EXECUTIVE SUMMARY

School meals are one of our nation's most important public health investments. Nearly 30 million children eat a school lunch every day, and, for many of them, school meals are the healthiest and most reliable meals they receive. Over the past fifteen years, stronger nutrition standards have meaningfully improved the quality of school meals by increasing whole grains, fruits, and vegetables while reducing sodium. However, most schools' lunch entrées are still dominated by highly processed, meat- and cheese-laden foods including pizza, hamburgers, chicken nuggets, and deli meat sandwiches. Typically sourced from large-scale industrial supply chains, these foods likely carry a significant—and largely undisclosed—burden of contaminants. These include:

- residues of hormones, antibiotics, and pesticides;
- dioxins, PFAS and heavy metals; and
- ingredients of concern like nitrates and sodium phosphate.

Given the evidence on the health risks associated with diets high in processed, industrially-produced meat and cheese—among them increased risk of overweight, certain cancers, and heart disease—it is more important than ever to continue to improve the quality of school meals to protect and promote the health of our nation's children.

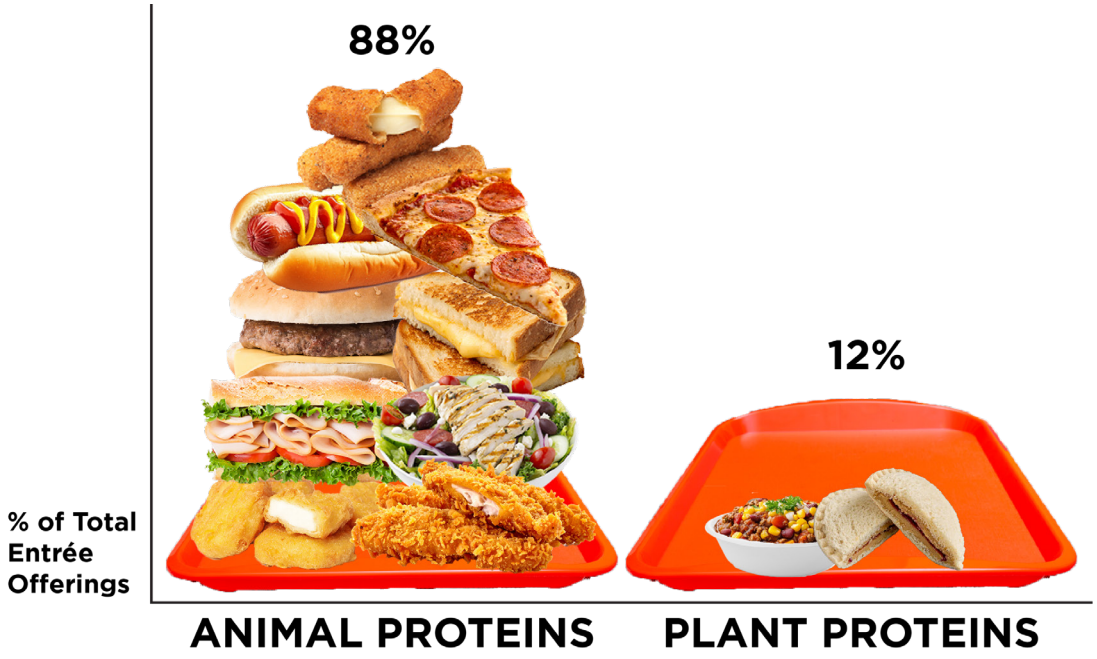
To better understand what's served in cafeterias across the nation—and the associated health implications—we reviewed school lunch menus from a sample of 45 K-12 public school districts representing more than 10,000 identifiable entrées. We identified the most frequently served entrées, characterized the diversity of protein offerings, and quantified the prevalence of red meat, processed meat, plant-based entrées, and meat- and cheese-centered entrées.

To assess labeled ingredients of concern, undisclosed contaminants, and chronic disease risk in the most commonly served lunch entrées, we identified representative products for ten of the most commonly offered entrée categories from companies participating in USDA's National Processing Agreement Program, as publicly available school food menus do not list ingredients or specific products used to prepare meals. For each of these ten products, we assessed potential health concerns based on labeled ingredients, the product's nutrition facts panel, documented food safety concerns with the product's vendor, and a review of the scientific literature, as well as federal and third-party testing and reporting related to undisclosed contaminants.

Key Findings

Meat and cheese dominate school lunch menus. An overwhelming majority (88%) of all entrées offered contained animal products as the primary protein source. More than half of all entrées (53%) contained dairy, and nearly half of all entrées (47%) contained cheese. Excluding nut butter and jelly sandwiches, which are commonly offered as a grab-and-go item rather than as a featured entrée, only 5% of entrées were fully plant-based, underscoring the lack of protein diversity in school meals.

Red and processed meats are ubiquitous in school meals. Breaded chicken products (e.g., chicken nuggets and patties) were the single most frequently served entrée category, appearing on more than half of school days. Overall, 39% of entrées contained either red or processed meat. At least 28% of entrées contained processed meat, and 27% of entrées contained red meat, which the International Agency for Research on Cancer (IARC) has classified as a known carcinogen and probable carcinogen to humans, respectively.



School lunch entrées are dominated by meat and cheese-based entrées, particularly red and processed meats, while plant-based options are rare.

Of the ten representative products we profiled for ten of the most commonly offered entrée categories:

- **Seven** contain processed meat, a known carcinogen
- **Seven** contain sodium or potassium phosphates, additives that are known to impair kidney function
- **Seven** contain more than 400 mg of sodium, which is more than one-quarter of the American Heart Association's "ideal" daily limit for children
- **Seven** contain added sugars, two of which contain more than one-quarter of the American Heart Association's recommended daily limit of 25 g for children
- **Six** are from vendors we identified as the subject of significant USDA food safety recalls within the past five years, including foreign matter contamination, *Listeria*, and *Salmonella*
- **Four** contain sodium nitrate or nitrite, which are probable carcinogens that are commonly used in processed meats
- **Three** contain red meat, a probable carcinogen

WHAT'S REALLY IN A CORN DOG?

LABELED INGREDIENTS OF CONCERN

Mechanically Separated Chicken
Meat paste made from chicken bones using high-pressure processing.

Sodium Phosphate
Linked to kidney disease and hardening of blood vessels.

Sodium Nitrite
Can form cancer-causing compounds during digestion.

POTENTIAL UNDISCLOSED CONTAMINANTS

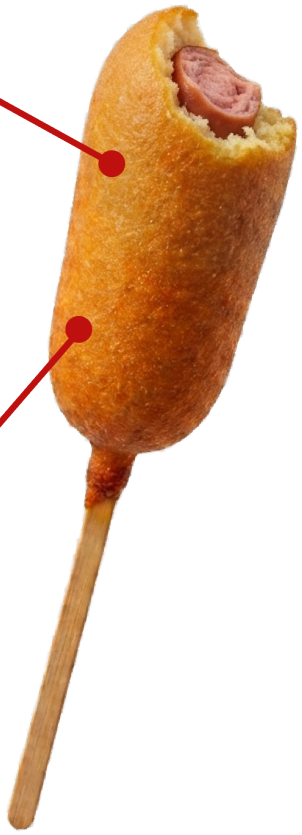
Antibiotic Residues
Routine antibiotic use in poultry contributes to antibiotic resistance—one of the CDC's top public health threats.

Salmonella
Foster Farms was linked to a 634-person Salmonella outbreak across 29 states and Puerto Rico.

Heavy Metals

Dioxins

Pesticide Residues



NUTRITION FACTS
Per 1 Corn Dog (112g)

Calories	**240**
Total Fat 9g	**12%**
Saturated Fat 2.5g	**13%**
Trans Fat 0g	
Cholestrol 40mg	**13%**
Sodium 470mg	**20%**
Total Carbohydrate 30g	**11%**
Dietary Fiber 2g	**7%**
Total Sugars 8g	
Includes 7g Added Sugars	**14%**
Protein 9g	
Vitamin D 0mcg 0% • Calcium 100mg 8%	
Iron 1.5mg 8% • Potassium 240mg 6%	

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice

FOSTER FARMS

Hot dogs and corn dogs were the 12th most commonly served school lunch entrée. This report profiled a Foster Farms corn dog, a USDA-approved processor product representative of those served in schools.

The most commonly offered school lunch entrées likely expose children to multiple health risks. Nearly all of the representative products assessed in this report contained ingredients of concern, particularly sodium phosphates and sodium nitrites, as well as high sodium, added sugars, and saturated fat. All of the meat in the representative products was processed meat, which poses a cancer risk, and diets high in red and processed meat and low in fiber-rich plant proteins are known to increase the risk of multiple chronic diseases, including cardiovascular disease and type 2 diabetes. Furthermore, because these products are almost certainly sourced through industrial livestock supply chains, they also are likely to contribute to children's dietary exposure to undisclosed contaminants associated with industrial animal agriculture—including residues of veterinary drugs, pesticides; dioxins, PFAS, and heavy metals; and microbial pathogens.

These contaminants have been linked to serious health concerns, including antimicrobial resistance, cancer, endocrine disruption, neurodevelopmental harm, immune dysfunction and foodborne illness. While USDA routinely monitors meat and poultry for microbial hazards and selected chemical residues, its testing covers only a small fraction of the U.S. meat supply. Products purchased for the National School Lunch Program are routinely tested for microbial pathogens, but not comprehensively screened for the broad range of environmental contaminants discussed in this report.

Government and independent testing continue to detect veterinary drugs, pesticides, PFAS, heavy metals and other contaminants in meat, dairy and school meals. Although most detected residues are below current U.S. regulatory limits, violations continue to occur. Independent studies often find contaminants to be more widespread than federal monitoring suggests, and current safety standards do not adequately account for cumulative or synergistic exposure to multiple chemicals over a lifetime. U.S. standards are also generally less protective than those in the European Union, particularly for children, whose developing bodies are more vulnerable to chemical exposures.

These findings underscore the need for stronger chemical testing, greater transparency, and procurement policies that reduce children's exposure to harmful contaminants in school meals. These exposures and associated health risks are not unique to school meals; they reflect broader patterns in the food system. However, because school meals are the nation's largest publicly funded food source for children and a near-daily source of food for tens of millions of children, reforming school meals offers a uniquely powerful lever for improving children's diets, reducing children's cumulative dietary exposure to contaminants, and moving the broader animal supply chain in a healthier direction.

A Systems Problem Requires Systems Solutions

The ubiquity of processed, industrially-produced meat and cheese on school menus is not a failure of individual school districts: it is the predictable result of inadequate federal funding, outdated procurement policies, regulatory failures, and a broader food system that incentivizes inexpensive, processed foods produced through industrial supply chains. School meal programs operate on extremely tight margins (about $4.70 per free lunch), which two-thirds of school nutrition directors across the nation find insufficient to cover their costs. On top of this federal per-meal reimbursement, schools receive a USDA commodity entitlement that supplies 15-20% of the food on children's trays. Approximately 40% of these entitlement dollars are directed to companies approved by USDA to further process ingredients like chicken, beef, and cheese into the nuggets, patties, and pizzas that are so common on school lunch menus. In effect, federal commodity dollars intended to support agricultural producers end up subsidizing the highly processed entrées served in schools and examined in this report.

The findings of this report are not a criticism of school nutrition professionals, many of whom are leading remarkable innovations despite significant constraints. Instead, they expose the need for system-wide and targeted investments and policy transformation in order for school districts to reduce their reliance on heavily processed animal proteins. Across the country, districts are already implementing effective strategies such as expanding scratch cooking, increasing plant-based offerings, and sourcing higher-quality, values-aligned foods (e.g., organic foods and locally sourced, pasture-raised animal products). Their successes demonstrate that healthier school meals are both feasible and popular when adequate resources and training are available. A companion resource to this report, **Building a Better Tray**, highlights these successes and illustrates the changes already underway in diverse school settings across the nation.

Scratch-made chana masala from Palo Alto Unified School District

Among these are three key strategies that directly address the health concerns identified in this report:

1. **Scratch cooking with whole foods**, which can reduce reliance on processed products containing ingredients of concern and enable the use of more fresh, minimally processed ingredients.
2. **Expanding plant-based options**, which helps diversify protein offerings while reducing reliance on carcinogenic processed meats, decreasing exposure to contaminants unique to or higher in industrial meat and dairy production (e.g., veterinary drug residues, antibiotic residues, dioxins), and decreasing chronic disease risk.
3. **Procuring and serving organic foods**, which reduces children's exposure to pesticide residues and, for animal products, residues of routinely-used antibiotics and growth-promoting hormones.

No single approach can address every health concern identified in this report. When implemented together, these strategies complement one another to reduce children's exposure to harmful ingredients, contaminants, food safety risks, and dietary patterns associated with chronic disease while also supporting healthier, more resilient school food systems. However, current federal funding, procurement policies, and nutrition standards do not adequately support these approaches.

To achieve this systems change, we recommend three complementary policy interventions.

Key Policy Recommendations	
1	**Invest in schools' capacity to serve scratch-cooked meals** by increasing federal meal reimbursement rates, supporting investments in kitchen infrastructure and workforce development, and expanding farm-to-school programs.
2	**Strengthen school nutrition standards to reflect current science** by phasing out processed meats and other ingredients of concern; increase plant protein offerings to diversify protein offerings and increase fiber; and continue reducing levels of nutrients associated with chronic disease (e.g., saturated fat, sodium).
3	**Reform USDA commodity procurement** by excluding processed meats and other ingredients of concern from the USDA commodity entitlement programs; phasing out animal products from supply chains that routinely use antibiotics and growth-promoting drugs; setting targets for sourcing third-party certified products (e.g., USDA Organic, Regenerative Organic Certified, American Grassfed Certified, certified humane); and giving schools flexibility in spending entitlement funds on local, minimally processed foods.

Ultimately, improving school meals is not about eliminating any single food or ingredient. It is about aligning federal policy, procurement, and public investment with current nutrition science and ensuring schools have the resources to serve meals built around minimally processed, high-quality ingredients and more diverse protein sources that support lifelong health.