Developing nations can gain from better bundled-payment information

Revamped pricing standards lead to improved delivery of healthcare

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Developing nations often lack accurate information on the cost and use of their healthcare systems. In that situation, if they attempt to use bundled-payment rates (also referred to as DRGs–diagnosis-related groups or package rates), much is left to the imagination when trying to construct these payment rates. However, a thoughtful methodology that involves input from all stakeholders can help national insurance agencies get a much better handle on healthcare costs. With improved representation of the true costs of DRGs or package rates, developing countries can ultimately deliver more efficient care.

Many governments in developing countries are in the process of trying to expand social insurance schemes for rapidly growing populations, making the process of systematizing DRGs all the more critical. The challenge is how to control costs and come up with an agreed-upon pricing structure among providers and payers. DRGs potentially make it easier to manage the cost of large health systems, but only if there is first an agreement on pricing among providers. All stakeholders must have a say in this common standard for it to have a chance of working.

Milliman recently worked with Ghana's National Health Insurance Authority to conduct an assessment of the country's DRG system by reviewing the existing tariffs and recommending new tariffs where appropriate. For Ghana, which uses diagnosis-related groups (locally referred to as G-DRG) to determine bundled-payment rates, the objectives were to simplify the fee system, increase transparency, and ensure that the DRGs developed were consistent with Ghana's standards of treatment.

The framework and tools used in standardizing Ghana's DRGs can be easily adapted and used in other developing countries, regardless of what type of classification system they use to bundle payments. For insurance schemes and policymakers, the method and processes adopted for this project provide an effective way to accomplish the task of setting up a DRG system where there is little data.

Ghana is situated in West Africa on the Gulf of Guinea, a few degrees north of the equator. It had a population of 25 million in 2012 according to the CIA World Factbook. The country's economic success in recent years has been a mixed blessing. Gross domestic product grew at an estimated 14% in 2011 and 8% in 2010. All the growth has lifted the nation's economic status to lower middle income, meaning less foreign financial aid, so government agencies like Ghana's NHIA are looking to become more efficient to manage costs.

THE DRG INFORMATION GAP OF DEVELOPING NATIONS

Developing nations present several challenges when it comes to creating their DRGs or analyzing the adequacy of a current system. The primary challenges are that data are scant and markets are unorganized. Also, reimbursement mechanisms often are not transparent. The range of quality of care is much greater than that found in industrialized countries, with low-level facilities lacking basic equipment such as workstation computers. DRG costs are based more on what payers think is right rather than on empirical or standardized data. Probably the biggest problem is that these countries lack the reliable insurance claims data used in developed nations to build and assign costs to DRGs.

This information gap has real consequences: For example, a hospital that is not getting reimbursed for its true cost of DRG such as major abdominal surgery may turn those patients away. In other cases, hospitals will start to use DRGs that pay them more.

FIGURE 1: KEY MESSAGES

- Developing countries can readily adopt the described methodology to reorganize and re-price bundled-payment rates
- Methodology must include participation of all stakeholders
- Bundle-payment rates closer to true costs leads to more efficient healthcare delivery

Excessive overutilization or monitoring by scheme administrators leads to higher costs, threatening the objective of universal healthcare. To solve the problem, the DRG cost must be *built* from the ground up by looking carefully at the costs of the various components of care contained in each DRG. This must be done locally so that there is no mismatch and variation between the actual patients' treatments and the expected treatments represented in the DRGs. In addition, the tariffs should reflect appropriate severity mix and encourage efficiency and optimal care by providers.

METHODOLOGY OF A DRG REVAMP

The consultants conducted a comprehensive analysis of the current operations and processes of the Ghana health system. Representatives of the NHIA and the various provider groups were viewed as stakeholders from the start. This was in the hope that by working collaboratively, all stakeholders would buy into the changes. Before the study, a stakeholder workshop was held to share the methodology with providers and the health insurance personnel for Ghana. The consulting team also reviewed available documents on methodology used for the previous G-DRG development in Ghana in 2008 and looked at secondary research of similar projects in other countries.

The consultant consortium included international reimbursement experts as well as a local consulting group. The latter was extremely important in order to facilitate the field surveys and other data collection processes. The field surveys employed about 40 paid workers who visited 192 hospitals in November and December of 2011. The surveys were used to gather information regarding the cost and use of services and the clinical practice of the hospitals, physicians and others delivering medical services in Ghana. Financial statements were used to help identify other costs. The plan was to use a broad scope of personnel to gather the most representative sample possible. The information collected included clinical data, utilization data, supply price lists, annual reports, financial statements and answers to questionnaires. The data were captured with various tools that were created for the purpose of standardizing data collection and streamlining the data's use.

CHALLENGES OF CHANGING THE STATUS QUO

In most developing countries, getting stakeholders to participate is a considerable obstacle. Care must be taken to reach the right people in the hierarchy of a medical system, asking the right questions and seeking the right reports. As mentioned previously, we believe that using a local organization for facilitating logistics, coordinating stakeholder involvement, and disseminating information and data collection is very important.

Not unexpectedly, the surveyors encountered several challenges. Data on clinical collection tools from providers were incomplete. We found that in most cases there was no central source at hospitals for data collection. There were significant gaps and inconsistencies in the information received, and insufficient details in financial reports to estimate indirect costs for different departments. Some providers were reluctant to share financial details and information. Sometimes surveyors were restricted from access to the appropriate people in hospitals, hindering data collection. Labor strikes during the field survey reduced access to doctors to a degree.

To help overcome the obstacles, the consultants worked with the local organization in identifying and enlisting a core group of experts, again consisting of stakeholders such as public health professionals, urgent care personnel, primary care physicians and hospital administrators. This core group was used to help supply data or opinions when the data was incomplete or missing entirely. The core group helped fill in gaps but also helped to validate analyses and results. Some of the types of data that the core group provided were the relativities for the severity mix of diagnoses covered by a DRG, the frequency mix of the diagnoses within each DRG and cost differentials of the treatments required for the diagnoses within a DRG. The group also factored in surgical complexity and consumables, anesthesia units and prices for certain services. The consulting team tapped other resources, such as Ghana's national and community health data systems, and international resources such as Standard Treatment Guidelines, the U.S. DRGs, and the U.K. Clinical Coding & Schedule Development Group, as well as investigation and consumable tariffs from other developing countries.

DRG DEVELOPMENT AND DATA COLLECTION

The consultants determined the components used for treatment of conditions within each DRG. For inpatient they were (1) indirect cost per day for inpatient care in the ward, (2) investigations, (3) intensive care consumables cost per day, if any, (4) surgical supplies cost, (5) ward consumables and (6) anesthesia. For outpatient care it was the indirect costs for a physician visit and the associated investigations for the types of cases covered by each outpatient DRG. A clinical data collection tool was developed for a single principal diagnosis within each inpatient DRG based on evidence-based recommendations, standard treatment guidelines and clinical expertise. The tool lists components of

FIGURE 2: OVERALL METHODOLOGY

clinical care that is expected and reasonable for a person treated under that DRG, such as length of stay, expected investigations and usual consumables as outlined above. The clinical data collection tool also includes a severity classification and its incidence as provided by the core group of experts.

While the units of various components could be collected from clinicians, identifying the cost of each component warranted data collection from hospital finance and purchase departments. The method of collecting per unit cost data varied by hospital in Ghana, since each institution had its own way of purchasing, whether by a committee or individual. The team also had to adjust for the tendency of providers to declare higher prices than what was really the case, as their future receipts would be based on data collected. To fill in some of the gaps in the data, we supplemented the information with independent surveys of what hospitals typically report in other countries. To adjust for price differences among countries, we compared the relative cost difference of DRGs within a country with the relative cost difference of those same DRGs in Ghana.

Local data was critical. In developing countries, health systems cannot simply adopt the DRG template of a Western nation such as the United States or United Kingdom. DRGs must be based on the local tendencies and disease burden. For example, in Ghana, major infectious diseases include food and waterborne diseases such as diarrhea, hepatitis A and typhoid fever and vector-borne diseases such as malaria.

COST ANALYSIS

The team broke down the cost of each DRG into units, based on direct costs and indirect costs from self-reporting. Direct costs included investigations and consumables for the ward, as well as those for surgery, anesthesia and the intensive care unit. For example, for an external hernia repair, ward consumables included everything from adhesive plaster rolls to cotton swab packs to eye shields to face masks. Investigations included an abdominal scan, various blood screenings and bleeding/clotting time. ICU consumables had items such as syringes, pressure bandages, surgical blades and disposable gowns.

For outpatient tariff calculation, we analyzed the components of care for the most frequent reasons for outpatient visits, expected number of visits for each diagnosis and relative incidence of these visits at each provider type. We used the relative incidence and the optimal care investigations and consumables that should be utilized based on core group expert opinion and standard treatment guidelines in Ghana.

The core experts and best practice benchmarks helped supplement information on utilization, and benchmark hospitals provided extra data on surgery, ICU and anaesthesia. This led to calculation of an average of reported prices per unit for investigations and consumables. It was important to ensure that the components of care reflect optimal quality of care, i.e., that they include components and services that *should* be used rather that what is *currently* used.

Indirect costs included wages, utilities, capital equipment and maintenance, administration and housekeeping. Catering costs for food and other materials were also considered. To collect this data, the team also relied on financial statements and annual reports of 27 provider groups. These indirect costs were used to estimate the per-day ward cost by estimating the number of days of care supplied by the hospital and dividing that into the overall ward costs.

The team then calculated the total cost per case of the combined components of care based on the use and expense data collected. This allowed us to tabulate the costs for one principle diagnosis in each DRG. We then factored in relativities and adjustments for the diagnosis mix—the incidence of different diagnoses within a DRG and cost differentials. All of this information allowed for setting of an overall tariff for a given DRG. This exercise was repeated for all inpatient DRGs for each provider category.

When we were finished, we had a master list of prices for the various cost elements in the model. These could then be bundled together to formulate the whole price of each DRG. Any change in tariffs will have implications on the claim payouts and therefore the

FIGURE 3: CLINICAL DATA COLLECTION TOOL

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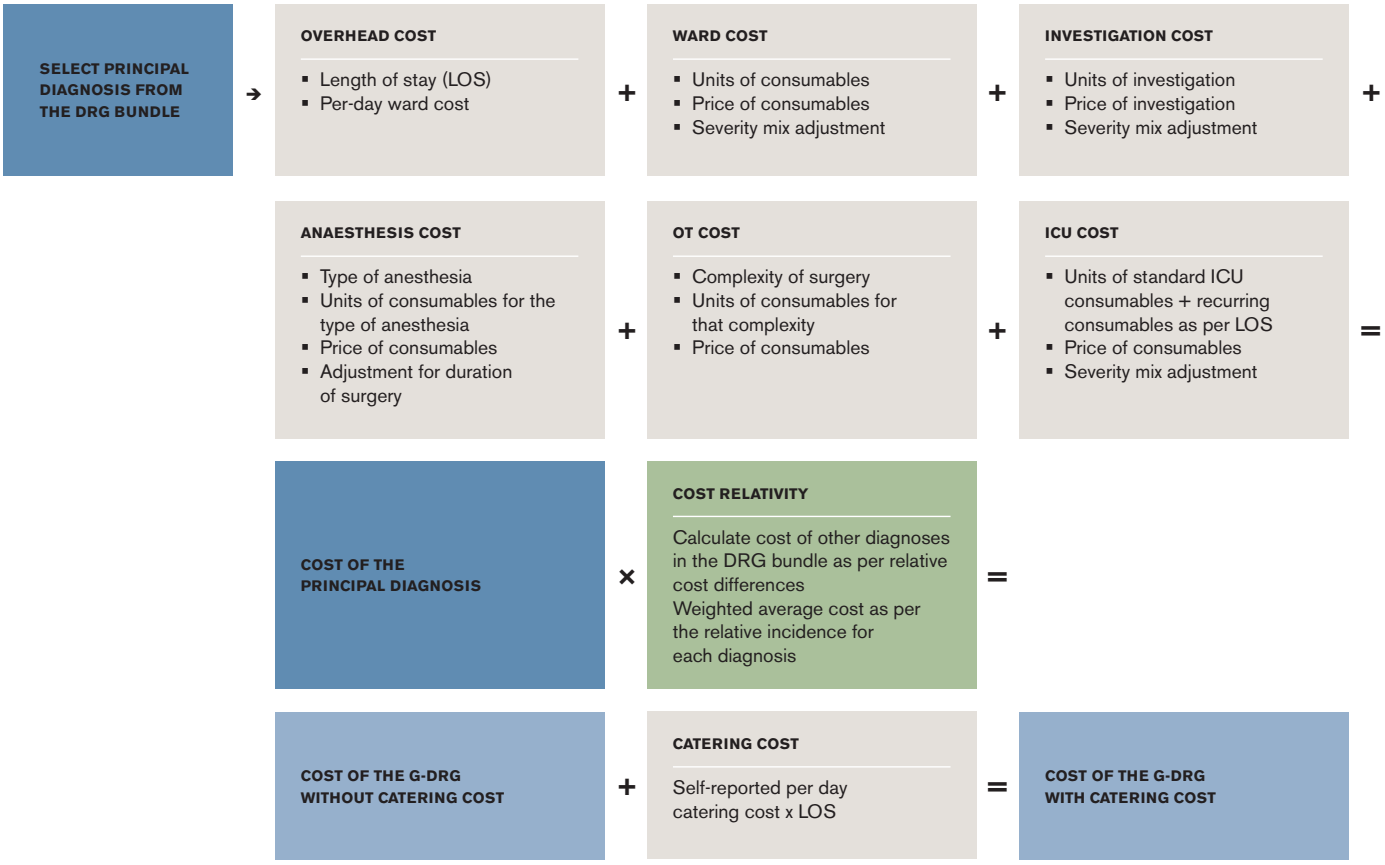
FIGURE 4: CALCULATION OF DRG TARIFF: KEY STEPS



budgets available to the scheme administrators. We estimated the cost implications of tariff revisions based on past claims frequency for different providers. This has an important bearing on anticipating the overall financial impact and the need to apply any relativity-based discounting to a level that is affordable within the scheme budget.

The consultants then tested the resulting DRGs using other published DRG information, market reference sources and benchmarks. Adjustments were made to make sure the information better reflected many sources rather than just self-reported information.

MORE ACCURACY, BETTER SERVICE

As a result of the study, a number of modifications were made to Ghana's DRG list. Eight DRGs were combined into four, and 12 new DRGs were added. Operational changes have been made, such as for multiple procedure claims or use of implants. More than 50 investigations that are used in Ghana have been added that previously did not have an unbundled fee. Tariffs have been standardized for Ghana's 611 inpatient and outpatient DRGs across 11 major diagnostic categories.

The greater transparency and the enhanced clinical structure will allow Ghana's NHIA to thoughtfully modify the Ghana-DRGs in the future. The clinically based DRG relativities are based on a sound clinical framework, as they reflect treatment patterns and infrastructure available in Ghana, as well as international treatment protocols. This should aid in their understandability and acceptance. Overall, the greater transparency will allow the NHIA to better control costs and ultimately deliver better care to its citizens.

Countries, insurance schemes and policymakers can benefit by applying a systematic approach to getting a better handle on the true costs underlying bundled-payment rates such as DRGs.

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