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CHARACTERISTICS OF HOSPITAL AND EMERGENCY CARE SUPER-UTILIZERS WITH MULTIPLE CHRONIC CONDITIONS

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☐ **Abstract—Background: Targeted care transitions programs may improve the value of hospital-based health care. Super-utilizing patients with multiple chronic conditions (MCC) are thought to be particularly amenable to care transitions interventions. Objectives: To identify characteristics, future utilization patterns, and health outcomes for super-utilizers with MCC. Methods: Retrospective cohort study of patients receiving care in an urban multi-hospital system in Tennessee over 3 years. Adult patients with Medicaid or Medicare insurance, or both, MCC, and multiple hospitalizations and emergency department (ED) visits in a 6-month period were included. The primary outcome measures were numbers of hospitalizations and ED visits in the 12 months after the 6-month period of high utilization. Secondary outcomes included 30-day readmissions and discharge disposition. Results: Of 1537 super-utilizing patients, 59.0% (n = 907) had at least two targeted chronic conditions. This final study cohort (n = 638) experienced a mean of 3.2 hospitalizations and 2.8 ED visits without hospitalization in the 12-month follow-up period. During follow-up, 26% experienced one or more 30-day readmission(s) within the health care system. Despite their medical complexity, 46% reported not having a regular primary care provider, and 48% had presenting pain scores ≥8/10. Only 1% of the visits to the ED were triaged as nonurgent. Conclusions: Medicare and Medicaid patients with high baseline utilization and MCC experience continued high health care utilization. Patient characteristics, future utilization patterns, and health outcomes suggest the subgroup identified is an important subgroup of super-utilizers that merits attention because they may be particularly amenable to intervention.** © 2016 Elsevier Inc.

☐ **Keywords—care transitions; utilization; multiple chronic conditions; hot-spotting; readmissions**

INTRODUCTION

High-intensity care transitions and care coordination programs targeting "super-utilizers" have the potential to achieve a "Triple Aim" of improved care, better outcomes, and reduced costs (1). Previous research has shown that several types of interventions are effective in improving medication adherence among patients with chronic medical conditions, but few have significantly affected major clinical outcomes (2–4). Care transitions programs may be unsustainable if they fail to recover program costs through reduced overall health care expenditures (5).

Super-utilizing patients with ambulatory care-sensitive chronic conditions, particularly those with multiple chronic conditions (MCC), are thought to be particularly amenable to care transitions interventions

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(6–9). The number of patients with MCC is increasing; currently, 66% of total health care spending is directed toward care for the approximately 27% of Americans with MCC (10). Emergency departments (ED) and hospitals are well positioned to identify community-dwelling patients who may benefit from care transitions programs, and timely referral could add value to the ED care provided (11,12). Referral to care coordination services or transitional care services can even be automated using real-time criteria contained within the electronic medical record (EMR). Communities all across the country, many funded through Centers for Medicare and Medicaid Services (CMS) Health Care Innovation Awards (HCIA), are striving to test new approaches for improving care and outcomes while reducing costs for super-utilizers with MCC (13).

The current study was undertaken in preparation for initiating the CMS HCIA-funded *SafeMed Program*, an innovative care transitions program with a focus on medication management. The *SafeMed Program* targeted community-dwelling super-utilizers of hospital-based services with MCC and without major social risk factors (i.e., severe mental illness, substance abuse, or homelessness)—a subpopulation of super-utilizers was deemed particularly amenable to intervention. This study sought to characterize this high-risk population targeted by *SafeMed*. Specifically, this study sought to determine what percentage of super-utilizers met *SafeMed* inclusion criteria and whether their future utilization patterns and health outcomes indicated potential for benefit from an intensive care transitions intervention with a focus on medication management (1,14).

MATERIALS AND METHODS

Population and Setting

This retrospective cohort study followed patients who met the full enrollment criteria for the CMS HCIA-funded *SafeMed Program*—a care transitions program that aims to reduce hospital readmissions and overall health care costs by improving medication adherence to safe and effective medications—prior to program implementation. The study setting included geographic hotspots for readmission in Memphis, TN served by three hospitals within a single health care system. Figure 1 illustrates our selection criteria. Using EMR data review for the period prior to program initiation, patients selected for this analysis met all of the following inclusion criteria: 1) Age ≥18 years of age; 2) Medicare or Tennessee Medicaid insurance, or both; 3) Index hospital or observation admission in one of the three participating hospitals between July 1, 2010 and December 31, 2011; 4) High hospital-based utilization defined as three or more hospitalizations (inpatient or observation status) or two or more hospitalizations and two or more prior ED visits in a 6-month period, including the index hospitalization; 5) principal discharge diagnosis of one of the following chronic conditions (International Classification of Diseases, Ninth Revision, Clinical Modification [ICD-9-CM] codes listed in Appendix 1): congestive heart failure (CHF), hypertension (HTN), diabetes (DM), coronary artery disease (CAD), or chronic lung disease (CLD); and 6) A diagnosis in the 6 months prior to and including the index admission for at least two of the following chronic conditions: CHF, HTN, DM, CAD, CLD (14). These

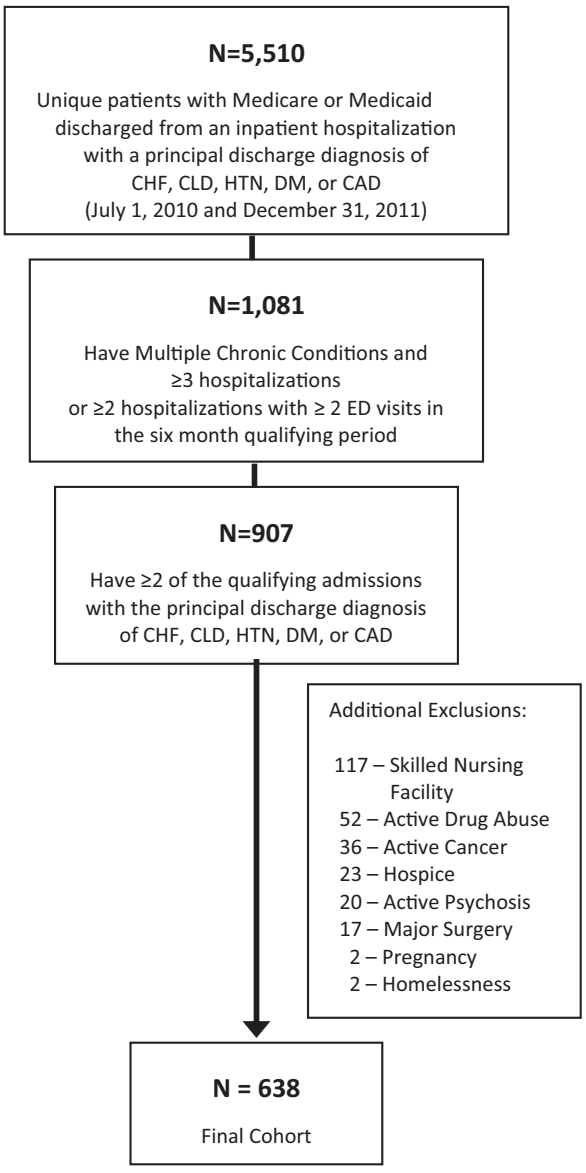

Figure 1. Patient selection criteria. CHF = congestive heart failure; CLD = chronic lung disease; HTN = hypertension; DM = diabetes mellitus; CAD = coronary artery disease; ED = emergency department.