

Vaccines Investor Event

Epidemiology

December 1st, 2021



Agenda

Influenza	
RSV	
Pneumococcal	
Meningitis	
PPH & Boosters	
Chlamydia	
Acne	

Influenza | Targeted population and current usage

2020 population (m) and current usage⁽¹⁾

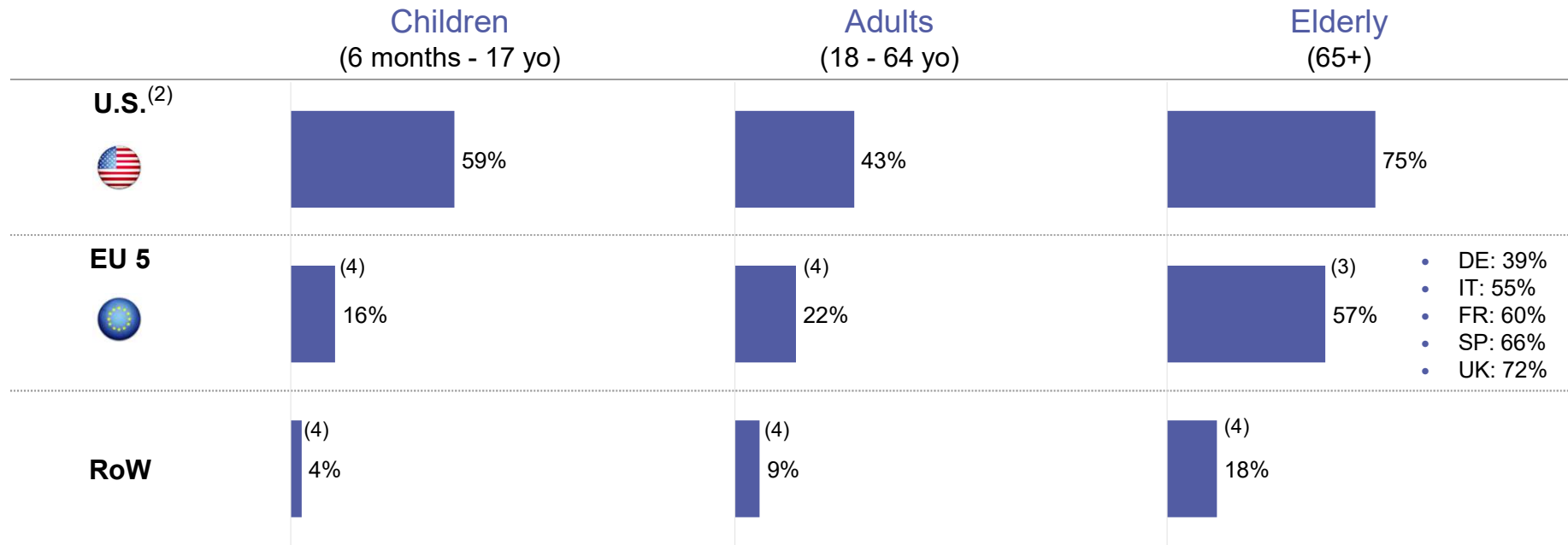
	Children (6 months - 17 yo)	Adults (18 - 64 yo)	Elderly ≥ 65 yo
U.S. 	71m <ul style="list-style-type: none"> • Mostly SD 	201m <ul style="list-style-type: none"> • Mostly SD 	55m <ul style="list-style-type: none"> • Mostly HD
EU 5 	58m <ul style="list-style-type: none"> • Mostly SD 	197m <ul style="list-style-type: none"> • Mostly SD 	68m <ul style="list-style-type: none"> • DE⁽²⁾: mostly HD • Other: mostly SD
RoW	2.1bn <ul style="list-style-type: none"> • SD 	4.3bn <ul style="list-style-type: none"> • SD 	600m <ul style="list-style-type: none"> • Mostly SD



yo: Years old m: million EU 5: France, Germany, Italy, Spain, United Kingdom HD: High dose SD: Standard dose DE: Germany
 (1) As of 2021, 90% of flu market value has transitioned to QIV (2) Recommendation from 60+ yo in Germany
 Source: Population estimates, The World Bank

Influenza | Current vaccine coverage rate








% 2020 population⁽¹⁾



yo: Years old EU 5: France, Germany, Italy, Spain, United Kingdom DE: Germany HD: High dose SD: Standard dose



(1) Weighted average (2) US CDC 2020; <https://www.cdc.gov/flu/fluview/coverage-2021estimates.htm> (3) OECD 2020; <https://data.oecd.org/healthcare/influenza-vaccination-rates.htm> (4) Internal Sanofi Estimates 2020

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RSV | Target population and recommendation

2020 birth cohort (m), recommendation and usage across age groups

	Birth cohort	Infants (0 - 11 months)	Toddlers (12 - 24 months)	Elderly ≥ 65 yo
U.S. 	4m ⁽¹⁾	<ul style="list-style-type: none"> Palivizumab: infants <29 wGA and CHD/CLD 	-	-
EU 5 	3m ⁽²⁾	<ul style="list-style-type: none"> Palivizumab: infants <35 wGA, born <6 months from RSV season or <2yo with specific diseases⁽⁴⁾ 	-	-
RoW	128m ⁽³⁾	-	-	-





CHD: congenital heart disease CLD: chronic lung disease; wGA: weeks gestational age yo: Years old EU 5: France, Germany, Italy, Spain, United Kingdom m: Million
 (1) National Center for Health Statistics. May 2021. DOI: <https://doi.org/10.15620/cdc.104993> (2) Local institutes of statistics (3) ~135m births per year globally; Population estimates, The World Bank (4) Children who are less than two years of age and have had treatment for bronchopulmonary dysplasia (abnormal lung tissue, usually seen in babies born prematurely) within the last six months; Children who are less than two years of age and were born with a serious heart disease.

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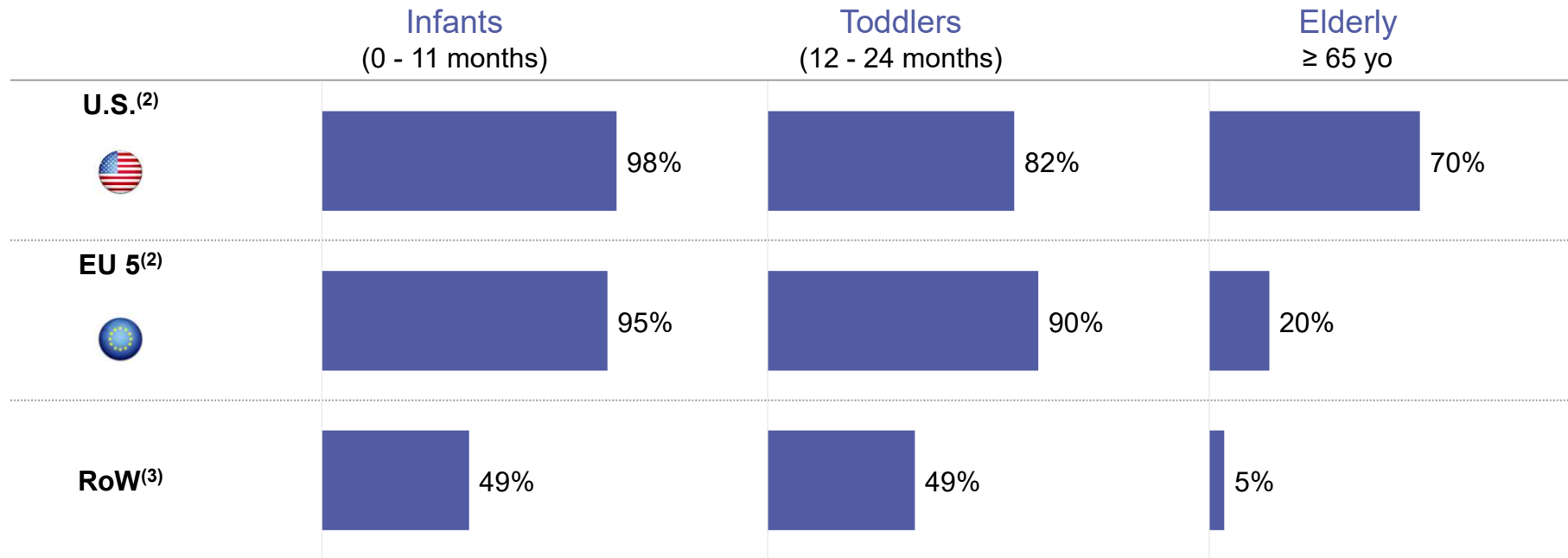
PCV | Target population, recommendation and usage

2020 birth cohort (m), recommendation and usage across age groups

	Birth cohort	Infants (0 - 11 months)	Toddlers (12 - 24 months)	Elderly ≥ 65 yo
U.S. 	4m ⁽¹⁾	<ul style="list-style-type: none"> • PCV13 • 3 doses 	<ul style="list-style-type: none"> • PCV13 • 1 dose 	<ul style="list-style-type: none"> • PCV20 or PCV15 + PPSV23 • 1 dose
EU 5 	3m ⁽²⁾	<ul style="list-style-type: none"> • PCV • 2 doses 	<ul style="list-style-type: none"> • PCV • 1 dose 	<ul style="list-style-type: none"> • PCV13 reco: Italy • PPSV23 reco: UK, SP, DE
RoW	128m ⁽³⁾	<ul style="list-style-type: none"> • PCV in large majority of countries⁽⁴⁾ 	<ul style="list-style-type: none"> • PCV in large majority of countries⁽⁴⁾ 	<ul style="list-style-type: none"> • Primarily PPSV23 limited usage

PCV | Current vaccine coverage rate

% 2020 population⁽¹⁾



yo: Years old EU 5: France, Germany, Italy, Spain, United Kingdom m: Million



(1) Average for total population in infant, toddlers & elderly, adults at risk not considered (2) Datamonitor, 2021 & country reports, 2020 (CDC, Public Health England, Stiko, Santé Publique France) (3) WHO

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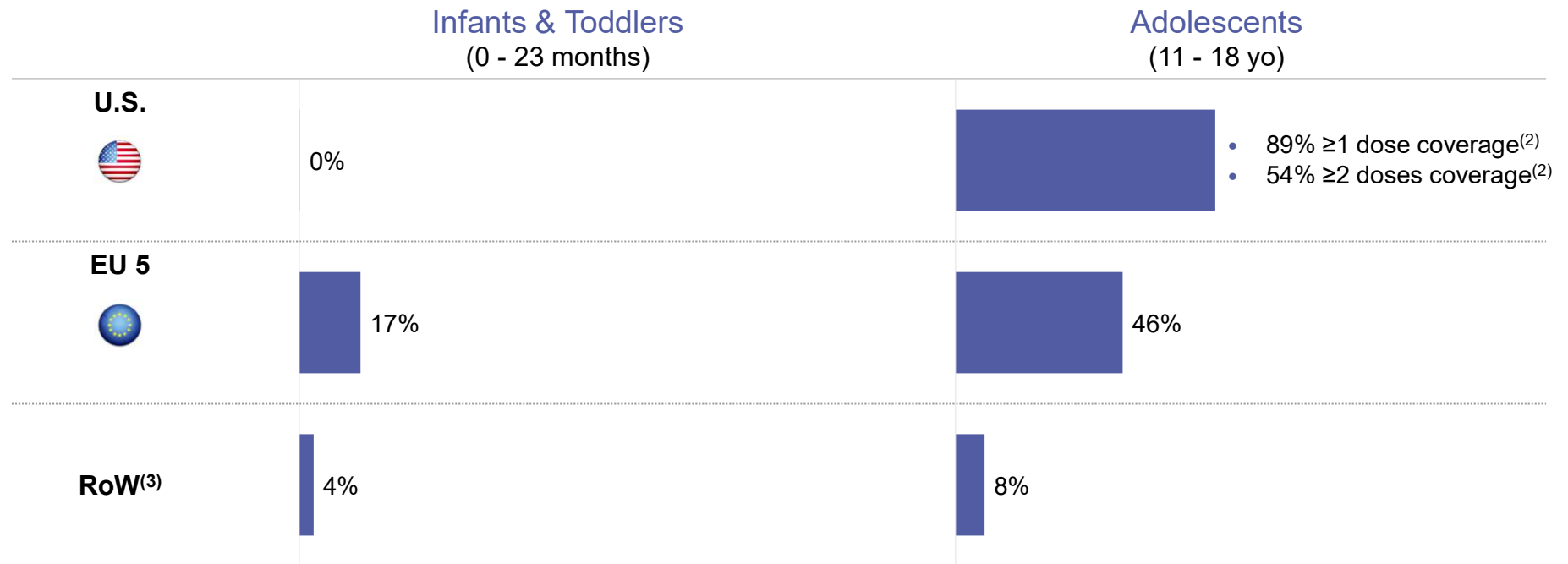
MenC & ACWYcj | Target population, recommendation and usage

2020 birth cohort (m), recommendation and usage across age groups

	Birth cohort	Infants & Toddlers (0 - 23 months)	Adolescents (11 - 17 yo)
U.S. 	4m ⁽¹⁾	<ul style="list-style-type: none"> • Very limited usage 	<ul style="list-style-type: none"> • MenACWY • 2 doses in most states at ~11 yo, ~16 yo
EU 5 	3m ⁽²⁾	<ul style="list-style-type: none"> • Mainly MenC gradually moving to ACWY • 1 dose schedule 	<ul style="list-style-type: none"> • MenACWY recommended in IT, ES, UK • 1 dose schedule
RoW⁽³⁾	128m ⁽⁴⁾	<ul style="list-style-type: none"> • Recommendation in a limited number of countries 	<ul style="list-style-type: none"> • Recommendation in a limited number of countries

MenC & ACWYcj | Current vaccine coverage rate

% 2020 population⁽¹⁾





yo: Years old EU 5: France, Germany, Italy, Spain, United Kingdom

(1) VCR: (N*doses/schedule)/cohort; EU 5 infant/toddlers: 1 dose schedule; Adolescent 1 dose schedule; RoW: infant/toddler generalise 2+1 schedule; Adolescent 1 dose schedule (2) Source: MMWR Morb Mortal Wkly Rep 2021 (3) Argentina, Australia, Brazil, Canada, China, Colombia, India, Japan, Mexico, Russia, Kingdom of Saudi Arabia, South Korea, Turkey, Vietnam

MenB | Target population, recommendation and usage

2020 birth cohort (m), recommendation and usage across age groups

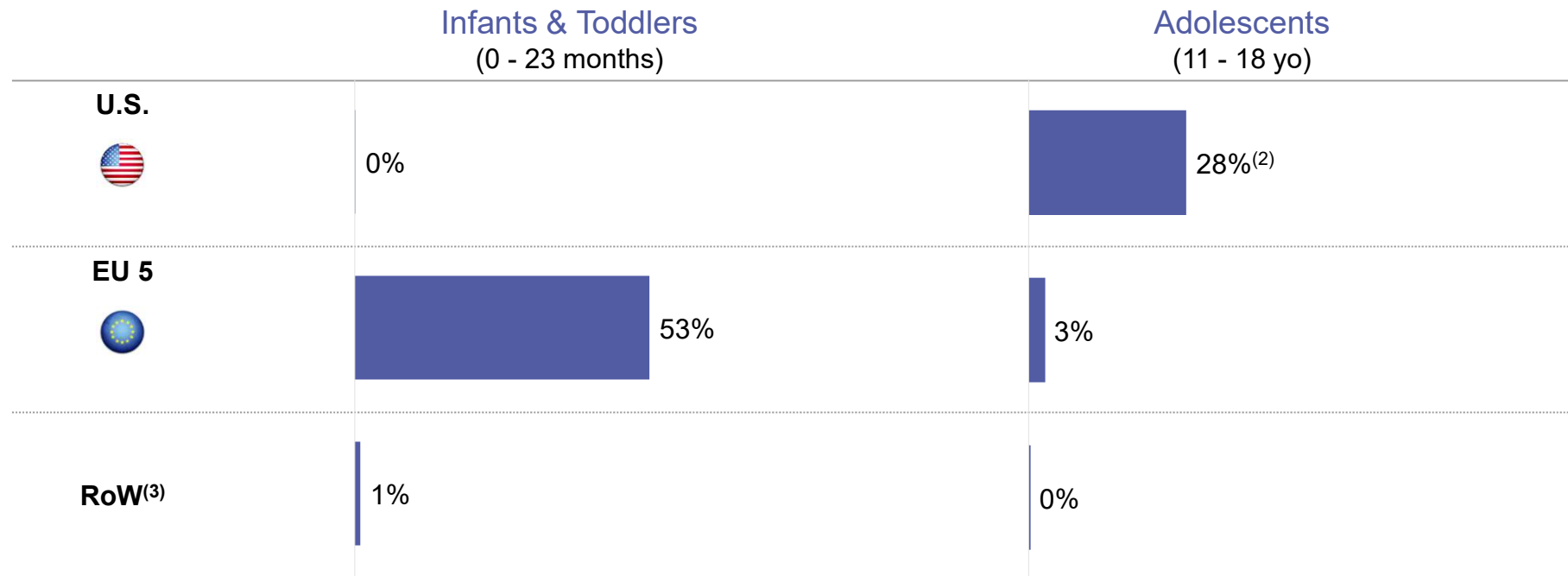
	Birth cohort	Infants & Toddlers (0 - 23 months)	Adolescents (11 - 18 yo)
U.S. 	4m ⁽¹⁾	<ul style="list-style-type: none"> No recommendation 	<ul style="list-style-type: none"> MenB 2 doses at ~16yo, ~18yo⁽⁷⁾
EU 5 	3m ⁽²⁾	<ul style="list-style-type: none"> Recommendation: Italy, UK, Spain⁽⁵⁾ New recommendation in France not yet implemented⁽⁶⁾ 2+1 dose schedule 	<ul style="list-style-type: none"> No recommendation
RoW⁽³⁾	128m ⁽⁴⁾	<ul style="list-style-type: none"> Very limited countries with recommendation 2+1 dose schedule 	<ul style="list-style-type: none"> No recommendation

y.o. : Years Old E.U. 5: France, Germany, Italy, Spain, United Kingdom m: Million

(1) National Center for Health Statistics. May 2021. DOI: <https://doi.org/10.15620/cdc:104993> (2) Local institutes of statistics (3) Argentina, Australia, Brazil, Canada, China, Colombia, India, Japan, Mexico, Russia, Kingdom of Saudi Arabia, South Korea, Turkey, Vietnam (4) ~135m births per year globally; Population estimates, The World Bank (5) Spain not in NIP but recommended by the Physician bodies (6) France recommendation published in June 2021 (7) US MenB recommendation based on shared clinical decision making, not routine recommendation

MenB | Current vaccine coverage rate








% 2020 population⁽¹⁾



yo: Years old EU 5: France, Germany, Italy, Spain, United Kingdom



(1) VCR = (N*doses/schedule)/cohort: EU 5/RoW infant/toddlers: country specific mainly 2+1 dose schedule; Adolescent 2 dose schedule (2) Source: MMWR Morb Mortal Wkly Rep 2021 (3) Argentina, Australia, Brazil, Canada, China, Colombia, India, Japan, Mexico, Russia, Kingdom of Saudi Arabia, South Korea, Turkey, Vietnam

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PPH & Boosters | Target population, recommendation and usage

2020 birth cohort (m), recommendation and usage across age groups

	Birth cohort	Primary series Infant & Toddler (6 weeks – 18 months)	Booster Child ⁽¹⁾ (4 - 6 yo)	Booster Adolescent ⁽¹⁾ (10 - 18 yo)	Booster Pregnant woman ⁽¹⁾	Booster Adult ⁽¹⁾ (19+ yo)
U.S.⁽²⁾ 	4m ⁽³⁾	<ul style="list-style-type: none"> acP any combination 4 doses 	<ul style="list-style-type: none"> acP quadrivalent (Tdap-IPV) 1 dose 	<ul style="list-style-type: none"> Tdap (trivalent) 1 dose 	<ul style="list-style-type: none"> Tdap (trivalent) 1 dose / each pregnancy 	<ul style="list-style-type: none"> Tdap/Td every 10 years 1 dose
EU 5 	3m ⁽⁴⁾	<ul style="list-style-type: none"> acP Hexa 3 doses 	<ul style="list-style-type: none"> acP quadrivalent 1 dose 	<ul style="list-style-type: none"> Mostly acP quadri / trivalent 1 dose 	<ul style="list-style-type: none"> Mostly acP trivalent 1 dose / each pregnancy 	<ul style="list-style-type: none"> Mostly 1 dose of acP trivalent once through adult life
RoW	128m ⁽⁵⁾	<ul style="list-style-type: none"> acP Hexa / Penta in high and MICs wcP combo elsewhere Mostly 3-4 doses 	<ul style="list-style-type: none"> wcP mostly No reco in LMICs 1 dose 	<ul style="list-style-type: none"> ~50% of countries under reco⁽⁶⁾ 1 dose 	<ul style="list-style-type: none"> ~40% of countries under reco⁽⁶⁾ 1 dose 	<ul style="list-style-type: none"> No reco in place 1 dose

yo: Years old m: Million EU 5: France, Germany, Italy, Spain, United Kingdom LMICs: Low- and middle-income countries acP: Acellular pertussis wcP: whole cell pertussis Hexa: Hexavalent Penta: Pentavalent Combo: Combination Reco: Recommendation
 (1) Booster recommendations & VCRs considering Tdap/Tdap-IPV (2) U.S. is a unique market with booster label being 4-65 yo (3) National Center for Health Statistics, May 2021. DOI: <https://doi.org/10.15620/cdc:104993> (4) Local institutes of statistics (5) ~135m births per year globally; Population estimates, The World Bank (6) Recommendation considered for Latam: Argentina, Chile, Panama, Paraguay, Uruguay; Asia-Pacific: Australia, New Zealand, Singapore, South Korea
 Source: Official country recommendations

PPH & Boosters | Current vaccine coverage rate

% 2020 population




yo: Years old EU 5: France, Germany, Italy, Spain, United Kingdom

(1) Booster recommendations & VCRs considering Tdap/Tdap-IPV. VCRs are based on an estimate related to where recommendations are available (2) Market research

(3) Internal estimates



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Chlamydia | Targeted population and expected recommendation

2020 birth cohort (m)

Female birth cohort

U.S. 	2.0m	Recommendation expected to be one single dose for lifetime protection
EU 5 	1.5m	
RoW	62.0m	

High proportion of incidence among 15-24yo women⁽¹⁾

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Acne | Prevalence of mild and moderate-to-severe acne

Prevalence of acne in 2019 for all ages (m)

