

Vaccination Session Planning

an overview of WHO Session planning tool

Geneva, July 2022

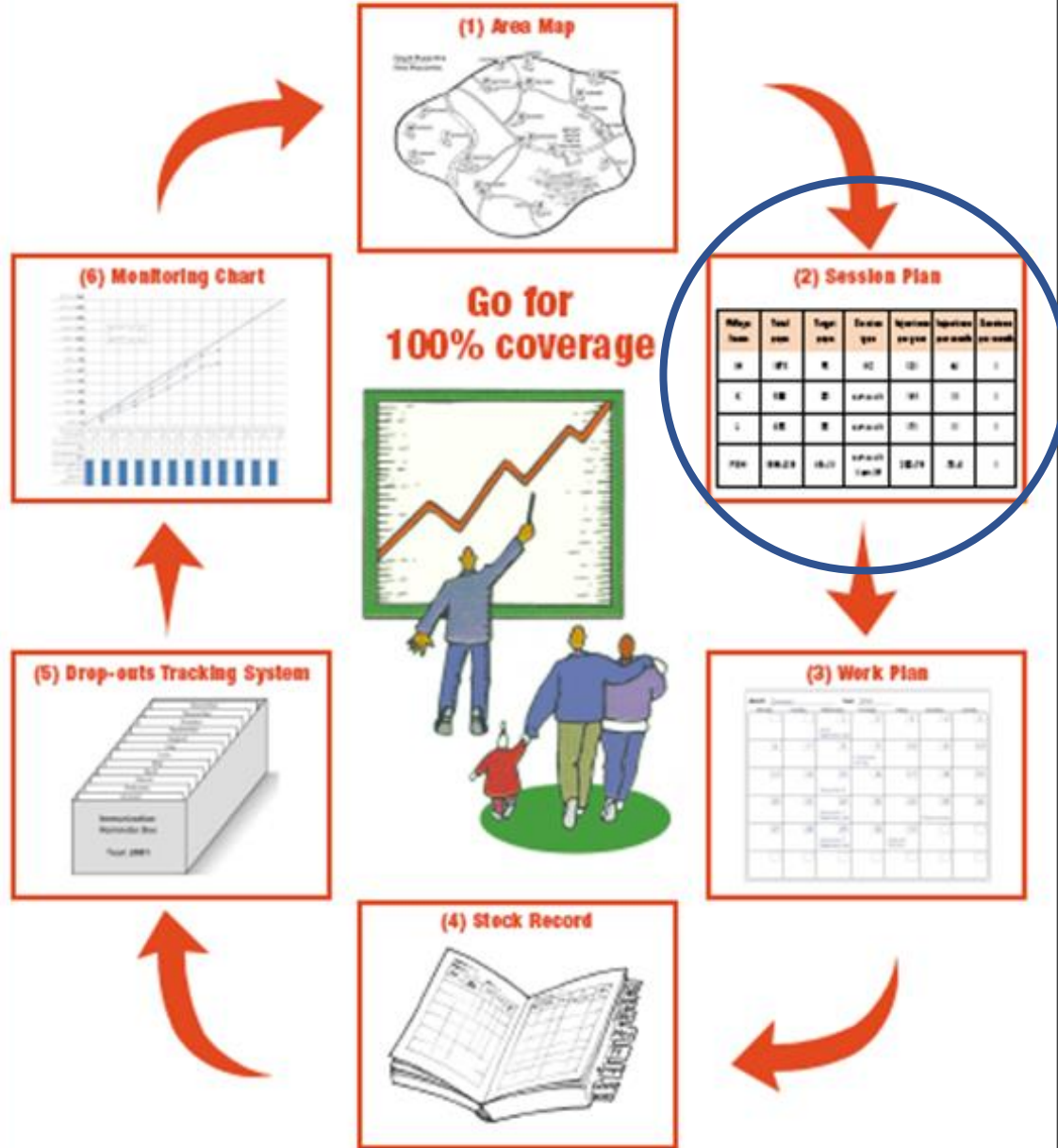
S. Kone, WHO/IVB

- The Immunization Programme's 2030 Agenda has set three main objectives:
 - Reducing mortality and morbidity from vaccine-preventable diseases for all throughout life
 - Leaving no one behind, **increasing equitable access and use** of new and existing vaccines
 - Ensure the health and well-being of all by strengthening immunization in primary health care and contributing to universal health coverage and sustainable development.
- Gavi's priorities for the strategic period 2021-2025 are aligned with the Immunization Programme's 2030 Agenda goal of ensuring equitable access to vaccines by reaching **zero-dose** children and **unmet communities**.



Put these R.E.D tools into action

From Reaching Every District strategy



Session plan:

- Vaccination session plan is an essential tool for the reaching every district (RED) strategy.
- Facility session plan establishes the frequency of vaccination sessions (number of sessions per week);
- Establishing the frequency of sessions should be supported from efficiency perspective:
 - Reaching high and equitable coverage
 - Keeping vaccine consumption at minimum level
- Be able to be deliver by existing workforce.

Key principles:

- Population will show up for the vaccination as per the communicated session plan
- Any eligible target present at the session will receive the vaccine for the session.

Note that this includes all communities, some of which may be scheduled for fixed sessions (at the health centre) and some for outreach

Community name	Distance from HC in km	Type of session (fixed or outreach)	Total population	Session frequency

Facility session plan includes:

- list of communities,
- distances from the health centre,
- total population,
- type of session (fixed or outreach) :
 - for rural communities usually depends on the distance of the community from the health centre or on the travel time needed if the terrain is difficult.
 - for urban communities may depend on social factors or convenience for the groups being served.
- frequency of sessions depends:
 - the number of infants expected at each session,
 - the number of infants an immunization programme should expect to serve in a community depends on its total population.

* WHO Immunization in Practice (IIP): https://apps.who.int/iris/bitstream/handle/10665/193412/9789241549097_eng.pdf

How to choose session frequency:

IIP provides indicative session frequency by range of population sizes, based on the number of vaccinators available for each session. For example:

- with a total population of 6000 and an immunization team with two vaccinators per session, session frequency should be every two weeks.
- with a total population of 3000 and an immunization team with one vaccinator per session, session frequency should be monthly.
- with a total population of 500 and an immunization team with one vaccinator per session, session frequency should be quarterly.

	Total population of community	Session frequency (30 infants per vaccinator per session)	
		1 vaccinator per session	2 vaccinators per session
4- or 5-contact schedule	5001-10 000	Weekly	Every 2 weeks
	3001-5000	Every 2 weeks	Monthly
	2001-3000	Monthly	Monthly
	1001-2000	Monthly	Quarterly
	0-1000	Quarterly	Quarterly

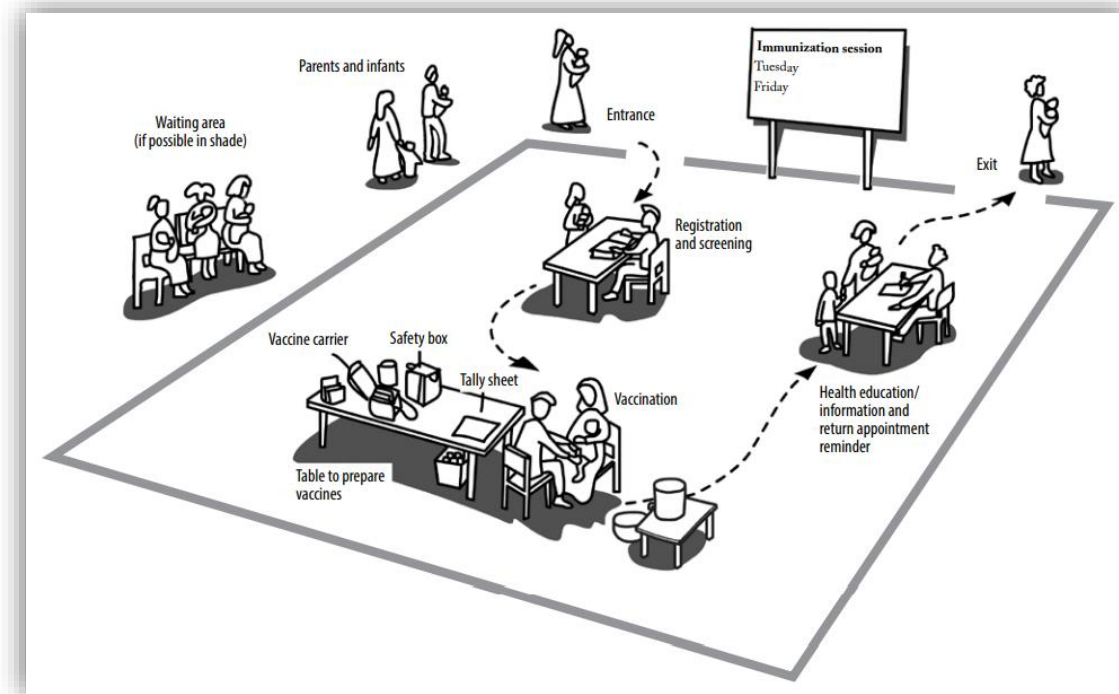
Key principles:

- IIP states a reasonable workload at about 30 infants per vaccinator per session.
- The maximum acceptable workload may vary depending on the national schedule and immunization policies and strategies.

* WHO Immunization in Practice (IIP): https://apps.who.int/iris/bitstream/handle/10665/193412/9789241549097_eng.pdf

Session plan implementation challenges:

- Fear of high vaccine wastage remains a disruptive factor in vaccination:
 - Intuitive measures by health workers to minimize wastage often at expense of vaccination
 - National level instructions regarding sessions and established wastage thresholds have been challenged by service delivery context of different facilities.
- Knowing how to anticipate or when losses occur is the key to balancing the goals of achieving high coverage and reducing wastage.
- WHO session planning tool provides the basis for evidence-based planning of immunization sessions and monitoring the performance of national immunization programmes.



Issues :

- IIP guidance on session frequencies are established, regardless of the vaccine characteristics:
 - Number of doses per vial
 - Status regarding multidose vial policy (MDVP)
- Therefore, the wastage become rapidly an issue during the implementation of the session plan.

WHO Session Planning Tool

Tools	Designation	Scope/Purpose	Application
<u>Session Planning Tool</u>	MS Excel-based tool designed for defining the most suitable vaccination session frequency from vaccine wastage outputs.	<ul style="list-style-type: none">• To conduct assessment the impact of different vaccination sessions frequencies to determine anticipated vaccine wastage rates, vaccine need forecasts and safety stock level.• Provides simulations for changing service delivery parameters and vaccines characteristics (vial size, MDVP status).	<ul style="list-style-type: none">• Facility session planning;• District microplanning;• Vaccine forecasting.

Principles:

- Frequency is established for each individual vaccine
- Impact on vaccine demand and wastage rate are considered.

Vaccine key inputs:

- Number of doses per target;
- Vial size (doses per primary container);
- Status regarding multidose vial policy (MDVP), whether opened vials are:
 - discarded at the end of session
 - reused during multiple subsequent sessions (up to 4 weeks).

Session plan & annual vaccine needs -1

	Method 1	Method 2 with different frequencies of sessions		
	Wastage rate	Weekly sessions	3 sessions per week	Daily sessions
Annual Target Population	347	347	347	347
Coverage (%)	90	90	90	90
Doses per target	1	1	1	1
Wastage rate (%)	50	-	-	-
Sessions per week (annual)	-	1 (48)	3 (144)	5 (240)
Vial size	20	20	20	20
Estimation of annual needs	640	980	2,940	4,900
Difference	-	1,5	4,6	7,6

with 70% wastage rate	1,040	980	2.940	4.900
with 80% wastage rate	1,560	980	2.940	4.900
with 90% wastage rate	3,120	980	2.940	4.900

Session plan & annual vaccine needs -2

	Method 1	Method 2 with different frequencies of sessions		
	Wastage rate	Weekly sessions	3 sessions per week	Daily sessions
Annual Target Population	347	347	347	347
Coverage (%)	90	90	90	90
Doses per target	1	1	1	1
Wastage rate (%)	50	-	-	-
Sessions per week (annual)	-	1 (48)	3 (144)	5 (240)
Vial size	20	20	20	20
Estimation of annual needs	640	980	2.940	4.900
Difference	-	1,9 à 2,9	1,9 à 3,9	1,9 à 3.9

2 weeks utilization (wastage)	460 (30%)	500	1.480	2.460
3 weeks utilization (wastage)	420 (25%)	340	980	1.640
4 weeks utilization (wastage)	420 (25%)	500	740	1.240

WHO Session Planning Tool – vaccination schedule

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	PROGRAMME DATA													Index	
2															
3															
4	VACCINES & VACCINATIONS														
5	NN°	Scheduled Vaccines	Activity type	Vaccination objectives & targets			Doses per vial	Vaccine wastage (%)	Administration	Dilution syringes	Multidose Vial Policy	Administration	Storage temperature (°C)	Volume per target, cm3	
Schedule				Target population	Target (%)	Coverage									
6	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
9	1	BCG	Routine	1	Live births	4.4%	90%	20	50%	ADS_0.05ml	Sdilution_2ml	0	Intradermal	2-8°C	1.63
10	2	bOPV	Routine	4	Live births	4.4%	90%	10	20%			28	Oral	-20°C	5.16
11	3	DTwP-HepB-Hib	Routine	3	Surviving infants	4.1%	90%	10	10%	ADS_0.5ml		28	Intramuscular	2-8°C	10.84
12	4	IPV	Routine	1	Surviving infants	4.1%	90%	10	10%	ADS_0.5ml		28	Intramuscular	2-8°C	2.73
13	5	MR	Routine	2	Surviving infants	4.1%	90%	10	25%	ADS_0.5ml	Sdilution_5ml	0	Subcutaneous	2-8°C	5.19
14	6	Td	Routine	2	Pregnent women	5.0%	90%	10	10%	ADS_0.5ml		28	Intramuscular	2-8°C	6.00
15	7	YF	Routine	1	Surviving infants	4.1%	90%	10	25%	ADS_0.5ml	Sdilution_5ml	0	Intramuscular or	2-8°C	3.47
16	8	Men-A	Routine	1	Surviving infants	4.1%	90%	10	25%	ADS_0.5ml	Sdilution_5ml	0	Intramuscular	2-8°C	2.81
17	9	RTS,S	Routine	4	Surviving infants	4.1%	90%	2	5%	ADS_0.5ml	Sdilution_2ml	0	Intramuscular	2-8°C	41.68
18	10	Rota_Liq_frozen	Routine	2	Surviving infants	4.1%	90%	5	10%			28	Oral	-20°C	9.33
19	11	C19-Pfizer PBS/S	SIAs	2		60.0%	90%	6	3%	ADS_0.3ml	Sdilution_2ml	0	Intramuscular	-70°C	3.71
20	12	C19-Covishield C	SIAs	2		60.0%	90%	10	5%	ADS_0.5ml		0	Intramuscular	2-8°C	4.42
21	13														-
22	14														-
23	15														-
24	16														-

WHO Session Planning Tool – structured list of facilities

Step-1: List all facilities:

- Facility name, type, total population, distance to supply
- Supply chain or administrative levels (districts, provinces, etc.)

	A	B	C	D	E	F	G	H
1	LIST OF FACILITIES							
2								
4	NN	Province	Districts	Structures	Type_F	Actif	Population_Tota	Distanc
5	1	Province-01	District-01	DS-01 CS-01	SP		5,578	36
6	2	Province-01	District-01	DS-01 CS-02	SP		20,539	1
7	3	Province-01	District-01	DS-01 CS-03	SP		4,607	35
8	4	Province-01	District-01	DS-01 CS-04	SP		5,298	6
9	5	Province-01	District-01	DS-01 CS-05	SP		2,498	30
10	6	Province-01	District-01	DS-01 CS-06	SP		3,602	
11	7	Province-01	District-01	DS-01 CS-07	SP		3,404	18
12	8	Province-01	District-01	DS-01 CS-08	SP		6,503	20
13	9	Province-01	District-01	DS-01 CS-09	SP		3,486	8
14	10	Province-01	District-01	DS-01 CS-10	SP		3,874	35
15	11	Province-01	District-01	DS-01 CS-11	SP		3,925	43
16	12	Province-01	District-01	DS-01 CS-12	SP		4,637	15
17	13	Province-01	District-01	DS-01 CS-13	SP		6,551	70
18	14	Province-01	District-01	DS-01 CS-14	SP		4,131	4
19	15	Province-01	District-01	DS-01 CS-15	SP		7,035	15
20	16	Province-01	District-01	DS-01 CS-16	SP		3,228	40
21	17	Province-01	District-01	DS-01 CS-17	SP		4,631	28
22	18	Province-01	District-01	DS-01 CS-18	SP		4,519	15
23	19	Province-01	District-01	DS-01	LD		98,046	55
24	20	Province-01	District-02	DS-02 CS-01	SP		2,744	30
25	21	Province-01	District-02	DS-02 CS-02	SP		4,988	20
26	22	Province-01	District-02	DS-02 CS-03	SP		2,643	15

WHO Session Planning Tool – initial session plan

VACCINATION SESSION PLANNING & DEMAND FORECAST								Index												
				Total	19,314	16,996	15,838	#N/A	Number of vaccination sessions per week											
								Live birth	Live birth	Surviving	Surviving	Surviving	Pregnant	Surviving	Surviving	Surviving	Surviving			
								1	4	3	1	2	2	1	1	4	2			
Type	Province	Districts	Structures	Pregnant women	Live births	Surviving infants	Adolescent Girls	BCG	bOPV	DTwP-HepB-Hib	IPV	MR	Td	YF	Men-A	RTS,S	Rota_Liq_frozen			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
9	SP	Province-01	District-01	DS-01 CS-01	279	245	229	#N/A	1.0	6.0	6.0	5.0	2.0	5.0	2.0	2.0	6.0	6.0		
10	SP	Province-01	District-01	DS-01 CS-02	1,027	904	842	#N/A	1.0	6.0	6.0	5.0	2.0	5.0	2.0	2.0	6.0	6.0		
11	SP	Province-01	District-01	DS-01 CS-03	230	203	189	#N/A	1.0	6.0	6.0	5.0	2.0	5.0	2.0	2.0	6.0	6.0		
12	SP	Province-01	District-01	DS-01 CS-04	265	233	217	#N/A	1.0	6.0	6.0	5.0	2.0	5.0	2.0	2.0	6.0	6.0		
13	SP	Province-01	District-01	DS-01 CS-05	125	110	102	#N/A	1.0	6.0	6.0	5.0	2.0	5.0	2.0	2.0	6.0	6.0		
14	SP	Province-01	District-01	DS-01 CS-06	180	158	148	#N/A	1.0	6.0	6.0	5.0	2.0	5.0	2.0	2.0	6.0	6.0		
15	SP	Province-01	District-01	DS-01 CS-07	170	150	140	#N/A												
16	SP	Province-01	District-01	DS-01 CS-08	325	286	267	#N/A												
17	SP	Province-01	District-01	DS-01 CS-09	174	153	143	#N/A												
18	SP	Province-01	District-01	DS-01 CS-10	194	170	159	#N/A												
19	SP	Province-01	District-01	DS-01 CS-11	196	173	161	#N/A												
20	SP	Province-01	District-01	DS-01 CS-12	232	204	190	#N/A												
21	SP	Province-01	District-01	DS-01 CS-13	328	288	269	#N/A												
22	SP	Province-01	District-01	DS-01 CS-14	207	182	169	#N/A												
23	SP	Province-01	District-01	DS-01 CS-15	352	310	288	#N/A												
24	SP	Province-01	District-01	DS-01 CS-16	161	142	132	#N/A												
25	SP	Province-01	District-01	DS-01 CS-17	232	204	190	#N/A												
26	SP	Province-01	District-01	DS-01 CS-18	226	199	185	#N/A												
27	LD	Province-01	District-01	DS-01	4,902	4,314	4,020	#N/A												
28	SP	Province-01	District-02	DS-02 CS-01	137	121	113	#N/A												
29	SP	Province-01	District-02	DS-02 CS-02	249	219	205	#N/A												

Session plan:
 - For each vaccine, indicate the number of sessions per week as per national policy or instructions

WHO Session Planning Tool – outputs on anticipated wastage and Annual needs

	A	B	C	D	E	F	G	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AY	AZ	BA	BB	BC	
1	VACCINATION SESSION PLANNING & DEMAND FORECAST																						
2																							
3	Total							Estimation of anticipated vaccine wastage										Estimation of annual vaccine demand (doses)					
4																							
5	Target population																						
6	Type	Province	Districts	Structures	Pregnent women	Live births	Surviving infants	BCG	bOPV	DTwP-HepB-Hib	IPV	MR	Td	YF	Men-A	RTS,S	Rota_Liq_frozen	BCG	bOPV	DTwP-HepB-Hib	IPV	MR	
8	A	B	C	D	E	F	G	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AY	AZ	BA	BB	BC	
9	SP	Province-01	District-01	DS-01 CS-01	279	245	229	78%	29%	51%	68%	59%	20%	82%	82%	35%	45%	1,000	1,250	1,250	630	1,000	
10	SP	Province-01	District-01	DS-01 CS-02	1,027	904	842	19%	13%	9%	39%	24%	26%	24%	24%	16%	19%	1,000	3,750	2,500	1,250	2,000	
11	SP	Province-01	District-01	DS-01 CS-03	230	203	189	82%	42%	18%	74%	67%	34%	86%	86%	49%	10%	1,000	1,250	630	630	1,000	
12	SP	Province-01	District-01	DS-01 CS-04	265	233	217	79%	33%	6%	70%	62%	24%	83%	83%	39%	48%	1,000	1,250	630	630	1,000	
13	SP	Province-01	District-01	DS-01 CS-05	125	110	102	91%	37%	56%	88%	84%	65%	94%	94%	56%	55%	1,000	630	630	630	1,000	
14	SP	Province-01	District-01	DS-01 CS-06	180	158	148	86%	9%	36%	81%	75%	48%	90%	90%	25%	31%	1,000	630	630	630	1,000	
15	SP	Province-01	District-01	DS-01 CS-07	170	150	140																
16	SP	Province-01	District-01	DS-01 CS-08	325	286	267																
17	SP	Province-01	District-01	DS-01 CS-09	174	153	143																
18	LD	Province-01	District-01	DS-01	2,776	2,443	2,276	73%	27%	30%	71%	63%	36%	77%	77%	37%	35%	6,080	8,850	6,340	4,450	7,080	
19	SP	Province-01	District-02	DS-02 CS-01	196	173	161																
20	SP	Province-01	District-02	DS-02 CS-02	232	204	190																
21	SP	Province-01	District-02	DS-02 CS-03	328	288	269																
22	SP	Province-01	District-02	DS-02 CS-04	207	182	169																
23	SP	Province-01	District-02	DS-02 CS-05	352	310	288																
24	SP	Province-01	District-02	DS-02 CS-06	161	142	132																
25	SP	Province-01	District-02	DS-02 CS-07	232	204	190																
26	SP	Province-01	District-02	DS-02 CS-08	226	199	185																
27	LD	Province-01	District-02	DS-02	1,933	1,701	1,585												-	-	-	-	-
28	SP	Province-01	District-03	DS-03 CS-01	137	121	113																
29	SP	Province-01	District-03	DS-03 CS-02	249	219	205																

Estimated outputs:

- Anticipated total wastage rates for each vaccine
- Annual vaccines doses required

WHO Session Planning Tool – outputs on annual forecasts & estimated costs

	A	B	C	D	E	F	G	A	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW
1	VACCINATION SESSION PLANNING & DEMAND FORECAST																				
2																					
3				Total	7,006	6,166	5,745	Estimation of annual demand of safe injection supplies (units)							Estimated cost \$US			Total Estimated cost			
4								Syringes for injection (Annual)			Dilution syringes (Annual)			Safety boxes							
5	Target population							ADS_0.05 ml	ADS_0.3 ml	ADS_0.5 ml	Sdilution_2ml	Sdilution_5ml	Sdilution_6ml	SB_5l	Syringes for injection	Dilution syringes	Safety boxes	Estimated cost safe injection equipment	Estimated cost vaccines	TOTAL	
6	Type	Province	Districts	Structures	Pregnent women	Live births	Surviving infants														
8	A	B	C	D	E	F	G	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	
9	SP	Province-01	District-01	DS-01 CS-01	279	245	229	272	-	3,554	650	300	-	60	\$ 198.3	\$ 30.8	\$ 38.1	\$ 267.2	\$ 228,536.6	\$ 228,803.7	
10	SP	Province-01	District-01	DS-01 CS-02	1,027	904	842	1,003	-	13,086	1,850	400	-	204	\$ 730.1	\$ 70.8	\$ 130.3	\$ 931.2	\$ 677,765.4	\$ 678,696.6	
11	SP	Province-01	District-01	DS-01 CS-03	230	203	189	225	-	2,935	650	300	-	51	\$ 163.7	\$ 30.8	\$ 32.8	\$ 227.3	\$ 227,734.2	\$ 227,961.6	
12	SP	Province-01	District-01	DS-01 CS-04	265	233	217	259	-	3,376	650	300	-	57	\$ 188.3	\$ 30.8	\$ 36.6	\$ 255.7	\$ 228,053.0	\$ 228,308.7	
13	SP	Province-01	District-01	DS-01 CS-05	125	110	102	122	-	1,591	350	300	-	30	\$ 88.8	\$ 21.7	\$ 18.8	\$ 129.4	\$ 116,543.3	\$ 116,672.6	
14	SP	Province-01	District-01	DS-01 CS-06	180	158	148	176	-	2,295	350	300	-	39	\$ 128.0	\$ 21.7	\$ 24.9	\$ 174.7	\$ 116,543.3	\$ 116,717.9	
15	SP	Province-01	District-01	DS-01 CS-07	170	150	140	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
16	SP	Province-01	District-01	DS-01 CS-08	325	286	267	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
17	SP	Province-01	District-01	DS-01 CS-09	174	153	143	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
18	LD	Province-01	District-01	DS-01	2,776	2,443	2,276	2,057	-	26,837	-	-	-	361	\$ 1,497.2	\$ -	\$ 230.4	\$ 1,727.6	\$ 1,611,553.7	\$ 1,613,281.3	
19	SP	Province-01	District-02	DS-02 CS-01	196	173	161	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
20	SP	Province-01	District-02	DS-02 CS-02	232	204	190	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
21	SP	Province-01	District-02	DS-02 CS-03	328	288	269	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
22	SP	Province-01	District-02	DS-02 CS-04	207	182	169	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
23	SP	Province-01	District-02	DS-02 CS-05	352	310	288	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
24	SP	Province-01	District-02	DS-02 CS-06	161	142	132	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
25	SP	Province-01	District-02	DS-02 CS-07	232	204	190	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
26	SP	Province-01	District-02	DS-02 CS-08	226	199	185	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
27	LD	Province-01	District-02	DS-02	1,933	1,701	1,585	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
28	SP	Province-01	District-03	DS-03 CS-01	137	121	113	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
29	SP	Province-01	District-03	DS-03 CS-02	249	219	205	-	-	-	-	-	-	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

WHO Session planning Tool – summary of facility session plan & vaccine forecast

Summary of health facility vaccine forecasts												
Province Province-01			Districts District-01				Structures DS-01 CS-04					
Scheduled Vaccines	Target population		Doses per target	Sessions per week	Doses per vial	Multidose Vial Policy	Mean session size	Anticipated wastage rate	Doses needed		Safety stock	Estimated cost
	Groups	No.	No.	No.	No.	week			Annual	Monthly	doses	\$US
B	C	D	E	F	G	H	I	J	K	L	M	N
BCG	Live births	233	1	1	20	0	4.4	79%	1,000	100	40	\$ 137.0
bOPV	Live births	233	4	6	10	4	11.7	44%	1,500	130	30	\$ 462.0
DTwP-HepB-Hib	Surviving infants	217	3	6	10	4	8.1	22%	750	70	30	\$ 585.0
IPV	Surviving infants	217	1	5	10	4	3.3	69%	630	60	20	\$ 1,411.2
MR	Surviving infants	217	2	2	10	0	4.1	61%	1,000	90	30	\$ 780.0
Td	Pregnent women	265	2	5	10	4	7.9	24%	630	60	30	\$ 120.9
YF	Surviving infants	217	1	2	10	0	2.0	80%	1,000	90	30	\$ 1,240.0
Men-A	Surviving infants	217	1	2	10	0	2.0	80%	1,000	90	30	\$ 850.0
RTS,S	Surviving infants	217	4	6	2	0	2.7	35%	1,200	100	26	\$ 222,000.0
Rota_Liq_frozen	Surviving infants	217	2	6	5	4	5.4	48%	750	65	20	\$ 637.5
C19-Pfizer PBS/Suc0		3,179	2	21	6		151.4	7%	6,828		12	\$ -
C19-Covishield ChA0		3,179	2	30	10		106.0	7%	6,880		20	\$ 68,800.0
Total Routine											\$ 228,223.57	
Total SIAs											\$ 68,800.00	
Grand Total											\$ 297,023.57	
<p><i>Mean session size (I) = Target population (D) * Doses per target (E) * Coverage expected * No. of weeks an opened vial of vaccine is used / (Weeks per year * Sessions per week)</i></p> <p><i>Multidose Vial Policy (H) = No. of weeks an opened vial of vaccine is used (0, 1, 2, 3, 4)</i></p> <p><i>Anticipated wastage rate (J) = (Doses of vials opened per session - Doses administered per session) / Doses of vials opened per session</i></p> <p><i>Doses needed (Annual) = (Mean session size / Doses per vial) * Sessions per week * Weeks per year * Doses per vial</i></p> <p><i>Doses needed (Monthly) = Doses needed (Annual) / 12</i></p>												

WHO Session planning Tool – summary of facility forecasts of safe injection equipment

Summary of health facility forecasts of safe injection supplies												
Province Province-01			Districts District-01				Structures DS-01 CS-01					
Scheduled Vaccines	Syringes for injection (Annual)			Dilution syringes (Annual)			Safety boxes	Syringes for a month		Estimated cost \$US		Total Estimated cost
	ADS_0.05ml	ADS_0.3ml	ADS_0.5ml	Sdilution_2ml	Sdilution_5ml	Sdilution_6ml	SB_5l	injection	dilution	injection	dilution	\$US
B	C	D	E	F	G	G	I	J	K	L	M	N
BCG	273			50			4	23	4	\$ 16.5	\$ 1.5	\$ 20.6
bOPV												\$ -
DTwP-HepB-Hib			762				10	64		\$ 39.0		\$ 45.1
IPV			254				3	21		\$ 13.0		\$ 15.0
MR			508		100		8	42	8	\$ 26.0	\$ 3.7	\$ 34.6
Td			620				8	52		\$ 31.7		\$ 36.7
YF			254		100		4	21	8	\$ 13.0	\$ 3.7	\$ 19.5
Men-A			254		100		4	21	8	\$ 13.0	\$ 3.7	\$ 19.5
RTS,S			1,016	600			20	85	50	\$ 52.0	\$ 18.2	\$ 83.0
Rota_Liq_frozen												\$ -
C19-Pfizer Tris/Sucrose		8,668					108			\$ 443.4		\$ 512.5
Measles			2,787		263		38			\$ 142.6	\$ 9.8	\$ 176.7
Total Routine	273	-	3,668	650	300	-	61	328	79	\$ 204.13	\$ 30.82	\$ 273.96
Total SIAs	-	8,668	2,787	-	263	-	146	-	-	\$ 9.78	\$ 9.78	\$ 689.15
Grand Total	273	8,668	6,455	650	563	-	208	328	79	\$ 213.91	\$ 40.59	\$ 963.11

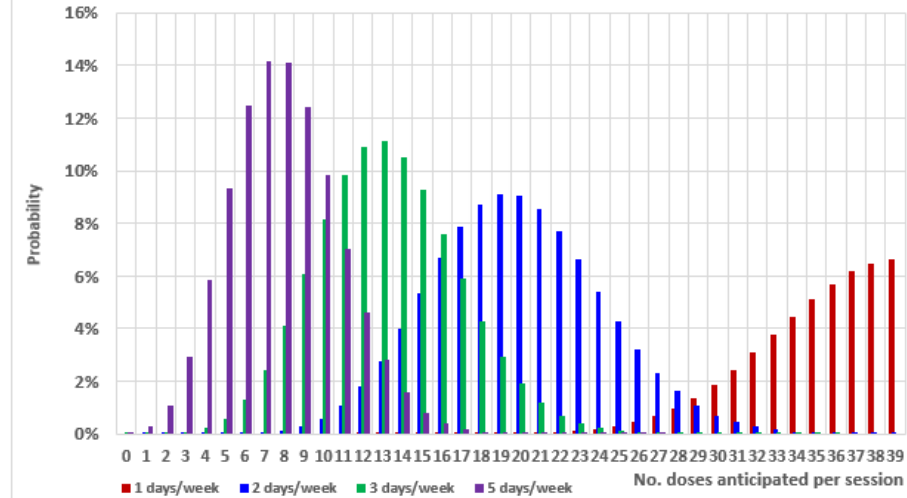
WHO Session planning Tool – generate facility forecast & wastage rates

Step-1: Planning data:

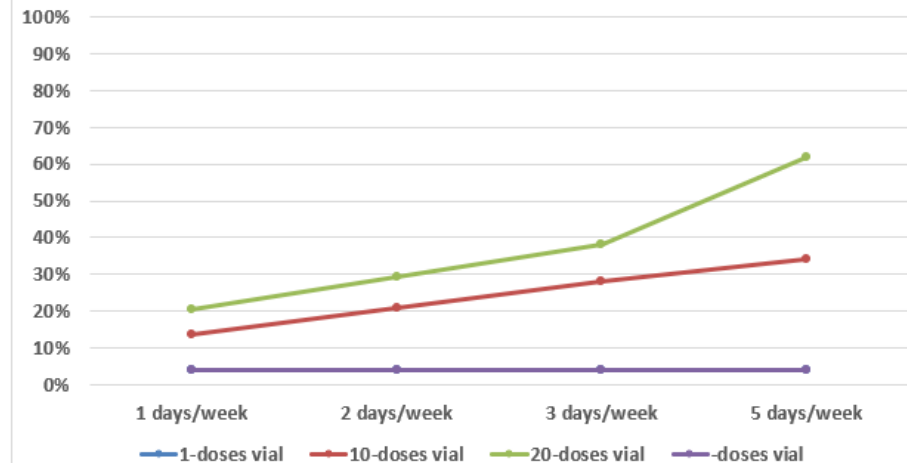
- Facility immunization data (target, coverage, annual working weeks)
- Vaccine data: doses per target, vial size, MDVP status
- Vaccination session frequencies: up to 4 session frequencies provided for analysis

FACILITY MEAN SESSION SIZE & VACCINE WASTAGE RATES									
Service point: DS-01 CS-04					Vaccine: Td				
Simulation					10 doses vial				
Annual target population	265	Pregnent women	mdvp						
No. of doses in the schedule	2	per target	4		(4 week reuse)				
Target coverage	90%								
No. of weeks in year	48								
Anticipated opened vial wastage (4 week reuse)	0.95	0.95	0.95	0.95					
DS-01 CS-04 (Frequency of sessions & vaccine needs)									
		Frequency of sessions							
		1 days/week	2 days/week	3 days/week	5 days/week				
		1	2	3	5				
Effective number of vaccination sessions of year	12	24	36	60					
Mean session size	39.74	19.87	13.25	7.95					
Standard deviation of session size distribution	6.04	4.36	3.59	2.80					
Standard deviation of monthly demand	9.93	7.18	5.90	4.60					
Estimation of annual vaccine demand (doses)	500	500	750	630					
Safety stock for uncertainty in demand (doses)	20	20	20	20					
Total vaccine needs (doses)	520	520	770	650					
Estimated cost (\$US)	\$ 100	\$ 100	\$ 148	\$ 125					
Anticipated opened vial wastage (4 week reuse) Exple: Service point with 335 Pregnent women									
DS-01 CS-04 (Vial size & Frequency of sessions)									
		Frequency of sessions							
		1 days/week	2 days/week	3 days/week	5 days/week				
Vial size	doses/vial	1	2	3	5				
1-doses vial	1	0%	0%	0%	0%				
10-doses vial	10	10%	18%	25%	31%				
20-doses vial	20	17%	26%	35%	60%				
Closed vial wastage per level		1%		No. of supply chain levels					
Avoidable opened vial wastage		3%		1					
DS-01 CS-04 (265 Pregnent women)									
		Frequency of sessions							
		1 days/week	2 days/week	3 days/week	5 days/week				
Vial size	doses/vial	1	2	3	5				
1-doses vial	1	4%	4%	4%	4%				
10-doses vial	10	14%	21%	28%	34%				
20-doses vial	20	21%	29%	38%	62%				
Vaccine storage volume estimation (cm3 per dose)									
		Frequency of sessions							
		1 days/week	2 days/week	3 days/week	5 days/week				
Vial size	cc/dose	1 days/week	2 days/week	3 days/week	5 days/week				
1-doses vial	13.4	14.0	14.0	14.0	14.0				
10-doses vial	2.7	3.1	3.4	3.8	4.1				
20-doses vial	2.0	2.5	2.8	3.2	5.3				
Frequency of sessions									
		Frequency of sessions							
		1 days/week	2 days/week	3 days/week	5 days/week				
Vaccine Cost	\$/dose	1 days/week	2 days/week	3 days/week	5 days/week				
1-doses vial	\$ 1.13	\$ 1.17	\$ 1.17	\$ 1.17	\$ 1.17				
10-doses vial	\$ 0.19	\$ 0.22	\$ 0.24	\$ 0.27	\$ 0.29				
20-doses vial	\$ 0.10	\$ 0.13	\$ 0.14	\$ 0.17	\$ 0.27				

Binomial distribution of doses administered per session



DS-01 CS-04 (265 Pregnent women)



Step-2: Results:

- Anticipated wastage rate for the selected vaccine (all available vial sizes, MDVP status)

WHO Session planning Tool – generate facility forecast & wastage rates

Input-1: Planning data:

- Facility immunization data (target, coverage, annual working weeks)
- Vaccine data: doses per target, vial size, MDVP status
- Vaccination session frequencies: up to 4 session frequencies provided for analysis

Service point: DS-01 CS-04		Vaccine: DTwP-HepB-Hib			
Annual target population	217	Surviving infants	10 doses via		
No. of doses in the schedule	3	per target	mdvp		
Target coverage	90%		4 (4 week reuse)		
No. of weeks in year	48				
Anticipated opened vial wastage (4 week reuse)	0.95	0.95	0.95	0.95	0.95
DS-01 CS-04 (Frequency of sessions & vaccine needs)	Frequency of sessions				
	1 days/week	2 days/week	3 days/week	5 days/week	
	1	2	3	5	
Effective number of vaccination sessions of year	12	24	36	60	
Mean session size	48.88	24.44	16.29	9.78	
Standard deviation of session size distribution	6.69	4.84	3.98	3.10	
Standard deviation of monthly demand	11.01	7.96	6.55	5.10	
Estimation of annual vaccine demand (doses)	630	750	750	630	
Safety stock for uncertainty in demand (doses)	30	20	20	20	
Total vaccine needs (doses)	660	770	770	650	
Estimated cost (\$US)	\$ 515	\$ 601	\$ 601	\$ 507	

Input-2: Session frequency:

- Up to 4 sessions frequencies can be analyzed (daily, twice a week, 3 times and 5 times a week)

Output-1: for each session frequency:

- Effective number of annual sessions
- Mean session size
- Estimated annual vaccine demand
- Safety stock for demand uncertainty
- Total annual vaccine needs
- Estimated vaccines cost.

Comparison of outputs to be made to support decision regarding the optimal session frequency.

WHO Session planning Tool – generate facility forecast & wastage rates

Output-2: for each session frequency:

- Anticipated open-vial wastage calculated for each vial size available in the WHO PQ

Input-3: Normative wastage rates:

- Closed vial wastage (up to 1% per storage point)
- Avoidable opened vial wastage (1-5%)

Output-3: for each session frequency:

- Anticipated total vaccine wastage calculated for each vial size available in the WHO PQ

Anticipated opened vial wastage (4 week reuse)

Exple: Service point with 335 Surviving infants

DS-01 CS-04 (Vial size & Frequency of sessions)		Frequency of sessions			
		1 days/week	2 days/week	3 days/week	5 days/week
Vial size	doses/vial	1	2	3	5
1-doses vial	1	0%	0%	0%	0%
2-doses vial	2	1%	2%	3%	5%
5-doses vial	5	4%	8%	11%	17%
10-doses vial	10	8%	15%	21%	27%

Closed vial wastage per level

1%

No. of supply chain levels

1

Avoidable opened vial wastage

3%

DS-01 CS-04 (217 Surviving infants)		Frequency of sessions			
		1 days/week	2 days/week	3 days/week	5 days/week
Vial size	doses/vial	1	2	3	5
1-doses vial	1	4%	4%	4%	4%
2-doses vial	2	5%	6%	7%	9%
5-doses vial	5	8%	11%	14%	20%
10-doses vial	10	12%	19%	24%	30%

The anticipated wastage rate set benchmark for routine monitoring of wastage.

Policy setting

- ✓ Anticipated wastage rates informs choice of vaccines vial size and vaccination session frequency
- ✓ Matching expectations with policies

Adequacy of supply

- ✓ Supports rational vaccine needs forecasting
- ✓ Establishing appropriate safety stocks
- ✓ Supplying adequate quantities in supply chain

Service delivery

- ✓ Assessing organization and implementation of services according to the plan
- ✓ Monitoring services and consistency of data



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Thank you