

# Measles Situation in PNG and Risk of Outbreak

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# Importance of Measles vaccine in the RI system

- Measles requires **very high population immunity** to stop transmission (very high  $R_0$  12-17) and cannot be controlled without high coverage (95%) of 2 doses of Measles Containing Vaccine (MCV)
  - When coverage is low, measles is the fastest vaccine preventable disease to return, and hits hardest in settings of inequity
- Of all vaccines, measles vaccine brings the **largest benefits**:
  - The **largest return on investment** of all vaccines: 76.4% or 58.5% of economic benefits, by cost-of-illness or value-of-a-statistical-life approaches<sup>1</sup>
  - About **a third of deaths averted** by continuing routine immunization during Covid-19 attributable to MCV<sup>2</sup>
  - MCV contributes **the largest proportion of deaths that will be averted by immunization** in 2021-30 (36.9%)<sup>3</sup>

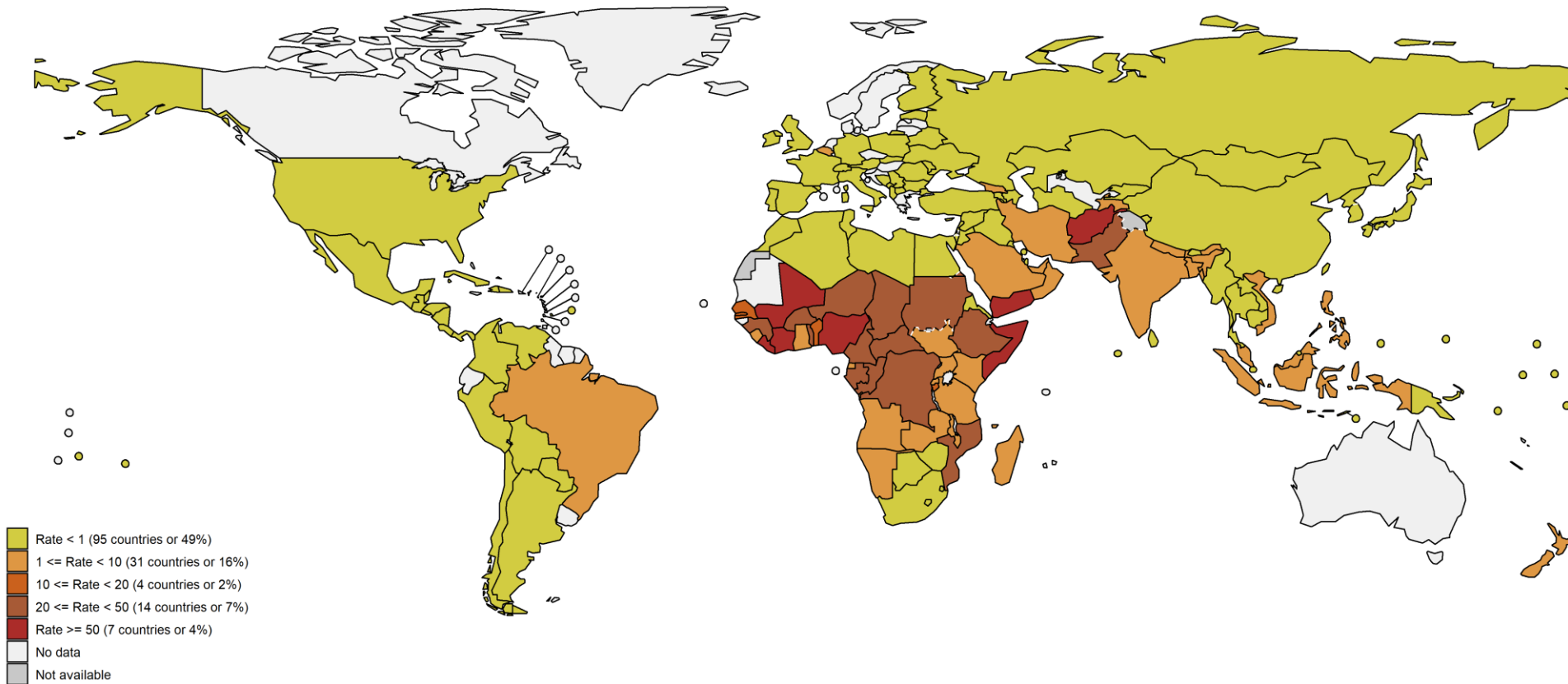
(1) So Yoon Sim et al 2020 <https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.00103>

(2) Abbas et al 2020 [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30308-9/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30308-9/fulltext)

(3) Carter et al 2021 [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3830781](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3830781)



# Recent Measles Incidence Rate per Million (Mar 2021 – Feb 2022)



## Highest incidence rates

Country	Cases	Rate
Somalia	9068	554.30
Yemen	3629	119.02
Liberia	591	114.09
Afghanistan	3628	91.07
Côte d'Ivoire	2007	74.19
Mali	1497	71.78
Nigeria	12341	58.38
Guinea	664	49.20
Congo	277	48.97
Central African Republic	223	45.33

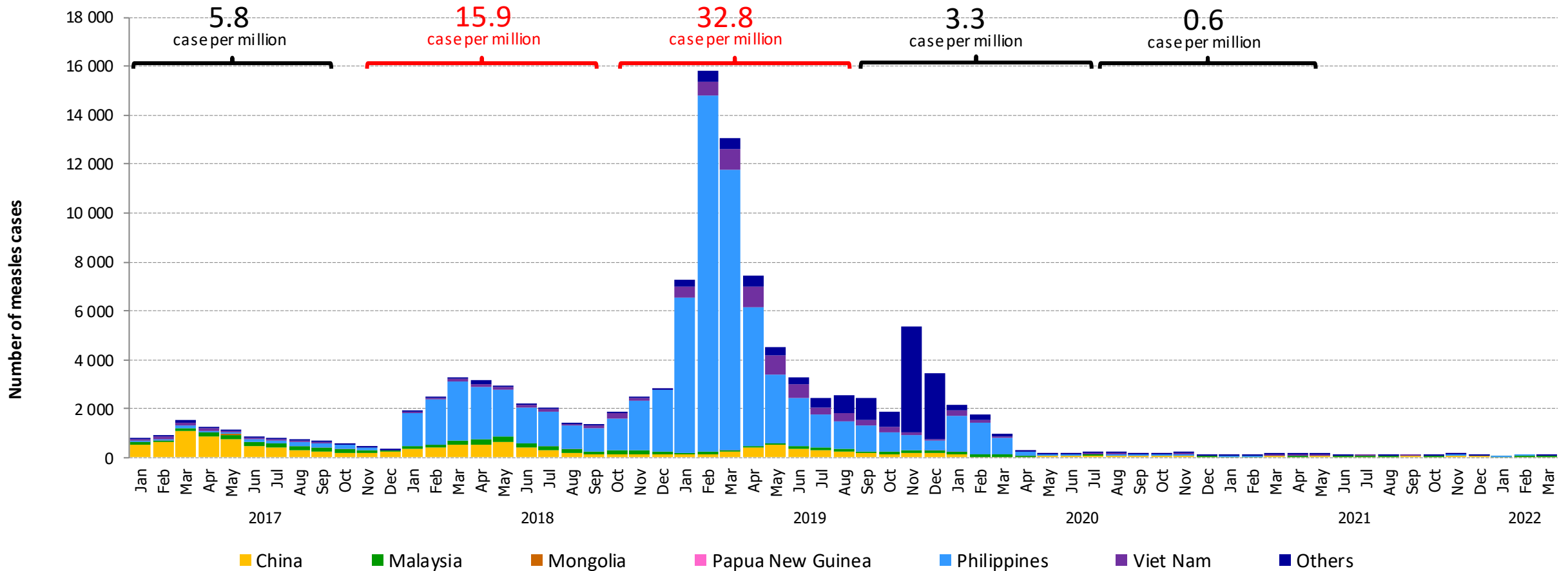


Map production: World Health Organization, 2022. All rights reserved  
Data source: IVB Database

**Disclaimer:** The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

0 875 1750 3500 Kilometers

# Measles case\* distribution by month and country, WPR, 2017-2022



\* Total confirmed and compatible measles cases by month of rash onset  
 Source: Monthly measles and rubella country reports to WHO submitted by 20 April 2022

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# History of measles in PNG

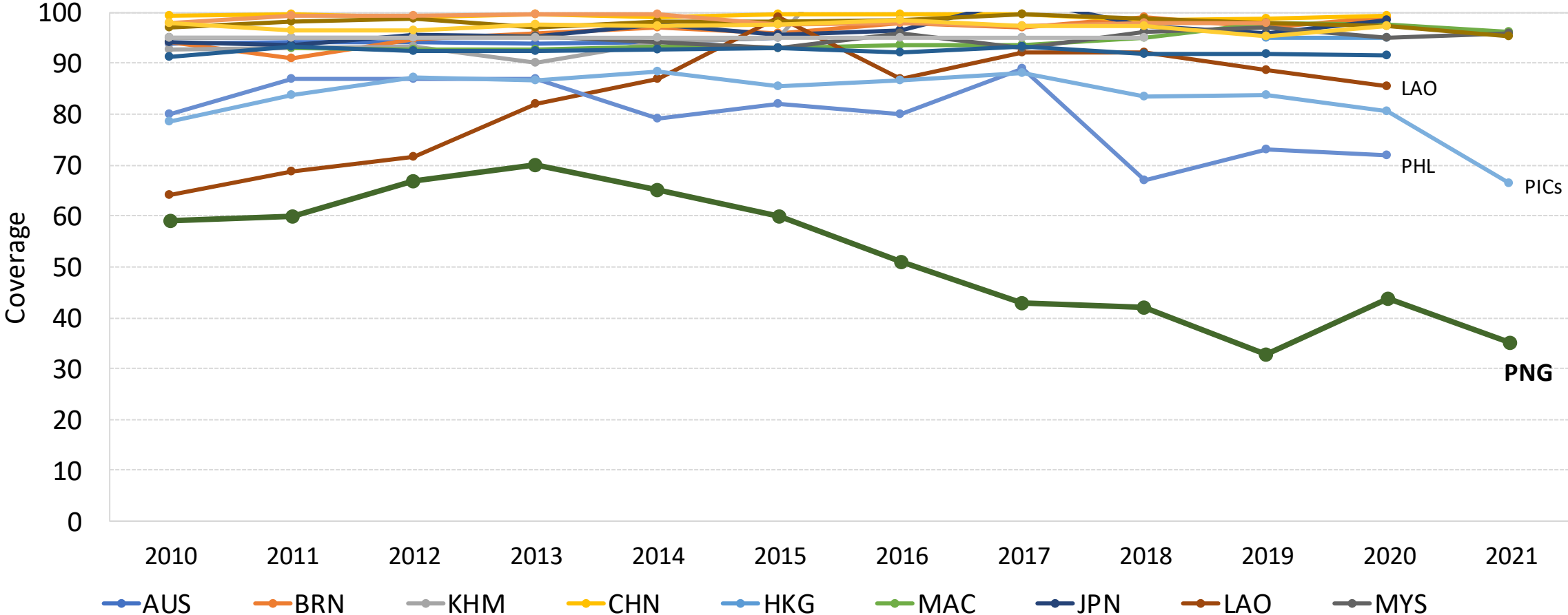
- Historically low Measles vaccination coverage requiring periodic supplementary immunization campaigns to boost immunity levels
- Measles SIA in 2012 age group 6-36 months, coverage 88%
- Measles SIA in 2015 age group 9 mo-15 yr, coverage 53%
- Measles SIA in 2019 age group 6 -59 months, coverage 101%
- Large outbreaks in 2002, 2014 involving thousands of children
- Due to high mortality the “Zero” dose of MR given at 6 months was introduced in PNG



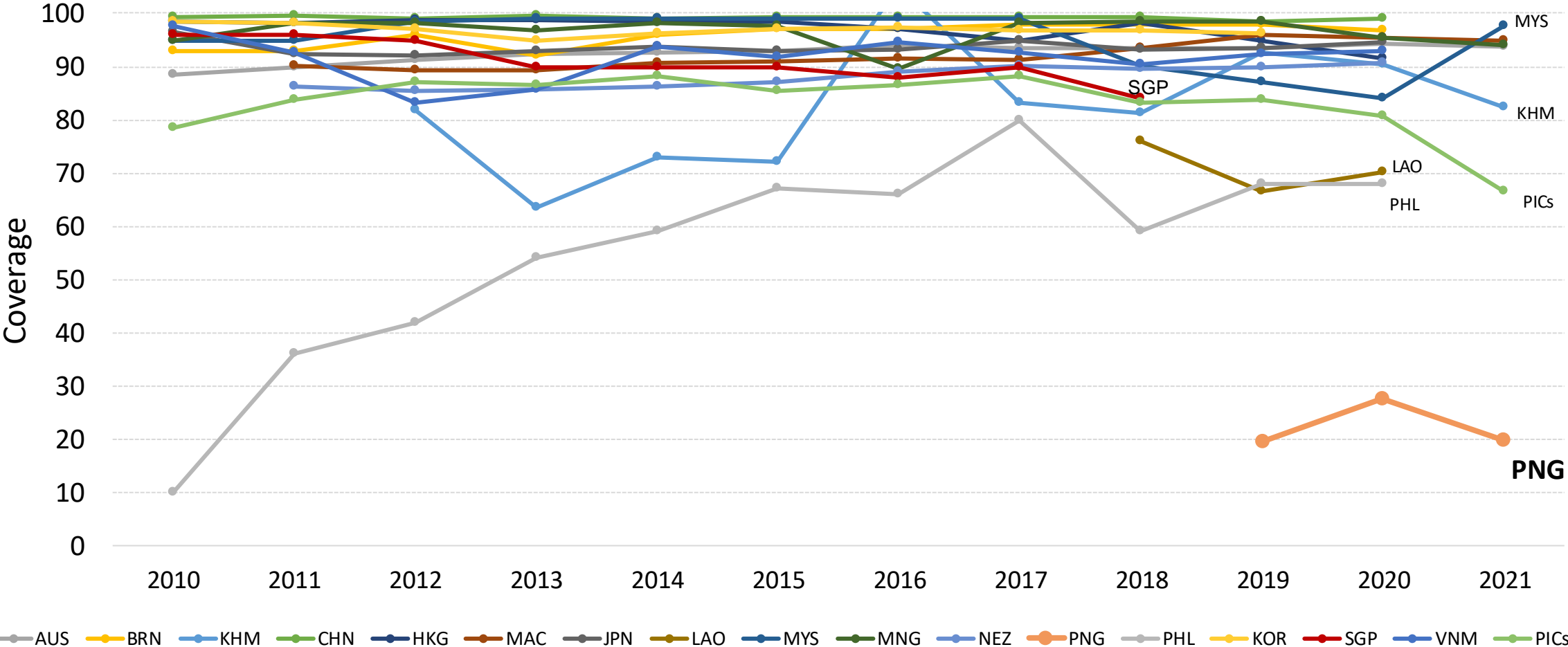
# PNG Measles Immunity Status



# Reported MCV1 coverage by country, WPR, 2010-2021



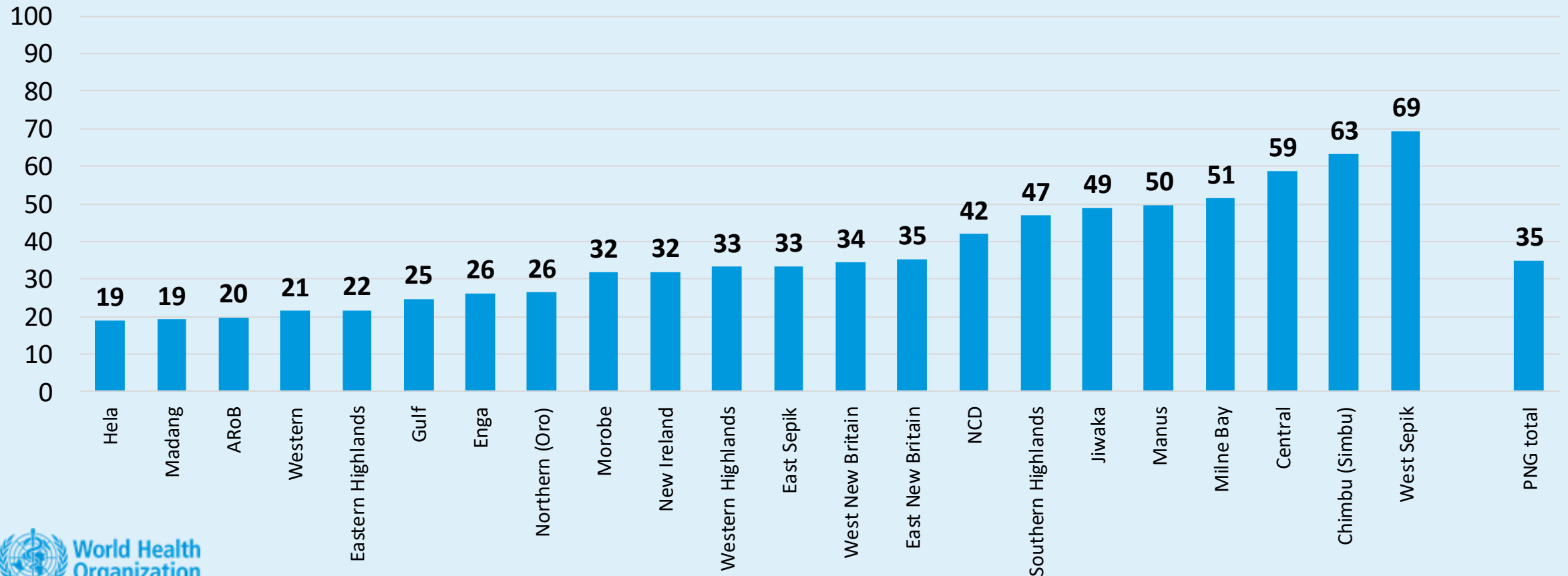
# Reported MCV2 coverage by country, WPR, 2010-2021





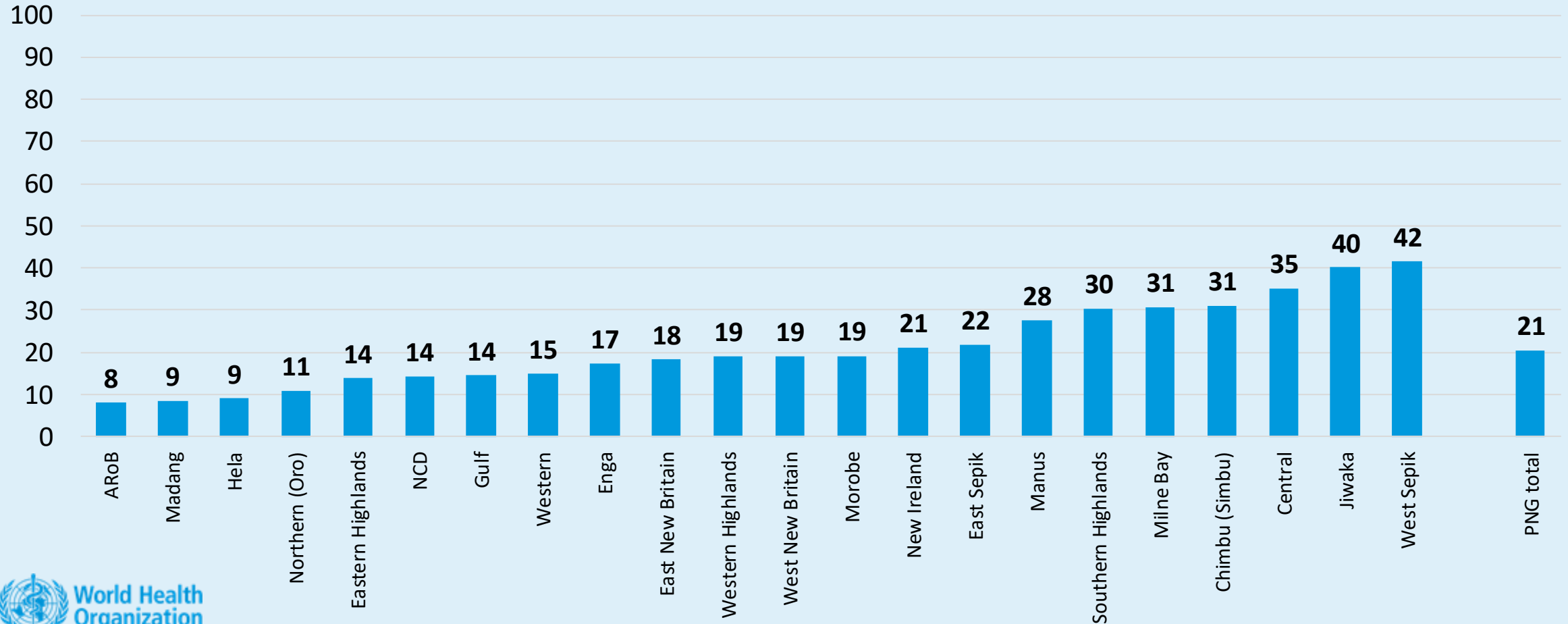
# PNG Routine immunization: MR1 reported coverage annualized Jan–Apr 2022

MR1 Coverage (%)

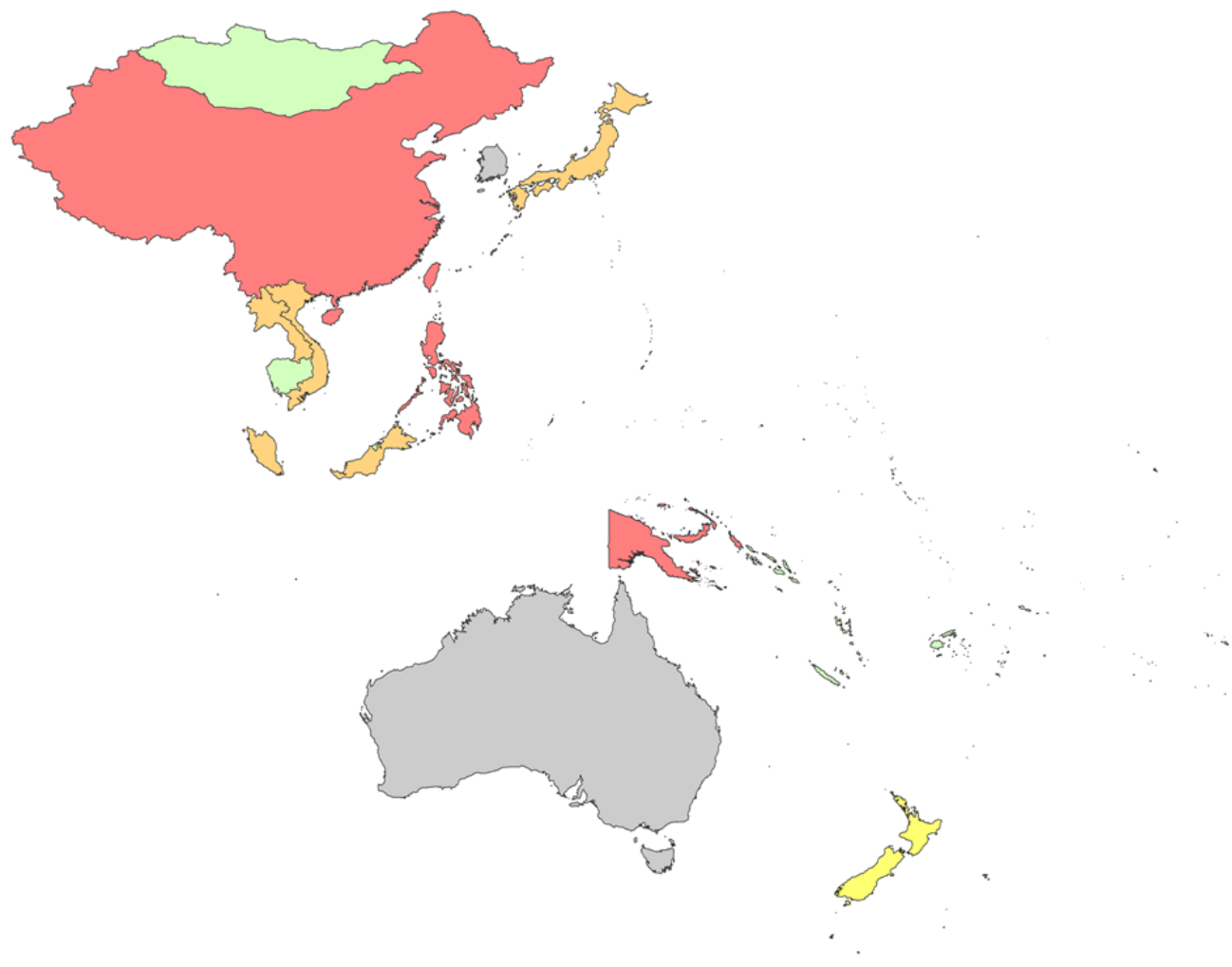


# PNG Routine immunization: MR2 reported coverage annualized Jan–Apr 2022

MR<sub>2</sub> Coverage (%)



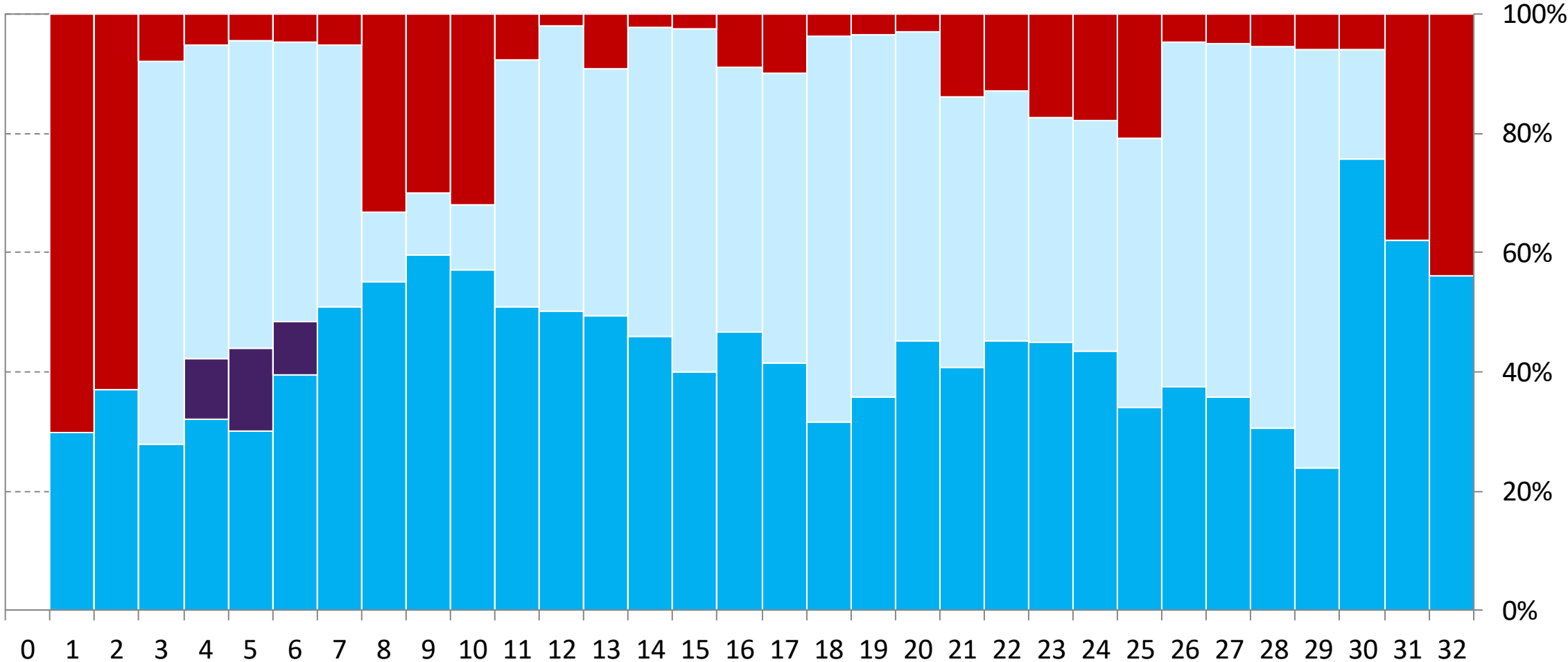
# Number of children that missed MR1 routine immunization dose in 2020 – almost as many children missed in PNG as in China



COUNTRY	No. of missed children in 2020
PHILIPPINES	599,869
CHINA	128,693
PAPUA NEW GUINEA	128,691
VIET NAM	43,285
MALAYSIA	26,443
LAO PEOPLE'S DEMOCRATIC REPUBLIC	23,038
JAPAN	13,611
NEW ZEALAND	5,054
HONG KONG (SAR) CHINA	4,137
PICs	3,040
MONGOLIA	2,031
MACAO (SAR) CHINA	167
BRUNEI DARUSSALAM	61
CAMBODIA	0
AUSTRALIA	Data not available
REPUBLIC OF KOREA	Data not available
SINGAPORE	Data not available

Source: WHO/UNICEF Joint Reporting Form (JRF) for Immunization

# Measles susceptibility profile for population < 33 years of age in PNG 2022



# PNG Status of Measles Rubella disease surveillance – AFR surveillance system



## Current situation AFR surveillance 2022

### Results of AFR surveillance in June 2022

Total suspect measles cases reported	36
Expected number of suspect cases	80
Total laboratory confirmed measles cases	0
Total number of provinces reporting suspect cases	8
Total number of provinces expected to report a suspect measles case	ALL

Province	Total Population-2022	Minimum expected AFR cases/year	AFR cases reported 2022	Non measles non rubella AFR reporting rate*
Western	318816	6	0	0.0
Gulf	200638	4	0	0.0
Central	334394	7	3	2.2
NCD	473976	9	4	2.0
Milne Bay	364001	7	0	0.0
Oro	249751	5	9	8.6
Southern Highlands	687967	14	0	0.0
Enga	502762	10	2	1.0
Western Highlands	466045	9	0	0.0
Chimbu (Simbu)	391355	8	0	0.0
Eastern Highlands	752245	15	0	0.0
Morobe	974093	19	0	0.0
Madang	767421	15	1	0.3
East Sepik	683143	14	5	1.8
West Sepik	332556	7	0	0.0
Manus	69608	1	0	0.0
New Ireland	224920	4	0	0.0
East New Britain	394967	8	0	0.0
West New Britain	370041	7	0	0.0
ARoB	355063	7	7	4.7
Hela	315411	6	0	0.0
Jiwaka	364753	7	5	3.3
<b>PNG total</b>	<b>9593926</b>	<b>192</b>	<b>36</b>	<b>0.9</b>

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# Reporting and Investigating Suspected Measles or Rubella Cases/Outbreaks

- Immediate reporting to Provincial Disease Control officer or designated Surveillance Officer
- Collect blood sample at first opportunity
  - 3-5 ml venous blood
  - Separate serum, send to CPHL for testing to detect IgM specific for measles, rubella
- Complete case investigation form
- Send with CIF and the sample under reverse cold chain to CPHL

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# Preventing the next measles outbreak

- Increase MR1 and MR2 coverage on urgent basis as part of overall strengthening of the immunization system
  - RI Catch up activity has been effective in vaccinating children overdue for routine MR doses
- Enhance sensitivity of AFR surveillance
  - Reporting needs to increase to ensure sensitive surveillance capable of detecting early signs of an outbreak
- Conduct MR follow up SIA
  - Rapidly raise immunity in population and reduce susceptible population





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# The Measles Rubella follow up SIA

- Objective
  - To rapidly increase immunity against measles and rubella in children under 5 years of age and thus reduce the risk of measles outbreak which could have very high morbidity and mortality
- Interventions
  - Measles Rubella vaccination for all children 6 months to 59 months
  - OPV for all children birth to 59 months
  - Vitamin A for all children 6 to 59 months
- Target population PNG
  - Measles Rubella and Vitamin A: 6 – 59mths - 1.1 million children
  - OPV : birth-59 months – 1.3 million children
- Tentative Date: April 2023



# Power of the Pediatrician

- Pediatricians are the most trusted source of health information for parents regarding advice for their child's health
- Recommend to every parent that their child should receive the MR1 dose at 9 months AND the MR2 dose at 18 months to protect them from measles illness
- Advocate political leaders for more funding for child health especially for immunization – both for procuring vaccines and for operational expenses incurred during mobile and outreach service delivery
- Educate health care workers on measles case management and the importance of reporting suspected cases of measles/rubella



Thank you

