

## Supplementary material

**Table S1.** Characteristics of HPV vaccination demonstration projects, by country

Countries	Year (funding)	Target population	Project sites	Delivery strategy	Vaccine type	Dosing schedule	Number of target girls	Program coverage
Fiji [32]	2008-09	9-12 yo, girls	National	School	Quadrivalent	0, 2, 6 m	30,338	55% (3 doses)
Philippines [34, 35]	2011-12 (Jhpigo)	9-13 yo, girls	2 provinces (Cebu, Quezon)	Facility	Quadrivalent	0, 2, 6 m	4000	88% (3 doses)
	2014 (MoH)	-	2 regions (Cordillera, Central Visayas)	Facility	-	-	-	-
Solomon Islands [36]	2015-17 (Gavi)	9-12 yo, girls	2 provinces (Honiara, Isabel)	School + facility + out reach	Quadrivalent	0, 12 m	8,000	-
Lao PDR [37]	2013-16 (Gavi)	10 yo, girls	Capital and 1 province (Vientiane)	School	Quadrivalent	0, 2, 6 m (2013-14); 0, 12 m (2014-16)	-	94-97% (3 doses)
China [38, 39]	2021- (local government)	13-18 yo, girls	1 city (Inner Mongolia)	Facility	Bivalent (Cecolin®)	0, 6 m	11,000	-
	2020-22 (local government)	13-14 yo, girls	1 city (Xiamen)	Facility	Bivalent (Cecolin®)	0, 6 m	-	-
Vietnam [40]	2008-10 (PATH/MoH)	11 yo, girls	3 districts (Quan Hoa, Nong Cong, Ninh Kieu)	School + facility	Quadrivalent	0, 2, 6 m	3,302	96% (3 doses)
		11 yo, girls	3 districts (Quan Hoa, Nong Cong, Binh Thuy)	Facility	Quadrivalent	0, 2, 6 m	2,712	99% (3 doses)
Cambodia [41-43]	2009-10 (GAP)	11-18 yo, girls	1 health facility	Facility	Quadrivalent	0, 2, 6 m	2,000	101%* (3 doses)
	2010-11 (GAP)	-	10 sites	School + facility	Quadrivalent	0, 2, 6 m	9600	78% (3 doses)
	2016-17 (Gavi)	9 yo, girls	2 provinces (Svay Rieng, Siem Riap)	School + facility	Bivalent (Cervarix®)	0, 6 m	11,646	84% (2 doses)
Mongolia [19, 44]	2012 (GAP)	11-17 yo, girls	2 districts in capital (Ulaanbaatar) and 2 provinces (Umnungobi, Selenge)	School + facility + out reach	Quadrivalent	0, 2, 6 m	14,063	65% (3 doses)
	2014 (GAP)	-	-	School	-	-	-	-
Papua New Guinea [19, 45]	2012 (GAP)	-	-	School + facility	-	-	-	-
	2017-18 (Rotary)	9-14 yo, girls	Capital (Port Moresby)	School	Quadrivalent	0, 6 m	28,000	-
Vanuatu [46]	2008	-	1 city (North Efate)	-	-	-	-	94% (3 doses)
	2015-16 (Frazer Family Foundation)	10 yo, girls	1 province (Shefa)	School	Bivalent (Cervarix®)	0, 12 m	1000	84% (2 doses)
Kiribati [19]	2011-13 (GAP/ACCF)	-	-	School	-	-	-	-

ACCF: Australian Cervical Cancer Foundation; EPI: Expanded Program on Immunization; GAP: Gardasil® Access Program; m: months; Lao PDR: Lao People's Democratic Republic; MoH: Ministry of Health; yo: year-old

\*Suggested to be due to several factors such as errors in census data and attendance of girls near to but not within the target area

## Supplementary material

**Table S2.** Documented challenges and barriers to introduction and scale-up

Countries	Challenges
Marshall Islands [29]	<ul style="list-style-type: none"> <li>• Limited awareness about the HPV vaccine especially among parents</li> <li>• Limited involvement of women's groups in promoting vaccination</li> <li>• Need for stronger partnership with other health programs</li> </ul>
Malaysia [49]	<ul style="list-style-type: none"> <li>• Reaching out-of-school girls</li> <li>• Linking HPV vaccination data to women's health program</li> <li>• Emerging anti-vaccine groups</li> </ul>
Fiji [49]	<ul style="list-style-type: none"> <li>• Community concerns about vaccine safety</li> <li>• Inadequacy of cold chain</li> <li>• Delays in vaccine delivery and increases in shipping cost</li> <li>• Need for donor assistance to sustain programme</li> </ul>
Lao PDR [37]	<ul style="list-style-type: none"> <li>• Reaching out-of-school girls</li> </ul>
China [50]	<ul style="list-style-type: none"> <li>• Cost of HPV vaccine</li> <li>• Vaccine supplies</li> <li>• Lack of public awareness</li> <li>• Community concern about vaccine safety and efficacy</li> </ul>
Cambodia [49]	<ul style="list-style-type: none"> <li>• Identifying and enumerating the target girls</li> <li>• Limited involvement of province and district education departments</li> <li>• Limited health education given to girls before school-based vaccination</li> </ul>
Mongolia [44]	<ul style="list-style-type: none"> <li>• Community resistance and withdrawal</li> </ul>
Papua New Guinea [45]	<ul style="list-style-type: none"> <li>• Different interests and priorities among stakeholders</li> <li>• Delays in development of operational plan and guidelines</li> <li>• Restrains in funding</li> <li>• Cold chain requirements</li> </ul>
Vanuatu [46]	<ul style="list-style-type: none"> <li>• Vehicle access to schools (tough road and petrol issues)</li> <li>• Tracking of girls for the second dose</li> <li>• Coordination with local government departments and non-governmental organizations</li> </ul>

Lao PDR: Lao People's Democratic Republic