



Chronic Care Management in Discharged Cardiac Patients

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Submitted to:

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The following represents our analysis of three years of cardiac patient discharge data supplied by an Ascension hospital in Alabama and comprised exclusively of patients affiliated with a single cardiology practice. The purpose of the analysis was to estimate the experience of patients' hospital admissions (and readmissions within 30 days) before and after participating in a Chronic Care Management (CCM) or Remote Patient Monitoring (RPM) care strategy. Here are the highlights from our review of discharge data for this patient cohort.

This patient cohort consisted of existing cardiac patients who initially had at least one prior hospitalization attributable to their underlying cardiac condition. This sets the context that this cohort was comprised of sick patients. The patients that were offered additional surveillance via CCIQ ("Intervention Cohort"), were by definition, **part of the sickest 15% of cardiac patients that make up 85% of system costs for cardiac care** (hospital, specialists, pharmacy).

Using crude analysis of differences in admissions over time, there seemed to be **up to a 29% reduction** in all-types hospital admissions from one year to the next after the initiation of CCM.

After adjusting for short-term admissions based on scheduled procedures and using the **most conservative** rules for inclusion, there was still **over an 8% reduction** in hospital admissions in this group that underwent CCM.

Several likely implications of the analysis of this CCM strategy in cardiac patients.

Given that the average cost of **hospital admission** of greater than one day for Acute Myocardial Infarction (AMI) is **\$21,500 over 5.3 days** of average admission (1), and **\$14,631 over 7 days** of admission for Congestive Heart Failure (CHF), it is reasonable to extrapolate these cost savings for these avoided admissions (2).

Similarly, the average cost for **hospital readmission** of greater than one day for AMI is **\$9,424 over 5.7 days** of average readmission, and **\$9,051 over 6.4 days** of readmission for CHF, which would also be extrapolated for the avoided readmissions (3).

A conservative estimate of cost-avoidance in this sickest cohort for AMI was at least \$9,424 per patient per year, and for CHF was \$9,051 per patient per year.

At an annual monitoring cost of **\$403/patient for CCM**, it is possible to estimate the Return on Investment (ROI) of **\$23.4 per \$1** invested per patient-year ($\$9,424 / \403) for AMI and **\$22.5 per \$1** invested per patient-year ($\$9,051 / \403) for CHF, respectively.

Using these measures of ROI, it is possible to estimate the total plan (or systems) savings in routine CCM in the most vulnerable patients (**8 – 29% reduction x number of patients monitored x ROI**).

We expect that this ROI is somewhat lower per patient for less sick patients (85% of cardiac patients), but the overall impact and magnitude of cost reduction would be **greater**.

1: AMI Admission Cost Data AHRQ (2012) <https://www.hcup-us.ahrq.gov/reports/projections/2012-02.pdf>

2: CHF Admission Cost Data Published online 2017 May 10. doi: [10.2147/RMHP.S130341](https://doi.org/10.2147/RMHP.S130341)

3: Readmission Cost Data JAMA. 2017;317(5):530-531. doi:10.1001/jama.2016.20468