

# Challenges and Opportunities in Public Health: The Elite Eight

**Liza Corso, MPA**  
**Craig Thomas, PhD**

**Division of Public Health Performance Improvement,  
Office for State, Tribal, Local and Territorial Support (OSTLTS)**

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# WHAT MAY HAPPEN IN THE NEXT FIFTY YEARS

By JOHN ELFRETH WATKINS, JR.

THESE prophecies will seem strange, almost impossible. Yet they have come from the most learned and conservative minds in America. To the wisest and most careful men in our greatest institutions of science and learning I have gone, asking each in his turn to forecast for me what, in his opinion, will be wrought in his own field of investigation before the dawn of 2501—a century from now. These opinions I have carefully transcribed.

**Five Hundred Million People.** There will probably be from 300,000,000 to 500,000,000 people in America and its possessions by the latter part of another century. Nicaragua will ask for admission to our Union after the completion of the great canal. Mexico will be next. Europe, seeking more territory to the south of us, will cause many of the South and Central American republics to be voted into the Union by their own people.

**The American will be Taller** by from one to two inches. His increase of stature will result from better health, due to his reforms in medicine, sanitation, food and athletics. He will live fifty years, instead of thirty-five, as at present—for he will reside in the suburbs. The city house will practically be no more. Building in blocks will be illegal. The trip from suburban home to office will require a few minutes only. A penny will pay the fare.

**There will be No C, X or Q in our every-day alphabet.** They will be abandoned because unnecessary. Spelling by sound will have been adopted, first by the newspapers. English will be a language of condensed words expressing condensed ideas, and will be more extensively spoken than any other. Russian will rank second.

**Hot and Cold Air from Spigots.** Hot or cold air will be turned on from spigots to regulate the temperature of a house as we now turn on hot or cold water from spigots to regulate the temperature of the bath. Central plants will supply this cold air and heat to city houses in the same way as now our gas or electricity is furnished. Rising early to build the furnace fire will be a task of the olden times. Houses will have no chimneys, because no smoke will be created within their walls.

**No Mosquitoes nor Flies.** Insect screens will be unnecessary. Mosquitoes, house-flies and roaches will have been practically exterminated. Boards of health will have destroyed all mosquito hanters and breeders, and drained all stagnant ponds, filled in all swamp-lands, and chemically treated all still-water streams. The extermination of the horse and its stable will reduce the house-fly.

**Ready-Cooked Meals will be Bought** from establishments similar to our bakeries of to-day. They will purchase materials in tremendous wholesale quantities and sell the cooked foods at a price much lower than the cost of individual cooking. Food will be served hot or cold to private houses in pneumatic tubes or automobile wagons. The meal being over, the dishes used will be picked up and returned to the cooking establishments where they will be washed. Such wholesale cookery will be done in electric laboratories rather than in kitchens. These laboratories will be equipped with electric stoves, and all sorts of electric devices, such as coffee-grinders, egg-beaters, slicers, shakers, parers, meat-choppers, meat-saws, potato-mashers, lemon-squeezers, dish-washers, dish-driers and the like. All such utensils will be worked by electricity, and fatal to disease-microbes. Having one's own cook and purchasing one's own food will be an extravagance.

**No Foods will be Expired.** Storekeepers who expose food to air breathed out by patrons or to the atmosphere of the busy streets will be arrested with those who sell stale or adulterated produce. Liquid-air refrigerators will keep great quantities of food fresh for long intervals.

**Coal will Not be Used for Heating or Cooking.** It will be scarce, but not entirely exhausted. The earth's hard coal will last until the year 2050 or 2100. Its soft-coal mines until 2500 or 2550. Meanwhile both kinds of coal will have become more and more scarce. A century ago the whole world electricity manufactured by water-power to be much cheaper. Every river or creek with any suitable fall will be equipped with watermills, turbines, and electric generators. Along the seacoast will be numerous, reservoirs continually filled by waves and tides washing in. Out of these the water will be constantly falling in revolving wheels. All of our restless waters, fresh and salt, will thus be harnessed to do the work which Niagara is doing to-day: making electricity for heat, light and power.

**There will be No Street Cars in Our Large Cities.** All heavy traffic will be below or high above ground when brought within city limits. In most cities it will be confined to broad subways or tunnels, well lighted and well ventilated, or to high trestles with "moving sidewalks" stairways leading to the top. These underground or overhead streets will team with electrically propelled passenger coaches and freight wagons, with cushioned wheels. Subways or trestles will be reserved for express trains. Cities, therefore, will be free of all noise.

**Photographs will be Telegraphed** from any distance. If there be a battle in China a hundred years hence, the shots of its most striking events will be published in the newspapers an hour later. Even to-day photographs are being telegraphed over short distances. Photographs will reproduce all of Nature's colors.

**Trains One Hundred and Fifty Miles an Hour.** Trains will run two miles a minute, normally; express trains one hundred and fifty miles an hour. To go from New York to San Francisco will take a day and a night by fast express. There will be cigar-shaped electric locomotives hauling long trains of cars. Cars will, like houses, be artificially cooled. Along the railroads there will be no smoke, no chimneys, no bells, no whistles, no signals, no switches, no crossings, no level crossings, no bridges, no trestles, no stops for fuel. Passengers will travel through hot or dusty country regions with windows down.

**Automobiles will be Cheaper than Horses** to-day. Farmers will own automobile hay-wagons, automobile truck-wagons, plows, harrows and hay-rakes. A one-pound motor in one of these vehicles will do the work of a pair of horses or more. Children will ride in automobile sleighs in winter. Automobiles will have been substituted for every horse vehicle now known. There will be, as already exist to-day, automobile hearse, automobile police patrols, automobile ambulances, automobile street sweepers. The horse in harness will be as scarce, if not, not even scarcer, than as the yoked ox is to-day.

**Everybody will Walk Ten Miles.** Gymnastics will begin in the nursery, where boys and games will be designed to strengthen the muscles. Exercise will be compulsory for the school. Every school, college and community will have a complete gymnasium. All cities will have public gymnasiums. A man or woman unable to walk ten miles at a stretch will be regarded as feeble.

**To England in Two Days.** Fast electric ships, crossing the ocean at a mile a minute, will take a mile from New York to Liverpool in two days. The bodies of these ships will be built above the waves. They will be supported upon runners, or floats, that will glide like those of the ships. These runners will be very buoyant. Upon their under-sides will be jet-propellers, or jets of air. In this way a film of air will be kept between them and the water's surface. This film, together with the small surface of the runners, will reduce friction against the waves to the smallest possible degree. Propellers turned by electricity will screw themselves through both the water beneath and the air above. Ships with cabins artificially cooled will be entirely fire-proof. In storm they will drive above the water and there await fair weather.

**There will be Air-Ships,** but they will not successfully compete with surface cars and aquatic vessels for passenger or freight traffic. They will be maintained as deadly war vessels by all military nations. Some will transport men and goods. Others will be used by scientists making observations at great heights above the earth.

**Aerial War-Ships and Forts on Wheels.** Giant guns will shoot twenty-five miles or more, and will hurl anywhere within such a radius shells exploding and destroying whole cities. Such guns will be aimed by aid of compasses, often used on land or sea, and telescopes when directed from great heights. Fleets of air-ships, hiding themselves with dense smoke, will attack the enemy, and, if they move, will float over cities, fortifications, camps or fleets. They will surprise foes before by hurling upon them deadly showers of incendiary bombs, or they will drop their bomb-proof forts, protected by great steel plates over their tops as well as at their sides. Huge forts on wheels will dash across open spaces at the speed of express trains of to-day. They will make what are now known as cavalry charges. Great automobile planes will dig deep trenches as fast as soldiers can occupy them. Rifles will use silent cartridges. Submarine boats submerged and photographed at any distance within the oceans. These photographs, as distinct and large as if taken from across the street, will be lowered to the commanding officer in charge of troops below.

**There will be No Wild Animals** except in menageries. Rats and mice will have been exterminated. The horse will have become practically extinct. A few of high breed will be kept for rich rich racing, hunting and sporting. The automobile will have driven out the horse. Cattle and sheep will have no horns. They will be unable to run faster than the fastest horse of to-day. A century ago the whole world could outrun a horse. Food animals will be bred to expend practically all of their life energy in producing smallpox, syphilis and other by-products. Horses, horses, muscles and huns will have been neglected.

**Man will See Around the World.** Persons and things of all kinds will be brought within focus of cameras connected electrically with screens at opposite ends of circuits, thousands of miles long. American audiences in their theatres will view upon huge curtains before them the coronations of kings in Europe or the progress of a battle in the Orient. The interdress bringing these distant scenes to the very doors of people will be connected with a globe telephone apparatus transmitting each incident sound in its appropriate place. Thus the guns of a distant battle will be heard to boom when seen to blaze, and thus the voice of a singer will be heard to enter words or music when seen to move.

**Telephones Around the World.** Wireless telephone and telegraph circuits will span the world. A husband in the middle of the Atlantic will be able to converse with his wife in New York, or her husband in Chicago. We will be able to telephone to China quite as readily as we now talk from New York to Brooklyn. By an automatic signal they will connect with any circuit in their locality without the intervention of a "hello girl."

**Grand Opera will be Telephoned** to private homes, and will sound as harmonious as though enjoyed from a theatre box. Automatic instruments reproducing original airs exactly will bring the grand opera to the families who are unattended. Great musicians gathered in one inclosure in New York will, by manipulating electric keys, produce at the same time music from instruments arranged in theatres or halls in San Francisco or New Orleans, for instance. Thus will great bands and orchestras give long-distance concerts. In great cities there will be public opera-houses whose singers and musicians are paid from funds-endowed by philanthropists and by the government. The piano will be capable of changing its tone from cheerful to sad. Many devices will add to the emotional effect of music.

**How Children will be Taught.** A university education will be free to every man and woman. Several great national universities will have been established. Children will study a simple English grammar adapted to simplified English, and not required after the Latin. Time will be saved by grouping like studies. Poor students will be given free board, free clothing and free books if ambitious and actually unable to meet their school and college expenses. Medical inspectors regularly visiting the public schools will furnish poor children free eyeglasses, free dentistry and free medical attention of every kind. The very poor will, when necessary, get free rides to and from school and free lunches between sessions. In vacation time poor children will be taken on trips to various parts of the world. Cleanliness and housekeeping will be important studies in the public schools.

**Store Purchases by Tube.** Pneumatic tubes, instead of store wagons, will deliver packages and bundles. These tubes will collect, deliver and transport mail over certain distances, perhaps for hundreds of miles. They will at first connect with the private houses of the wealthy; then with the homes of the middle class. Poor students will extend them to stations, similar to our branch post-offices of to-day, whence fast automobile vehicles will distribute purchases from house to house.

**Vegetables Grown by Electricity.** Winter will be turned into summer and night into day by the farmer. In cold weather he will place heat-conducting electric wires under the soil of his garden and they warm his growing plants. He will also grow large gardens under glass. At night his vegetables will be bathed in powerful electric light, serving, like sunlight, to hasten their growth. Electric currents applied to the soil will make valuable plants grow larger and faster, and will kill troublesome weeds. Keys of colored light will hasten the growth of many plants. Electricity applied to garden seeds will make them sprout and develop unusually early.

**Oranges will Grow in Philadelphia.** Fast-flying refrigerators on land and sea will bring delicious fruits from the tropics and southern temperate zone within a few days. The farmers of South America, South Africa, Australia, and the South Sea Islands, whose seasons are directly opposite to ours, will thus supply us in winter with fresh summer foods which cannot be grown here. Scientists will have discovered how to raise here many fruits now confined to warmer lands. The cold weather of Philadelphia oranges will be grown in the suburbs of Philadelphia. Cantaloups and other summer fruits will be of such a hardy nature that they can be stored through the winter as potatoes are now.

**Strawberries as Large as Apples** will be eaten by our great-grandchildren for their Christmas dinners a hundred years hence. Raspberries and blackberries will be as large. One will suffice for the fruit course of each person. Strawberries and cranberries will be grown upon tall land. Raspberries, gooseberries and currants will be as large as oranges. One cantaloup will supply an entire family. Melons, cherries, grapes, plums, apples, pears, peaches and all kinds of fruit will be secured. Figs will be cultivated over the entire United States.

**Peas as Large as Beets.** Peas and beans will be as large as beets are to-day. Sugar cane will produce twice as much sugar as the sugar beet now does. Cane will once more be the chief source of our sugar supply. The milk-cow will have been developed into a rubber plant. Cheap natural rubber will be harvested by machinery all over this country. Plants will be made proof against disease microbes just as readily as man is to-day against smallpox. The soil will be kept enriched by plants which take their nutrition from the air and give fertility to the earth.

**Black, Blue and Green Roses.** Roses will be as large as cabbage heads. Violets will be as large as pansies. A pansy will be as large in diameter as a sunflower. A century ago the penny measured but half an inch across its face. There will be blue, blue and green roses. It will be possible to grow any flower in any color and to transfer the perfume of a scented flower to another which is odorless. Thus may the penny be given the perfume of the violet.

**Few Drugs will be Swallowed** or taken into the stomach unless needed for the direct treatment of that organ itself. Drugs needed by the lungs, for instance, will be applied directly to these organs through the skin and the blood. The living body will be the living flesh, of men and men paid to the outside skin of the body. Microscopes will lay bare the vital organs, through which the blood flows, and make them transparent. Not only will it be possible for a physician to actually see a living, throbbing heart inside the chest, but he will be able to magnify and photograph any part of it. This work will be done with rays of invisible light.

# Strategies that lead us toward the future are important . . . regardless of our ability to accurately predict where we will end up.

# How did Watkins do?

# "Not egzactly but it's kwite klose for many!"

# Topics and Opportunities That Bring Us Here Today

- ❑ Quality improvement
- ❑ Accreditation and national and state standards for public health
- ❑ Governmental public health partnerships (state, local, federal, tribal)
- ❑ Cross-sector partnerships
- ❑ Performance management
- ❑ National Public Health Improvement Initiative (NPHII)

# Why Am I Here Today?

“[U]nderstanding the context their work has in the national movement toward improving public health processes and outcomes. . . . opportunities and threats on the horizon, and recommendations about how we might meet them.”

# Sharing of Thoughts and Dialogue

## ❑ The official disclaimer is

- “The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.”

## ❑ In other words, my disclaimer for today is

- The ideas and points presented here are not a complete, comprehensive, or official list. They are just my thoughts as drawn from many sources, and I hope this will spark more thinking and dialogue about these and other topics!

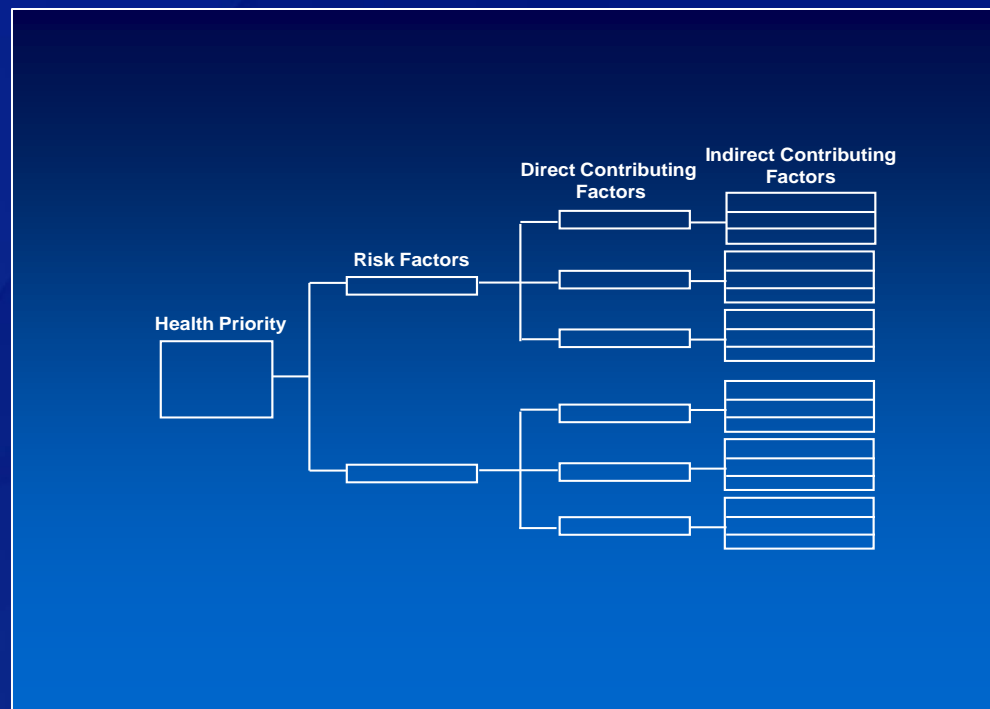
# Sources

- ❑ National and state documents and reports
- ❑ Committees, workgroups, think tanks, expert panels
- ❑ National and organizational dialogues, conferences



# Challenges and Opportunities for Public Health: The Elite Eight

“The best of anything considered collectively . . .”  
“. . . the choice part . . .”



# The Elite Eight

1. Changes in public health bring changes in public health standards. And vice versa.



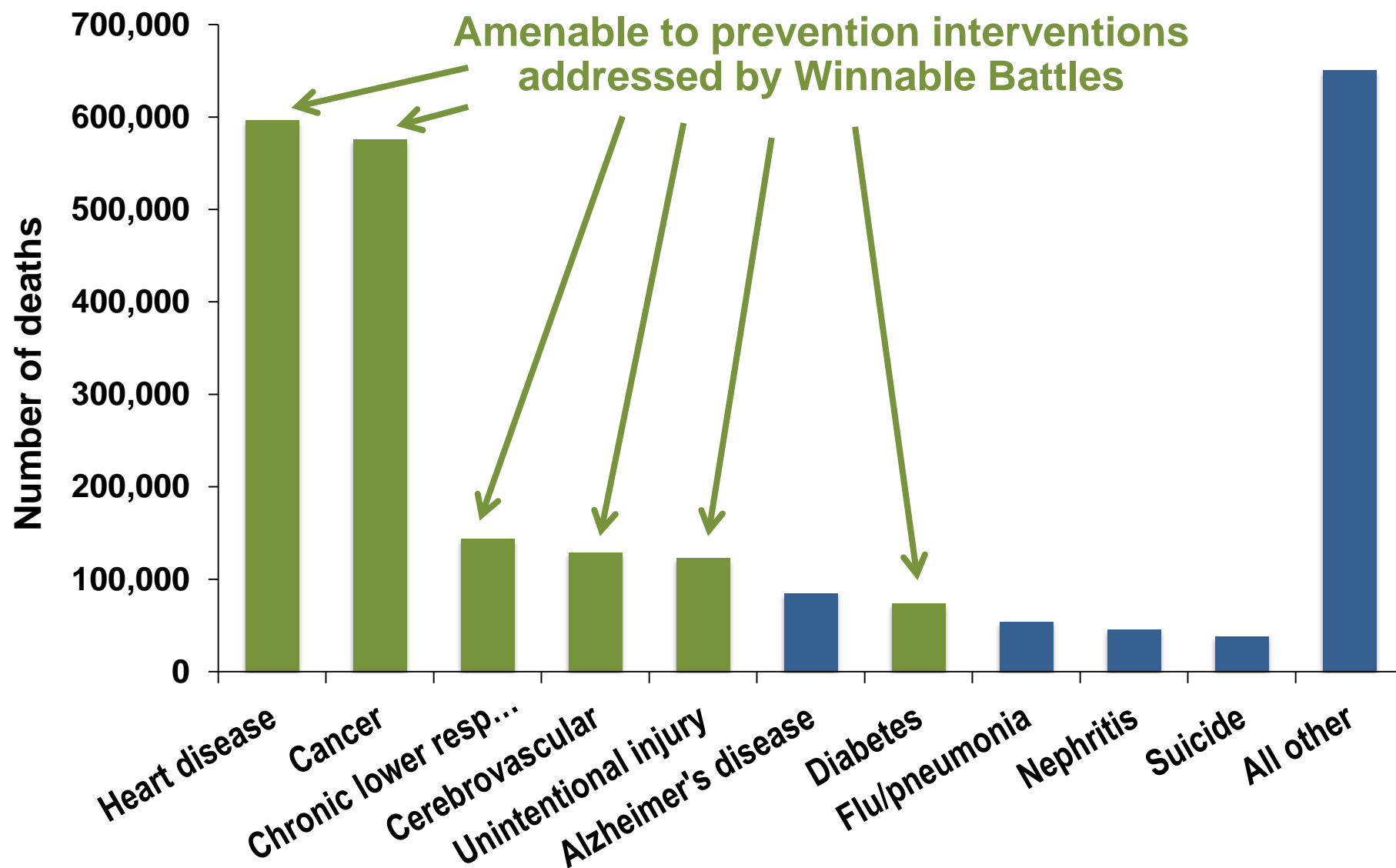
# Changes

- ❑ Constant need to keep standards current and relevant
- ❑ Public Health Accreditation Board (PHAB) Standards—“Version 1.5”
- ❑ Key topics for update
  - Informatics
  - Health equity
  - Workforce development

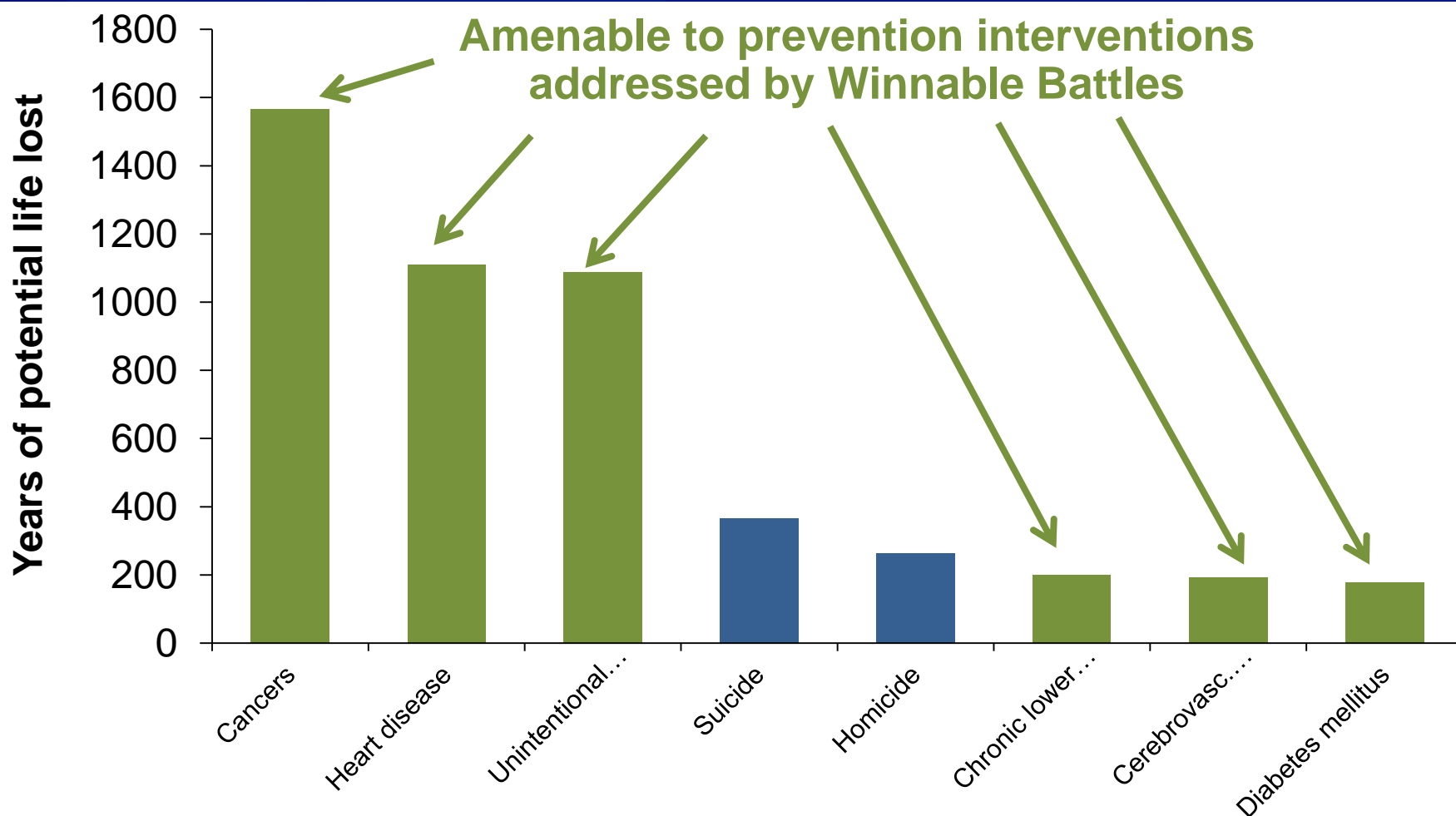
# The Elite Eight

2. Winnable battles are so named because they are “winnable.”

# Leading Causes of Death–US, 2011



# Years of Potential Life Lost for Selected Causes of Deaths—US



Source: Health, United States, 2011, CDC, NCHS; Crude data for 2008, all persons, before age 75

# Key Winnable Public Health Battles for the United States: Progress Update

Tobacco Use



Nutrition, Physical Activity, Obesity, and Food Safety



Healthcare-Associated Infections



Motor Vehicle Injuries



Teen Pregnancy



HIV



# Prevention Status Reports

- ❑ Goal: to help advance evidence-based public health policy and practice
- ❑ Individual reports for all 50 states and the District of Columbia on 10 health topics
- ❑ Focus is on solutions—evidence-based and expert-recommended public health policies and practices
- ❑ Indicators highlight the status of state-level policies and practices

*Reports to be released on  
CDC website beginning in  
late September.*

*(All ten will be released by  
November.)*



# The Elite Eight

3. Cross-jurisdictional collaboration can be an opportunity for everyone. But it may not be for everyone.



# Cross-Jurisdictional Sharing (CJS)

- ❑ Center for Sharing Public Health Services
  - Robert Wood Johnson Foundation-supported initiative through Kansas Health Institute
  - 16 demonstration sites across 14 states
  - [www.phsharing.org](http://www.phsharing.org)
- ❑ CDC activities
  - State, Tribal, Local, and Territorial Workgroup recommendations
  - CDC activities and methods to foster sharing of services
  - Collaboration and support of others (i.e., Center for Sharing Public Health Services and Practice-based Research Networks)
- ❑ Key questions, tools, and stories

# Spectrum of Cross-Jurisdictional Sharing Arrangements

## Spectrum of Cross-Jurisdictional Sharing Arrangements

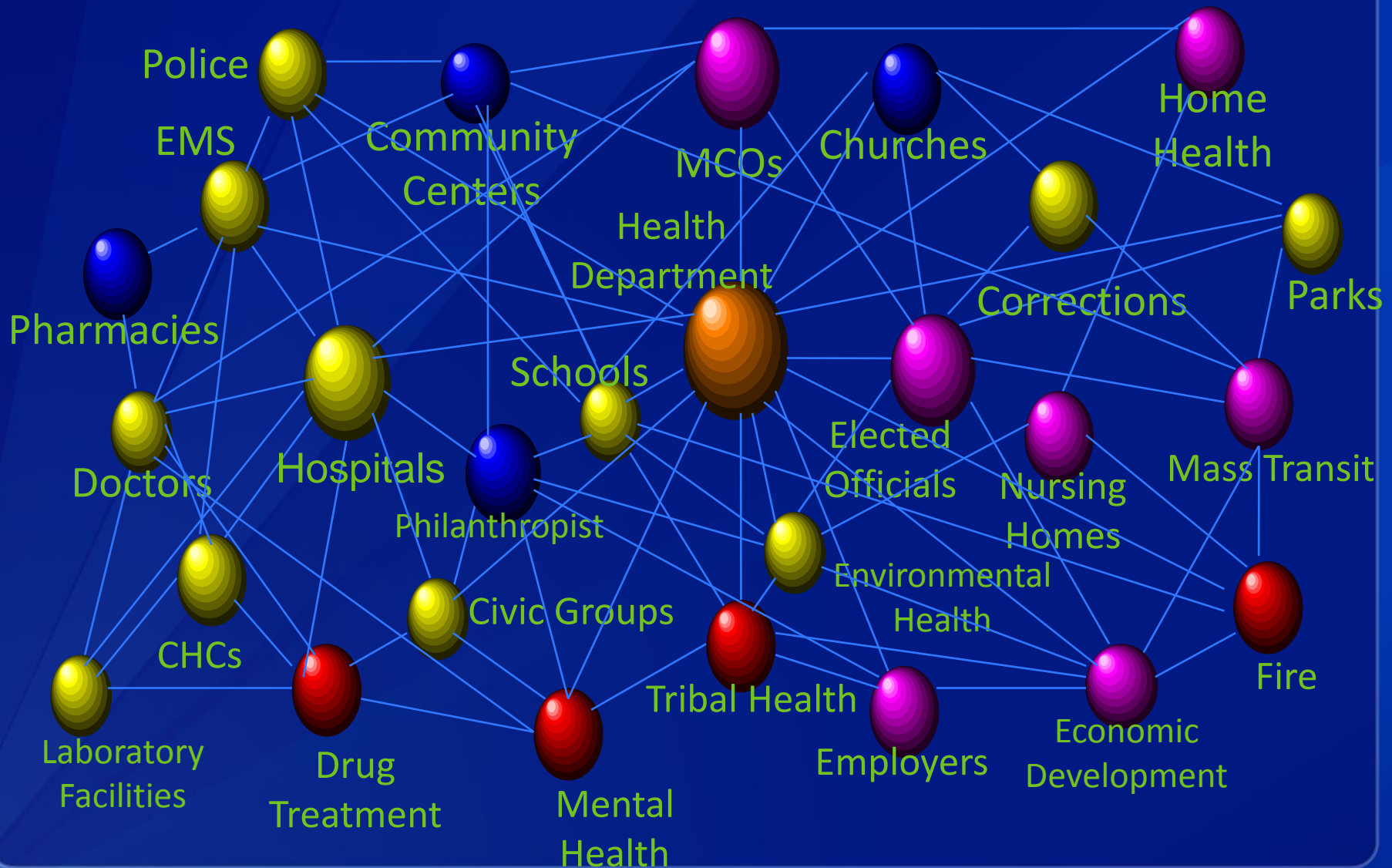
Informal and Customary Arrangements	Service-Related Arrangements	Shared Functions with Joint Oversight	Regionalization
<ul style="list-style-type: none"> <li>• “Handshake”</li> <li>• MOU</li> <li>• Information sharing</li> <li>• Equipment sharing</li> <li>• Coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Service provision agreements</li> <li>• Mutual Aid Agreements</li> <li>• Purchase of staff time</li> </ul>	<ul style="list-style-type: none"> <li>• Joint projects addressing all jurisdictions involved — ongoing or episodic</li> <li>• Shared capacity, e.g., epidemiology covering all jurisdictions</li> <li>• Inter-local agreements</li> </ul>	<ul style="list-style-type: none"> <li>• Creation of a new local public health entity by <b>merging</b> two or more existing local public health agencies</li> <li>• Consolidation of one or more local public health agencies into an existing local public health agency</li> </ul>

Source: Center for Sharing Public Health Services. [www.phsharing.org](http://www.phsharing.org)

# The Elite Eight

4. We've all discussed "health in all policies." But what about "health in all partnerships"?

# The Public Health System (through our eyes)



# The Elite Eight

5. In a time of needing to do more with less, it is more important than ever not to “recreate the wheel” and to leverage connections.

# Leveraging Connections

- ❑ Strategic and concrete links between national standards, quality improvement, and programmatic work of public health
- ❑ Establishing incentives for preparing and for accreditation status
- ❑ Crosswalks with PHAB standards
  - *Community Guide*, food safety, public health emergency preparedness capabilities, Project Public Health Ready, healthcare-associated infections, immunizations, etc.



# The Elite Eight

6. Health reform brings new partners to the table. It is also creating new tables.



# Evolution of Health System

## Health Delivery System Transformation Critical Path

### Episodic Non-Integrated Care

- Lack integrated care networks
- Lack quality and cost performance transparency

### Outcome Accountable Care

- Patient- or person-centered
- Transparent cost and quality performance
- Focus on care management and preventive care

### Community Integrated Healthcare

- Healthy population centered
- Integrated networks linked to community resources capable of addressing psycho social/ economic needs
- Population-based reimbursement

Source: Neal Halfon, UCLA Center for Healthier Children, Families & Communities

# Just One Example . . . Community Health Needs Assessment

## ❑ Drivers

- Tax-exempt hospitals and community benefit requirements for IRS (n>3,000)
- Federally qualified health centers (n>1,200)
- Federal grant requirements (e.g., Community Transformation Grant, NPHII)
- Voluntary public health accreditation through PHAB (n~2,400)
- State laws or requirements for health departments

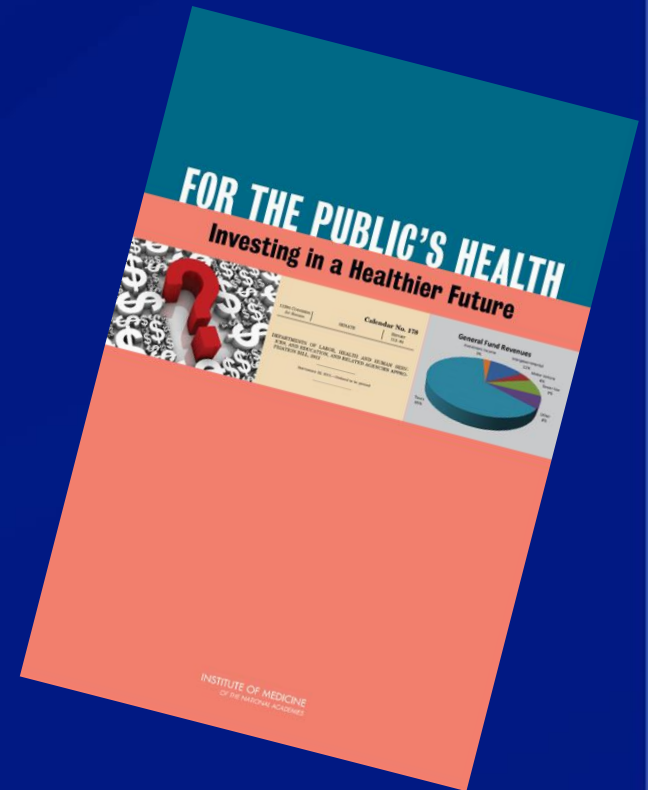
## ❑ Similar (but not the same) elements and language

# The Elite Eight

7. Money makes the (public health) world go around.  
And the world is changing.

# Financing

- ❑ Financing questions and explorations for core and foundational capabilities
- ❑ Reimbursement and payment changes and explorations
- ❑ Priorities and activities that are data-driven rather than driven by available funding



# The Elite Eight

8. We need to always think about the “so what?” questions. Where’s the evidence? What’s the impact? What’s the return on investment?

# So What?

- ❑ Strengthening evidence-based practice
  - Use of evidence-based interventions (e.g., *Community Guide*)
  - Maximizing impact—quality improvement can help!
- ❑ Strengthening practice-based evidence
  - Peer learning and stories from the field (NPHII, PHQIX, COPPHI)
  - Publication of practice activities
- ❑ Exploring the return on investment (ROI) for public health and for quality improvement
  - New ROI tool developed by the Association of State and Territorial Health Officials
  - NPHII grantee experiences in exploring ROI

# In Summary . . .

1. Changes in public health and public health standards
2. Winnable battles
3. Cross-jurisdictional collaboration
4. Partnerships
5. Leveraging connections
6. Health reform
7. Health and public health financing
8. Value, impact, and return on investment



**Reactions? Questions?**

**Additional points?**

# Continuing the Conversation



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**Have You Heard?**

*Facts from the Field*



Saving Lives.  
Protecting People.  
Saving Money  
Through Prevention.

# Thank You!

**For more information, please contact the Centers for Disease Control and Prevention.**

1600 Clifton Road NE, Atlanta, GA 30333

Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) Web: <http://www.cdc.gov>

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



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