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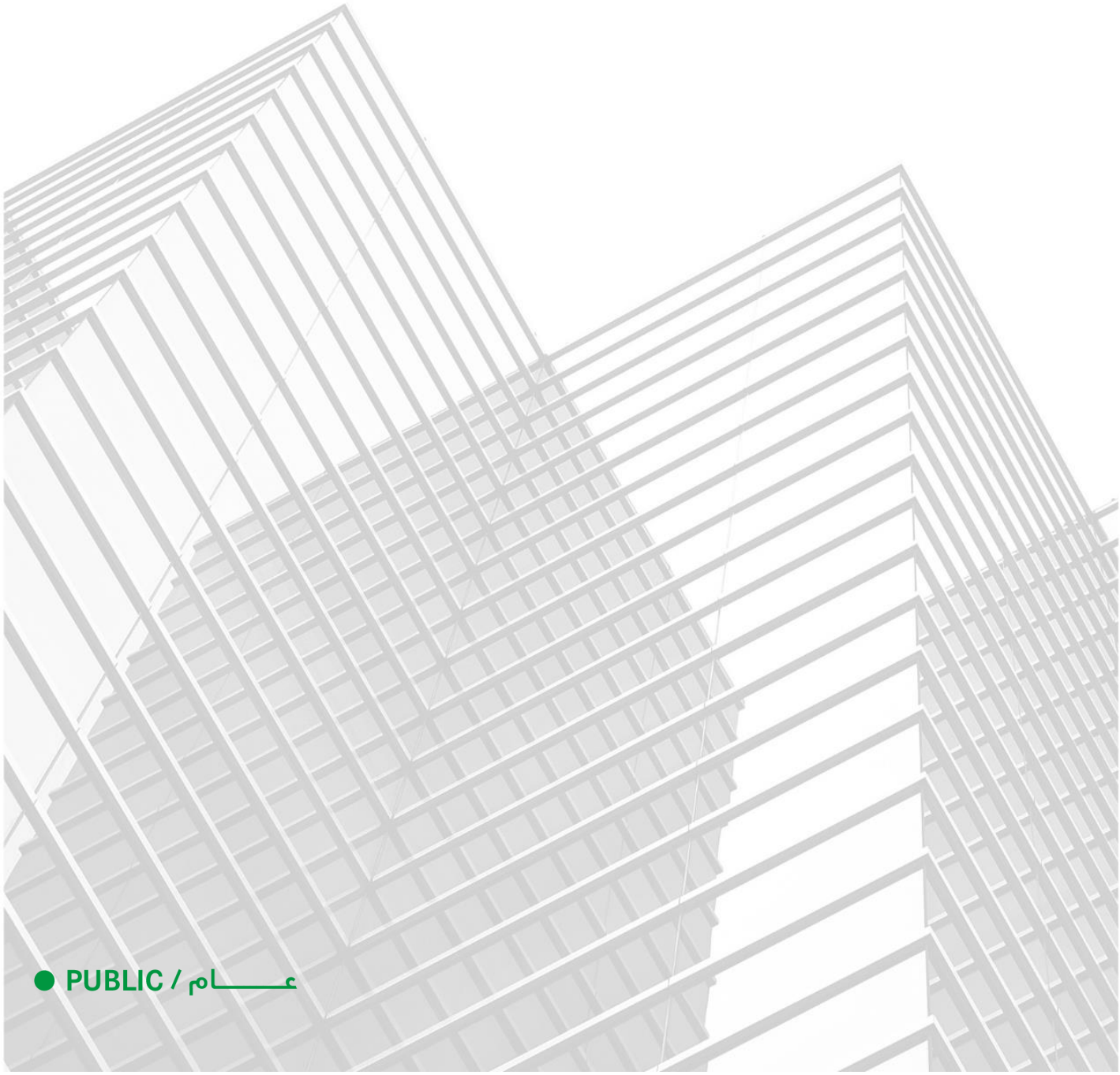
DEPARTMENT OF HEALTH

Abu Dhabi Clinical Costing Guidelines



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1.Guideline Purpose and Brief

1.1. Abu Dhabi Clinical Costing Guideline is an integral part of Abu Dhabi Clinical Costing Standard. The document provides step-by-step guidance on how to interpret and comply with the standard.

1.2. This guideline applies to all the healthcare providers listed below, operating in the Emirates of Abu Dhabi under the license provided by the Department of Health:

1.2.1. Hospitals
1.2.2. Specialist day case and day surgery centers
1.2.3. Long term care and rehabilitation
1.2.4. Stand-alone specialist services (e.g., Dialysis, IVF, Dental etc.)
1.2.5. Primary care centers
1.2.6. Clinics and Others

2. Definitions and Abbreviations

No.	Term / Abbreviation	Definition
2.1	Account Code	An account code is a unique line level record for each type of asset, liability, equity, revenue, and expense.
2.2	ADCCDC	Abu Dhabi Clinical Cost Data Collection: The ADCCDC is a critical component of Abu Dhabi's value-based funding framework.
2.3	ADCCS	Abu Dhabi Clinical Costing Standards
2.4	Clinical Costing	The process of measuring the cost and mix of resources used to deliver patient care. Costing plays a vital role in the development of activity-based funding policies, can inform the development of patient classification systems, and provides valuable information for pricing purposes.
2.5	Clinical Service	Services related to the observation or treatment of a patient within a healthcare setting
2.6	Cost Buckets	From a reporting perspective, it would be impractical to report cost data by every final direct cost center as there may be over 100 such cost centers for any health service. For reporting cost data, it is therefore useful to aggregate final direct cost centers to a higher level, called 'cost buckets' (also referred to as 'cost pools'). For example, a health service may have many final direct ward related cost centers (e.g., medical / surgical / pediatric / obstetric), but for the purpose of reporting, these final direct cost centers may be aggregated to a 'ward' cost bucket.
2.7	Cost Center	The cost center is group of financial transactions that reflect management responsibilities, point of cost control and accounts that reflect categories of expense.
2.8	Cost Types	Cost Types are aggregations of expense accounts for cost reporting purposes.
2.9	CT	Computed Tomography
2.10	Direct Cost	Expenses incurred directly in the delivery of a patient care product and/or service allocated to a patient using evidence of resource utilization e.g. Operating Room, Physician, Nursing costs etc.
2.11	ECG	Electrocardiogram

2.12	EEG	Electroencephalogram
2.13	Final Direct Cost Center	Final direct cost centers in healthcare facilities are expenses that result from patient care interventions and are connected to the provision of services to patients. Final direct cost centers may also be associated with non-patient activities including teaching, training, and research.
2.14	Final Overhead Cost Centers	Final Overhead cost centers are cost centers that provide support to Direct cost centers in the health care facility. For example, the Information Technology Department does not provide patient care, but it supports Final Direct Cost Centers by providing the equipment and technology needed to support patient care. The payroll department does not provide patient care but compensates staff who provide patient care.
2.15	Funded Mandates	Special funds received from governmental entity e.g. non-activity-based mandates.
2.16	General ledger	The general ledger is a set of financial accounts that summarizes all financial transactions occurring within an organization and is used to create its financial statement.
2.17	HCPCS	Healthcare Common Procedure Coding System
2.18	ICU	Intensive Care Unit
2.19	IVF	In Vitro Fertilization
2.20	MRI	Magnetic Resonance Imaging
2.21	Overhead Cost	Overhead cost refers to expenses within the hospital that generally relate to administrative and support functions. They do not relate to patient care and include finance, human resources, general maintenance, and information technology etc.
2.22	Patient Products	Health services provided to the patients for assessing, recording, maintaining, or improving health, or diagnosing/treating conditions.
2.23	PET	Positron Emission Tomography
2.24	RVU	Relative Value Unit
2.25	URN	Unique Patient Record Number

3.Guideline Content

3 Guideline Requirements and Specifications

The current version of the guideline is the Abu Dhabi Clinical Costing Guideline Version 1.0.
This document outlines the step-by-step guidance and explanation on how to interpret and comply with six main stages of clinical costing as laid down in Abu Dhabi Clinical Costing Standard

3.1 Stage 1: IDENTIFY EXPENSES FOR COSTING

3.1.1 Expenses to Include

This is required for health facilities to have a cost Center accounting approach, where transactions in the general ledger are mapped to accounts and cost centers. Costing can take place where health facilities only measure accounts (i.e., not cost center), however this can.

Cost Center Code	Cost Center Description	Account Code	Account Description	Period	Amount
A1000	Ward 1	50001	Nurse Salary	1	50000
A1000	Ward 1	50050	Medical Consumables	1	10000
B1000	Physician Surgery	50010	Medical Salary	1	100000
B1000	Physician Surgery	50050	Medical Consumables	1	500

3.1.2 Third Party Expenses

3.1.2.1 Allocate additional expenses incurred by third parties, such as a central corporate office / shared services hub providing Human Resources, IT, and Finance etc. services across multiple healthcare facilities.

3.1.2.2 Ensure that these third-party expenses are apportioned proportionally across the group and incorporated into each healthcare provider's cost model for accurate costing purposes.

3.1.2.3 Include these expenses in the cost model without omission.

3.1.2.4 Distribute these expenses appropriately across the group without exception.

3.1.3 Offsets and Recoveries

3.1.3.1 Offset refunds or credits, such as those received for billing errors or supplier corrections, against the cost of the purchased goods in the general ledger.

3.1.3.2 Apply funds received for funded mandates (non-activity-based mandates) offsets against relevant expenses.

3.1.3.3 Apply payments received for seconded staff offsets against relevant expenses.

3.1.3.4 Offset recoveries received for expenses incurred in prior years against similar expenses in the current financial year.

3.1.4 Cost of capital

3.1.4.1 Exclude the cost of capital from the costing process, as capital investments are treated as balance sheet items.

3.1.4.2 Include capital depreciation / amortization and related interest expenditures as relevant expenses for costing purposes.

3.1.5 Expenses To Exclude

3.1.5.1 Exclude balance sheet account items from the costing process, even though they are part of the general ledger.

3.1.5.2 Do not include revenue not received, such as rejected claims, volume discounts, or bad debts, in the costing process as they do not represent actual expenses incurred in patient treatment.

3.1.5.3 Revenue generated from sales of services must not be offset against expenses. Specifically, exclude revenue from:

- 3.1.5.3.1 Patient charges, including diagnostic tests performed for other healthcare providers.
- 3.1.5.3.2 Grants or subsidies other than funded mandates.
- 3.1.5.3.3 Commercial leasing of space (e.g., florists, cafeterias).
- 3.1.5.3.4 Other revenue from sales of services.

3.1.6 Cost Types

3.1.6.1 Aggregate expense accounts into Cost Types for cost reporting purposes. For example, combine Nursing Salaries, Nursing Overtime, Nursing Housing, Nursing Allowances, and Other Benefits into a single Cost Type: Nursing Salaries.

3.1.6.2 Use the Cost Types specified in Appendix 1 of Abu Dhabi Clinical Costing Standard when submitting cost data to the Department of Health in Abu Dhabi.

3.1.6.3 Healthcare facilities who receive funded mandates, are required to submit a separate table containing individually identifiable funded mandates offsets at the patient level.

3.2 Stage: 2 CREATE THE COST LEDGER

3.2.1 Matching Expenses to Costing Products

3.2.1.1 Match a health service's expenses to its costing products as accurately as possible. General ledgers are typically not designated with this outcome in mind. Adjust the general ledger to map expenses and cost canters to a financial structure that aligns with costing products. This new financial structure is called the 'Cost Ledger.'

3.2.1.2 The key principle is to match expenses to costing products, emphasizing the relationship between the expense and the costing product.

3.2.1.3 Work closely with health information system and clinical departments to ensure that data supports the costing process, and this alignment allows for accurate matching of costing products (derived from data items) to final direct cost canters in the cost ledger.

3.2.1.4 Example: In a health service's general ledger, high-cost prosthesis expenses may be mapped to the Operating Room cost Center. This health service may have a health information system that captures patient level data for prostheses, with data items recorded such as:

- 3.2.1.4.1 The patient's unique record number.
- 3.2.1.4.2 The patient's encounter number.
- 3.2.1.4.3 The date the prosthesis was implanted.
- 3.2.1.4.4 The code and description of the prosthesis.
- 3.2.1.4.5 The purchase cost of the prosthesis item.

3.2.1.5 Map the prosthesis expenses to a new cost Center in the Cost Ledger called 'Operating Room Prosthesis'. This will ensure accurate linking of prosthesis costs to prosthesis items.

3.2.1.6 This method is sound because while the salary components of the Operating Room cost Center might be allocated proportionally to duration of a patient's procedure, it does not make sense to allocate prosthesis costs in the same way, as not all patients receive prosthesis.

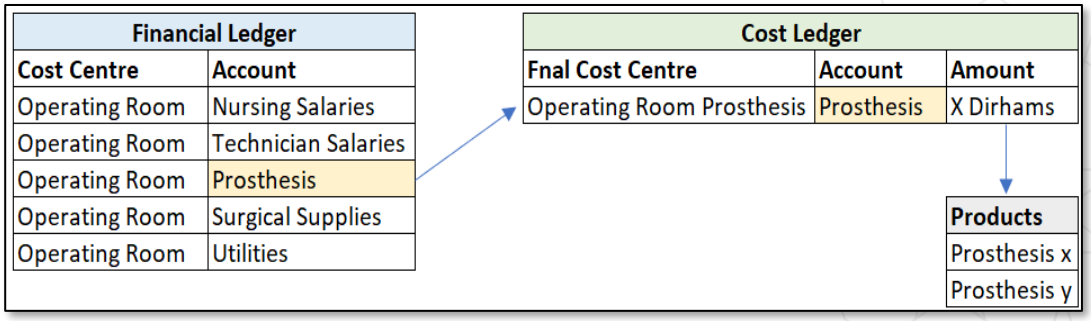

Figure 1: Map expenses to the Cost Ledger

3.2.2 Final Direct and Overhead Cost Centers

3.2.2.1 Link General Ledger expenses in the Cost Ledger to Final Direct and Overhead cost centers. Allocate total expenses of Final Direct and Overhead departments to direct department costing products. In the Cost Ledger, General Ledger expenses will be linked to Final Direct and Overhead cost centers. Total expenses of final Direct and Overhead departments will be allocated to direct department costing products. The full list of Final Cost centers and their mapping to Cost Buckets is located at Appendix 2 of Abu Dhabi Clinical Costing Standard.

3.2.3 Final Direct Cost Centers

3.2.3.1 Final direct cost centers in health facilities are primarily related to the delivery of services to patients and are costs that arise because of individual patient care encounters. Final direct cost centers can also relate to non-patient activities, such as research and teaching and training.

3.2.4 Final Overhead Cost Centers

3.2.4.1 Final Overhead Cost Centers are cost centers that provide support to Direct Cost Centers in the health care facility. For example, the Information Technology Department does not provide patient care, but it supports Final Direct Cost Centers by providing the equipment and technology needed support patient care. The payroll department does not provide patient care but compensates staff who provide patient care.

3.2.5 Ambiguous Cost Centers

3.2.5.1 Identify cost centers that could be classified as either direct or overhead. Base this decision on the availability of patient data to allocate these costs.

3.2.5.2 Consider for example the patient food department. This could be considered neither direct nor overhead, but an indirect form of patient care, as good nutrition will be important to recovery while in the hospital.

3.2.5.3 If the hospital has a patient food ordering system, that is integrated with the Patient Management System and able to report patient level meal consumption data, these costs shall be allocated directly to the patient based on meal type and quantity. In this case, the patient food department could be considered a direct final cost Center. If this type of information is not available, it permissible to allocate these costs as an overhead allocation, using, for example, total ward bed days as an overhead allocation statistic as provided in Appendix 3 of Abu Dhabi Clinical Costing Standard.

3.2.6 Match Final Cost Centres to Cost Buckets

3.2.6.1 Avoid reporting cost data for each final direct cost Center individually, especially when there may be over 100 such centers in a health service. Aggregate final direct cost centers into higher-

level “Cost buckets” (also known as “cost pools”), for example, group all ward-related cost centers (e.g., medical, surgical, paediatric, obstetric).

3.2.6.2 For the purposes of submitting cost data to the Department of Health, healthcare facilities must map their final direct cost centers according to the mapping table located at Appendix 2 of Abu Dhabi Clinical Costing Standard

Table 2: Cost Bucket Mapping Example

Final Direct Cost Center	Cost Bucket
Obstetric Ward	Ward
Surgical Ward	Ward
Medical – Orthopaedics	Physician
Medical – Rheumatology	Physician
Operating Room	OR
Pharmacy – Dispensed	Pharmacy
MRI	Imaging
Ultrasound	Imaging

3.3 Stage 3: ALLOCATE OVERHEADS

3.3.1 Selecting Overhead Allocation Statistics

3.3.1.1 Select allocation statistics based on data availability, the casual relationship of the statistic to the overhead cost Center, and the application of common sense.

3.3.1.2 For example, allocate the costs of the IT department to other final cost departments in proportion to the number of IT assets they hold (e.g., laptops/computers). If this data was not available, this cost might be allocated in proportion to the number of staff (e.g., headcount or FTE). These are examples of causal relationships. It would not make sense however to allocate those costs in proportion to the floor space of those departments.

3.3.1.3 Refer to Appendix 3 of Abu Dhabi Clinical Costing Standard for a table of overhead cost centers and recommended allocation statistics. Use these statistics depending on the availability of relevant data.

3.3.2 The Overhead Allocation Process

3.3.2.1 Allocate overhead costs to direct final cost centers in proportion to the selected statistics. Below is a simple illustration using the step-down overhead allocation approach:

IT Department Cost = 1,000,000 dhs			
Direct Final Cost Centre	**Computers**	**%**	**Allocation**
Ward A	10	11%	112,360
Ward B	20	22%	224,719
Operating Room	5	6%	56,180
Medical - Surgery	6	7%	67,416
Medical - Oncology	8	9%	89,888
Laboratory	15	17%	168,539
Imaging	25	28%	280,899
Total	**89**	**100%**	**1,000,000**

Figure 2: Step Down allocation of IT costs

3.3.3 Step Down Versus Reciprocal Overhead Allocations

3.3.3.1 A step-down method will see overhead final cost center costs directly allocated (using the relevant allocation statistic) to final direct cost centers. This is shown in Figure 2 above.

3.3.3.2 A Reciprocal approach allocates overheads to other overhead final cost centers as well direct final cost centers before finally being allocated to direct final cost centers. Costing systems usually achieve this via the use of simultaneous equations. This approach is pictorially represented in Figure 7 below.

3.3.3.3 The Reciprocal approach is superior to Step Down as it acknowledges that overhead final cost centers will service other overhead final cost centers, so these allocations take place first, before costs are fully allocated to direct final cost centers. For example, the Finance department provides services to the Human Resources department and vice versa, so costs will flow to each other according to the statistics used, before being finally allocated to final direct cost centers. A visual representation of this process is shown below:

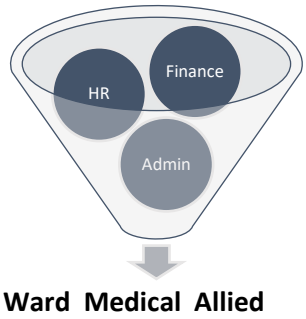

Figure 3: Reciprocal Overhead Allocation

3.3.4 Selecting Final Cost Centers to Allocate Overheads To

3.3.4.1 Allocate overhead costs only to final cost centers that are relevant.

3.3.4.2 Take the Medical Administration department for example. This department may provide administrative support to all medical (physicians) staff in the hospital. So, these costs should only be allocated to final cost centers with medical (physician) salary costs within them. Costing practitioners should therefore take care to discern which final cost centers to allocate overhead costs to.

3.4 Stage 4: CREATE COSTING PRODUCTS

3.4.1 Clinical Costing Products

3.4.1.1 Identify various components / interventions that contribute to patient care to accurately assess clinical costing products. This process can be compared to a manufacturing setting where materials, labor, and overheads are combined to produce a final product. In healthcare, the

final product is the treated patient who exits the health service. This product is the result of integrating multiple healthcare services and resources, which include laboratory and imaging tests, medications and medical supplies, physician services, nursing care, allied health interventions, and operating room procedures. Additionally, administrative, and financial overheads must also be considered as part of the overall cost.

3.4.1.2 To effectively create products for costing, practitioners must develop a comprehensive understanding of the patient-level data available within the health service. It is essential for costing practitioners to collaborate closely with the Health Information and Information Technology departments to ensure that the full range of relevant data is accessible and appropriately utilized in product creation.

3.4.1.3 Next, differentiate between patient-related products and non-patient-related products. Patient-related products represent most healthcare costs and are directly associated with the treatment provided to patients. On the other hand, non-patient-related products are costs that, while essential for the overall operation of the health service, do not directly correlate to individual patient care. It is crucial to ensure that both categories of products are accurately identified and recorded in the clinical costing process. Please refer to Appendix 4 of Abu Dhabi Clinical Costing Standards for minimum list of costing products. An example is provided below for quick reference:

Table 3: Example of clinical costing products

Final Direct Cost Centers	Products
Wards and ICU	Patient time on the ward Admissions to the ward Discharges from the ward Patient transfers (e.g., to/from another wards/Operating Room) Nurse activities Ventilation support
Phsicians	Outpatient Clinic Attendances (First and Follow up) Operating Room and Other Procedure Suite Procedures Ward Rounds Admissions Discharges Internal Consultations
Operating Room and Other Procedure Suites	Procedures (measured in minutes)
Anesthetics	Procedures (measured in minutes)
Medical Supplies	Prostheses, Implants, other high-cost consumables (e.g., HCPCS)
Laboratories	Tests by laboratory type (e.g., biochemistry, microbiology etc.)
Imaging	Tests by imaging type (e.g., x-ray, CT, MRI, PET, Ultrasound etc.)
Pharmacy	Drugs dispensed to patients
Allied Health	Procedures or interventions
Outpatient Clinics	Attendances (F2F, Tele) (First and Follow up)
Emergency Departments	Triage Category (1 to 5)

Other Diagnostic	EEG, ECG, Sleep labs etc.
Other	E.g., Other procedures such as Radiotherapy

3.4.2 Non-Patient Products

3.4.2.1 Examples of non-patient products include expenses associated with the following:

- 3.4.2.1.1 Teaching, Training and Research.
- 3.4.2.1.2 Some funded mandates (e.g., blood bank).
- 3.4.2.1.3 Car parking.
- 3.4.2.1.4 Cafeteria/other areas leased for retail purposes.
- 3.4.2.1.5 Other non-patient related business units.

3.4.2.2 To accurately allocate costs in the clinical costing process, non-patient products must be included as they are essential for reconciling costed outputs with general ledger financial inputs. Overheads should be allocated where necessary to reflect the total cost of the related non-patient products. For instance, if security staff are assigned to patrol the car park, the associated overhead costs should be distributed to the car park non-patient product.

3.4.2.3 Before overheads are allocated to non-patient products, costing practitioners must consult with their Finance department to identify any organizational services that support these non-patient products. In practice, non-patient products are typically referred to as 'dummy' products because they do not involve actual activity. The product name, such as 'Car Park' or 'Cafeteria,' reflects the total direct and overhead costs allocated to it.

3.4.3 Map Products to Direct Final Cost Centers

3.4.3.1 When costing products have been created, they need to be correctly mapped to the final direct cost centers that they are associated with. In some cases, this will be relatively straightforward. For example, dispensed drugs will be related to the pharmacy department. In other cases, additional information may be required. For example, in the general ledger, there may be a ward called ‘5 West’. In the ward activity dataset however, there may be no ‘5 West’ or ‘5W’ – it may instead be called ‘Sunset Ward’. Costing practitioners need to work closely with their information or concerned departments to understand how to correctly link the ward products to the correct ward final cost centers.

3.4.3.2 Costing practitioners shall also have a mechanism to alert them if any new data items are available, as these items will need to be mapped to a costing product and final cost center. For example, there may be a new drug dispensed, creating a new pharmacy product. This new product will need to be mapped to the pharmacy final direct cost center. See below example:

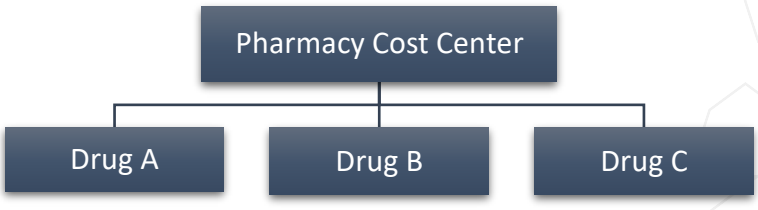

Figure 4: mapping of pharmacy products to the pharmacy final direct cost center

3.5 Stage 5: ALLOCATE COST TO FINAL PRODUCTS AND PATIENTS

3.5.1 Primary Cost Drivers

3.5.1.1 Duration is typically the primary cost driver used to allocate ward and procedural costs. For example, it makes sense to allocate the costs of wards to patients in proportion to the length of time they spend on the ward. A patient who spends six days on a ward will consume more nursing resources than a patient who spent three days on the same ward. Similarly, a patient who spends an hour in an operating room procedure will consume more medical, nursing and technician resources than a patient who spends 40 minutes in an operating room for the same procedure.

3.5.1.2 The second primary cost driver is a count of products consumed. This may be a count of drugs dispensed, prosthesis (or HCPCS items), imaging, laboratory, and other diagnostic tests. A count of products can also be applied for patient admissions and discharges, ward transfers. The principle in this instance is that a patient who consumes more products, such as imaging tests, should be attributed more cost than a patient who consumes less.

3.5.1.3 The third primary cost driver is actual cost. For example, if the actual cost of each prosthesis or drug is available in the related datasets provided, this information can be used to distribute the total costs of the final direct cost center to its related products.

3.5.1.4 In the example below, the general ledger shows total prosthesis expense to be 34,000, which is the expense to be distributed. The actual cost of the prosthesis consumption comes to 32,000, with the difference being due to stock on hand. In this case, the percentage of the actual cost of each prosthesis is calculated to distribute the 34,000 of prosthesis costs in the general ledger.

General Ledger Prosthesis Costs = 34,000

Prosthesis	Actual Cost	%	Allocation
Pros A	10,000	31%	10,625
Pros B	15,000	47%	15,938
Pros C	5,000	16%	5,313
Pros D	2,000	6%	2,125
Total	**32,000**	**1**	**34000**

Figure 5: Actual cost primary cost driver

3.5.2 Secondary Cost Drivers

3.5.2.1 At the point where all products have been mapped to a final direct cost center, by simple mathematics, we can obtain an average cost for each product: Avg Product Cost = Total final direct department cost / Volume of products. The problem with this is: not every product should cost the same. Consider for example an Operating Room, where the primary cost driver may be the duration of the procedure (as recorded in minutes). Using the primary cost driver of duration will provide an average cost of a minute in the Operating Room across the costing period. This approach however does not account for the fact that some procedures may require a higher staffing profile than others. In this case, if data surrounding the staffing profile of different procedures is available, it can be used to weight the average cost of a minute in the Operating Room.

3.5.2.2 Similarly, using a count of MRI tests to allocate MRI costs will provide an average cost for each test, however some tests will take longer to complete than others and require a different staffing profile, and the data related to the duration of the test may not be available. In this case, a study of the duration of MRI tests and the associated staffing requirements could be undertaken to appropriately weight the cost of those tests.

3.5.2.3 Some secondary cost drivers can be derived from discussions with clinical staff, and this is particularly important when allocating medical costs, which will account for a significant proportion of any health service's costs. Most clinicians will not document the time they spend on patient related activities, so costing practitioners need to understand the average time they take to complete these activities.

3.5.2.4 These weightings are known in the costing process as relative value units, or 'RVU's.'

3.5.2.5 In the example below, product RVUs have been derived from discussions with the orthopaedic surgery department. These RVUs reflect the average minutes taken to complete each product related activity and are used in combination with the primary cost driver volumes to derive an average cost of each product:

ORTHOPAEDIC SURGEON COST CENTRE

Medical Salaries	Total Minutes	Avg Cost/Min
2,000,000	135,400	14.77

Product	Cost Driver	Volumes	RVU	Minutes	Product Cost	Total Cost
Admission	Count	320	60	19200	886.26	283,604
Discharge	Count	300	30	9000	443.13	132,939
Change of Specialty	Count	50	30	1500	443.13	22,157
Inpatient Consults	Count	30	40	1200	590.84	17,725
Inpatient Ward Rounds	Patient Ward Days	2000	20	40000	295.42	590,842
Outpatient Consults First	Count	350	30	10500	443.13	155,096
Outpatient Consults Follow Up	Count	600	15	9000	221.57	132,939
Time in Operating Room	Operating Minutes	45000	1	45000	14.77	664,697
						2,000,000

Figure 6: Use of RVUs in cost allocation

3.5.3 Approach To Allocating Cost

3.5.3.1 The approach to using primary and secondary cost drivers is dependent on the availability of data and the effort the health service has taken to measure secondary cost drivers. The following hierarchy of primary cost drivers is appropriate:

3.5.3.1.1 Actual Cost (no need for secondary cost drivers)

3.5.3.1.2 Duration (may be used with secondary cost drivers where these are available)

3.5.3.1.3 Count of activities (these should be accompanied by secondary cost drivers)

3.5.4 Work In Progress

3.5.4.1 The cost data return in Abu Dhabi requires facilities to submit cost data for encounters completed during the costing period, which is a financial year. At the end of a costing period (e.g., the end of a financial year), there will be patients who are admitted but not yet discharged. Similarly, there will be patients who were admitted prior to the start of reported financial year and discharged during the costing period. These patients will be consuming costing products such as ward time, medical interventions, drugs etc.

3.5.4.2 For the cost data return in Abu Dhabi, the healthcare facilities will report work in progress patients as below:

3.5.4.2.1 Product costs of patients commencing treatment prior to the financial year and ending treatment within the financial year (total costs including all prior year(s);

3.5.4.2.2 Patients commencing treatment prior to the financial year and not discharged within the reported financial year (costs to be held over until the patient has completed their treatment); and

3.5.4.2.3 Patients commencing treatment within the financial year and not discharged within the reported financial year (costs to be held over until the patient has completed their treatment).

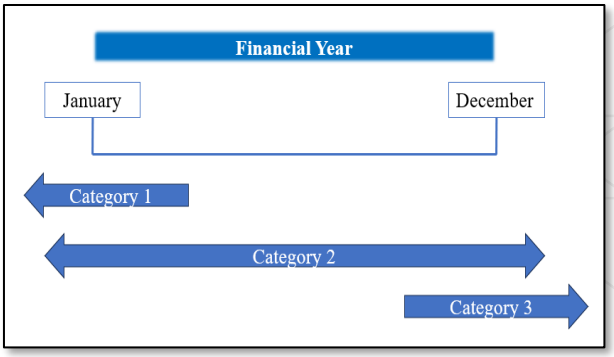

Figure 7: Work in progress

3.5.5 Linking Products to Patients

3.5.5.1 Some healthcare facilities will have a central health information system with various modules that capture the breadth of patient information across the health service. Other health facilities will have a patient administration system that captures some patient datasets, but not others. For example, patient master, patient episode, ward, and procedure data may be captured in the patient administration system, but separate systems exist for pharmacy, laboratory, and imaging.

3.5.5.2 Costing systems typically include linking rules to ensure products can be linked to the correct patient encounter from the encounter dataset.

3.5.5.3 Ideally all patient data systems used in a health service will use the same patient encounter number and can therefore link data directly via the encounter number. Sometimes, stand-alone patient data systems (e.g., pharmacy) may have their own standalone unique patient record number (URN), but not the patient encounter number. This requires linking rules to be established to look for the correct episode using date ranges for emergency department, inpatient, and outpatient encounters.

3.5.5.4 Where separate standalone patient data systems are used by health providers, below are some common rules for matching patient encounters with resources. Costing practitioners shall consult with each service department to ensure the rules are appropriately applied to ensure the most accurate match.

3.5.5.5 Products such as imaging tests, laboratory tests and dispensed drugs from pharmacy should be linked to the encounter where the product was ordered and/or delivered. The location where the product was ordered should take precedence over where the product was delivered.

3.5.5.6 If dates are used to link products to encounters, the matching rules should generally follow the following preference:

3.5.5.6.1 identify an emergency encounter with the date/time of the product. If no match, then

3.5.5.6.2 identify an admitted encounter encompassing the date/time of the product. If no match, then

3.5.5.6.3 identify a non-admitted consultation matching the date of the product. If no match, then

3.5.5.6.4 identify a non-admitted consultation up to 30 days prior to the product date. If no match, then

3.5.5.6.5 identify a non-admitted consultation up to 30 days after the product date. If no match, then record the product and related cost as an unlinked product.

3.5.5.7 Matching of other products to the relevant encounter should consider the type of product. For example:

3.5.5.7.1 Chemotherapy drugs dispensed prior to admission/treatment will be linked to a relevant chemotherapy encounter and not to an unrelated non-admitted presentation.

3.5.5.7.2 Radiotherapy treatments provided while admitted will be linked to admitted encounters. All other radiotherapy treatments are to be linked to non-admitted radiotherapy encounters.

3.6 Stage 6: DATA REVIEW AND RECONCILIATION

3.6.1 Data Quality Framework

3.6.1.1 Recognize that large datasets of financial and patient-level data may contain errors.

3.6.1.2 Ensure that appropriate data quality checks are in place to identify and correct data errors at the source in a timely manner. Please refer to Annexure 2 of this document for list of quality checks (non-exhaustive).

3.6.2 Reconciliation of Financial and Patient-Level Information

3.6.2.1 Reconcile financial and patient-level information to source systems to avoid errors and maintain integrity and transparency in the results.

3.6.2.2 Reconcile general ledger inputs with costing outputs.

3.6.2.3 Ensure patient data inputs align with patient data outputs. Include all patient encounters, such as self-paid patients, in the reporting during the costing period.

3.6.2.4 Please refer to Annexure 1 of this document to access the Reconciliation Report template.

3.6.3 Impact of Excluding Patient Encounters

3.6.3.1 Understand that eliminating patient encounters from the costing process can artificially inflate the costs of remaining encounters, leading to a higher average cost. Healthcare facilities will ensure that they report all patient encounters for the costing period.

3.6.4 Compliance with Audits

3.6.4.1 All healthcare facilities participating in the costing process must ensure to comply with financial and patient data reconciliation audits.

3.6.4.2 Submit reconciliation templates along with the annual submission of cost data to the Department of Health.

3.6.4.3 Ensure to provide all the required information to complete the audit.

3.6.5 ADCCDC Process

3.6.5.1 Phase 1: Receipt of Submission

3.6.5.1.1 Data should be submitted annually between 1–15 April. The submitted data must reflect complete financial and patient encounter data for the previous financial year, which aligns with the official UAE financial year (1 January to 31 December). Healthcare facilities who do not follow January – December financial closing period are expected to submit January – December cost data regardless of their closing period.

3.6.5.1.2 A minimum of two annual files must be submitted, including all completed encounters, regardless of funding source, for the financial period. These files should include the encounter file and the cost file. The files must follow the Department of Health costing file data specifications. Healthcare providers have the option to submit more than two annual files to facilitate ease of submission (e.g., monthly submissions). The submission must include the total cost for each patient encounter, including those costs allocated in prior years. Refer to Section 3.5.4 of this document for details on the treatment of Work in

Progress (WIP) patient encounters. Healthcare facilities are required to conduct validation, reconciliation, and quality assurance reviews of the data before submission.

3.6.5.1.3 File submission should be completed via DoH's Secure Data Exchange (SDE) portal using the File Submission section. The technical details for SDE including transmission channel, costing file specifications, integrations protocols and other technical matters will be shared with healthcare providers after the publication of this Abu Dhabi Clinical Costing Standard and Guidelines.

3.6.5.1.4 The facility submitting costing data must confirm that a submission has been uploaded to the SDE via email to [dohclinicalcosting@doh.gov.ae]. An acknowledgment email will be provided to the facility by the ADCCDC program team. It is recommended that healthcare facility retain a copy of all submitted files for auditing purposes.

3.6.5.2 Phase 2: Submission Validations

3.6.5.2.1 After data submission, the ADCCDC program team will generate file summaries for each health facility. These summaries will include a detailed breakdown of direct, overhead, and total costs, as well as the number of encounters categorized by patient type (e.g., Inpatient, Outpatient, Emergency) and healthcare facility ID.

3.6.5.2.2 Healthcare facilities must review these summaries to ensure the accuracy and completeness of the data received by the ADCCDC program team. This step is essential for reconciling submitted data and identifying any discrepancies related to patient types, encounters, and costs.

3.6.5.3 Initial File Submission Validations

3.6.5.3.1 Submitted files must comply with the data request specifications issued by the Department of Health. These specifications will guide the submission and validation process, which is designed to detect any critical errors or warnings.

3.6.5.3.2 The validations identify records that have been submitted which do not contain the values required. Healthcare facilities must fix all critical errors so the file and its contents can be used by the Department of Health.

3.6.5.3.3 The Department of Health will validate the files upon submission for file format, structure, and value ranges.

3.6.5.3.4 Where an error occurs on the file, healthcare facilities will be notified of the error type, including the encounter and file to which the error is related to.

3.6.5.3.5 The two error types in the file validation process are illustrated below. The finalised validation rules will be published by the Department of Health later as part of data specifications.

3.6.5.3.5.1 Critical Errors: Where there are critical errors identified in the validation process, the file submission will be rejected. Examples of critical errors include incorrect: file formats, naming conventions, data types and empty fields. Any files with critical errors will need to be resubmitted with errors fixed.

3.6.5.3.5.2 Warning Errors: These are errors that are acceptable in the file submission but will be flagged with a warning.

3.6.5.4 Phase 3: Resubmissions as Necessary

3.6.5.4.1 Facilities may resubmit files as required during the period 1-31 May. Resubmissions will be required where critical errors have been identified in the file validation process or where facilities wish to address any issues identified in the quality assurance checking process. All resubmissions will go through the process from the beginning.

3.6.5.5 Phase 4: Functional Validations

3.6.5.5.1 Functional validations include data quality assurance checks (QA), which will be performed on final submissions once the file format, structure and value ranges are validated to be correct and the matching levels are deemed valid.

3.6.5.5.2 Functional validations, for instance, include data quality assurance (QA) checks that provide a level of understanding of the usefulness of the patient level costed data for development of funding models and interpretation for analysis and reporting. Measuring data quality levels can help facilities identify data errors that need to be resolved and assess whether the data in their service systems and general ledger is fit to serve its intended purpose.

3.6.5.5.3 The Department of Health will provide with records that have been flagged for review.

3.6.5.5.4 Healthcare facilities should review and assess if the records flagged are valid or invalid to assist with their own internal data quality improvement processes.

3.6.5.6 Phase 5: Receipt of Reconciliation Report

3.6.5.6.1 The Department of Health expects the reporting of correct, audited, and reconciled cost data from facilities. Healthcare facilities are required to attest that their cost data submitted has been reconciled and completed in accordance with the Abu Dhabi Clinical Costing Standard and Guidelines.

3.6.5.6.2 Healthcare facilities are required to complete and submit the reconciliation report as per Annexure 1 of this document.

3.6.5.6.3 This reconciliation report is to be submitted to the Department of Health no later than 31 May each year and is to be accompanied by a signed attestation of the costing data by the Chief Financial Officer of the healthcare facility submitting the data.

3.6.5.7 Phase 6: Consolidation of Cost Data

3.6.5.7.1 When data has arrived and been checked, the Department of Health will consolidate the data for internal analysis for the purpose of developing value-based funding and pricing policy.

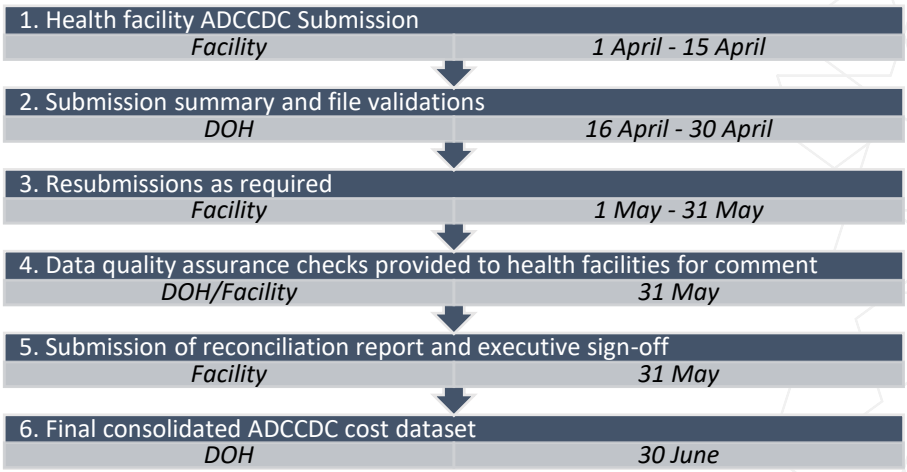

Figure 8: Submission process flow.

4.Relevant References Documents			
No.	**Reference Date**	**Reference Name**	**Relation Explanation / Coding / Publication Links**
1		Australian Costing Guidelines, 4.2	The content of this Standard is adapted from The Australian Hospital Patient Costing Standards & were referenced in the production of this document The Australian Independent Hospital and Aged Care Pricing Authority material. It was used as supplied under Creative Commons License 3.0, which in clause 3A, allows for worldwide, royalty, free, non-exclusive, perpetual license to create and reproduce one or more derivative works. Please refer to below link for details on Creative Commons License **https://www.ihacpa.gov.au/resources/australian-hospital-patient-costing-standards-version-42**