

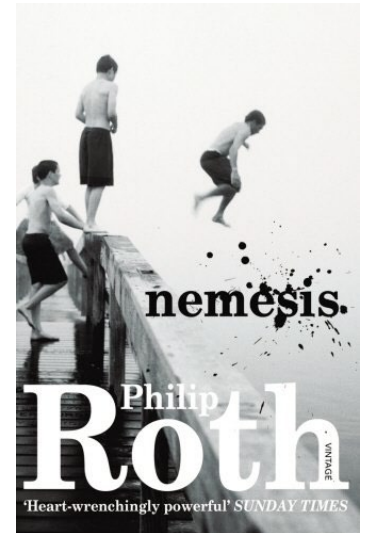
Polio: Clinical Features

Dr Jonathan Cohen

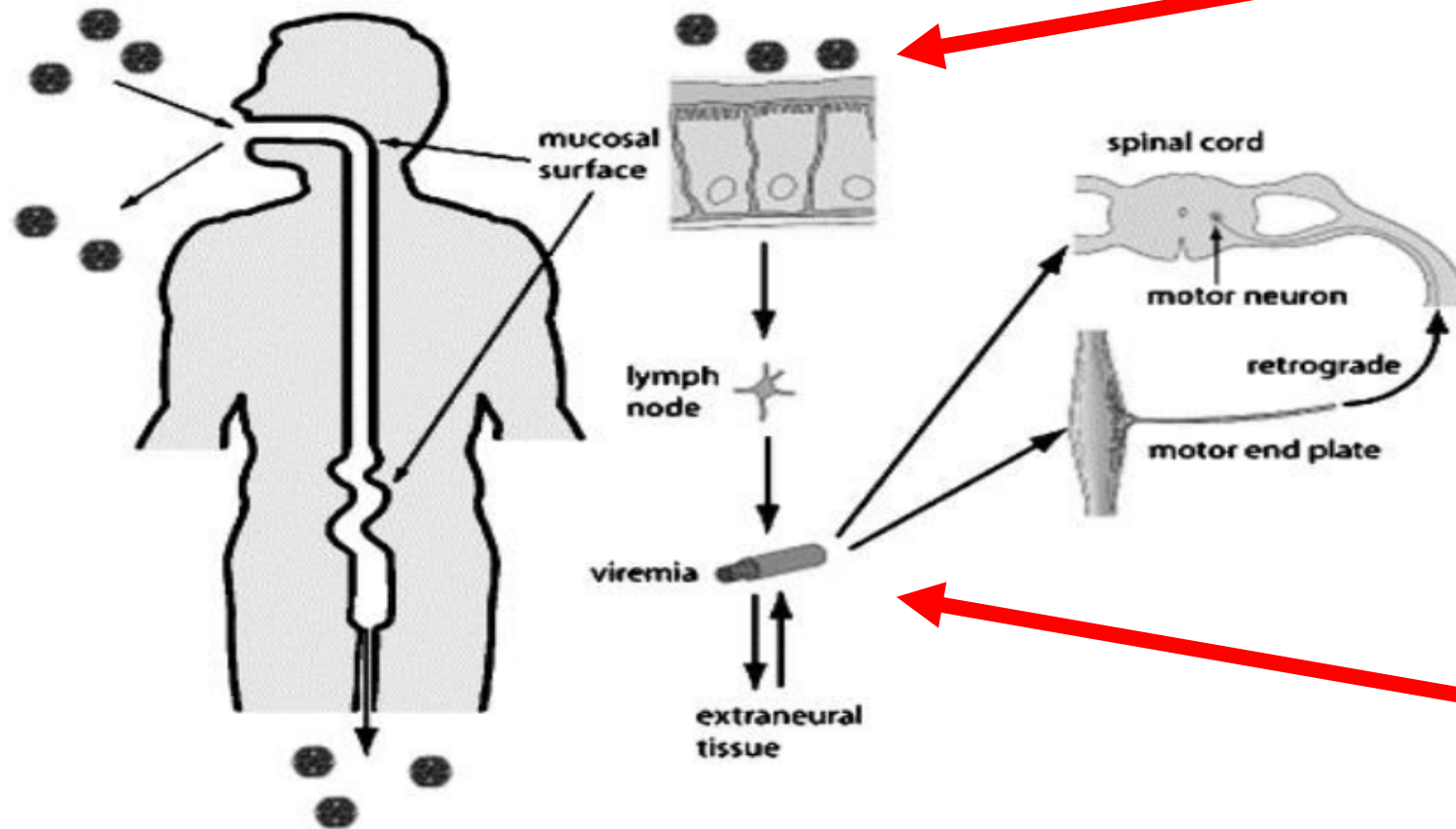
Head of Service, Paediatric Immunology & Infectious Diseases
Evelina London Children's Hospital

Polio - overview

- 3 serotypes of enterovirus can cause polio
- Higher risk to young children and adolescents
- Approximately 1:200 develop irreversible paralysis
- 10% of those paralysed will die
- No cure
- Preventable by immunisation



Poliovirus infection – pathogenesis



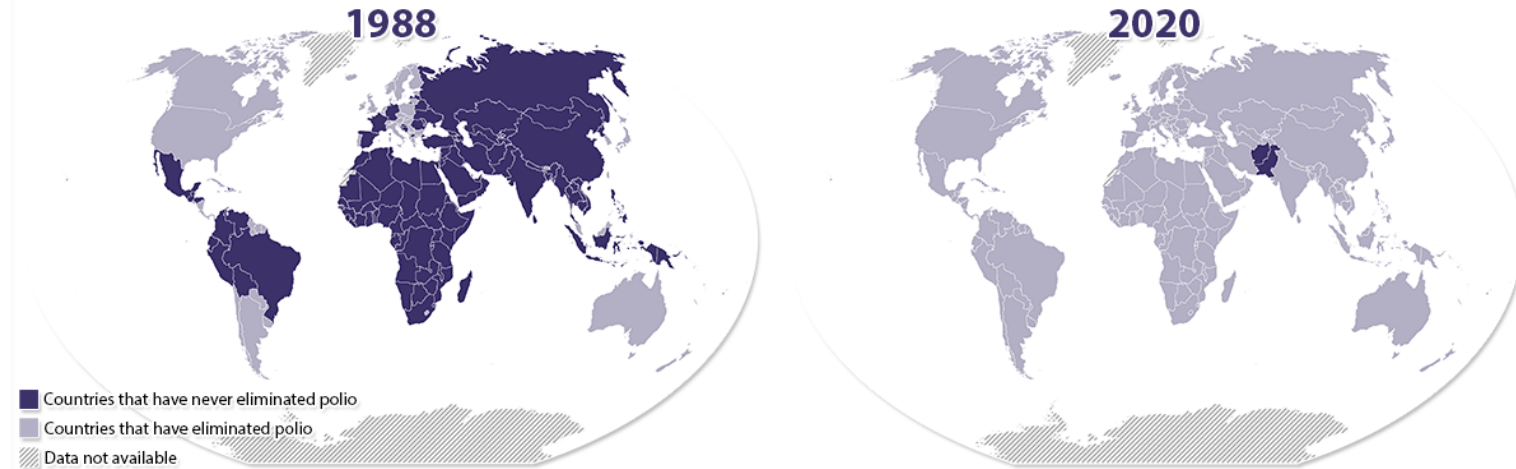
Oral polio vaccine blocks intestinal infection



Inactivated polio vaccine blocks nervous system infection

Its not over till its over – Global picture

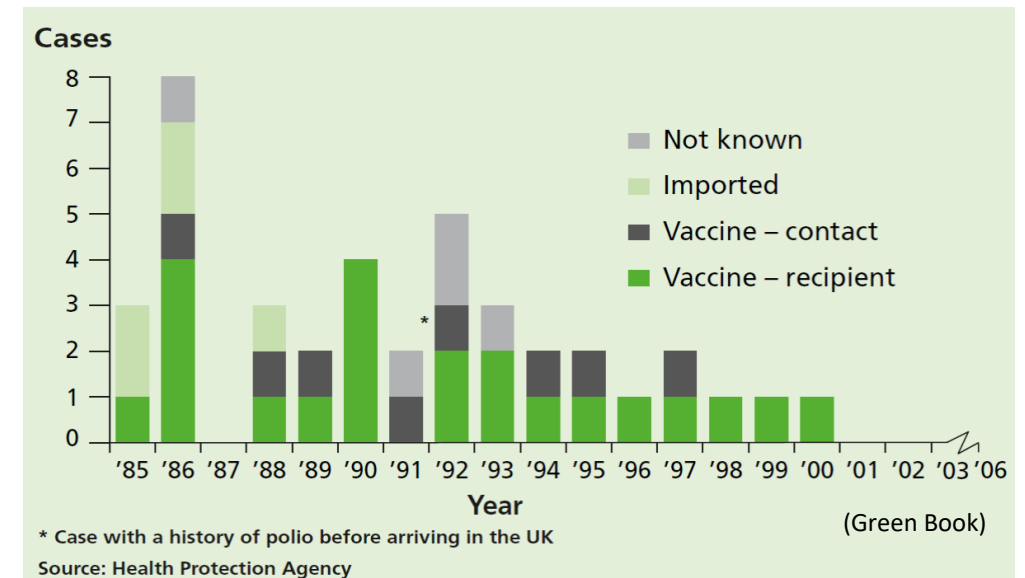
- 1988 350,000 cases
- 1999 Wild-type 2 eradicated
- 2012 Wild-type 3 eradicated (last case Nigeria)
- 2017 22 cases (99% reduction)
- 2022 Wild-type 1 persists
 - Pakistan and Afghanistan



Oral polio vaccine – overwhelming benefits

- Since 2000
 - 10 billion doses given to 3 billion children: **13 million cases prevented**
 - Very rarely causes paralytic polio (vaccine-associated paralytic polio)

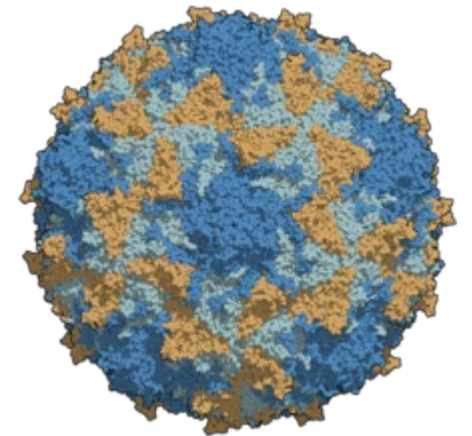
- OPV is excreted and can infect others
 - Persists longer in immunocompromised
 - Spreads in low immunisation population
 - Genetic changes: can revert to virulence
 - Requires many months of circulation



- Circulating vaccine-derived poliovirus (cVDPV)

Circulating vaccine-derived poliovirus (cVDPV)

- Clinical disease indistinguishable from wild-type
- Approximately 1 case per 3 million vaccine doses
 - 24 cVDPV outbreaks – **760 VDPV cases**
 - Contained with targeted high quality immunisation campaigns
- Switch to IPV (e.g. UK in 2004)
 - Risk-benefit shifts in highly immunised population
 - Prevents paralytic polio
 - Limited gut immunity



Acute flaccid paralysis / Acute flaccid myelitis

- Viral prodrome - URTI / GI / systemic
 - May be followed by several days without symptoms
- Paralysis: flaccid, hyporeflexic
 - Limbs often asymmetrical
 - Head, neck and trunk
 - Sensory symptoms as it develops
 - Bowel and bladder dysfunction
- May be preceded by headache / neck stiffness



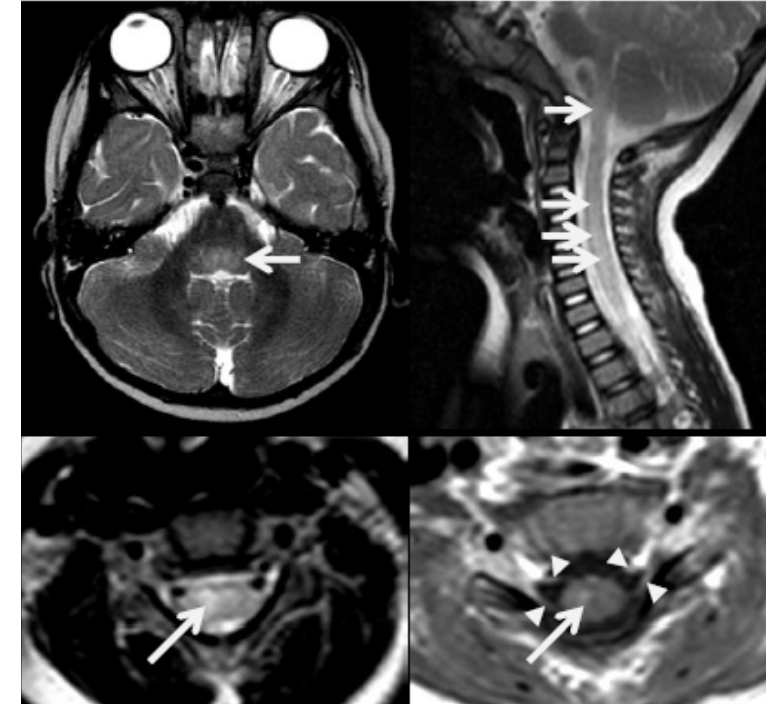
When to suspect

- Rapid onset weakness especially after possible viral illness
- Test proximal muscle and axial weakness and cranial nerves
- Early referral to neurology and infectious diseases
- Refer to ITU for respiratory and autonomic support



Investigations

- MRI brain and spinal cord
 - Grey-matter T2 hyperintensity
 - Spinal cord oedema
 - Longitudinally extensive lesions
 - Non-enhancing
- Neurophysiology
- Lumbar puncture
 - Pleocytosis
 - Viral PCR and typing
- Virology
 - 2 stool samples
 - Throat swab / NPA
 - CSF (if available)



Send samples via virology to UKHSA



UK Health
Security
Agency

Clinical management of acute flaccid paralysis (AFP) or acute flaccid myelitis (AFM)

Information for health professionals

22 October 2021