

Module 3: What About Polio – Lesson 1

Confident Parents – Intelligent Leaders – Articulate Activists

Key points:

- There were six types of polio infections
- **96%** of all polio infections were mild or asymptomatic
- **1946 to 1959:** National Foundation for Infantile Paralysis (NFIP) listed a total of 1,211 iron lung machines were in use across the US
- **1959:** The population of the US was around 180,000,000
 - **2015:** The number living persons still using an iron lung = 8
- Dr. Betty Eddy
 - **1955:** Found live viruses in polio vaccines; could have avoid the Cutter Incidence
 - **1959:** SV40 found to cause tumors when injected into animals
 - **1962:** Her investigations were reproducible. Others voiced concerns about the SV40 virus in the polio vaccines
 - **1963:** The Fraumani study, filled with design flaws
- **1951:** Were pesticides, especially DDT, responsible for acute flaccid paralysis?

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What is polio?

- Poliovirus is a member of the Enterovirus subgroup
- The Enteroviruses are transient inhabitants of the gastrointestinal tract.
- There are three poliovirus serotypes (P1, P2, and P3).

Types of polio infections

- **Asymptomatic: Up to 72%**
 - A person can be infected with a poliovirus and have only mild gastrointestinal symptoms or *no symptoms at all*.
 - Recovery in 24-72 hrs.
 - **Life-time immunity**
 - **REFERENCE:** The CDC Pink Book, 13th Edition, Chapter: Poliomyelitis <https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html>
- **Abortive polio: Approx. 24%**
 - Indistinguishable from any other viral illness or even food poisoning
 - Symptoms: Slight fever, malaise, headache, sometimes diarrhea
 - Complete recovery in less than a week
 - **Life-time immunity**
 - **REFERENCE:** The CDC Pink Book, 13th Edition, Chapter: Poliomyelitis <https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html>
- **Non-paralytic poliomyelitis: ~3%**
 - Referred to **aseptic or viral meningitis**, onset up to 14 days after recovery of minor viral illness
 - Symptoms: High fever, severe headache, stiff neck, numbness/tingling in extremities, asymmetrical limb weakness
 - Symptoms last 2-10 days
 - Complete recovery in weeks to months
 - **Life-long immunity**
 - **REFERENCE:** The CDC Pink Book, 13th Edition, Chapter: Poliomyelitis <https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html>

- **Paralytic Polio: Less than 1%:**
 - Diagnosis: Acute flaccid paralysis, it was **RARE**
 - Asymmetric paralysis progressed over 1-2 weeks
 - **Three types of possible paralysis** – based on 1969-79 data
 - 79% - Spinal (most common)
 - 19% - Spinobulbar
 - 2% - Bulbar
 - **REFERENCE:** The CDC Pink Book, 13th Edition, Chapter: Poliomyelitis
- **DO THE MATH:** 21%; then $0.21 \times 1\% = 0.0021\%$ of all polio infections had an element of paralysis
- Aftermath of acute flaccid paralysis:
 - More than 50% had **complete recovery**
 - Functional losses could improve for over a two year period
 - However, the amount of functional loss that was present about 1 year from onset was usually permanent
 - **REFERENCE:** The CDC Pink Book, 13th Edition, 2017. Chapter: Poliomyelitis <https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html>

SUMMARY

- Asymptomatic -- 72%
- Abortive poliomyelitis – 24%
- Non-paralytic poliomyelitis – ~3%
- Paralytic poliomyelitis - **less than 1%**
 - Spinal – 79% **of the 1%**
 - Spinobulbar – **19% of the 1%**
 - Bulbar – **2% of the 1%**

TABLE: US: 1937-1950, total cases of polio, paralytic and non-paralytic
Source: Post-Polio Health International, Vol. 15, No. 4 Fall 1999

PICTURE: How many times have we seen pictures like this...and it has been labeled as “polio.”

- What if these were congenital anomalies?
- AFP caused by another virus?
- Caused by environmental toxicities such as depleted uranium or pesticides?
- What if other similar pictures were caused by a traumatic injury ...or active war?

Iron Lung Machines

- **1830s:** First mechanical breathing devices
- **1928:** First called the “iron lung” machine
 - When pressure **DECREASES**, the lungs expand, resulting in inspiration
 - When pressure **INCREASES**, the lungs are compressed, resulting in expiration
- **1946:** National Foundation for Infantile Paralysis (NFIP) listed a total of 1,211 iron lung machines were in use across the US
 - **REFERENCE:** The Iconic Iron Lung and Polio Survivors in the USA. Joan L. Headley, PHI Executive Director, St. Louis, MO <http://www.post-polio.org/edu/pphnews/PPH30-1win14p3-5.pdf>

60 Years of Iron Lung Use

- **1959:** Approximately 1,200 people in the U.S. relied on iron lung machines to passively move air in and out of lungs due to muscles weakened by a bulbar or spinobulbar polio infection.

- In 1959, US population =183,000,000
- **1970:** J.H. Emerson stopped manufacturing their model of iron lung that was originally manufactured in 1931. The exact number manufactured is not readily known
- **2004:** About 39 people still using iron lungs in the US. Parts to service the J.H. Emerson iron lung were becoming increasingly difficult to find.
- **2015:** The number still alive and using the device had dwindled to 8 persons.

The Polio Vaccines

- **1955: The Salk Vaccine**
 - It was released on the anniversary of FDR's passing, April 12, 1955
 - Salk - Inactivated (killed), injectable polio vaccine (IPV).

What's in the Injectable Polio Vaccine (IPV)

- Three viral antigens: Type 1, 2 and 3
- Formaldehyde
- 2-phenoxyethanol
- Fetal bovine serum (0.05 mcg)
- VERO cells from kidneys of African green monkeys
- Neomycin, streptomycin and polymyxin B

The Tale of Polio Contamination: Bernice Eddy, PhD (1903–1989)

- **1955:** Dr. Betty Eddy and her team discovered two of the eight released lots **contained live polio virus.**
 - She pleaded with the NIH to halt the campaigns until this could be further investigated.
 - Her findings were never reported to the Presidential Advisory Committee. The contaminated vaccines were released and sickened at least 40,000 children.
 - Of these, 164 were permanently paralyzed and 10-12 children died.
 - **REFERENCE:** Nathanson N, Langmuir AD. "The Cutter Incident. Poliomyelitis following formaldehyde-inactivated poliovirus vaccination in the US during the spring of 1955. II. Relationship of poliomyelitis to Cutter Vaccine." Am J Hygiene. **1963**;78:29-60. PMID: 14043545

The Cutter Incident

- Cutter and Wyeth both released contaminated vaccines. However, the lawsuits involved mostly Cutter.
- The company became the "scapegoat" for the increased rate of polio reported nationwide after the vaccine was released.

Further Problems with Polio Vaccines

- **1959:** Removed from polio research, Dr. Eddy began researching cancer. She also conducted her own polio safety studies.
 - VERO cell cultures into hamsters, 70% of the **animals developed tumors.**
 - The virus isolated by other viruses was named SV40
 - Dr. Eddy recommended that the vaccination program be immediately stopped until more safety research could be done
 - NIH regarded her as a threat to the new cornerstone of public health policy

Further Problems with Polio Vaccines

- **1962:** Her investigations were reproducible. Others voiced concerns about the SV40 virus in the polio vaccines

- No recall was issued.
- ***Between 1955 and 1963: 98 million Americans had received the contaminated Salk polio vaccine***
- **1963:** In response to concerned scientists, the NIH director designed a study, **led by Dr. JF Fraumani** to determine if there had been any statistically significant rise in cancer in children who had been vaccinated in 1955.

Fraumani Study Flaws

- Children were only followed for 4 years; SV40 cancers can take many years to develop
- Only cancer deaths —***not cancer diagnoses***— were included, meaning, children diagnosed with cancer but still alive at the end of the study were not part of the statistics
- Only three types of cancers were surveyed: **brain, kidney and connective tissue**
 - Other cancers known to be associated with SV40 – **mesothelioma, leukemia, lymphoma and bone cancer** — were not included
 - Tissue samples were not analyzed; only medical reports
- **Flawed cohort assignment:** An assumption was made that none of the children had moved from state to state; without record tracking it was impossible to actually know who had received the vaccine and who had cancer

Fraumani is a typical “landmark study”

Published in JAMA and heavily promoted by government agencies and the budding vaccine industry, this study that “closed the case” on any possible connection between polio vaccines and cancer-causing viral contaminants.

Flawed “landmark studies” Have Become the “norm” with Vaccine Research

- Analysis of many published vaccination studies shows data to be inherently flawed or skewed, making the conclusions worthless at best; at worst, deceptive.
- Many “landmark” studies have misled the public into believing that vaccines are not a health threat
- The scientific community is misled into believing that no further research is necessary...and grant money dries up.

Chemical Poisoning and Acute Flaccid Paralysis

- **DDT:** Dresden in 1949 and Biskind in 1953 both described evidence that DDT poisoning resembled AFP
 - When tested on animals, DDT causes chronic effects on the nervous system that is similar to AFP
- **BHC** (benzene hexachloride) – 1945-1954 – caused paresthesias, incoordination, muscle weakness, difficulty walking
- **Lead and arsenic:** The compounds most used in pesticides used from 1940 to 1946 caused paralytic

Harmful effect of DDT fumigating

In the 50s, as soon as new products were discovered, they were marginally tested then released to farmers and the general public. In those early days, pesticides were thought to be harmless, except to pests. You may remember the phrase, “Better Living by Chemistry?” That was part of DuPont’s slogan since 1935. After all, the public could see the miracles happening before their eyes – with new chemical products.

DDT was thought to so harmless to humans that a popular advertising slogan in the 1940s and 1950s was, “DDT Is Good For Me-e-e!”

Very little was known about the potential problems caused by these miracle chemicals.... ***because the studies had not been done.***

DDT fumigation in the US reached its peak in 1951. By 1953, two years before the vaccine was released, the number of polio cases had dropped by nearly 40%, at about the same rate as the spraying was subsiding.

When Rachel Carson released her book, “Silent Spring” in 1962, the world began to take note of the harmful effects of indiscriminant use of pesticides. DDT was officially banned in the US in 1972 – could it be “just a coincidence” that the last reported case of paralytic polio in the US was in 1979? We will talk more about this in the next Lesson.

One additional book I strongly encourage you purchase and read is Jim West’s well documented book, “**DDT/Polio: Virology vs Toxicology.**” Only 54 pages, it will tell you everything you want – and need – to know about the connection between DDT and polio.

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