

Epidemiology of JE in Nepal

- Japanese encephalitis (JE) was first reported in Nepal in 1978
- There were 29,877 cases and 5,589 deaths from 1978 to 2012
- Case fatality was 18.7%
- 60% of total cases were children less than 15 years
- 2,924 cases and 434 deaths due to JE in Nepal in 1999 (Highest prevalence recorded year)

Epidemiology of JE in Nepal

- 79% of JE cases were from 24 districts of Terai and 21% cases were from 38 districts of hill and mountain
- Epidemic occurs in rainy season June – September and remains peak in August
- JE case distribution by gender or male to female ratio was 3:2

Cont...

- Prevalence of JE in pig was 61%, in duck 26.79% and in horses 50% % (Pant *et al.*, 2006).
- JE surveillance in Nepal was started in 2004 (Child Health Division, 2013)

JE vaccine recommended for

- All children under 15 years age in endemic countries
- All population at risk
- Laboratory persons who work with JE virus
- All travelers 17 years of age and older spending more than one month in endemic countries (CDC, 2010)

(<http://www.cdc.gov/Features/TravelProtection/>)

Why JE vaccine was introduced in Nepal?

- High prevalence and case fatality of JE (Joshi, 1983), (Bista and Shrestha, 2005), (Pant *et al.*, 2006),
- Incidence of JE in 54 districts from terai 80 m (Akiba *et al.*, 2001) to high hill 2000 m (Bhattachen *et al.*, 2009),
- Traditional pig husbandry and spending most of time in rice paddy field (Solomen *et al.*, 2006),

Why JE vaccine was introduced in Nepal?

- People work in fields during season and time of high mosquito activity.
- Socio culture activity of ethnic group (pig husbandry by tharu and magar society)
- Epidemiological information suggested (EDCD, 2003) vaccine in Nepal to control JE (Pant *et al.*, 2006).

JE vaccine in Nepal

- JE vaccine first introduced in 1999 (EDCD, 2003) and then 2006 (Joshi, 2009) as campaign
- Live attenuated SA 14-14-2 Japanese encephalitis (JE) was used
- Regular vaccine: Children 12-23 months old
- Vaccine campaign: All person above 1 year
- Vaccine schedule: single dose, 0.5 ml, SC
- From 2006 to 2009, a total number of 8,266,250 (74%) out of 11,202,173 targeted people were vaccinated in 23 endemic districts

JE vaccination program 2012/13



JE vaccine in Nepal

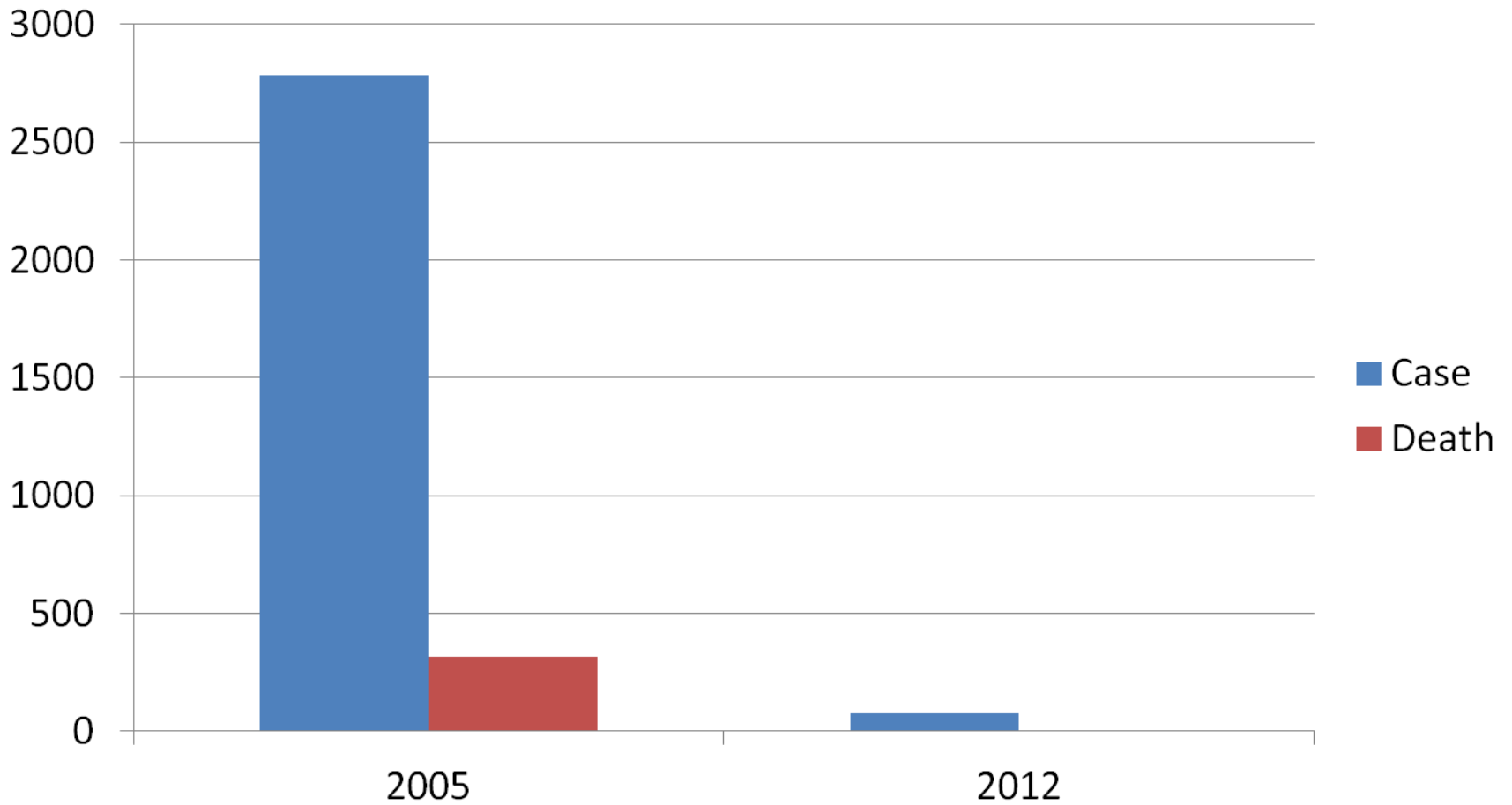
- Currently 31 districts have JE vaccination program in FY 2012/2013
- 418, 244 children of 12 to 23 months old were targeted to be vaccinated in 2012/2013
- 88% of targeted children were vaccinated in 2012/2013
- 251,172 children were targeted to be vaccinated in 2013/2014

(Child Health, Division, Department of Health Service, 2014)

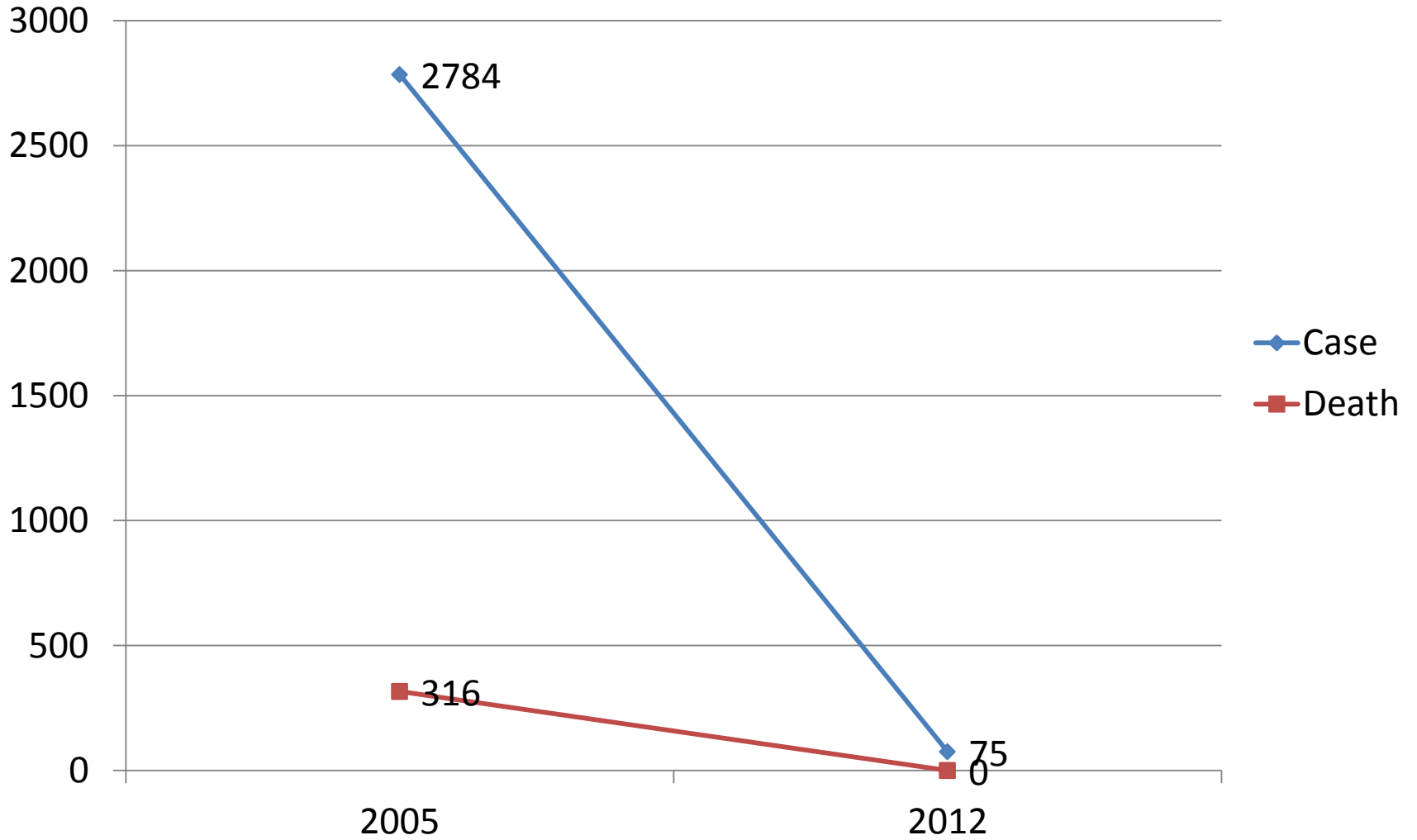
Impact of vaccine program

- The incidence of JE and acute encephalitis syndrome (AES) was reduced by 72% and 58% respectively in Nepal after mass vaccination run from 2006-2009 (Upreti *et al.*, 2013)
- Number of cases and death of JE was 2,784 and 316 respectively in 2005 (EDCD, 2005), which was 75 and 0 respectively in 2012, after vaccination (Division of Child Health, 2012)

Impact of JE vaccination



Trend of cases and death from JE



JE vaccine in pigs

- At first 45,213 pigs were vaccinated with JE live virus vaccine in 2001 (CVL, 2004)
- DLS started vaccination in pigs in 2007/2008 in 6 endemic districts (Kanchanpur, Kailali, Bardiya, Banke, Morang and Jhapa)
- 1,000-2,500 pigs were vaccinated annually till 2012/2013.
- Chicken embryo live Japanese encephalitis (CAVAC) was used.
- Impact study was not conducted.
(Central Pig and Poultry Promotion Office, 2013)

Conclusion

- Vaccination program has been proved as an effective tool to control JE in human in Nepal

Suggestion

1. Efficacy of vaccine can also be studied by serological test (C-ELISA) to know sero conversion in vaccinated people/animals
3. Production of JE vaccine in country as CBPL and RVPL have facility of cell culture vaccine
4. Mass vaccination to susceptible population and pigs in high risk area.
5. Public awareness program to control JE.
6. Collaboration with international organization on research study.

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Thanks for your attention

