-1.63, ED presentations HR = 0.92; 95% CI, 0.68-1.24.	No significant difference
Jenneve, 2020 (France)	Cohort	Heart failure	24	159	72.9 years (34–96)	64.3% male	Website + scale	Manual	Passive	Telephone	Condition-specific	Mean number of days hospitalised for HF per patient per year was 8.33 (6.84–10.13) in the year preceding enrollment, 2.6 (1.51–4.47) at one year of follow-up, and 2.82 at two years of follow-up (1.30–6.11) (p < 0.01 for both comparisons). Number of patients hospitalised for HF was 112 in the year preceding enrollment and 23 or 15 at 1 and 2 years of follow up, respectively.	Decreased
Jimenez-Marrero, 2020 (Spain)	RCT	Heart failure	6	50 intervention; 66 control	77 years	47% female	Tablet computer	Manual	Passive	Not stated	All-cause and condition-specific	There were statistically significant lower risks hospitalisations comparing telemedicine to usual care; Hospitalisation from non-cardiovascular causes was similar in the two arms- Usual care vs Telemedicine - HF hospitalisation 29 vs 10 P = 0.011 HR 0.38 (0.16–0.90); CV hospitalisation 37 vs 13 P = 0.009 HR 0.40 (0.19–0.86); Non-CV hospitalisation 12 vs 7 P = 0.796 HR 1.01 (0.35–2.88); All-cause hospitalisation 51 vs 21 P = 0.017 HR 0.52 (0.28–0.98)	Decreased
Kalter-Leibovici, 2017 (Israel)	RCT	Heart failure	30	682 intervention; 678 control	70.8 (11.6) (Int); 70.7 (11.0) (control)	69.3% male (Int); 75.7% male (control)	Dedicated RPM unit	Manual	Passive	Telephone, VC	All-cause	No significant differences in LOS (adjusted RR = 0.886; 95% CI 0.749-1.048), and hospitalisations for all causes (adjusted RR = 0.935; 95% CI 0.840-1.040).	No significant difference
Kao, 2016 (USA)	Cohort	Heart failure	36	623 intervention; 623 control	78.76 ± 9.08 (Int); 77.39 ± 8.59 (control)	56.7% male (Int); 52.3% male (control)	Dedicated RPM unit	Manual	Active	Telephone	All-cause	A reduction of 22.7% in quarterly hospitalisations noted in RPM vs. matched controls (D = -0.05 hospitalisations/quarter; 95% CI -0.09 to -0.01; P = 0.012). No significant differences between RPM and matched control cohorts in all-cause LOS per quarter or all cause ED presentations.	No significant difference in LOS or ED, decreased hospitalisations
Kenealy, 2015 (New Zealand)	RCT - except site C	Chronic conditions (unspecified)	6	98 intervention; 73 control	SITE A: 72 (62–83) (Int); 72 (60–77) (control) SITE B: 67 (64–74) (Int); 67.5 (63–72.5) (control) SITE C: 57 (53-60) (Int); no control group	SITE A: 39% female (Int); 29% female (control); SITE B: 38% female (both); SITE C: 60% female (no control group)	Dedicated RPM unit + peripheral devices	Manual	Active	Not stated	All-cause	RPM group showed no significant change in hospitalisations vs. usual care (coefficient 0.32, P = 0.15), ED presentations (coefficient -0.08, P = 0.91), or LOS (coefficient 0.51, P = 0.09).	No significant difference
Kessler, 2018 (Various - Europe (France, Germany, Italy, Spain))	RCT	COPD	12	172 intervention; 173 control	67.3 ± 8.9 (Int); 66.6 ± 9.6 (control); ALL 66.9 ± 9.3	69.4% male (Int); 69.8% male (control)	Telephone	Manual	Active	Telephone	All-cause and condition-specific	No significant difference in all-cause LOS (non-parametric analysis (p=0.161) or ANOVA comparison of the mean values adjusted for country differences (-5.3 days, 95% CI -13.7 to 3.1; P = 0.212). Difference was 7.4 ± 35.4 in RPM group and 22.6 ± 41.8 in control group, with medians (IQR) of 0 (0–203) days and 5 (0–259) days, respectively. The total numbers of unplanned hospitalisations were similar for both groups (RPM group, n=157; control group, n=160). LOS due to acute exacerbation of COPD not significantly different.	No significant difference
Koehler, 2018 (Germany)	RCT	Heart failure	12	765 intervention; 773 control	70 (11) (Int); 70 (10) (control)	70% male (Int); 69% male (control)	Tablet + peripheral devices	Manual	Active	Telephone	Condition-specific	RPM group had shorter LOS vs. control group for unplanned hospitalisations due to worsening HF (mean 3.8 days per year, 95% CI 3.5–4.1 vs. 5.6 days per year, 5.2–6.0, respectively). The percentage of days lost for this outcome for RPM and control groups was 1.04% (95% CI 0.96–1.11) and 1.53% (1.43–1.64), respectively (ratio 0.80, 95% CI 0.67–0.95; P = 0.0070).	Decreased

Koulaouzidis, 2019 (UK)	Cohort	Heart failure	12	124 intervention; 345 control	68.1 (12.7) (Int); 67.5 (10.6) (control)	78.2 male (Int); 68.1% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Not stated	All-cause hospitalisation and condition-specific readmission	There was no difference between the two groups in all-cause hospitalisation, either in number of subjects hospitalised (P = 0.7) or in number of admissions per patient (P = 0.6). No difference in number of HF-related readmissions per person between the two groups (P = 0.5), but LOS per person was higher in control group (P = 0.03).	Decreased LOS, no significant difference in hospitalisation
Kraai, 2016 (Netherlands)	RCT	Heart failure	9	94 intervention; 83 control	69 ± 12 (Int); 69 ± 11 (control);	70% male (Int); 75% male (control)	Dedicated RPM unit + peripheral devices	Manual	Passive	Telephone	All-cause and condition-specific	HF-readmission 28% vs. 27% P = 0.87; All-cause readmission was 49% vs. 51% (P = 0.78).	No significant difference
Kurek, 2017 (Poland)	Cohort	Patients with CIEDs (HF)	12	287 intervention; 287 control	63 (56–69) (Int); 62 (53–70) (control)	84% male (both)	CIED + dedicated RPM unit	Automatic	Passive	Not stated	Condition-specific	Number of HF-related hospitalisations in 1-year observation was comparable (1.71 vs. 1.65 visits/per patient, P = 0.27).	No significant difference
Ladapo, 2016 (USA)	Cohort	Patients with CIEDs (unspecified)	24	2849 intervention (ICD, CRT-D and pacemaker); 2849 matched control	After matching ICD: 64 (12) (Int); 65 (12) (control); CRT-D: 69 (10) (both); pacemaker: 74 (11) (both)	After matching, ICD: 79% male (both); CRT-D: 73% male (both); Pacemaker: 55% male (both)	CIED	Automatic	Passive	Not stated	Not specified	RPM patients less likely to have ED presentations (P = 0.050) and had fewer hospital stays (P = 0.057). RPM patients did not significantly differ from control in ED presentations or hospital care. RPM patients over a 24-month period similar or less frequent utilization of emergency and hospital care, compared with those followed in the office (reductions in utilization most pronounced among ICDs).	Decreased
Lanssens, 2017 (Belgium)	Cohort	Gestational hypertensive disorders	12	48 intervention; 98 control	31.69 (4.25) (Int); 31.94 (4.77) (control)	100% female (maternal prenatal study)	Peripheral devices	Manual	Passive	Not stated ("Contacting patients at home" but did not specify how)	Not specified	Prenatal hospitalisations and hospitalisations until delivery were lower in RPM vs. control when a univariate analysis was performed - 56.25% (27/48) vs. 74.49% (73/98) and 27.08% (13/48) vs. 62.24% (61/97). This was not significant in multivariate analysis.	No significant difference in multivariate analysis, decreased in univariate analysis.
Lanssens, 2018 (Belgium)	Cohort	Gestational hypertensive disorders	12	90 intervention; 320 control	30.97 (±5.61) (Int); 30.53 (±5.17) (control)	100% female (maternal prenatal study)	Peripheral devices	Manual	Passive	Not stated ("Contacting patients at home" but did not specify how)	Not specified	In both uni- and multivariate analyses, RPM group had, vs. control group, less prenatal admission (51.62% vs. 71.63%), and less prenatal admissions until the moment of the delivery (31.40% vs. 57.67%).	Decreased
Leng Chow, 2020 (Singapore)	Non-randomised controlled trial (Quasi-experimental)	Heart failure	12	150 intervention; 55 control	57.9 (Int); 63.9 (control)	60.7% male (Int); 58.2% males (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone	All-cause and condition-specific	After adjusting for differences in age and years of HF diagnosis, average HF-related bed days per patient at 180 days (TM=1.2, STS=6.0 days; p<0.01) and at one year (TM=2.2, STS=6.6 days; p=0.02), remained significantly lower for TM compared with STS. All-cause bed days per patient at 180 days were also significantly lower for TM compared with STS (TM=5.0, STS=9.8 days; p=0.03); TM was associated with reduced all-cause 180-day readmission by 38% (HR 0.62 (0.38–1.00); p=0.05)	Decreased
Lew, 2018 (USA)	Non-randomised controlled trial	Peritoneal dialysis patients	Not specified	269	56 (43.6–64.3)	56.9% male	Peripheral devices	Manual	Active	VC	Not specified	Use of RPM collected weight associated with fewer hospitalisations (adjusted OR= 0.54, 95% CI 0.33–0.89) and shorter LOS (adjusted OR = 0.46, 95% CI 0.26–0.81). Use of RPM collected BP associated with longer LOS (adjusted OR = 1.95, 95% CI 1.10–3.46) and increased odds of hospitalisation (adjusted OR 1.65, 95% CI 1.02–2.65).	Decreased (when monitoring weight), increased (when monitoring BP).
López-Liria, 2020 (Spain)	Non-randomised controlled trial (Quasi-experimental)	Patients with CIEDs (unspecified)	60	21 intervention; 34 control	81 ± 7 (Int); 8 ± 6 (control)	31% women	CIED	Automatic	Passive	Not stated	All-cause and condition-specific	Hospitalisations were 19 (90.48) in RM vs 33 (97.06) in control P = 0.323	No significant difference
Lu'thje, 2015 (Germany)	RCT	Patients with CIEDs (unspecified)	15	73 intervention; 82 control	66.0 (± 12.0) (Int); 65.9 (± 12.1) (control)	80.5% male (Int); 74.2% male (control)	CIED	Automatic	Passive	Telephone	Condition-specific	The mean number of ED presentations was not significantly different between the two groups (RPM group 0.10 + 0.25 vs. control group 0.10 + 0.23; P = 0.7295). 20 RPM patients and 22 control patients were hospitalised for worsened HF (no significance test stated).	No significant difference

Lyth, 2019 (Sweden)	Cohort	HF, COPD	12	94	HF: 84 (65–100) COPD: 74 (65–86)	HF: 50% female COPD: 61.1% female	Digital pen and Health Diary System	Manual	Active	SMS	Condition-specific	Hospitalisations was 0.94 for HF and 1.16 for COPD. This was significantly lower than expected, with 67% in the HF group (P<0.001) and 61% in the COPD group (P = 0.003). Mean values for inpatient care and emergency care in HF and COPD significantly lower in observed vs. expected (P<0.001).	Decreased
Martin-Lesende, 2017 (Spain)	Cohort	HF, COPD or other chronic lung disease	12	28	78.9 (7.5)	45.3% male	Smartphone	Manual	Passive	SMS	All-cause and condition-specific	Significant reduction in hospitalisations, from 2.6 admissions/patient in the previous year (SD: 1.6) to 1.1 (SD: 1.5) during the one year RPM follow-up (P<0.001), and ED presentations, from 4.2 (SD: 2.6) to 2.1 (SD: 2.6) (P<0.001) was observed. The LOS was reduced non-significantly from 11.4 to 7.9 days.	Decreased hospitalisations and ED, no significant difference in LOS
McDowell, 2015 (UK)	RCT	COPD	6	48 intervention; 52 control	69.8 (7.1) (Int); 70.2 (7.4) (control)	58.2% female (Int); 54.5% female (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Not stated - ("Contacted patient" but did not specify how)	Not specified	At 6 months there was a higher number of ED presentations, hospitalisations and longer LOS in control group vs. RPM group, but differences were NS (P = 0.40, P = 0.42, P = 0.59 respectively).	No significant difference
McElroy, 2016 (USA)	Cohort	Patients post surgery (cardiac)	1	27 intervention; 416 control	62.9 (9.8) (intervention); 65.9 (14.1) (control)	85.2% male (intervention); 65.9% male (control)	Tablet + peripheral devices	Manual	Active	Telephone, VC	Not specified	Readmission rate for the RPM and control groups were similar (7.4% vs. 9.9%, P = 0.65). LOS 9.1 ± 9.0 vs. RPM 8.7 ± 3.6 P = 0.65.	No significant difference
Milan Manani, 2020 (Italy)	Case-control	Peritoneal dialysis patients	6	35 intervention; 38 control	62.8 (44.7–77.1) (Int); 57.9 (50.0–73.1) (control)	77% male (intervention); 71% male (control)	NS	Both	NS	Not stated	All-cause and condition-specific	Decreased disease-specific hospitalizations (RPM 18.2% versus control 77.8%) (p = 0.022); 4 reasons for ED visits and significantly decreased two: Overhydration, mean ± SD RPM 0.17 ± 0.45bs control 0.66 ± 1.36 P = 0.0421; Exit site infections, mean ± SD RPM 0.17 ± 0.56 vs 0.42 ± 0.85 P = 0.0451.	Decreased
Mirón Rubio, 2018 (Spain)	Cohort	COPD	6	26	78 (7.9)	93% male	Dedicated RPM unit + peripheral devices	Manual	Passive	Telephone, In-person	Not specified	The number of ED presentations decreased by 38%, from 53 visits during control period (in 26 (92.9%) patients; mean 1.89 visits/patient; range 0–6) to 33 visits during RPM period (in 15 (53.6%) patients; mean 1.18 visits/patient; range 0–6, p = 0.03). Fewer hospitalisations or ED presentations during RPM period: only 15 patients (53.6%) vs. 26 (92.8%) patients during control period (RR = 0.58; CI 95% 0.40 – 0.83, P = 0.002).	Decreased
Mizukawa, 2019 (Japan)	RCT	Heart failure	24	15 (Int); 15 (control)	70.5 ± 13.3 (Int); 74.5 ± 12.1 (control)	50% male (intervention); 52.6% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Not stated	All-cause and condition-specific	Rates of readmission for HF were significantly different (P = 0.048), with significant improvement in the CM group, as compared with the UC group (P = 0.020). The hazard ratio for HF readmissions in the CM group versus the UC group was 0.29 (95% CI, 0.09 to 0.92; P = 0.035)	Decreased
Nancarrow, 2016 (Australia)	Cohort	Geriatric	12	200	74.8 ± (8.2)	41.5% male	Tablet + peripheral devices	Manual	Active	VC	Not specified	Self-reported health service use showed decline in ED presentations ($\chi^2 = 14.950$, n = 122; 6 df, P = 0.021); hospitalisation (non-local) ($\chi^2 = 61.44$, n = 118, 12 df, P<0.001). However, there was no significant difference in hospitalisation in the local hospital ($\chi^2 = 21.190$, n = 122; 16 df, P = 0.171).	Decreased ED, no significant difference local hospitalisations
Nouryan, 2019 (USA)	RCT	Heart failure	6	42 intervention; 47 control	81.4 (Int); 84.9 (control)	32% male	Dedicated RPM unit + peripheral devices	Manual	Active	VC, Feedback reports to patient as well	All-cause and condition-specific	38% of RPM patients had ≥1 ED presentation vs. 60% of control (P = 0.04), while 48% of RPM had ≥1 hospitalisation vs. 55% of control (P = 0.47). LOS (days) was 4.0 for RPM vs. 7.4 for control (P = 0.39).	Decreased ED, hospitalisation and LOS not significantly different
Nunes-Ferreira, 2020 (Portugal)	Quasi-experimental	Heart failure	12	25 intervention; 50 control	65.4 ± 9.7 (Int); 64.58 ± 13.73 (control)	32% female (Int); 38% female (control)	Dedicated RPM unit + peripheral devices	Manual	Passive	Not stated	All-cause and condition-specific	RPM significantly reduced HF-related hospitalisation rate (12% vs. 36%, HR 0.29; 95% CI 0.10–0.89; P < 0.05) and all-cause hospitalisations (HR 0.29; 95% CI 0.11–0.75; P < 0.001); Patients in the TM group lost an average of 5.6 days per year compared with 48.8 days in the UC group.	Decreased
Olivari, 2018 (Italy)	RCT	Heart failure	12	229 intervention; 110 control	79.6 ± 6.8 (Int); 80.9 ± 7.3 (control)	61.1% male (Int); 65.4% male (control)	Dedicated RPM unit + peripheral devices	Manual	Passive	Not stated	All-cause	In the RPM and control group respectively, mean LOS of 13.1 ± 16.3 and 16.5 ± 32.0 (P = 0.21) days. Hospitalisations for HF occurred in 161 and 93, with a mean LOS of 13.5 ± 14.2 and 19.0 ± 39.3 (P = 0.20) days, in the RPM and control group, respectively.	No significant difference
Ong, 2016 (USA)	RCT	Heart failure	6	715 intervention; 722 control	73 (62-84) (Int); 74 (63-82) (control)	46.6% (42.9-50.2) female (Int); 47.1% female (42.8-51.4) (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone	All-cause	The RPM and control groups did not differ significantly in readmissions for any cause 180 days after discharge, which occurred in 50.8% (363 of 715) and 49.2% (355 of 722) of patients, respectively (adjusted HR = 1.03; 95% CI 0.88-1.20; P = 0.74).	No significant difference
Orozco-Beltran, 2017 (Spain)	Quasi-experimental	Chronic conditions (unspecified)	12	521	70.4 (10.3)	38.9% female	Tablet	Manual	Passive	Telephone, VC	All-cause and condition-specific	Decrease in ED presentations (98, 18.8% vs. 67, 12.8%; P<0.001). Fewer hospitalisations due to an emergency (105, 20.2% vs. 71, 13.6%; P<0.001) or disease exacerbation (55, 10.5% vs. 42, 8.1%; P<0.001).	Decreased

Pedone, 2015 (Italy)	RCT	Heart failure	6	50 intervention; 46 control	79.9 ± 6.8 (Int); 79.7 ± 7.8 (control)	46.8% male (Int); 30.2% male (control)	Smartphone + peripheral devices	Manual	Active	Telephone	All-cause	Hospitalisations during the 6 months of follow-up: 20 in control group (incidence rate 129/100 person-years, 95% CI = 84–200) and 8 (incidence rate 39/100 person-years, 95% CI = 20–77) in RPM group (IRR = 0.30, 95% CI 0.12–0.67).	Decreased
Pekmezaris, 2019 (USA)	RCT	Heart failure	3	46 intervention; 58 control	58.4 (15.2, 19–93) (Int); 61.1 (15.0, 26–90) (control)	43% female (Int); 40% female (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone, VC	All-cause and condition-specific	Groups did not differ regarding binary ED presentations (RR = 1.37, CI 0.83–2.27), hospitalization (RR = 0.92, CI 0.57–1.48), or length of stay in days (RPM = 0.54 vs. control = 0.91). Number of all-cause hospitalisations was significantly lower for control (RPM = 0.78 vs. control = 0.55; P = 0.03).	No significant difference in binary ED, hospitalisation, or LOS, increased for all-cause hospitalisation
Persson, 2019 (Sweden)	Cohort	HF, COPD	12	53	HF - 83±7 (65–100); COPD - 75±6 (65–86)	54.2% female	Digital pen and Health Diary System	Manual	Passive	Not stated	All-cause	Compared to adjusted hospitalization rates prior inclusion, the intervention significantly reduced hospitalization rates for both groups	Decreased
Piccini, 2016 (USA)	Cohort	Patients with CIEDs (unspecified)	19	34,259 intervention; 58,307 control	69.7 ± 12.7 (Int); 72.6 ± 13.1 (control)	66.1% male (Int); 60.9% male (control)	CIED	Automatic	Passive	Not stated	All-cause	RPM had lower adjusted risk of all-cause hospitalisation (adjusted HR = 0.82; 95% CI 0.80–0.84; P = 0.001) and shorter mean LOS (5.3 days vs. 8.1 days, P < 0.001).	Decreased
Ricci, 2017 (Italy)	Quasi-experimental	Patients with CIEDs (unspecified)	12	102 intervention; 107 control	69.69 ± 10.17 (Int); 68.89 ± 11.46 (control)	84.31% male (Int); 85.98% (control)	CIED + transmitter	Automatic	Passive	Dedicated RM unit message	Condition-specific	More CV-related hospitalisations in control vs. RPM patients (SC: 22 (24.72%) vs. RPM: 7 (8.14%); P = 0.0032); more ED presentations (control: 5 (5.62%) vs. RPM: 0 (0.00%); P = .059); Regarding CV hospitalisations, there was no statistically significant difference in LOS between patients with RPM and control patients (6.6 ± 4.7 days [44 hospitalizations] vs. 6.4 ± 4.8 days [14 hospitalizations], P = 0.8990).	Decreased ED and hospitalisations, no significant difference in LOS
Riley, 2015 (USA)	Cohort	Heart failure	6	45 intervention; 45 control	Of those matched 65.9 (14.7)	Of those matched 48.9% female	Smartphone + peripheral devices	Manual	Active	Not stated	Not specified	Matched cohort saw similar decrease pre/post as RPM saw pre/post. For comparing directly enrolled vs. matched at 30 days post - 0.47 (1.10) vs. 0.56 (0.87); 60 days 1.24 (3.24) vs. 0.87 (1.44); 182 days 1.87 (4.54) vs. 1.22 (1.71). For enrolled vs. matched, at 30 days, time F (1,88) = 43.87, p < 0.0001, time · group = 0.63, p = 0.429; at 90 days, time F (1,88) = 50.87, p < 0.0001, time · group = 0.12, p = 0.727; and at 182 days, time F (1,88) = 45.36, p < 0.0001, time · group = 1.00, p = 0.320.	No significant difference
Ringbæk, 2015 (Denmark)	RCT	COPD	6	141 intervention; 140 control	69.8 (9.0) (Int); 69.4 (10.1) (control)	61% female (Int); 45% female (control)	Tablet + peripheral devices	Manual	Active	VC	Condition-specific	No significant difference found in hospital admissions for COPD between the groups (P = 0.74).	No significant difference
Rosner, 2018 (USA)	Cohort	Patients post surgery (orthopaedic)	3	186 intervention; 372 control;	57.00 (7.32)	50% female	Website	Manual	Active	E-mail	Not specified	90 day hospitalisation rates in baseline and RPM groups were 3.0% (11 of 372) and 1.6% (3 of 186), respectively (RR = 0.545; CI 0.154 - 1.931, P = 0.40).	No significant difference
Sanabria, 2019 (Colombia)	Cohort	Peritoneal dialysis patients	12	360	57±17	44% female	Dedicated RPM unit	Manual	Both	Not stated	Not specified	RPM decreased hospitalization rate (0.36 fewer hospitalizations per patient-year; IRR 0.61 [95% CI 0.39 – 0.95]; p = 0.029) and hospitalization days (6.57 fewer days per patient-year; IRR 0.46 [95% CI 0.23 – 0.92]; p = 0.028).	Decreased
Sardu, 2016 (USA)	RCT	Patients with CIEDs (HF)	12	89 intervention; 94 control	71.8 ± 8.5 (Int); 72.6 ± 5.7 (control)	71.9 male (Int); 79.8% male (control)	CIED	Automatic	Active	Telephone, In-person	Condition-specific	There was a significant difference in hospitalisations (15.7 vs. 28.7, P = 0.02) comparing RPM patients to control group. At multivariate analysis, RPM was the only factor predicting HF hospitalisation (HR = 0.6, 95% CI 0.42–0.79, P = 0.002).	Decreased
Shany, 2017 (Australia)	RCT	COPD	12	11 intervention; 18 control	72.1 ± 7.5 (Int); 74.2 ± 9.0 (control)	48% male (Int); 43% male (control)	Dedicated RPM unit	Manual	Active	Telephone, In-person	Condition-specific	No statistically significant differences were demonstrated for the rate of ED presentations and hospitalisations. However, during the study, being in RPM group was associated with 20% relative reduction in the risk of admission and 14% relative reduction in the risk of ED presentation. Analysed as LOS per admission, there was no significant difference between the control and RPM patients.	No significant difference, though some relative reduction in risk
Sink, 2018 (USA)	RCT - except 17 non-randomised participants	COPD	8	83 intervention; 85 control	59.89 ± 1.09 (Int); 61.94 ± 1.07 (control)	34.9% male (Int); 37.6% male (control)	Smartphone	Manual	Passive	Not stated	Condition-specific	There were significantly fewer COPD-related hospitalisations in RPM group vs. control with 6 and 16, respectively. The absolute RR was 11.6% and the relative RR was 61.7%.	Decreased
Soriano, 2018 (Spain)	RCT	COPD	12	87 intervention; 82 control	71.5 ± 8.0 (Int); 71.3 ± 8.9 (control)	78.3% male (Int); 82.5% male (control)	Telephone	Manual	Passive	SMS	Condition-specific	Shorter mean LOS in RPM group (18.9 ± 16.1 days) compared to the control group (22.4 ± 19.5 days, P = 0.308). There were no statistically significant differences in primary efficacy analysis of the proportion of participants who had a severe exacerbation leading to a hospital admission or ED presentation over the 12-month period (60% in RPM vs. 53.5% in control, P = 0.321).	No significant difference

Srivastava, 2019 (USA)	Cohort	Heart failure	12	197 intervention; 870 control	73.4 (11.14) (Int); 75.4 (11.0) (control)	98.0% male (Int); 97.7% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone	Not specified	A significantly lower total admissions (1.1 vs. 1.6 admissions) and LOS (5.7 vs. 11.3 days) were seen in RPM group compared to the prior year (1.6 vs. 1.7, P<0.05; and 9.5 vs. 14 days, P<0.01, respectively). The RPM group also had a significantly lower LOS vs. control group (9.0 vs. 14.9, P<0.01). However, there was no significant difference in hospitalisations between the RPM group and control group (1.4 vs. 2.0, P<0.07). The number of ED presentations was not significantly different.	Decreased if looking pre-post, no significant difference compared to controls
Stamenova, 2020 (Canada)	RCT	COPD	6	41 intervention; 40 control	71.98 (9.52) (Int); 72.78 (9.16) (control)	44% female (Int); 48% female (control)	Dedicated RPM unit + peripheral devices	Manual	Passive	Telephone	All-cause and condition specific	No significant difference in number of ED visits and hospitalizations during the 6 months preceding enrollment and during their participation in the trial. For COPD-related hospital admissions, there was a decrease but not a statistically significant effect across the 3 groups (P=0.07). No effect for COPD-related ED visits.	No significant difference
Tajstra, 2020 (Poland)	RCT	Patients with CIEDs (HF)	12	299 intervention; 301 control	64.0 (13.0) (Int); 64.0 (12.0) (control)	81.6% male (Int); 80.7% male (control)	CIED + dedicated RPM unit	Automatic	Both	Not stated	Condition-specific	Hospitalization rate due to cardiovascular reasons was higher in control as compared to RPM (45.5% vs 37.1%, P = 0.045).	Decreased
Ten Eyck, 2019 (USA)	Cohort	Heart failure	12	Different levels of "engaged" interventions 8907; 8907 control	73.0 (9.92) (Int); 73.68 (10.6) (control)	46.3% male (Int - engaged); 47.5% male (control - non-engaged)	Tablet + peripheral devices	Manual	Active	Telephone	All-cause	Engaged members who used their Bluetooth-enabled scales an average of 25 or more days per month demonstrated significantly lower post-index acute IP medical service utilisation vs. control group members (P<0.0001). Conversely, engaged members who used their scales ≤ 9 days per month or 9.1 to 18 days per month had significantly higher post-index acute IP medical service utilisation vs. control group (P< 0.0001 and P = 0.008, respectively). Engaged members had a significantly shorter average LOS vs. non-engaged members (4.14 vs. 4.66 days; P< 0.0001).	Decreased
Thomason, 2015 (USA)	Cohort	Heart failure	3	80 intervention; 1276 control	83.75 (SD 8.61) (Int); 81.97 (SD 10.55) (control)	60% female (Int); 60.2% female (control)	Dedicated RPM unit	Manual	Active	Telephone	All-cause	Control group had a 21% all-cause hospital readmission rate vs. RPM group who had a 10% all-cause readmission rate.	Decreased
Trucco, 2019 (Italy)	Cohort	Home-ventilated neuromuscular patients	14	48 intervention; 48 control	16.4 (8.9–22.1) (Int); 15 (9.2–21.5) (control)	62.5% male (Int); 75.0% male (control)	Dedicated RPM unit + peripheral devices	Both	Passive	Telephone, VC	Condition-specific	Hospitalisations were significantly reduced post-RPM patients when compared to pre-RPM (11 vs. 24, P = 0.04) and to controls (11 vs. 21, P = 0.03). Median LOS was significantly lower in RPM patients vs. controls (6 vs. 7 days, P = 0.03). ED presentations were significantly reduced during the RPM trial (from 12 to 2, P<0.05) while hospital admissions were not significantly lower during RPM compared with pre-RPM (from 12 to 9 P>0.05).	Decreased hospitalisations, LOS, ED
Udsen, 2017 (Denmark)	Cluster RCT	COPD	12	578 intervention; 647 control	69.55 (9.36) (Int); 70.33 (9.11) (control)	48.27% male (Int); 43.74% male (control)	Tablet + peripheral devices	Manual	Active	Not stated	Condition-specific	Mean (SE) = Hospital admissions: RPM 2756.1 (463.8) vs. usual care 2753.1 (458.9); ED presentations 343.4 (24.8) vs. usual care 278.3 (21.5); Resource use is consistently higher in the RPM group.	Increased
van den Heuvel, 2020 (Netherlands)	Case-control	Gestational hypertensive disorders	9	103 intervention; 133 control	33.7 (4.6) (Int); 33.1 (4.7) (control)	100% female (maternal study)	Dedicated RPM unit + peripheral devices	Manual	Both	Not stated	Condition-specific	Observational admissions for hypertension or diagnosis/exclusion of suspected preeclampsia were significantly lower in RPM compared to the control group (2.9% vs 13.5% of participants, p = 0.004).	Decreased
Vianello, 2016 (Italy)	RCT	COPD	12	181 intervention; 81 control	75.96 (6.54) (Int); 76.48 (6.16) (control)	72.2% male (Int); 73.1% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone (only home visit for event management)	All-cause and condition-specific	The hospitalization rate for COPD and/or for any cause was not significantly different in the two groups (IRR = 0.89, 95% CI 0.79–1.04, P = 0.16 and IRR = 0.91, 95% CI 0.75 – 1.04); p = 0.16, respectively). The readmission rate for COPD and/or any cause was, however, significantly lower in the RPM group vs. control (IRR = 0.43, 95% CI 0.19–0.98, P = 0.01 and 0.46, 95% CI 0.24–0.89, P = 0.01, respectively). LOS was not significantly different in the two groups.	No significant difference
Wagenaar, 2019 (Netherlands)	RCT	Heart failure	12	150 intervention; 150 control	66.6 ± 11.0 (Int); 66.9 ± 11.6 (control)	75.3% male (Int); 72.7% male (control)	Website	Manual	Passive	Telephone, Website	All-cause and condition-specific	No difference in hospitalisations (RPM vs. UC, 57 vs. 66, HR = 0.85, 95% CI 0.59–1.21).	No significant difference
Walker, 2018 (UK, Estonia, Sweden, Spain, Slovenia)	RCT	COPD	9	154 intervention; 158 control	71.0 (66.0, 75.8) (Int); 71.0 (65.3, 76.0) (control)	65.6% male (Int); 66.5% male (control)	Tablet + peripheral devices	Manual	Passive	Telephone	Not specified	The average LOS for all cause hospitalisations was 4.0 (IQR:1.0 - 9.0) days for control group and 1.0 (IQR:1.0 - 6.7) day for RPM group (P = 0.045). Compared to control, RPM patients who were hospitalised during the trial (n=41 and 45, respectively) were less than half as likely to be re-hospitalised (IRR = 0.46, P = 0.017). There was no difference between groups in the rate of hospitalisation (0.79 vs. 0.99, P = 0.276).	Decreased LOS, no significant difference in hospitalisation

Ware, 2020 (Canada)	Cohort	Heart failure	6	156	58.3 (15.5)	77.8% male	Smartphone + peripheral devices	Manual	Passive	Not stated	All-cause and condition-specific	HF-related hospitalizations decreased from 0.46 (0-4, 0.71) to 0.23 (0-3, 0.51); IRR 0.50 (P<.001). All-cause hospitalizations decreased from 0.64 (0-7, 0.89) to 0.49 (0-6, 0.97); IRR 0.76 (P=.02). LOS & ED visits (HF related and all cause) no significant difference between baseline and 6 months.	Decreased hospitalisations but no change LOS and ED.
White-Williams, 2015 (USA)	Cohort	Heart failure	3	235 intervention; 91 control	77 (Int); 71 (control)	47.7% male (Int); 52.7% male (control)	Remote monitoring system/device (not specified)	Manual	Active	Telephone	Not specified	The results of the tests indicated that there was no statistical significant difference in ED presentations and hospital readmissions between usual care and RPM group (Pearson chi-squared = 0.518 and 0.086, respectively, P > .05).	No significant difference
Williams, 2016 (USA)	Case control	Heart failure	2	105 intervention; 210 control	NR	43.8% male (Int); 46.7% male (control)	Dedicated RPM unit + peripheral devices	Manual	Active	Telephone	Condition-specific	No significant associations between RPM and hospital readmissions, $\chi^2 = (1, n = 210, p\text{-value} = 0.71, \phi = 0.71)$	No significant difference
Zakeri, 2020 (UK)	Cohort	Patients with CIEDs (HF and AF)	34	1561; No AF - 616 interventional; 595 control; Paroxysmal - 57 Intervention, 35 control; PP AF -134 interventional, 124 control	NR	NR	CIED	Automatic	NS	Not stated	All-cause and condition-specific	In patients with persistent/permanent AF, RM increased risk of recurrent cardiovascular (HR 1.40, 95% CI 1.06–1.85, P = 0.018) and HF-related (HR 2.05, 95% CI 1.14–3.69, P = 0.016) hospitalisations; For patients with paroxysmal AF and no AF, there was no difference in the risk of CV or HF-related hospitalisation (as a first or recurrent event) with RPM vs. usual care; When the dataset was truncated after the fifth hospitalisation (n = 103 CV hospitalisations excluded), the positive association between RPM and HF-related hospitalisations for patients with persistent/permanent AF remained statistically significant (HR 1.84, 95% CI 1.07–3.17, P = 0.027), while the association with CV hospitalisations was borderline significant (HR 1.32, 95% CI 1.00–1.75, P = 0.054).	Increased

CI = confidence interval; CIED: cardiovascular implantable electronic device; COPD = chronic obstructive pulmonary disease; CRT-D = cardiac resynchronisation therapy defibrillator; CV = cardiovascular; df= degrees of freedom; ED = emergency department; HF = heart failure; HR = hazard ratio; IBD=inflammatory bowel disease; ICD= implantable cardioverter defibrillator; Int= Intervention/RPM group; IQR = inter-quartile range; IRR = incidence rate ratio; LOS = length of stay; NS = not significant; OR = odds ratio; RCT = randomised controlled trial; RPM = remote patient monitoring; RR = risk ratio or risk reduction; SD = standard deviation