



Hospital Costing Training: Facilitator manual presentation

Prepared by: Sophie Faye,
Yann Derriennic, Romana
Haider, Christopher Cintron,
and Margaret Morehouse



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



USAID
FROM THE AMERICAN PEOPLE



Session 1: Getting Started



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Session Objectives:

- ▶▶ At the end of the session, the participants will:
 - ❖ Know and understand the workshop objectives
 - ❖ Know and agree to workshop rules
 - ❖ Get to know each other better



Getting Acquainted

- ▶▶ In a moment, a question will appear on the screen.
- ▶▶ When it appears, please find another person in the room and share your response to the question on the slide with each other.
- ▶▶ This will happen three times. Each time you see a new question, find a new person and share your responses.



What is one word your friends and colleagues would use to describe you?



If you could have dinner with anyone in the world, who would it be?



What is your favorite book and why?



Introductions

- ▶▶ Please stand and tell us:
 - ❖ Your name
 - ❖ Your position and organization
 - ❖ One specific thing you would like to learn about during this workshop



Workshop Objectives

- ▶▶ By the conclusion of this workshop, participants will:
 - ❖ Understand the fundamental concepts involved with costing
 - ❖ Understand the MASH costing tool and be able to apply it for costing hospitals
 - ❖ Understand the use of costing results for effective hospital management



Agenda

	Day 1	Day 2	Day 3
Morning	❖ Welcome ❖ Hospital Costing 101	❖ Recap of Day 1 ❖ Costs per: ▶ Department ▶ Outpatient visit ▶ Inpatient day	❖ Recap of Day 2 ❖ Costs per specific disease
	Lunch		
Afternoon	❖ Overview of the MASH tool	❖ Costs per ▶ Department ▶ Outpatient visit ▶ Inpatient day	❖ Costs per specific disease



Agreements

- ▶▶ Start and end on time
- ▶▶ Digital devices switched to vibrate
- ▶▶ Please leave the room if you have to answer a call
- ▶▶ Be curious; ask each other to expand contributions, and ask if you don't understand
- ▶▶ Be a contributor; participate in large and small group discussions
- ▶▶ Avoid side conversations



Housekeeping

- » Participant manual
- » Restrooms
- » Breaks and meals
- » Fill the course registration sheet
- » Sign the course attendance sheet – every day







USAID
FROM THE AMERICAN PEOPLE



Session 2: Introduction to Costing



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Session Objectives

- ▶▶ By the end of this session, participants will:
 - ❖ Understand what costing is
 - ❖ Know the purpose of costing
 - ❖ Be able to name the types of costs and main costing approaches
 - ❖ Understand costing in a hospital context and know the steps of such costing exercises
 - ❖ Be introduced to the use of costing in the development of a business plan



What is Costing?

Costing is the process of identifying the costs of providing a defined unit of service or product.



Important Concepts

- ▶▶ **Cost:** a measure of the resources that are used up in the production of a service or a product. Services or products are therefore the outcome of the investment in resources (the cost)
- ▶▶ **Value:** how much buyers think the service is worth—how much better off they think they are when they receive the service
- ▶▶ **Price:** what individuals are charged when they buy the service



Purposes of Costing

- » Determine the price charged for a service or product
- » Conduct internal and external reporting and planning
- » Track expenditures against planned spending
- » Analyze types of costs that go into production
- » Plan for efficiency gains and increased revenue
- » Make key decisions to lower costs but maintain quality

Costs come in many forms





Cost Centers

Cost Centers are the smallest units producing a service or a product and to which resources (costs) can be allocated. For example, the radiology department in a hospital.



Fixed and Variable Costs

- ▶▶ **Fixed costs:** costs that regardless of the volume of hospital services, remain constant at least in the short and medium term
- ▶▶ **Variable costs:** costs that vary depending on the volume of production; they rise as production increases and fall as production decreases



Direct and Indirect Costs

- ▶▶ **Direct Costs:** costs that can be easily traced to a specific cost object (service, product) or cost center
- ▶▶ **Indirect Costs:** costs that are shared across different cost centers, services, or products and which need to be allocated, as they can't be directly traced



Financial and Economic Costs

- ▶▶ **Financial costs:** actual costs in terms of the measure of resources used for the production of a service or product
- ▶▶ **Economic costs:** differ from financial costs because they account for items that enter the production process but may not have a price



Recurrent and Capital Costs

- ▶▶ **Recurrent costs:** costs that are consumed during the course of a year, which might be needed every year.
- ▶▶ **Capital costs:** costs of resources that are longer lived (capital goods or fixed assets); these costs don't need to be incurred every year.



Depreciation

- » **Depreciation:** estimates how much of an asset is used up each year

If the organization annually sets aside the sum calculated through depreciation, by the end of the asset's useful life, there should be enough funds to replace the worn-out asset.



Total Costs

- ▶▶ Total Costs are the sum of the monetary values of all resources used in the production process of a given service or product (fixed and variable, recurrent or capital, financial or economic).



Unit Costs

- ▶▶ Unit costs are costs per unit of service or product.
- ▶▶ Two measures are used for unit costs:
 - ❖ Average cost
 - ❖ Marginal cost



Average and Marginal Costs

- ▶▶ **Average cost:** total cost of production divided by the number of units produced (both measured over a specified accounting period)

Average costs tend to decrease as the amount of activity or output increases and the fixed costs are shared out among more and more units.

- ▶▶ **Marginal cost:** cost of producing one extra unit of service



PRIMARY APPROACHES TO COSTING





Top-down Method

- ▶▶ Identifies every major shared cost of the production process (overhead costs like utilities, rent, maintenance, etc.)
- ▶▶ Also, takes into consideration departments that support activities in logistical departments
- ▶▶ Requires history and knowledge of production processes to accurately define costs and the criteria for allocation of each type of cost



Bottom-up Method

- ▶▶ Costs are tallied upward, starting at the bottom or unit level and accounting for each expected cost
- ▶▶ Total costs should equal the finished project cost
 - ❖ Pro: more accurate means of estimating total cost
 - ❖ Con: time-consuming, need more detailed data, and more expensive to realize



Hospital Costing

- ▶▶ Provides the basic information needed by managers and policy makers to:
 - ❖ make decisions to improve performance
 - ❖ compare performance of different hospitals to one another
- ▶▶ Assigns monetary values to resources involved in hospital operations



Importance of Hospital Costing

- ▶▶ Allows policy makers and hospital managers to:
 - ❖ Use scarce financial resources efficiently
 - ▶ Especially at public hospitals with limited external funds
 - ❖ Reduce dependence on donor/government resources
 - ❖ Have a means for routine management control
 - ❖ Provide information to manage change
 - ❖ Examine costs in connection with productive efficiency
 - ❖ Plan for decreased wastage and increased revenue
 - ❖ Draw conclusions on quality
 - ❖ Implement a sustainable approach to providing care



EXERCISE 1: CLASSIFYING COSTS





Exercise 1

- ▶▶ On page ____ in your participant manual, you will find
 - ❖ A list of costs, extracted from a hospital annual financial report (*all costs are for 1 year*)
 - ❖ A matrix for classifying costs by type
 - ❖ Financial information on the total cost of the outpatient general department
- ▶▶ Classify the costs by placing each cost in the appropriate cell
- ▶▶ Please work in pairs. You have 20 minutes.



Tea Break



PROCESS OF CONDUCTING A HOSPITAL COSTING EXERCISE





Introduction

- ▶▶ Costing studies can be performed across different settings
 - ❖ hospitals or primary care centers
 - ❖ at different levels, from a whole hospital to a hospital unit
- ▶▶ Key steps that must take place pre-, during, and post-costing exercise



Overview

- » Pre-Costing Steps
- » Costing Steps
- » Post-Costing Steps



Pre-Costing Steps

» Pre-Costing

- ❖ Step 1: Identify the hospital
- ❖ Step 2: Discuss with stakeholders
- ❖ Step 3: Identify costing method and data sources
- ❖ Step 4: Generate a protocol, timeline, and checklists
- ❖ Step 5: Prepare the costing tools and templates
- ❖ Step 6: Obtain ethical review board approval
- ❖ Step 7: Identify and train data collectors
- ❖ Step 8: Sensitize hospital staff



Costing Steps

» Costing

- ❖ Step 9: Collect and validate data
- ❖ Step 10: Use the MASH tool for cost calculation
- ❖ Step 11: Validate preliminary results with hospital management and providers
- ❖ Step 12: Collect additional data and perform additional analysis if needed



Post-Costing Steps

» Post-Costing

- ❖ Step 13: Finalize the costing results, if additional data collection or analysis has been performed
- ❖ Step 14: Draft the costing report
- ❖ Step 15: Present the costing results



Illustration of Hospital Costing: Saint Polycarp Hospital, Haiti

» Background

- ❖ Faith-based facility
- ❖ Mission to provide high-level pediatric services to poor or disadvantaged populations
- ❖ Situated near Port au Prince
- ❖ Mostly financed by international donors and user fees provide <7% of resources
- ❖ Requires alternative revenue generation strategies because of reduction in donor funds



Illustration of Hospital Costing: Saint Polycarp Hospital, Haiti

►► Problem statement

- ❖ Hospital is considering providing some services at full cost, with markup, to clients who can afford them
- ❖ Location enables capture of middle-class patients
- ❖ Cannot price these services without full costs
- ❖ Reasons for costing study:
 - 1) Set prices for services
 - 2) Provide information to donors on what their support “buys”
 - 3) Know cost of providing primary care (to consider if more cost efficient to externalize primary care to sister hospital)



Illustration of Hospital Costing: Saint Polycarp Hospital, Haiti

►► Unit of analysis

- ❖ Cost per type of service/disease
- ❖ SPH defined the services/diseases considered



Illustration of Hospital Costing: Saint Polycarp Hospital, Haiti

▶▶ Method of costing/Cost calculations

❖ Mixed approach method

- ▶ Top-down approach for overhead costs in producing of services
- ▶ Bottom-up approach for resources used in producing services
- ▶ Final cost per service/disease:
 - Follows principle of full absorption
 - Accounts for all direct and indirect costs of production



USAID
FROM THE AMERICAN PEOPLE



Thank you

Photo Credit: Colby Gottert/Digital Development Communications



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Lunch



USAID
FROM THE AMERICAN PEOPLE



Overview of the MASH Tool

Session 3



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Session Objectives

- » By the end of this session, participants will:
 - ❖ Be introduced to the MASH tool
 - ❖ Know various audiences/users of the MASH tool
 - ❖ Deepen their understanding of different types of costs
 - ❖ Be introduced to hospital services and outputs and how to measure them (indicators)
 - ❖ Be introduced to the concept of cost centers
 - ❖ Know some of the use of costing results



THE MASH TOOL





What is MASH?

» **MASH** – Management Accounting System for Hospitals

- ❖ Developed from hospital costing studies in several countries

» Excel-based framework of several interrelated spreadsheets

- ❖ Tracking and analyzing services, resources, costs
- ❖ Useful for routine management or initiating changes
- ❖ Makes resource and service management easy to understand



MASH Audiences & Uses

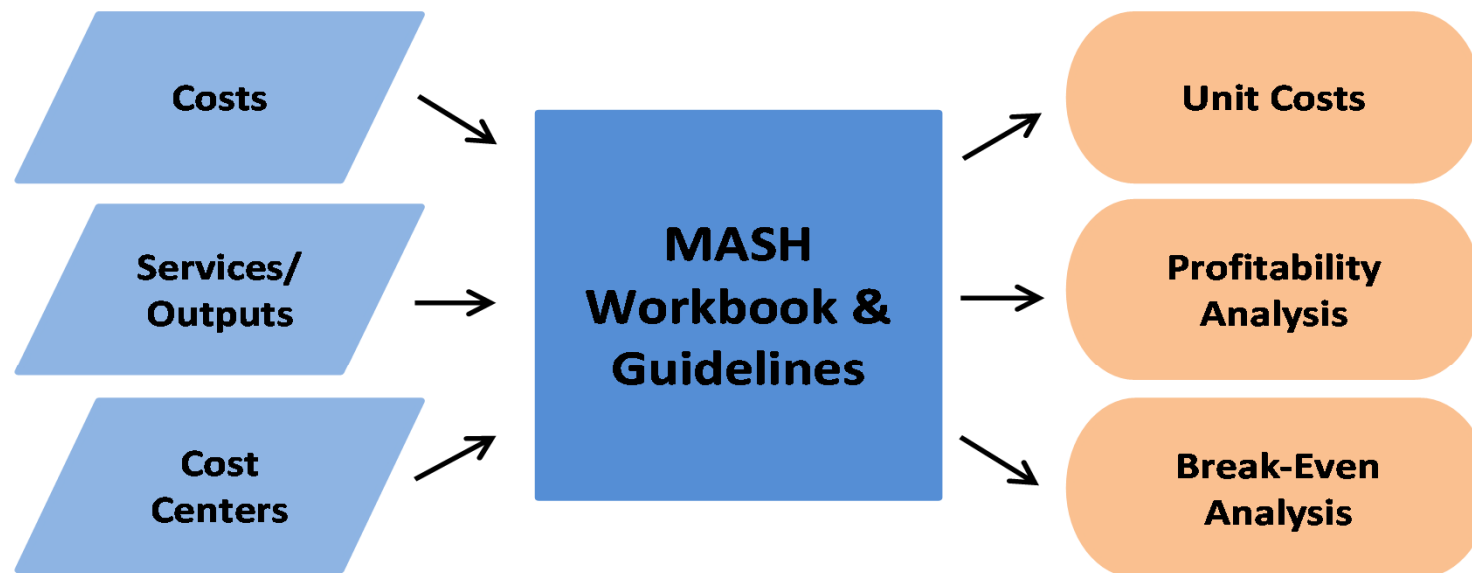
- ▶▶ **Hospital managers** – setting prices, negotiating contracts, managing capacity, modeling changes
- ▶▶ **Hospital department heads** – monitoring budgets, comparing care and management strategies
- ▶▶ **Care purchasers** – comparing hospitals to make funding and contract decisions



MASH Audiences & Uses, continued

- ▶▶ **Regulators and Auditors** – evaluating hospital performance, making internal (between departments) and external (between hospitals) comparisons
- ▶▶ **Health Financing and Operations Analysts** – recommending policies on resource allocation and care purchasing

Visualization of MASH Inputs and Outputs



Note: For the purpose of this training, we are only interested in the first output of MASH: “Unit Costs.” We won’t be exploring the process of getting the other two outputs.



Preparing to Use MASH

- ▶▶ Identify and collect data in the form of:
 - ❖ Costs
 - ❖ Services
 - ❖ Outputs
 - ❖ Cost Centers



Data Collection for MASH

Two main methods for collecting qualitative and quantitative information:

▶▶ **document review**

- ❖ the process of extracting relevant information from available documents into spreadsheets

▶▶ **field data collection**

- ❖ observations of the day-to-day functioning of the hospital
- ❖ guided visits conducted in selected departments to understand their structure and health services production process.



Document Review: Relevant Information

- » Organization of health care provision in the country and in the hospital
- » Health financing arrangements
- » Studies of health care cost already done for the hospital
- » History of the hospital
- » Legal status of the hospital
- » Demand for care from the population
- » Hospital activity and financial documents and reports
- » Inventory of medical and non-medical equipment
- » List of the main services provided by the hospital



Preparing for Field Survey

- ▶▶ Working sessions should be held with different hospital staff, before the active field survey phase. These individuals include:
 - ❖ Hospital executives
 - ❖ Resource persons on the management committee of the hospital
 - ❖ The heads of teams or medical and non-medical departments of the hospital
 - ❖ Health workers directly involved in the treatment of pathologies that were identified for the costing



Field Data Collection

- ▶▶ Should begin as soon as the document review is completed or very advanced.
- ▶▶ Information will be collected using standardized forms to capture inputs in the chain of health care production



Field Data Collection

- ▶▶ Health information from monthly reports
- ▶▶ If reports are not available, they must be reconstructed in collaboration with hospital staff
- ▶▶ Information on the quantity of drugs consumed, collected from the procurement office, the central pharmacy, or from department records
- ▶▶ Here, too, if the data are not immediately available, they will have to be reconstituted manually.



Field Data Collection

- ▶▶ If the data need to be reconstructed, an observation period may be needed to estimate the exact level of resources that go into producing these services.
- ▶▶ Observation period is selected based on the intensity of services provided during each period of the year
- ▶▶ The field data collection takes place over a period of 4 weeks (or more or less)



COSTS





Costs

- ▶▶ Start by identifying and quantifying hospital resources:
 - ❖ Labor
 - ❖ Supplies
 - ❖ Equipment
 - ❖ Buildings
 - ❖ Land
- ▶▶ Assign monetary values to those resources so they can be compared, analyzed in a common unit, money

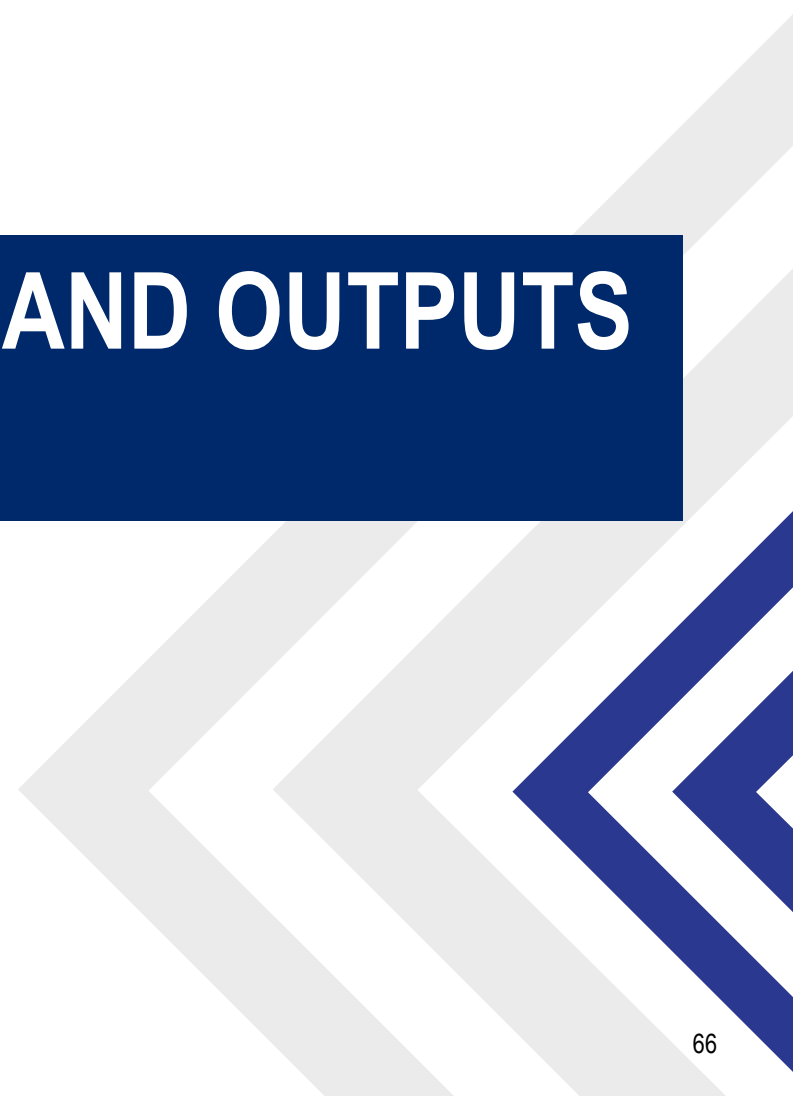


Costs, continued: types of costs

- ▶▶ Same types of costs covered in Session 2: Costing 101
 - ❖ Fixed and Variable
 - ❖ Direct and Indirect
 - ❖ Financial and Economic
 - ❖ Recurrent and Capital
 - ▶ Important to distinguish, as hospital costing usually covers one-year period
 - ▶ Depreciation cost is what will be accounted for in capital costs
 - ❖ Unit Costs – mainly average cost
 - ❖ Total and Full costs



HOSPITAL SERVICES AND OUTPUTS

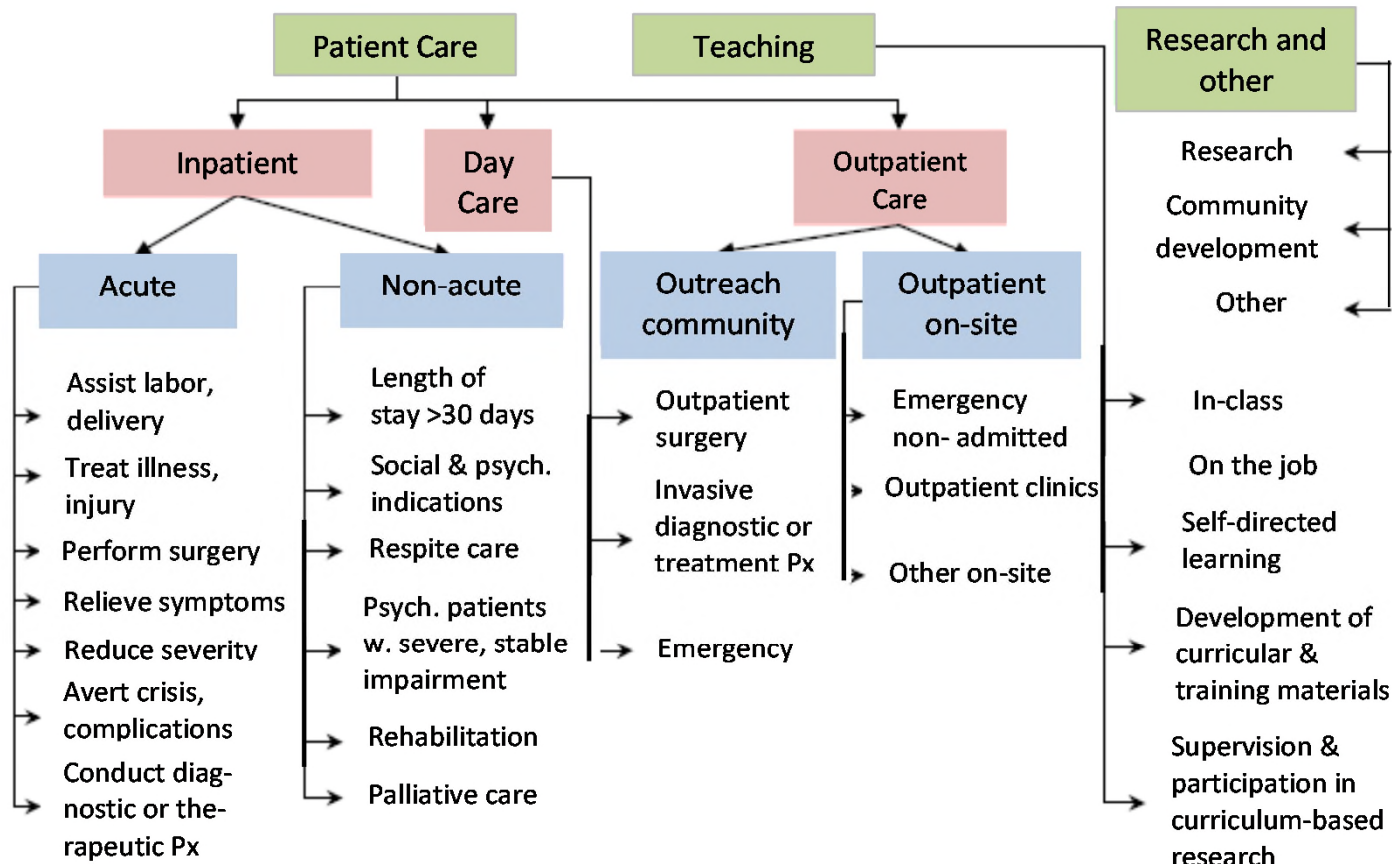




Hospital Services

- ▶▶ MASH aims to cost the services offered by a hospital in relation to the output of those services
 - ❖ e.g., cost of all newborn deliveries divided by number of deliveries
- ▶▶ Three main hospital functions
 - ❖ Patient Care
 - ❖ Teaching
 - ❖ Research
- ▶▶ MASH focuses on patient care, the main goal of hospitals

Hospital Services, continued: Classification of Hospital Services





Hospital Services, continued: Patient Care

- ▶▶ All activities involving provision of care to patients, at the hospital or in the community by hospital staff
- ▶▶ **Outpatient care** – treatment without hospitalization
- ▶▶ **Day patient care** – requiring a hospital bed for recovery or invasive treatment, but for less than a day
- ▶▶ **Inpatient care** – spending more than one day in hospital



Hospital Services, continued: Support Services

- ▶▶ Patient care is supported by intermediate medical and non-medical services, such as:
 - ❖ Pharmacy
 - ❖ Diagnostics
 - ❖ Laundry
 - ❖ Kitchen
 - ❖ Administration
 - ❖ Transport



Service Output Measures

- ▶▶ Service outputs must be quantified for use
- ▶▶ MASH is most concerned with final patient care measures
 - ❖ 3 inpatient measures
 - ❖ 3 outpatient measures



Service Output Measures: Inpatient Services

- ▶▶ **Number of inpatients** – admitted for at least one night and counted during daily census
- ▶▶ **Number of patient days** – completed days spent in hospital, also called length of stay
- ▶▶ **Number of episodes of patient care** – a period of treatment corresponding with clinical intentions and treatment goals
 - ❖ e.g., inpatient case changes from acute to non-acute = 2 episodes



Service Output Measures: Outpatient Services

- ▶▶ **Number of outpatient visits** – contact between patients and staff either in office or outreach setting
- ▶▶ **Finished episodes of outpatient care** – completion of clinical goals or guidelines for care
 - ❖ e.g., patient recovery, counsel given, appropriate test performed
- ▶▶ **Number of procedures** – indicator of a specific activity
 - ❖ e.g., specific lab tests, surgeries, treatments



COST CENTERS





Cost Centers

- ▶▶ MASH is structured around **cost centers**, also called departments
- ▶▶ **Cost Centers** are the smallest hospital units that create a product or range of services to which hospitals allocate cost
- ▶▶ Defining cost centers should be a collaborative process between the costing experts, hospital staff, and administrators



Cost Center Guidelines

» Cost centers should:

- ❖ Group activities together that have common management, inputs, space, and staff
- ❖ Be associated with a single product or service, e.g., surgery, outpatient visit, lab test
 - ▶ Where more detail is needed, cost centers can be more specific, e.g., types of surgery, lab test, disease-specific visits
- ❖ Reflect the way information is already managed/collected, and follow national guidelines so comparisons can be made



Cost Centers, continued: Types of Cost Centers

- ▶▶ There are 3 main types of cost centers:
 - ❖ Final cost centers
 - ❖ Intermediate medical cost centers
 - ❖ Intermediate non-medical cost centers



Final Cost Centers

- ▶▶ **Final Cost Centers**, (*revenue earning cost centers*), are:
 - ❖ Directly involved in the production of billable hospital services
 - ❖ Medical in nature
- ▶▶ Outpatient and inpatient clinics are examples of final medical cost centers
 - ❖ General or specific surgeries
 - ❖ General or specific medicine
 - ❖ Maternity, neonatal care, pediatrics



Intermediate Medical Cost Centers

- ▶▶ **Intermediate medical cost centers:** provide medical support services
 - ❖ Example: diagnostic services
- ▶▶ May directly serve patients (radiology)
- ▶▶ May indirectly serve patients (blood bank)



Intermediate Non-Medical Cost Centers

- ▶▶ **Intermediate non-medical cost centers** (*administrative or logistical cost centers*): provide overhead services to the entire hospital or large areas of a hospital
- ▶▶ Examples include: general administration, housekeeping, and maintenance services



Examples of MASH Cost Centers

Intermediate non-medical	Intermediate medical	Final medical
General administration	Pharmacy	Outpatient clinic*
Kitchen	Laboratory	Emergency*
Maintenance	Anesthesia	Dental clinic*
Cleaning	Radiology	Maternity†
Security	Operating room	Surgery†
Statistics/Records	Physical Therapy	Pediatrics†

* denotes outpatient services

† denotes inpatient services



SOURCES OF DATA FOR MASH





Data for the calculation of hospital costs

- ▶▶ Information on the various departments or services of the hospital, whether administrative, logistic, or medical
- ▶▶ Inventory of the main medical and non-medical equipment used in the hospital by department
- ▶▶ Space occupied by the various services/departments of the hospital
- ▶▶ Number of employees per position or function for each service/department



Data for the calculation of hospital costs

- » Monthly payroll data
- » Detailed monthly financial reports for the study period
- » The quantities and prices of medicines and medical consumables used
- » The activity data of the hospital's medical departments
- » Activity data of non-medical departments
- » Information about the energy system



Data for calculation of cost of identified pathologies

- ▶▶ The duration of hospitalization (if applicable)
- ▶▶ The total contact time of the medical staff involved in treatment of the patient (for each category)
- ▶▶ Drugs and medical consumables used during treatment
- ▶▶ Drugs and medical supplies prescribed/given at discharge
- ▶▶ Laboratory tests, X-ray exams, and medical procedures performed as part of the treatment
- ▶▶ Surgical interventions performed as part of the treatment.
- ▶▶ Equipment and materials used during treatment



TOTAL COSTS AND FULL COSTS





Total Costs

- ▶▶ **Total costs** = total direct costs + total indirect costs
- ▶▶ From another angle:
 - ❖ total costs = total capital costs + total recurrent costs
 - ❖ total costs = total fixed costs + total variable costs
- ▶▶ Total costs reflect the entire cost of keeping a cost center in operation



Full Costs

Full costs = total cost of revenue-earning cost center

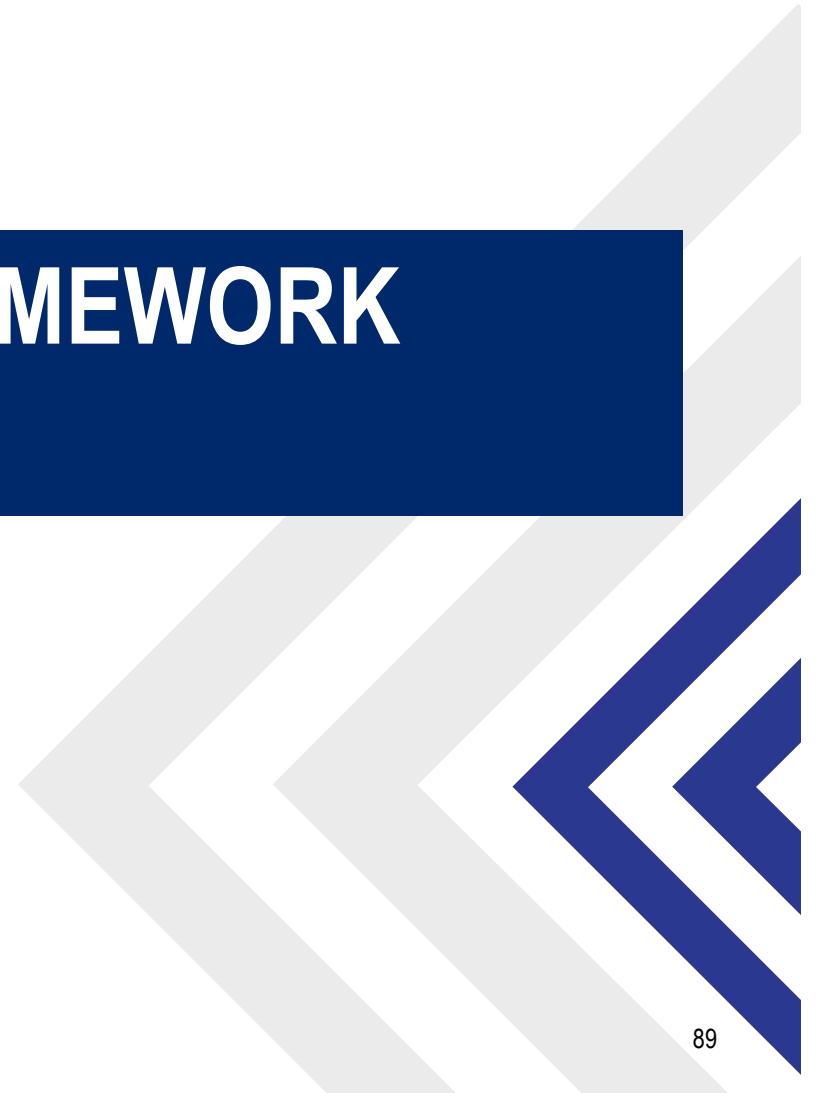
+

allocated share of costs from associated intermediate cost centers

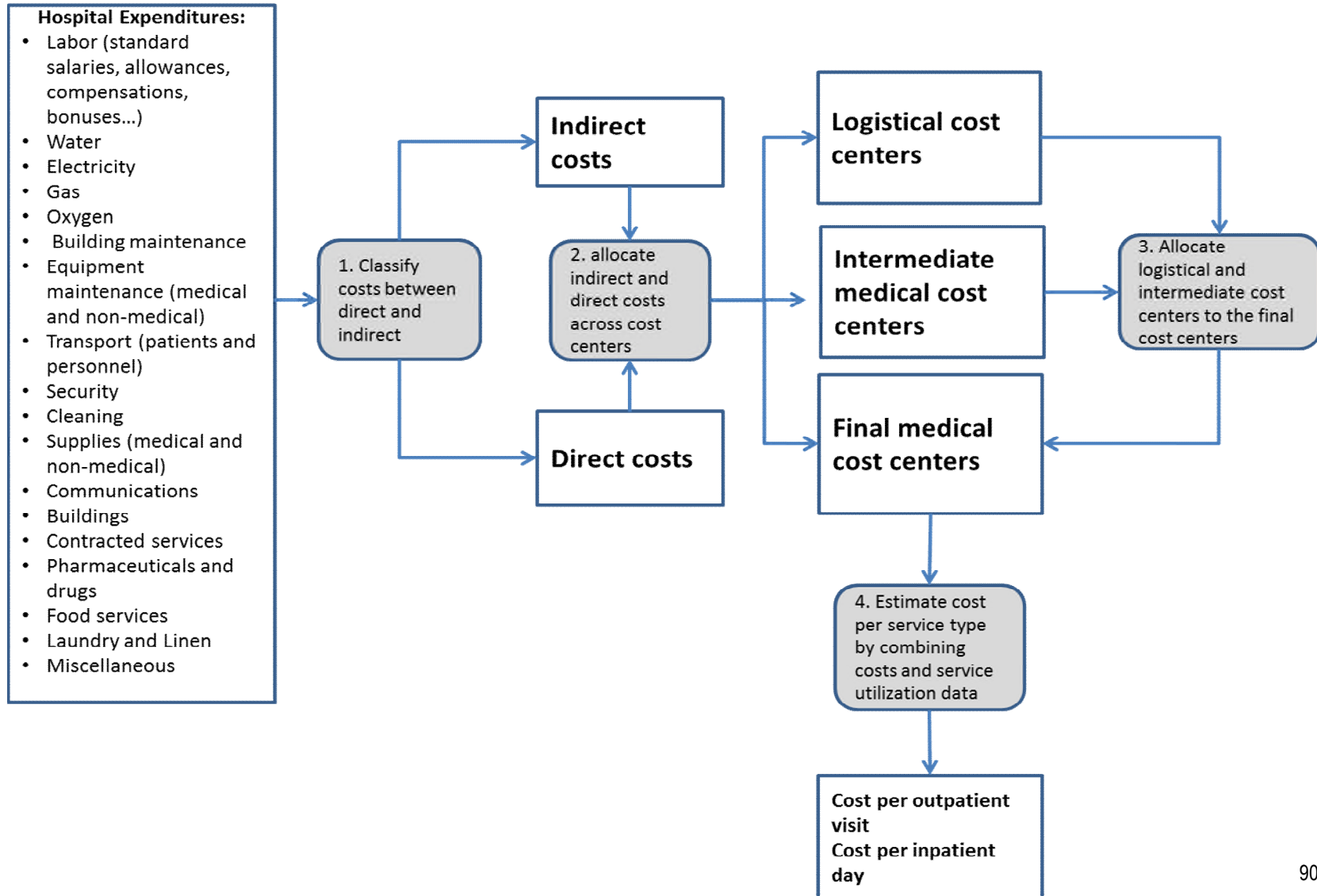
- ▶▶ Only relevant to revenue-earning (final medical) cost centers
- ▶▶ Step-down allocation process used to obtain full costs of final cost centers



THE MASH FRAMEWORK



MASH Framework





Cost Components

- ▶▶ Resources that are similar in nature are grouped together and called *cost components or cost categories*
- ▶▶ Some activities (like **training**) are identified as cost components because there is no need to disaggregate
- ▶▶ Classification should be comprehensive and non-overlapping



Common Cost Components

- ▶▶ **Labor:** cost of all staff employed in the hospital (clinical and non-clinical staff)
- ▶▶ **Drugs and Medical Supplies:** medical consumables used in providing care to patients
- ▶▶ **Equipment and Infrastructure:** cost of any medical equipment, furniture, vehicles, building construction, or administration-related equipment

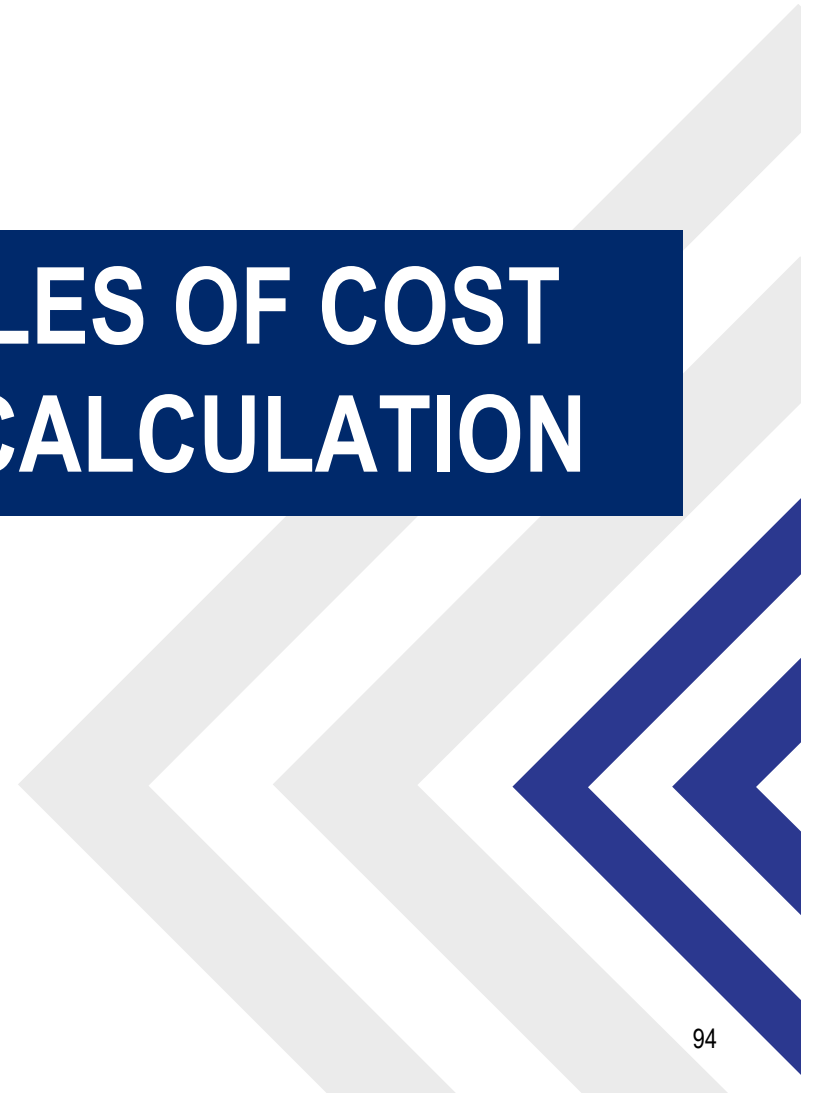


Allocating and Calculating Costs

- ▶▶ Costs are a function of the number of resources and their unit value
- ▶▶ Costs can be calculated in a number of ways:
 - ❖ Accessing expenditure records with exact costs
 - or
 - ❖ Combining data on quantities and their respective prices
 - or
 - ❖ Using one average cost to estimate costs of other units
- ▶▶ Calculations depend on data available and capacity to collect additional data, if necessary



GENERAL PRINCIPLES OF COST ALLOCATION AND CALCULATION





1: Costing should be *comprehensive*

- ▶▶ MASH uses **accrual accounting**, not cash accounting
 - ❖ All costs must be accurately accounted
 - ❖ Cost measured is the value of resources used in production of service (not the cash paid)
- ▶▶ More reliable management and planning tool for:
 - ❖ Ministry of Health and hospital managers
 - ❖ Underfinanced health care systems and poor business environments
- ▶▶ Advantages:
 - ❖ Directly reflects activity levels that generate output
 - ❖ Includes value of donations where cost may have no associated cash payment (voluntary contributions of time and services and equipment)



2: Costs should be attributed, as precisely as possible, to specific cost centers

- ▶▶ Higher proportion of costs allocated to specific cost centers leads to more accurate costing
- ▶▶ How you measure a resource influences whether it is considered direct
- ▶▶ The proportion of direct costs can be increased by:
 - ❖ Disaggregating data with amalgamated costs from different cost centers
 - ❖ Improved cost reporting
 - ❖ Improved tracking techniques



3: Allocation of indirect costs should reflect the true incidence of those costs, as closely as possible

- ▶▶ May be impractical to measure amount of resources used in a cost center
- ▶▶ Use indirect approach to distribute costs among cost centers
 - ❖ **Cost driver** (*allocation statistic/criterion*): easily measured variable that can approximate the level of activity taking place in a specific cost center
- ▶▶ Example: Using percentage of floor space occupied by outpatient clinic to calculate cost of cleaning agents allocated to outpatient clinic



4: Costs incurred by one service should never be attributed to another service

- ▶▶ Hospitals may charge more for *one service* than its cost to subsidize *another service*
- ▶▶ Inexpensive, non-vital procedures are often “over-priced” so that expensive, lifesaving ones are more accessible
- ▶▶ Cross-subsidization must not be confused with assessing costs
 - ❖ *Need to know the actual cost of each service*



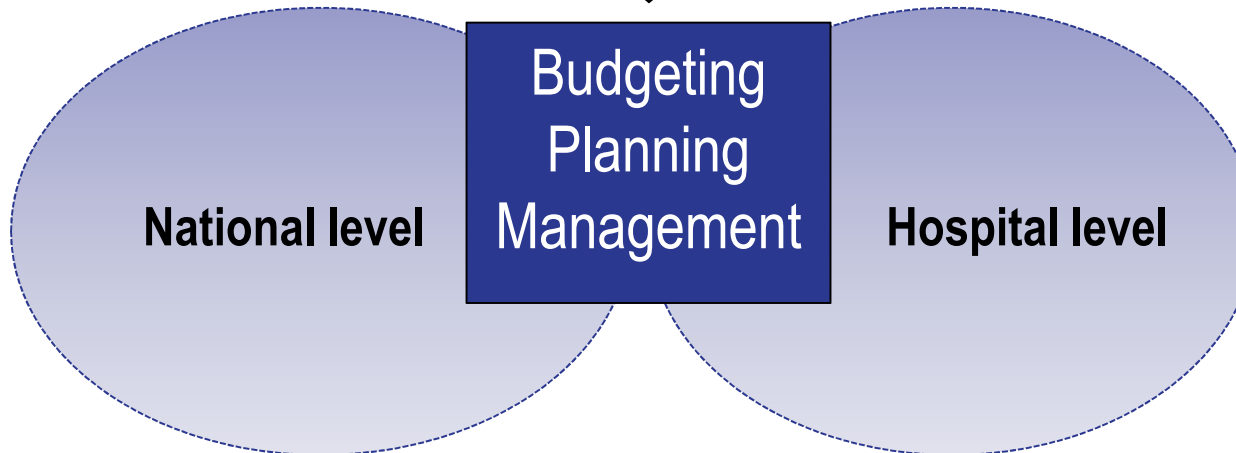
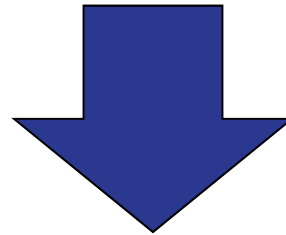
USES OF HOSPITAL COSTING





Hospital Costing Estimates

(total costs, costs of main intermediate cost centers,
cost structure of final medical services, unit costs of
final medical services and targeted pathologies)





Budgeting Uses

Enables preparation of informed budgets

- ▶▶ Hospitals can:
 - ❖ Quantify donated resources to capture precise needs for future
 - ❖ Understand how much the hospital's current cost structure is fully accounted for in budgeting process
- ▶▶ Governments can:
 - ❖ Allocate resources appropriately



Planning Uses

Provides data for sound planning

- ❖ Hospitals can:
 - ▶ Develop revenue-generating opportunities
 - ▶ Identify key departments/services with unit cost structures that allow subsidization of other services, for more sustainable financing
- ❖ Governments can:
 - ▶ Plan premium contributions for national health insurance schemes



Management Uses

Strengthens management systems

- ❖ Hospitals can:
 - ▶ Analyze the use of resources over time
 - ▶ Compare costs to those of other similar hospitals
 - ▶ Use other hospitals' costs as benchmarks to assess performance and to improve efficiency
- ❖ Government policy makers and planners can also:
 - ▶ Draw comparisons of costs between and among hospitals



EXERCISE: THE MASH TOOL





Task for Trios

- ▶▶ Using the explanations of cost centers just discussed and the information in the manual as a reference:
 - 1) Classify the following cost centers in terms of their nature
 - 2) Indicate whether each of the final cost centers provides outpatient or inpatient care
 - 3) Propose potential indicators for measuring the output of 5 cost centers of your choice.
- ▶▶ You will have 20 minutes



Task 2

- ▶▶ On page 35 of your participant manual is a sample list of costs extracted from a hospital annual financial report in 2016.
- ▶▶ The list provides you with several pieces of information:
 - ❖ the cost name
 - ❖ its value
 - ❖ some explanation of what the money was used for



Working in Pairs

- ▶▶ Working in pairs,
 - ❖ Classify as many costs as you can from the list below by nature (i.e., into direct and indirect costs)
- ▶▶ Please take 15 minutes and be prepared to discuss



USAID
FROM THE AMERICAN PEOPLE



Hospital Costing Day 2

Welcome back!



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



RECAP OF DAY 1







Agenda for the day

» Costs

- ❖ per department
- ❖ per outpatient visit
- ❖ per inpatient day



USAID
FROM THE AMERICAN PEOPLE



Costs per: department, outpatient visit & inpatient day

Session 4



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Session Objectives

- » By the end of this session, participants will:
 - ❖ Be proficient with the MASH tool
 - ❖ Be able to calculate costs per cost center
 - ❖ Be able to calculate the costs per department
 - ❖ Understand the step-down method
 - ❖ Be able to allocate indirect shared costs



Measuring Direct Cost Components for each Cost Center

- ▶▶ Consult expenditure records
 - ❖ May be insufficiently disaggregated or may not be equivalent to annual costs
- ▶▶ Collect information on the *quantity* and *cost per unit of resources*
 - ❖ *Quantities of resources* are important because they can function as cost drivers
 - ❖ *Cost per unit* can be:
 - ▶ Relatively straightforward to measure (pharmaceuticals)
 - ▶ Complex set of different elements (in the case of labor)



Part 1: Summarizing the resource data

- ▶▶ Consider the green tabs in the Excel MASH template: “Services” and “Resources”
- ▶▶ For each tab (services and resources), fill in the summarized data. The cells where data should be inputted are highlighted in grey



Calculating Cost Components

- » Labor
- » Equipment and buildings
- » Pharmaceuticals (drug and medical supplies)
- » Other indirect costs: utilities and contracted services



Calculating Costs for Labor

1. Identify all staff employed in hospital -- clinical and non-clinical staff
2. Classify hospital staff by qualifications or other categories
3. Identify all elements that contribute to each staff's category cost
4. Identify number of staff (by category) for each cost center and compute labor cost by multiplying

Price X Quantity



Allocating Shared Costs for Labor

- ▶▶ Staff may work exclusively in activities associated with one cost center or may divide their time among multiple cost centers
- ▶▶ For staff working across different cost centers, allocate costs
 - ❖ using the proportion of time staff spend in different cost centers' activities according to the percentage of tasks performed at each cost center



Allocating Shared Costs for Labor (continued)

- ▶▶ Accurate allocation of labor costs is key to costing process, since labor represents largest single cost item in budget
- ▶▶ The allocation process uses:
 - ❖ staffing schedules
 - ❖ salaries by staff category
 - ❖ personalized accounting of discretionary compensations
 - ❖ numbers of staff



Calculating Costs for Equipment and Buildings

- ▶▶ Equipment and all buildings are treated as fixed assets or capital costs when:
 - ❖ *useful life* is >1 year
 - ❖ purchase value is not trivial
- ▶▶ Expenditures on these resources occur irregularly and must be spread out over their lifetime to generate an annual cost



Calculating Costs for Equipment and Buildings (continued)

- ▶▶ Consult stock inventory of equipment being used
- ▶▶ Identify the buildings that comprise the hospital and the occupied space
- ▶▶ Determine replacement cost of each piece of equipment or building
- ▶▶ Determine the useful life of each piece of equipment or building
- ▶▶ Calculate annualized cost
 - ❖ ***Straight-line method*** of depreciation:
 - ▶ (current value of a fixed asset) / (number of years of asset's useful life)



Allocating Shared Costs of Buildings and Equipment

- ▶▶ Various measures can be used to allocate total costs among various cost centers:
 - ❖ How frequently, or for how long, different centers utilized the machine
 - ❖ Numbers of procedures performed (for diagnostic equipment)
 - ❖ Number of trips or distance traveled (for shared vehicles)
 - ❖ Floor space in square meters (for allocating building costs among centers)



Pharmaceuticals (Drugs and medical supplies)

- ▶▶ Allocation to cost centers should be done as precisely as possible
- ▶▶ To allocate accurately:
 - ❖ A drug inventory supported by a database recording:
 - ▶ Drug name and classification code
 - ▶ Presentation
 - ▶ Acquisition price per pack
 - ▶ Date it was dispensed
 - ▶ Number of dispensed packs
 - ▶ Cost center ordering it
 - ▶ Total cost per record



Pharmaceuticals (continued)

- ▶▶ Basic system:
 - ❖ record unit price on each shelved box
 - ❖ record stock info by specific cost center in ledger weekly
- ▶▶ More sophisticated system:
 - ❖ computerized databases
 - ❖ scannable orders from the cost centers
 - ❖ bar-coded boxes
- ▶▶ Regardless of the system selected, use quantity and unit price to value consumption of pharmaceuticals per cost center
- ▶▶ Costing should include **only** cost of those consumed in the costing period (for example a year), and **not** what was procured



Part 2: Classifying Direct Costs and Allocating Indirect Costs

- ▶▶ Open the red tab labelled “Direct & Indirect”
- ▶▶ Refer to the table in Task 2 of the Exercise in Session 3
- ▶▶ Using the provided list of potential allocation, allocate any costs that you had determined to be indirect costs to the appropriate cost centers in your list



Allocating the Indirect Cost Components of each Cost Center

- ▶▶ Indirect costs can include heat, electricity, water, telecommunications services, building maintenance, and miscellaneous contracted services
- ▶▶ For each identified indirect cost, a logical cost driver should be identified
- ▶▶ Examples of cost drivers for shared costs
 - ❖ space in square meters occupied by cost center
 - ❖ number of faucets for cost of water use
- ▶▶ For “Other costs,” where it is difficult to define a precise cost driver, level of direct costs can be used as a cost driver.



Table 1. Sample List of Costs and Allocation Criteria

Costs	Allocation Criteria (Cost Drivers)
Buildings	Space in square meters
Equipment	Procedures performed
Labor	Staff number
Heat	Space, cubic meters
Electricity	Space, cubic meters
Water	Direct costs
Building maintenance	Space, cubic meters
Office supplies	Direct costs
Telephone communications	Number of phone sets
Miscellaneous contracted services	Direct costs
Cleaning	Space, square meters
Security	Depreciation of fixed assets
Television	Number of TV sets or patient days
Workplace security	Direct costs



Calculating Total Cost of each Cost Center

- ▶▶ Total costs are needed for step-down allocation process
- ▶▶ Total cost = all direct costs + all indirect costs
- ▶▶ Calculate the total cost for all cost centers
 - ❖ Intermediate non-medical
 - ❖ Intermediate medical
 - ❖ Final medical



Part 3: Step-down Allocation

- ▶▶ Open the red tab labelled “Step down.”
- ▶▶ On page 57 of your participant manual is a table listing the Administrative Services and Logistics and the Intermediate Medical services cost centers.
- ▶▶ Use the allocation base/criteria for each cost center to allocate the total costs from that cost center across all the cost centers at lower levels using the considered service.



Step-down Cost Allocation Process

- ▶▶ ***Step-down cost allocation process***: calculates final costs for revenue earning cost centers
- ▶▶ Maps costs of intermediate cost centers to those of final cost centers, so it is clear what must be recovered from final cost centers to cover expenses of entire hospital



Step-down Cost Allocation Process (1)

» Assign cost centers to “levels”

Uppermost level of cost center (logistics and administrative) allocates its costs to all other cost centers

Intermediate level of cost centers provides specialized services directly to one or more final cost centers

Bottom level of cost centers are revenue-earning final cost centers



Step-down Cost Allocation Process (2)

- ▶▶ Allocation of costs from one cost center to others is done using **allocation statistics/criteria** (cost drivers)
- ▶▶ The chosen allocation statistic should reflect, approximately, the extent to which the centers below them use the intermediate cost center's services.
- ▶▶ When multiple allocation statistics could be used, choose the one that best meets the following criteria:
 - ❖ Accurately describes demand for the resource for which it is acting as proxy
 - ❖ Readily available and accurately measurable

Table 2. Intermediate Cost Centers and Allocation Criteria

Intermediate Cost Centers	Allocation Criteria
Administrative and logistical services	
Cleaning services	Floor Space, weighted by frequency of cleaning; unweighted floor space; general ledger
Food services (patients)	Meals dispensed; patient days; inpatient discharges
Hospital administration	Staff – headcount; Staff-FTE
Human resource management	Staff – headcount; staff – FTE; wages and salaries
Intermediate medical services	
Occupational therapy	Number of sessions, weighted or not
Operating theater	Time in use; number of surgeries, weighted or not
Pharmacy	Value of dispensed drugs; volume of prescriptions
Radiology	Number of exams, weighted or not
Laboratory	Number of tests/requests, weighted or not

Table 3. Illustration of Step-down Cost Allocation

Cost Centers (CCs)	Direct Costs	Indirect Costs	Total Costs	CC1	CC2	CC3	CC4	Final Costs
				By direct cost				
1. Hospital administration	500	300	800	800	By sq. meters			
2. Building maintenance	300	200	500	50	550	By # of exams		
3. Radiology	600	300	900	100	50	1050	By # of surgeries	
4. Operating room	900	400	1300	150	100	0	1550	
5. Outpatient internal medicine	600	200	800	100	20	150	0	1070
6. Outpatient pediatrics	600	300	900	100	30	100	0	1130
7. Inpatient medicine	1200	500	1700	200	150	300	0	2350
8. Inpatient surgery	600	200	800	100	200	500	1550	3150
Total	5300	2400	7700					7700



USAID
FROM THE AMERICAN PEOPLE



Hospital Costing Day 3

Welcome back!



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Agenda for the day

- »» Recap of day 2
- »» Cost per specific disease
- »» Workshop evaluation



USAID
FROM THE AMERICAN PEOPLE



Cost per Specific Disease

Session 5



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



Session Objectives

By the end of this session, participants will:

- ▶▶ Become familiar with the service costing tool (data collection and analysis)
- ▶▶ Be able to calculate cost of a specific disease
- ▶▶ Understand the links between some results of the MASH and the service costing exercise



Establishing Purpose

▶▶ Key Questions:

- ❖ *What are the reasons for undertaking this costing exercise?*
- ❖ *Which treatment processes need to be costed?*
- ❖ *Are there specific treatments that the hospital is providing mainly through the use of donor funds and, thus, needs to track spending more closely?*

▶▶ Answers to these questions are important for:

- ❖ Cross-subsidization
- ❖ Reimbursement from private sector



The Ingredient Approach

» ***Ingredient approach*** method:

- 1) Detailed description of the disease treatment process, in particular resource usage
- 2) Quantification of the resources to treat each disease
- 3) Valuation of those resources
- 4) Adding the value of the various resources to calculate the unit cost of treatment of the disease



Summary of Data Required

- ▶▶ Outpatient treatment or hospitalization
- ▶▶ Average
 - ❖ number of days of hospitalization (if applicable)
 - ❖ contact time with medical staff by type
 - ❖ volume of medical supplies used by type
 - ❖ volume of drugs used and prescribed by type
- ▶▶ Laboratory tests, medical imaging exams, surgical interventions, and other procedures needed by type
- ▶▶ Level of resources for each of those tests, exams, interventions, and procedures (staff, supplies, drugs, equipment depreciation, etc.)



Summary of Calculation Steps

- ▶▶ Multiply volumes defined by the corresponding unit prices to obtain the treatment cost
- ▶▶ Result is:
 - ❖ *average cost per patient for treatment of a specific pathology*



DETAILED DESCRIPTION OF THE DISEASE TREATMENT PROCESS





The Service Costing Tool

- ▶▶ Excel-based Service Costing tool
- ▶▶ Organized by cost component
- ▶▶ Purpose: to capture all costs for all steps of a treatment process for one patient, from admission through discharge
- ▶▶ One Excel sheets for each step of the treatment process
 - ❖ Example: For a given disease treatment if patient sees his/her doctor at an outpatient clinic and is then referred to radiology, for a chest X-ray there will be 2 different entry sheets in the workbook file
- ▶▶ Every “service” (or disease or pathology) treatment entails different steps required to treat a patient
 - ❖ Steps may include diagnostics



Service Costing Tool General Data

Tool requires

- ▶▶ Service Name (the pathology being costed)
- ▶▶ Service Sub-name (the specific classification of that service per level of severity)
- ▶▶ Service Sub-name per Age (the classification by age for that service)

Example:

- ❖ Service Name: Pneumonia
- ❖ Service Subname: Complicated Pneumonia
- ❖ Service Subname per Age: Complicated Pneumonia for under 5



Service Costing Tool General Data

- ▶▶ The tool also requires:
 - ❖ Department of the facility where this service is offered
 - ❖ Number of services (number of visits) provided in a given year
 - ❖ Whether this service requires follow-up visits and how many
- ▶▶ Only concerned with **the cost per patient** to treat a specific disease



QUANTIFICATION AND VALUATION OF THE SPECIFIC RESOURCES REQUIRED PER DISEASE





Labor

▶▶ Data collected from tool:

- ❖ Average contact time in minutes for each category of staff involved in the treatment or the service
 - ▶ per first visit (first visit and follow up visit)
 - ▶ per day of admission (if applicable)

▶▶ Challenges:

- ❖ Providers may overestimate or underestimate amount of time
- ❖ Need to insist on average time spent on a typical patient

▶▶ Sources of Information for Labor Valuation:

- ❖ Human Resources Department of the hospital
- ❖ Central national-level Ministry of Health Directorate of Finance



Labor Valuation

Cost of Labor

=

(salary per minute) X (number of minutes spent with the patient)

Salary per Minute

=

(annual salary) / (number of minutes worked/paid in a year)

Number of Minutes Worked/Paid in a Year

=

60 minutes X 40 hours X 52 weeks = 124,800 minutes per year



Labor Example

Estimate the total labor costs associated with treating disease A.

- ▶▶ For treatment of disease A, there is one initial visit and no follow ups.
 - ❖ For that initial visit, the patient needs to spend 10 minutes with two medical doctors, 8 minutes with a nurse and 15 minutes with a midwife.
 - ❖ The average salary per year for each of these categories of staff is respectively \$100,000, \$60,000 and \$65,000 for medical doctors, nurses, and midwives.



Labor Example Answers

For 124,800 minutes per year, the cost per minute is as follows:

- ❖ Medical doctor: $100,000/124,800 = 0.80$
- ❖ Nurse: $60,000/124,800 = 0.48$
- ❖ Midwife: $65,000/124,800 = 0.52$

Then the labor cost per staff category is:

- ❖ Medical doctor: $0.80 \times 10 \times 2 = 16$
 - ❖ Nurse: $0.48 \times 8 = 3.84$
 - ❖ Midwife: $0.52 \times 15 = 7.8$
- ▶▶ Total labor cost for disease A per patient = $16 + 3.84 + 7.8 = \mathbf{\$27.64}$



Medical Supplies

- ▶▶ Data collected from tool:
 - ❖ Use of medical supplies while providing service (outpatient visits or inpatient days)
 - ❖ Quantity and unit cost of medical supplies used while providing service
- ▶▶ Sources of Information:
 - ❖ Procurement/pharmacy records/central medical store
 - ❖ Medical supplies analysis of the MASH
- ▶▶ Medical supplies must be:
 - ❖ Disposable
 - ❖ Used while providing given service during a visit
 - ❖ Example: disposable syringe



Medical Supplies

» Calculations:

- ❖ Cost per medical supply type = (medical supply quantity) X (medical supply price)
- ❖ Calculate **total medical supplies costs for one patient treated for a given disease** by summing costs of each medical supply type involved



Medical Supplies Example

Estimate the total medical supplies costs associated with treating disease A.

- ▶▶ For treatment of disease A, for the initial visit (recall there is no follow up visits for this disease) the following medical supplies are used
 - ❖ 2 Syringes 5ml with needle (priced at \$0.2 each)
 - ❖ 1 test kit (priced at \$5 each)
 - ❖ 4 pairs of sterile gloves (priced at \$0.1 per pair)
 - ❖ 2 pairs of non-sterile gloves (priced at \$0.05 per pair)



Medical Supplies Example Answers

The cost of medical supplies is as follows:

- ❖ Syringes: $0.2 \times 5 = 1$
- ❖ Test kit: $1 \times 5 = 5$
- ❖ Sterile gloves: $4 \times 0.1 = 0.4$
- ❖ Non-sterile gloves: $2 \times 0.05 = 0.1$
- ▶▶ Total medical supplies cost for disease A per patient =
 $1 + 5 + 0.4 + 0.1 = \mathbf{\$6.5}$



Drugs

- ▶▶ Data collected from tool:
 - ❖ Use of drugs/medications while providing service
 - ❖ Dose/quantity/formulation
 - ❖ Unit cost
- ▶▶ Drugs must be used in providing service during a visit
 - ❖ Example: antibiotic dose given during a visit
- ▶▶ Sources of information are similar to those for medical supplies



Drugs

- ▶▶ Calculations: Example for pills
 - ❖ Price per pill = (price of container) / (number of pills per container)
 - ❖ Drugs cost = (price per pill) X (quantity of pills per dose)
- ▶▶ Calculate **total drug costs for one patient treated for that disease** by summing costs for each drug type



Drugs Example

Estimate the total drugs costs associated with treating disease A.

For treatment of disease A, during the initial visit (recall there are no follow up visits for this disease) the following drugs are used for an adult average patient:

- ❖ Drug 1 is given through injection: the patient gets 1 dose of 1ml
- ❖ Drug 2 is a pill and the patient gets 500mg
- ❖ Price info: Drug1 comes in pack of 10 doses (1ml each) for \$18 and Drug 2 comes in bottles of 1,000 pills (250 mg each), the bottle cost \$5.



Drugs Example Answer

The cost for drugs is as follows:

- ❖ Drug 1: $\$18/10 = \1.8
- ❖ Drug 2: if the patient needs 500mg, then he has to take 2 pills of 250 mg at a cost of $(\$5/1000)*2 = \0.01
- ▶▶ Total cost for disease A per patient = $\$1.8 + \$0.01 = \mathbf{\$1.81}$



Medical Equipment/Materials

- ▶▶ Data collected from tool:
 - ❖ Use of medical equipment/materials while providing service
 - ❖ Quantity (if multiple) of each type of equipment/material
 - ❖ Unit cost of each type of equipment/material
- ▶▶ Equipment must:
 - ❖ Be used while providing the service
 - ❖ Specifically be for that type of service
 - ❖ Not be disposable



Medical Equipment/Materials

- ▶▶ Generally, only consider specialized equipment that is costly and needs to be depreciated
 - ❖ Example: oxygen machine as part of the treatment on serious admitted patients
- ▶▶ Determine if the equipment was purchased, leased, or donated
 - ❖ Account for depreciation
- ▶▶ Source for information:
 - ❖ Purchasing procurement records
 - ❖ Supplier brochures/internet search



Medical Equipment/Materials

- ▶▶ Depending on nature of equipment, medical equipment cost is calculated by:
 - ❖ Dividing cost of equipment by total number of procedures the equipment can be used for during its useful life
 - or
 - ❖ Dividing annual depreciated value of the equipment with the number of times the equipment were used during the year
- ▶▶ Hospitals in low resource settings:
 - ❖ Cost of equipment is accounted for in the “structural cost” (or “hotel cost”) of a day of hospitalization or of an outpatient visit (discussed later)
 - ❖ Structural cost found from the MASH



Other Supplies

- ▶▶ Data collected from tool:
 - ❖ Use of other supplies while providing service
 - ❖ Quantity of each type of supply
 - ❖ Unit cost of each type of supply
- ▶▶ Only other supplies **not** listed in medical supplies category should be listed
- ▶▶ Calculate costs of other supplies using same method as for medical supplies



Labs/Tests/Radiology Exams/Other Procedures

- ▶▶ Data collected from tool:
 - ❖ Use of test and exams for the service provided
 - ❖ Quantity of each type of test or exam
- ▶▶ Tests/exams must be routinely performed when providing service
 - ❖ Example: electrolytes test for severe gastroenteritis
- ▶▶ Tests/exams are typically intermediate steps but require resources:
 - ❖ Example: blood test requires staff time (a lab technician), medical supplies (vials, for example), reagents, equipment (needed for testing), etc.



Labs/Tests/Radiology Exams/Other Procedures

- ▶▶ Cost of one test/exam is made up of multiple cost components (labor, drugs, equipment, etc.)
 - ❖ These should be collected and entered in a separate entry sheet
- ▶▶ Calculations:
 - ❖ Each cost component must be costed similarly to what is described above
 - ❖ Note: for equipment cost, the same approach of computing the “*hotel cost*”
Cost components are then aggregated to find unit cost of one test



Drugs and Medical Supplies Prescribed or Distributed

- ▶▶ Data collected from tool:
 - ❖ Drugs or medical supplies prescribed or distributed to the patient at the end of the visit/hospital stay as part of the given service
 - ❖ Quantity/Dose per day
 - ❖ Number of days on treatment
 - ❖ Unit cost
- ▶▶ Only those dispensed or prescribed (and subsidized) to patient as part of the treatment
- ▶▶ Calculating costs:
 - ❖ Use same steps outlined for ***Drugs*** and ***Medical Supplies***



“Hotel” costs or structural cost

- ▶▶ “Hotel cost” is cost of infrastructure, infrastructure maintenance, and management in each service provided
 - ❖ Equipment cost usually included
 - ❖ Obtained from MASH for each intermediate and final cost center
- ▶▶ Example: patient is typically admitted in a room that needs cleaning, patient will be served meals and have his/her sheets washed, building maintenance is also necessary, etc.



“Hotel” costs or structural cost

- ▶▶ After step-down allocation of administrative and logistical cost centers
 - ❖ → new cost for the intermediate and final cost centers
- ▶▶ Total labor, drugs, and medical supplies costs for each cost center should be taken out from the new allocated costs
 - ❖ Resulting value divided by:
 - ▶ number of visits (for outpatient departments)
 - ▶ number of days of admission (for inpatient care)
 - ▶ number of procedures (for intermediate cost centers)



CALCULATING THE UNIT COST OF TREATMENT OF THE DISEASE





Total Cost per Patient per Service

- » Total cost per patient per service =
 - ❖ Total labor cost +
 - ❖ Total medical supplies cost +
 - ❖ Total drug cost +
 - ❖ Total lab tests cost +
 - ❖ Total radiology exams cost +
 - ❖ Total medical equipment/material cost +
 - ❖ Total other supplies cost +
 - ❖ Total drugs and medical supplies prescribed or distributed cost

Example

Pathology	Cost of medical staff (US\$)	Cost of supplies and drugs (US\$)	Cost of tests and Exams (US\$)	Cost of surgical procedures and other procedures (US\$)	Hotel cost (US\$)	Total treatment cost (US\$)
Severe pre-eclampsia	47.87	77.50	65.19	339.49	202.81	732.86
Cephalo-pelvic disproportion	18.58	44.81	28.76	339.49	121.69	553.34
Materno-fetal infection	31.44	45.12	131.78	NA	237.92	446.26
Severe prematurity	117.95	162.06	106.32	NA	713.75	1,100.08
Cerebrovascular accident (CVA)	55.11	191.55	99.56	NA	282.90	629.11
Cardiac decompensation	56.01	39.04	126.54	NA	323.31	544.90
Femur fracture	42.19	204.60	113.75	430.45	1,193.07	1,984.06
Closed leg fracture	28.13	144.17	96.98	430.45	795.38	1,495.10
Open leg fracture	60.04	234.80	96.98	430.45	1,590.76	2,413.03
Intestinal occlusion	46.71	115.60	117.02	407.99	917.80	1,605.12
Generalized peritonitis	69.57	200.99	133.52	426.56	1,101.35	1,931.99



EXERCISE: COST PER DISEASE ESTIMATION



Exercise on Cost per Disease Estimation

- ▶▶ Use the service costing analysis template to estimate cost per input category and obtain a cost per disease treatment.
- ▶▶ You will have 45 minutes to complete the intestinal occlusion cost



USAID
FROM THE AMERICAN PEOPLE



Thank you

Photo Credit: Colby Gottert/Digital Development Communications



Abt Associates

In collaboration with:

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) | Johns Hopkins Bloomberg School of Public Health (JHSPH) |
Results for Development Institute (R4D) | RTI International | Training Resources Group, Inc. (TRG)



WORKSHOP EVALUATION

