DRGs – Diagnosis Related Groups

Discussion document
July 2007
Context

- **Currently, hospitals get paid on a fee-for-service basis using a published price list**
  - There are package prices for consultations and for days spent in a hospital bed
  - There is a price for many [not all] procedures. The procedures are described by a *current procedure terminology* [CPT] code
  - There are discounts on the price list specific to individual hospitals
  - There are additional discounts on the price list which are specific to insurance plans

- **The current system is confusing, complex and has the wrong incentives**
  - Confusing: many different prices, yet for some procedures there are no prices; Prices are not based on costs; Claims are completely separate from medical records.
  - Complex: A claim may consist of dozens of different services and procedures
  - Wrong incentives: A hospital that does unnecessary lab tests gets more money than one that focuses on what’s needed. A hospital that delivers efficient care doesn’t get rewarded. A hospital that provides good patient care doesn’t get rewarded.

- **We are moving to a DRG payment system, which addresses the current problems**
  - Charge a lump fee for each patient encounter, not for each service within an encounter – called a 'DRG‘ for inpatients and flat fee for PHC and outpatient attendances
  - Base claims on medical records data rather than redo work in finance in parallel – the medical records departments are already coding 'DRGs‘!

*Source* Health Statistics Analysis

This document explains what DRGs are and how they are used.
Contents

• Overview of DRGs
• Grouper
• Diagnosis
• Procedure

Source Health Statistics Analysis
What’s involved in generating a DRG for a patient

Clinician treats patient

Medical record is updated

Coders code diagnoses and procedures

Coders assign DRG to patient using a Grouper

**Diagnosis**
- 820.22 Closed Fracture of Subtrochanteric section, Neck of femur (primary)
- E885.9 Fall on same level

**Procedures**
- 79.35 Open reduction of fracture with internal fixation of femur (primary)
- 93.39 Physical Therapy

Source: Health Statistics Analysis
A DRG system has three elements

1. A list of about 500 different lump-sum prices or „price groups“ for inpatient encounters. The price groups are very sophisticated, because they group encounters, which
   – Have similar diagnoses, hence Diagnosis-Related Groups [DRG]
   – Have similar costs – otherwise, it wouldn’t be a fair price system; in fact, in some places, DRGs are called HRGs Healthcare resource groups, to make this point

2. A piece of software called a grouper which takes medical information for each patient encounter, and then automatically assigns the appropriate price [DRG] for a particular inpatient encounter

3. Medical coders who input standardised medical information into the grouper to assign the appropriate DRG
   – Information about what’s wrong with the patient – the diagnosis established
   – Information about how the patient was treated – the procedures performed

Source Health Statistics Analysis
What are the DRGs?

103 Surg Card Heart Transplant
104 Cardiac Valve & Oth Major Cardiothoracic Proc W Card Cath
105 Cardiac Valve & Oth Major Cardiothoracic Proc W/O Card Cath
There are some important technical choices to make now

**Description of the choice**

- **Grouper**
  - Even when the diagnosis and procedures are provided in a standard format, there are different groupers which create DRGs with different characteristics.

- **Diagnosis**
  - There needs to be a standard and comparable way of describing the diagnosis. Generally, people use some version of the WHO’s international classification of diseases [ICD].

- **Procedure**
  - There needs to be a standard way of describing the different procedures that could be done with patients. Many different systems exist.

**Options**

- **Grouper**
  - Using ICD-9CM diagnoses and ICD-9CM procedures
    - CMS-DRG
    - RDRG
    - AP-DRG
    - APR-DRG
    - IR-DRG

- **Diagnosis**
  - ICD-9
  - ICD-9CM
  - ICD-10WHO
  - ICD-10AM

- **Procedure**
  - ICD-9CM procedures
    - CPT
    - OPCS
    - Etc.
The current situation is confused

- The Fee-for-service price list has *wrongly and confusingly* been called the „DRG price list“
- Finance is currently making insurance claims based on this price list, i.e., using CPT procedure codes
- Medical records departments have been using ICD-9CM diagnoses, ICD-9CM procedure codes and 3M‘s Grouper to code real APR-DRGs. This information, however, has not been used for claims at all

*Source* Health Statistics Analysis
Proposed next steps

- Don’t call the fee-for-service price list „DRG price list“
- Continue to use 3M’s software but code IR-DRGs rather than APR-DRGs in medical records
- Make insurance claims on the basis of DRG provided by medical records
- Collect cost data for individual patient encounters, so the prices for DRGs can be updated on the basis of costs in future

- Continue coding inpatients using ICD-9CM diagnoses in medical records

- Code ICD-9CM procedure codes
- Consider also coding CPT codes, with a view to switching to CPT in future

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How is the Grouper developed?

1. **Collect Diagnoses, procedures and cost of individual encounters**
   - Requires activity-based costing

2. **Create rules to group encounters into DRGs**
   - Diagnosis
   - Cost

3. **Calculate price of DRG, so-called cost weight**
   - Very important to update regularly – straightforward, if cost data is available
   - Very demanding technically; not needed frequently

*Source: Health Statistics Analysis*
**Groupers**

- Several groupers are commercially available, that were developed in other countries

<table>
<thead>
<tr>
<th>Grouper</th>
<th>CMS-DRG</th>
<th>All Patient DRG</th>
<th>All Patient Refined DRG</th>
<th>International Refined DRG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-installed</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deals with babies</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Has severity adjustment</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Optimised for international use</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Permissive of poor coding</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Compatible with different diagnosis/procedure classifications</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
</tbody>
</table>

- They can be used here *as is*, but the cost weights should be updated rapidly, to ensure prices are fair and reflect the Abu Dhabi context

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### Diagnosis classification

- Multiple diagnosis classifications exist, and different versions are used in different places.
- Migrating between classifications is very time-consuming and requires a strong rationale, particularly if the grouper is compatible with different classifications.

<table>
<thead>
<tr>
<th>Diagnosis Classification</th>
<th>ICD-9</th>
<th>ICD-10 AM</th>
<th>ICD-10 WHO</th>
<th>ICD-10 CA</th>
<th>ICD9-CM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used in Abu Dhabi</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Used in Dubai</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used in KSA</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Used in USA</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Useful for clinical decision-making</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Useful for strategic decision-making</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Useful for mortality</td>
<td>(+)</td>
<td>(+)</td>
<td>+</td>
<td>(+)</td>
<td>(+)</td>
</tr>
</tbody>
</table>

**Source**: Health Statistics Analysis
What does an ICD-9CM *diagnosis* look like?

3 1 5 . 0 9  Specific delays in development, reading disorder with spelling difficulty

First 3 digits describe the **disease type** or organ system (e.g., Mental Disorders (219-319). In this case, “315” refers to “Specific delays in development”.

First digit after the decimal specifies a **sub classification** of the main diagnosis. In this case “0” specifies “reading disorders”, while “1” would specify “arithmetic disorder”, and “2” would specify “other specific learning difficulty.”

Second digit after the decimal point specifies the **diagnosis even further**. In this case, a “0” indicates an “unspecified reading disorder”, a “1” indicates “alexia”, a “2” indicates “development dyslexia”, and a “9” indicates “other”, such as a specific spelling difficulty.

*Source* Health Statistics Analysis
Overview of the ICD–9CM Classification

001-139 Infectious and Parasitic Diseases
140-239 Neoplasms
240-279 Endocrine, Nutritional and Metabolic Diseases
280-289 Diseases of the Blood and Blood-forming Organs
290-319 Mental Disorders
320-389 Diseases of the Nervous System and Sense Organs
390-459 Diseases of the Circulatory System
460-519 Diseases of the Respiratory System
520-579 Diseases of the Digestive System
580-589 Diseases of the Genitourinary System
630-676 Complications of Pregnancy, Childbirth, and the Puerperium
680-709 Diseases of the Skin and Subcutaneous Tissue
710-739 Diseases of the Musculoskeletal System & Connective Tissue
740-759 Congenital Anomalies
760-779 Certain Conditions Originating in the Perinatal Period
780-799 Symptoms, Signs and Ill-defined Conditions
800-999 Injury and Poisoning
E800-E999 Supplementary Classification of the External Causes of Injury and Poisoning
V01-V82 Supplementary Classification of factors influencing Health Status and Contact with Health Services

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Procedure classifications

• It would be ideal to use only one procedure classification system for Abu Dhabi
• In the short run, it would be imprudent to change inpatient procedures to CPT, as this would prohibit rapid introduction of DRGs
• In the long run, there may be an argument to move towards CPT codes

<table>
<thead>
<tr>
<th>Procedure Classification</th>
<th>ICD-9CM</th>
<th>CPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used in medical records Abu Dhabi</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Used for claims in Abu Dhabi</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Optimised for inpatients</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Optimised for outpatients</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Works with APR-DRGs</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Works with IR-DRGs</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Number of procedures</td>
<td>&gt;3’600</td>
<td>&gt;10’700</td>
</tr>
</tbody>
</table>

Source: Health Statistics Analysis
What does an ICD-9CM *procedure* look like?

4 7 . 0 1  Appendectomy, laparoscopic

First 2 digits describe the **procedure type** (e.g., operation on the digestive system (42-54). In this case, “47” refers to “operations on appendix”.

First digit after the decimal specifies a **sub classification** of the main procedure. In this case “0” specifies “appendectomy”, while “1” would specify “incidental appendectomy”, “2” would specify “drainage of appendiceal abscess” and “9” would specify “other operations on appendix”.

Second digit after the decimal point specifies the **procedure even further**. In this case, a “1” indicates a “laparoscopic appendectomy, and a “9” indicates “other appendectomy”.

>3,600 procedures

Source: Health Statistics Analysis
What does a CPT Procedure look like?

Five digit coding system used to indicate procedure, type of physician encounters and other services provided at outpatient care settings.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27880</td>
<td>Amputation, leg, through tibia and fibula</td>
</tr>
<tr>
<td>27881</td>
<td>Amputation, leg, through tibia and fibula; with immediate fitting technique including application of first cast</td>
</tr>
</tbody>
</table>

> 10,700 CPT codes