

# The Benefits of Big Health Data – Responding to Chronic Conditions

WHITE PAPER

Health Data Management & Analytics



**Over the next 40 years, the U.S. population age 65 and over will almost double, increasing to 83.7 million**



**Chronic diseases and comorbidities are on the rise, including instances of hypertension and diabetes increasing from 9% to 15%**



**86% of healthcare dollars are spent treating chronic diseases**

Over the next 40 years, the U.S. population age 65 and over is projected to increase to 83.7 million – almost doubling in size since 2012. While the treatment and management of long term conditions such as heart disease, cancer and diabetes has improved, recent analysis shows a growth in chronic conditions for this age group. Measured over a 10 year period, the percentage of adults age 65 and over with both hypertension and diabetes increased from 9% to 15%; prevalence of hypertension and heart disease increased from 18% to 21%; and prevalence of hypertension and cancer increased from 8% to 11%. The Centers for Disease Control and Prevention currently estimates 86% of healthcare dollars are spent on the treatment of chronic diseases. The combination of an aging population and increases in chronic conditions will place greater financial and operational pressure on health services.<sup>1</sup>

## Chronic Condition Warehouse

- ✓ The population aged 65 and over is growing rapidly and will almost double in 40 years.
- ✓ The incidence of chronic diseases in this age group is rising.
- ✓ An estimated 86% of healthcare dollars are spent treating chronic conditions.

**The CCW serves as a secure virtual data source for a variety of health services researchers, health policy analysts and government organizations across the United States.**

## The Chronic Condition Warehouse (CCW) – One of the world's largest healthcare data repositories

The Centers for Medicare and Medicaid Services (CMS) is part of the U.S. Department of Health and Human Services (HHS). CMS works in partnership with state governments to administer the Medicaid program, a social healthcare program for low income families and individuals of all ages. The program also guarantees access to healthcare for over 48 million Americans age 65 and older who have worked and paid into the system as well as for younger people with disabilities. More than 85% of Americans over 65 have been diagnosed with a chronic condition, and the HHS established a strategic initiative to improve this population's health.

In 2003, updates to the Medicare program aimed at better understanding the population's health, health utilization and improving care quality were written into law. In view of

<sup>1</sup> An Aging Nation: The Older Population in the United States, Population Estimates and Projections, by Jennifer M. Ortman, Victoria A. Velkoff, and Howard Hogan, May 2014, P25-1140

### Chronic Condition Warehouse

- ✔ One of the largest sources of healthcare data
- ✔ 315 billion rows of data
- ✔ 10 years and 100 tera-bytes of patient-centric data

these goals, CMS created the Chronic Condition Warehouse (CCW), consisting of CMS Medicare and Medicaid data linked by a unique ID from multiple data sources including primary and secondary care.

The CCW was originally designed to support the research and health policy community, supporting studies aimed at improving the quality of care and reducing healthcare costs. Since 2006, the CCW has expanded the data sets, storage, analytic processing power and access solutions. The secure CCW environment is one of the largest sources of healthcare data in the world, storing 315 billion records and over 100 tera-bytes of patient-centric data encompassing more than 10 years of Medicare and Medicaid program services. Patient event data is now loaded on an ongoing basis empowering users with more timely access to near-real time data. As such, the CCW serves as a secure vital data source for a variety of health services researchers, health policy analysts and government organizations across the United States.

### Virtual Research Data Center

- ✔ Remote access to data for approved organizations
- ✔ Access to data via a secure virtual desktop

### Key Features and Value Added Analytics – Enabling longitudinal analysis of comprehensive healthcare services at the patient and provider levels

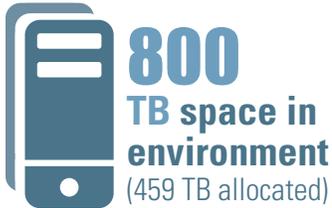
One of the key features of the CCW is the unique identifier assigned to each patient. This identifier is assigned regardless of data source or change in patient key identifiers among disparate inpatient, outpatient and drug event healthcare data sets. The CCW identifier links patients over time and across the continuum of care, enabling longitudinal analysis of comprehensive healthcare services at the patient and provider levels.

Dashboard views are available to further facilitate sorting and categorization of chronic disease by population, geography, spending and national averages. Another key feature of the CCW is the added value of pre-defined and pre-programmed chronic condition indicator flags. Based on a set of diagnosis, procedure, service type and reference period codes, each condition is “flagged” in a CCW summary file for ease of data extraction and analysis of vulnerable populations.

Other critical features and value added functions of the CCW include the ability for near-real time data extracts of inpatient, outpatient and pharmacy data. Most recently, CMS launched the Virtual Research Data Center (VRDC), which allows researchers to access and analyze CMS healthcare data in a secure environment that leverages virtualization technologies attractive to research groups.



## Chronic Condition Warehouse Snapshot



## Health System Assessment and Optimization Tool – A key data resource to assess new service delivery models

In addition to its longstanding central role in healthcare research, recent initiatives implemented have also underscored the importance of the CCW as a key data resource to assess new service delivery models. With numerous new health reform initiatives being introduced within a compressed time frame, U.S. health officials rely heavily on the CCW's data access technologies to support rapid-cycle evaluation activities. The analytic files and reporting tools are critical to evaluate and assess health reform effectiveness and provide actionable feedback to all levels of the U.S. health system's decision makers in supporting the drive towards better information driven healthcare.

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## Empowering Patients with Quality Data

An area for further development is making data more open and easier to translate to meaningful information-driven decisions. Better information enables clinicians to make better decisions with a multifaceted view of the patient history and supports more informed decisions about local population health needs. Information-driven healthcare also empowers patients with access to their personal health data enabling them to make informed decisions about their own care, and develop the knowledge, skills and confidence to manage their long-term chronic conditions more effectively.

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## General Dynamics Information Technology and the Chronic Condition Warehouse

General Dynamics Health Solutions developed and maintains the CCW and VRDC and is an experienced integrator of complex health systems which empower healthcare providers with secure access to electronic information. We work with organizations to exchange and share health data in meaningful ways, enabling data to become interconnected information that plays a critical role in improving the quality of care and balancing the cost of healthcare delivery.

Our end-to-end health solutions – which expand insight, improve outcomes, drive efficiency and reduce risk – include:



Health Data Management & Analytics



Multi-Channel Health Communications



Health Facility Outfitting & Logistics



Clinical Staffing & Medical Research Services



Healthcare Administrative Services



IT Services & Infrastructure

### About General Dynamics Information Technology

As a trusted systems integrator for more than 50 years, General Dynamics Information Technology provides information technology (IT), systems engineering, professional services and simulation and training to customers in the defense, federal civilian government, health, homeland security, intelligence, state and local government and commercial sectors. Headquartered in Fairfax, Va., with major offices worldwide, the company delivers IT enterprise solutions, manages large-scale, mission-critical IT programs and provides mission support services. General Dynamics Information Technology is one of four business units of the General Dynamics Information Systems and Technology business segment.

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