Nutrition and Non-Communicable Diseases:

The experience of Iran, Policies and Actions

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Sustainable Development Goals for Health: Collaborating for Prosperity
Outline:

- Nutrition & NCDs: the Global Situation
- Iran’s Status and Analysis
- Policies and Actions
- Conclusions
Global Situation
Facts About NCDs

NCDs kill 38 million people each year.

Almost three quarters of NCD deaths - 28 million - occur in low- and middle-income countries due to larger population and different pattern of development.

Sixteen million NCD deaths occur before the age of 70; 82% of these "premature" deaths occurred in low- and middle-income countries.

NCDs are estimated to account for 76% of all deaths.

- Cardiovascular diseases: 46%
- Communicable, maternal, perinatal and nutritional conditions: 10%
- Injuries: 14%
- Cancers: 13%
- Respiratory diseases: 4%
- Other NCDs: 11%
- Diabetes: 2%
Strategy Shift in Global Development Goals

- Sustainable health development seems to be strongly associated with NCDs and food and nutrition security. While the MDGs mainly concentrated on poverty eradication, hunger and infectious diseases.

- MDGs, overlooked NCDs and placed much more emphasis on infectious diseases, whilst the Goal 3 of the SDGs embrace the target to reduce by one third, by 2030, premature mortality from NCDs through prevention and treatment and promote mental health and well-being.

Modifiable Risk Factors for NCDs

Global NCDs’ death attributed to dietary risks was 187.72 per 100000 in 2013 (More than 11 million death).

More than half of the 3.3 million annual deaths from harmful drinking are from NCDs.

In 2010, 1.7 million annual deaths from cardiovascular causes have been attributed to excess salt/sodium intake.

Most Affected Areas by NCDs’ High Prevalence

- Nutrition-related NCDs (NR-NCDs) and obesity are now becoming enormous public health worldwide and tends to be more dramatic in the developing world by 2050.

- Currently, 2.1 billion of planet citizens are overweight or obese, which is two and a half times the number who is undernourished.

- The main changes would be observed in those countries with per capita Gross Domestic Product (GDP) below 12,500 USD.

- The largest change will be occurred in countries with less than 5000 USD income level. In other words, major changes would be expected in (LMICs) of Asia.
Trend of Obesity Prevalence in Regions

Sharp Increasing Trend in the Middle East
Trend of Diabetes Prevalence in Regions

Sharp Increasing Trend In the Middle East
Iran’s Status and Analysis
Iran (Islamic Republic of)

Total population: 76,424,000
Income Group: Upper middle

Age-standardized death rates

Percentage of population living in urban areas: 69.1%
Population proportion between ages 30 and 70 years: 41.8%

Proportional mortality (% of total deaths, all ages, both sexes)

Premature mortality due to NCDs

The probability of dying between ages 30 and 70 years from the 4 main NCDs is 17%.
Leading dietary risk factors for DALYs in both sexes in Iran from 1990 to 2013

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<thead>
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<th>1990</th>
<th>2005</th>
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</table>
Death and DALY Rates Due to NCDs in Iran Globe, EMRO, and Other Countries 1990 to 2013

Non-Communicable Diseases

- Global
- Developed
- Developing
- Eastern Mediterranean Region
- Iran
- Turkey
- Iraq
- Egypt
- Saudi Arabia
- United States

DALYs per 100,000

Deaths per 100,000

Year

Nutrition & NCDs in Iran, AHT, TUMS
## The Leading Dietary Risk Factors for Mortality in the Middle East

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Afghanistan</th>
<th>Algeria</th>
<th>Bahrain</th>
<th>Egypt</th>
<th>Iraq</th>
<th>Jordan</th>
<th>Kuwait</th>
<th>Lebanon</th>
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Afshin et al. 2014
Institute for Health Metrics and Evaluation (IHME)

1/20/2017
Nutrition & NCDs in Iran, AHT, TUMS
National levels of metabolic risk factors in the Middle East and North Africa

Red line represents the optimal level

National Intakes of Protective Dietary Factors in the Middle East and North Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Fruits (&gt;300 g/day)</th>
<th>Vegetables &amp; beans (&gt;400 g/day)</th>
<th>Nuts &amp; seeds (&gt;16 g/day)</th>
<th>Whole grains (&gt;125 g/day)</th>
<th>PUFA (&gt;12 %E/day)</th>
<th>Seafood Omega-3 (&gt;250 mg/day)</th>
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Red line represents the optimal level.
Comparison of Usual Dietary Intakes with DASH in Iran

Dietary Approaches to Stop Hypertension (DASH)

Comparison of Usual Oil Intakes with DASH in Iran

Azadbakht L, Esmailzadeh A. J Nutr, 2009

Dietary Approaches to Stop Hypertension (DASH)
In 1961 the average global calorie availability was as low as 2196 kcal/cap/day; by 2011, it had reached 2870 kcal/cap/day.

In IRAN, Dietary energy supply was increased in recent decade
Map of Obesity Prevalence Across The World in 2014

IRAN: Men 17.1%

IRAN: Women 29.7%

Nutrition & NCDs in Iran, AHT, TUMS

World obese population hits 460 million
422 million people have Diabetes worldwide
Four Main Risk Factor for NCDs

### Noncommunicable Diseases

**4 Diseases, 4 Modifiable Shared Risk Factors**

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Tobacco Use</th>
<th>Unhealthy diets</th>
<th>Physical Inactivity</th>
<th>Harmful Use of Alcohol</th>
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1/20/2017 Nutrition & NCDs in Iran, AHT, TUMS
Behavioral Risk factors of NCDs in Iran
Metabolic Risk factors, Iran

![Graph showing metabolic risk factors in Iran, 2013](image_url)
Policy Implications

• The health policies in Iran are currently focused on lowering unhealthy diet components such as trans fatty acids, red meat, processed meat, and sugar sweetened beverages.

• Results of studies show that more attention should be focused on increasing healthy diet components:
  • fruits, whole grain, fiber, omega-3 fatty acids, vegetables, PUFA, nuts and seeds, and dairy products
Policies
Structure of the Health System in Iran

MOHME

University of Medical sciences

School of .....  Director of district health network  Teaching Hospital

Behvarz Training Center  District Health Center  District General Hospital

Rural Community Comprehensive Health Care Center

Health House  Health House  Health House  Health House

Urban Community Comprehensive Health Care Center

Health Post  Health Post  Health Post  Health Post
Health Care Network in Iran
Distribution of Governments’ Nutrition for Growth Policies and Program Commitments within the ICN2 Framework for Action Categories
Global Action Plan Targets for NCDs

Establish 80% availability of affordable technology and medicine to treat NCDs

Ensure that 50% of people receive preventive therapy for heart attacks and strokes

Halt the rise in diabetes and obesity

30% reduction in salt intake

10% reduction in the harmful use of alcohol

25% reduction in premature death of people age 30 to 70 from cardiovascular diseases, cancers, diabetes, or chronic respiratory diseases

25% reduction in prevalence of high blood pressure

30% reduction in tobacco use

10% reduction in prevalence of insufficient physical activity
Four time-bound commitments in the 2014 UN Outcome Document on NCDs

By 2015:
Set national NCD targets for 2025 or 2030 and monitor results

By 2015:
Develop a national multisectoral action plan

By 2016:
Implement the "best buy" interventions to reduce NCD risk factors

By 2016:
Implement the "best buy" interventions to strengthen health systems to address NCDs
### WHO NCD Progress Monitor 2015: Top performers by region

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<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Number of &quot;fully achieved&quot; counts</th>
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Actions
Structure of Supreme Council for Health & Food Security (SCHFS) in Iran

SCHFS
Holding meetings in the cabinet

Secretariat of SCHFS at MOHME

Food Security & Nutrition Task group

Health threats reduction task group

Technical committee

Technical committee

Provincial Committee for Health and Food Security
Examples of inter-sectoral collaboration and bilateral agreements by SCHFS

• To provide sustainable food supply: Ministry of Agriculture

• To improve fair access to food (considering the requirements of low income people

• Fair geographical distribution of foods: Ministry of Cooperatives, Labor and Social Welfare

• To improve healthy and safe food supply: MOHME, Agriculture, Iranian National Standard Organization

• Intra-sectoral cooperation to reduce nutrition-related diseases, and providing nutritional health from the beginning of life: MOHME, Ministry of Education, National Welfare Organization

• Increasing nutritional literacy (Ministries of Education, Health & Medical Education, Culture, Iran’s Broadcasting Organization
Intra-sectoral Structure at the Ministry of Health and Medical Education (MOHME) in Iran

Main Goal: To make integration in policy-making, planning, and monitoring (not implementation) on all activities in the field of non-communicable diseases and related risk factors in the Islamic Republic of Iran.
National Action Plan for Prevention and Control of NCDs and the Related Risk Factors in Iran

A great initiative to the Government of Iran for this achievement - we have already mentioned during the implementing phase.

Congratulations for the National Action Plan for Prevention and Control.

Opening Dr. Margaret Chan, Director-General of WHO on the importance of National Action Plan for the prevention and control of NCDs related and risk factors in the Islamic Republic of Iran, 2015-2025.
The NCD Targets for Iranian Population 2025

A. The targets that are as the same as WHO targets:

**Target 1.** 25% reduction in the risk of premature death from cardiovascular disease, cancer, diabetes, chronic lung disease

**Target 2.** At least 10% relative reduction in alcohol consumption

**Target 4.** 30% relative reduction in the average salt intake in the population

**Target 5.** 30% relative reduction in the prevalence of tobacco use in persons aged 15+ years

**Target 6.** 25% relative reduction in the prevalence of high blood pressure or contain the prevalence of raised blood pressure

**Target 7.** Halt the rates of diabetes and obesity

**Target 9.** An 80% availability of the affordable basic technologies and essential medicines, including generics in private and public sectors
The NCD Targets for Iranian Population

**Modified Targets:**

**Target 3.** A 20% (10%) relative reduction in prevalence of insufficient physical activity

**Target 8.** At least 70% (50%) of eligible people receive drug therapy and counselling to prevent heart attacks and strokes

**Iran's Specific Targets**

- **Target 10:** Zero trans fatty acid in food & oily products by 2020
- **Target 11:** 20% Relative reduction in mortality rate due to traffic injuries
- **Target 12:** A 10% relative reduction in mortality rate due to drug abuse
- **Target 13:** 20% increase in access to treatment for mental diseases
High Level Policy Initiatives

- The National Action Plan for prevention and control of NCDs was ratified by the Supreme Council for Health and Food Security in July 2015 and announced by President in Feb 2016.

- In 2014, the High Council of Health and Food Security revised the standards of trans fatty acids to less than 2% and saturated fatty acid to less than 25%.

- Reducing the amount of imported palm oil (from 70% to 30%) and charging additional tariffs (Up to 40%) for imported palm.

- **Decreasing** the amounts of salt, sugar and fats in food and beverages, at least by 30%

- Reduction in mean *family edible oils* and frying oil trans fatty acid to lower than 2% and industrial oil (confectionary and etc.) to lower than 5% by 2025

- **Increasing** consumption of fruits and vegetables and pulses by 15%

- **Increasing** the nutritional awareness of the target groups, by at least 50%

- Establishing nutrition consultation visit for obese children, adolescents, adults, pregnant and elderly, in PHC
Policy Implementation (cont’d)

- Educational Campaigns on salt/fat and sugar reduction and increasing consumption of vegetables, fruits, whole grains
- Expansion of fortified School Milk Program by Vitamin D
- Revising and developing the Iranian Food Based Dietary Guideline to Integrate overweight and obesity prevention and control program into PHC system
- Encouraging bakeries to produce high fiber and low salt bread (from 2.3% to 1.8%)
- Developing educational materials on healthy diet for “Community Health Centers”
Up to 75% of food products have been labeled by Traffic Light of Diet by Sep. 2016.
Samples of foods with traffic light labeling
پویش ملي 47، غذای سالم

کنظام غذایی بی‌کسری، زندگی سالم نمی‌باشد.

آیا می‌پیشکری از جایی مصرف غذایی غیر مصرفی، غذای نرم و گرم روز و جامعه‌ای که اینها به دهید؟

1. آیا بخش‌هایی از پیشکری از جایی مصرف غذایی غیر مصرفی، غذای نرم و گرم روز و جامعه‌ای که اینها به دهید؟

2. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

3. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

4. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

5. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

6. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

7. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

8. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

9. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

10. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

11. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

12. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

13. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

14. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

15. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

16. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

17. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

18. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

19. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟

20. آیا غذای سالم کنار روز و جامعه‌ای که اینها به دهید؟
Healthy and safe food (Green Apple) certificate is awarded for:

- Reduction of energy via use of less carbohydrate and fats in formula.
- Reduction of contaminants and chemicals less than 50% of the permitted limit.
- Reduction of risk factors as trans and saturated fatty acids, salt, sugar and etc.
- Using natural and functional component in the formulation.
- Reformulation of unhealthy foods for better choices
Improving health care of NCDs
Which are conditions needed to achieve 25*25?

- Cover the uninsured
- Reduce cost sharing for NCD Services
- Provide NCD services

A large step toward 25*25: BP treatment, aspirin, (statin) at lowest PHC level (non doctors) at no cost for patients
The Iranian Package of Essential NCDs (PEN): IRA-PEN

IRA-PEN program pilot implementation in 4 cities (Naqadeh, Maragheh, Shahreza, and Baft) in line with WHO PEN.

• IRA-PEN is risk score assessment for main risk factors of NCDs and early detection of NCDs using inexpensive methods, modification of NCD risk factors and providing affordable medications for prevention and treatment of heart attacks and strokes, diabetes, cancer and asthma.
Flowchart of NCD integration into PHC based on RS

- Measure Waist circumference
- Measure blood pressure
- Measure weight & height – check FBS & TOTAL CHOLESTROL

Estimate cardiovascular risk) in those not referred:

- Risk <10%:
  - Follow up in 12 months
  - Teach WHO P.E.N. Protocol 2 Health Education and Counseling on Healthy Behaviour

- Risk 10 to <20%:
  - Follow up every 3 months until targets are met, then 6-9 months thereafter

- Risk 20 to <30%:
  - Follow up every 3 months

- Risk ≥30%:
  - Follow up every 3 months
  - Refer to Physician

Target Population: Active people in Health House, Health Team

[Diagram showing integration of NCD into PHC based on RS]
Prevention/Management of Overweight/Obesity

Evaluation by Family Health Nurse

BMI Calculation + Waist Circumference + MH

BMI ≥ 25 or WC > 94 (m) & 80 (f)

CHC (GP/FP)

BMI < 25 & WC Normal & MH/RF (+)

Life style Modification & annual evaluation

BMI < 25 & WC Normal & MH/RF (-)

Next evaluation: 3 years

GP/FP

1. History Taking
2. Medical Exam
3. Lab Test

Health Team in CHC

Life style modification &
Dietitian Consultation &
Psychologist Consultation &
Monthly evaluation (3-6 m)

Medical Treatment

No result
Prevention/ Management of Diabetes

High Risk Population Screening

Pregnant Women

- High risk
  - GCT in 1st care
    - GCT ≥ 140
      - Gestational Diabetes
    - GCT < 140

- Low risk
  - GCT in 26-28 W

Female > 30 + (2 abortion or Still Birth or Live Birth > 4 Kg or Gestational Diabetes)

Female & Male > 30 + (BMI > 30 or Family History+ or BP > 140/90 or at least 2 of 3 symptom of diabetes

FBS

- FBS < 100
  - At risk
- 100 < FBS < 126
  - Pre Diabetic
- FBS ≥ 126
  - Repeat test
    - FBS ≥ 126
      - Diabetic Case
Risk Assessment more than 30%
Risk Assessment 20%-30%
Risk Assessment 10% - 20%

1/20/2017

Nutrition & NCDs in Iran, AHT, TUMS
Risk Assessment less than 10%
من با انتخاب سبک زندگی سالم موفق به دریافت گارانت سیز سلامت شده‌ام و در جهت حفظ سلامتی خویش این راه را ادامه خواهم داد.
Conclusions
Changing dietary pattern is the key consequence of demographic and nutrition transition, with dramatic impact on prevalence of NCDs.

Iran's rapid economic growth is going to have more impact on dietary pattern of Iranian society during future decades.

NR-NCDs are among main killers of people in 21st century, these are modifiable.

Iran is among few countries with national action plan for prevention and control of NCDs, with specific target of reducing 25% by 2025.

High political support, multi-sectoral approach, good surveillance system and people's participation are key in tackling NCDs.
Questions/comments

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<thead>
<tr>
<th>Main objectives of SCHFS</th>
<th>Examples of SCHFS’ achievements</th>
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<tr>
<td><strong>1. Build healthy public policy</strong> in health, as well as other sectors, e.g. agriculture,</td>
<td>- Revising 14 Food additives standards (Salt, sugar, Fat, Pesticides)</td>
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<td>industry, trade, and the media</td>
<td>- Nutrition and food security policy statement (2015 – 2025 )</td>
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<td>- Combating Micro Nutrient Deficiency</td>
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<td>- Healthy canteens policy for schools</td>
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<td>- Food import regulations</td>
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<td>- Legislations towards inhibiting of junk food advertisement in the national media (TV &amp; Radio)</td>
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<td>- Policy for controlling herbicides and pesticide residue in food and agriculture</td>
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<td>- Food marketing regulation to reduce salt, fat and sugar intake in Iran</td>
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<td><strong>2. Create supportive environment</strong> through intervention in marketing food; reformulation</td>
<td><strong>Reformulation of foods:</strong></td>
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<td>and labeling, price reduction through subsides for dairy products</td>
<td>- Reducing sugar, salt, and trans fatty acids in drinks and some other food products (up to</td>
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<td>10%)</td>
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<td>- Replacement of Iron flour-fortified in 85% of bakeries nationwide</td>
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<td>- Food import regulation: 20% reduction of oil imports</td>
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<td></td>
<td>▪ <strong>Labeling</strong>: 50% Implementation of Traffic light nutritional labeling</td>
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<td>▪ <strong>Taxation</strong>: of soft drinks (10% for local and 15% for imported products)</td>
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<td>▪ <strong>Replacing</strong>: non standard salt with standards salt in the market</td>
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<td><strong>3. Facilitate and strengthen inter-sectoral collaboration</strong>: Agreements and MOUs with</td>
<td>- MOUs and agreements with…</td>
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<td>relevant ministries, municipalities, health council in parliament</td>
<td>- Formation of a joint committee to reduce contaminants and pesticide residues in agricultural</td>
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<td>- Formation of a joint committee to campaign for increasing awareness on nutrition and healthy</td>
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<td><strong>4. Mobilizing internal and external funding</strong></td>
<td><strong>Increased funding</strong> for:</td>
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<td><strong>School milk</strong></td>
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<td>Absorbing additional fund from <strong>Budget and Planning Organization</strong> and the <strong>Ministry of</strong></td>
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<td>1/20/2017</td>
<td><strong>Commerce</strong></td>
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