



Novartis Vaccines & Diagnostics Growth and Innovation

11 September 2007



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Key messages

- Influenza vaccine business on track for good growth in 2007
- New data from Fluvad and Aflunov support further growth for influenza franchise
- Meningitis products on track to complete key milestones in the next six months
- Intercell deal strengthens the Novartis pipeline

Agenda

- Performance H1 2007
- Influenza update
- Meningitis & other vaccines
- Intercell partnership
- Conclusions

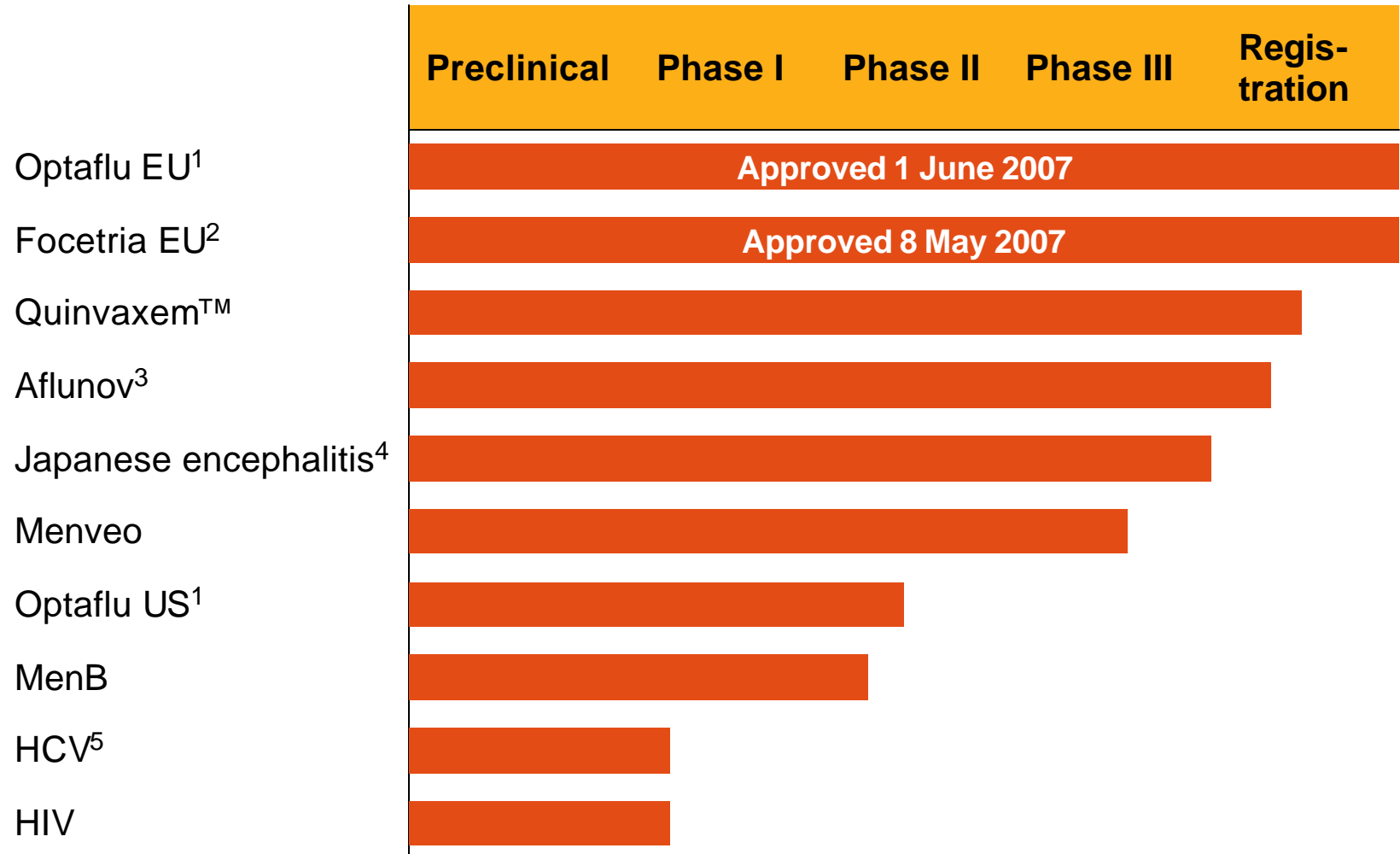
Strong performance in H1 2007

	USD m	Growth vs. 2006	
		in USD ²	in LC ²
Net sales	482	+45%	+39%
Operating income	7		
Return on net sales	1.5%		
Associates ¹	4 322		

¹ Growth was based on adjusted 2006 FTE (including fixed term employees)

² Comparable basis.

Good progress in development pipeline



¹ Cell culture-based influenza vaccine ² Pandemic vaccine, mock file approved ³ Pre-pandemic vaccine, H5N1

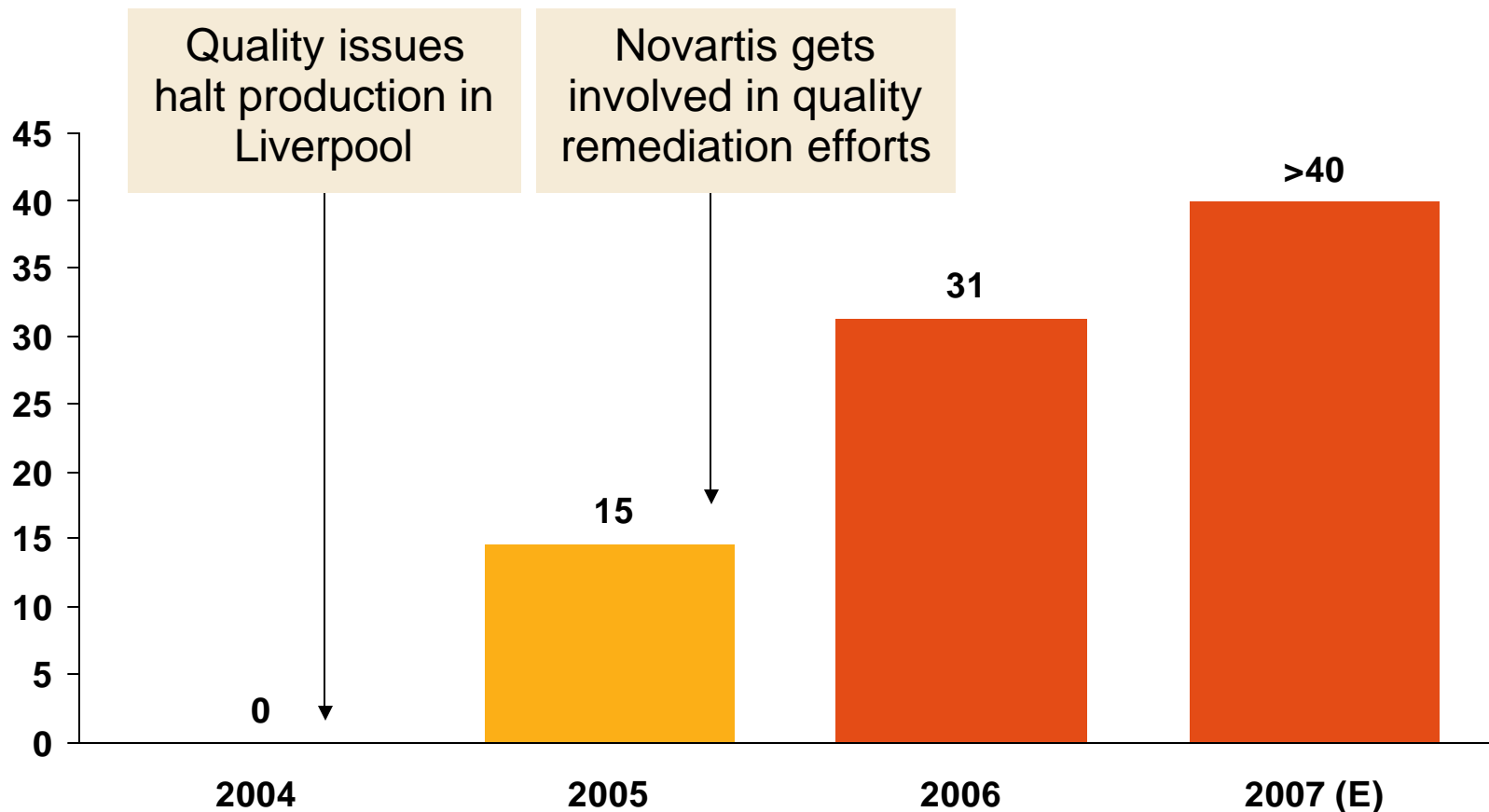
⁴ Collaboration with Intercell ⁵ Therapeutic and prophylactic vaccines

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Influenza production is expected to be a significant improvement on 2006

Fluvirin® influenza vaccine supplied to the US
(doses in m)



Optaflu, a cell-culture based influenza vaccine, is making good progress

- EU approval on 1 June 2007
- US submission planned for 2008
- Capacity is being expanded
 - Ground broken at a new facility in the US near Holly Springs NC
 - Capacity in Marburg being built up



Fluad is the only adjuvanted influenza vaccine on the market

- Fluad contains the proprietary adjuvant MF59
 - MF59 strengthens immune response, increasing efficacy of the vaccine
- >27 mn doses have been administered to date
- Registered in 23 countries
- Today, indicated for use in individuals 65+

Fluad has been tested for its utility in pediatric subjects

- An effective flu vaccine for young children is a key unmet need
- A study was conducted comparing Vaxigrip (Sanofi, EU) with Fluad in children ages 6 months to 36 months

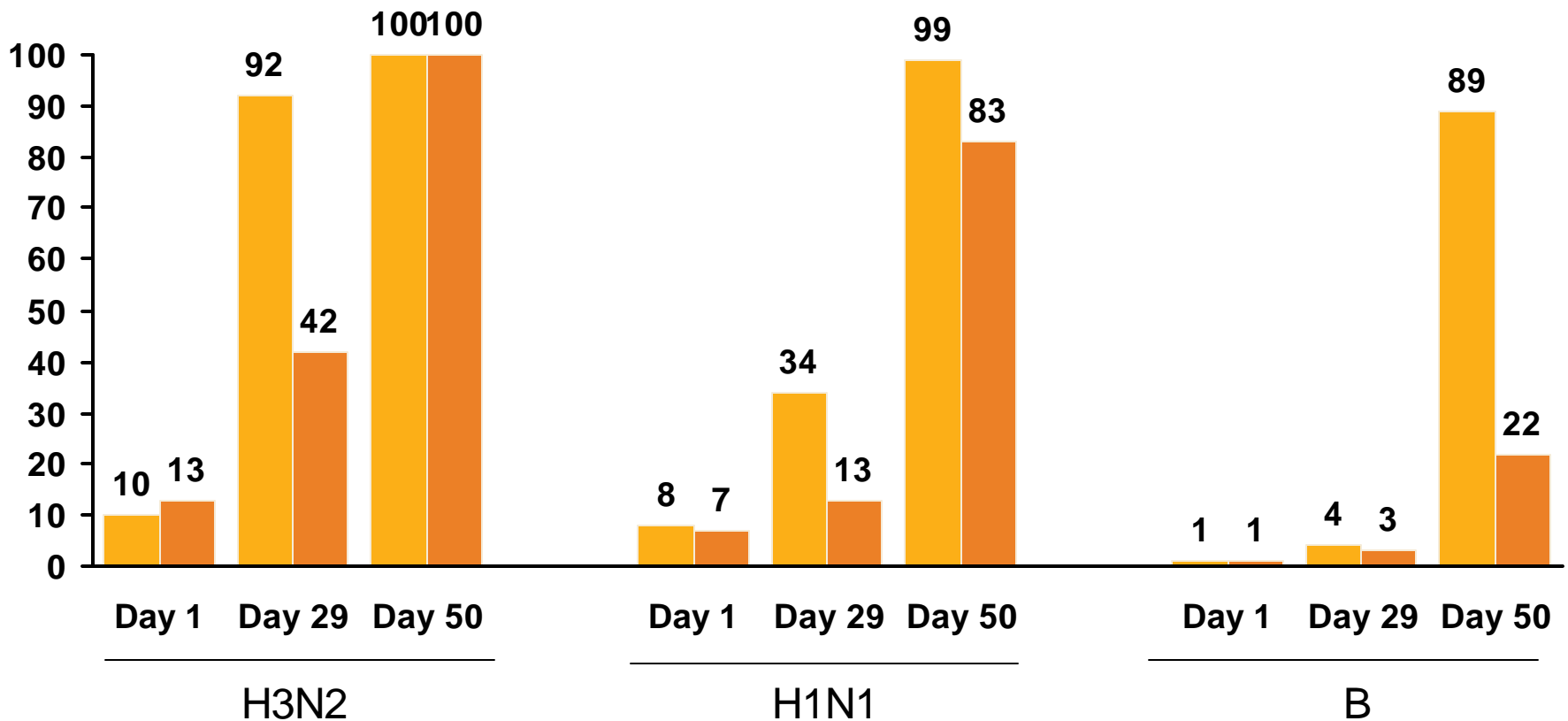
Fluad showed superior immunogenicity to Vaxigrip after 1 and 2 doses

Seroprotection rates at day 1, day 29 (post 1 dose) and day 50 (post 2 doses)

% seroprotection

■ Fluad

■ Vaxigrip

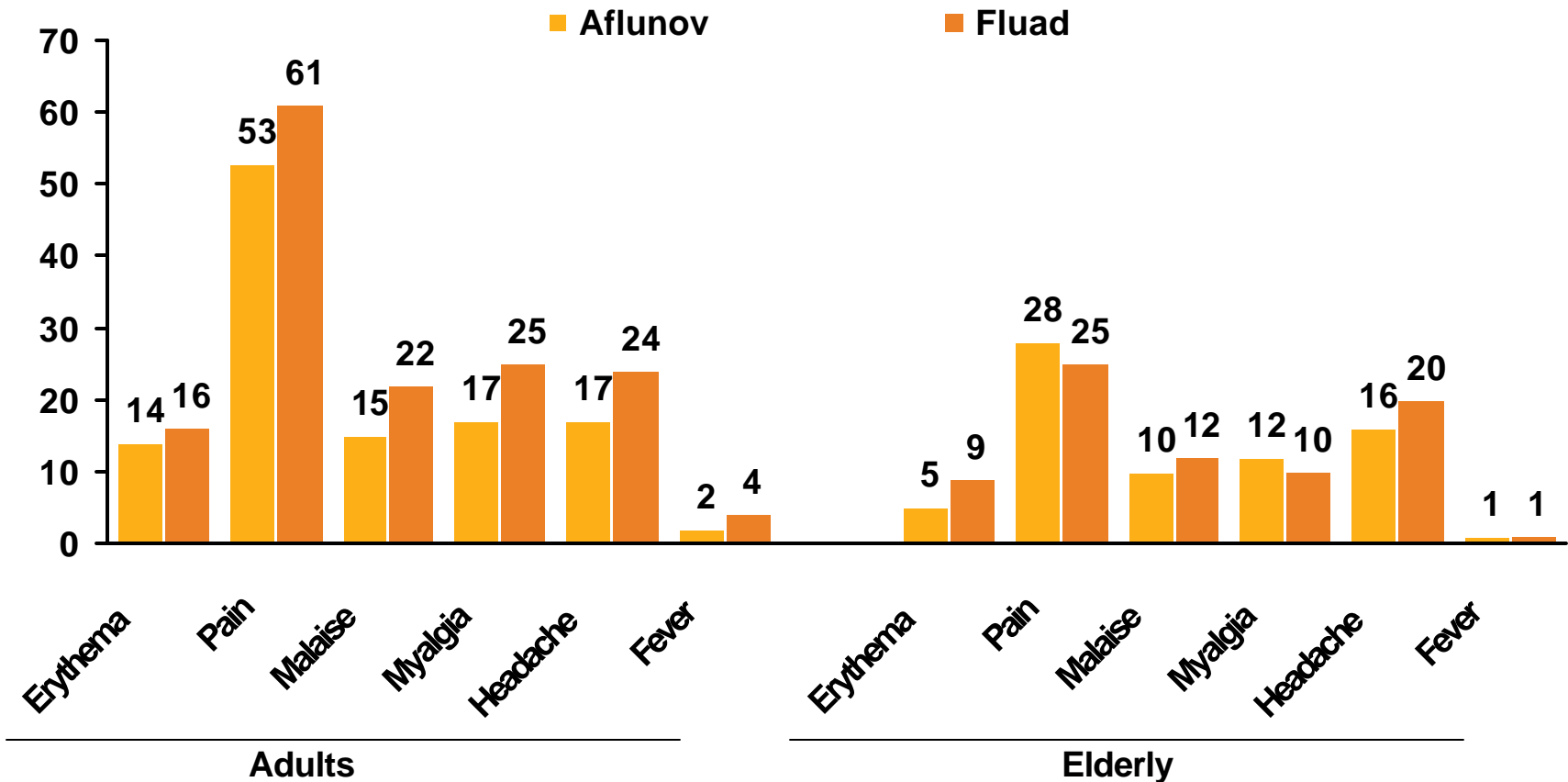


Aflunov is on track for regulatory decision in 2007

- Aflunov is a vaccine for H5N1 strain influenza, designed to be used before a pandemic occurs
- Aflunov was submitted to EMEA on 6 November 2006
- EU regulatory decision expected in 2008
- 5 200 patients in clinical trials to date

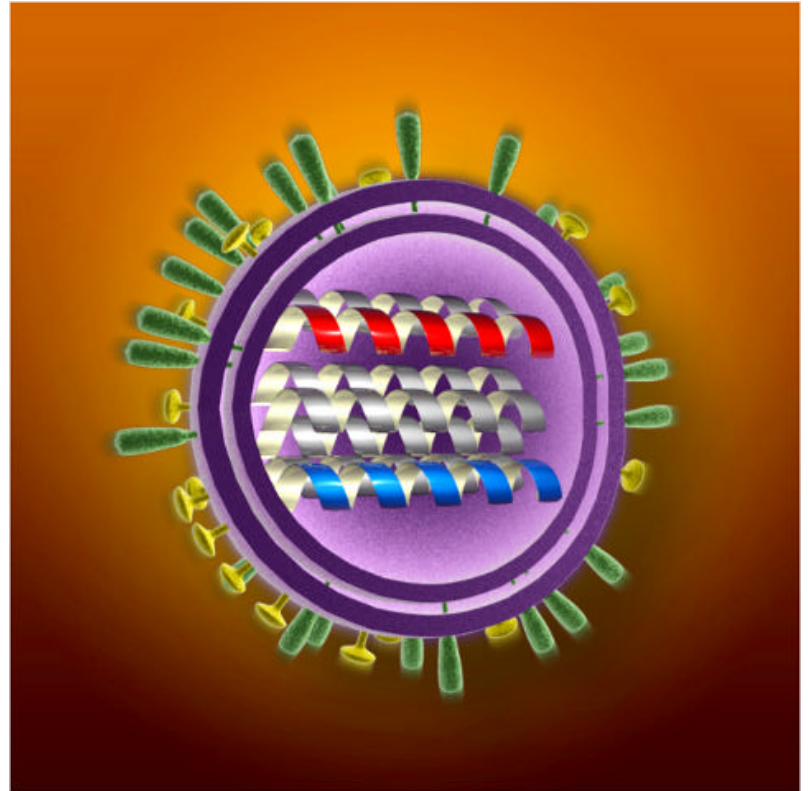
In Phase II, Aflunov showed tolerability comparable to Fluad

Percent of subjects experiencing a side effect after the 1st dose



Pandemic influenza vaccines could be attractive for multiple customers

- Three customer groups may be buyers for H5N1 vaccines
 - Governments
 - Businesses
 - Private individuals
- Novartis is pursuing all three
 - USD 228 mn worth of stockpiles ordered from governments to date
 - Registration of Aflunov being pursued to open up business & private sales



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Meningococcal disease – severe in its impact



- Cause of meningitis and/or sepsis
- Rapid disease course
- Mortality ~10% despite treatment
- Affects previously healthy persons
- Long-term physical sequelae (limb loss, hearing loss, others) ~11-19%
- Occurs in outbreaks and epidemics
- B strain most common

Meningitis vaccines will target infants & adolescents

MenACWY expected to achieve universal pediatric mass vaccination in the US and some EU countries

MenB vaccines expected to be recommended in both US and EU

US birth cohort: 4.1 mn individuals

EU birth cohort: 7.3 mn individuals

A MenACWY vaccine is already recommended for universal vaccination at 11 years old in the US

Potential for selective vaccination in some EU countries

US 11 year olds: 4.2 mn individuals

EU 11 year olds: 8.0 mn individuals

Meningitis vaccines on track to complete key milestones in the next six months

- Meningitis ACWY vaccine, Menveo
 - Phase III adolescents on track for completion in 2007
 - Plan EMEA and FDA submissions by mid 2008
 - Phase III infants recruiting, regulatory submissions planned for 2009
- Meningitis B vaccine
 - Phase II infants to complete in 2007
 - Phase III planned to start in 2008

Tick borne encephalitis is a viral disease endemic to central Europe

- Occurs in central Europe and Asia
- Caused by a flavivirus, related to yellow fever and dengue
- Can cause a devastating brain inflammation
- Individuals working or recreating outdoors are the at risk group
- Children are particularly at risk



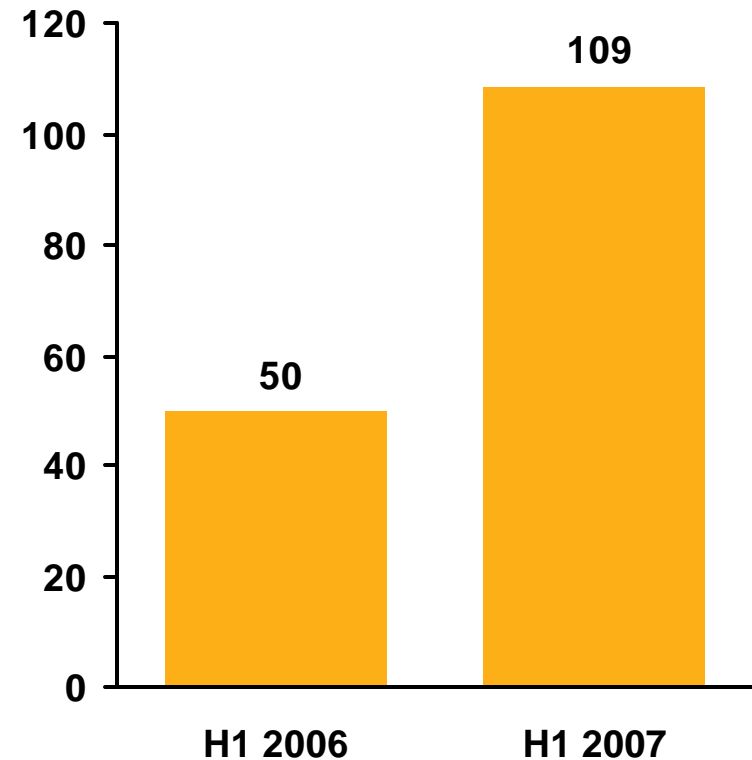
Novartis sells a TBE vaccine, Encepur, in Germany, Austria, and other countries

- Encepur is registered in 18 countries
- The major markets today are Germany & Austria, with good growth coming from Switzerland and Eastern Europe
- The Novartis vaccine, Encepur, is indicated for use in adults and children

Sales of tick born encephalitis vaccine are growing rapidly

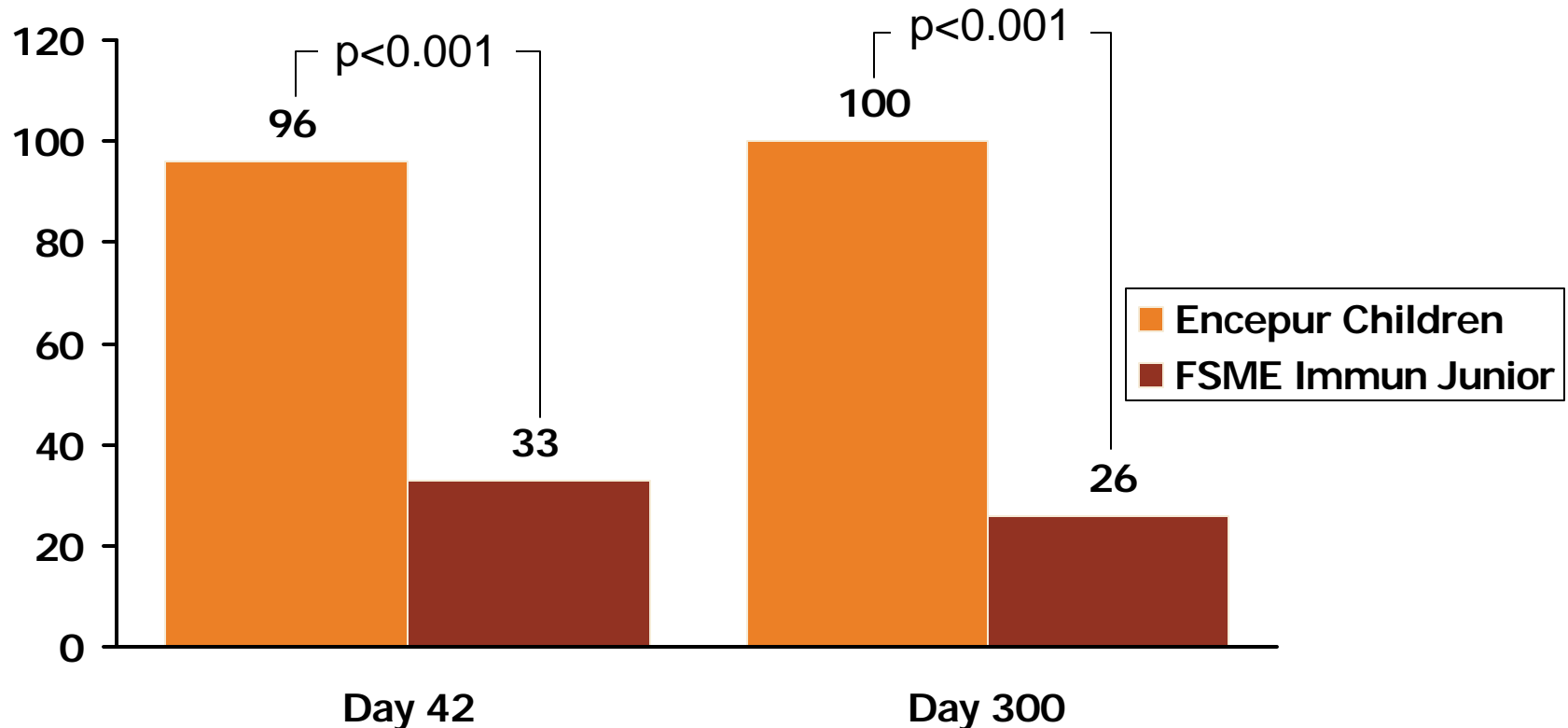
- The TBE vaccine market is growing rapidly
- Media campaigns and government recommendations driving awareness and uptake

Encepur sales
USD in mn



Recent clinical data showed that the Novartis vaccine is more immunogenic in children

Comparison of Encepur Children and Baxter FSME Immun Junior
% of vaccinees with protective antibody titers at 42 and 300 days after vaccination on Day 0 and Day 28



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The pipeline will be strengthened through a long term partnership with Intercell

- Unique alliance that will give Novartis access to >10 pre-clinical and early stage projects
- Eligible candidates include IC43 for prevention of hospital-acquired pseudomonas infections and IC47 for prevention of pneumonia infections
- Alliance gives exclusive rights to further develop IC31 adjuvant in influenza – designed to enhance effectiveness
- Novartis to assume responsibility for Phase III development, manufacturing and commercialization for any projects chosen after Phase II trials

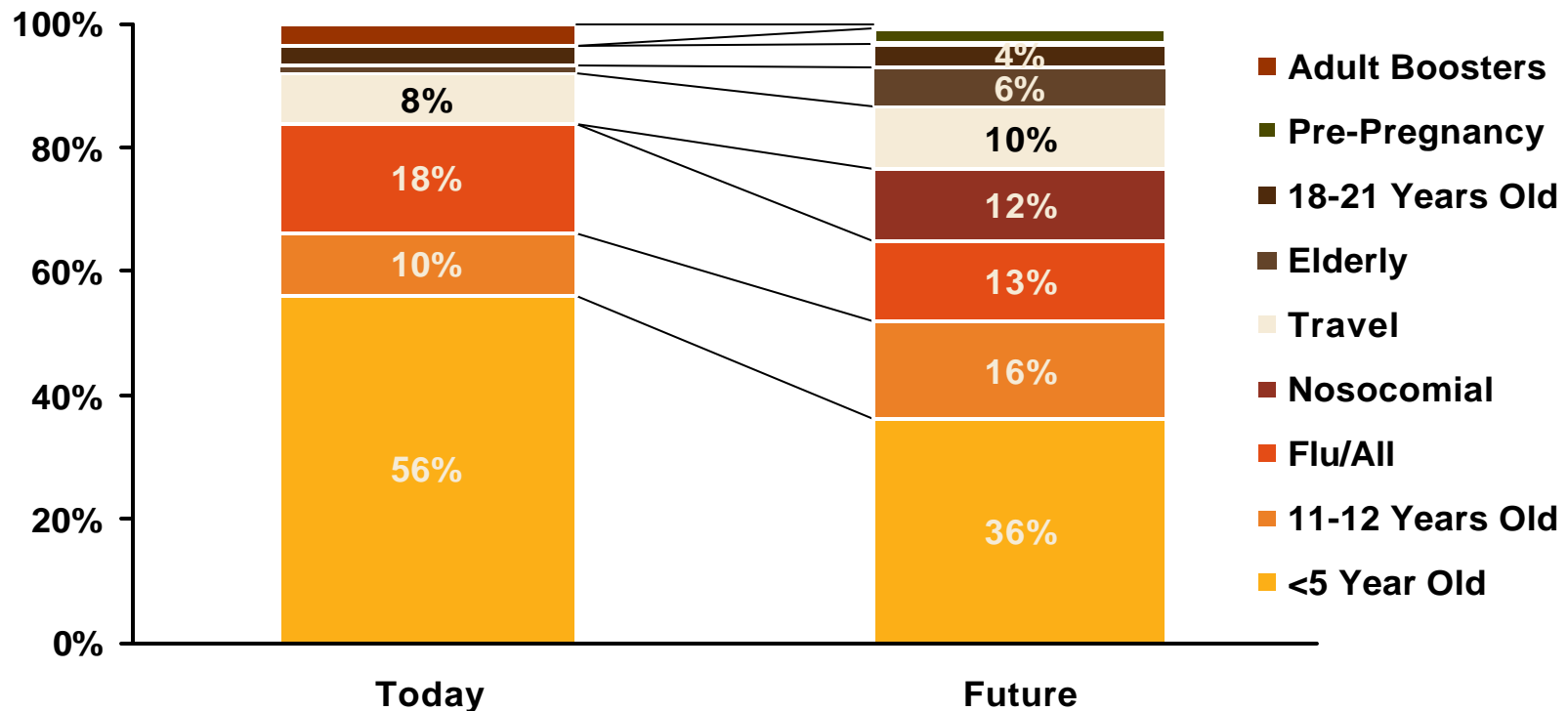
Intercell vaccines pipeline has many attractive programs

Preclinical		Phase I	Phase II	Phase III	Registration
Candida	S pneumo	Tuberculosis (SSI)	Pseudomonas		Japanese Encephalitis (Novartis)
Chlamydia	Group B Strep	S aureus (Merck)	HCV		
Otitis Media	Traveller's diarrhea				
Klebsiella	H pylori				
Borrelia	Enterococcus				
Bacterial (Sanofi)	Group A strep (Merck)				

 Novartis has option to develop
 Other programs

Intercell projects have potential to help drive an important shift in vaccine use

Current and long term future categories of vaccines
% of global sales



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Conclusions

- Influenza franchise continues to be a good source of growth in the short term
- Meningitis products have strong potential to drive sales in the future
- Early stage projects and Intercell give access to new populations which have not been vaccinated so far