

Propojení výuky oborů Molekulární a buněčné biologie a Ochrany a tvorby životního prostředí OPVK (CZ.1.07/2.2.00/28.0032)

POLIO ERADICATION HINGES ON CHILD HEALTH ON PAKISTAN

Nature, 16 July 2014

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BASIC INFORMATION

- *Poliovirus (Picornaviridae)*
- 90-95% - no symptoms
- 5-10% - fever, headache, vomiting, diarrhoea, neck stiffness, pains in the arms and legs
- 0,5 % - muscle weakness resulting in a inability to move
- Spread from person to person through infected faeces entering the mouth
- Polio vaccine
- In 2014 - Afghanistan, Nigeria, Pakistan



SITUATION IN PAKISTAN AND IN OTHER PROBLEMATIC AREAS

- In 1988 - 350 000 people in 125 countries became paralysed by the virus.
- In 2013 - 406 cases, and 160 of them in Afghanistan, Nigeria, Pakistan



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INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

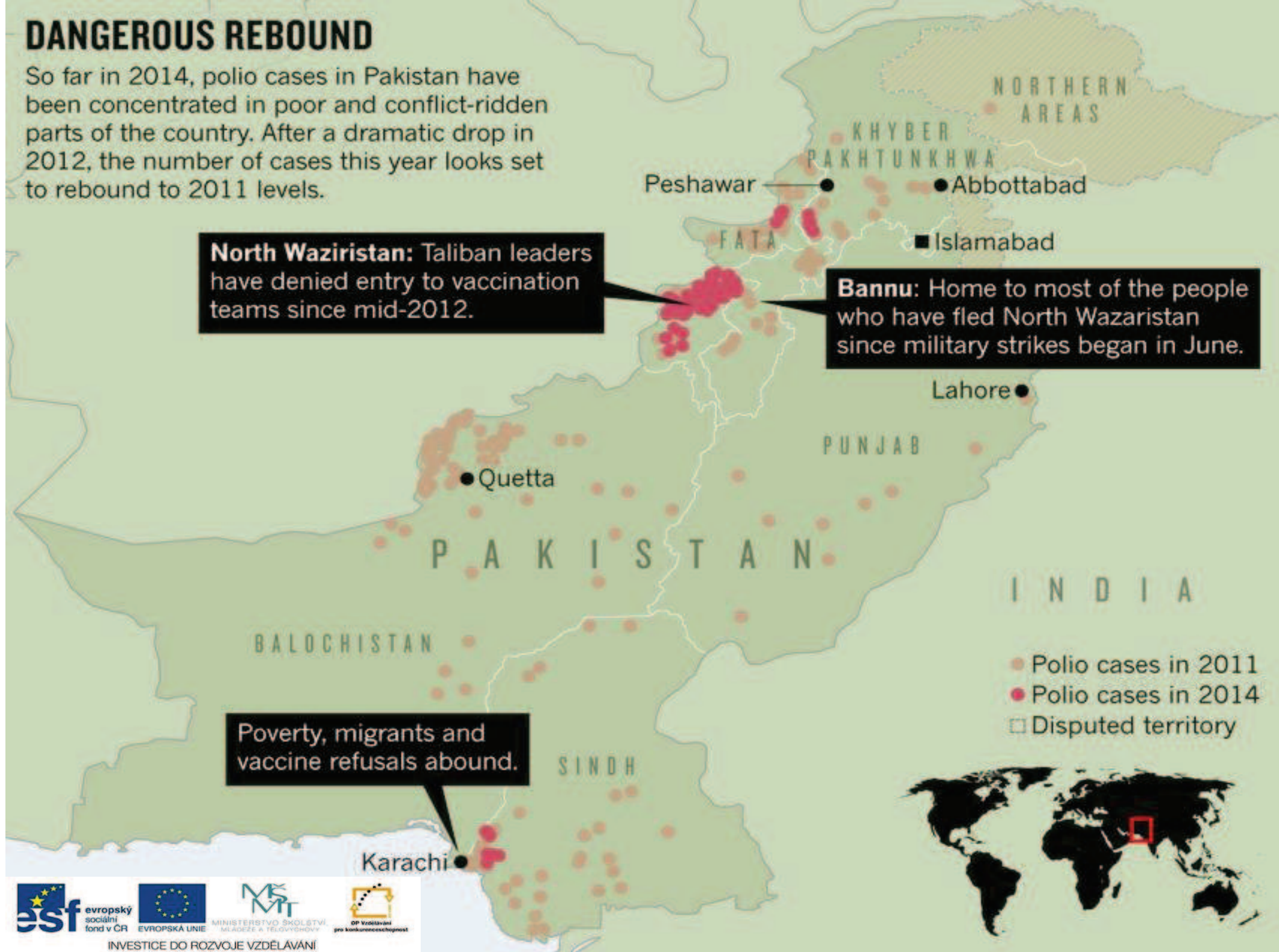
- The World Health Organization (WHO) developed a 6-year plan to eradicate polio.
- Mandatory polio vaccination for everyone travelling to or from Pakistan, Syria, Cameroon.



- Analyses in the past few years show that symptoms-free adults transmit polio at surprisingly high rates.
- Cases of polio in Pakistan increased from 18 in the first six months of 2013 to 88 in first half of 2014.
- Of these, 75% cases were in regions known as the Federally Administered Tribal Areas (FATA).

DANGEROUS REBOUND

So far in 2014, polio cases in Pakistan have been concentrated in poor and conflict-ridden parts of the country. After a dramatic drop in 2012, the number of cases this year looks set to rebound to 2011 levels.



- Since mid-June (2014) the situation has worsened.
- 800 000 people from Waziristan in FATA have been displaced to neighbouring parts of Pakistan and Afghanistan.
- Instead of focusing on the vaccination of international travellers in Pakistan, the WHO and immunization services should provide immediate health care to displaced families and others in these high-risk areas.

PRECIOUS DOSES

- Mandatory polio vaccination at major entry and exit points in FATA.
- More than 10 million doses are needed just for air travellers each year.
- Some 300 million doses of oral polio vaccine furnished by UNICEF are needed annually to vaccinate young children.
- The donor community has provided 200 000 doses of injectable polio vaccine do refugees.

POLIO VACCINE

- Adults must buy polio vaccine - 4.30 \$. (Their average monthly income is about 100 \$ → huge expense.)
- Newspapers report that getting a vaccination certificate is as difficult and expensive as getting a visa.
- Industry of fake certification emerge.



◉ Author of the article, Bhutta says:

„I travelled out of Karachi airport on 6 and 15 June. Although vaccination counters had been set up, I saw no queues of travellers waiting to receive polio vaccines, and no one asked me for a vaccination card at any of the multiple checkpoints.“

ANTI-WESTERN PROBLEM

- Anti-western sentiment has led to repeated attacks on polio-radication workers, volunteers and security personnel.
- More than 80 have been killed since December 2012. In March 2014 a Pakistan polio worker was kidnapped and shot.



- ◉ International Islamic scholars → polio eradication but noc support.
- ◉ But the Taliban do not actively keep children from being immunized for measles or from receiving care for diarrhoea or malnutrition.
- ◉ Currently Pakistan has one of the highest rates of child mortality in South Asia.

- In a household survey conducted last year was found that 25% of children under 5 years in the urban slums of Karachi were not vaccinated for any childhood disease, the same true for 64% of children in a relatively peaceful district of the FATA.



○ Zulfiqar Ahmed Bhutta says:

„The time to act is now. It is largely here that the final battle to eradicate polio from the world will be won or lost.“



THANK YOU FOR YOUR ATTENTION!



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Human evolution

The Neanderthal in the family

Daniela Staňková

Nature 26 March 2014 Callaway

Study of ancient DNA

- Quagga
 - The last died in 1883
 - 140 years old muscle
 - Distinct from mountain zebra



The battle against time

- Long strands get shorter
- DNA munching enzymes
- Low temperature – slowing the process
- Short segments contain little information

Old horse leg

- 560 000 – 780 000 years old horse leg
 - Found in 2003
 - Put into freezer
 - Waiting for technological improvement
 - Sequenced in 2010



Statistic

- Studies of modern population
- Native Americans and Europeans
- Ghost population
 - Ancestors of both groups



Mal'ta boy

- 24 000 years old remains
- Found in siberian village



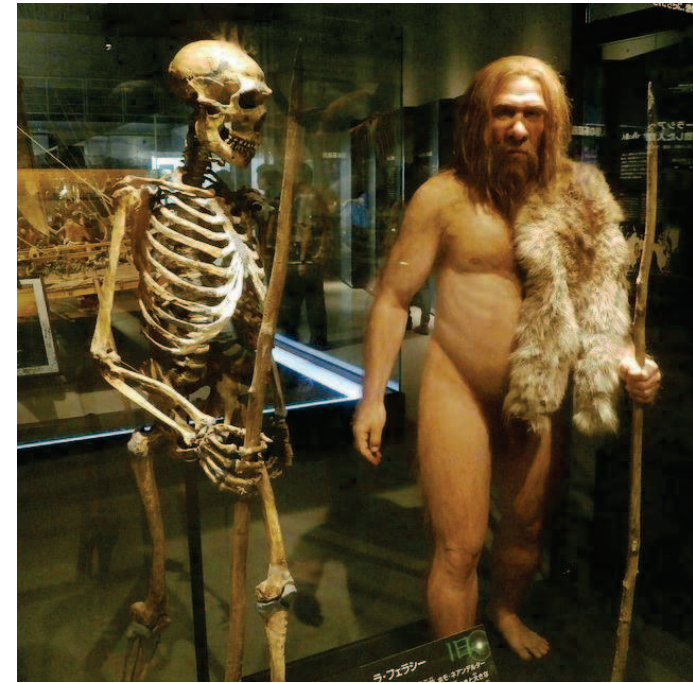
Neanderthal

- Extinct species of human
- Existed in Eurasia
- 370 000 years ago



Anathomy

- More robust
- Large nose
- Reduced chin
- Stronger
- Red, blond hair, light skin
- Cranial capacity



Extinction

- 41 000 years ago
- Homo sapiens sapiens in Europe 45 000 years ago
- Existed 2 hypothesis
 - Climate, interactions
 - Bred with humans



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Neanderthal within

- Neanderthal sequence has been released
- No need to have bones
 - Parts of genome in population
 - 20 -40 % of the Neanderthal genome (hundreds of humans)

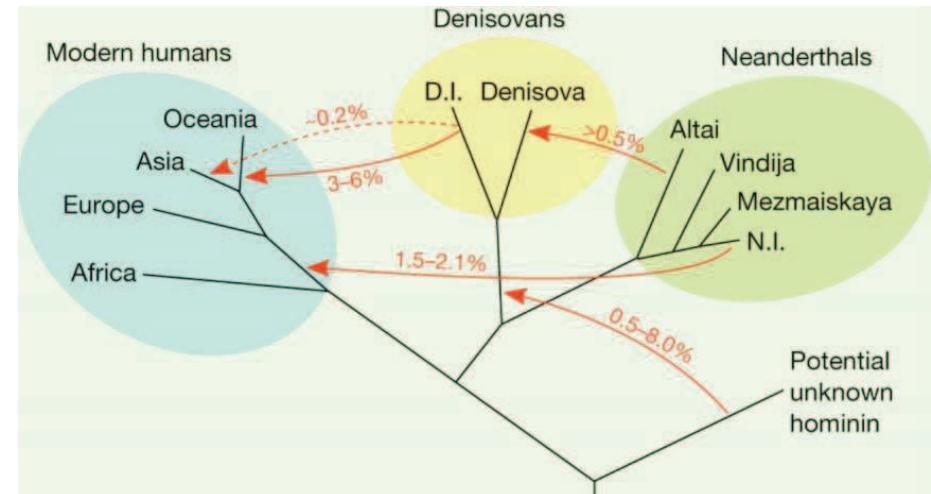
Neanderthal genome

- Genes involved skin and hair (adaptation)
- Some genes may be harmful
 - FOXP2



Asians and Europeans

- East Asians slightly more Neanderthal DNA than Europeans
- Two occasions
 - Ancestors of Eurasians
 - Ancestors of East Asians



Other extinct species

