



# Transforming Child Health through Digital Data-Use Innovations

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# Introduction & Goals

## GOALS FOR TODAY

- Understand the 'zero-dose' challenge
- Explore Pakistan's innovative approach to reaching zero dose children
- Illustrate the critical role of data in the delivery system for vaccines for child health





# The Zero Dose Child

The Zero Dose Child is key to some of the most important global health challenges of our time:

Key to **improving routine immunization coverage** at a global level

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Key to **reducing childhood mortality** at a global level

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Key to creating a **polio-free world for all**





# The Challenge

Reaching the zero dose child is not just a problem of procurement planning, cold chains and recruiting vaccinators.

**IT IS ALSO AN INFORMATION PROBLEM**

# Critical information gaps

1. Lack of formal identification
2. Difficult to locate children who live in informal slums and mobile communities
3. Data fragmentation and data quality issues make it difficult to confirm who is truly 'zero dose'



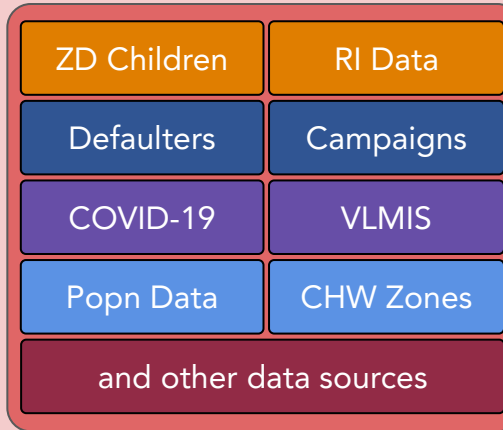


# The Solution



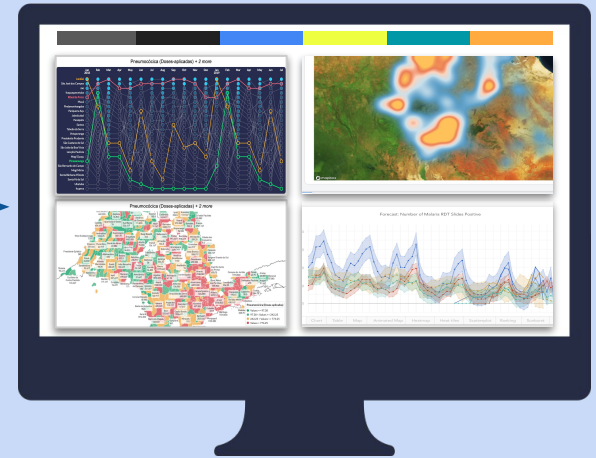
# Sindh Sehat Analytics Platform

## Data Integration and Harmonization



Data integration and harmonization made data from 20 different systems **interoperable for analysis**.

## Actionable Analytics



Create **customized information products** to drive vaccination coverage

# Microplans

## 1. High-res (CHW level) map

Shows the location of ZD clusters within the CHW's assigned zone

## 2. Personalist list of ZD children

List is filtered to show only those ZD children in the CHW's assigned zone

## 3. Actionable child info

Including child's name, father's name, child's age, CHW zone, address and house number.

Operational Sheet for Zero-dose Children

Receiving Date: \_\_\_\_\_ Site Name: \_\_\_\_\_ Site Type: \_\_\_\_\_

Union Council District Tehsil Vaccinator Name Total Target

Coverage Map

Area Supervisor Team Information

AS Code	AS Name	AS Contact	Team	Team Number	Total Target
18				69	27
18				70	54
18				71	21
18				72	32

Child Name	Father Name	Age Category	House Number	Address	CHW Zone No.	Campaign	Status	Coverage Date	EPI Identification No.
		12-23	262		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	188		CHW: 70 - KhMair - M	15 SNID Aug-21			
		0-11	248		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	108		CHW: 70 - KhMair - M	14 SNID Jun-21			
		12-23	57		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	248		CHW: 70 - KhMair - M	15 SNID Aug-21			
		0-11	184		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	80		CHW: 70 - KhMair - M	14 SNID Jun-21			
		12-23	7		CHW: 70 - KhMair - M	14 SNID Jun-21			
		12-23	265		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	87		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	193		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	62		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	251		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	57		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	182		CHW: 70 - KhMair - M	14 SNID Jun-21			
		0-11	4		CHW: 71 - KhMair - M	14 SNID Jun-21			
		0-11	30		CHW: 71 - KhMair - M	14 SNID Jun-21			
		0-11	230		CHW: 71 - KhMair - M	14 SNID Jun-21			
		0-11	215		CHW: 71 - KhMair - M	15 SNID Aug-21			

## 4. Vaccinator Info

Vaccinator's name, CHW zone and "true" ZD target

## 5. Area Supervisor Info

Includes name and contact info for area supervisors, which helps vaccinators improve coordination with activity in adjacent zones

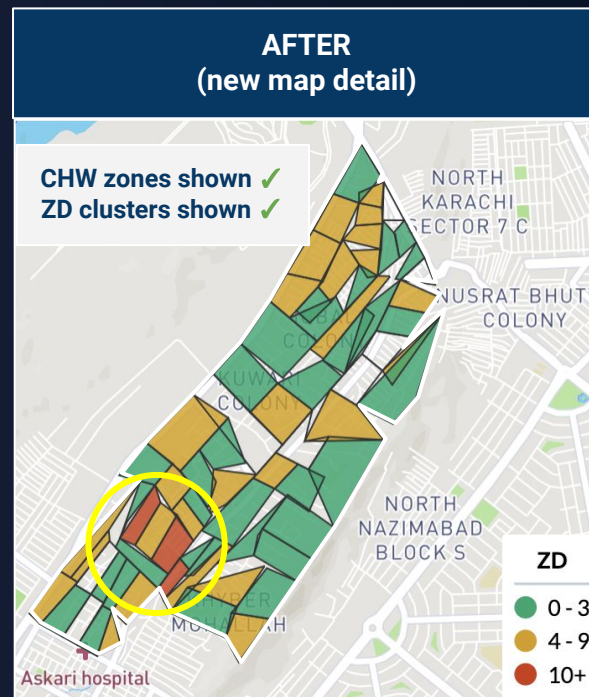
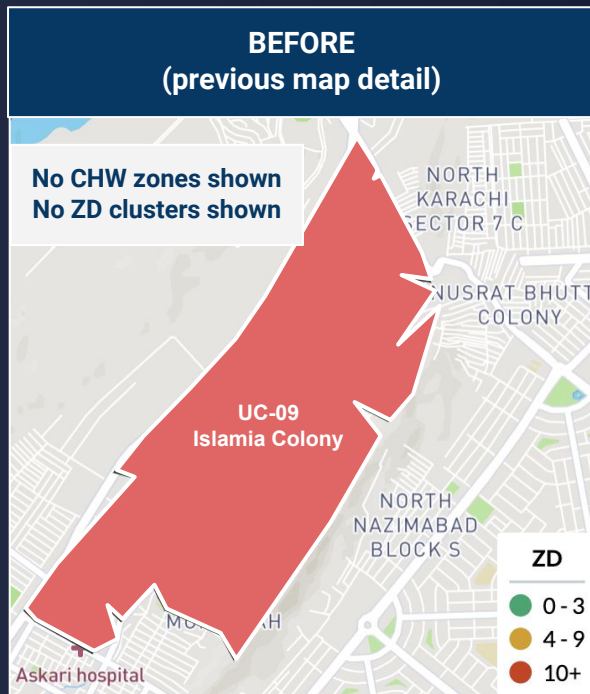
## 6. Blank fields to record detailed coverage info

Information is fed back into Child Vaccine Registry (ZM) to improve monitoring of coverage



# Finding clusters of ZD children

Leveraging advanced analytics to shrink the problem



Clusters of ZD children in Islamia Colony, Sindh Province

# The Impact





# The Impact

## INITIAL PROGRAM (Jan-Dec 2022)

# 39

Super High and High Risk Union Councils of Karachi where microplanning initiative was implemented

# >110K

true zero-dose children identified after removing 52K duplicate records and cross-checking zero dose data with child vaccine registry

# 72%

of the zero dose children were vaccinated between Jan-Dec 2022

## EXPANDED PROGRAM (Jan-Oct 2023)

# 365

Super High and High Risk Union Councils in Karachi and Hyderabad City where microplanning initiative was implemented

# >147K

zero-dose children identified after removing 50K duplicate records and cross-checking zero dose data with child vaccine registry

# 63%

of the zero dose children were vaccinated between Jan-Oct 2023 and this number continues to grow



# Lessons Learned

**We can think about children vaccination as an information problem**

**Thinking about the problem in this way reveals new pathways to progress.**

**Overcoming data fragmentation and data quality issues is achievable with the help of innovative technology.**

**Combined power of vaccines and data is greater than the power of vaccines alone.**


**Trust and partnerships are key enablers of success**





**Thank You**





# Mozambique's Advanced Data Analysis Platform (PAAD)





# The Impact

2021-2024

## 11

All of the provincial EPI teams developed and are using tailored dashboards to gauge their performance

## >500

Analyses and dashboards were downloaded or shared with stakeholders

## 9

Data sources were integrated, enabling data triangulation and a clear understanding of children vaccination in the country

## 71%

Of the data points utilized by EPI were improved for accuracy

## 23

Dashboards were developed to support the EPI program, including 5 automated reports

## 60%

Of the data utilized by EPI was rectified by our technology

# Identifying areas of need

## Geography

Data is divided into provinces

Provincia	Total BCG (0-11 meses)	Total Penta 1ª Dose (0-11 meses)	Total zero dose	Porção de crianças zero dose	Total Penta 3ª Dose (0-11 meses)	Sub-vacinadas	proporção subimunizadas
01.Niassa	48912	46673	2239	4.6%	45331	1342	3%
02.Cabo Delgado	58567	49056	9511	16.2%	43750	5306	11%
03.Nampula	155700	136275	19425	12.5%	128560	7715	6%
04.Zambezia	129863	118568	11295	8.7%	113648	4920	4%
05.Tete	58848	57014	1834	3.1%	52653	4361	8%
06.Manica	49627	45204	4423	8.9%	44410	794	2%
07.Sofala	53338	51161	2177	4.1%	51062	99	0%
08.Inhambane	25845	25026	819	3.2%	24210	816	3%
09.Gaza	26185	26995	-810	-3.1%	26735	260	1%
10.Maputo Provincia	23463	26488	-3025	-12.9%	27018	-530	-2%
11.Maputo Cidade	15744	10351	5393	34.3%	10127	224	2%

Total of Zero Dose children

Proportion of Zero Dose Children

Red flag warns that the proportion is above 20%

# Supply chain and management

## Routine Immunization Dashboard

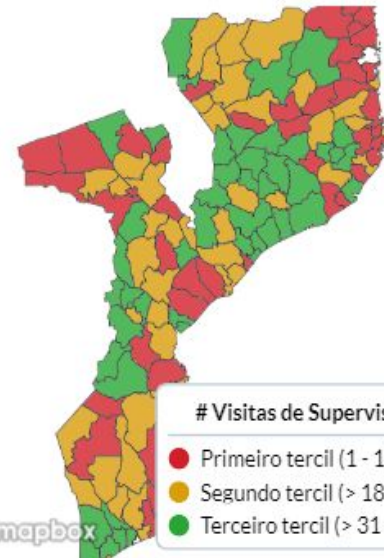
Provi...	District	Facility	PAV - Stock inicial - RV	PAV - Stock recebido - RV	RV Total Vacina Disponível durante o Mês	PAV - RV Frascos abertos	PAV - Stock final - RV	RV Total Vacinado	Discrepancia de vacinados	Categorias	Diferença
01.Niassa	Cuamba	CS Mepica	196	760	956	760	196	760	✓ possível	1	196
		CS Etatara	95	820	915	772	143	772	✓ possível	1	143
		CS Lúrio	273	795	1068	796	272	791	✓ possível	1	277
		CS Napacala	154	860	1014	875	154	866	Atenção	1	148
		CS Adine 3	172	991	1163	972	228	972	✓ possível	1	191
		CS Sapura	122	1200	1322	1135	183	1135	Atenção	1	187
		CS Cuamba	432	2035	2467	2062	405	2062	✓ possível	1	405
Distrito De Lichinga	Hp Lichinga	0	0	0	0	0	0	0	Atenção	1	0

Health Facility

Available Vaccine Stock

Total of Vaccinated Patients

## Distribution of EPI Supervision Visits



mapbox