PAMIs for cholera control

Module 3

GLOBAL TASK FORCE ON
CHOLERA CONTROL

PAMIs for cholera control

PAMI
Excel tool

What will you learn?

- **Structure and main functions** of the PAMI Excel tool
- **How to upload data** in the PAMI Excel tool
- **How to process calculations** in the PAMI Excel tool
- **How to interpret the outputs** generated by the PAMI Excel tool

PAMI Excel tool

- Automatizes all calculations for the identification of PAMIs
- Generates summary outputs for discussion at the stakeholder validation

Get ready

Get ready to manipulate the PAMI Excel tool

Make sure to use Windows

- The PAMI Excel tool operates under **Windows operating system**

1. Get the PAMI Excel Tool

Identification Tool

2. Get a dataset to manipulate

Training dataset

3. Have the user guide on hand

User Guide

https://tinyurl.com/PAMIcontrol

Explore the PAMI Excel tool

Photo adapted from: WHO / Andrew Esiebo

Overview of the PAMI Excel tool

Sheet Information

“Read me”

- Provides access to reference documents
- Provides **tips** for using the tool

Overview of the PAMI Excel tool

Sheet Data input table

This is **where to upload your data**

Reminder from Module 2
Format your data in accordance with the GTFCC data model template before upload

Overview of the PAMI Excel tool

Sheet R.1 | Priority index calculation

This is **where all calculations are performed**

Overview of the PAMI Excel tool

Sheets R.2 to R.5

This is **where to find the outputs**

- Each sheet displays different outputs to:
  - Interpret the calculations
  - Guide decision-making on PAMIs

Upload data in the PAMI Excel tool

Photo adapted from: WHO / Fabeha Monir

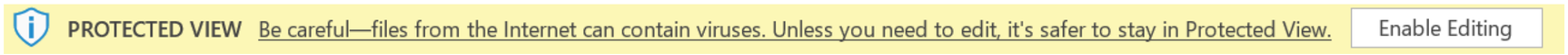
Prepare for the upload

- Make sure your data is formatted in accordance with the **PAMI data model template**

  Learn about the data model template in Module 2

- Save a **local copy** of the PAMI Excel tool

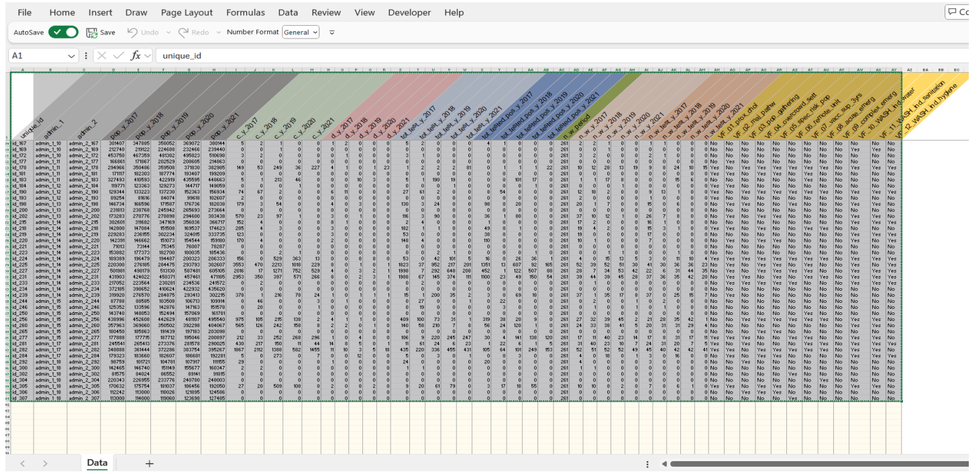
- If there is a "Protected View" banner, click **"Enable Editing"**



Upload the data

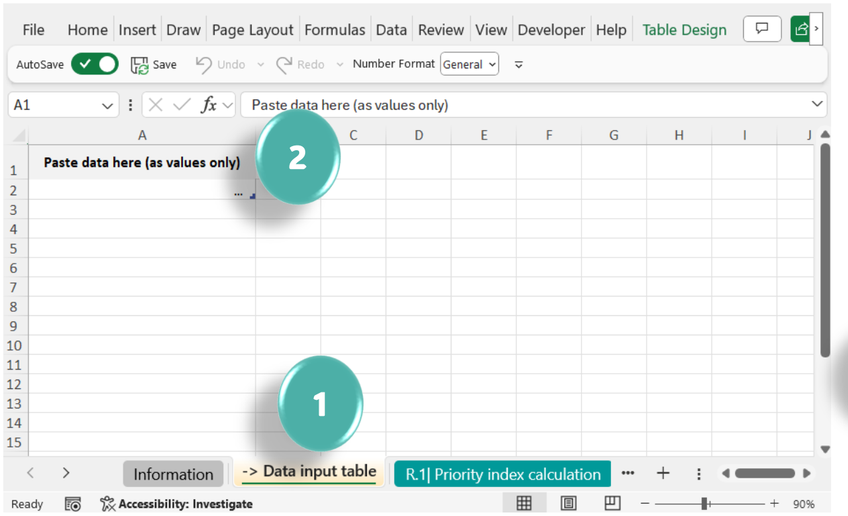
1 Copy your dataset

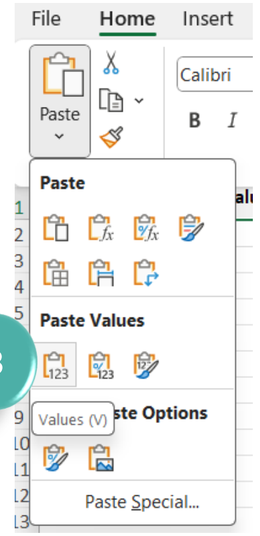
- In your **dataset file**
  - Select the entire data range (ctrl +A)
  - Copy it (ctrl + C)



2 Paste your dataset in the tool

- In the **PAMI Excel tool**
  1. In the sheet Data input table
  2. In the grey Cell A1
  3. Paste the data as values only

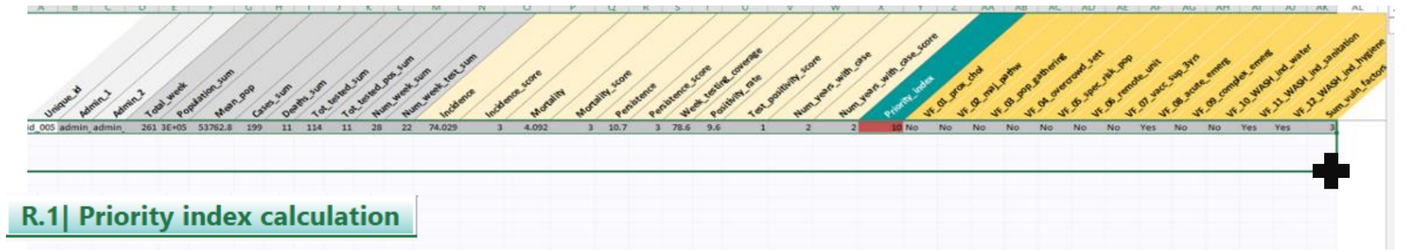




Include all geo units in the calculations

3 Include all geo units in the calculations

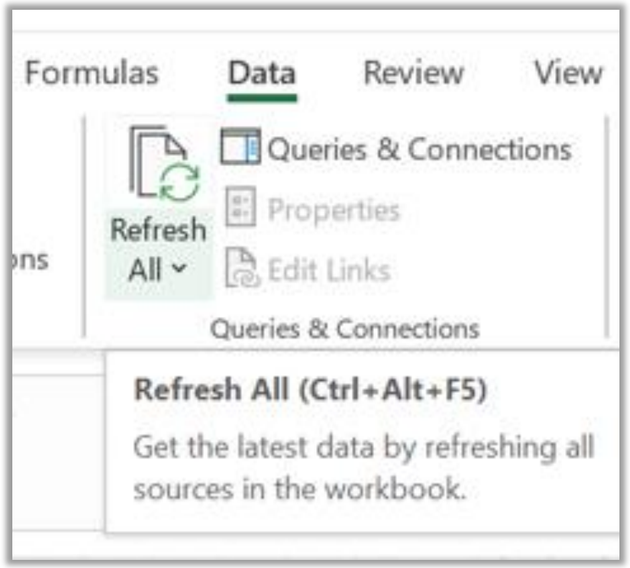
- Check the number of rows with data in the sheet **Data input table**
- In the sheet **R.1| Priority index calculation** **select the data in the first row**
- **Drag down the selection** until the number of rows with data in the sheet R.1 is the same as the number of rows with data in the Data input table



Process the calculations

4 « Refresh » to launch the calculations

- Go to the Excel **Data** tab and click **Refresh All**



Go through the outputs

Photo adapted from: WHO / Andrew Esiebo

What is in sheet R.1?

Calculation sheet

All indicators to identify PAMIs are calculated in this sheet

For each row (=each geo unit)

- **Epidemiological indicators** (incidence, mortality, persistence) and their score
- Representativeness of **testing** and testing indicators
- **Priority index**
- Number of **vulnerability factors** present

Unique_id	Admin_1	Admin_2	Total_week	Population_sum	Mean_pop	Cases_sum	Deaths_sum	Tot_tested_sum	Tot_tested_pos_sum	Num_week_sum	Num_week_test_sum	Incidence	Incidence_score	Mortality	Mortality_score	Persistence	Persistence_score	Week_testing_coverage	Positivity_rate	Test_positivity_score	Num_years_with_case	Num_years_with_case_score	Priority_index	VF_01_prox_chol	VF_02_maj_pathw	VF_03_pop_gathering	VF_04_overcrowd_sett	VF_05_spec_risk_pop	VF_06_remote_unit	VF_07_vacc_sup_3yrs	VF_08_acute_emerg	VF_09_complex_emerg	VF_10_WASH_ind_water	VF_11_WASH_ind_sanitation	VF_12_WASH_ind_	Sum_vuln
id_005	admin_	admin_	261	3E+05	53762.8	199	11	114	11	28	22	74.029	3	4.092	3	10.7	2	78.6	9.6	1	2	2	9	No	No	No	No	No	No	No	Yes	No	No	Yes	Yes	3
id_013	admin_	admin_	261	6E+05	114117	128	20	108	52	12	10	22.433	2	3.505	3	4.6	1	83.3	48.1	3	3	2	9	No	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes	Yes	6
id_014	admin_	admin_	261	2E+05	41173.6	225	8	114	6	44	39	109.293	3	3.886	3	16.9	2	88.6	5.3	1	3	2	9	No	No	No	No	No	No	No	No	No	Yes	No	Yes	2
id_015	admin_	admin_	261	8E+05	151834.2	634	14	354	47	11	6	83.512	3	1.844	3	4.2	1	54.5	13.3	2	3	2	9	Yes	No	Yes	No	No	No	No	No	No	Yes	Yes	Yes	5
id_022	admin_	admin_	261	1E+06	271860.4	0	0	0	0	0	0	0	NA	0	NA	0	NA	0.0	0.0	NA	NA	NA	0	No	No	No	Yes	No	No	No	No	No	No	No	No	1
id_025	admin_	admin_	261	1E+06	241779.2	185	5	102	24	27	20	15.303	1	0.414	1	10.3	2	74.1	23.5	2	4	2	6	No	No	Yes	No	No	No	Yes	Yes	No	No	No	No	3

How to use Sheet R.1?

Do not manipulate nor modify the sheet R.1

- Calculations in the sheet R1 are used as the source of data for calculating all outputs (sheets R2 to R5)
- Manipulations in the sheet R.1 may **interfere with the outputs**

Use the sheet R.5 instead

- Sheet R.5 shows the same variables as sheet R.1
- To sort/manipulate/explore the outputs displayed in the sheet R1, use the sheet R5

What is in sheet R.2?

All parameters of the PAMI analysis are summarized in the sheet R2

Data overview

Summary statistics on the dataset analysed

DATA OVERVIEW

Data description *	
Number of NCP operational geographic units	100
Study period: start year	2017
Study period: end year	2021
Study period: number of years	5
Number of NCP operational geographic units with at least one case	78
Total number of cases	47,483
Total number of deaths	679
Overall case fatality	1.4%
Total number of suspect cases tested **	22,851
Total number of suspect cases tested positive **	9,194
Overall positivity rate **	40.2%

**The totals are calculated for the entire set of geographical unist over the study period*
***Regardless of the testing method applied*

Epidemiological indicators

Scoring scale of epidemiological indicators according to their distribution

EPIDEMIOLOGICAL INDICATORS

Epidemiological indicator score thresholds		
Incidence (100,000 pers.y-1)*	Median	21.30
	80th percentile	62.54
Mortality (100,000 pers.y-1)*	Median	0.65
	80th percentile	1.83
Persistence (% of weeks with ≥ one case)*	Median	10.2
	80th percentile	22.1

**Calculated out of geographic units with indicator value >0*

Score values by epidemiological indicators

Epidemiological indicator	Score			
	0 point	1 point	2 points	3 points
Incidence	No case	> 0 and <	≥ median and < 80th	≥ 80th
Mortality	No	> 0 and <	≥ median and < 80th	≥ 80th
Persistence	No case	> 0 and <	≥ median and < 80th	≥ 80th

Testing indicators

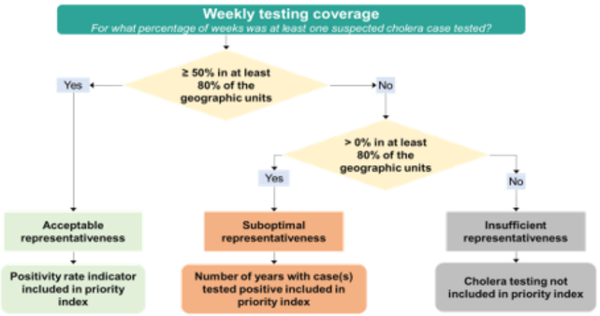
How testing is addressed in the analysis according to the representativeness of cholera testing

TESTING INDICATORS

Assessment of representativeness of cholera testing *

Step 1	
Number of NCP operational geographic units with weekly testing coverage ≥ 50%	69
Percentage of NCP operational geographic units (with at least one case) with testing coverage ≥ 50%	88.5%
Is weekly testing coverage ≥ 50% in at least 80% of the NCP operational geographic units of the	Yes
Level of representativeness of testing	Acceptable
Inclusion of positivity rate score into the priority index	Yes, positivity rate score included into the priority index
Step 2	
Number of NCP operational geographic units with weekly testing coverage > 0%	NA
Percentage of NCP operational geographic units with testing coverage > 0%	NA
Is the weekly testing coverage > 0 in at least 80% of the NCP operational geographic units of the country ?	NA
Level of representativeness of testing	NA
Inclusion of the num. of years with case(s) tested positive score into the priority index	NA

NA: not applicable
**Regardless of the testing method applied*



Score values by testing indicators

Weekly testing coverage	Testing indicator	Score			
		0 point	1 point	2 points	3 points
Acceptable	Positivity rate	0	≤ 10%	> 10% and ≤ 30%	> 30%
Suboptimal	Num. of years with confirmed case(s)	0	1	>1	NA*
Insufficient	NA*	NA*	NA*	NA*	NA*

**NA: Not applicable*

How to use Sheet R.2?

Use the figures provided in the Sheet R.2 to:

- Detect any inconsistency that may indicate **errors in the dataset or its formatting** **(data overview)**
- Understand **how the priority index was calculated** **(epidemiological indicators, testing indicators)**
- Extract key figures of the PAMIs analysis for discussion at the **stakeholder validation**
- Document key figures of the PAMIs analysis in the **report on PAMI identification**

What is in sheet R.3?

1. **Stratified by priority index value**

2. **Proxy on the feasibility of interventions in PAMIs**
   Cumulative # of geo units and % of the population in geo units with a priority index ≥ priority index value

3. **Proxy on the potential impact of interventions in PAMIs**
   Cumulative # and % of cholera cases and deaths in geo units with a priority index ≥ priority index value

Priority index values	Number of geographic units	Cum. number of geographic units	Rel. % of num. of geographic units	Total population	Rel. % of population	Cum. % of population	Num. of cases	Rel. % of num. of cases	Cum. % of num. of cases	Num. of deaths	Rel. % of num. of deaths	Cum. % of num. deaths
12	1	1	**1.0%**	372,328	**1.7%**	1.7%	7,404	**15.6%**	15.6%	47	**6.9%**	6.9%
11	4	5	**4.0%**	1,082,936	**4.9%**	6.6%	10,719	**22.6%**	38.2%	86	**12.7%**	19.6%
10	9	14	**9.0%**	2,482,153	**11.2%**	17.8%	16,110	**33.9%**	72.1%	141	**20.8%**	40.4%
9	16	30	**16.0%**	3,440,568	**15.5%**	33.3%	8,283	**17.4%**	89.5%	198	**29.2%**	69.5%
8	6	36	**6.0%**	1,174,687	**5.3%**	38.6%	1,957	**4.1%**	93.7%	81	**11.9%**	81.4%
7	7	43	**7.0%**	1,485,332	**6.7%**	45.3%	1,242	**2.6%**	96.3%	64	**9.4%**	90.9%
6	13	56	**13.0%**	2,667,462	**12.0%**	57.3%	1,239	**2.6%**	98.9%	37	**5.4%**	96.3%
5	6	62	**6.0%**	1,411,159	**6.4%**	63.7%	308	**0.6%**	99.5%	13	**1.9%**	98.2%
4	5	67	**5.0%**	1,099,903	**5.0%**	68.7%	149	**0.3%**	99.8%	9	**1.3%**	99.6%
3	5	72	**5.0%**	956,310	**4.3%**	73.0%	57	**0.1%**	100.0%	2	**0.3%**	99.9%
2	6	78	**6.0%**	1,382,814	**6.2%**	79.2%	15	**0.0%**	100.0%	1	**0.1%**	100.0%
0	22	100	**22.0%**	4,607,481	**20.8%**	100.0%	0	**0.0%**	100.0%	0	**0.0%**	100.0%
Grand Total	**100**		**100.0%**	**22,163,133**	**100.0%**		**47,483**	**100.0%**		**679**	**100.0%**	

How to read sheet R.3?

Illustration

Priority index values	Number of geographic units	Cum. number of geographic units	Rel. % of num. of geographic units	Total population	Rel. % of population	Cum. % of population	Num. of cases	Rel. % of num. of cases	Cum. % of num. of cases	Num. of deaths	Rel. % of num. of deaths	Cum. % of num. deaths
12	1	1	**1.0%**	372,328	**1.7%**	2%	7,404	**15.6%**	16%	47	**6.9%**	7%
11	4	5	**4.0%**	1,082,936	**4.9%**	7%	10,719	**22.6%**	38%	86	**12.7%**	20%
10	9	14	**9.0%**	2,482,153	**11.2%**	18%	16,110	**33.9%**	72%	141	**20.8%**	40%
9	16	**30**	**16.0%**	3,440,568	**15.5%**	**33%**	8,283	**17.4%**	**90%**	198	**29.2%**	**70%**
8	6	36	**6.0%**	1,174,687	**5.3%**	39%	1,957	**4.1%**	94%	81	**11.9%**	81%
7	7	43	**7.0%**	1,485,332	**6.7%**	45%	1,242	**2.6%**	96%	64	**9.4%**	91%
6	13	56	**13.0%**	2,667,462	**12.0%**	57%	1,239	**2.6%**	99%	37	**5.4%**	96%
5	6	62	**6.0%**	1,411,159	**6.4%**	64%	308	**0.6%**	100%	13	**1.9%**	98%
4	5	67	**5.0%**	1,099,903	**5.0%**	69%	149	**0.3%**	100%	9	**1.3%**	100%
3	5	72	**5.0%**	956,310	**4.3%**	73%	57	**0.1%**	100%	2	**0.3%**	100%
2	6	78	**6.0%**	1,382,814	**6.2%**	79%	15	**0.0%**	100%	1	**0.1%**	100%
0	22	100	**22.0%**	4,607,481	**20.8%**	100%	0	**0.0%**	100%	0	**0.0%**	100%
Grand Total	**100**		**100.0%**	**22,163,133**	**100.0%**		**47,483**	**100.0%**		**679**	**100.0%**	

If priority index threshold set to ≥ 9

Feasibility of interventions in PAMIs

- 30 geo units would be PAMIs
- 33% of the population

Potential impact of interventions in PAMIs

- 90% of the cholera cases
- 70% of the cholera deaths

How to use Sheet R.3?

Figures in the sheet R.3 are used to set the priority index threshold

- **Explore and discuss** different threshold scenario at the stakeholder validation for setting the priority index threshold
- Determine the **best balance** between feasibility and impact
- **Document** how the priority index was selected in the report on PAMI identification

What is in sheet R.4?

Only applicable if vulnerability factors are included in the PAMI analysis

Areas with high population density or overcrowded settings (e.g., urban slums, refugees/ID camps)

	VF_04_overcrowd_se	
Priority_index	Yes	No
12	1	
11	1	3
10	5	4
9	6	10
8	2	4
7	2	5
6	3	10
5	2	4
4	2	3
3	2	3
2	1	5
0	6	16
Grand Total	33	67

For each vulnerability factor and stratified by priority index value

- Number of geo units where the vulnerability factor is present

How to manipulate sheet R.4?

➡ **To see the geo units where the vulnerability factor is present for a given priority index value**

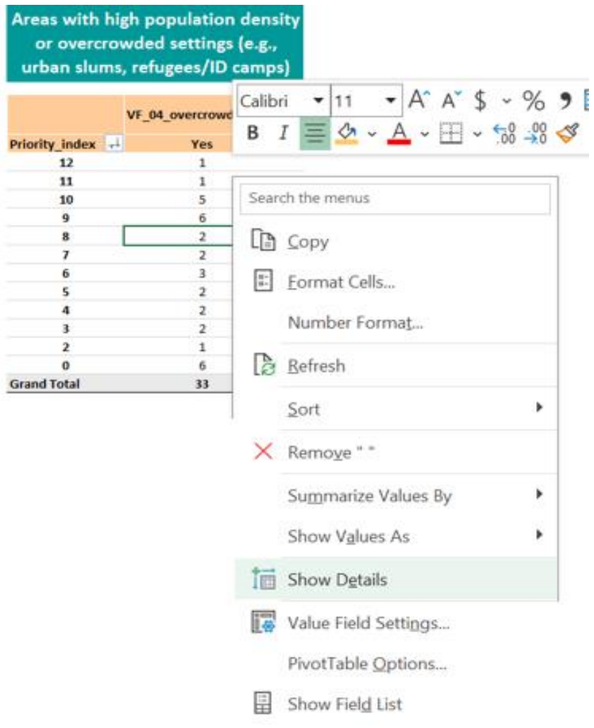
1 **Select the cell** you would like to explore

2 **Right-click** and choose **“Show Details”**

3 **A new Excel sheet opens**

Areas with high population density or overcrowded settings (e.g., urban slums, refugees/ID camps)

	VF_04_overcrowd_se	
Priority_index	Yes	No
12	1	
11	1	3
10	5	4
9	6	10
8	2	4
7	2	5
6	3	10
5	2	4
4	2	3
3	2	3
2	1	5
0	6	16
Grand Total	33	67



Unique_id	Admin_1	Admin_2
id_284	admin_1_17	admin_2_284
id_067	admin_1_04	admin_2_067

How to use Sheet R.4?

If vulnerability factors were included in the PAMI analysis

Use the figures provided in the sheet R.4 to:

- Guide the discussions on **additional PAMIs** at the stakeholder validation
  - Explore vulnerability factors present in geo units that have a priority index value below the priority index threshold

What is in sheet R.5?

Content similar to Sheet R.1

All indicators calculated to identify PAMIs

Unique_id	Admin_1	Admin_2	otal_week	ulation_sum	ean_pop	ases_sum	eaths_sum	_tested_sum	sted_pos_sum	n_week_sum	eek_test_sum	Incidence	dence_score	Mortality	tality_score	ersistence	stence_score
id_282	admin_1_17	admin_2_282	261	1861639	372327.8	7404	47	1877	672	256	210	397.71	3	2.53	3	98.1	3
id_033	admin_1_02	admin_2_033	261	1052119	210423.8	1298	27	690	83	92	85	123.37	3	2.57	3	35.2	3
id_099	admin_1_06	admin_2_099	261	1629267	325853.4	1086	21	623	246	60	49	66.66	3	1.29	2	23	3
id_225	admin_1_14	admin_2_225	261	1377360	275472	7483	10	3230	2228	224	166	543.29	3	0.73	2	85.8	3
id_281	admin_1_17	admin_2_281	261	1355933	271186.6	852	28	125	35	111	87	62.84	3	2.07	3	42.5	3
id_051	admin_1_03	admin_2_051	261	1710085	342017	3131	31	2052	254	73	58	183.09	3	1.81	2	28	3
id_096	admin_1_06	admin_2_096	261	827377	165475.4	300	19	181	66	54	39	36.26	2	2.30	3	20.7	2
id_121	admin_1_07	admin_2_121	261	1548737	309747.4	439	13	242	95	103	81	28.35	2	0.84	2	39.5	3
id_158	admin_1_08	admin_2_158	261	551548	110309.6	332	21	231	85	54	39	60.19	2	3.81	3	20.7	2
id_224	admin_1_14	admin_2_224	261	987011	197402.2	1061	16	201	79	37	28	107.50	3	1.62	2	14.2	2
id_227	admin_1_14	admin_2_227	261	2705876	541175.2	4585	10	3153	1170	164	138	169.45	3	0.37	1	62.8	3
id_231	admin_1_14	admin_2_231	261	2234942	446988.4	4537	14	2685	1376	195	170	203.00	3	0.63	1	74.7	3
id_277	admin_1_15	admin_2_277	261	939258	187851.6	1061	5	827	433	105	84	112.96	3	0.53	1	40.2	3
id_305	admin_1_18	admin_2_305	261	905929	181185.8	664	12	169	93	30	22	73.30	3	1.33	2	11.5	2
id_005	admin_1_01	admin_2_005	261	268814	53762.8	199	11	114	11	28	22	74.03	3	4.09	3	10.7	2

Unique_id	stence_score	esting_coverage	sitivity_rate	ositivity_score	ears_with_case	ears_with_case_s	rity_index	01_prox_chol	02_maj_pathw	pop_gathering	overcrowd_sett	spec_risk_pop	remote_unit	acc_sup_3yrs	acute_emerg	complex_emerg	WASH_ind_water	WASH_ind_sanita	WASH_ind_hygie	y
id_282	82	36	3	5	2	12	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	9
id_033	92	12	2	5	2	11	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	3
id_099	82	39	3	3	2	11	No	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	4
id_225	74	69	3	5	2	11	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes	No	Yes	6
id_281	78	28	2	5	2	11	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	7
id_051	79	12	2	5	2	10	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	9
id_096	72	36	3	3	2	10	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	3
id_121	79	39	3	5	2	10	No	Yes	No	Yes	No	No	Yes	No	No	Yes	Yes	No	5
id_158	72	37	3	4	2	10	No	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	4
id_224	76	39	3	4	2	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	11
id_227	84	37	3	5	2	10	No	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	8
id_231	87	51	3	5	2	10	No	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	8
id_277	80	52	3	5	2	10	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	7
id_305	73	55	3	4	2	10	Yes	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	No	6
id_005	79	10	1	2	2	9	No	No	No	No	No	No	No	Yes	No	No	Yes	Yes	3

How to use Sheet R.5?

Manipulate the data in the sheet R.5

For example, sort or filter the data by priority index value

Export a copy of the sheet R.5

This export can be used for:

- Importation in a **statistical software**
- Importation in a **GIS software** to map PAMIs
- **Discussing** specific geo units at the stakeholder validation
- **Taking notes** at the stakeholder validation

Wrap up

The GTFCC PAMI Excel computes all calculations and generates the following outputs

- **Sheet R.2| Overview tables**
  - Parameters of the PAMI analysis
  - Useful to understand the analysis performed and for consistency checks
- **Sheet R.3| Priority index summary**
  - Proxy on feasibility & impact of interventions
  - Useful to set the priority index threshold at the stakeholder validation
- **Sheet R.4| Additional factors tables**

  If vulnerability factors included in the analysis
  - Summary information on the presence/absence of vulnerability factors
  - Useful to discuss the inclusion of additional PAMIs at the stakeholder validation
- **Sheet R.5| Table PAMIs Export**
  - Summarizes all calculations
  - Useful for GIS mapping, additional analysis, etc

Learn more

Watch videos to see how to use the PAMI Excel tool
https://tinyurl.com/tutoexcelPAMIcontrol

- **Get ready to use the PAMI Excel tool**
- **Upload data in the PAMI Excel tool**
- **Explore the outputs of the PAMI Excel tool**

Practice

Practice using the PAMI Excel tool with an exercise

Access the exercise

https://tinyurl.com/PAMIcontrolPractice

Check your answers

https://tinyurl.com/PAMIcontrolAnswers

Takes about 15 minutes to complete


Together we can
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