

## Summary of *A Shot of Resilience: A Critical Analysis of Manufacturing Vulnerabilities in Vaccine Production*

The U.S. public's access to critical vaccines is endangered by two major vulnerabilities in the biomanufacturing landscape: a reliance on foreign manufacturers and a lack of manufacturing redundancy. Together, these two factors threaten national security as vaccines underpin U.S. strategies for public health, biosecurity, and pandemic preparedness.

We find that:

- **The United States relies on foreign manufacturers for the majority of its vaccines**—fewer than one third of available vaccines have a domestic manufacturer.
- **The majority of the vaccines in this analysis lack manufacturing redundancy;** 29 of the 73 vaccines are made at one of just four facilities.
- Over half of the vaccines on the **FDA's list of Essential Medicines** have no domestic manufacturing capability and over two-thirds have no manufacturing redundancy.
- **The United States government spent nearly as much on foreign-made vaccines as American-made ones in 2020**—approximately \$930 million and \$1 billion respectively—through Medicare and Medicaid.

### Recommendations:

- **Protect the existing vaccine supply.** Designate manufacturing facilities as critical infrastructure, include routine and seasonal vaccines in the Strategic National Stockpile (SNS), and develop a quality management maturity rating system for biologics.
- **Identify and monitor vaccine manufacturing vulnerabilities.** Require manufacturers to disclose manufacturing locations on vaccine labels, or create a public-facing dashboard of manufacturing resiliency.
- **Increase vaccine manufacturing resiliency.** Implement talent development programs, leverage public procurement funding and export financing, and invest in innovative biomanufacturing technologies.

### For more information:

- Download the report: <https://cset.georgetown.edu/publication/a-shot-of-resilience>
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