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How Scientists at the CDC Use DNA in Their Research

Scientists at the Center for Disease Control and Prevention (CDC) use DNA sequencing, particularly whole genome sequencing (WGS), to identify and track disease outbreaks, understand pathogen evolution, and develop better diagnostic tests and interventions.

Examples of how DNA is used to study disease outbreaks and develop cures:

DNA Fingerprinting: Scientists use DNA sequencing to create "fingerprints" of bacteria, viruses, or other pathogens, allowing them to compare strains and identify clusters of cases that may indicate an outbreak.

PulseNet: The CDC's PulseNet program uses standardized DNA fingerprinting methods to detect and track foodborne illness outbreaks across the country.

Tracing Outbreaks: By comparing DNA fingerprints, scientists can determine if different cases are linked to the same source of infection, helping to pinpoint the source and transmission routes of an outbreak.

Understanding Genetic Variation: DNA sequencing helps scientists understand the genetic makeup of pathogens, including how they evolve and develop resistance to antibiotics or other treatments.

Identifying Emerging Threats: Sequencing can help identify new or emerging pathogens, allowing for faster and more targeted public health responses.

Developing Diagnostics: DNA sequencing can be used to develop new and more accurate diagnostic tests for infectious diseases.