What's Coming in Adult Vaccines and Vaccinations?

New Technology and New Vaccines on the Short-term Horizon

National Adult and Influenza Immunization Summit
May 10, 2017

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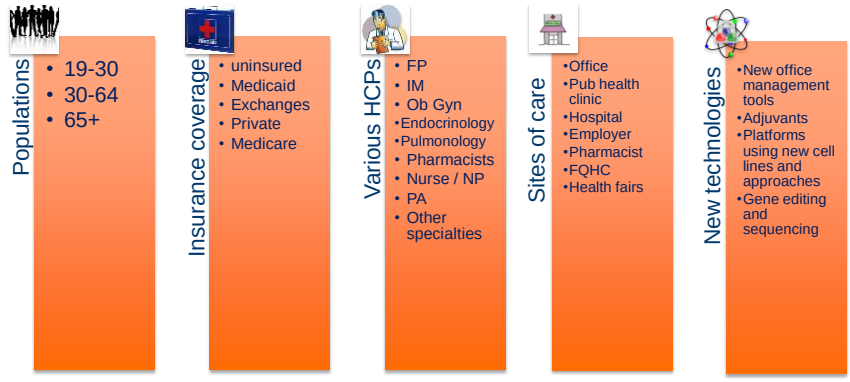
Adult Vaccine Environment: Broader and More Complex



There are numerous policy issues that present an opportunity for all stakeholders to work together to improve immunizations rates in diverse populations of adults

Areas of Vaccine Development with Implications for New Vaccines

Global health and tropical diseases	→	Vaccines targeted to the most significant global and neglected tropical diseases that primarily affect developing countries
Emerging Infectious diseases	→	Vaccines targeted to emerging pathogens that may cause global pandemics / outbreaks or become endemic
Vaccines where there are existing vaccines	→	These vaccines may use novel technologies, adjuvants or new delivery mechanisms or be updated in some way
New disease areas for broad use across ages	→	Vaccines against diseases with no current vaccines where novel vaccines would have broad use or recommendations
Healthcare and Community-acquired Infections	→	Vaccines targeted to combatting antimicrobial resistance by reducing healthcare-acquired Infections

New Vaccines in Development Where There Are Existing Vaccines

Target	Clinical-Stage Pipeline				BLA or Licensed
	Ph 1	Ph 2	Ph 3	Total	
Seasonal influenza	3	8	2	13	2
Herpes Zoster			1	1	1
Hepatitis B	5		1	6	1
Pertussis (generally included w DT)	1			1	
Human Papilloma virus (HPV)		1		1	
Pneumococcal	1	3		4	
Haemophilus Influenzae type B	1	1		2	
Menigococcal		1	1	2	
				30	3

Source: BioMedTracker from Sagient Research through October 2016
** = Biologics License Application

Part of the maternal immunization platform

May have indications for adult populations

New Disease Areas with Vaccines in Development

Target	Clinical-Stage Pipeline				BLA or Licensed
	Ph 1	Ph 2	Ph 3	Total	
Norovirus	1	2		3	
Respiratory Syncytial Virus (RSV)	3	3		6	
Hepatitis C	2	2		4	
Herpes Simplex virus (HSV)	1	2		3	
Cytomegalovirus (CMV)		1	1	2	
Group B Streptococcal		2		2	
Escherichia coli		1		1	
				21	

Source: BioMedTracker from Sagient Research through October 2016
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New Vaccines for Antimicrobial Resistance

Target	Clinical-Stage Pipeline				FDA Licensed	Expected New*
	Ph 1	Ph 2	Ph 3	Total		
2013 CDC AMR Threat List - ***includes pathogens with clinical-stage or FDA-approved vaccines***						
Candida	1	1		2		0.3
Clostridium difficile		2	1	3		1.2
Escherichia coli		1		1		0.5
Group B Streptococcus		2		2		0.3
Pseudomonas aeruginosa			1	1		0.3
Salmonella typhi					2	
Shigella		1		1		0.3
Staphylococcus aureus	2	1		3		0.9
Streptococcus pneumoniae	1	3		4	3	1.1
Mycobacterium tuberculosis	1	4		5	1	1.4
Totals	5	15	2	22	6	6.3

Data Sources: BioMedTracker, FDA website, clinicaltrials.gov, company websites through October 2016
* Number of new vaccines from current pipeline expected post-attrition (20% probability of licensure Ph1, 30% Ph2, 60% Ph3, from Hay et al, Nature Biotech, 2014, 40)

Our Speakers

- Dr. Ken Schmader, Duke University – Zoster Vaccine Effectiveness
- Dr. Aron Hall, CDC – Vaccines in the Pipeline
- Dr. Barbara Mahon, CDC – Ebola Vaccine
- Dr. Armen Donabedian, BARDA – Zika Update
- Dr. Angela Shen, NVPO – Vaccination Technology