



PERSPECTIVE

# Diet and Public Health

In this report, we review a snapshot of world health from the United Nations and the World Health Organization, showcase research on the role of dairy, diet and public health, and raise a flag for debate: Will the path we are on lead to improved health outcomes or is it time for a fresh approach?

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## Macro Outlook: World Health Goals Overview

**W**ithout change, the future looks grim. Non-communicable diseases are responsible for 3 out of 5 deaths worldwide, and negatively impact economic growth.

Cardiovascular Diseases

Chronic Respiratory Diseases

Cancers

Diabetes

*The United Nations is focused on four groups of non-communicable diseases (NCDs)<sup>4</sup>*

In September 2011, the United Nations (UN) held a high level meeting that established non-communicable diseases (NCDs) as a priority for action. In 2008, 36 million of 57 million annual deaths were caused by NCDs, and 9 million of NCD deaths occur before age 60 with nearly 80% of those in developing nations.<sup>1,2,3</sup>

The UN focused attention on four groups of NCDs: cardiovascular diseases, chronic lung diseases, cancers and diabetes. The four NCDs share common risk factors such as poor diet, lack of physical activity, tobacco and alcohol use. A large portion of NCDs are considered preventable by addressing behavior risk factors and improving health care. An overall global target of 25% reduction in premature mortality from NCDs by 2025 has been set.<sup>4</sup>

***“Our collaboration is more than a public health necessity. Non-communicable diseases are a threat to development. NCDs hit the poor and vulnerable particularly hard, and drive them deeper into poverty...”***

***- UN Secretary General Ban Ki-moon<sup>3</sup>***

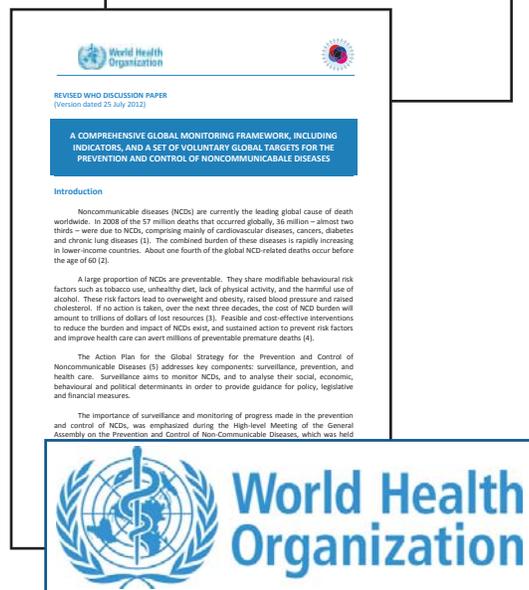
In addition, the UN reaffirmed the leadership role of the World Health Organization (WHO) in coordinating and monitoring global action against NCDs, and called upon all sectors, from government to industry to civic groups, to work together as a global community.<sup>5</sup>

To mobilize action, the WHO delivered a monitoring framework that defines voluntary global targets.

The WHO should be lauded for taking on a challenge of such global significance, one to which there is no easy fix. However, a review of the monitoring framework shows largely the same measurement criteria that has been used for decades – yet to date has not produced the desired results.

Included in the WHO monitoring framework are exposure targets with reduction goals familiar to those in the health and food industries, including a 15% relative reduction in total energy intake from saturated fatty acids (SFAs) with aim of achieving recommended level of less than 10% of total energy intake, reducing salt intake to less than 5 grams per day, halting the rise of obesity and achieving a 25% relative reduction in prevalence of raised blood pressure.

This begs a question and desire for more open dialogue: How will going down the same path lead to different results? What in our thinking and actions needs to change to truly enable the desired results? And how can industry members best contribute in support of our global shared goal of improved social and economic health?



## Dairy, Diet and Public Health Research Highlights

Growing evidence associates low consumption of dairy foods with higher risk of chronic metabolic and cardiovascular disorders, and also shows that dairy consumption falls below recommended levels in many countries.<sup>7</sup> An analysis conducted by J.C. Doidge, et al revealed that if dairy intake was at recommended levels, 0.9 to 3.3% of recurrent direct health expenditures of \$116 billion in Australia could potentially have been saved. In addition, the savings are equivalent to the total Australian annual (2009-10) public health intervention budget of \$2.0 billion.

### New Criteria, New Approaches?

There has been significant research progress on the role of dairy foods in the diet. In particular, recent work has generated new data on the impact of dairy in reducing healthcare costs. In the past, measurement criteria were primarily related to morbidity and mortality. Today, measures with more in-depth socioeconomic criteria have emerged, including Disability Adjusted Life Years (DALYs.) The DALY is a “measure of overall disease burden, expressed as the cumulative number of years lost due to ill health, disability or early death.”<sup>6</sup>



The study also identified six health issues where incidence would decrease if dairy consumption met recommended levels. Those health issues were: osteoporosis, hypertension, ischemic heart disease, stroke, type 2 diabetes and obesity. The study showed loss of 75,012 DALYs attributable to lower than recommended dairy consumption.<sup>7</sup>

A 2012 European study also looked at DALYs and healthcare cost savings. The work by Lotters, et al<sup>8</sup> examined additional dairy consumption, equivalent to 650 mg calcium, and prevention of hip fractures.

The yearly societal burden of hip fractures associated with low calcium intake appeared to be 374 DALYs for The Netherlands, 6,263 DALYs for France, and 1,246 DALYs for Sweden. The potential savings on costs of treating hip

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fractures exceeded the costs of extra dairy foods in all three countries not to mention the individual emotional and physical distress associated with such a disabling injury.

This new work adds to evidence that consuming recommended intake of dairy supports disease prevention. In a 2004 study, McCarron and Heaney<sup>9</sup> estimated U.S. healthcare cost savings of \$26 billion in year one and a five-year cumulative savings in excess of \$200 billion if current recommended intake of 3 to 4 servings of dairy per day were met. This study summarized several decades of research that adequate intake of dairy is a common factor in reducing diseases including: hypertension, type 2 diabetes, obesity, osteoporosis and some cancers.

Key research also indicates dairy foods have a positive impact on reduction of hypertension. The WHO monitoring framework for NCDs includes raised blood pressure as one of the key targets for reduction, and in a National Heart Lung and Blood Institute publication, the Dietary Approaches to Stop Hypertension (DASH) clinical trial was summarized.<sup>10</sup> The trial included three dietary patterns: 1) control, 2) high fruit and vegetable and 3) “combined” fruit, vegetable and low-fat dairy. The combined diet with fruit, vegetable and low-fat dairy resulted in the greatest blood pressure lowering effects. Neither the DASH diet nor adequate consumption of dairy is described in the WHO monitoring framework at present.

In 2012, new research described cheese as key to the public health puzzle known as the “French Paradox.”<sup>11</sup> Petyaev IM

## See a Tree, Miss the Forest

Taking a broader look at food, diets and public health is reflected in a 2010 perspective paper by Astrup, et al<sup>14</sup> that focused on assessing the role of reducing saturated fat in prevention of cardiovascular disease. An expert panel reviewed evidence from epidemiological, clinical and mechanistic studies. Among their conclusions, the expert panel concluded that the effect of foods on coronary heart disease (CHD) risk cannot be predicted by their saturated fat content alone, as individual saturated fatty acids have different cardiovascular effects and common foods containing saturated fatty acids also contain other constituents that could influence CHD risk. Importantly, the expert panel also concluded that the effect of diet on a single biomarker is insufficient to assess CHD risk.



and Bashmakov YK addressed the challenge of why the French have high consumption of saturated fat yet one of the lowest rates of cardiovascular disease in the world. In fact, “dietary studies in France show that saturated fat may contribute up to 40% of total caloric intake.”<sup>11,12</sup> The French paradox was originally linked to red wine, but recent studies revealed the limitation of this link outside of France.

The hypothesis that cheese, especially molded cheese, may contribute to the French paradox, was supported with newly discovered facts that include a beneficial effect of cheese on lipid profile and inflammatory status.<sup>11</sup> The study suggests that in addition to proteins and fats, including saturated fats, the natural ripening process creates a unique mix of substances that may be responsible for its positive contributions toward the prevention of cardiovascular disease.

***“It’s naturally assumed that lowering saturated fat is good for the heart, but that’s not what the evidence shows.”***

***– Dr. Dariush Mozaffarian  
Harvard University<sup>15</sup>***

In 2010, the context of whole foods and affordability of good nutrition was reviewed in a study that used the Nutrient Rich Foods (NRF) Index as a tool to assess affordability.<sup>13</sup> Applying the U.S. Department of Agriculture’s food price data sets, researchers used the NRF Index to assess the nutrient-to-cost ratio of nearly 7,000 foods and beverages. In the U.S., eggs, dry beans and legumes, and meat and milk products were the lowest-cost sources of protein. Milk and milk products were the lowest-cost sources of calcium. Milk, potatoes, citrus juices, cereals and beans had more favorable overall nutrient-to-price ratios than did many vegetables and other fruits.

## Looking Ahead: Are We On The Right Path?

It is clear that NCDs have potential to significantly impact economic health and public health globally, and that it will take significant collaboration across all sectors to achieve the global target of 25% reduction in premature mortality from NCDs by 2025.

The WHO established a comprehensive monitoring framework, which includes, among other measures, dietary reduction targets for intake of fat, saturated fat and salt. No one would disagree that improved diets have a role in the prevention of NCDs. At the core is a debate of best strategies to improve global diets and whether the path we are on will succeed.

Regarding dietary prevention, current monitoring targets reflect measures that have been in place for decades, but have not been successful to date. Scientific progress takes time, and over the past few decades, new bodies of evidence have grown and metrics have evolved, providing new approaches that require consideration.

***“...NCDs are altering demographics. They are stunting development. And they are impacting economic growth.”***

***– UN General Assembly President Nassir Abdulaziz Al-Nasser<sup>3</sup>***

For example, many scientists would argue that added sugars need to be part of a total dietary picture and are missing from the exposure target monitoring list. Also missing is including adequate dairy consumption as part of dietary prevention of NCDs. Lastly, a shift from focusing on single nutrients to a balanced view including whole foods and dietary patterns may have a significant impact on improving global health.

Exposure Targets RR = “Relative Reduction” <sup>4</sup>	
Alcohol	10% RR in consumption
SFAs	15% RR; goal of less than 10% total energy
Obesity	Halt the rise in prevalence
Inactivity	10% RR in prevalence
Raised Blood Pressure	25% RR in prevalence
Raised Cholesterol	20% RR in prevalence
Salt Intake	30% RR in mean population intake; goal of less than 5gm/day
Tobacco	30% RR in prevalence

*“For 60 years we’ve been recommending reduced saturated-fat consumption without a focus on what should replace it ...*

*... if you look at trends over the past decade, saturated fat has been replaced by carbohydrates, largely refined carbohydrates.*

*... several recent meta-analyses of observational studies showing that if you reduce saturated fat and don’t pay attention to the replacement, there is no association with lower heart-disease events.”*

**– Dr. Dariush Mozaffarian  
Harvard University<sup>15</sup>**

**G**iven evidence of adequate consumption of dairy associated with prevention of chronic health issues such as: cardiovascular disease, hypertension, ischemic heart disease, stroke, type 2 diabetes, obesity, osteoporosis and some cancers,<sup>7,9,10,11</sup> evolving NCD dietary prevention metrics to include adequate consumption of dairy should be considered.

Similarly, growing evidence supports dietary prevention using “whole foods” or total diet, which challenges the current focus on single nutrient reduction. Will criteria to reduce intake of single nutrients such as SFAs truly lead to better health outcomes? History has shown that to not be the case, in fact the legacy may be one of unintended consequences.

Given this learning, why do we have a set of historic metrics for the 2025 challenge of 25% reduction in NCDs? Use of traditional dietary prevention measures is a convenient way to quickly implement a large scale effort, especially one that requires extensive communication and collaboration.

While dietary measures have yet to evolve, healthcare metrics have advanced to include more complex measures that reflect DALYs, societal and economic impact. Technology also has enabled more sophisticated data collection and interpretation. Despite best intentions, traditional dietary measures may not be effective in reaching overall intended results.

#### **Key Considerations:**

- **Low consumption of dairy increases risk of some NCDs**
- **Adequate to increased dairy consumption reduces DALYs and healthcare costs**
- **The role of whole foods vs. single nutrients in disease prevention needs greater consideration**

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**W**hat's next? As leaders in food and nutrition, global dairy leaders and their customers need to ask: How can we proactively challenge current NCD monitoring and measuring approaches and engage in constructive debate?

*“(We) recognize the urgent need...to prevent and control NCDs in order to contribute to...the right of everyone to the highest attainable standard of physical and mental health.”*

**– United Nations  
NCD draft political  
declaration <sup>16</sup>**

Changing the trajectory for world health requires more than collaborative work across public and private sectors. It requires looking at available data and insights in new ways. Industry members have a leadership role to play in elevating understanding of dairy product contributions in global health and economic growth. Key actions include:

1. Demonstrate dairy's contribution to global prevention of NCDs using newer bodies of evidence and evolved metrics
2. Continue to research areas of debate including saturated fat and effects of foods as a whole vs. individual nutrients
3. Find ways to work with country-based public health teams in establishing local strategies that challenge status quo and advance dialogue and new thinking
4. Be visible and vocal in communicating dairy's positive contribution to health and well-being, globally

These actions will help ensure that the path we are on as a global community gets us to our desired goal of improved health and economic growth for millions worldwide.

***“Those who do not learn from history are doomed to repeat it.”***  
***– George Santayana, philosopher, poet***

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## Useful Links



**WHO Global Forum**  
ADDRESSING THE CHALLENGE OF  
NONCOMMUNICABLE DISEASES

### **UN High Level Meeting on Non-communicable Diseases**

<http://www.un.org/en/ga/president/65/issues/ncdiseases.shtml>



**World Health  
Organization**

### **WHO action to prevent NCDs**

<http://www.who.int/nmh/en/ndex.html>

### **WHO framework for monitoring NCDs**

[http://www.who.int/nmh/events/2012/ncd\\_discussion\\_paper/en/](http://www.who.int/nmh/events/2012/ncd_discussion_paper/en/)

### **WHO meetings for NCD monitoring**

[http://www.who.int/nmh/events/2012/ncd\\_discussion\\_paper/en/](http://www.who.int/nmh/events/2012/ncd_discussion_paper/en/)



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**GLOBAL DAIRY PLATFORM** leads the development of a collaborative, unified approach on common industry issues and the nurturing of innovative research so that consumers value milk and dairy products as naturally nutritious, enjoyable and an essential part of a healthy diet. Our membership of CEOs, executives and researchers from corporations, communication and scientific bodies work in partnership to align and support the dairy industry in the promotion of sustainable dairy nutrition.

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