Health Finance and Governance Activity

Coding Discussion Paper

Nov 24, 2019

Coding Classification Systems critical to EMR and Billing Systems

Contents

Executive summary

Standardized procedure codes are the foundation of a health care system. They enable correct analysis of healthcare utilization needed for budgeting and management purposes. The two main codes for health care are diagnosis codes (the reason for the treatment) and procedure codes (what treatment was provided). If these codes are not standard at a country level it will be difficult to measure trends and identify areas for improvement.

On October 22nd, HFG facilitated a meeting among the two largest public insurers by supporting the ITD (Information Technology Directorate)/Ministry of Health (MOH) in requesting a meeting with Royal Medical Services (RMS) to further discuss their current diagnostic and procedures coding systems. The meeting took place at RMS and was attended by the Medical Information Technology Directorate (MITD)/RMS, Health Insurance Administration (HIA)/MOH, Electronic Transformation and Information Technology Directorate (ITD)/MOH, Electronic Health Systems (EHS)/Hakeem and HFG. During the meeting, HIA introduced their work and the collaboration with HFG, RMS provided a brief about their current coding systems, and it was agreed that codes must be unified among the public sector, where HFG will lead the initiative of unifying the coding systems in the public sector.

On October 31st, HIA in coordination with HFG facilitated a discussion session with different stakeholders. The group discussed the objectives of a standard coding system and ranked the available classification systems based on use. Participants individually ranked the uses of coding in terms of "must have," "should have if at all possible," "critical but not essential," and "will not have now." Based on the discussions, the top goals of a coding system in Jordan are: improving clinical delivery, supporting the Electronic Medical Record (EMR), providing data to estimate cost, and being a long-term coding system. The goals of coding were mapped to different coding systems. As a result, the US CPT® received the highest ranking with the Australian ACHI codes in second place. Next steps include evaluating the costs associated with the two systems.

To provide context into the importance of standard coding, consider the following:

Standard diagnosis and procedure coding is essential at a country level
- Standard diagnosis and procedure code sets accepted at a country level are required to enable effective health financing and risk management programming.[i]
- It is very difficult for any health care-related discipline to implement electronic documentation without standardized language (coding).[ii]
- DRGs (diagnosis related groups) are often discussed as a starting point, but this is not recommended. DRGs include a form of risk sharing with providers that must be monitored from a data warehousing perspective to control fraud and abuse. Typically, markets move from a form of fee-for-service to a form of risk sharing once there are sufficient claims data to assess the financial and clinical impact. The HIA's current approach includes a move from pure fee-for-service to some bundled services (e.g., normal delivery) as a step towards the DRG concept.

Coding classification system options for Jordan
- Currently, EHS/Hakeem uses diagnosis codes (ICD-9) and has mapped individual Jordanian hospital procedure codes into the Electronic Medical Record (EMR) resulting in hospitals having a unique set of codes that are not applicable across the public hospitals and makes it hard to

having any type of comparison. The organization agrees ICD-9 is an old and outdated system, and that there must be standard procedure coding classification system.

- The cost of licensing the US CPT® codes is too high, as confirmed by EHS/Hakeem; however, there is a way to manage this, similar to the UAE which is using an older version of CPT® for a 50% discount, which is also available to Jordan.

- The World Health Organization (WHO) ICD-10 diagnosis coding set is widely accepted in Jordan and most of the private hospitals have updated to ICD-10. There are many different country procedure codes available, however based on the Jordanian context and discussions with coding experts, five procedure code sets are recommended: *National codes presented by Royal Medical Services* (RMS), *MBS* (core Australian code set), Full *Australian Classification of Health Interventions* (*ACHI* -full Australian code set), *Current Procedural Terminology* (*CPT® - US*), and *International Classification of Health Interventions* (*ICHI* - WHO).

- Coding selection includes not only which code sets to use, but the related billing guidelines, coding training, and formal coding audits (to assure accuracy and prevent fraud and abuse). Introducing coding without training and audits is not recommended.

- This paper outlines the evidence and coding options presented at the stakeholder meeting. There are three sections: (1*) Background evidence and Jordanian requirements*; (2) *Overview of Coding Options*, *Country Coding Choices;* and (3) *Phases of Coding Implementation*.

- At the end of each section, there were "Discussion Points". After each section, stakeholders discussed and gained consensus. Through this process, stakeholders agreed on the role of coding the variables for each coding set. After understanding the context, obstacles and advantages of each code set, stakeholders had appropriate knowledge and information to agree upon a standard coding system for the country (both diagnosis and coding).

Part 1: Background evidence and Jordanian requirements

Current coding systems in use

When an individual receives healthcare treatment from a private doctor in Jordan, there are two sets of codes in use. One from the private sector (Jordan Medical Association, JMA) and fees that are stipulated in the Civil Insurance Program (CIP) coverage.

Electronic Medical Record Systems (EMR)

Meaningful coding systems are essential to measuring the impact of a health system including delivery and financing of health care. Some erroneously believe that having an EMR assures accurate coding; this is rarely true.[iii] While an EMR can perform front-end edits and checks, a coder's skill in interpreting the medical documentation is key to correct coding and reimbursement. An EMR allows the clinician to record unique perspectives, but care must be given to ensure that the codes accurately reflect the treatment provided. If EMR systems are not properly designed and used, they can lead to inaccurate, outdated or misleading information.[iv] In data-driven environments, the term GIGO (garbage in, garbage out) is widely understood to mean that if the data entry is incorrect, the reporting will also be incorrect.

EMR systems can transform the way healthcare is delivered when designed, implemented and used correctly. Designed and used incorrectly, EMRs add a layer of complexity that can lead to unintended adverse consequences such as dosing errors, failure to detect serious illness and delays in treatment due to poor human-computer interactions or loss of data.[v]

Coding systems for medical record recording and billing

Coding is as integral to the EMR record as it is to the billing or reimbursement system, but the needs are different. EMR coding is significantly more complex than it is for a billing system. In EMR systems, for example, lab results are critical to measure the impact of medical intervention. A billing system, on the other hand, identifies what specific services were performed, it does not evaluate the impact of the services. Billing data are used to measure the utilization of the health care system and ultimately the costs of the health care system.
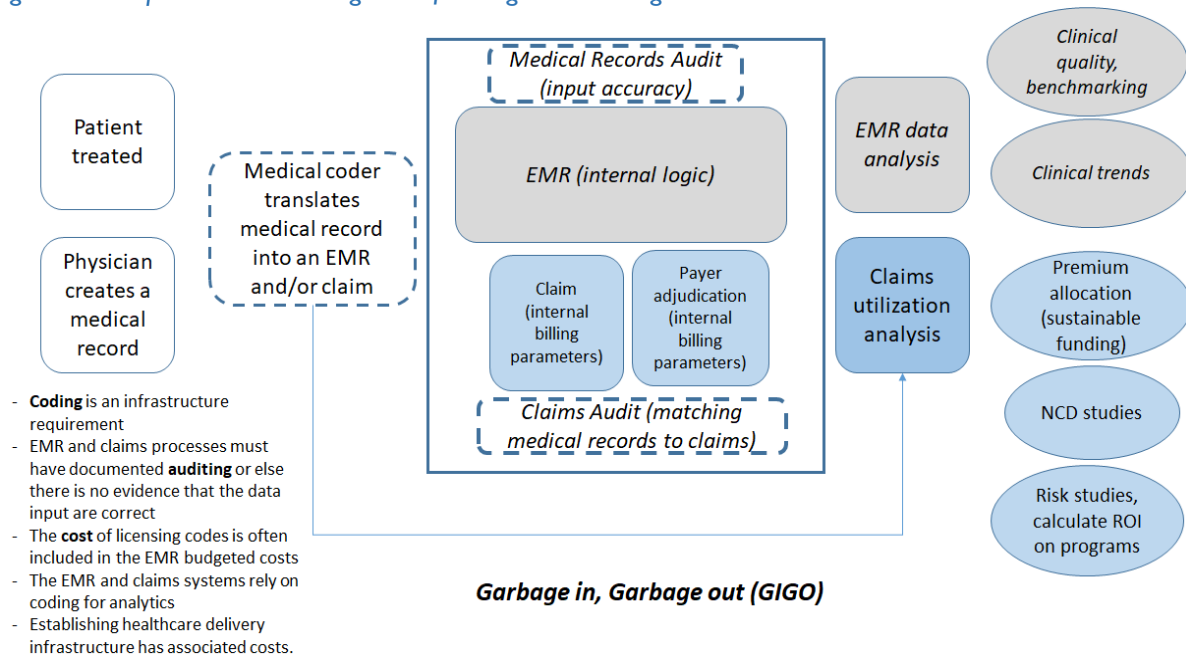
Programming coding systems

An early discussion in any EMR or billing conversation identifies a common coding classification system (both diagnosis and procedure). These two coding systems work hand in hand. In Australia, for example, the ICD-10-AM is the country-specific version of the WHO International Statistical Classification of Diseases and Related Health Problems (diagnosis codes). It was developed by the National Centre for Classification in Health (NCCH) and has been in use since 1990. It is updated on a regular basis.[vi] ACS, the Australian Coding Standards, were developed with the objective of satisfying sound coding conventions for use with the ICD-10-AM and ACHI (the Australian procedure coding set). Codes apply to all public and private hospitals in Australia. Thus, there is a link between the ICD diagnosis classification system selected and the procedure codes.

Based on priority issues, the EMR in Jordan was launched prior to identifying national coding criteria, which resulted in using the older version of a diagnostic coding classification system (ICD-9). Additionally, procedure codes input into the EMR vary by facility which limits any comparative analysis of treatment patterns across facilities. In addition to the variable coding, data input is not validated on regular basis. Using an outdated diagnosis coding system, developing and mapping unique procedure code sets per facility and lack of a consistent audit process prevent:

> a. *International benchmarking;*
> b. *Hospital comparisons; and*
> c. *Trust in the accuracy of the data.*

Diagram 1 is a simplified visual of the patient treatment process and the two separate, but related health system IT needs (EMR and Billing). After the patient is treated, typically a medical coder translates the treatment into codes that are used for EMR or billing purposes and these codes are audited for accuracy (the dotted line boxes represent coding related tasks).

Garbage in, Garbage out (GIGO)

- **Coding** is an infrastructure requirement
- EMR and claims processes must have documented **auditing** or else there is no evidence that the data input are correct
- The **cost** of licensing codes is often included in the EMR budgeted costs
- The EMR and claims systems rely on coding for analytics
- Establishing healthcare delivery infrastructure has associated costs.

Jordanian medical coding requirements

Codes are the foundation of a healthcare system, particularly one that is interested in measuring health risks and expanding health coverage. Proper medical coding is important on many levels, from ensuring accurate payment for physicians to creating a valid record of patient care history. [vii] Standardized procedure codes help the system:

- **Improve clinical delivery**: Decision support tools help reduce medical errors, for example identifying drug allergies and ensuring medicine appropriateness.[viii] Standard coding serves the purpose of comparing projects and planning for under-served health care areas, aiding in administrative functions as well as identifying symptoms that must be addressed and referenced by other physicians. [ix]
- **Are a long-term solution**: codes are developed via formal processes based on medical practice.
- **Provide a foundation for accurate (standardized) medical billing** including building fee schedules, developing future healthcare financing options (e.g., bundled codes, DRGs or risk sharing) and improving medical and claims processing. Helps identify and manage both medical and administrative resources.
- **Estimate expected healthcare costs**: standard coding in billing helps a health system develop reasonable fees for procedures which in turn can be used to estimate future health care financing needs and inform public sector resource allocation and budgeting for health services.
- **Allow benchmarking** through data standards and accurate coding. Coded data are used not only for reimbursement, but also for benchmarking, clinical and financial decision making, healthcare policy, and research.[x] Uniform coding provides the basis for comparability of both costs and utilization trends. Ideally, the coding system selected provides the basis of comparability with other international systems.
- **Support the EMR** by ensuring compatibility with the system leading to increased automation in billing, data capture and reporting.

- **Are in Use both public and private sectors** to enhance comparisons across sectors.
- **Can be used for research** therefore there is appropriate detail available.

Coding and auditing are part of the same program (continuous quality improvement)

Many countries understand the critical nature of auditing coding processes. Auditing medical coding leads to accuracy and overall improvement in data capture. [xi] Good records are at the heart of a professional physician practice. [xii] Therefore, a defined and objective auditing process is essential to any coding approach.[xiii] The outcomes of accurate coding are numerous. It supports the best use of healthcare resources and delivery of a cohesive health care services. This is achieved not only through proper communications but also through a shared clinical perception of the patient's needs. Accurate, timely, and accessible health care data play a vital role in the development of a health care service delivery system. [xiv]

International examples of coding challenges

Internationally, coding trends are studied to ensure that the information they provide are accurate portrayals of the actual treatment. For example, in Australia, coded patient discharge records are fundamental to planned national strategies designed to improve patient safety and quality of care.[xv] Being able to estimate the true burden of specific illnesses is not necessarily a simple matter, but codes are audited against treatment records to ensure the highest level of quality.

In another example, in the US, the usefulness of diagnostic coding as a quality measure of obstetric care was analyzed. Specifically, an assessment of the accuracy of coding of anal sphincter laceration at vaginal delivery found coding errors. The authors concluded, "Before diagnostic coding can be used as a quality measure of obstetric care the clinical events of interest must be appropriately defined and accurately coded."[xvi]

Therefore, coding audits are essential if the data are intended to be used to measure country trends and health outreach opportunities. Audit programs are not an added benefit, they are part of any coding program and demonstrate continuous quality improvement (CQI).

At the end of this section in the Stakeholder meeting, the issues were ranked as follows:

Table 1: Ranking from Stakeholder Meeting

Coding use	Must have	Should have if possible	Critical but not essential	Will not have now
1. **Improve clinical delivery**	**92%**	3%	3%	3%
2. **Be a long term coding system (systematic processes and procedures to update and evaluate)**	**58%**	28%	14%	0%
3. **Provide data to estimate budgets**	**50%**	48%	0%	2%
4. Foundation for standardized billing	46%	43%	9%	3%
5. Support fee schedule development (codes already positioned to roll-up into DRGs through groupers)	36%	42%	21%	0%

Coding use	Must have	Should have if possible	Critical but not essential	Will not have now
6. Allow benchmarking (are international codes)	42%	33%	19%	6%
7. Support EMR use (integration with SNOMED)	**69%**	22%	6%	3%
8. Public and private sectors agree to use coding	**60%**	26%	9%	6%
9. Codes can be used for research	43%	33%	13%	10%

Outcomes:

- From each stakeholder perspective, intended uses of the standard procedure codes were discussed including from both research and billing perspectives.
- The intended uses were ranked as M (must have requirement, non-negotiable), S (should have it if possible), C (could have but not critical; it's not essential but we would like it if there is budget and time), W (will not have now).
- The stakeholders ranked five specific uses of the coding system as "must have": improve clinical delivery, be a long term coding system, provide data to estimate budgets, support EMR use (integration with SNOMED) and that the public and private sectors both agree to use the same coding system.

Part 2: Overview of Coding Options; Country Coding Choices

Based on discussions with international coding experts including the American Association of Professional Coders (AAPC), there are a few different coding systems that may work in Jordan. These include: National coding system by the Royal Medical Services Jordan (RMS), CPT® (US), ACHI (Australian), MBS (Australian), and ICHI (WHO). Many coding systems have associated licensing fees, however there are also financial advantages associated with these fees. All cost-free codes are identified in "green" boxes.

Coding systems and country examples

National Coding system/ RMS

Set of about 5,000 procedure codes based on a variety of sources. Codes have not been mapped to a specific set of ICD diagnosis codes. There are no formal billing guidelines, nor is there a formal procedure definition and refinement process. As a result, the code set is based on historical use, but is ad-hoc in nature. Any ad-hoc system should not be considered a long-term solution, but an interim approach.

Analysis is complicated by different data structures and vocabularies representing medical conditions.[xvii] Coded data is not useful if the code sets are not properly maintained.[xviii] While there are advantages in the short term to consider the RMS codes, in the long term an evidence based approach is recommended.

Australian Medical Coding Systems (no cost codes in green)

Coding system	Description
ICD-10-AM	Modified version of WHO ICD used to define principal diagnosis and other conditions. Used to code for inpatient hospital setting.

Coding system	Description
MBS	Medicare Benefits Schedule, list of procedures for outpatient services. • Mapped to a fee for service payment schedule • 5 digit numeric structure • Excludes dental, obstetrics, imaging, radiation oncology, cosmetic surgery and drugs. Ambulatory care in the public sector is generally not coded. Providers are employed and clinics are paid on number or patient visits versus services rendered.
ACHI	Comprehensive derivative of MBS and serves as the national standard for coding of surgical and non-surgical medical procedures and interventions (Inpatient only) • More detailed than MBS, created to accompany ICD 10 AM to allow for DRG reimbursement schemes. • 7 digit numeric code set (first 5 digits are MBS) • Inpatient hospital, surgical and medical procedures • Includes dental, allied health and cosmetic surgery
ASDS	Australian Schedule of Dental Services for dental treatment
PBS	Pharmaceutical Benefits Schedule for medications

US coding systems (no cost codes in green)

Coding system	Description
ICD-10-CM	Modified version of WHO ICD, used to define principal diagnosis and other conditions. Used to code for inpatient hospital setting.
ICD-10-PCS	Coding classification system for inpatient hospital, surgical, medical and diagnostic procedures performed during and inpatient stay.
CPT®	Covers physician and outpatient services, procedures and other items used to bill for professional services.
HCPCS	Works alongside CPT® and is comprised of three service levels: 1 are the CPT® codes, 2 are supplies, equipment and procedures not included in the CPT® codes; 3 include codes for local use.
NDC	National drug code is a unique 10 or 11 digit code and product identifier for human drugs in the US

WHO ICHI Classifications (no cost codes in green)
Unfortunately, the ICHI codes are not yet available and still in beta format. However, they are presented as a future option.

Coding system	Description
ICD-11	Principal diagnosis for inpatient hospital setting
ICF	International classification of functioning disability and health
ICHI (in beta)	International classification of health interventions intended to cover interventions in primary care, community health, rehabilitation, allied health, nursing, assistance with functioning, traditional medicine and public health interventions • Still in beta form, may be available at the end of 2020. Currently, the WHO has not approved it for use yet. • Can be linked back to WHO ICD and ICF code sets to capture data on patient safety and quality.

Coding system	Description
	• Is designed for statistical use not billing. It is not linked to a DRG grouper at this time. • Is less robust than CPT® and ACHI, has limited codes for pathology and nothing for laboratory services. However, it covers a broader segment of healthcare services than ACHI and CPT® including public health, rehabilitation, allied health, mental health, nursing, and public health promotion interventions. • It does not have the ability to designate place of service or provider type (e.g., MD, RN). • As a newly released format, the availability of guidelines and educational materials is likely going to have substantial ongoing refinement. • The codes were designed for statistical purposes not for payment and billing. It is unknown if ICHI can be linked o DRG payment schemes. • The coding structure is tri-axial and completely different from any other coding system. Will require significant training and education for adoption. • Unclear how well the code structure allows for interoperability with common EMR systems will handle it. Beta users report mapping ICHI to SNOMED CT is complex and error prone.

Country coding choices (AAPC)

The American Association of Professional Coders (AAPC) works in a variety of countries to help identify correct coding choices, set up the infrastructure, map codes to local approaches, as well as develop and train coders. The following examples were provided to bring context to the different choices available.

Egypt: CPT® codes

- EMR not yet in place, finalizing vendor to develop IT portal that can be used by public hospitals to verify insurance information and submit claims to the health ministry.
- Current billing is fee for service; future billing will include:
  - Fee for service for specialty care, capitated model for primary care
  - Bundled payments for surgical services
  - DRG is not a payment model they can support but will consider in the future.

Rwanda: MBS codes + local codes

- Country adopted a single EMR (Open Clinic) including billing modules but was unutilized because of a lack of coding.
- Most of the market is public sector paid by MOH. There are some private health insurance companies operating in the market and the MOH would like to shift to an insurance model (includes calculating premium levels based on claims experience and administrative costs.)
- AAPC worked with the MOH to identify and implement a harmonized medical coding system that includes key medical acts, laboratory diagnostic procedures and medical devices.
  - Cost and simplicity were critical. Complex classification systems were avoided in view of the local capacity to manage and correctly code.
  - Integration with ICD-10 critical.

- The system should be in use in several countries and have a solid history of use and consolidation.
    - Application must be accessible in both public and private sectors as a single classification system.
- Coding choice: ICD 10 diagnosis codes, MBS Australian codes
    - MBS is simpler to introduce compared to ICD-10-PCS resulting in easier training.
    - MBS is an extension of ACHI, so if they choose to move towards DRGs, they would pay for the ACHI codes and move in that direction.
- Process:
    - Mapped most common local procedures from Rwanda (1,000)
    - Translated local nomenclature from French to English
    - Adopted a standardized claim form for public and private sector use
    - Developed tools to help look up the procedures (IT/Web based)
    - Developed guidelines and national policies for use of the selected codes (e.g.., bundling of procedures, coding multiple procedures on same patent, restrictions on use of specific health services).
    - Currently training workforce in coding.
- Work effort:
    - Mapping codes was tedious and took 8 months compared to an estimate of 2 months.
    - MBS codes do not cover hospitalization charges, approach is still in discussion.
    - MBS excludes dental codes looked to the ADA (American Dental Association)
    - MBS does not have a mechanism to identify facility type.
    - There was physician resistance from specialty providers unwilling to adopt generic consultation codes.
    - Coding is not linked to a fee schedule, requiring additional work effort to identify proper tariff payments.

Kuwait pending decision on procedures, but diagnosis codes will be ICD-10-CM or ICD-10-AM

- Currently using ICD-WHO (unmodified version) for diagnosis codes and ICPM-WHO (International Classification of Procedures in Medicine)
    - Both versions are highly outdated, and ICPM is obsolete.
    - Interested in moving to a DRG system, therefore they want to switch to a classification system that is updated and will support DRG payments.
- Mixed use of EMR and paper claims. No certified coders in country and physician documentation quality/standards variable.
- Considering IR-DRG (based on procedure coding) and APR-DRG (compatible with both ICD diagnosis sets from US and Australia)
- Considering ICD-10-CM or ICD-10-AM, were considering ICHI and ICD-11 but ruled them out.
- Once a coding classification system is selected, will begin workforce training including roll-out classification system to 20 hospitals in beta followed by private sector mandate.
- Initial training to include 100 coders from university HIM programs, incorporating a "train the trainer" approach.

Oman ICD-10-CM (diagnosis) and CPT® 4 (procedure)

- Moving to a mandatory insurance model and creating a Daman-like entity (UAE)
- Workforce training to begin with insurance entities then follow with provider and coder training.

Coding system	Code designation	Publisher	Version	Domain
ICD-10-CM		NCHS	2015	Diagnosis
CPT® 4		AMA	2012	Procedures, medical, surgical and diagnostic services
HCPCS Level II		CMS	2012	Supplies and Consumables
Dental	CDT	ADA	2012	Dental and related services
Green Rain Dubai Drug Code	DDC	GreenRain	Current	Drugs and related
Abu Dhabi Service Codes/ Dubai Service list	DSL	DOH/DHA	Current	Services assigned codes for special cases
Logical Observation Identifier Names and Codes	LOINC	RI	2012	Lab and Clinical Observations
Systematized Nomenclature of Medicine	SNOMED	IHSTDO	2012	Observations
Universal Numbering System (Dental)	UNS	ADA	2011-2012	Universal Tooth Numbering Observations

Supplemental issues to consider when selecting a coding system – guidelines and fee schedules

A coding set is not the same as buying a dictionary. The codes have meaning in terms of billing and reimbursement that are typically addressed in formal "billing guidelines" that clarify when to use which code and in which circumstances another code will suffice. In addition to knowing which codes to bill, the amount to bill is determined through a "fee schedule."

Billing guidelines based on code definitions and use

Estimating incidence, prevalence and disease burden through billing data is challenging due to under-diagnosis and under-treatment, particularly when claims data do not use the ICD codes accurately.[xix]

For consistent data, it is important for everyone to follow the same coding rules and conventions when assigning codes.[xx]

A coding choice impacts a variety of areas including billing practices as well as clinical guidelines. Here is a billing guideline from the US (https://www.nebraskatotalcare.com/newsroom/maternity-global-vs-non-global-billing.html):

Maternity- Global vs Non-global billing
Date: 01/11/19
Global OB care

The total obstetric care package includes the provision of antepartum care, delivery services and postpartum care.
When the **same physician group and/or other health care professional** provides all components of the OB package, report the Global OB package code.

It is not appropriate to report the antepartum, delivery, and postpartum care separately, when a **single physician or the physicians of the same group practice** provide the total obstetrical care.
The CPT for Global OB codes are:
59400 – Routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy, and/or forceps) and postpartum care

59510 – Routine obstetric care including antepartum care, cesarean delivery, and postpartum care

59610 – Routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy, and/or forceps) and postpartum care, after previous cesarean delivery

59618 – Routine obstetric care including antepartum care, cesarean delivery, and postpartum care, following attempted vaginal delivery after previous cesarean delivery
Billing guidelines
The global maternity allowance is a complete, one-time billing which includes all professional services for routine antepartum care, delivery services, and postpartum care.

The fee is reimbursed for all of the member's obstetric care to one provider.

If the member is seen four or more times prior to delivery for prenatal care and the provider performs the delivery, and performs the postpartum care then the provider must bill the Global OB code.
Global OB care should be billed on or after the delivery date.
Non-global OB care
Non-global OB care, or partial services, refers to maternity care not managed by a single provider or group practice.
Billing for non-global re may occur if:
•A patient transfers into or out of a physician or group practice
•A patient is referred to another physician during her pregnancy
•A patient has the delivery performed by another physician or other health care professional not associated with her physician or group practice
•A patient terminates or miscarries her pregnancy
•A patient changes insurers during her pregnancy
Billing guidelines
Antepartum care only reporting:
•If only one to three antepartum visits were provided, report the appropriate E/M codes, according to CPT® guidelines.
•If four to six visits are provided, report 59425 antepartum care only.
•If seven or more visits are provided, report 59426 antepartum care only.
• Bill date of service span with the total number of visits within the time span.
•The dates reported should be the range of time covered. *Example: If the patient had a total of 4-6 antepartum visits, then the physician should report CPT code 59425 with from and to dates for which the services occurred.*
•CPT 59425 and 59426 – These codes must not be billed together by the same provider for the same beneficiary, during the same pregnancy.
•Pregnancy related E/M office visits must not be billed in conjunction with code 59425 or 59426 by the same provider for the same beneficiary, during the same pregnancy.
Please reference payment policy on Global Maternity (PDF) for additional information.

Jordan is in the early stages of coding standards, therefore billing standards will be simple to begin with but will develop over time and through provider experience.

Public sector fee schedule

The Health Insurance Administration (HIA) administrates a price list of fees payable to public sector providers. The fee schedule is applied when either an uninsured person or an individual covered under private insurance receives healthcare in a public facility.

The fee schedule is based on a pricing study which took place in 1997. There is limited information available on the study, the authors, or the methodology employed. Over the years, percentage increases have been applied, but there is limited information regarding the triggers for changes, when the changes occurred, or the sizes of increases. The most recent fee schedule was revised in 2004, and there is no information regarding the specific changes made.

According to Article number 14 of the Civil Insurance Bylaw Number 83 of 2004, "the fees/prices of treatment in hospitals and health centers shall be determined by a decision of the Council of Ministers upon the recommendation of the Minister of Health", and "the treatment fees/prices shall be reviewed annually so that after five years they are equal to the actual cost."

The public fee schedule groups medical services into the following categories:

1. *Hospital accommodation fees*
2. *Radiology fees*
3. *Dental fees*
4. *Special medical procedure fees*
5. *Hearing test fees*
6. *Ophthalmic treatment fees*
7. *Kidney treatment fees*

8. *Surgical operation fees*
9. *Childbirth/delivery fees*
10. *Cancer treatment for non-Jordanians*
11. *Forensic medicine fees*
12. *MRI and bone density fees*
13. *Durable medical equipment*
14. *Splints*
15. *Lab tests for financially secure*

Specific procedures are assigned numbers consecutively (e.g., 1, 2) within each section. Services/Procedures are not defined according to any international standard.

Professional fee schedules for the private sector in Jordan

In the private sector in Jordan, physician professional fees and facility fees are managed separately. Professional fees are created and maintained by the Jordan Medical Association (JMA). The JMA was founded in 1954. The law allows the JMA Board to develop regulations. The JMA fee schedule is primarily used by private health insurers. However, if a private-pay individual believes he/she has been overcharged and complains to the JMA, any overages based on the fee schedule will be repaid to the complainant. Facility charges are determined by individual hospitals who submit rates to the MOH for approval.   This report does not evaluate facility fees.

The JMA originally compiled a price list for physician fees in 1989. There is limited documentation regarding the methodology used to determine the costs, except that they were the product of the JMA membership. This means there was not a formal pricing study to determine correct fees. Instead, providers discussed the procedures and what they believed would be adequate reimbursement.

The most recent version of the fee schedule is from 2008. The procedures, again not defined by any international standard, are grouped into 22 categories as follows:

1. *General Physician*
2. *Internal Medicine*
3. *Digestive System*
4. *Kidney*
5. *Neurological Diseases*
6. *Chest*
7. *Dermatology*
8. *Pediatrics*
9. *Psychology*
10. *Natural Medicine and Rehabilitation*
11. *Anesthesia, Recovery and Pain Treatment*
12. *Radiation and Nuclear Medicine*
13. *Chemotherapy*
14. *General Surgery*
15. *Ophthalmic Surgery*
16. *Ear, Nose and Throat*
17. *Obstetrics and Gynecology*
18. *Orthopedic Surgery*
19. *Brain and Nerve Surgery*

20. Heart, Chest and Circulatory Surgery
21. Plastic Surgery and Restoration
22. Child Surgery

Most procedures are given a unit value to represent physician effort; however, there is no defined methodology or evidence used to determine the different levels of physician effort. To derive the price for procedures with a physician effort unit value, the unit value is multiplied by a JD value. The JD value was established via the Doctors Fees Bylaws No. 46 in 1989. There is a minimum and maximum JD value. One physician effort unit equals from 2.80 JD to 3.50 JD. The private provider can negotiate these values with the payer.

Some procedures that occur in a clinic and minor surgical procedures are not given effort unit values. Some are only assigned JD amounts. Unfortunately, there is no defined method to identify which procedures are priced at a flat dinar value and which are priced with units.

An additional complication arises as there are some exceptions in applying the fees depending on a variety of factors including the time of day of the visit, or the years of physician experience or specialty.

Building fee schedules – relative value units and usual, customary and reasonable
In Jordan there is a need to build a common country fee schedule to manage the public sector expenses incurred. The choice of procedure codes will have an impact on the complexity involved in the process.

There are essentially two forms of fee schedule development, through relative value units (only available through CPT codes where each code is assigned a work effort unit amount) and using costing studies based on provider experience. This approach aims to estimate what in insurance is often referred to a "usual, customary and reasonable" (UCR) fees.

Once a standard set of codes is identified, building a fee schedule approach in Jordan will require a group of stakeholders from different perspectives to identify which approach to use: (1) build an evidence based level of effort initiative or (2) introduce costing studies to estimate average costs.

There are advantages to using level of effort units for procedure codes as these do not often change, whereas updating the fees associated with procedures may also not change frequently, but costing studies are labor intensive and therefore expensive.

How a new procedure code is introduced
Using the CPT® codes as an example, for a new procedure or technology to receive a code, it must first meet criteria[xxi]:

- *It must be done by a reasonable number of the specialty that presents the code,*
- *Be performed at reasonable frequency,*
- *Be done throughout the country, and*
- *Have peer-reviewed literature supporting its efficacy.*

Once a procedure is given a code, it needs to be valued for reimbursement purposes. In the US, prior to 1992, physicians were reimbursed based on "usual, customary, and reasonable" charges (UCR). UCRs were based on the physician's most frequent charge for the service (usual), the average charge for that service in the area (customary), and the actual charge for the service (reasonable). Individuals within the federal government, private insurers and non-procedure-based medical specialties felt that this system perpetuated rising health care costs and inequities in medical care. UCR, they challenged, served as an

incentive for physicians to inflate chares, even in those instances where actual costs were decreasing, and to continue the inequities in fees between proceduralists and non-proceduralists. In response to this, the US federal government implemented the concept of RBRVS in 1992.

RBRVS refers to resource-based relative value scale is a method of assigning a relative value to a procedure which is adjusted based on geography. The unit value is multiplied by a conversion factor (monetary amount) which is updated annually. Critics of the approach believe that paying based on effort rather than outcomes encourages providers to over-utilize high ranking procedures.

The CPT® code set is the only system that was built not only to track utilization but also to assist in normalizing fees. The Australian health system is single payer and public hospitals are funded based on patient visits not based on number of procedures performed. For this reason, the CPT® code set is singular in determining the units associated with physician effort, which can be translated into medical costs easily.

The National codes (RMS), ACHI and ICHI coding systems were not built for fee schedule development (e.g., what should an MRI cost?). To build a fee schedule with these codes will require costing exercises at various types of facilities to estimate the resources used and calculate a usual, reasonable and customary (UCR) charge. However, the RMS has developed a fee schedule which should be the UCR should that coding set be selected as an interim solution.

Review of coding systems and technical issues

To help assess the advantages and disadvantages of each of the coding system, a variety of aspects are rated in terms of structure, HR/Administrative requirements, Support MOH Budgeting Process

Table 1: Code Structure

Identifies the breadth of codes and maintenance of codes to reflect changes. In each coding sequence, local provider codes will have to be mapped to the selected coding system

Coding system	Formal code management	Detailed codes	Compatible with EMR system (includes character complexity)	International comparability	Integration with ICD-10	Regular updates to coding system (tools and resources available to support the classification system)
National coding system/ RMS	No	Yes	TBD	No	No*	No
MBS	Yes	No	TBD	No	Yes	Yes
ACHI	Yes	Yes	TBD	Yes	Yes	Yes
ICHI	Yes	Yes	TBD	Not yet	Yes	Yes
CPT®	Yes	Yes	TBD	Yes	Yes	Yes

*Increases costs associated with the coding system

Table 2: Human Resource/Administration and Cost Requirements

Determines the extent of billing guideline development and coding training required. When developing a coding curriculum at a country level, important to consider the specific work skills to develop and ensuring accuracy and standardization of coding approach. Coding exams must be maintained and updated to keep current with regulatory and industry changes.

Coding system	Standardized billing guidelines developed (how to code a claim)	Formal Coder training developed	Audit program developed	Codes mapped to local codes	**Annual fees**
National coding system/ RMS	No*	No*	No*	Partial*	No
MBS	No*	No*	No*	No*	No
ACHI	Yes	Yes	Yes	No*	**Yes***
ICHI	No*	No*	No*	No*	No
CPT®	Yes	Yes	Yes	No*	**Yes***

*Increases costs associated with the coding system

Table 3: Support MOH budgeting process

Identifies how well the codes can be used to develop fee schedule structure

Coding system	Relative unit based	UCR available	Linked to DRGs
National coding system/ RMS	No	Yes (if RMS shares fee schedule)	No*
MBS	No	No*	Partial
ACHI	No	No*	Yes
ICHI	No	No*	TBD
CPT®	Yes	No*	Yes

*Increases costs associated with the coding system

The uses from the meeting were mapped into the core issues above, yielding the following scores:

Table 4: Mapping of coding systems to Stakeholder priorities

Activities that support coding goals	National coding system	MBS	ACHI	CPT®	ICHI
Code structure sub total	1	4	6	6	4
HR/Administrative cost requirements sub-total	1	0	3	3	0
Supports budgeting process sub total	1	0	0	1	0
TOTAL	3	4	9	10	4

Based on this scoring, the CPT® codes are the first choice, followed by the ACHI code system.

Outcomes:

- The goals ranked in the previous section were scored based on the three activities: code structure, administration and human resources support, and ability to support the budgeting process. Coding systems were mapped to the stakeholder goals and specific activities.
- All things being equal, the CPT® codes are the best choice, followed by the ACHI codes.
- As MedExa, a large Third-Party Administrator (TPA) in Jordan, uses the ICHI codes, there was strong discussion that it be included in the list of options. However, it is in beta and may not be available for another year. Additionally, it is not linked to DRG codes, which means that using it to assess the inpatient component of a medical intervention is highly limited. Given that it is not even endorsed for use by the WHO, it is not recommended that it be further considered at this time.

It is recommended that the price issues be evaluated for the top coding classification systems including administrative and associated human resources costs.

Part 3: Phases of Coding Implementation

The following outlines a recommended process to identify and implement a country coding system. The general framework for implementation is outlined below:

Phase 1: Infrastructure development

Step 1: Select coding system and format
- Identify diagnosis and procedure coding classification system to use (based on cost/benefit, compatibility with current coding and EMR, and ability to accommodate fee schedule development. The ICD diagnosis code selection must match the selected procedure code classification system.
- Develop standard claims form for public sector use.
- Identify which approach to take: costing studies or relative value unit approach.

Step 2: Map local codes, develop guidelines for use
- Map most common procedures in Jordan to the coding system
- Create and adopt a standard claim form including required data elements.
- Develop guidelines and national policies for use of the selected codes (e.g., bundling procedures, coding multiple procedures on the same patient, and use of specific services (e.g., preventive care).
- Decide how to collect data from hospitals in non-billing situations (e.g., MOH hospitals) so that the data captured can be aggregated directly with paid claims data.

Step 3: Develop pricing approach
- Based on the coding structure, identify approach to the development of a baseline fee schedule for the public sector based on relative value units, or usual customary and reasonable (UCR) which is essentially based on the current reimbursement for that procedure which can vary depending on geography and hospital classification, if necessary.

Phase 2: Training and support tool development

Step 1: Develop training approach
- Create workforce training and education in both public and private sectors including "train the trainer" sessions.

Step 2: Create country-specific tools
- Develop a country-specific auditing approach to ensure accuracy of data collection (EMR and claims)
- Create tools to automate coding look-ups (EMR and claims)
- Automate the process to enable management, dissemination, and updating of the codes
- Integrate code sets into EMR

Step 3: Develop fee schedule(s)
- Begin cost studies for rate setting (e.g., based on relative value units or UCR)

Phase 3: Real time implementation

Step 1: Introduce and manage public sector claims and utilization
- Introduce public sector fee schedule and claims audits
- For MOH non-billing hospitals, introduce data collection process that matches the data collected from paid claims.

Step 2: Introduce and manage codes, coders, and resulting data
- Integrate code sets into claims management systems or utilization management systems to begin billing or utilization data collection.
- Expand code uses and guidelines
- Perform audits (both claims and utilization)

Phase 4: Evaluation and Refinement

Step 1: Review and respond to utilization patterns
- Identify anomalies in claims patterns and source (e.g., coding issue, product issue, fraud)

Step 2: Evaluate capacity for advanced payment systems
- Based on claims costs and utilization patterns, evaluate use of a more advanced payment system (e.g., DRGs, capitation)

Outcome:

- Once the pricing analysis is completed for CPT® and ACHI codes, review the process with relevant stakeholders.

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