



The Lives Saved Tool

LiST Costing Help File

Introduction

LiST Costing provides a means to estimate the financial and human resources required to deliver a package of services.

Questions can be explored such as: How much funding is required to achieve the goals of the strategic plan? What goals can be achieved with the current resources? What is the impact of alternative patterns of resource allocation in terms of both the associated costs and achieved goals of the strategic plan?

By using LiST Costing in conjunction with the standard LiST module, scenarios can be developed by varying parameters such as costs inputs, coverage rates of interventions, and/or other inputs, and can then be evaluated based on the impact on maternal and child mortality and morbidity and cost associated with delivering the package of services.

Configuration

If LiST costing is activated, the user has access to an additional tab in LiST configuration called Currency and Inflation. On this tab the user can set the exchange rate, designate what currency they wish to enter costs in, and enter an inflation rate.

If the user wishes to enter costs in dollars, they need to check the box to say that they wish to enter costs in US dollars instead of local currency. Results can be produced in either currency, based on the selection in the results editor. They will be calculated between currencies based on the exchange rate entered in the currency and inflation editor.



Configuration **Currency and inflation**

Currency and exchange rate

Enter name of currency and exchange rate relative to the US Dollar. The default exchange rate is the ratio of the GDP of your country or region evaluated at current prices divided by the US dollar country's or region's GDP. The values of GDP are from the World Economic Outlook.

Currency

	2017	2018	2019	2020	2021
Exchange rate	24.52	24.52	24.52	24.52	24.52

Enter costs in USD instead of the currency specified above

Inflation rates

Inflation GDP deflator

Enter inflation rates (percent per year)

	2017	2018	2019	2020	2021
Domestic inflation rate		0.0	0.0	0.0	
USD inflation rate		0.0	0.0	0.0	

Costing outputs can be accessed either as nominal values or values adjusted for inflation via the output.

Ok Cancel Help

Staff Baseline Data

Staff baseline data is pre-populated with assumptions for salaries, benefits, and time utilization drawn from WHO CHOICE.¹ These data points are used to estimate a cost per minute, which is combined with information from Treatment Inputs editors to estimate the labor costs for delivering the various interventions. Users are encouraged to revise these assumptions if more accurate local information is available.

Salaries are assumed to be an annual salary for a full time staff person, denoted in local currency or US dollars, depending on the user's selection in LiST Configuration. Benefits are calculated as a percentage of those salary costs, and entries for days per year and time worked per day are used to convert the assumptions for what a full-time staff person can do into a cost per minute.

¹ http://www.who.int/choice/publications/p_2003_generalised_cea.pdf?ua=1



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Intervention costing (Target population, Population in Need, Coverage, and Delivery Channels)

The determinants for intervention costs are the **number of people** receiving the intervention and the **quantity of resources** required to deliver the intervention per person.

In order to calculate the number of people receiving the services, LiST costing includes data entry fields for the following:

- Target population
- Population in need

Coverage is drawn from the coverage menu in LiST.

All three of the above must have data entered into them in order for the tool to be able to estimate the number of people receiving the intervention each year. The calculation pattern is as follows:

$$\boxed{\text{Target population}} \times \boxed{\text{Population in need}} \times \boxed{\text{Coverage}} = \boxed{\text{Number of services}}$$

Target population: This is defined as the population that could possibly receive the intervention. There are global defaults available for each intervention.

Examples of target populations include:

- Pregnant women
- Children aged <1 month
- Children aged 0-59 months
- Children aged 1-59 months
- Total population

Target populations, which represent age-determined groups, are drawn from the DemProj module, as are demographic events such as pregnancies or births. The user can select from a drop-down list of default populations or specify the target population of each intervention as shown below:



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Select a target population for each intervention

Intervention	Target population	Sex	Starting age	Ending age
Safe abortion services	Abortions			
Post abortion case management	Abortions			
Ectopic pregnancy case management	Pregnant women			
Blanket iron supplementation/fortification	Total population			
Pregnancy				
Routine				
TT - Tetanus toxoid vaccination	Pregnant women			
IPTp - Intermittent preventive treatment of malaria during pregnancy	Pregnant women			
Syphilis detection and treatment	Live births and stillbirths			
Nutritional				
Calcium supplementation	Children 0-59 months			
Micronutrient supplementation (iron and multiple micronutrients)	Children 1-59 months			
Iron supplementation in pregnancy	Children 6-59 months			
	Pregnant women			

Enable searching

The second option is to select a target population based on age and sex. In order to do this, select Custom Target population from the drop-down menu, and enter the characteristics needed (age range and sex).

Intervention	Target population	Sex	Starting age	Ending age
Case management of premature babies				
Thermal care	Live births			
KMC - Kangaroo mother care	Live births			
Full supportive care for prematurity	Live births			
Case management of neonatal sepsis/pneumonia				
Oral antibiotics for neonatal sepsis/pneumonia	Live births			
Injectable antibiotics for neonatal sepsis/pneumonia	Live births			
Full supportive care for neonatal sepsis/pneumonia	Live births			
Diarrhea				
ORS - oral rehydration solution	Custom target population	Both sexes	0	80+
Antibiotics for treatment of dysentery	Children 0-59 months			
Zinc for treatment of diarrhea	Children 0-59 months			
Other infectious diseases				

The third option is to enter the target population directly, but selecting “Direct entry” from the drop-down menu. When a user does this, they will have the opportunity to enter a numeric target population of their choice by double clicking on the name of the intervention.



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Oral antibiotics for neonatal sepsis/pneumonia	Live births			
Injectable antibiotics for neonatal sepsis/pneumonia	Live births			
Full supportive care for neonatal sepsis/pneumonia	Live births			
Diarrhea				
ORS - oral rehydration solution	Direct entry			
Antibiotics for treatment of dysentery	Children 0-59 months			
Zinc for treatment of diarrhea				
Other infectious diseases				

Note: Double-click on the intervention name to enter target population data by year.

Select direct entry then double click on intervention name

Population in need: This section is used to identify what share of the target population requires the intervention, per year. For most preventive care interventions, the share will be 100%. For example, antenatal care will be required for all pregnant women. Population in need is determined by incidence and prevalence of conditions, as well as by treatment guidelines.

In some instances, the population in need may be > 100%. For example, consider management of diarrhea with ORS. The target population is children aged 0-59 months. If we put 100% population in need, this means that each child will on average receive the intervention once per year. However, in many settings, the incidence of diarrhea may be greater than 1.0. For example, if the incidence of diarrhea in children is estimated at 3.5 episodes per year, the population in need will be 350%. If 1% of all diarrhea cases are estimated to be severe, then the population in need for treatment of severe diarrhea will be 3.5% (calculated as 350% x 1%).

For another example, take treatment of malaria in pregnant women. Here the target population is pregnant women, and the population in need is the percentage of pregnant women who will need treatment of malaria, per year.

Detailed information about the sources for each of the default assumptions is found in the Intervention Assumptions Manual (pending).

Treatment inputs

Treatment inputs for each intervention specify the required drugs and consumable supplies (e.g., gloves, syringes), provider time, and number of inpatient days and outpatient visits needed for the effective provision of an intervention. These are drawn from intervention assumptions developed for the OneHealth Tool (<http://www.who.int/choice/onehealthtool/en/>) and documented in the Intervention Assumptions Manual (pending). These inputs were developed based on WHO norms and guidelines where available, with expert input where explicit guidance was not available. Drugs and consumable supply prices are extracted from international sources such as the MSH Drug Price Indicator Guide (<http://mshpriceguide.org/en/home/>), UNICEF supply catalog



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([https://supply.unicef.org/unicef_b2c/app/displayApp/\(layout=7.0-12_1_66_67_115&carearea=%24ROOT\)/.do?rf=y](https://supply.unicef.org/unicef_b2c/app/displayApp/(layout=7.0-12_1_66_67_115&carearea=%24ROOT)/.do?rf=y)), and the Global Price Reporting Mechanism (<http://apps.who.int/hiv/amds/price/hdd/>).

Default treatment inputs and prices are provided at a global level, with no variation for different countries, but these inputs can be adjusted to fit the country context. Users can change the assumed quantities of drugs and supplies used, amount of provider time and number of visits, as well as the unit price for any input. In a typical country application, country teams review all data assumptions thoroughly, particularly country-specific input prices, and change the default data to reflect the specific country context and their norms or practices.

See the examples below for tetanus toxoid vaccination. For each intervention, similar to this example, users can review the existing inputs for drugs and supplies, provider time by type, and inpatient and outpatient visits. Each element can be edited, including adding other drugs and supplies, and changing the unit cost (by double-clicking on the unit cost cell).

TT - Tetanus toxoid vaccination, clinic level

Drugs and supplies									
Drug/Supply	Percent receiving this aspect of the treatment	Note	Number of units	Times per day	Days per case	Units per case	Unit cost (USD) (2017)	Cost per average case (USD) (2017)	
Tetanus toxoid, injection	100.0		1.0	1	2	2	0.06	0.12	
Syringe, needle + swab	100.0		1.0	1	2	2	0.05	0.10	
Total cost								0.22	

TT - Tetanus toxoid vaccination, clinic level

Medical personnel					
Staff type	Percent treated by	Note	Minutes	Number of days/visits	Total minutes
Midwives	100.0			3	5.00
Total minutes					5.00

TT - Tetanus toxoid vaccination, clinic level

Outpatient visits and inpatient days				
	Percent receiving	Note	Units per case	Total visits
Outpatient visits	100.0		2	2.0
Total visits				2.0

Other – recurrent and capital costs



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The costs per outpatient visit and inpatient day (OPVs/IPDs) have been calculated by the World Health Organization at the country level and are available from the WHO-CHOICE website (<http://www.who.int/choice/cost-effectiveness/en/>). Note that the costs that are available on their website are defined by the World Health Organization to be the “hotel” cost portion of both OPVs and IPDs, that is, all costs except drugs and laboratory costs. In other words, the OPV and IPD costs contain both other direct costs (ODCs) and indirect costs, as well as personnel costs and the cost of consumables.

By estimating the proportion of the WHO-CHOICE OPV/IPD cost that is associated with ODCs and indirect costs, those proportions can then be applied to adjust the cost of the OPV/IPD for each intervention in LiST. To calculate the costs associated with ODCs and indirect costs for each intervention, we can use the number of OPV/IPD for each intervention, already available in LiST, and multiply those quantities by the proportion of the country-specific cost of one OPV/IPD that is attributable to ODCs and indirect costs.

These costs are then multiplied by the number of OPVs/IPDs associated with each service to give a total cost for other recurrent and capital costs.

Delivery channels

LiST costing provides the option to differentiate the delivery of services by delivery channel or level of service delivery – that is, via community, outreach, clinic, and hospital-level care. Users can specify different treatment inputs (drugs and supplies, personnel time, and outpatient visits/inpatient days for each level), based on the different access to resources at different levels in the country. Results can also be produced by level, allowing analysis of the cost implications in a shift of services between levels, as well as the amount of resources required to expand services.

The delivery channels editor allows users to enter base and target distributions of services (i.e. what proportion of each intervention is delivered at each level in the first and final years of the projection). A linear interpolation takes place between these points to fill in the interim years.

A default distribution is provided, based on expert consultation by WHO experts.

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