Appendix #4

3M Clinical Risk Groups (CRGs) for Classification of Chronically Ill Children and Adults

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Technical Summary

DESCRIPTION

Clinical Risk Groups (CRGs) are a clinically based categorical classification system that uses administrative data to identify children and adults with chronic health conditions. Proprietary software is used with claims and encounter records to group individuals into mutually exclusive, clinically-based categories. These categories comprise specific conditions or combinations of conditions as well as the associated severity of those conditions or combinations of conditions.

Individuals without chronic conditions are either assigned to a healthy group or, if they have a recent history of one of a set of serious acute conditions, to a significant acute group. While a complete claims history is optimal, CRGs can work with any amount of data. For payment purposes, a methodology is available which helps compensate for abbreviated enrollment histories.

CRGs were designed with four uses in mind:

1. Tracking congenital/chronic disease prevalence rates;

2. Profiling health service utilization and physician practice patterns;

3. Pricing and capitation risk adjustment;

4. Linkage to measures of patient satisfaction and experience of care for quality monitoring.

The classification system is intended for use across the healthcare delivery system. This includes, but is not limited to, planners, payers, providers, case and disease managers, etc.

CRGs differ from other risk adjustment methodologies in that each individual in a population is assigned to a single, clinically defined, severity adjusted, mutually exclusive group. This distinction is most apparent in how CRGs treat co-morbid conditions and differences within a single disease. Other risk adjustment methodologies assign multiple groups to individuals with co-morbid conditions or assign a single group based on the most expensive observed condition. CRGs also differ from other methodologies by recognizing the gradations of illness within a disease by explicitly assigning severity of illness levels to all chronic conditions and diseases. These characteristics allow individuals to be tracked and observed at multiple points in time for the purposes of measuring the impact of expenditures, the utilization of services, case management, and other indicators of care quality on clinical outcomes.

Conceptual approach
The CRG classification system employs a combination of diagnosis-based and consequences-based criteria to identify adults and children with ongoing or chronic health conditions. CRGs also make allowances for a subset of health conditions designated as "significant acute" which place individuals at-risk for increased health service needs in the future.

The presence of specific ICD-9 diagnostic codes, a limited number of procedure codes, the recurrence and recency of specified conditions, and numerous other factors are simultaneously taken into account to assign each individual to a single group.

Definitional criteria
The core of CRGs lies in its ability to identify and classify chronic conditions. The CRG definition of a chronic health condition has three components: a) physical, mental, emotional, behavioral, or developmental disorder; b) expected

to last at least 12 months or having sequelae lasting 12 months or longer; and c) requires ongoing treatment and/or monitoring.

The CRG classification system reads all diagnosis codes from claim and other encounter data. Each code is assigned to a body system first, and then to a diagnostic category. These diagnostic categories are classified as chronic or acute conditions with distinctions made within each condition based on clinical significance. Using diagnostic category assignments and a specified clinical logic, each individual's chronic conditions are identified and assigned a severity level. Depending upon the type and number of chronic conditions, each individual is assigned to a hierarchically defined core health status group, then to a specific CRG group and if chronically ill, to a severity level. If the individual has no chronic conditions, he or she is assigned either to the healthy group or one of the significant acute groups.

The CRG severity assignment algorithm is specific to each chronic condition category and takes into account a variety of factors associated with a more severe or advanced form of the condition. These include:

➢ A more severe form of the chronic condition as identifiable through ICD-9-CM diagnoses codes;

➢ Co-morbid chronic and acute conditions from the same body system;

➢ Co-morbid chronic conditions from other body systems when they are secondary to, and caused by what is judged to be the primary chronic condition;

➢ Acute illnesses from other body systems when specifically related to the chronic condition or an indicator of general health status;

➢ Age, if it relates to a specific disease progression and is relevant;

➢ Selected therapies and service utilization including hospitalization;

➢ The recency of the diagnosis (e.g., during last six months) where appropriate;

➢ The recurrence of a diagnosis (e.g., multiple encounters spanning 90 or 180 days) where appropriate.

BACKGROUND

The developers of CRGs integrated two systems: the Episode Grouper created by 3M Health Information Systems and the Classification of Congenital and Chronic Health Conditions designed by the NACHRI–the National Association of Children's Hospitals and Related Institutions.

The development of CRGs was accomplished in four phases. First, the overall CRGs architecture was designed through a process of expert review and consensus. The criteria for the algorithm for assigning a CRG were strictly clinical with an emphasis the ability to identify individuals with disease in multiple organ systems and to explicitly specify the severity of illness.

Once the overall CRG algorithm was established, the actual clinical parameters for classifying diagnoses and procedures were specified. The assignment of diagnoses and procedures was based on their expected impact on an individual's future medical care needs, and the likelihood of morbidity or mortality. Two clinical teams, working independently, established the initial parameters for adults and children.

The clinical parameters were then tested in databases from Medicare, Medicaid, and commercially insured populations. In the final phase, the CRG algorithms developed by the clinical staffs focusing on adult and pediatric populations were unified to create the full logic of the CRGs.[1]

Since the CRGs require clinical information, the targeted population should be continuously enrolled for a period of time in a health plan or other program that

collects such data. Once identified, it is possible to stratify individual children and adults according to severity level and chronic condition status. These results can be used to profile diagnostic and utilization patterns, identify candidates for case management, predict resource requirements for the purposes of setting risk adjusted pricing, estimate and track prevalence, and monitor quality through linking to patient surveys and other data sources.

TESTING AND USE HISTORY

Testing
Three databases were used in the testing and refinement of the CRG classification system:

> ➢ A two-year claims database from the State of Washington Medicaid program with approximately 250,000 recipients, age 0 to 64;

> ➢ A four-year Medicare claims database with approximately 1,250,000 recipients, primarily over age 65;

> ➢ A four-year private sector claims database of adults and their dependents with approximately 250,000 recipients, age 0 to 64.

The utility of CRGs for risk adjustment purposes was established through comparison to other health status grouper systems, including the Disability Payment System (DPS), the Ambulatory Care Groups (ACGs), and the Diagnostic Cost Groups (DCGs).[2]

Additional information regarding the testing and development of CRGs can be found in the article, published in *Ambulatory Pediatrics*, and included in this appendix.[3]

Proportion identified

CRGs were used recently to analyze the administrative records from calendar year 1999 for the child population (age 0 to 18) in a mixed model health plan.[4] All lines of business (e.g., managed care, fee-for-service, Medicaid, and private sector) were included. Among the 27,771 children having one or more claims, 12 percent were identified by CRGs as having chronic health conditions, 6.5 percent were assigned significant acute status, and remaining 81.6 percent were classified as healthy. Approximately 20 percent of the 34,544 eligible children had no claims recorded during 1999.

In a study of 253,621 Washington State Medicaid fee-for-service enrollees age 0 to 64, 10 percent were classified by CRGs as having one or more significant acute conditions and 19 percent with a chronic medical diagnosis.[5] Included in the denominator are individuals for whom no claims were recorded. These results are for a non-institutionalized population and do not include Medicare/ Medicaid dual eligibles. No age stratified results are available for dissemination at this time.

Comparable published studies using adult data are not currently available.

Use History

CRGs have been demonstrated and evaluated in the United State and Canada since the release of the software in 2000. Over two dozen demonstration licenses have been extended to users in a wide range of sites for a variety of purposes. The software is being purchased by users in HMO, physician groups, and case/disease management settings.

In addition to describing the diagnostic profile of pediatric populations,[3] CRGs have been used in published research both to examine racial and ethnic variations among children with special health care needs[6] and to compare results from survey-based screening methods.[4,7]

Although no published studies on the use of CRGs in adult populations are currently available, several studies are under review in refereed journals.

Unpublished data do exist, however. The CRG classification system was recently used in a Medicaid population as part of a pilot study for an adult version of the CSHCN Screener.[8] The study sample was predominately females (92%) between the age of 18 and 45 enrolled in Medicaid managed care in the State of Ohio through the Temporary Aid to Needy Families (TANF) program (n = 2,058). Of those with claims recorded, 26 percent were identified as having a chronic health condition by CRGs, and approximately 10 percent were classified as "significant acute." Ten percent of the total sample had no claims recorded. Additional results from this study are presented in Appendix 3.

Ongoing study with CRGs includes their use with administrative data to identify children with special health care needs who are candidates for case management services.[9]

AVAILABILITY and COST

The CRG software is available for a fee from 3M Health Information Systems (3M HIS). For sales assistance, go to their web site at http://www.3mhis.com/us/products/crg .

TECHNICAL SUPPORT

A detailed user's manual accompanies the CRG software with ongoing technical support provided by 3M HIS staff.

OTHER CONSIDERATIONS

The potential exists to link CRG clinical classifications and survey-based screening tool and/or patient survey results. This methodology would provide additional information about individuals with special health care needs. Several studies are currently underway to examine how these methodologies might be combined and the resulting data used for case management, quality monitoring, or other applications.

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