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Reading and Understanding SPA Tables

Example 1: Availability of Child Health Services
(Based on the entire sample of health care facilities)

Table 4.1 Availability of child health services (1)

Percentage of facilities offering specific child health services at the facility, by background characteristics, Uganda SPA 2007

Background characteristic (4)	Percentage of facilities that provide: Curative out-patient care for sick children (2)	Growth monitoring	Childhood immunisation[1]	All basic child health services	Number of facilities (weighted)
Type of facility					
Hospital	97	82	98	81	19
HC-IV	100	83	100	83	27
HC-III	100	76	96	76	158
HC-II	97	57	82	55	287
Managing authority					
Government	99	66	90	64	373
Private	96	63	81	63	119
Region					
Central	100	90	94	89	98
Kampala	87	85	85	83	9
East Central	98	31	98	31	78
Eastern	96	81	90	78	49
Northeast	100	88	94	88	41
North Central	100	76	87	70	37
West Nile	100	41	85	41	37
Western	92	50	71	50	60
Southwest	100	61	82	61	83
Total (3)	98	65	88	64	491

[1] Childhood immunisation refers to pentavalent, polio and measles vaccinations.

Statistical tables can look intimidating at first glance. This worksheet is designed to help you read and interpret tables from the Service Provision Assessment Survey.

Step 1: Read the title and subtitle. They provide a brief description of the information contained in the table. In this case, the table tells us what percentage of health care facilities provide specific child health services.

Step 2: Scan the column headings - the top horizontal row. The columns summarize the indicators being measured. In this case, each column represents one child health service. The fourth column on the white background shows what percent of facilities have ALL of the 3 services. Note that the very last column, in gray, lists the (weighted) number of facilities in each category. These numbers are the denominators, that is, the total number of facilities surveyed for each topic and each background characteristic. (For more on weighting, see back page.) In this case, 491 facilities were surveyed.

Step 3: Look at very last row at the bottom of the table. These figures represent the total percentages. That is, the percent of ALL facilities that offer each of the three services, and the percent of facilities that offer ALL three services. This table shows that child health services are widely available in Uganda -98% of all facilities offer curative care for children; 65% offer growth monitoring; and 88% offer immunisation. Sixty-four percent of facilities offer all three services.

Step 4: Scan the row headings - the first vertical column. The row headings show how the information is presented. In the case of the USPA, the information is presented by background characteristics- facility type, managing authority, and region. These categories allow you to compare availability of services in hospitals versus health centres, government versus private facilities, and among the regions. In this example, 55% of HC-IIs provide **all** basic child health services compared to 81% of hospitals. There are large differences in availability of growth monitoring, especially by region. Only 31% of facilities in East Central Region offer growth monitoring compared to 90% in Central Region. There is less variation in immunisation services. However, government facilities are a bit more likely to provide immunisation services than private facilities (90% versus 81%).

Example 2: Components Needed for Childhood Immunisations
(Based on a subset of health care facilities)

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Table 4.2 Health system components required for childhood immunisation services

Among facilities offering child immunisation services, percentage that have all equipment, items for preventing infection, and records indicating good administrative practices; and among facilities offering child immunisation services and storing vaccines, percentage that have all basic child vaccines and all components for providing quality child immunisation services, by background characteristics, Uganda SPA 2007

Background characteristic	Percentage of facilities offering child immunisation with: All equipment[1]	All items for infection control[2]	Administrative components[3]	All equipment, items for infection controls, and administrative components	Number of facilities offering child immunisation services[4] (weighted)	Percentage of facilities offering child immunisation services and storing vaccine with: All basic child vaccines[5]	All components for providing quality child immunisation services (including vaccines) present[6]	Number of facilities offering child immunisation services and storing vaccines (weighted)
Type of facility								
Hospital	90	73	20	14	19	82	12	19
HC-IV	78	50	32	17	27	92	16	27
HC-III	75	49	28	13	151	72	9	142
HC-II	55	45	9	6	236	72	8	122
Managing authority								
Government	65	46	17	9	336	74	9	257
Private	64	56	19	10	96	78	9	53
Region								
Central	60	47	19	12	93	83	12	64
Kampala	76	66	13	13	7	84	7	6
East Central	58	45	11	6	76	56	4	39
Eastern	60	32	32	8	44	73	14	27
Northeast	69	22	8	7	39	98	6	36
North Central	55	79	34	25	32	81	29	27
West Nile	69	64	28	11	31	68	3	26
Western	79	37	22	11	43	50	8	35
Southwest	72	63	7	1	68	77	2	49
Total	65	48	18	9	433	74	9	310

[1] Blank immunisation cards, syringes and needles, and cold box with ice packs (or facility reports purchasing ice).
[2] Soap, running water, and sharps container.
[3] Tally sheet or register where vaccines provided are recorded, and documentation of either DPT/pentavalent dropout rate or measles coverage.
[4] Includes all facilities offering immunisations at the facility and some facilities offering immunisations through village outreach activities.
[5] BCG, pentavalent, polio, and measles.
[6] All equipment, items for infection control, administrative components and all basic child vaccines present.

Step 1: Read the title and subtitle. In this case, the table is about two separate groups: a) facilities offering child immunisation and b) facilities that offer child immunisation services AND store vaccines.

Step 2: Identify the two panels. Panel **a** refers to all facilities offering child immunisation services (N=433) , and panel **b** is a subset of panel **a**; panel **b** refers only to the facilities offering immunisation services AND storing vaccines (N=310).

Step 3: Look at the last column in panel ***a***. How many facilities offer child immunisation services in the survey? It's 433. If you look back to page 1, you'll notice that 88% of ALL facilities offer child immunisation services, and 491 eligible facilities were sampled. 88% of 491 = 432. (You must factor in some error for weighting and rounding to reach 433, the total number of facilities offering immunisation services.)

When reading and using SPA tables, be sure to identify which group of facilities is being displayed. For example, look at the first column in panel ***b.*** It is NOT correct to say that 74% of facilities have all basic child vaccines. It IS correct to say that 74% of facilities offering childhood immunisation services ***and*** storing vaccines have all child vaccines.

Step 4: Now, read the column headings. The first column is percent of facilities offering child immunisation that have "all equipment". Footnote #1 explains that "all equipment" includes blank immunisation cards, syringes and needles, and cold box with ice packs. Keep in mind, that if a facility is missing just one of these items, it will NOT be included in this column. If you want to see exactly which item is missing, you can find the more detailed tables in the appendix tables of the USPA report.

Step 5: Look at the column for "All equipment, items for infection control and administrative components." These are the components the SPA defines as necessary for providing quality immunisation services. Notice that the percentages in this column are very low. This is because most facilities are missing one or more of the many items that are included in footnote #2, items for infection control, and footnote #3, administrative components. Many of the facilities may many of the items listed. However, in Uganda, a regular water supply is available in only one-third of facilities. Running water is one of the items needed for infection control, and therefore, all of the facilities without running water will not be considered as having all items for quality immunisation services, even if they have all of the other items.

Practice: Use the table above to answer the following questions (answers are upside down, below):

a) What type of child immunisation-providing facility is most likely to have all items for infection control?

b) What percentage of private facilities offering child immunisation services have all items for providing quality immunisations (all equipment, all items for infection control, AND administrative components)?

c) How many government facilities in the sample provide immunisation services? (Hint: remember, the gray shaded boxes show the NUMBER of facilities, while the rest of the table shows the percentages.)

d) What percentage of facilities offering childhood immunisations AND storing vaccines have all of the basic child vaccines in stock?

e) If you had to take your child for a vaccine, what type of facility would be most likely to have the vaccine you needed in stock?

a. Hospitals - 73% of hospitals that provide childhood immunisations have all items for infection control.
b. 10% of private facilities
c. 336 government facilities offer immunisation services
d. 74%
e. HC-IVs - 92% of HC-IVs that offer immunisation services and store vaccines had all basic vaccines in stock.

Example 3: Understanding Samples and Weighting in SPA Tables

In the SPA, the sample is a group of facilities that have been selected from a list of all facilities in the country. The sample represents the entire population, that is, all facilities in Uganda. Most countries want to collect data and report information that represent facilities in the entire country as well as facilities in regions or provinces.

In the case of the SPA, researchers also want to know about health facilities of different types (hospitals and different levels of health centres), as well as facilities run by different managing authorities (government or private). We want the sample of hospitals surveyed to resemble the actual hospitals in the country, and we want the health centres sampled to resemble all health centres. However, there are many more HC-IIIs and HC-IIs than hospitals in Uganda. If we chose only a random sample of health facilities, we will only get a few hospitals, but hundreds of HC-IIs. Just a few hospitals in our sample would not be enough for any meaningful analysis.

For example, let's say that we have enough money to visit about 500 facilities for a survey that should be representative of all facility types (as in the Uganda table to the right). In Uganda, hospitals, HC-IVs, HC-IIIs, and HC-IIs are not evenly spread out; there are many more HC-IIIs and HC-IIs than hospitals.

A sampling statistician can determine how many facilities of each type should be surveyed in order to get reliable statistics for the specific indicators the country is interested in. In the case of Uganda, the blue column (1) shows the actual number of facilities selected and interviewed in each type, ranging from 164 HC-IIs to only 81 HC-IVs. The sampling statistician assures us that these are enough facilities to get reliable results for each type of facility.

But now there is a new challenge. With this distribution of facilities by type, some types are overrepresented and some types are underrepresented. For example, the unweighted column tells us that 119 hospitals were surveyed, which equals 24% of all facilities in the sample (491). But in reality, hospitals only comprise 4% of all the health facilities in Uganda. On the other hand, 164 HC-IIs were surveyed, which equals 33% of the facilities in the sample. In actuality, about 58% of health facilities in Uganda are HC-IIs. Would our survey show the true state of health facilities in Uganda if we used this sample distribution?

Table 1.1 Distribution of facilities by background characteristics

Percent distribution of facilities (weighted) and number of facilities (weighted and unweighted), by background characteristics, Uganda SPA 2007

Background characteristic	Percent distribution of facilities (weighted) (3)	Number of facilities: Weighted (2)	Number of facilities: Unweighted (1)
Type of facility			
Hospital	4	19	119
HC-IV	6	27	81
HC-III	32	158	127
HC-II	58	287	164
Managing authority			
Government	76	373	351
Private	24	119	140
Region			
Central	20	98	81
Kampala	2	9	40
East Central	16	78	69
Eastern	10	49	50
Northeast	8	41	38
North Central	7	37	39
West Nile	7	37	39
Western	12	60	56
Southwest	17	83	79
Total	100	491	491

In order to get statistics that are representative of the entire country, the distribution of the facilities in our sample needs to resemble the distribution of the facilities in the country. Hospitals, for example, should only contribute a very small amount to the total. Likewise, HC-IIs should contribute more. The numbers of facilities of each type are weighted or adjusted so that each type's contribution to the total is proportionate to the actual distribution of health facilities in the country. The numbers in the purple column (2) represent the "weighted" numbers. The total sample size of 491 facilities has not changed, but the distribution of the facilities in the regions has been adjusted to represent their contribution to the total number of facilities in the country.

How do statisticians weight each category? They recalculate the categories to reflect the real distribution of facilities in the country. If you were to compare the light red column (3) to the actual facilities distribution in Uganda, you would see that facilities of each type surveyed are contributing to the total sample with the same weight that they contribute to the total number of facilities in the country. The weighted number of facilities in the survey now accurately represents how many facilities are dispensaries- 58% of the facilities in Uganda - and how few facilities are hospitals - only 4% of the facilities.

With sampling and weighting, it is possible to survey enough facilities to provide reliable statistics at both the national and regional level, without distorting the overall distribution of facilities within the country. In general, only the weighted numbers are shown in each of the SPA tables, so don't be distressed if these numbers seem low- they may actually represent a larger number of facilities. The table will use parentheses and asterisks to warn you if there are too few unweighted cases in any category.

Note: Data from the actual, unweighted number of facilities are used for analysis. For example, even though the weighted number of hospitals is only 19, the data collected from all 119 hospitals is used for analysis. The only difference is that the results are weighted after analysis to represent information from hospitals in the proportion that they exist in the country.