

CDC PUBLIC HEALTH GRAND ROUNDS

Global Polio Eradication: Reaching Every Last Child



Accessible version: <https://youtu.be/LibQP5BNYsM>

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U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Polio Eradication in the Emergency Phase



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Polio Eradication—Terminology

❑ Viruses

- WPV: wild poliovirus
- VDPV: vaccine-derived poliovirus

❑ Vaccines

- OPV: oral poliovirus vaccine
- IPV: inactivated poliovirus vaccine

❑ Vaccination Strategies

- RI: routine immunization, also called “EPI”
- SIA: supplemental immunization activity, or “vaccination campaign”
 - NIDs: national immunization days
 - SNIDs: sub-national immunization days

❑ Surveillance Terms

- Case surveillance: acute flaccid paralysis (AFP) in persons
- Environmental surveillance: sewage testing for poliovirus in community

Other Important Issues

□ The polio “endgame”

- Inactivated poliovirus vaccine now being introduced globally
- Type 2 component to be removed from oral polio vaccine in 2016
- All oral polio vaccine to be removed after certification (3 years after last wild poliovirus case)
- Containment of live poliovirus stocks

□ Vaccine-derived polioviruses (VDPVs)

- Phenotypic reversions of oral polio vaccine viruses
- Cause paralysis as severe as that of WPV
- Indicator of low vaccine coverage
- Increasingly important to eradication efforts

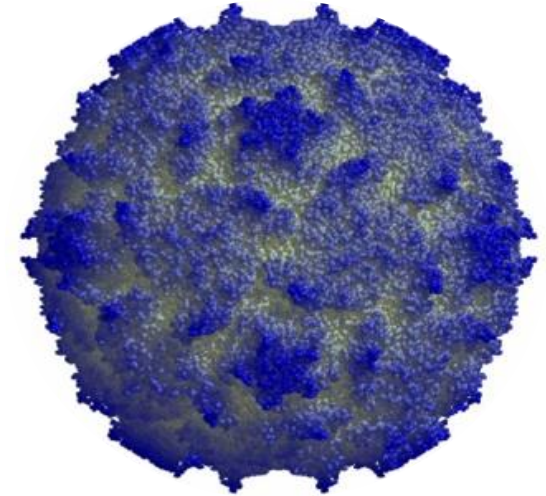
The Global Polio Eradication Initiative (GPEI)

- ❑ Extensive, global partnership
- ❑ Headed by national governments with five leading partners
 - Rotary International
 - World Health Organization (WHO)
 - United Nations Children's Fund (UNICEF)
 - Centers for Disease Control and Prevention
 - Bill & Melinda Gates Foundation



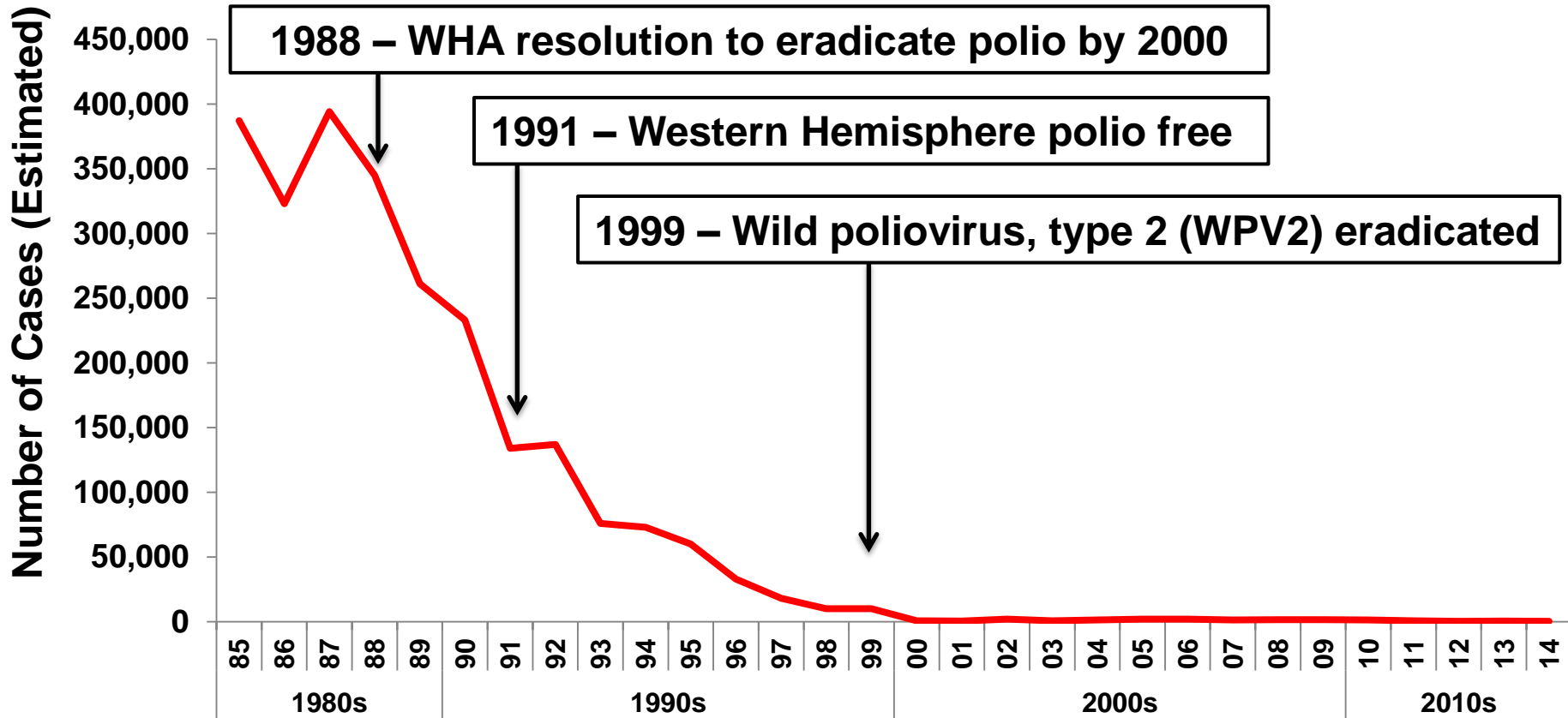
What is Poliomyelitis?

- ❑ **Caused by one of three human enterovirus types – poliovirus 1, 2 and 3**
- ❑ **Highly infectious – virus found in oral secretions and stool**
- ❑ **Global distribution**
- ❑ **Clinical presentation and sequelae**
 - Most infections are asymptomatic or not recognizable as polio
 - At most 1 in 200 infections present as limb weakness, also called “acute flaccid paralysis”
 - Result is lifelong paralysis
 - Severe form: bulbar polio



Wild Polio Cases, Worldwide, 1985-2014

By 2000, over 99% decrease in cases of polio

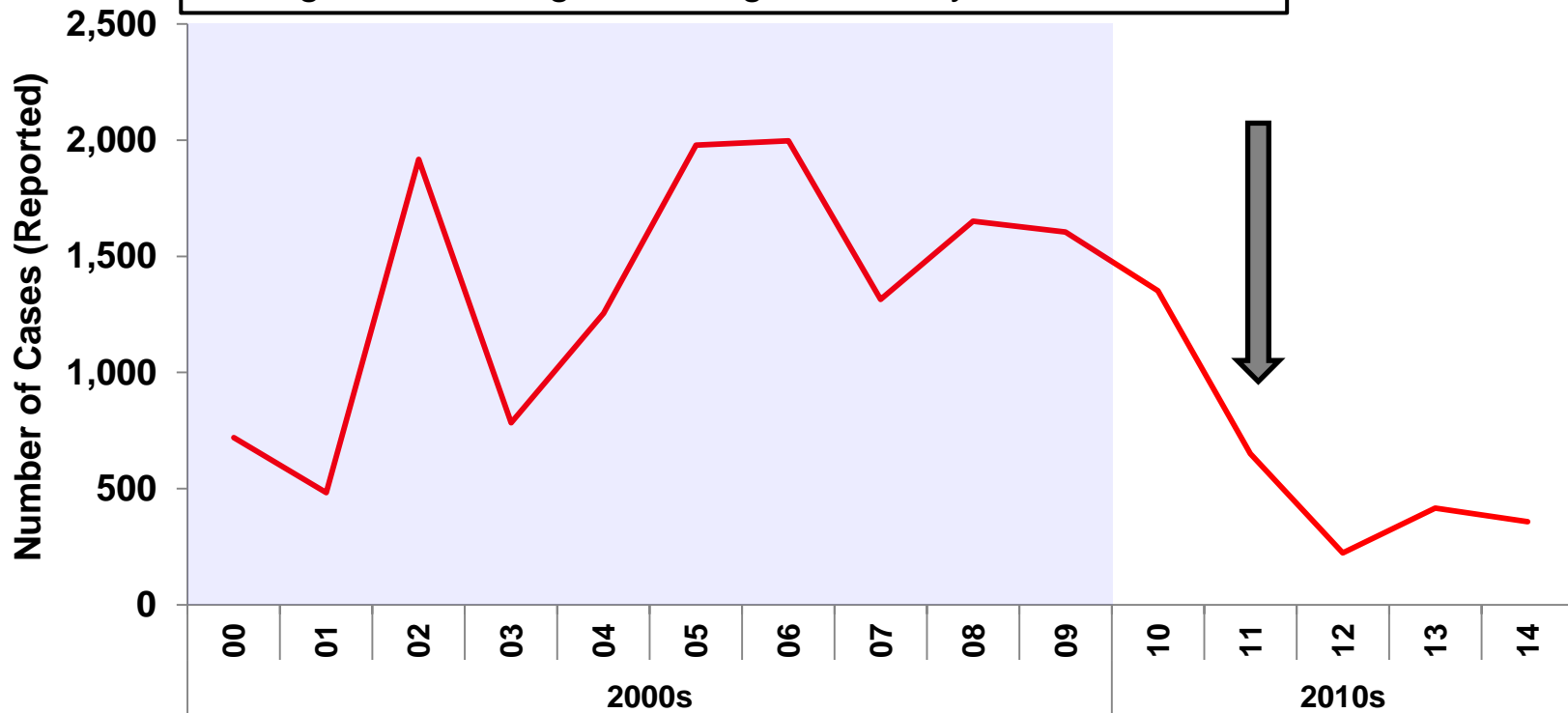


Wild Polio Cases, Worldwide, 2000–2014

2000-2010: Decade of Innovations

Technical: e.g., monovalent & bivalent vaccines

Programmatic: e.g., reaching chronically missed children



2011 – Pivotal Year in Polio Eradication

- ❑ **January 2011 – Polio eliminated from India, demonstrating that eradication was possible**
- ❑ **Polio cases increased in three remaining endemic countries, Pakistan, Afghanistan and Nigeria**
- ❑ **October 2011 – IMB report issued**
 - *“... The Programme needs greater global priority and further funding. Failure would be a disaster. ... Our major findings are clear and unambiguous. ... We are convinced that polio can – and must – be eradicated. We are equally convinced that it will not be eradicated on the current trajectory.”*

The Emergency Phase of Polio Eradication 2012 to Present

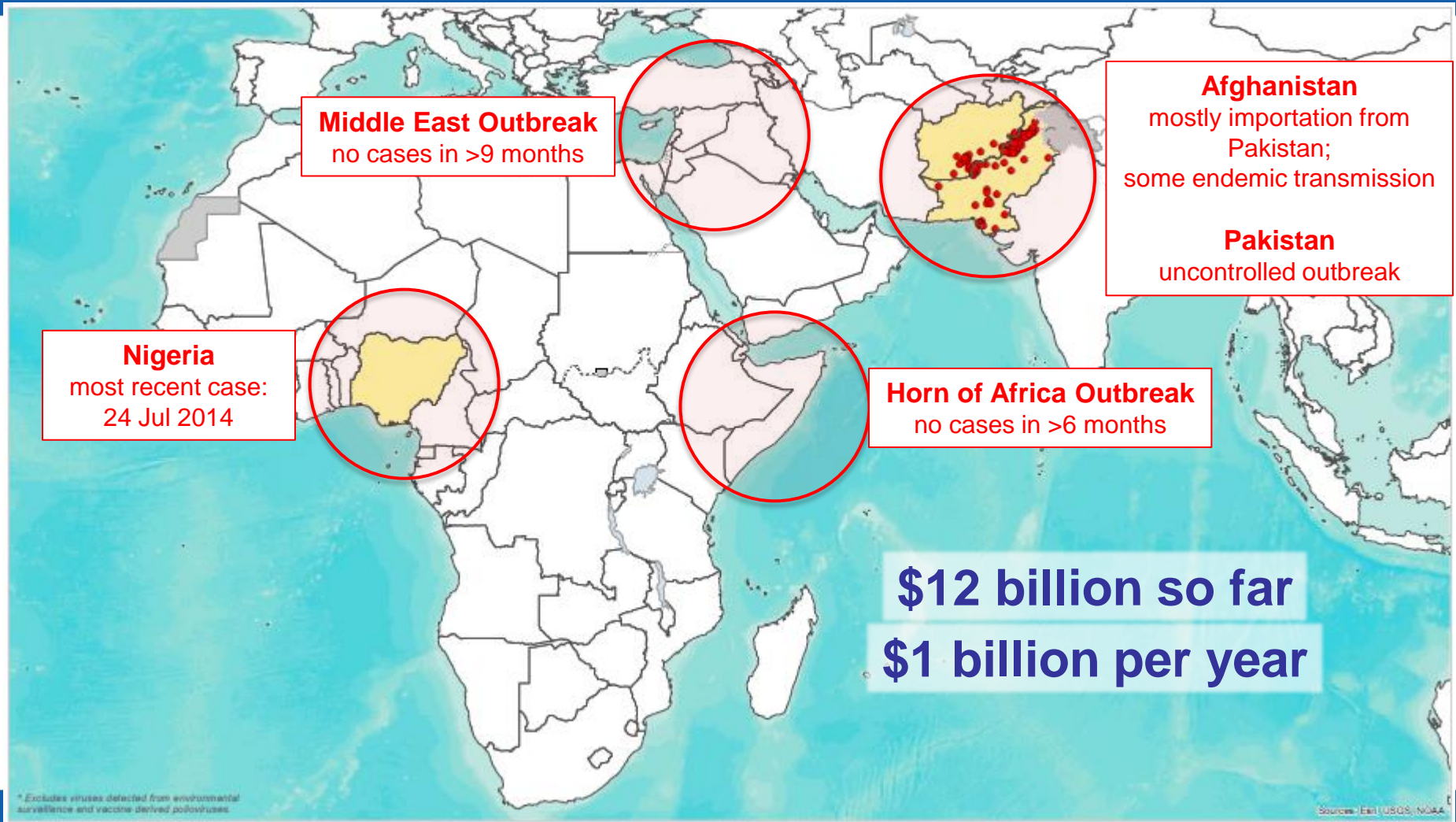
❑ For Global Polio Eradication Initiative

- Revision of strategic plan
- Scale-up of resources, including staffing

❑ For CDC

- Polio eradication program moved to Emergency Operations Center (EOC)
- EOC activated in December 2011

Wild Poliovirus Cases by Country, 12 Aug 2014 through 11 Feb 2015



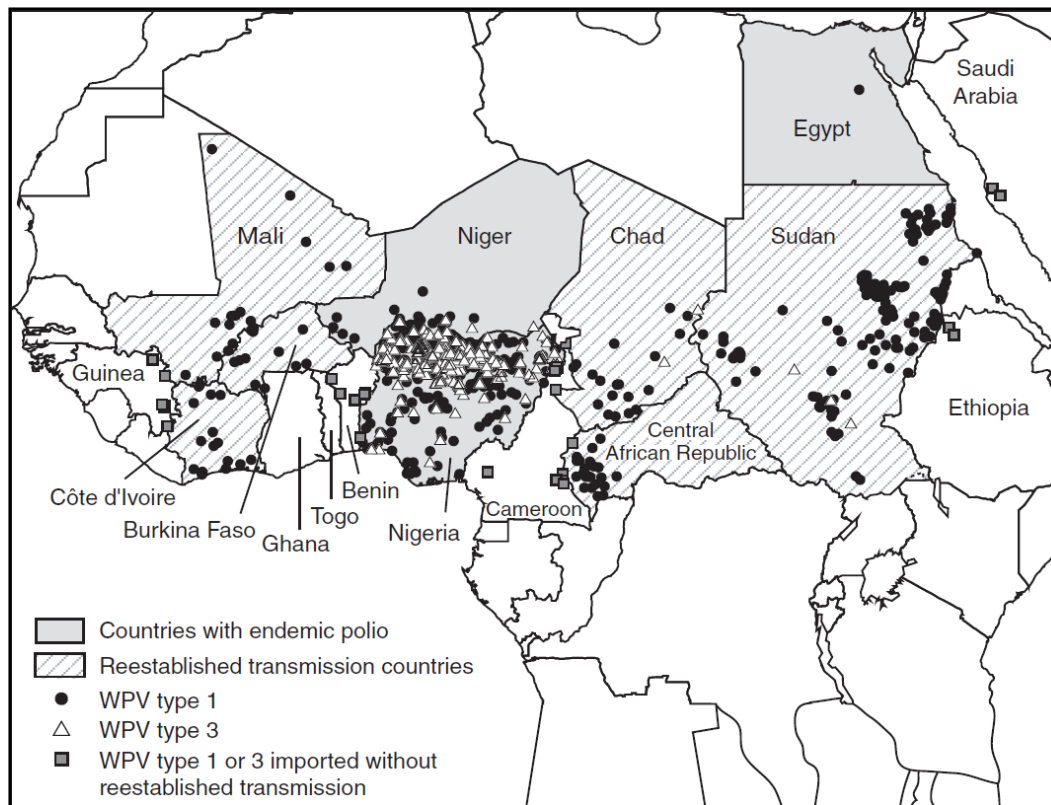
● Wild poliovirus Type 1 case

■ Country with endemic wild poliovirus, Type 1

● Wild poliovirus Type 3 – Last known case Nov 2012

Failure Is Not An Option

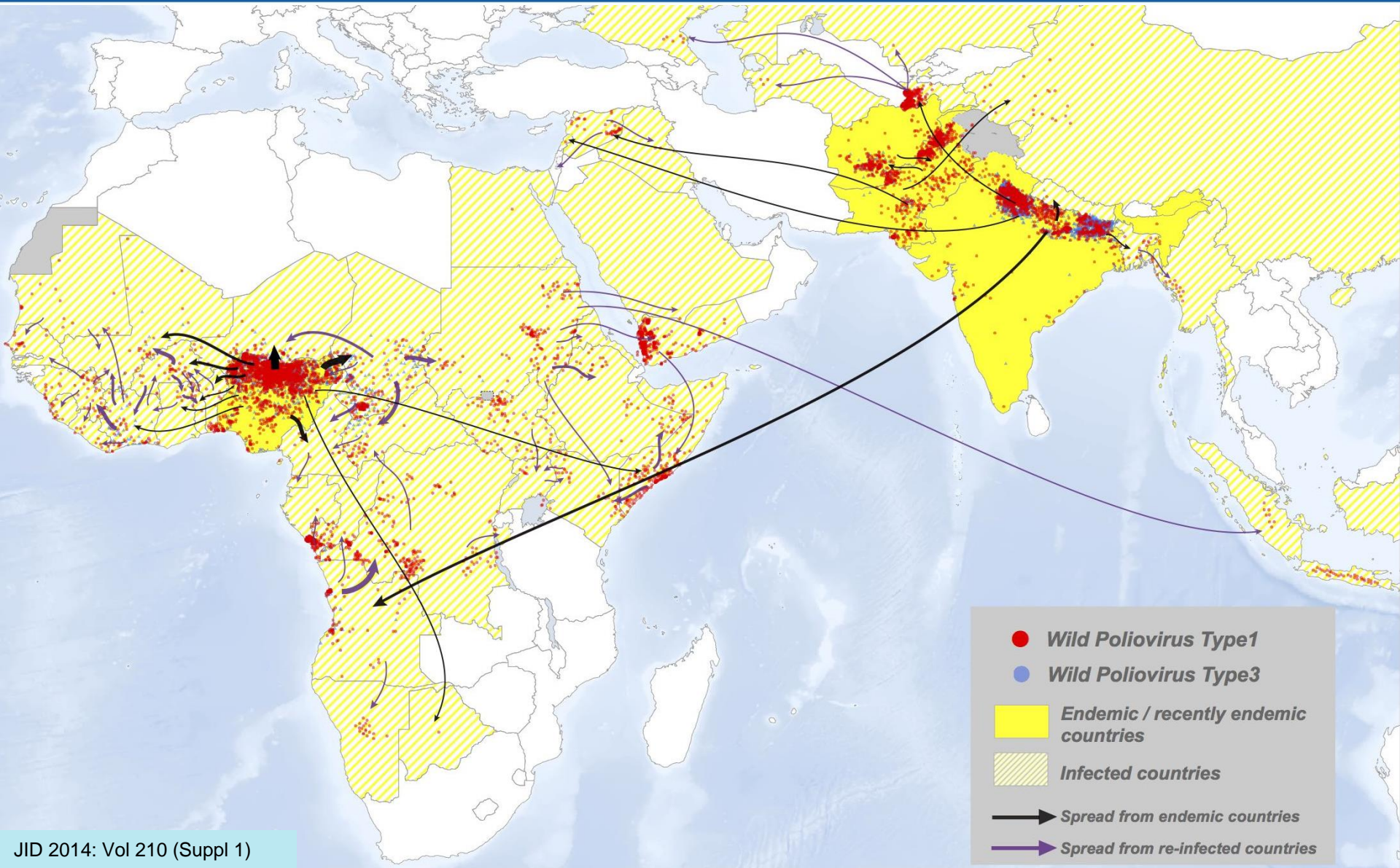
Global Re-emergence After Temporary Boycott of Polio Vaccination in Nigeria, 2003



- ❑ By end of 2003, spread to 8 previously polio-free countries
- ❑ By end of 2004, 14 countries infected, with re-established transmission in 6
- ❑ By end of 2006, 20 countries infected

Source: Progress toward interruption of wild poliovirus transmission—Worldwide, January 2004–March 2005. *MMWR* 2005;54:408-12. Progress toward poliomyelitis eradication – Nigeria, January 2007–August 12, 2008. *MMWR* 2008;57:942-6.

Global Wild Virus Distribution and Spread, 2003-2014



What Would Failure of Eradication Mean?

- ❑ Poliovirus would quickly spread, causing large, disruptive outbreaks
- ❑ These outbreaks would require substantial resources to contain
- ❑ Wild poliovirus would eventually find its way back to every country without an effective immunization system, causing ~200,000 cases per year

Cost and Benefits of Polio Eradication

❑ From 1988 through 2012

- ~4 to 6 million cases prevented
- ~\$1700 to \$2500 per case prevented
 - Estimate does not include medical costs prevented or indirect savings

❑ Once eradication is complete

- 2 million cases prevented in first decade
- Within few decades, tens of billions of dollars in savings after covering costs of the program

Benefits of Polio Eradication

❑ Effects of polio eradication are forever and equitable

- Smallpox as an example
- Last year, the number of smallpox cases in Somalia, Syria and all the world was exactly the same....

zero.

polioeradication.org

The Global Polio Laboratory Network— Continuous Innovation and Quality Control



M. Steven Oberste, PhD

Chief, Polio and Picornavirus Laboratory Branch

Division of Viral Diseases

National Center for Immunization and Respiratory Diseases



U.S. Department of
Health and Human Services
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Control and Prevention

Polio Surveillance

❑ **Detect polio cases (WPV or VDPV) to direct immunization campaigns**

❑ **Acute flaccid paralysis (AFP)**

- Stool specimen is collected from case to confirm polio
- WHO-accredited laboratory tests specimens

❑ **Environmental surveillance (sewage)**

- Supplements AFP surveillance
- Collects and tests samples

❑ **Enterovirus surveillance (clinical)**

- Mainly in developed countries with advanced health care system



Laboratory Testing Algorithm

❑ Fecal specimen

- Stool extract or environmental sample

❑ Virus isolation in cell culture

- Is there a virus in the stool?

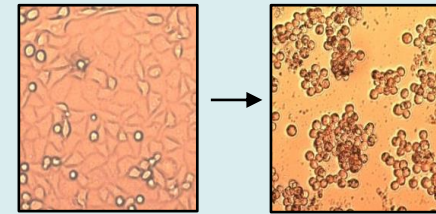
❑ “Intratypic differentiation” (ITD)

- If there is a virus, is it polio?
- If poliovirus, PCR used to determine which kind is present
 - Wild poliovirus, vaccine-like, vaccine-derived?

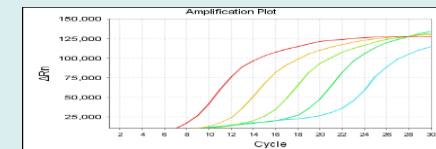
❑ Partial genome sequencing

- If wild or vaccine-derived, which genotype or lineage (molecular epidemiology)

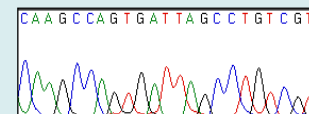
Step 1. Grow virus in cell culture



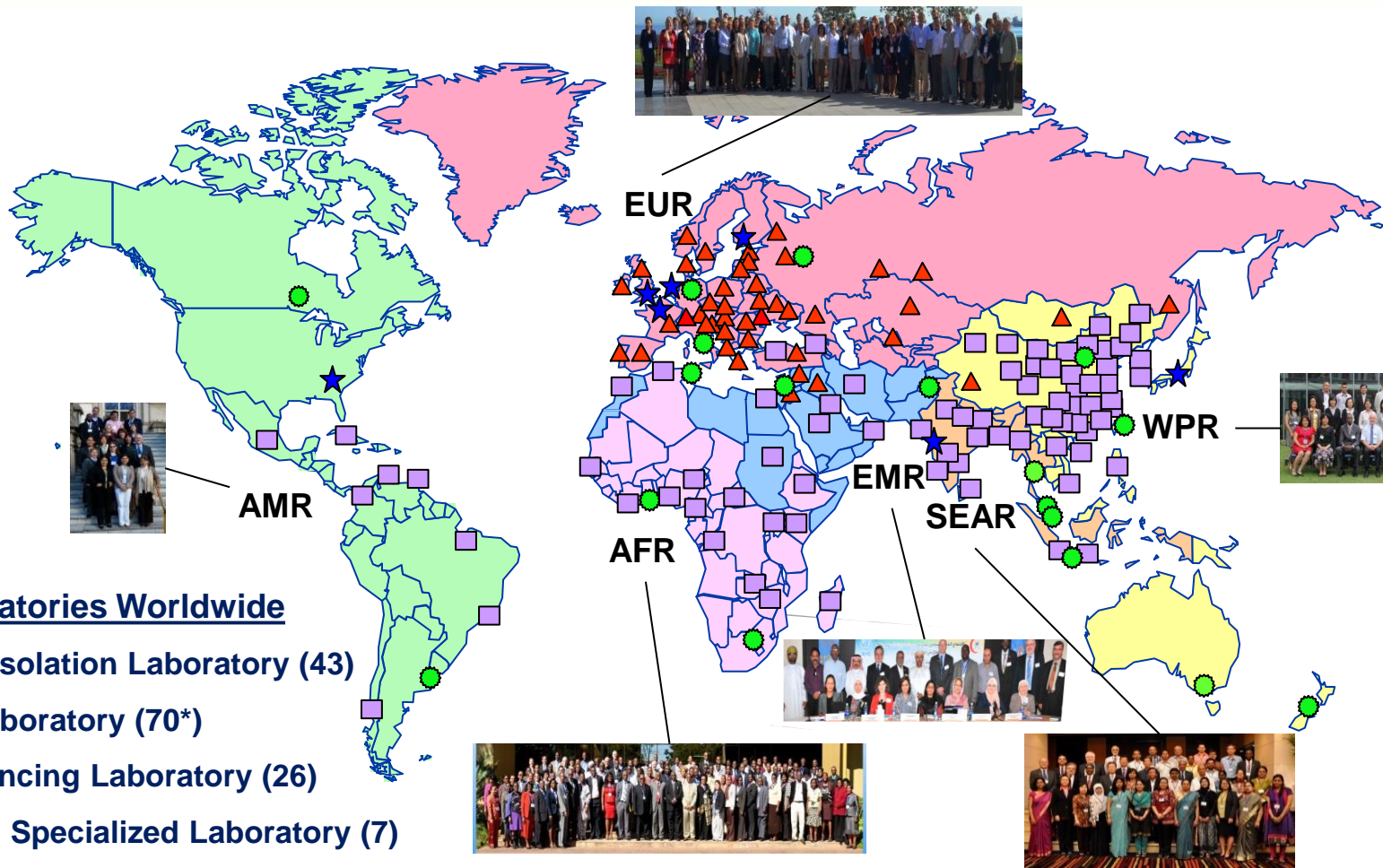
Step 2. ITD by real-time PCR



Step 3. Molecular epidemiology – Genetic sequence and compare



Global Polio Laboratory Network – 146 Laboratories Worldwide



*Includes 16 in process of implementation
 AFR: African Region
 AMR: Americas Region
 EMR: Eastern Mediterranean Region

EUR: European Region
 ITD: Intratypic differentiation
 SEAR: South Eastern Asia Region
 WPR: Western Pacific Region

World Health
 Organization

Challenges

❑ Geographically dispersed network

- Laboratories in resource-limited settings
- Specimen and reagent shipping

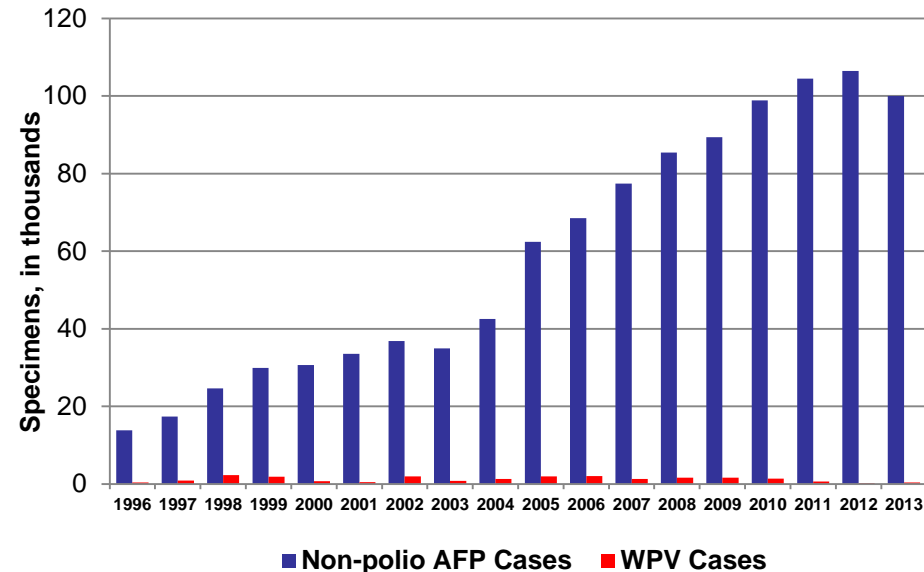
❑ Training, staff turnover

❑ Turnaround times

❑ Dramatic increase in workload

- Over 200,000 stools specimens tested in 2013

Workload, 1996–2013



Constant Innovations and New Technologies

❑ New diagnostic algorithms

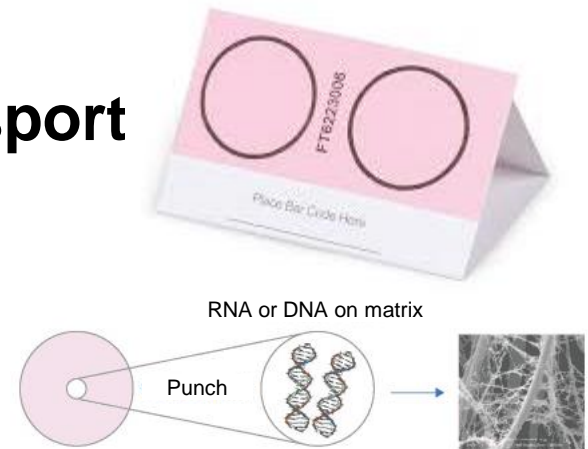
- Streamline testing without sacrificing sensitivity or quality

❑ Reconfigure molecular assays to improve sensitivity and specificity

- WPV-specific molecular assays
- New assay chemistries

❑ FTA cards to facilitate sample transport

- Stable at ambient temperature
- Considered noninfectious
- Decreased shipping costs tenfold
- Expanded which labs could ship samples



Faster Testing Reduced Laboratory Wait Time

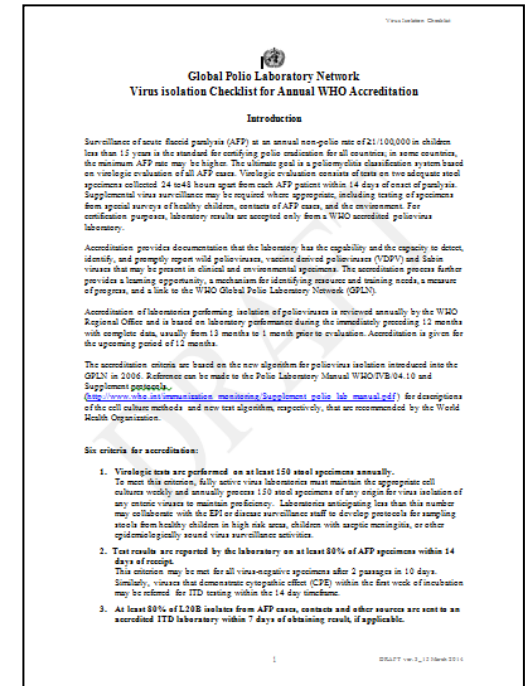
Laboratory Processing Steps	Standard Number of Laboratory Processing Days	
	Pre-2003	Current
Virus Isolation	28 days	14 days
Referral to second lab	7 days	7 days
Intratypic Differentiation	28 days	7 days
Referral to third lab	7 days	7 days
Sequencing	No standard	7 days
Total Reporting Time	70+ days	42 days

Areas for Future Innovations

- ❑ **Improved sewage concentration methods**
- ❑ **Deeper sequencing to improve viral transmission tracking**
- ❑ **Direct detection of poliovirus genome in stool and sewage, without the need for cell culture isolation**

Accreditation: Periodic Review of Laboratories

- ❑ Annual accreditation checklist and data review
- ❑ On-site review every three years
- ❑ Laboratory infrastructure
 - Staff and facilities are sufficient for the workload
 - Equipment is adequate and well maintained
 - Necessary reagents are routinely available
- ❑ Laboratory management



Accreditation: Key Quality Indicators

- ❑ **Workload:** Minimum number of samples must be tested annually to maintain proficiency
- ❑ **Timeliness:** Results are reported to WHO and national program according to established timelines
- ❑ **Accuracy:** Results are consistently confirmed for referred samples
- ❑ **Proficiency programs for each laboratory method**
 - Coded specimen panels sent annually to each site
 - Score of 90% to pass
 - Remediation for failing scores

Legacy of the Global Polio Laboratory Network

- ❑ **Laboratory infrastructure**
- ❑ **Culture of quality**
- ❑ **History of innovation**
- ❑ **Quality standards are already being applied to laboratory networks**
 - Measles and rubella
 - Rotavirus
 - Japanese encephalitis
- ❑ **Global capacity for biosafety and biosecurity**

Progress on Polio Eradication: Strategies and Innovations in Nigeria



Faisal Shuaib, MD, DrPH
Deputy Incident Manager,
Polio Emergency Operations Centre,
Abuja, Nigeria

Nigeria Polio Program Before 2012 Was Poor Performing

- ❑ **In 2003, boycott of vaccinations in Kano state**
 - Led to polio spread throughout Northern region, exportations
- ❑ **Since 2006, only country in Africa never to have interrupted polio transmission**
- ❑ **Numerous, multifaceted challenges**
 - Poorly performing routine immunization system
 - Poor quality vaccination campaigns
 - Inefficiency and lack of accountability

Progress in 2012

Review Conducted and Steps Taken

❑ **Structural weaknesses in polio program identified**

- Inadequate engagement and ownership by government
- Poor coordination of international development partners
- Poor oversight of field teams
- Lack of shared sense of “emergency”

❑ **Government and partners reached consensus and took action**

- Established Polio Emergency Operations Center in Nigeria
- Improved government leadership and oversight
- Jointly developed of National Emergency Action Plan
- Improved partner coordination and government engagement

Emergency Operations Center (EOC) in Nigeria

❑ **Strong commitment and collaboration between Nigerian federal government and development partners**

- Incident Managers from Nigeria's public sector
- EOC reports to Chairman of Presidential Task Force on Polio Eradication and CEO National Primary Health Care Agency

❑ **EOC identifies and addresses problems using a war-room approach**

- Government and development partners co-located at facility
- Weekly meetings with various work groups and partners

Emergency Operations Center in Nigeria

□ Uses data-driven approach

- Data used for tracking, assessment and decision-making
- Data accuracy and quality improved

□ Demonstrates constant innovation

- Identifying specific challenges
- Proffering innovative solutions

EOC Identified and Characterized Gaps in the Program

❑ **Poor quality of SIAs due to poor monitoring**

- Inadequate preparations and execution of campaigns
- Many children were persistently missed by vaccinators

❑ **Inadequate access to underserved populations**

- Nomadic populations, hard-to-reach settlements were missed
- Populations living between states and LGAs perennially missed
- Mapping of WPV cases showed a clustering around borders

❑ **Low community participation and demand**

- Communities were not adequately engaged, low demand
- Noncompliance and anti-OPV campaigns

❑ **Poor accountability, inadequate supervision**

- Vaccinators showed poor discipline, failed to cover areas of deployment

Innovations to Overcome Gaps

- ❑ **Poor quality of SIAs due to poor monitoring**
 - Use “**dashboard indicators**” to assess readiness for campaigns
 - After campaigns, **use LQAs** to assess quality of campaigns
- ❑ **Inadequate access to underserved populations**
 - Outreach to **enumerate underserved populations**
 - Use of **National Stop Transmission of Polio (NSTOP)** officers
- ❑ **Low community participation and demand**
 - Engagement of traditional and religious leaders
 - Addressing “felt needs” using **health camps**
 - Use of volunteer community mobilizers, IEC materials
- ❑ **Poor accountability, inadequate supervision**
 - Engagement of **Management Support Teams**
 - Directly Observed Polio Vaccination

Example 1: Pre-campaign “Dashboard Indicators” Ensure Districts Prepared for Campaigns

- ❑ **Assesses readiness of each local government area (e.g., district) to implement campaign**
 - Planning & coordination, logistics, security, social mobilization
- ❑ **Displayed in “dashboard” format for easy visualization**
 - Uses “stoplight” colors for quick interpretation
- ❑ **Indicators reviewed at state and national level**
 - 3 weeks, 2 weeks, 1 week, 3 days, 2 days and 1 day pre-implementation
- ❑ **“Dashboard” data used for decision-making**
 - Campaign implementation
 - Real-time adjustments and interventions

Dashboard Indicators: Bauchi State, 3-weeks Pre-campaign Implementation, Jan 2015

LGA	Due 3 Weeks before campaign				Due 2 Weeks before campaign					Due 1 Week before campaign	Due 3 Days before Campaign				
	Social mobilization Plan implementation	High risk Operational Plan	Evidence of task force meeting	Meeting of Ward selection Committees to review performance	Updated micro-plan	Training Plan implementation	Social mobilization funds received at LGA Level	Security agents conducted assessment	IPD plan adjusted based on security assessment (if applicable)	Border synchronization planning meeting	Logistics funds received at LGA Level	Security agents conducted assessment	IPD plan adjusted based on security assessment (if applicable)	LGAs/State counterpart funding received at LGA Level	
Alkaleri	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Bauchi	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Bogoro	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Damban	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Darazo	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Dass	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Gamawa	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Ganjuwa	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	
Giade	Yes	Yes	Yes	100%	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	

LGA: Local government area
IPD: Immunization Plus Days (type of vaccination campaign)

Example 2: National Stop Transmission of Polio (NSTOP) Increased Effectiveness of Campaigns

- ❑ **Locally trained field epidemiologists provide technical expertise at state and national level**
- ❑ **Capacity for rapid deployment and flexibility**
- ❑ **Responsibilities include**
 - **Capacity building** for routine immunization activity at district level
 - **Technical support** for polio campaign planning, management, and supervision
 - **Outbreak response**
 - **Operational research** to inform decision making at national program level
 - Conducted in partnership with the Nigerian Field Epidemiology and Laboratory Training Program (FELTP)

Example 3: Identifying Underserved Populations in High-Risk Areas

- ❑ **Identifying nomadic populations became a priority**
 - Potential reservoir for poliovirus
- ❑ **CDC/NSTOP conducted census activities among underserved populations in high-risk districts**
 - Identified children missed in previous SIAs
 - Ensured underserved settlements are included in future SIAs
- ❑ **From August 2012 to May 2014**
 - Identified 63,333 underserved settlements across 19 states
- ❑ **Nearly 1.5 million children identified and vaccinated**

Example 4: Health Camps Build on Community Need



- ❑ Reduce noncompliance and missed children by addressing unmet health needs
- ❑ Set up “fixed posts” in a high-traffic area in high-risk communities
- ❑ Offer routine immunizations, health screenings, common medications and OPV

Example 5: Management Support Teams

- ❑ Provide additional support to poorly performing districts since May 2013
- ❑ Provide guidance and technical support to resolve management challenges
- ❑ Coordinate field work in the face of resource constraints
- ❑ Provide advocacy messaging to local leaders

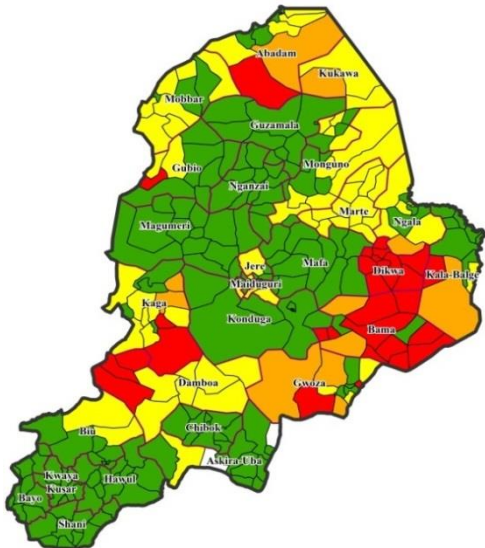


Example 6: Borno/Yobe Strategy to Address Insecurity

Deteriorating Access to Children in Borno, 2014

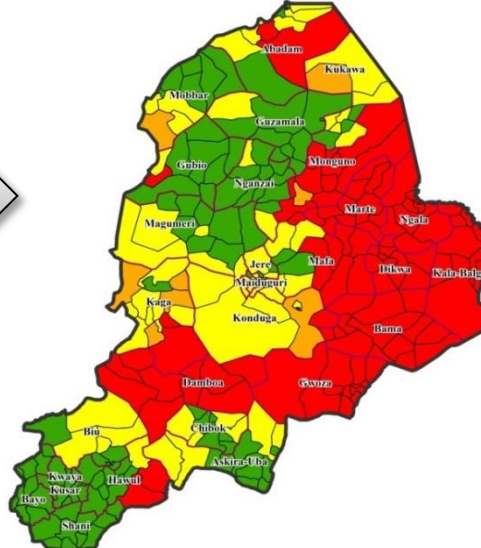
May

17% Inaccessible
Or 251,162 children



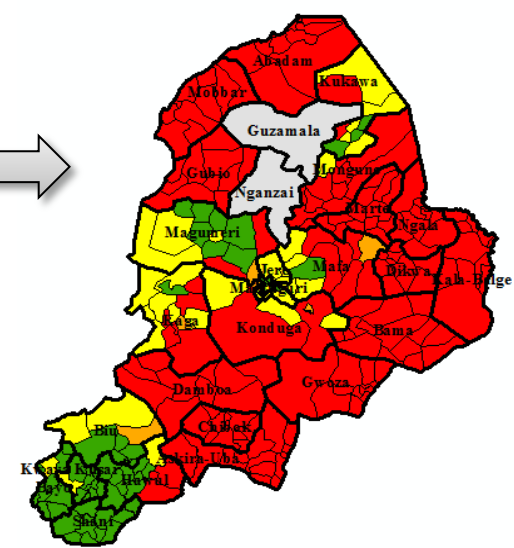
Sept

38% Inaccessible
Or 629,348 children



Dec

60% Inaccessible
Or 848,901 children



Accessibility: ■ >80%-100% ■ 60%-80% ■ <60% ■ Did not implement

Innovations of the Bono/Yobe Strategy

Despite security challenges, 26,315 children received their first OPV dose and over 2.5 million OPV doses administered in Yobe and Borno

Borno and Yobe, May-December 2014

Strategic Intervention	Total Doses	Total First Dose Children
Rapid SIA	1,851,249	10,429
Interstate Border Posts	180,863	3,816
Market Transit Points	51,830	960
International Border Transit	27,311	90
Permanent Health Teams	462,299	7,640
Newborns by VCM	3,380	3,380
Total	2,576,932	26,315

OPV: Oral polio vaccine

SIA: Supplemental immunizations activities

VCM: Volunteer Community Mobilizer

RESULTS AND IMPACT OF INTERVENTIONS



Partners at Update Meeting in
Nigeria Emergency Operations Center

After-Campaign Assessment Lot Quality Assurance Sampling (LQAS)

- ❑ **Clustered LQAS methodology to assess SIA penetration**
- ❑ **Verify immunization of children in sample of target community to assess overall quality of campaign**
- ❑ **Document finger marking indicative of OPV receipt**
- ❑ **Assessment of the local government areas is based on the number of unmarked (missed) children found**

High Pass: Over 90% of children had finger marked

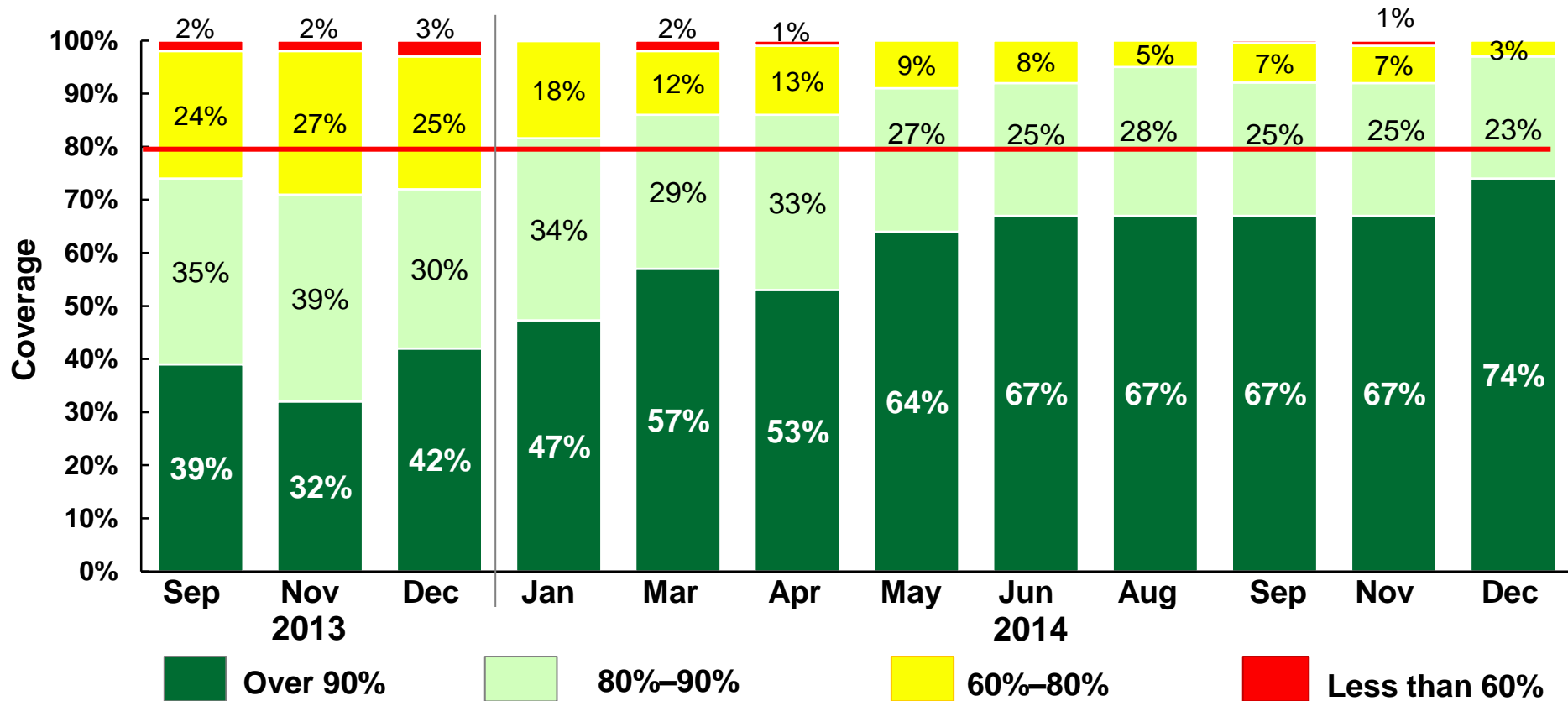
Pass: 80%–90% of children had finger marked

Unacceptable: 60%–80% of children had finger marked

Fail: Fewer than 60% of children had finger marked

LQAS Results Over Time Show Improved Coverage of SIAs

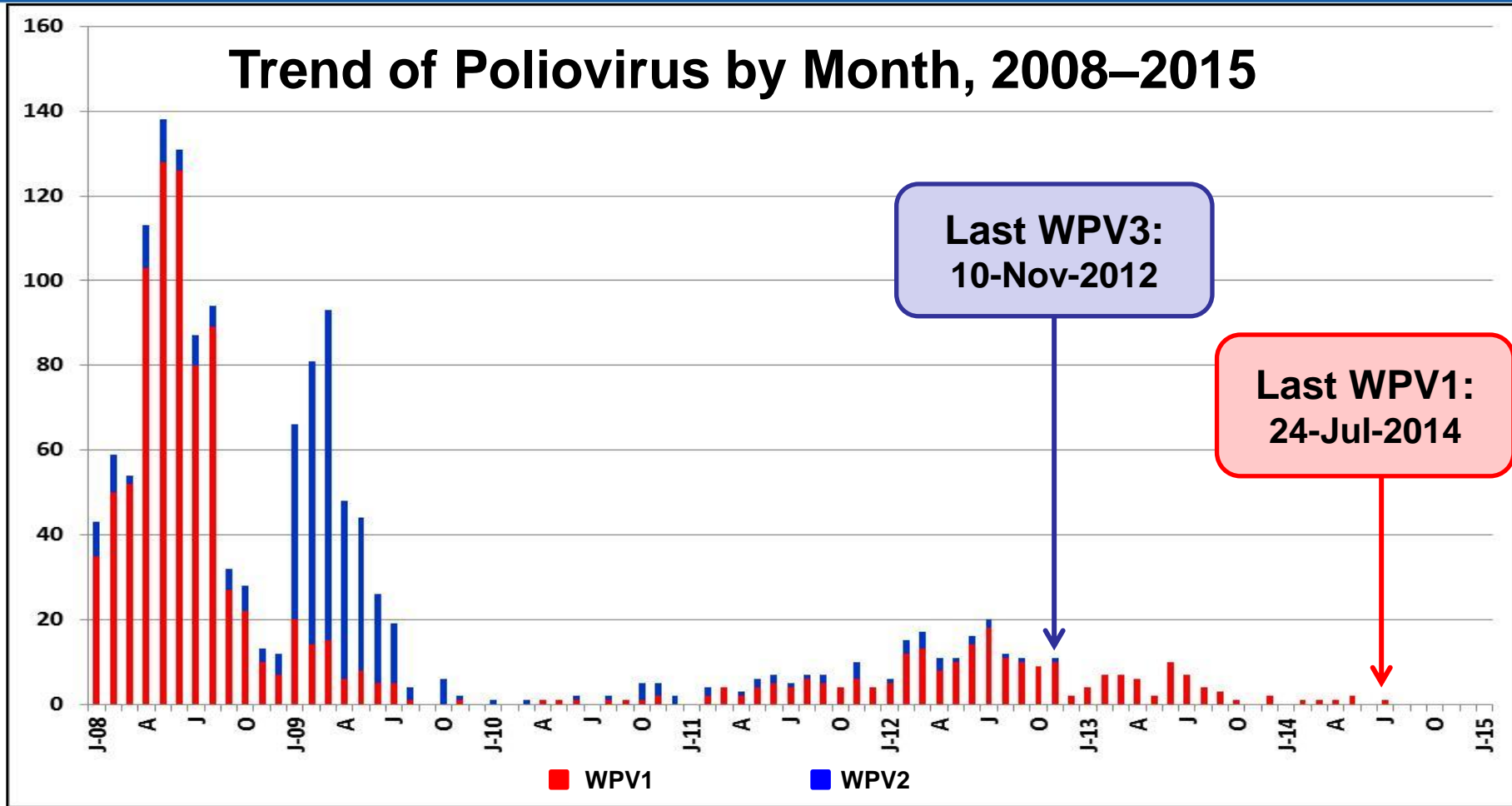
High-risk states in 2013 and 2014: % of LGAs in vaccination bands



SIA: Supplemental immunization activities

Lot Quality Assurance Sampling (LQAS) data, Polio Emergency Operations Center, data not published.

Impact of Innovative Strategies in Nigeria



WPV1: Wild poliovirus, type 1
WPV2: Wild poliovirus, type 2

Impact of Polio Program Beyond Polio Eradication Efforts

- ❑ **Strengthened public health infrastructure and increased trained personnel**
 - Nigerian EOC during Ebola outbreak pivotal to containment
- ❑ **Benefits of immunization efforts not limited to polio**
 - Strengthening routine immunization services/coverage
 - Improved Cold Chain inventory a legacy of polio eradication efforts
- ❑ **Using data to drive program efforts**
 - “Dashboard indicators” and LQAS
- ❑ **Coalition building is strengthened**
 - Social mobilization has increased community linkages
 - Improved trust between health workers and community members

Despite Progress, Challenges Remain

❑ Increasing insecurity in northeast

- Large numbers of IDP
- Gaps in surveillance

❑ Circulating VDPV

❑ Closing immunity gap in high-risk areas

❑ Improving quality of suboptimal campaigns

❑ Concerns about diversion of attention to elections



Moving Forward in 2015

- ❑ **Stop transmission of WPV1**
 - Security compromised states
 - IDP camps
- ❑ **Stop transmission of VDPV**
- ❑ **Strengthen routine immunizations**
- ❑ **IPV introduction with priority to high-risk states**
- ❑ **Monitoring polio incidence**
 - Ensure quality surveillance
 - Environmental sample
 - Weekly reporting and update



WPV1: Wild poliovirus, type 1
VDPV: Vaccine-derived poliovirus

IDP: Internally displaced persons
IPV: Inactivated poliomyelitis vaccine

Thank you to all the staff in Nigeria!



Public Health Amidst Insecurity: Pakistan's Polio Eradication Initiative



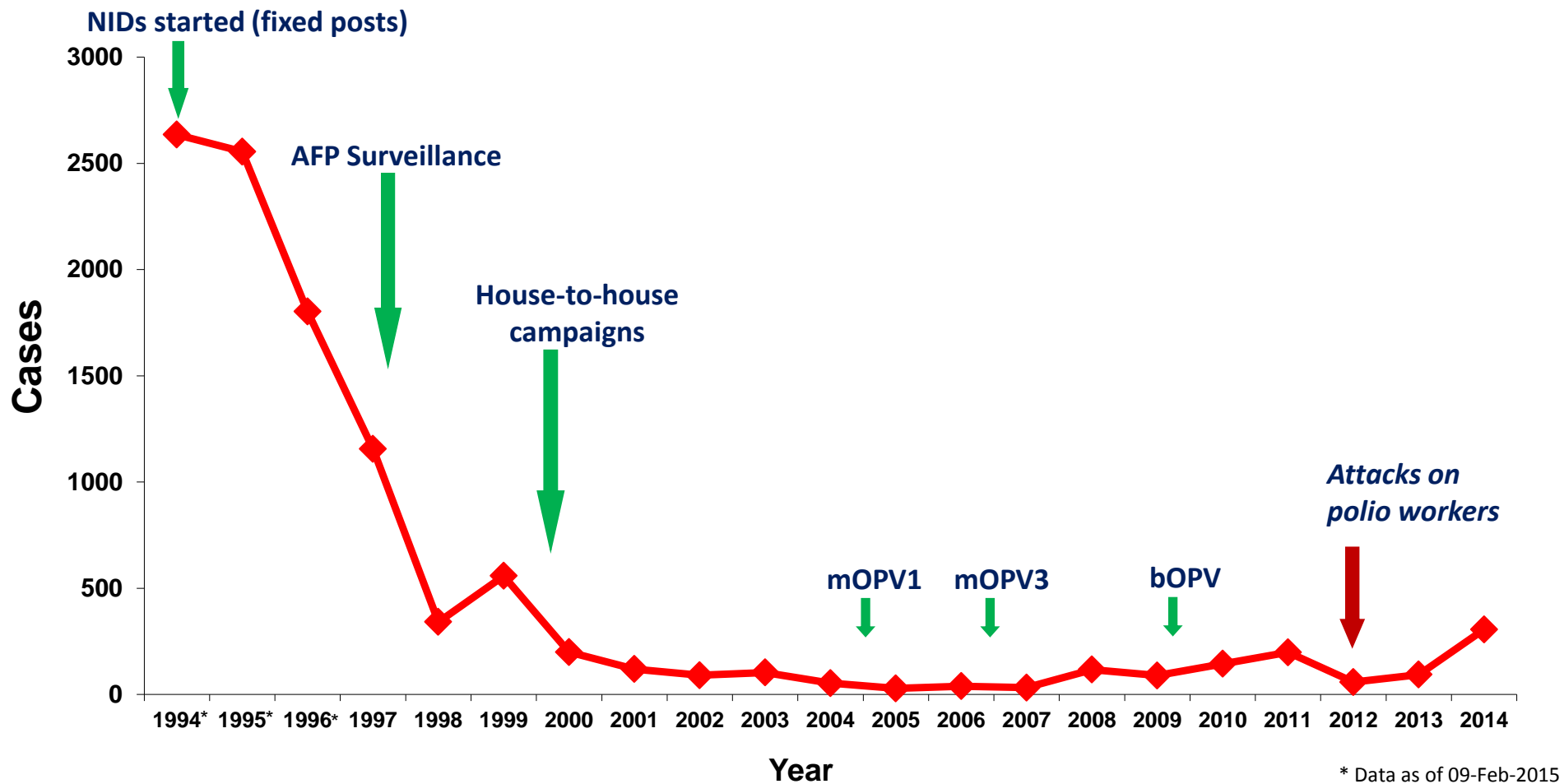
Elias Durry MD, MPH

*Senior Emergency Coordinator for Polio Eradication in Pakistan,
Eastern Mediterranean Regional Office,
World Health Organization*



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

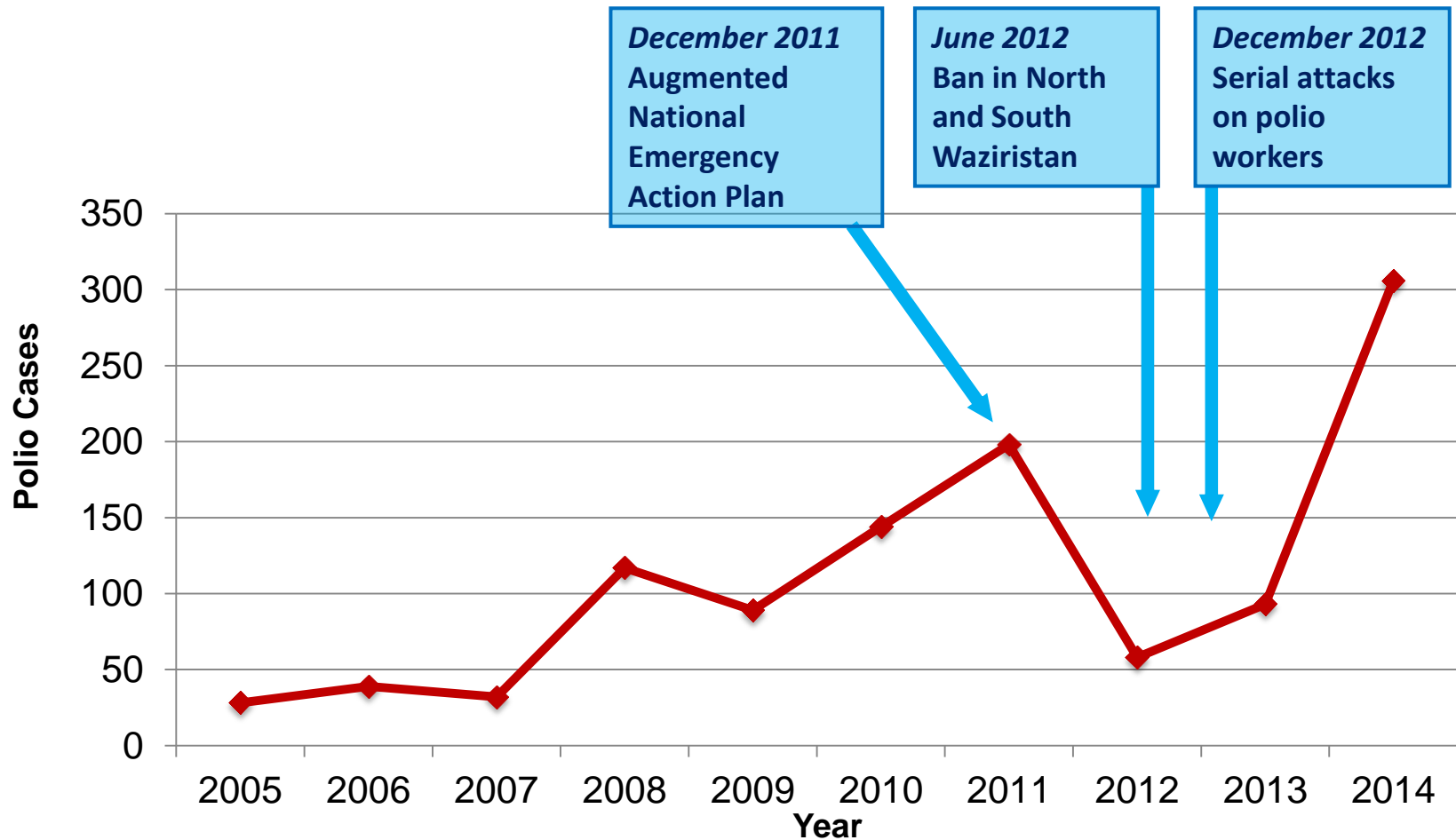
Historical Perspective of Polio Eradication in Pakistan



*Wild cases for 1994-1996 are estimated
 NID: National immunization drives
 AFP: Acute flaccid paralysis

mOPV1: Monovalent oral polio vaccine wild polio type 1
 mOPV3: Monovalent oral polio vaccine wild polio type 3
 bOPV : Bivalent oral polio vaccine

Polio Eradication Efforts in Pakistan for the Past Decade



Lack of Government Ownership and Accountability Overarching Problem

❑ **No mechanism for appraisal or accountability**

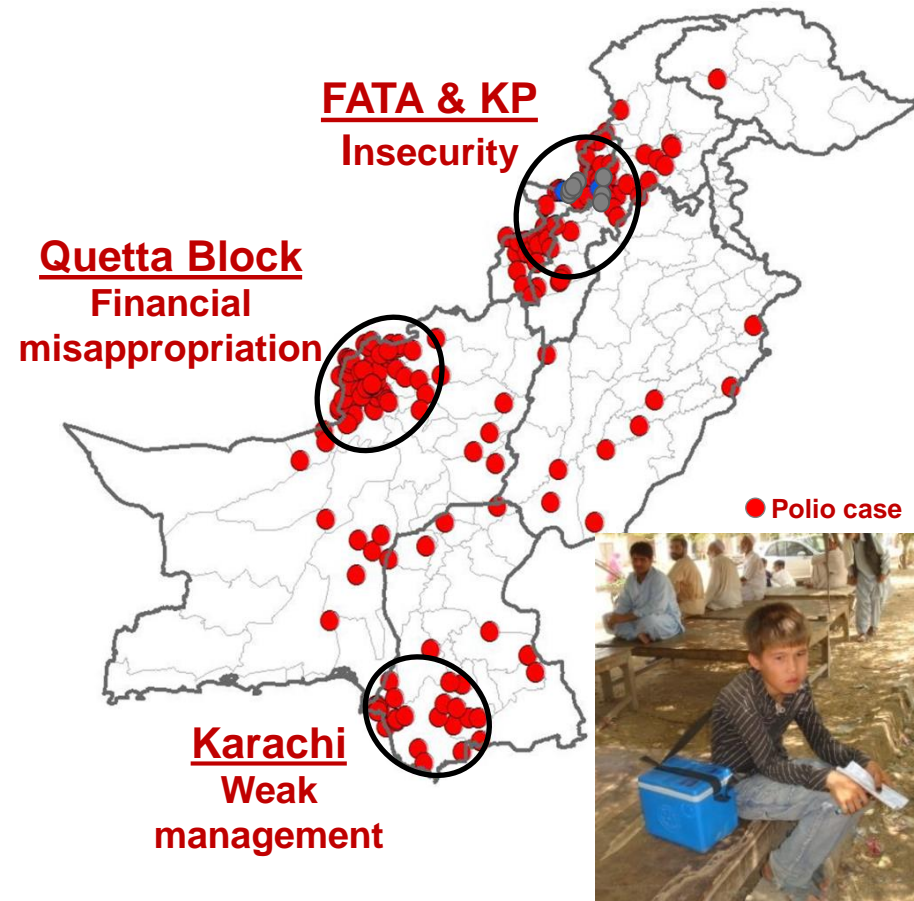
❑ **Financial misappropriations**

- Funds disbursed at district health department level
- Disbursement to front-line workers was by hand
- Resulting in ghost or inappropriate teams, underage workers

❑ **Security problems in FATA**

- Esp., North and South Waziristan

Geographic Distribution Polio Cases in 2011, N=198



Results of National Emergency Action Plan, 2011

□ **Enhanced oversight at all levels**

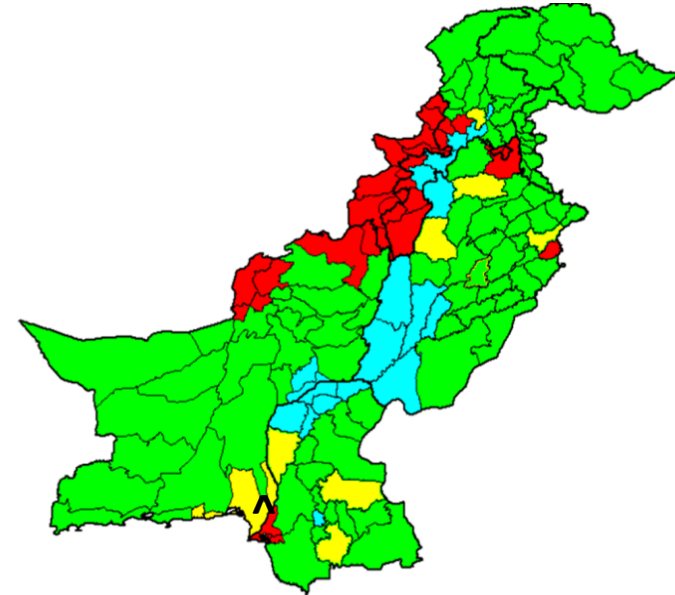
- National – the Prime Minister
- Provincial – Chief Ministers and Chief Secretaries
- District – Deputy Commissioners
- Sub-district – Union Council (UC)
 - Achieved uniform high coverage rates

□ **Intensive program reviews**

- Regular reviews and after each supplemental immunization activity
- Comprehensive “dashboard” metrics

Salient Features of National Emergency Action Plan, 2011

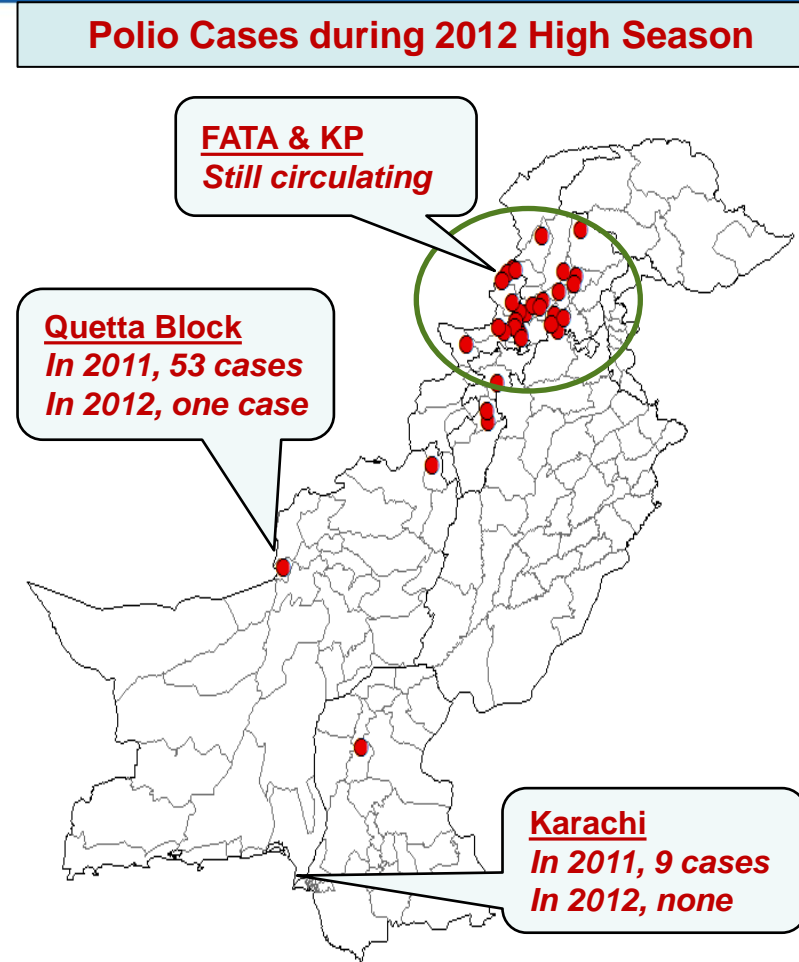
- ❑ **Prioritized districts based on risk**
- ❑ **Staff surge supported by partners**
- ❑ **Innovations implemented**
 - Short Interval Additional Doses (SIADS)
 - Reduced viral life span
 - Direct Disbursement Mechanism to front-line workers
 - Payment through bank
 - With valid official ID
 - Recipient must be 18 years or older



- **Priority 1:** Reservoirs and core endemic areas
- **Priority 2:** High Risk Districts (Other than the Reservoirs)
- **Priority 3:** Other areas infected during last six months
- **Priority 4:** Rest of the Country

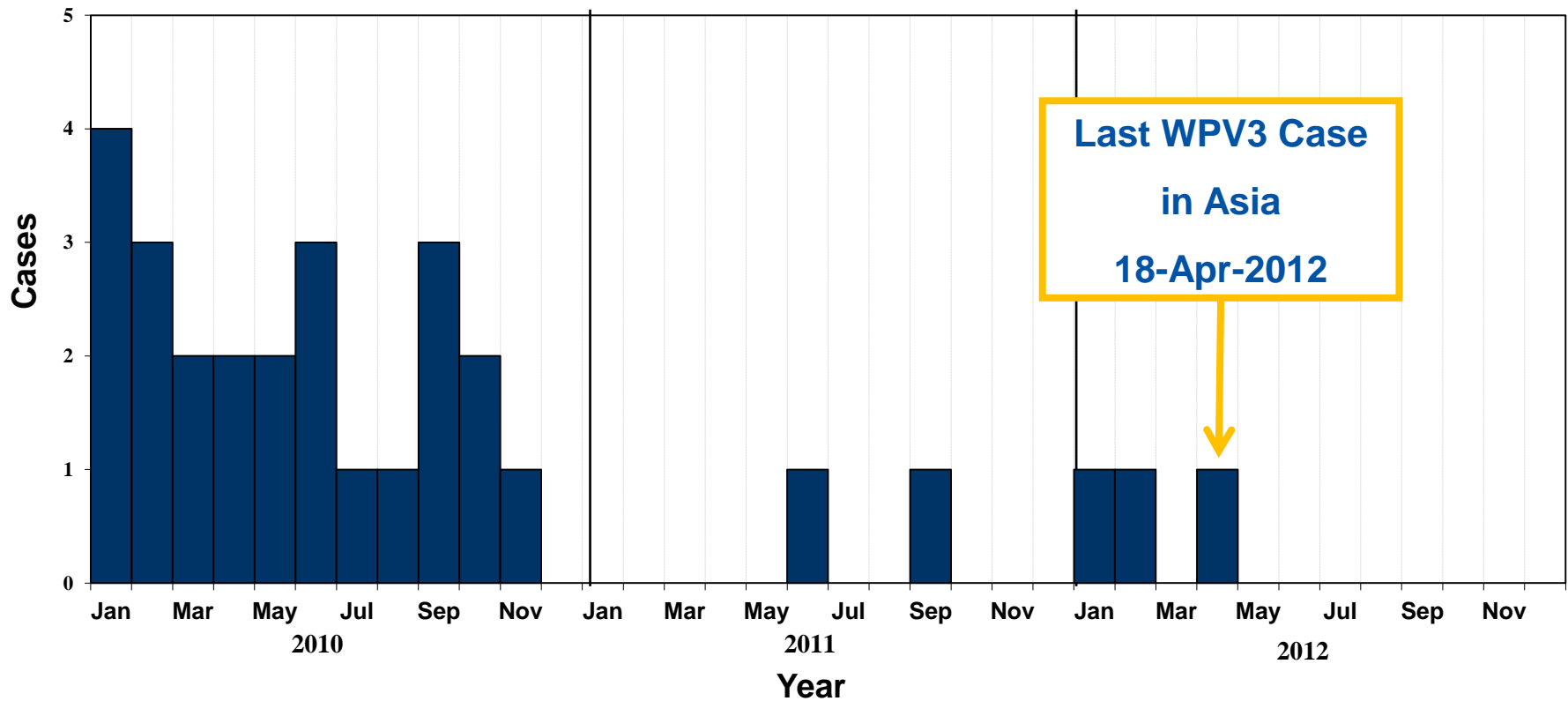
Status of Polio Eradication by the end of 2012

- ❑ **Reduced polio cases by 71%**
 - In 2011, 198 cases
 - In 2012, 58 cases
- ❑ **Significant reduction in indigenous circulation in two reservoirs**
 - In Quetta, one case in 2012
 - In Karachi, none in 2012
- ❑ **Circulation restricted to FATA and KP**



Interruption of WPV3 Transmission in Asia, April 2012

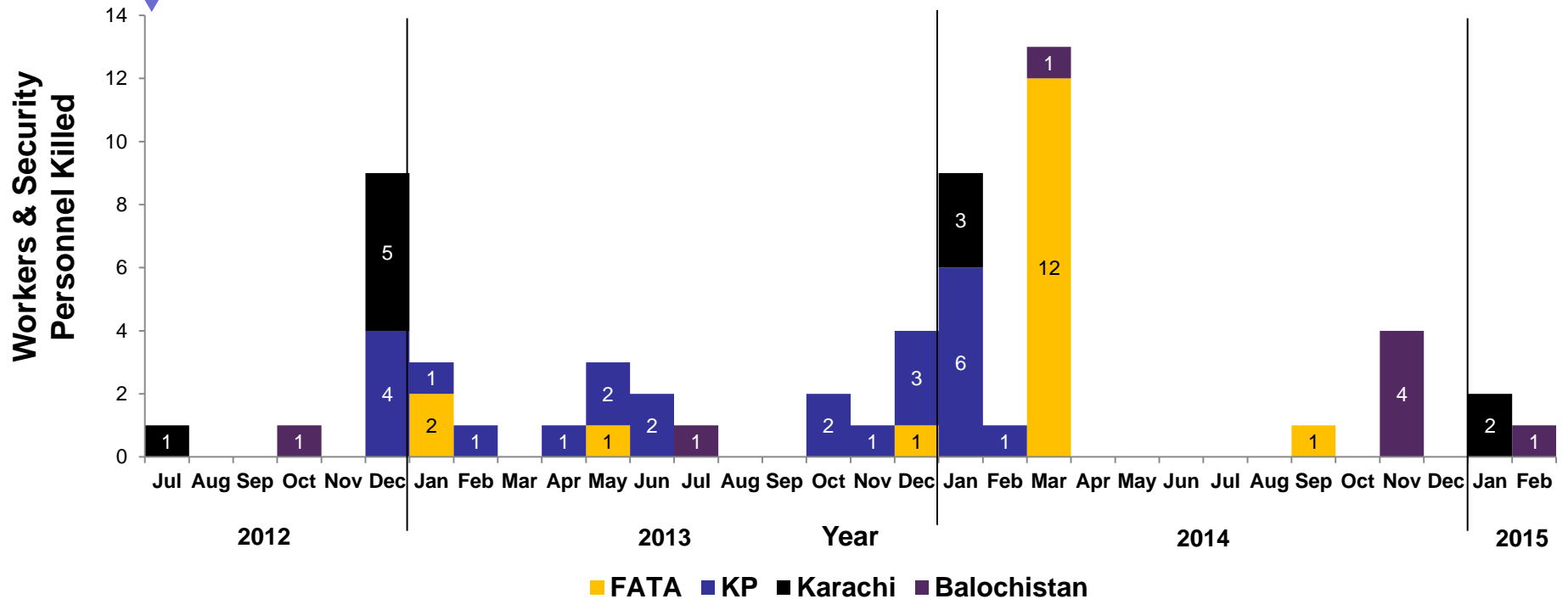
WPV3 cases by month in Pakistan



WPV3: Wild poliovirus, type 3
Source: World Health Organization

Events That Derailed the Momentum of 2012

June 2012: Taliban bans vaccination in North and South Waziristan

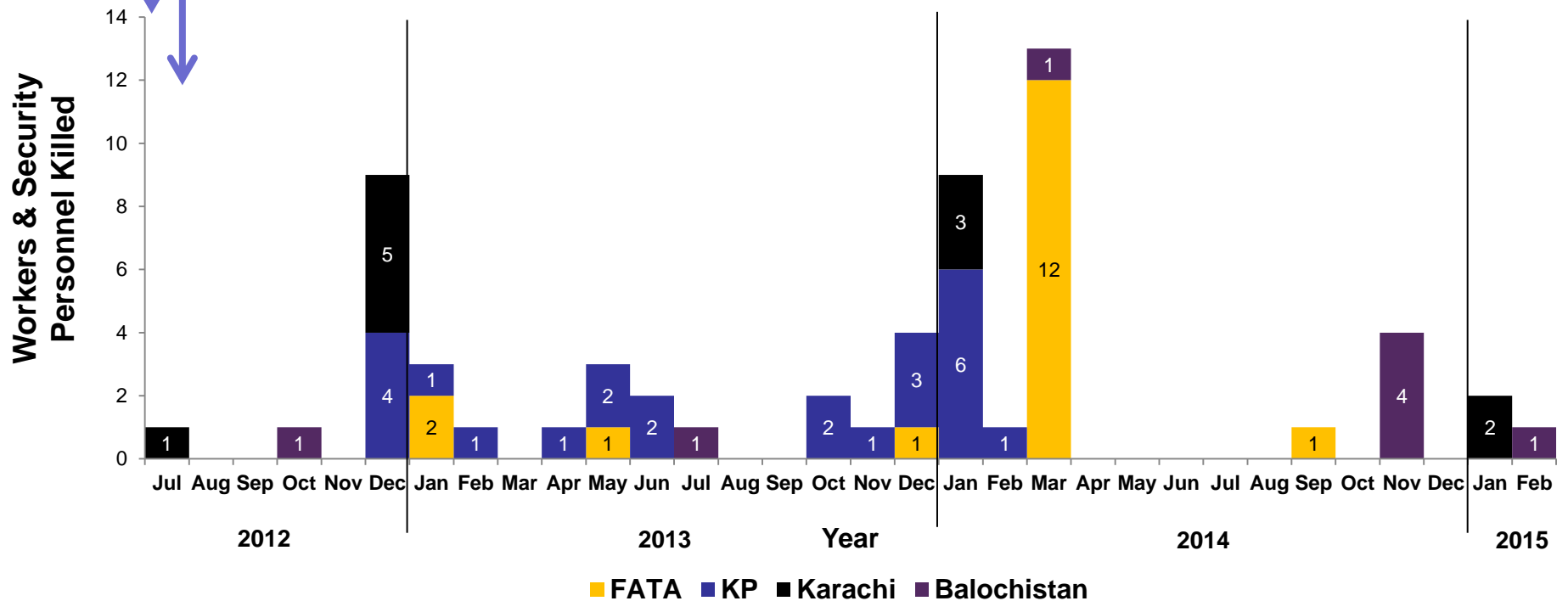


FATA: Federally Administered Tribal Areas
 KP: Khyber-Pakhtunkhwa
 Source: World Health Organization

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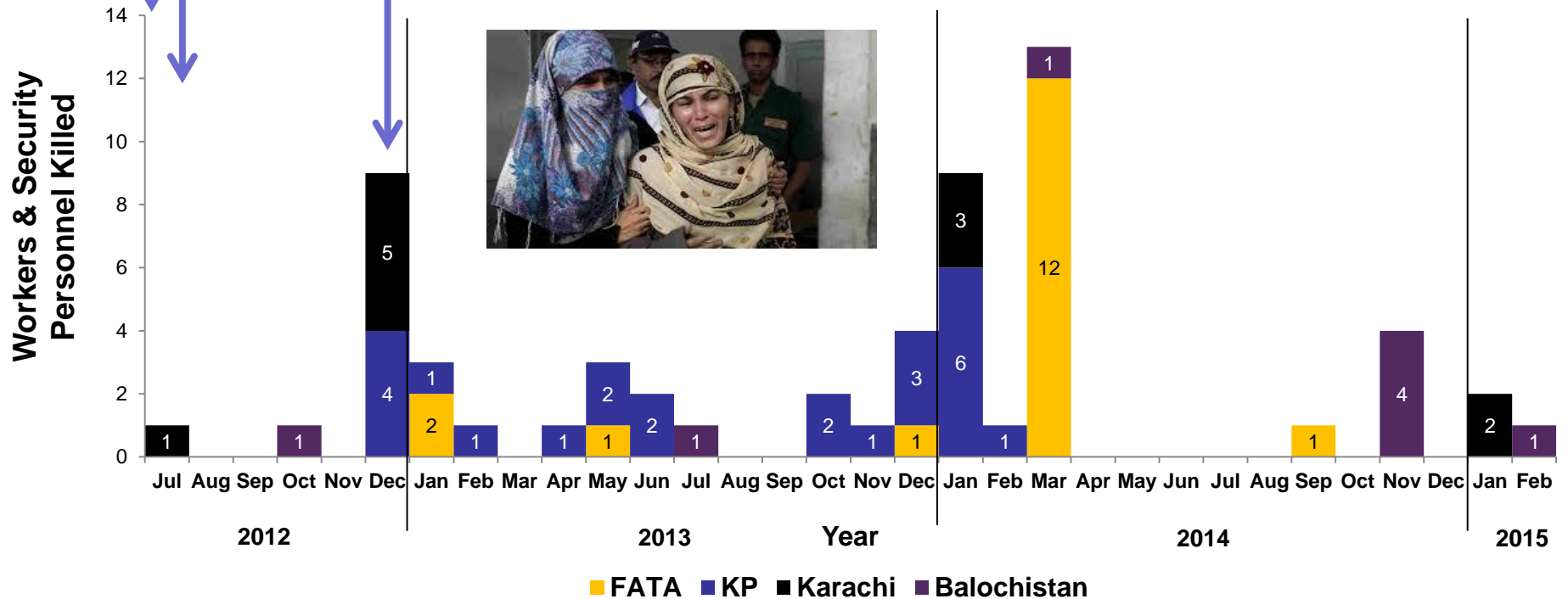
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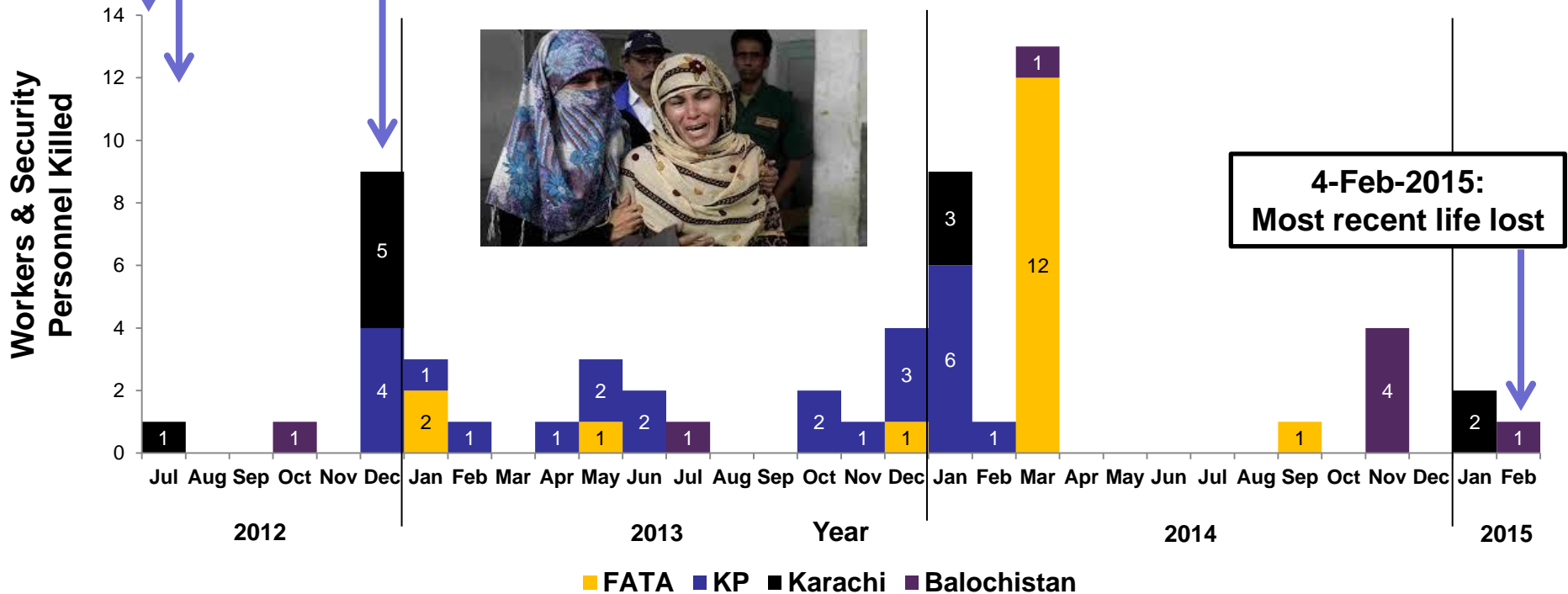
Events That Derailed the Momentum of 2012

June 2012: Taliban bans vaccination in North and South Waziristan

July 2012: Targeted attacks started on frontline workers

Dec 2012: Start of full-blown serial attacks

.... and the attacks continue with more than 60 polio workers & security personnel killed



FATA: Federally Administered Tribal Areas
 KP: Khyber-Pakhtunkhwa
 Source: World Health Organization

Effects of Violence and Security Challenges in 2013

- ❑ Overall decline in scope, quantity and quality of critical campaigns due to security concerns
- ❑ Demotivated and scared vaccinators
- ❑ Strategies attempted with SIAs not effective
 - SIAs staggered but only held for up to three weeks
- ❑ Missing multiple campaigns
 - Mostly in key reservoir and outbreak areas
- ❑ **Reversal of gains made in 2012**

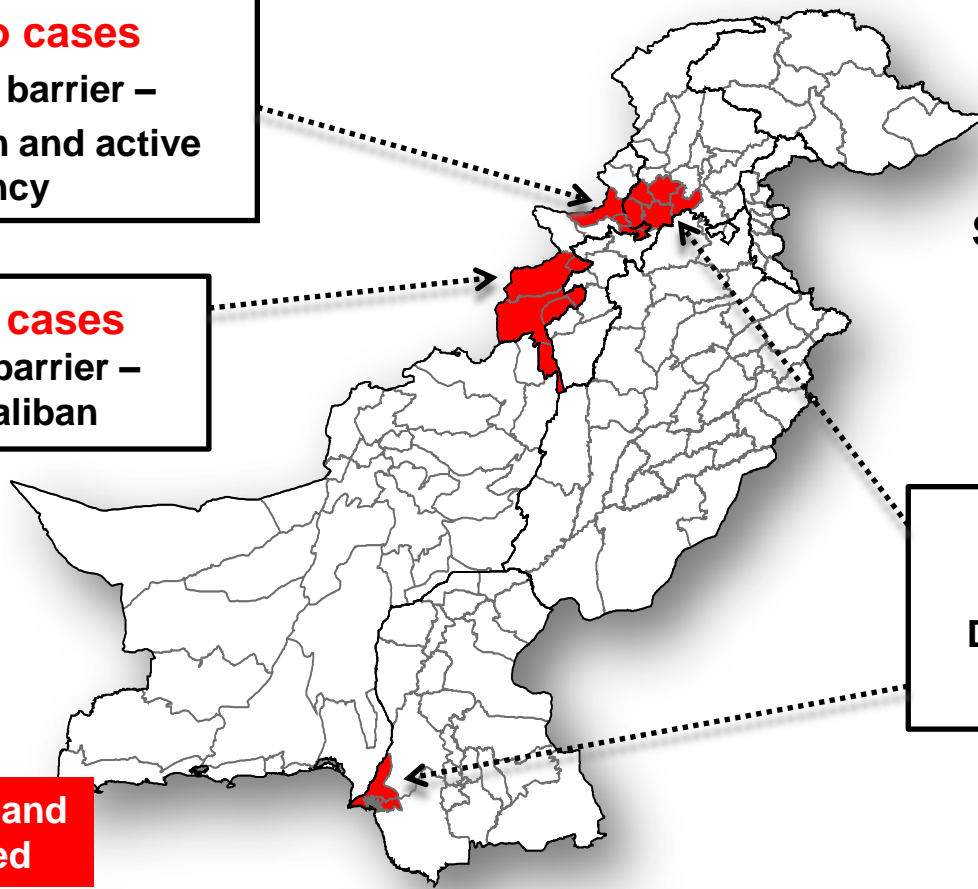
Most Polio Cases Reported in Areas with Insecurity and Barriers to Vaccination, 2014

25% of polio cases
Insecurity and barrier –
Military operation and active
insurgency

31% of polio cases
Insecurity and barrier –
Ban by the Taliban

21% of polio cases
Insecurity and barrier –
Direct threat to front-line
workers and the police

Of the 306 cases,
77% came from
areas with three
security problems



Areas with insecurity and
barriers shown in red

* Data as of 17-Jan-2015

Dealing with Insecurity through Increased Security Planning

- ❑ **Security planning became an essential component of campaigns**
 - Special Operational and Security guidelines developed
 - Police, army and paramilitary forces worked alongside vaccinators



Special Peshawar Initiative, SEHAT KA INSAF “Justice for Health”

Substantial joint effort by

- Provincial political and administrative leadership
- Law enforcement agencies
- Global Polio Eradication Initiative partnership

Operation

- Rebranded the program (*Sehat ka Insaaf in KP*)
- Integrated health care package
 - Routine immunization, health education, medical camps
- One-day campaigns over 12 weeks to minimize exposure



EPI: Routine immunizations
KP: Khyber-Pakhtunkhwa

Special Peshawar Initiative, SEHAT KA INSAF “Justice for Health”

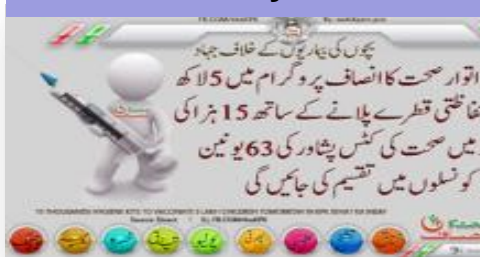
❑ Communication

- Extensive communication and mass media
- Reverse misconception

❑ Security

- Ensured vaccinator safety

Flyers



Mass communication



Security Measures Implemented

❑ Provided safe working environment by cordoning an area rather than police accompanying vaccinators

- Setting up security zone
- Conducting reconnaissance and targeted operations before campaign
- Cordoning of neighborhoods during the campaign
- Setting up plugging points, check points
- Mobile patrolling
- Banning motorbike riding and limiting mobile phone services

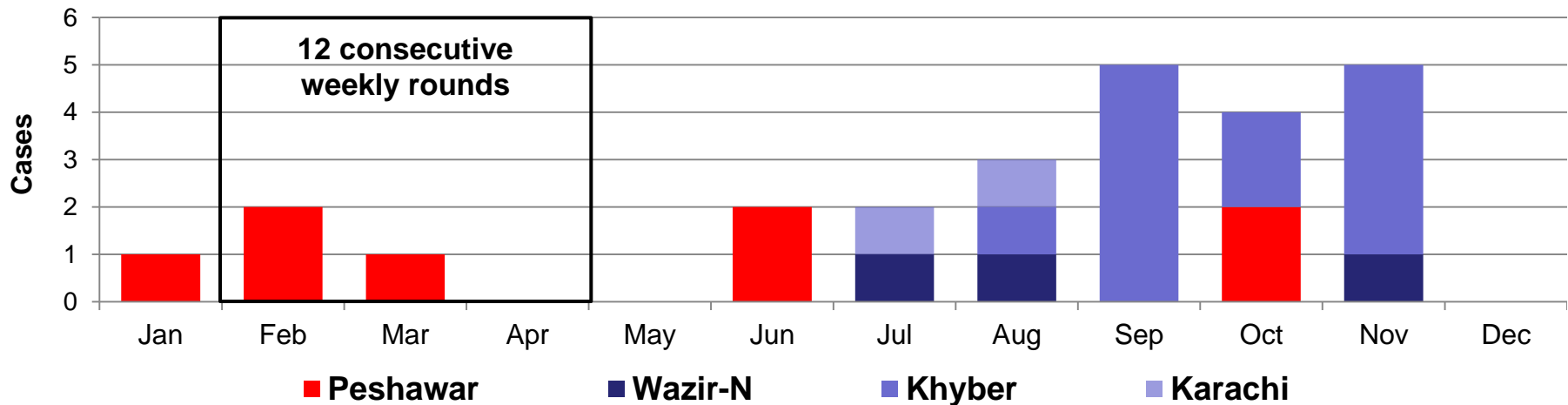
❑ Required large number of police and security personnel

- Peshawar (4,792), Charsada (1,900), Mardan (3,000), Swabi (1,220), Karachi (3500)

Impact of Special Drive in Peshawar, 2014

- More than 8 million OPV doses administered during the 12 weekly campaigns without any security incident
- Reduction in polio cases genetically linked to polio viruses circulating in Peshawar

Genetic linkage of polio cases in Peshawar, 2014



Wazir-N: North Waziristan
Source: WHO

Capitalizing on Opportunities to Reach the Unvaccinated

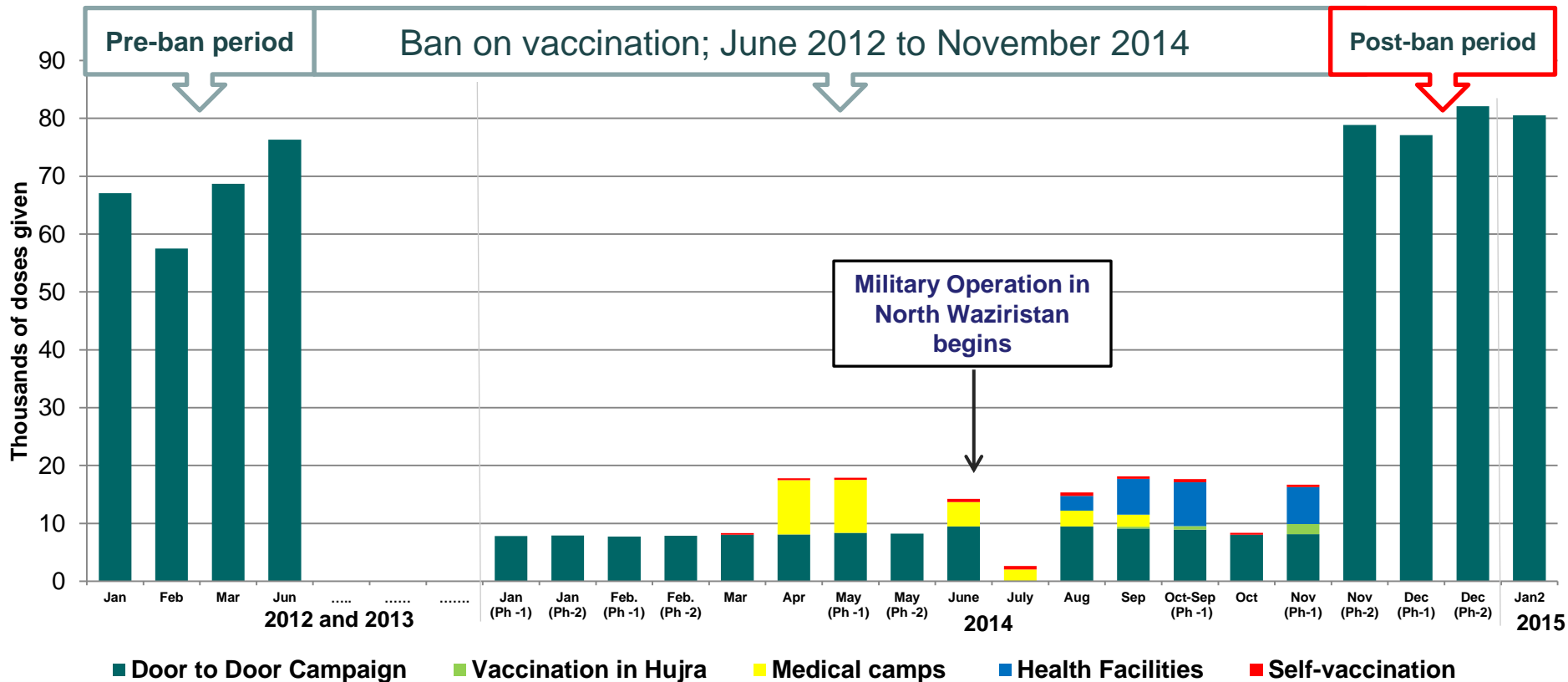
- ❑ **Military operation in North Waziristan caused internal displacement and provided opportunities to vaccinate**
 - Intensive vaccination efforts at transit points across the country
 - Included all ages to boost population immunity
 - Over 1.3 million vaccinated at these fixed posts since June 2014



Opportunistic ongoing vaccination inside North Waziristan; about 7000 vaccinated in Razmak and Ghulam Khan in November round and about 28,000 in Shewa, Razmak & Ghulam Khan in December rounds

Military Operation in North Waziristan Allows for First SIAs in South Waziristan since June 2012

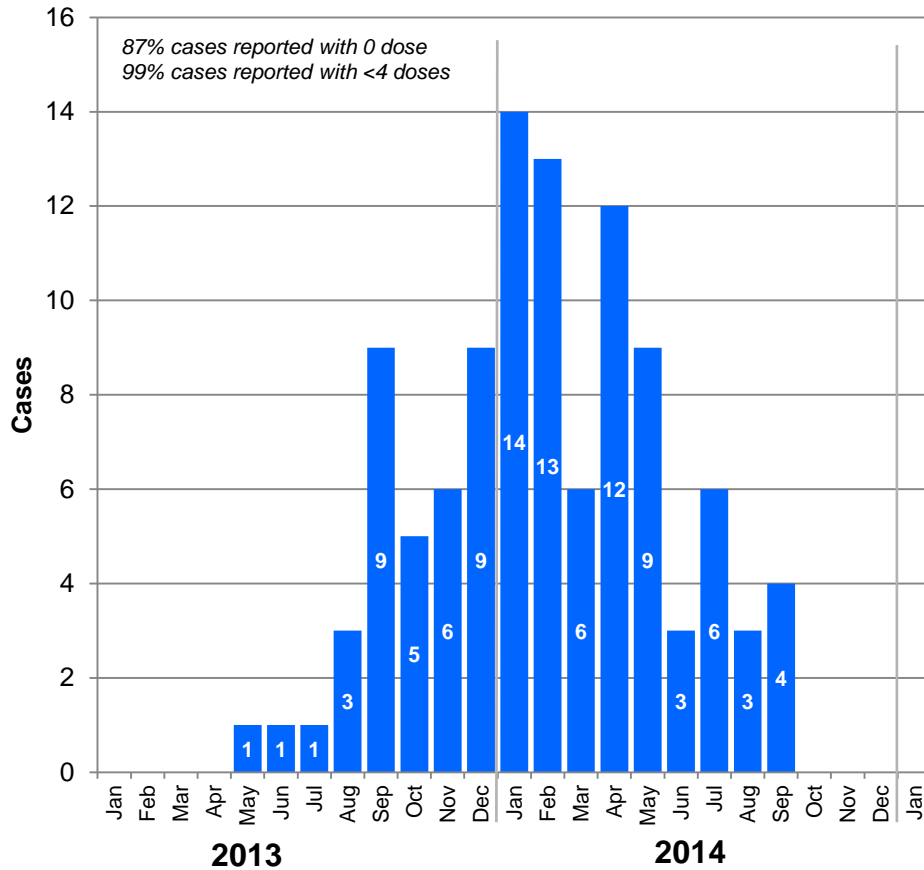
For the first time in two years, South Waziristan was reached and more than 70,000 children were vaccinated



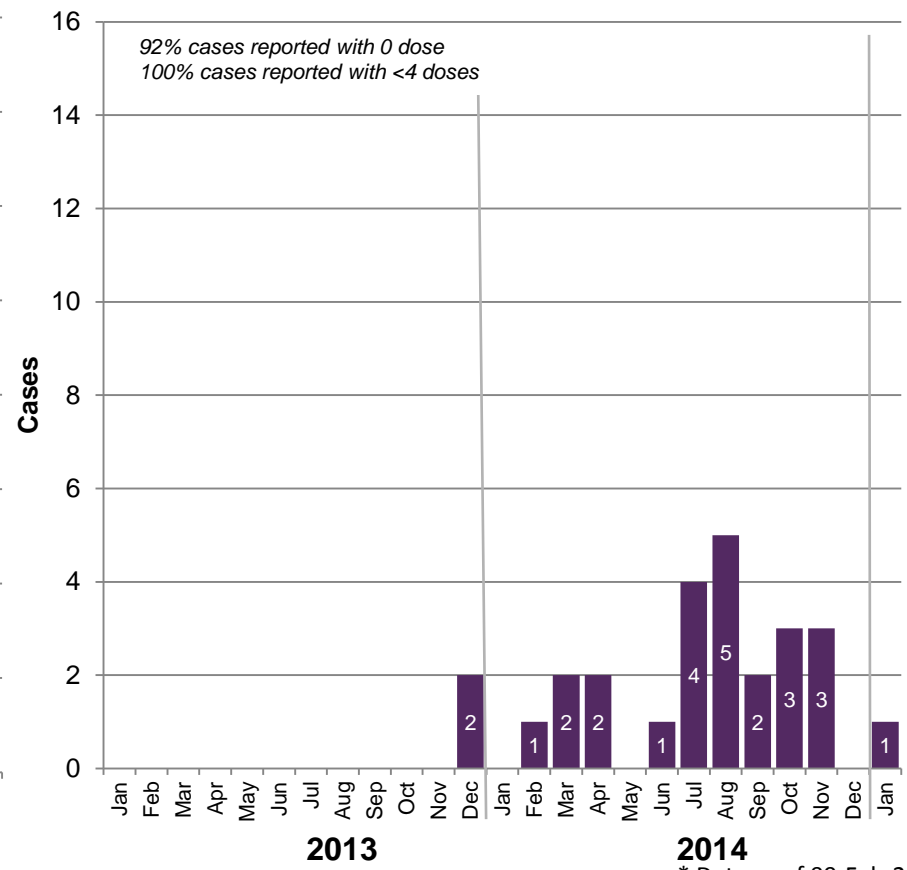
SIA: Supplemental immunization activities
 Source: World Health Organization and United Nations Children's Fund

Confirmed Polio Cases in North and South Waziristan, Jan 2013–Jan 2015

North Waziristan, n=105 cases



South Waziristan, n=26 cases



* Data as of 09-Feb-2015

Source: World Health Organizations

Negotiated Access through Religious Leaders and Community Engagement

- ❑ Engagement of global and national religious scholars
- ❑ Working with the community to provide female volunteers as permanent vaccinators



Islamic Advisory Group Meeting,
Jeddah, Saudi Arabia



National Islamic Advisory Group Meeting,
Islamabad, Pakistan



Training of Female Community Volunteers,
Karachi, Pakistan

National Plan for 2015 Low Transmission Season

- ❑ **Considers the 2015 Low Transmission Season (January–April) as the best and critical opportunity**
- ❑ **Congruent with National Eradication Action Plan**
- ❑ **Outlines key strategies and actions based on lessons learnt**
- ❑ **Requires close cooperation among all arms of government & agencies**

How Close Are the Regions to Reaching Every Last Child?

❑ Peshawar

- Continues with one-day SIAs
- Efforts underway to improve consistency of reaching all children

❑ North and South Waziristan

- Recently initiated low-profile SIAs

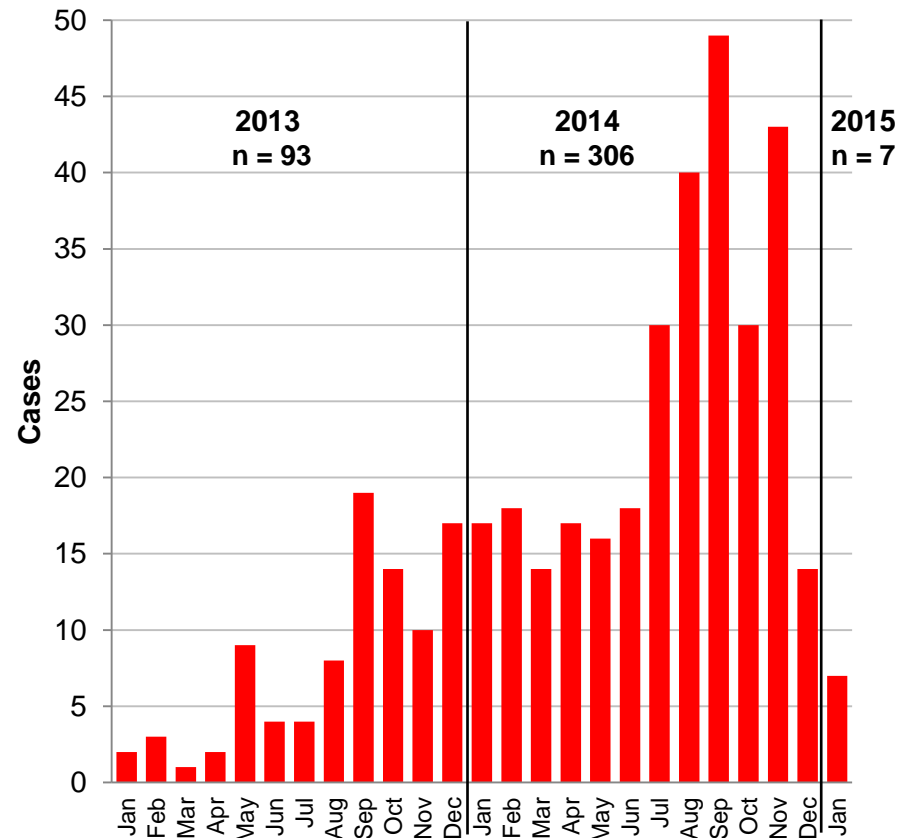
❑ Karachi

- Security incidents continue, thus unable to achieve quality campaigns

❑ Khyber Agency (region in FATA)

- Ongoing military operation is still compromising access

Number of cases by month, 2013 – 2015*



*Data as of 13-Feb-2015

How Close is the Pakistan Polio Eradication Program to Reaching Every Last Child?

- ❑ In 2015, it is likely that Pakistan and Afghanistan will be the only countries in the world with polio
- ❑ Polio workers continue to be targets of extremists
 - **Polio, not caught in crossfire, but it is at the forefront!**
- ❑ Currently, the most challenging and complicated public health initiative in the world
- ❑ Standard public health approach will not be enough to overcome the challenges
- ❑ *Supported by global community, the country strives to join the rest of the world to be polio free!*

Saluting the Brave Vaccinators!!

Despite security risks, they have administered more than 600 million doses of OPV since the December 2012 killings



OPV: Oral polio vaccine

Thank you!

Reaching...



Pakistan

Uncontrolled outbreak

Afghanistan

**28 cases last year,
most due to importation**

India

4 years polio free

Nigeria

**6 months polio-free
(last case: 24-Jul-2014)**

Africa

**6 months polio-free
(last case: Somalia, 11-Aug-2014)**

every last child.