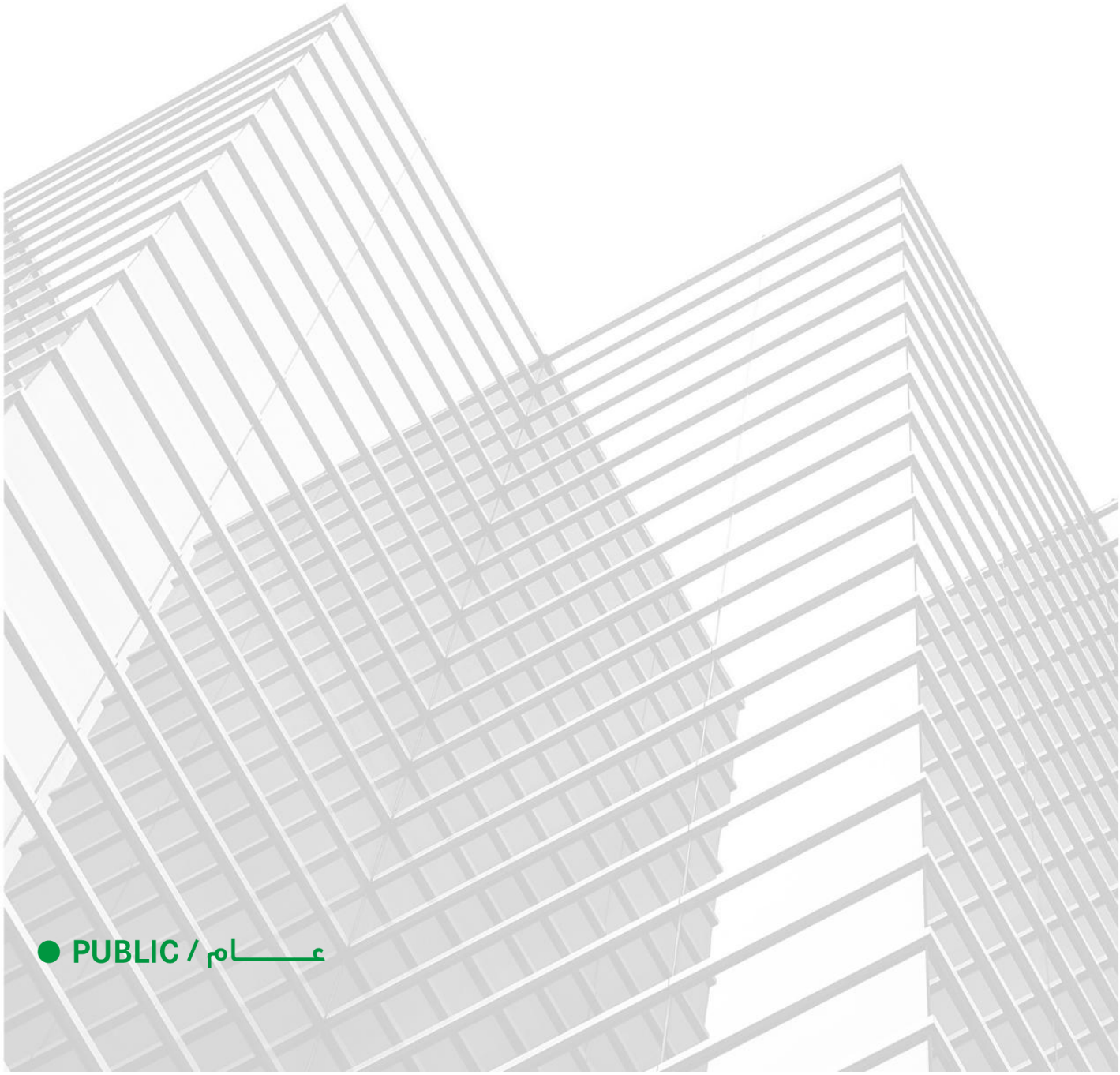
دائـــرة الـصـحـة
DEPARTMENT OF HEALTH

Abu Dhabi Clinical Costing Guidelines



PUBLIC / عـــــام

Document Title:	Abu Dhabi Clinical Costing Guidelines		
Document Ref. Number:	DoH/GD/HCPFA/ADCC/V2/2025	Version:	V2
New / Revised:	Revised		
Publication Date:	January, 2026		
Effective Date:	February, 2026		
Document Control:	DoH Strategy Sector		
Applies To:	- DoH licensed Healthcare Providers - DoH licensed Healthcare Providers of dental services. - DoH authorized Health Payers. - All Health Insurance products and schemes, as applicable.		
Owner:	Healthcare Payers & Finance Affairs		
Revision Date:	November, 2026		
Revision Period:	One year		
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1.Guideline Purpose and Brief

1.1. The current version of the guideline is the Abu Dhabi Clinical Costing Guideline Version 2.0

1.2. 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.

1.3. This guideline applies to the healthcare providers, providing direct patient care and operating in the Emirate of Abu Dhabi, under the license provided by the Department of Health such as:

1.3.1. Hospitals

1.3.2. Specialist day case and day surgery centers

1.3.3. Long term care and rehabilitation (LTC and Home Care)

1.3.4. Stand-alone specialist services (e.g., Dialysis, IVF, Dental etc.)

1.3.5. Primary care centers

1.3.6. Clinics Alternative Medicine Centers and Others

1.4. This guideline does not apply to:

1.4.1. Stand-alone Outpatient Pharmacies

1.4.2. Stand-alone Diagnostic Centers (e.g. laboratory and imaging)

1.4.3. Stand-alone Orthotics and Prosthetics Supplies Center

1.4.4. School Clinics

1.4.5. Offshore Clinic

2. Definitions and Abbreviations

No.	Term / Abbreviation	Definition
2.1	Accrual Accounting	This is an accounting method that recognizes expenses when expense is incurred regardless of when the cash is paid
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	Cash Accounting	This is an accounting method that recognizes expenses when cash is paid
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	Department of Health Abu Dhabi (DoH)	The regulative body of the Healthcare Sector in the Emirate of Abu Dhabi, Established based on law No. (10) of 2018.
2.12	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.
2.13	Final Overhead Cost Centers	Cost centers that provide support to direct cost centers in the healthcare 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.
2.14	Function	Related activities are grouped under a specific department. For example, payroll, accounts receivable, accounts payable are grouped under Finance as a function. All final cost centers must be treated as functions.
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.

3.Guideline Content

3 Guideline Requirements and Specifications

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

Healthcare facilities must capture and accurately record all relevant expenditures linked to clinical activities to facilitate comprehensive and accurate cost allocation.

3.1.1 Third Party Expenses

3.1.1.1 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.

3.1.1.2 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.

3.1.1.3 Include these expenses in the cost model without omission.

3.1.1.4 Distribute these expenses appropriately across the group without exception.

3.1.1.5 Healthcare facilities must record expenses for outsourced laboratory and other clinical services like imaging services in their general ledger.

3.1.2 Offsets and Recoveries

3.1.2.1 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.

3.1.2.2 Apply funded mandates (non-activity-based mandates) as offsets against relevant expenses.

3.1.2.3 Apply credit notes received, for facility staff seconded to other facilities, as an offsets against relevant expenses.

3.1.2.4 Offset prior year adjustments against similar expenses in the current financial year.

3.1.3 Cash Accounting

3.1.3.1 Cash accounting must not be used for clinical costing as it does not accurately match costs with patient care. Clinical costing requires a clear link between specific patient treatments and costs which cash accounting does not facilitate as in cash accounting costs is recorded only when it is paid.

3.1.3.2 For example, if a healthcare facility uses a health information system for the period of 1st October – 31st December and the payment is made and recorded in February the following year.

3.1.4 Transition to Accrual Accounting

3.1.4.1 If a healthcare facility is using cash accounting or modified cash accounting, adjustments must be made to transform general ledger to accrual-based accounting. These adjustments need to be made at the end of each period to account for unrecorded costs.

3.1.4.2 Transitioning from cash accounting to accrual accounting typically involves several steps. The following examples outline a potential process, though the applicability may vary across healthcare facilities currently using cash accounting.

3.1.4.2.1 For tracking costs: - review all outstanding purchase orders, contracts and invoices from suppliers and other vendors to identify expenses incurred but not yet paid to get a true picture of resource consumed for the period. Record these in spreadsheet as a bespoke inventory log.

3.1.4.2.2 For unpaid expenses: - review all outstanding purchase orders, contracts and invoices for services already received. That is, if an invoice is received for locum resource in March but not paid till April this should be manually recorded as an expense in March.

3.1.4.2.3 At end of year or period, adjust and journal the value of direct costs accrued but not yet paid for.

3.1.5 Cost of Capital

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

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

3.1.6 Items To Exclude

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

3.1.6.2 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.

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

3.1.6.3.1 Patient charges, including diagnostic tests performed for other healthcare providers.

3.1.6.3.2 Grants or subsidies other than funded mandates.

3.1.6.3.3 Commercial leasing of space (e.g., florists, cafeterias).

3.1.6.3.4 Other revenue from sales of services.

3.1.6.3.5 Interest revenue.

3.1.7 Cost Types

3.1.7.1 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. Report full cost of an employee to the organization.

3.1.7.2 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.

3.1.7.3 Healthcare facilities who receive funded mandates, are required to report this as a cost type at the final product level in the cost data submission.

3.2 Stage: 2 CREATE THE COST LEDGER

3.2.1 Creating a Costing Ledger

3.2.1.1 The healthcare facility's general ledger must be transformed into cost ledger to systematically structure the financial information thereby, enabling accurate product costing.

3.2.1.2 Healthcare facility must obtain their general ledger for the specific reporting period.

3.2.1.3 If the healthcare facility general ledger captures expenses grouped across multiple facilities, the facility group must identify and segment these expenses at the individual facility level. The segmentation must be completed utilizing the cost centers to accurately track and attribute expenses to the appropriate patients and services within each distinct facility.

3.2.1.4 The general ledger items must be reconciled to the total expenditure against the facility's financial statements. Where there are discrepancies, these must be investigated and resolved.

3.2.2 Matching Expenses to Patient Products

3.2.2.1 Matching a health service's expenses to its patient 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 centers to a financial structure that aligns with patient products. This new financial structure is called the 'Cost Ledger.'

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

3.2.2.3 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 patient products (derived from data items) to final direct cost center in the cost ledger.

3.2.2.4 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:

- 3.2.2.4.1 The patient's unique record number.
- 3.2.2.4.2 The patient's encounter number.
- 3.2.2.4.3 The date the prosthesis was implanted.
- 3.2.2.4.4 The code and description of the prosthesis.
- 3.2.2.4.5 The purchase cost of the prosthesis item.

3.2.2.5 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.

3.2.2.6 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.

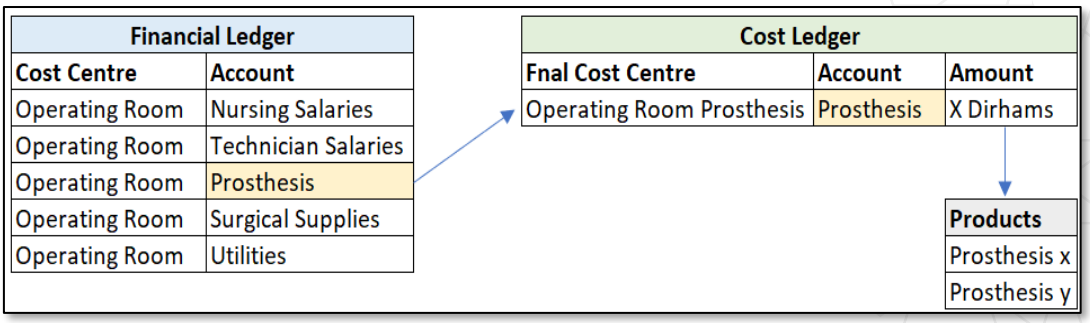

Figure 1: Map expenses to the Cost Ledger

3.2.3 Final Direct and Overhead Cost Centers

3.2.3.1 All expenses must be categorised into two groups; direct expenses, which are directly attributable to patients or a service and overhead expenses, which are general facility support costs that require allocation. Every expense item, regardless of its type must be mapped to a specific functional cost center that identifies the department/service responsible for incurring that cost.

3.2.3.2 Capture supplementary data such as payroll to accurately allocate employee costs or asset register to allocate depreciation costs to the appropriate final cost centers.

3.2.3.3 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.

3.2.4 Final Direct Cost Centers

3.2.4.1 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.

3.2.5 Final Overhead Cost Centers

3.2.5.1 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.

3.2.6 Ambiguous Cost Centers

3.2.6.1 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.

3.2.6.2 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.

3.2.6.3 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.

3.2.7 Match Final Cost Centers to Cost Buckets

3.2.7.1 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).

3.2.7.2 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	Function	Cost Bucket
Obstetric Ward	Obstetrics	Ward
Surgical Ward	Surgery	Ward
Medical – Orthopaedics	Orthopaedics	Physician
Medical – Rheumatology	Rheumatology	Physician
Operating Room	Operating Room	OR
Pharmacy – Dispensed	Pharmacy	Pharmacy
MRI	Imaging	Imaging
Ultrasound	Imaging	Imaging

3.3 Stage 3: ALLOCATE OVERHEADS

3.3.1 Identifying Overheads

3.3.1.1 Overhead expenses are those not directly incurred by or readily identifiable with a specific patient, clinical service line, or outpatient patient-facing department. These typically include, Finance, IT, Human Resource.

3.3.1.2 Healthcare facilities must allocate their final overhead costs to patient facing departments and overhead departments using appropriate statistics.

3.3.2 Selecting Overhead Allocation Statistics

3.3.2.1 Healthcare facilities must select allocation statistics based on data availability, the casual relationship of the statistic to the overhead cost center, and the application of common sense.

3.3.2.2 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.

3.3.2.3 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.

3.3.3 The Overhead Allocation Process

3.3.3.1 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

3.3.4 Step Down Versus Reciprocal Overhead Allocations

3.3.4.1 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.

3.3.4.2 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 3 below.

3.3.4.3 The Reciprocal approach is superior to Step Down as it acknowledges that overhead final cost centers will serve 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:

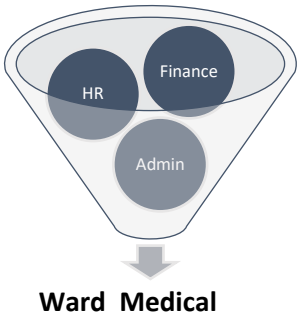

Figure 3: Reciprocal Overhead Allocation

3.3.5 Selecting Final Direct Cost Centers to Allocate Overheads To

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

3.3.5.2 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 direct cost centers to allocate overhead costs to.

3.4 Stage 4: CREATE PATIENT PRODUCTS

3.4.1 Clinical Patient Products

3.4.1.1 Identify various components / interventions that contribute to patient care to accurately assess clinical patient 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 patient products. An example is provided below for quick reference:

Table 3: Example of clinical patient 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
Physician	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 patient 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 clinical 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 patient 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:

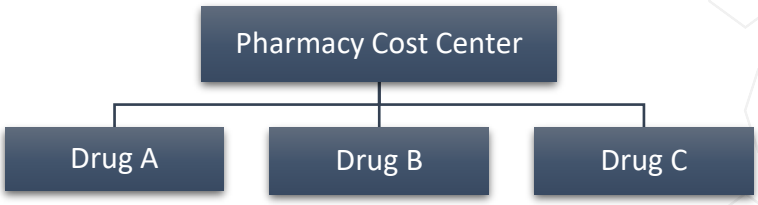

Figure 4: mapping of pharmacy products to the pharmacy final direct cost center

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 activity, ward or 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 For Work in Progress, Bundled or Homecare please refer to the appropriate tabs within the reconciliation report annexure 1 for further clarification.

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 Clinical 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 1 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.

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 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 1–31 May. 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 reconciliation report for details on the treatment of Work in Progress (WIP), Bundled or Homecare 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 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. DOH to communicate whether a resubmission is required and provide the appropriate timeline for that submission.

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 Healthcare facilities must submit their clinical costing output and reconciliation report during a 1 month period from 1st May – 30th May 2026.

3.6.5.7.2 During the 1 month period healthcare facilities must submit their final clinical costing outputs and costing reconciliation.

3.6.5.7.3 Once data is received and validated, the Department of Health will consolidate the data for internal analysis and reporting.

3.6.5.7.4 The Department of Health shall provide feedback to healthcare facilities where further clarification or corrective action is mandated.

4. Relevant Reference Documents

No.	Reference Date	Reference Name	Relation Explanation / Coding / Publication Links
1	2023	Australian Costing Guidelines, v.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
2	2024	Abu Dhabi Clinical Costing Standard V1 (DOH/ST/HPS/CC/V1/2024)	https://www.doh.gov.ae/-/media/8F049E6D5E5A4BF4BD3C582BCC206329.ashx
3	2024	Abu Dhabi Clinical Costing Guideline V1 (DOH/GD/HPS/CC/V1/2024)	https://www.doh.gov.ae/-/media/98F805EF90DD481BA467796B7639AA66.ashx
4	2025	Abu Dhabi Clinical Costing Road Map 2025	https://www.doh.gov.ae/en/Shafafiya/Clinical-Costing
5	2025	DOH Data Quality Standard 2025 (DoH/ST/DHS/DQ/V1/25)	https://www.doh.gov.ae/-/media/0FDBD6F306564E3FBB7807D51A7229E9.ashx

APPENDIX 1: CHANGE LOG

Change ID	Section Name / Number	Old Section Number	New Section Number	Description of Change	Change Type	Reason for Change
1	Guideline Purpose and Brief	1.1	1.1	Updated list of healthcare facility groups to who it applies to	Amendment	Update
2	Guideline Purpose and Brief	1.2	1.2	Defined list of healthcare facility groups to whom it does not apply to	Addition	New
3	Definitions and Abbreviations	2	2	Addition of definitions	Addition	New
4	Third Party Expenses	3.1.1.5	3.1.1.5	Scope guidance included	Addition	New
5	Offsets and Recoveries	3.1.2.2	3.1.2.2	Minor guideline change	Amendment	Update
6	Offsets and Recoveries	3.1.2.3	3.1.2.3	Minor guideline change	Amendment	Update
7	Offsets and Recoveries	3.1.2.4	3.1.2.4	Minor guideline change	Amendment	Update
8	Cash Accounting	N/A	3.1.3	Scope guidance included	Addition	New
9	Transition to Accrual Accounting	N/A	3.1.4	Scope guidance included	Addition	New
10	Items to Exclude	3.1.5	3.1.6	Name convention change	Amendment	Update
11	Cost Types	3.1.6.1	3.1.7.1	Minor guideline change	Amendment	Update
12	Cost Types	3.1.6.3	3.1.7.3	Minor guideline change	Amendment	Update
13	Creating a Costing Ledger	N/A	3.2.1	Scope guidance included	Addition	New
14	Matching Expenses to Costing Products	3.2.1.6	3.2.2.6	Minor guideline change	Amendment	Update
15	Final Direct and Overhead Cost Centers	N/A	3.2.3.1	Minor guideline change	Addition	New
16	Final Direct and Overhead Cost Centers	N/A	3.2.3.2	Scope guidance included	Addition	New
17	Match Final Cost Centers to Cost Buckets (Table 2: Cost Bucket Mapping Example)	3.2.6.2	3.2.7.2	Table expansion	Amendment	Update
18	Identifying overheads	N/A	3.3.1	Scope guidance included	Addition	New
19	Selecting Overhead Allocation Statistics	3.3.1.1	3.3.2.1	Minor guideline change	Amendment	Update
20	Work in Progress	3.5.4.1	3.5.4.1	Major guideline change	Amendment	Update
21	Work in Progress	3.5.4.2	N/A	Removed as guideline added to reconciliation report	Removal	Update
22	Phase 6: Consolidation of Cost Data	N/A	3.6.5.7.1	Minor guideline change	Amendment	Update
23	Phase 6: Consolidation of Cost Data	N/A	3.6.5.7.2	Scope guidance included	Addition	New
24	Phase 6: Consolidation of Cost Data	3.6.5.7.1	3.6.5.7.3	Minor guideline change	Amendment	Update
25	Phase 6: Consolidation of Cost Data	N/A	3.6.5.7.4	Scope guidance included	Addition	New
26	Relevant Reference Documents	4	4	Table expansion	Amendment	Update