Performance improvement intersects analytical integrity:

Putting the Lean Mindset to Work to Raise Analytical Quality and Boost Patient Care

ROBERT L. MICHEL
Editor In Chief

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rmichel@darkreport.com
ph: 512-264-7103
fax: 512-264-0969

A New Premise In Lab Testing

Medical laboratories must now perform to a higher standard of quality—and that standard is increasing.

How Is "Quality" Changing?

- Primary emphasis: increased precision of analytical test results that directly support improved patient outcomes.
  - *Integrity, accuracy, reproducibility, quality*
- Secondary emphasis: quality service as experienced by patients.
  - *Lab appointments, specimen collection, billing, patient service calls, and more*

New Quality Mindset for Labs

- Perfect timing for labs to use Lean, Six Sigma, and similar methods specifically to improve quality of analytical test results.
- Assembled at this year's *Lab Quality Confab* are leaders in this trend.
- Nation's first-ever look at the intersection of process improvement methods with lab test analytical quality.

Our discussion Today

- **One:** Review industry trends reinforcing need for continuous improvement.
- **Two:** Discuss soon-to-be urgent gap between primary trends, new healthcare legislation, and needs of laboratories.
- **Three:** Identify examples of publicized lab failures caused by quality failures.
- **Four:** Explore how labs can improve analytical quality and overall quality.

Now Let's Drill Down…

- New Federal health legislation will dramatically change existing healthcare landscape.
- Most mandates happen two to six years down the road—short term impact is uncertain.
- One thing is sure: increased taxes on providers and medical suppliers, as well as less reimbursement.

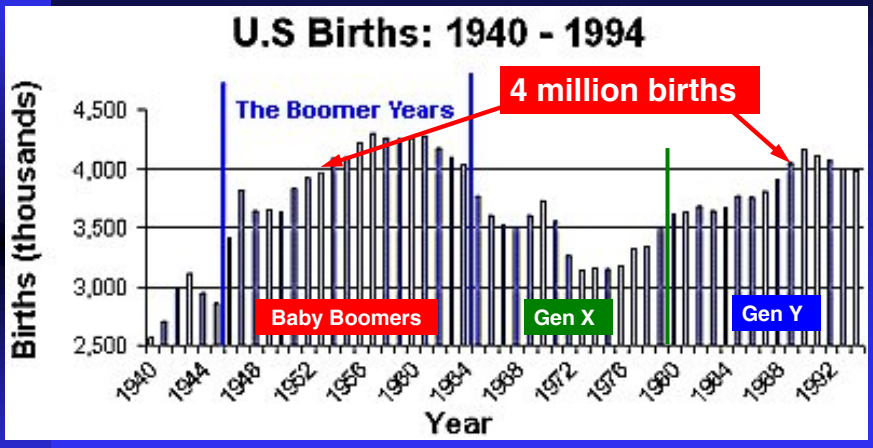
Macro Forces Already at Work

- Baby Boomers are retiring.
- Let me repeat that:

  "Baby Boomers are Retiring!"

- Starting January 1, 2011, every hour, 360 Baby Boomers turn 65 years old.
- Politicians and health policy wonks have been less than forthcoming with American public on this issue.

Baby & Echo Booms in U.S.



In 2011, every 10 seconds,
a Baby Boomer turns 65 years old!

Stand

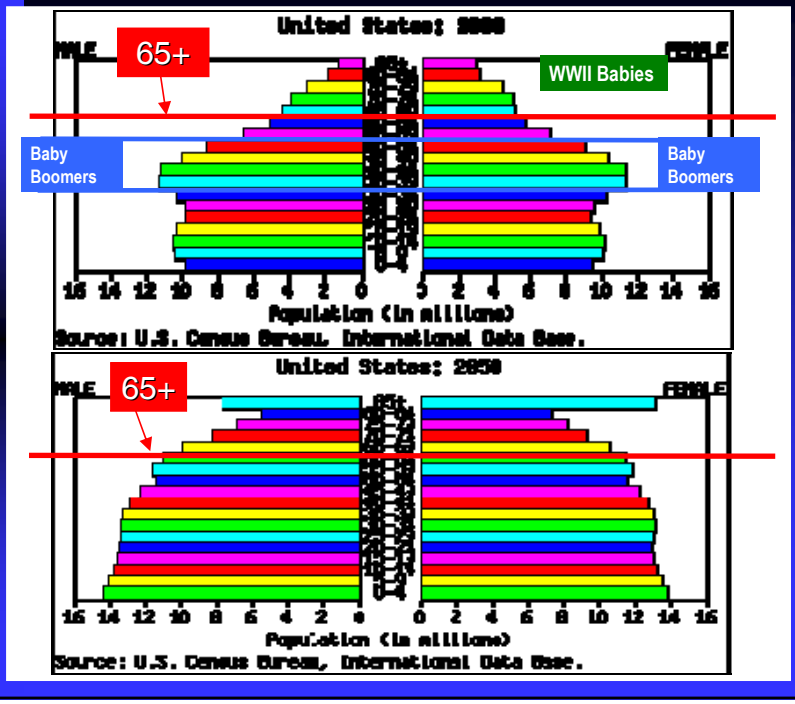
Consider the Demographics! Meet the "Silver Tsunami"

(All developed countries have a similar demographic situation)

- Today: 310 million Americans
- Currently 65+ = 38,690,169 (17%)
- Baby Boomers = 80,000,000 (26.4%)

- In 2050: 420 million Americans (est.)
- In 2050: 65+ = 86,705,637 (20.5%)

Source: U.S. Census Data



Silver Tsunami's Direct Implications for Lab Medicine

- Utilization of lab tests is about to skyrocket over the next decade!
- Commercial lives (under 65 years), average about 2 lab tests per person per year in the United States.
- Medicare lives (65 or older) average about 9+ lab tests per person per year in the U.S.
- 80 million baby boomers are rapidly advancing into this age cohort.
- **Do the math: 80 million X 9 tests!**

Worsening Health in the U.S.

- United States is experiencing declining health at a startling rate.
- Parallel trends in other developed countries, like the United Kingdom.
- Widespread incidence of chronic diseases.
- Younger people show symptoms of chronic conditions typically seen in middle-aged adults.
- Obesity is one example.

Obesity Trends Among U.S. Adults between 1985 and 2009

Definitions:

- Obesity: Body Mass Index (BMI) of 30 or higher.
- Body Mass Index (BMI): A measure of an adult's weight in relation to his or her height, specifically the adult's weight in kilograms divided by the square of his or her height in meters.

Obesity Trends Among U.S. Adults between 1985 and 2009

Source of the data:

- The data shown in these maps were collected through CDC's Behavioral Risk Factor Surveillance System (BRFSS). Each year, state health departments use standard procedures to collect data through a series of telephone interviews with U.S. adults.
- Prevalence estimates generated for the maps may vary slightly from those generated for the states by BRFSS (http://aps.nccd.cdc.gov/brfss) as slightly different analytic methods are used.

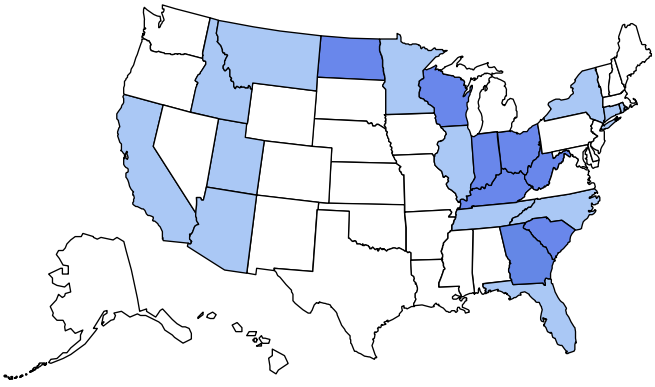
Citations

- BRFSS, Behavioral Risk Factor Surveillance System http: //www.cdc.gov/brfss/
- Mokdad AH, et al. The spread of the obesity epidemic in the United States, 1991—1998 *JAMA* 1999; 282:16:1519–22.
- Mokdad AH, et al. The continuing epidemics of obesity and diabetes in the United States. *JAMA*. 2001; 286:10:1519–22.
- Mokdad AH, et al. Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *JAMA* 2003: 289:1: 76–9
- Vital Signs: State-Specific Obesity Prevalence Among Adults —United States, 2009 *MMWR* 2010;59(30).

Obesity Trends* Among U.S. Adults

BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

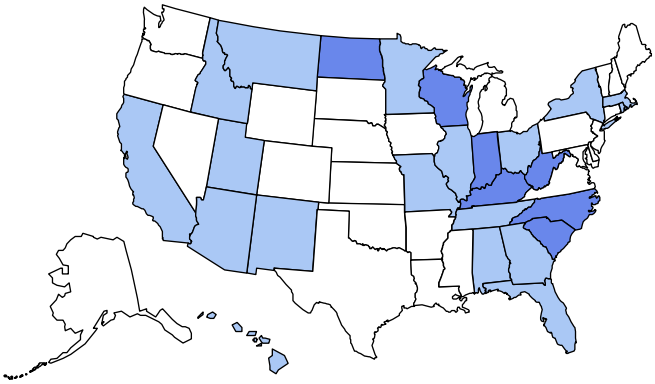


No Data | <10% | 10%–14%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1986

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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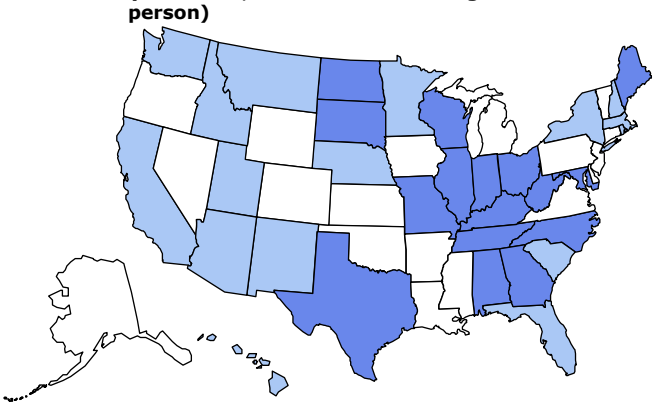
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1987

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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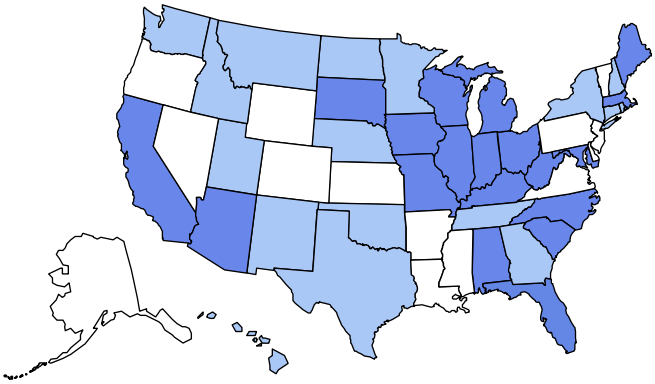
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1988

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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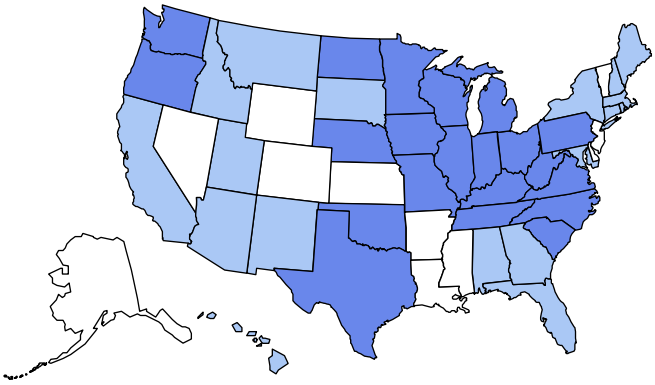
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1989

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

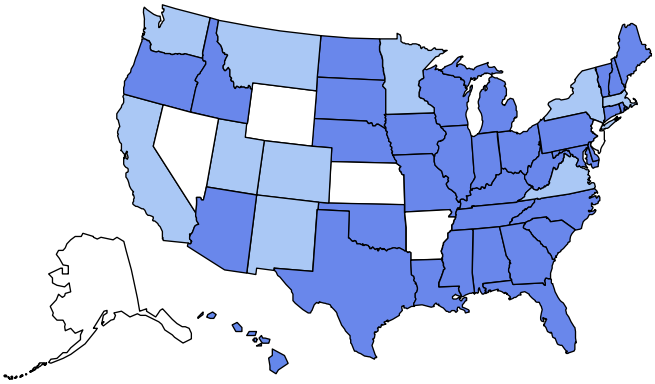


No Data | <10% | 10%–14%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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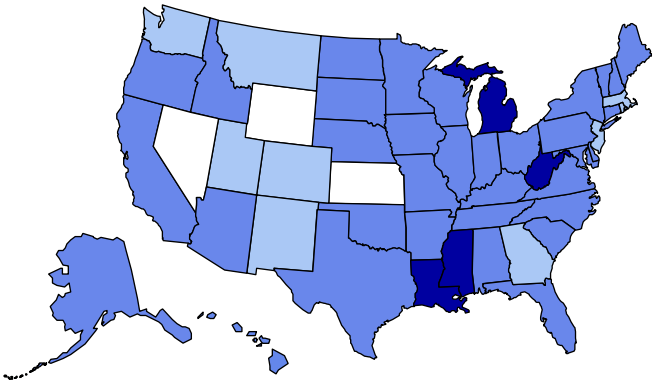
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1991

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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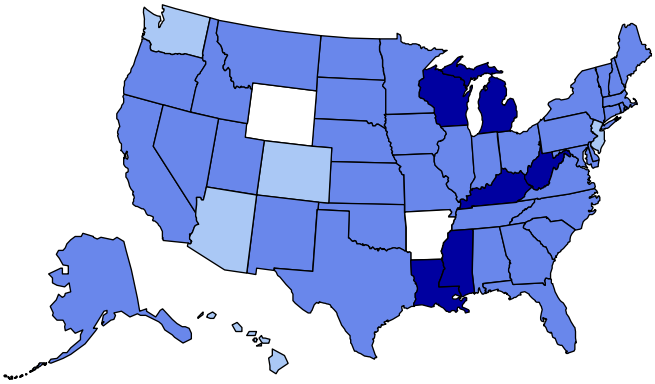
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1992

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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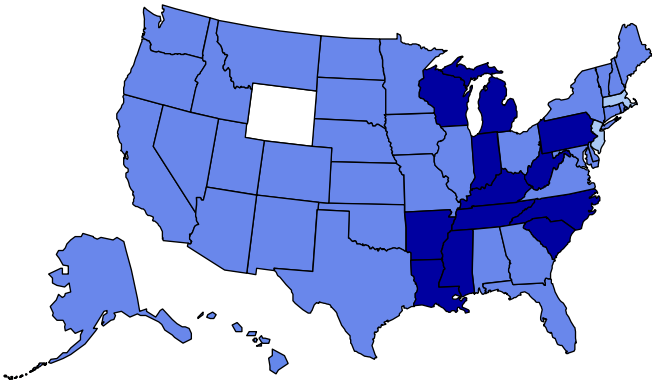
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1993

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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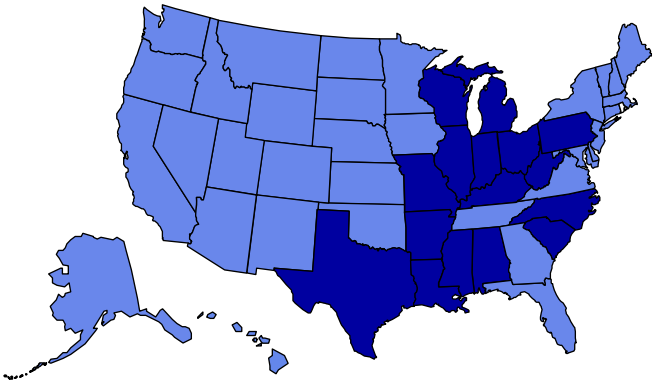
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1994

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



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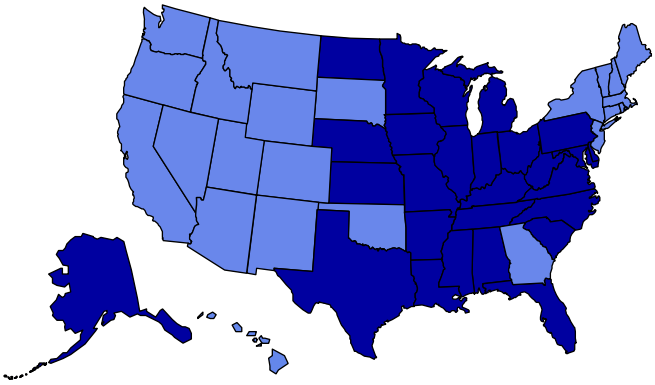
Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1995

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

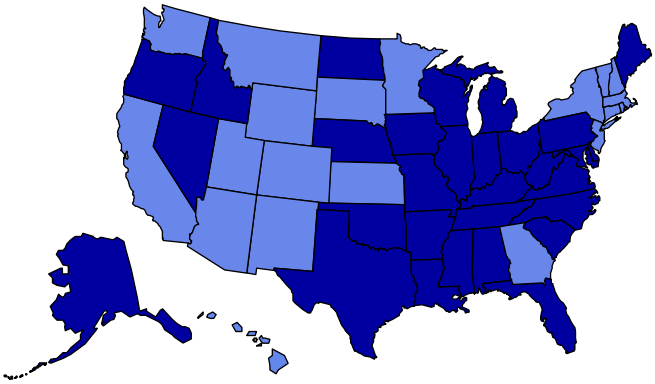


No Data | <10% | 10%–14% | 15%–19%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1996

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

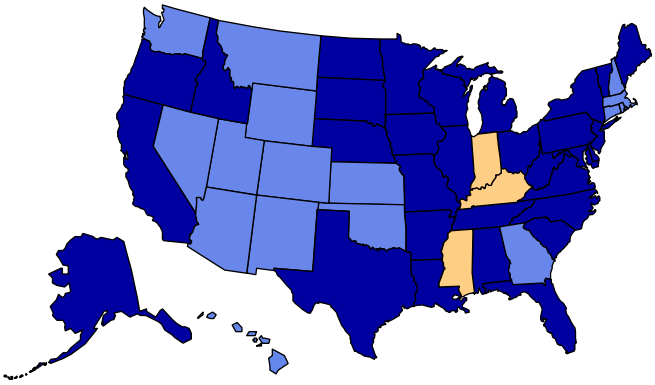


No Data | <10% | 10%–14% | 15%–19%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1997

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

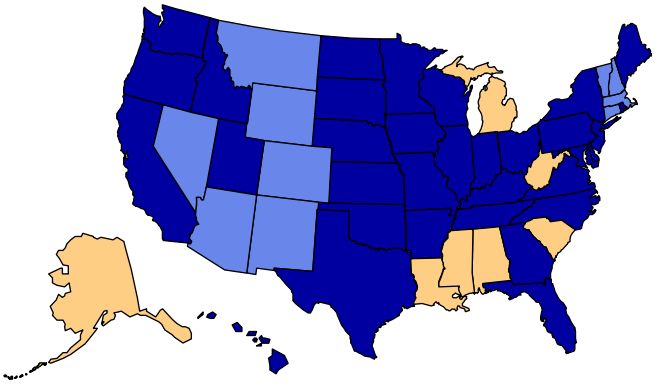


No Data | <10% | 10%–14% | 15%–19% | ≥20%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1998

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

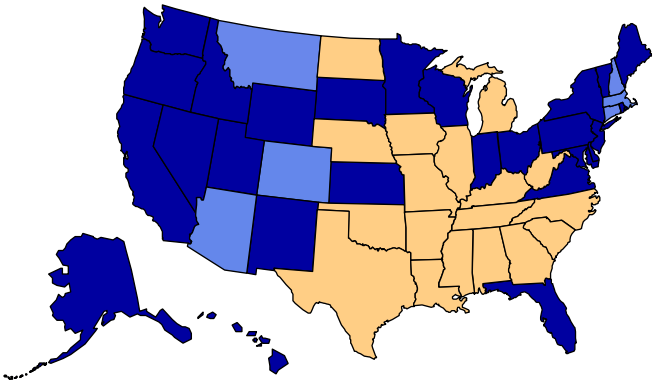


No Data | <10% | 10%–14% | 15%–19% | ≥20%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 1999

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

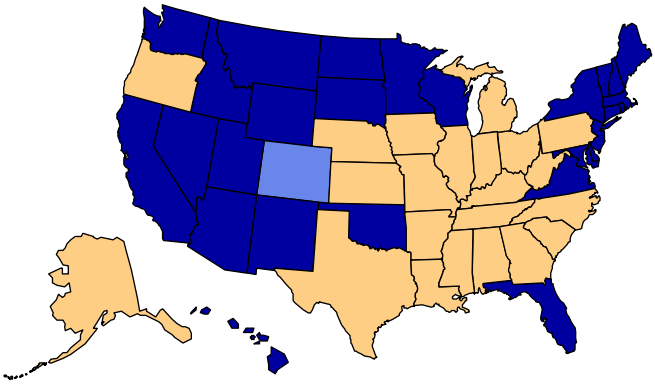


No Data | <10% | 10%–14% | 15%–19% | ≥20%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 2000

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

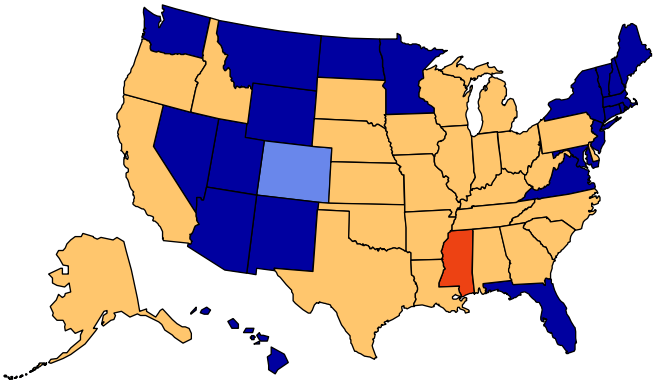


No Data | <10% | 10%–14% | 15%–19% | ≥20%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

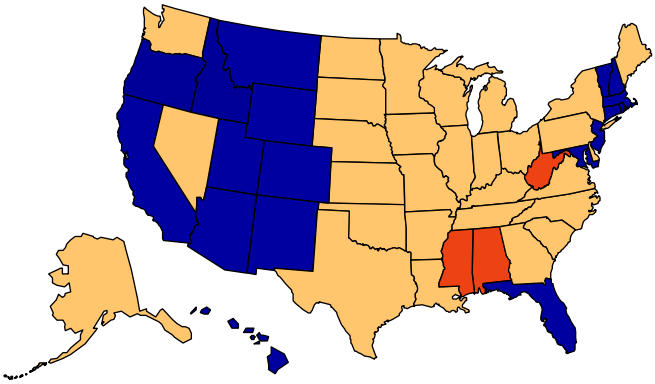


No Data | <10% | 10%–14% | 15%–19% | 20%–24% | ≥25%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

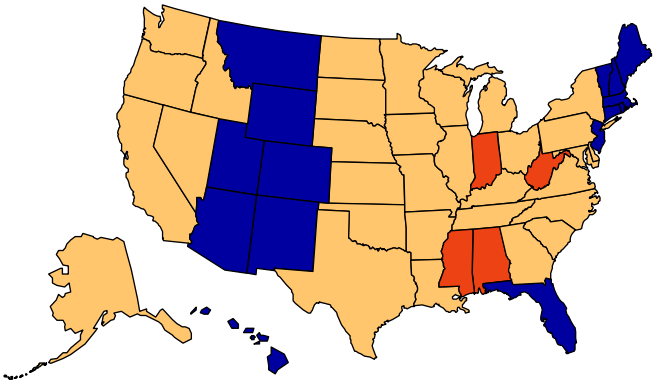


No Data | <10% | 10%–14% | 15%–19% | 20%–24% | ≥25%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 2003

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

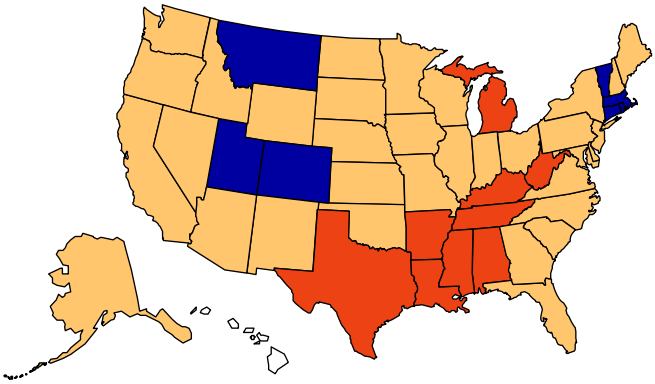


No Data | <10% | 10%–14% | 15%–19% | 20%–24% | ≥25%

Source: CDC Behavioral Risk Factor Surveillance System.

Obesity Trends* Among U.S. Adults
BRFSS, 2004

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

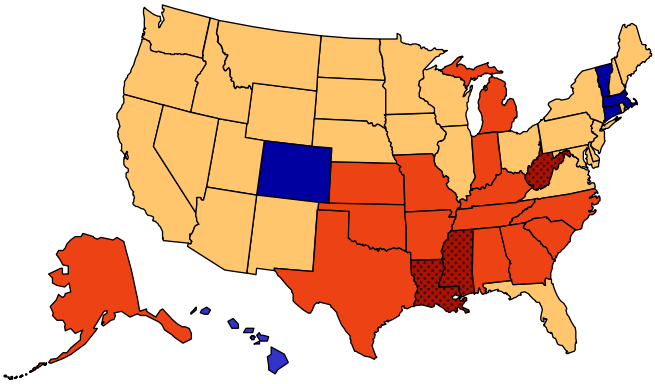


No Data | <10% | 10%–14% | 15%–19% | 20%–24% | ≥25%

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2005

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

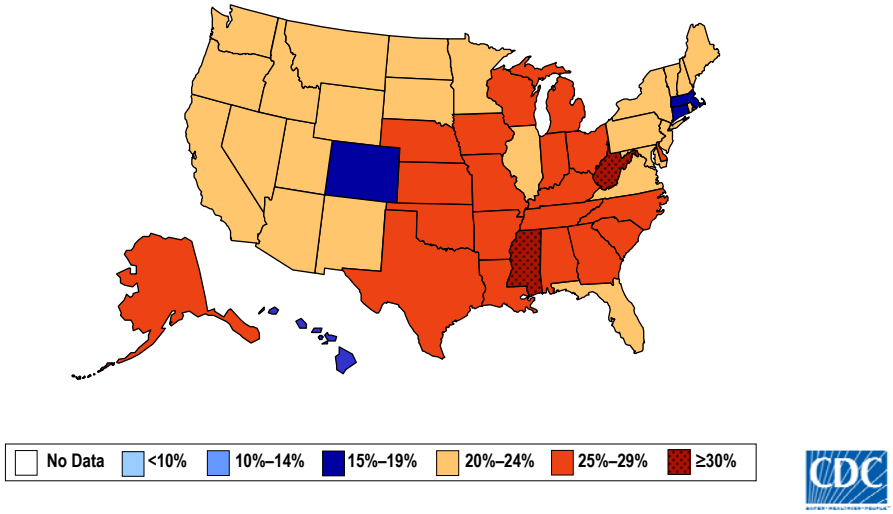


No Data | <10% | 10%–14% | 15%–19% | 20%–24% | 25%–29% | ≥30%

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2006

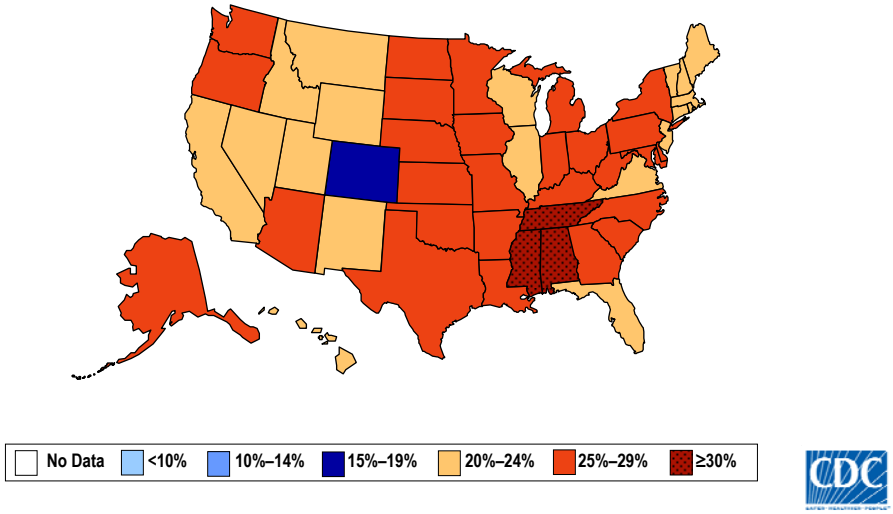
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2007

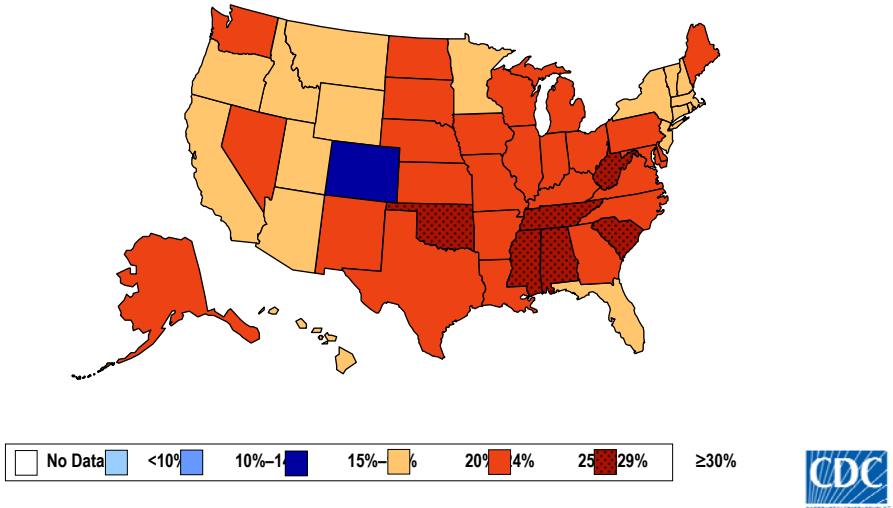
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2008

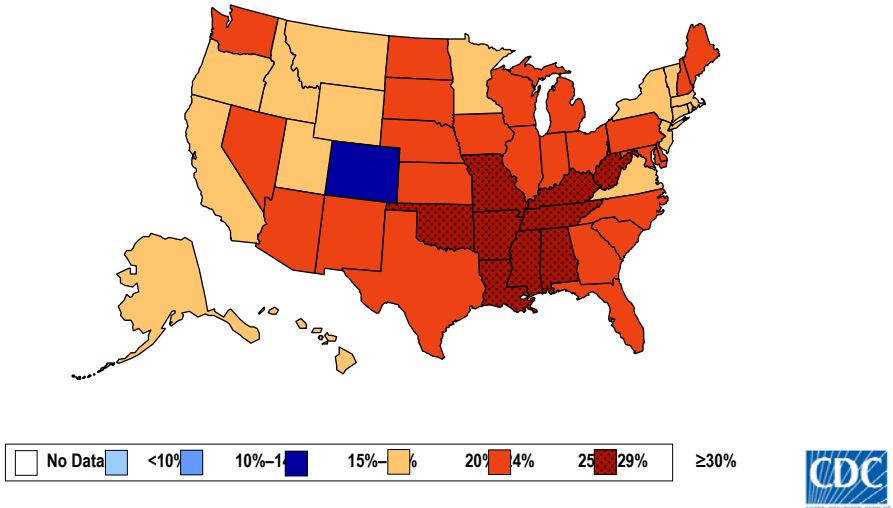
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2009

(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

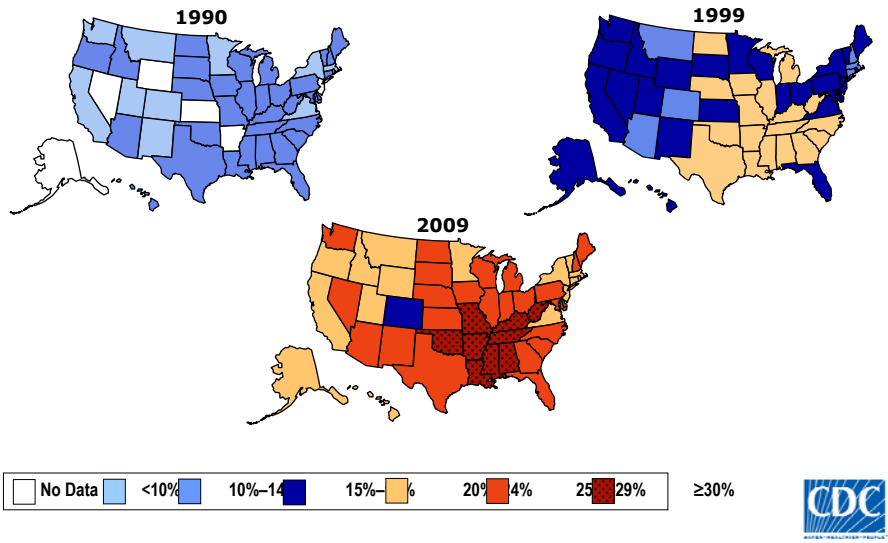


Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults

BRFSS, 1990, 1999, 2009

(*BMI ≥30, or about 30 lbs. overweight for 5'4" person)



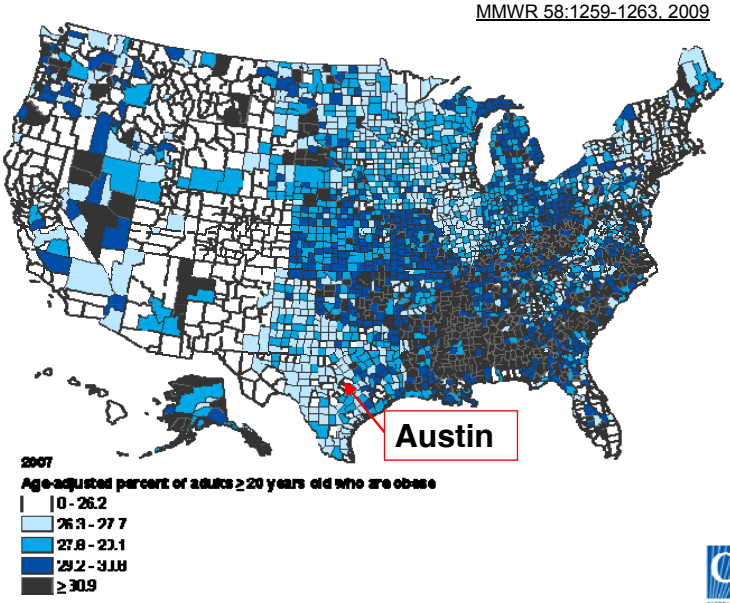
Source: Behavioral Risk Factor Surveillance System, CDC.

Now… Let's Pair Obesity with Diabetes

- Assume 40 million Americans have adult-onset diabetes.
- Assume 50% (or 20 million) are undiagnosed.
- Let's look at how diabetes correlates with obesity.

Age-adjusted percentage of adults aged ≥20 years who are obese, 2007

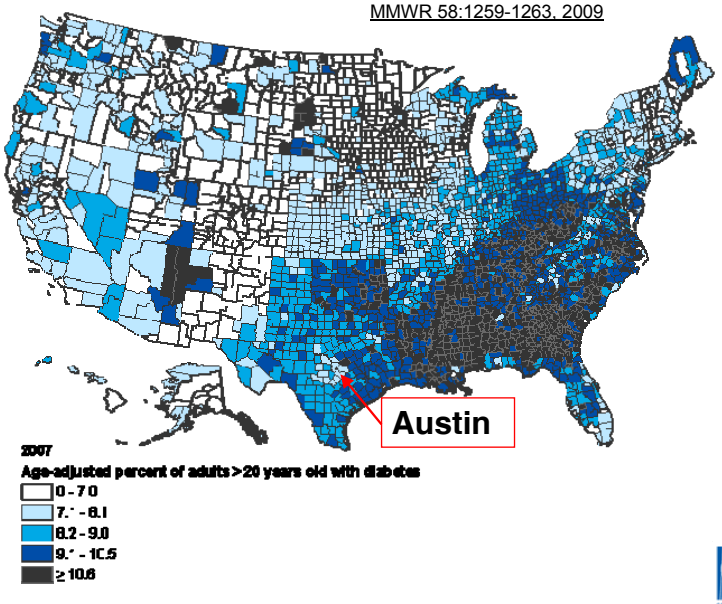
MMWR 58:1259-1263, 2009



Source: Behavioral Risk Factor Surveillance System, CDC.

Age-adjusted percentage of adults aged ≥20 years with diagnosed diabetes, 2007

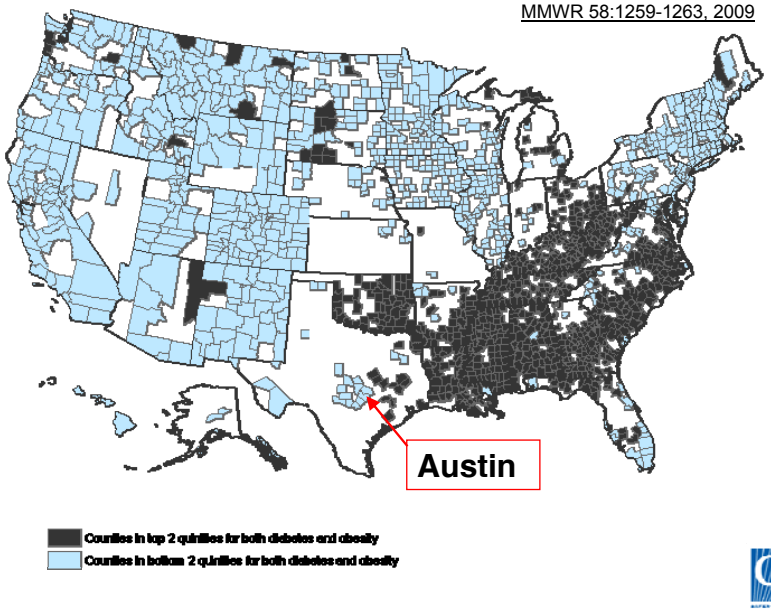
MMWR 58:1259-1263, 2009



Source: Behavioral Risk Factor Surveillance System, CDC.

Counties in the top and bottom two quintiles of both diabetes and obesity, 2007

MMWR 58:1259-1263, 2009



Source: Behavioral Risk Factor Surveillance System, CDC.

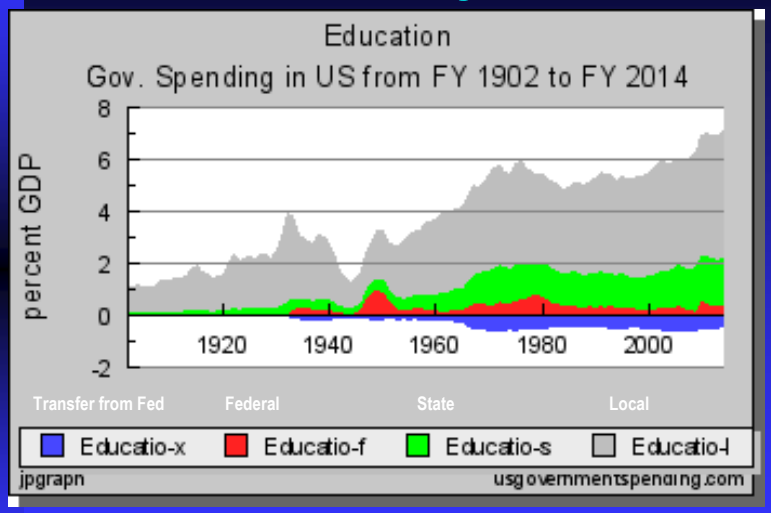
Add It Up…

- President, Congress, health policymakers do not discuss near-term consequences of these trends.
- More people in their 6th decade of life.
- More people with chronic conditions.
- Use of health services—including lab testing—about to **zoom**!

This Is a Money Problem

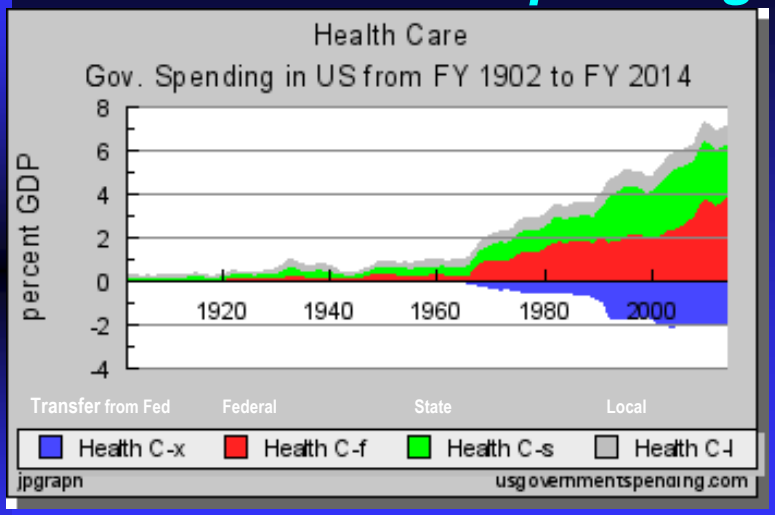
- Medicare and Medicaid do not have funds to sustain services at needed levels.
- So governments do what they always do:
  - 1) Pay less to providers.
  - 2) Restrict access via guidelines.
  - 3) Refuse to cover new and/or expensive health services, drugs, lab tests.

Unsolvable Money Problem?



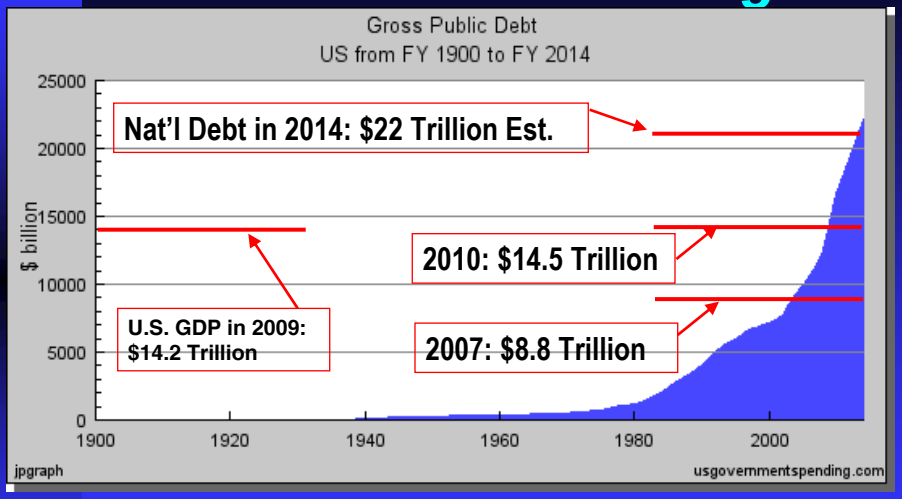
From 2000-2014, federal spending on education will climb from 5% to 7.5% of budget.

More Healthcare Spending!



From 2000-2014, federal spending on healthcare will climb from 5% to 7.5% of budget.

National Debt Is Soaring!



By FY 2014, federal debt is projected to reach $22 Trillion

Inadequate Funds for Health

- Government at federal, state, local levels will not be able to adequately fund healthcare system.
- Healthcare needs solutions that improve outcomes while lowering cost of care.
- This strikes to the sweet spot of laboratory medicine.

International Incidents Reported in the News

Lab Error Events Since 2000

- 2000-06: Nichols Institute Diagnostics (NID) manufactures and distributes inaccurate test kits, per Dept. of Justice
- 2004: Maryland General Hospital Lab
- 2005: Breast cancer testing errors in Newfoundland and Labrador
- 2007-08: Pap testing issues in Ireland
- 2008: Pathology testing problems in Ontario, Manitoba, New Brunswick

Lab Error Events Since 2000

- 2007-2008: Inaccurate Vitamin D results at Quest Diagnostics Incorporated *(Estimated that as many as 500,000 patients affected over 18 months).*
- In 2009, Quest Diagnostics and its subsidiary Nichols Institute Diagnostics entered into $302 million settlement with U.S. Department of Justice related to problems with certain types of lab tests.

Lab Error Events Since 2000

- 2009: Breast cancer testing problems in Quebec.
- 2009: Serious deficiencies in start-up of Labtests in Auckland, New Zealand.
- 2009: Whistleblower pathologist in Saskatchewan says shortage of pathologists in the province contributes to errors and misdiagnoses.
- 2010: Molecular diagnostics lab at Georgetown University Medical Center closed after failing proficiency testing.

Let's Take a Quick Look

- Recent publicized episodes in Canada can be instructive.
- Key details about specific problems have not been made public in every case of systemic or unacceptable rates of errors in laboratory test results.
- What follows are "snapshots" and public comments made about discoveries of laboratory errors.

Newfoundland, Labrador 2005

- In May 2005 Eastern Health discovered errors in hormone receptor breast cancer test results from a histology lab in St. Johns, Newfoundland.
- Affected patients had been tested between 1997 and 2005.
- Up to 1,500 patients authorized for retesting based on indications of errors in original test result report.

Newfoundland, Labrador 2005

- After retesting, Eastern Health concluded that 383 patients had received erroneous results, of whom 117 required a change to their treatment programs.
- More than 100 of the women whose lab results were reviewed had died prior to this review.

Newfoundland, Labrador 2005

- A judicial enquiry, on Tuesday [March 2, 2009], reported that the protocols and procedures at the health authority at the centre of a breast-cancer-testing scandal in Newfoundland and Labrador were “so deficient as to be practically non-existent.”

Pathology Testing-Ontario

May, 2008, Owen Sound, Ontario:

- After routine quality control testing identified an error by pathologist Barry Sawka, M.D., at Owen Sound Hospital, a more detailed review of 600 of his cases was launched.
- Grey Bruce Health Services, the local health authority, determined that the error rate was 6%, which health officials stated was six times the "the normal error rate for pathologists." These misdiagnoses lead to errors in treating patients.

Testing Problems-Manitoba

May, 2008, Winnipeg, Manitoba:

- Pathologist Robert Stark, M.D., was put on leave from his position as head of the pathology department at St. Boniface Hospital.
- The outside pathology review of this lab, including approximately 822 of the cases diagnosed from February 2008 and complex cancer cases dating back to March 2007, determined that errors were made in at least 42 cases and two patients received the wrong cancer diagnosis due to error.

Testing Problems-New Brunswick

February 2008, Miramichi, New Brunswick:

- Pathologist Rajgopal Menon, M.D., left his position as head of pathology at Miramichi Regional Hospital following a review of 227 cases of prostate and breast cancer biopsies from 2004-2005.

Testing Problems-New Brunswick

These independent reviews determined:

- 18% of the cases had incomplete results.
- 3% were misdiagnosed.
- 41 cases included incomplete protocols or examinations and or miscalculated the stage of the cancer.
- Compared to the original diagnosis, there were seven cases of undetected cancer, and four additional cases that were possibly cancerous.

Testing Problems-New Brunswick

- Health officials announced they would review as many as 24,000 cases.
- Menon characterized this review as “unjustified and unfair.”
- He filed a civil suit against the regional health authority.

Testing Problems-Quebec

May/June, 2009: Montreal, Quebec:

- The province's health department has ordered 2,100 new tests after a tiny pathology study exploded on the Quebec scene last week, suggesting that 15 to 30 per cent of breast-cancer tests were botched, throwing patients into a panic about the reliability of their tests and health status.

Montreal Gazette, June 6, 2009

Testing Problems-Quebec

- "Not only are Quebec's ill-equipped, underfunded and short-staffed laboratories under a microscope, but the government was forced to revise its standards and is now setting up a universal quality control program.
- "Effective immediately, all provincial labs will be required to have external audits of their tests. Some labs are already doing that."

Montreal Gazette, June 6, 2009

Testing Problems-Quebec

- "Gaetan Barrette, head of Quebec's federation of medical specialists, said problems in the labs are long-term and systemic. It's not just breast cancer tests that are at risk, but all cancer testing, Barrette said."

Montreal Gazette, June 6, 2009

Testing Problems-Quebec

- "St. Mary's Hospital Centre is the only Quebec facility to have a CAP accreditation, and it took a decade to achieve, said chief pathologist Ron Onerheim. Having no quality control program is a red flag, he said."

Montreal Gazette, June 6, 2009

Findings from Review

- Canadian Press, December 17, 2009:
- Out of 2,856 exams reviewed, 87 errors were found in the test results.
- The new provincial study, released Wednesday, confirms 39 cancer sufferers failed to receive the proper care (of which five have died).
- PhenoPath of Seattle, Washington conducted the outside review.

Quebec Specialists Speak

December 17, 2009 Press Conference

- *"The FMSQ is, however, disappointed that **the detection threshold selected was so high that that one wonders why it was even considered.** In fact, the great majority of patients whose [estrogen receptor] results ranged from 1% of positive cells to the 10% threshold stated at this morning's press conference by the Minister and his experts, Drs Bernard Têtu and André Robidoux, **could benefit from an adjustment to their treatment in the same way as the 87 patients identified so far.**"*

Gaétan Barrette, MD, President, Quebec Association of Medical Specialists (FMSQ).

This Argues for Quality

- Why shouldn't labs be constantly raising the bar on analytical quality?
- Could pathology labs that test tissue benefit from use of a QMS?
- Shouldn't process improvement projects go beyond measuring work flow and operational gains?
- It's time to target how process improvement can improve analytical quality.

More on Newfoundland

CBC News, May 23, 2008:

- "A new wage package for Newfoundland and Labrador's struggling pathologists moves the province to the top of the heap for compensation, Premier Danny Williams says. Williams announced the package — **which includes a $73,000 annual wage increase for pathologists for this year alone** — late Thursday…"

Inadequate Lab Resources?

CBC News, May 23, 2008:

- "The raise comes amid testimony at the Cameron inquiry on flawed breast cancer tests, **in which workload, understaffing, and pay for pathologists have frequently been identified as perennial problems** in the province's hospitals."

Canada–Inadequate Funding?

- During past decade, in provinces such as Ontario and British Columbia, histopathology costs were scrutinized.
- New contracts with pathologists contributed to reduced rate of spending on anatomic pathology testing services.
- Year-to-year budgeted funding for laboratory testing services in some provinces has not kept pace with inflation, test utilization, and acquisition of new diagnostic technology.

It Can't Happen in USA?

The Washington Post

Georgetown U. Hospital closes lab after problems with breast cancer tests

By Lena H. Sun and Carol D. Leonnig
Washington Post Staff Writer
Friday, August 6, 2010; A01

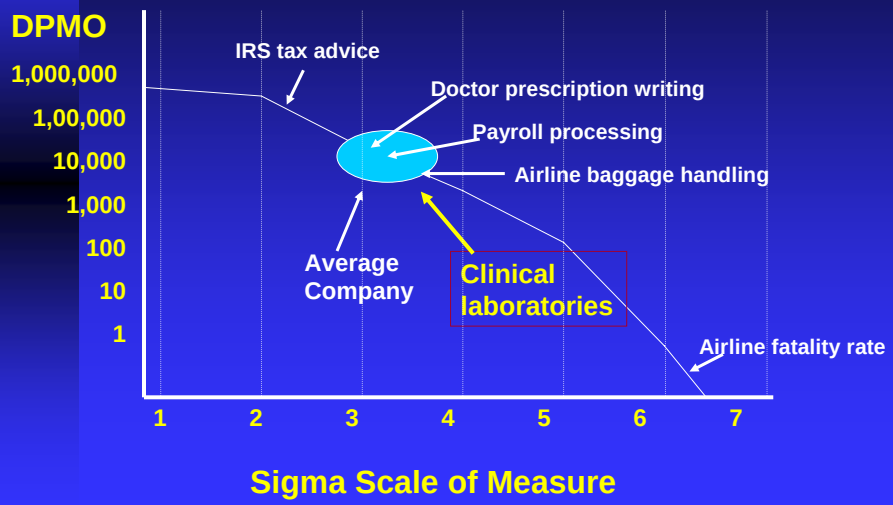
ent to outside labs, Stephen Evans, the hospital's chief medical officer, said this week. He said the suspension was unprecedented. Federal officials are

Reported on Friday, August 6, 2010

Understanding Six Sigma Quality

Sigma Level	Defects per Million Opportunities	Yield
6	3.4	99.9997%
5	233	99.977%
4	6,210	99.379%
3	66,807	93.32%
2	308,537	69.2%
1	690,000	31%

Where Does the Laboratory Industry Stand?



Six Sigma for Lab Processes

Q-Probe QUALITY INDICATOR	% ERROR	DPM	SIGMA*
TDM timing errors	24.4	244,000	2.2
Cytology specimen adequacy	7.32	73,700	2.95
Surgical pathology specimen accessioning	3.4	34,000	3.3
PAP smear rescreening false negatives	2.4	24,000	3.45
Order accuracy	1.8	18,000	3.6
Surg path froz sect diagnostic discordance	1.7	17,000	3.6
Duplicate test orders	1.52	15,200	3.65
Laboratory proficiency testing	0.9	9,000	3.85
Wristband errors (not banded)	0.65	6,500	4
Hematology specimen acceptability	0.38	3,800	4.15
Chemistry specimen acceptability	0.3	3,000	4.25
Reporting errors	0.0477	477	4.8
*Conversion using table with allowance for 1.5s shift			

The following Sigma metrics are drawn from Nevalainen D, Berte L, Kraft C, Leigh E, Morgan T.: "Evaluating Laboratory Performance on Quality Indicators with the Six Sigma scale." *Arch Pathol Lab Med 2000*;124:516-519.

Quality Management Systems

- QMS is *not* QA/QC.
- QMS is a comprehensive management philosophy appropriate for use in all operational and service areas of the enterprise.
- Key differences from earlier management paradigms:
  - Customer defines quality.
  - Continuous improvement.
  - **System of prevention**.
  - Rigorous use of real time data.

ISO 15189 is Global QMS

- More countries use ISO 15819 for laboratory accreditation and/or licensing.
- In the U.S., CAP and A2LA offer ISO 15189 accreditation services.
- Today and tomorrow, you can hear about ISO 15189 from CAP, A2LA, QMP-LS accrediting bodies.
- ISO 15189 provides laboratories with an appropriate QMS

Can Labs Achieve Six Sigma?

- Airline industry achieves 6+ Sigma in fatalities.
- Public knows about “bad outcomes” when a plane crashes.
- What prevents clinical laboratory industry from achieving Six Sigma performance when handling, testing, and reporting patient specimens?

Tackling Analytical Quality

- This Lab Quality Confab recognizes the opportunity for labs to use performance improvement methods to improve analytical quality.
- Visionaries and First-Movers are here to share their knowledge.
- This is the next frontier for QA/QC and QMS in medical laboratory management.

During This Session

- Luci Berte on QMS
- Chinu Jani to discuss ISO 15189 adoption at Specta Laboratories.
- Chris Christopher to lay out his vision of the “virtual laboratory” of tomorrow.
- Challenge your thinking! Move beyond the ordinary to the extraordinary.
- Your patients will thank you.

Each Afternoon on QMS

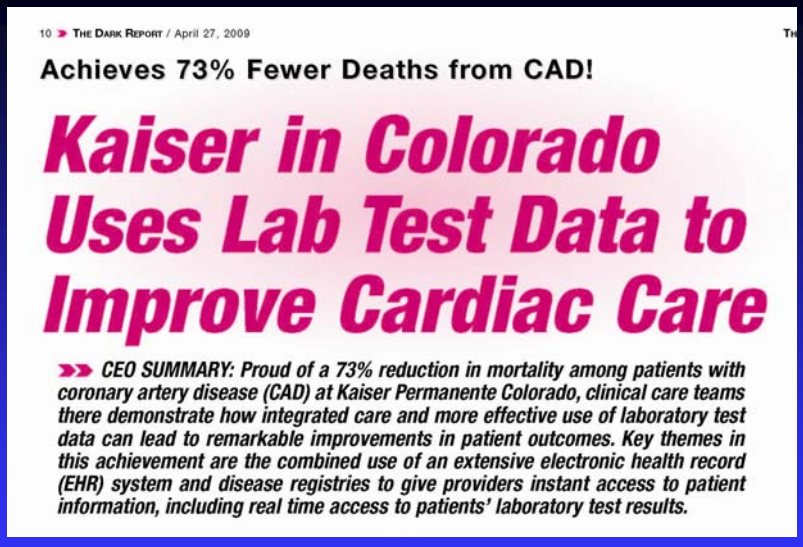
- Georgene Cook on ISO 15189 "Do's and Don'ts".
- Julie Coffey of QMP-LS on Ontario's eight years of ISO 15189 accreditation.
- Dan Tholen on of A2LA on QMS and its role with ISO 9001 and ISO 15189.
- Panel Discussion today on shifting the lab management paradigm with quality management systems.

Tomorrow's General Session Raising Analytical Quality

- Michael Astion, MD, PhD, on using industrial engineering methods in pre- and post-analytical stages to improve analytical quality.
- Michael Noble, MD., PhD, on how performance improvement techniques can simultaneously improve analytical quality.
- Curtis Parvin, MD, specific ways to use QA/QC to manage analytical accuracy.

First-Time these Experts Are Together at the Same Time

- It's the first-ever event when these experts come together and speak.
- Gives you an unprecedented opportunity to view the next goals in quality management.
- Provides you with a head start to put your lab in front of the competition, and…
- A head start on contributing to better patient outcomes through more accurate analytical quality.



10 » The Dark Report / April 27, 2009

Achieves 73% Fewer Deaths from CAD!

Kaiser in Colorado Uses Lab Test Data to Improve Cardiac Care

» CEO SUMMARY: Proud of a 73% reduction in mortality among patients with coronary artery disease (CAD) at Kaiser Permanente Colorado, clinical care teams there demonstrate how integrated care and more effective use of laboratory test data can lead to remarkable improvements in patient outcomes. Key themes in this achievement are the combined use of an extensive electronic health record (EHR) system and disease registries to give providers instant access to patient information, including real time access to patients' laboratory test results.

Use of targeted laboratory testing, including POCT, reduced cardiac readmission rates. Mortality from CAD declined 73%, number of patients meeting cholesterol goal went from 26% to 73%. 12,000 patients were enrolled in the Collaborative Cardiac Care Services (CCCS) program.

10 ➤ The Dark Report / March 29, 2010

➤➤ *CEO Summary: In a thinly-populated region the size of Texas and New Mexico combined, an integrated clinical care program based on point-of-care testing (POCT) has delivered impressive gains in health outcomes. For rural residents, mortality rates from cardiovascular disease have fallen by 50%. There were comparable declines in hospital length of stay and the rate of readmissions. A reliable test result and speed to answer from POC testing is a major factor in these improved outcomes.*

The Dark Report / www.darkreport.com ➤ 11

added. Faced with waiting for the once-a-day troponin run, most physicians continued to rely on the CK-MB assay.

At the same time that Tideman was pondering how to make the switch to troponins at this Adelaide hospital, he was also consulting with rural hospitals in an effort to improve survival rates for their cardiac patients. "Most of the data would suggest that an individual had twice the risk of dying from coronary heart disease if he or she lived in country areas compared with metropolitan areas," observed Tideman.

Tideman explained that South Australia has a highly centralized population, with two-thirds of its 1.6 million people located

"At this time, it was typical to transport blood specimens 200 kilometers (124 miles) or more—sometimes a lot more," recalled Tideman. "Some remote centers were transporting a sample as much as 1,000 kilometers (620 miles)! The specimens traveled overland by bus, taxi, or private car.

"If the specimens arrived at a peripheral hospital at night or on the weekend, laboratory staff would have to be called in," commented Tideman. "Turnaround times were at best six hours, but often as long as 24 hours. With so much time between the blood draw and running the test, some routine laboratory test results, such as potassium levels, were unreliable."

Use of Point-of-Care Testing Reduces Mortality by 50%

In the Australian state of South Australia, mortality rates in rural ares were twice that of Adelaide, the state's capital. POCT was deployed in rural clinics as part of iCCnet SA, or Integrated Cardiovascular Clinical Network for South Australia.

Soon, mortality rates in rural areas declined to the same level as Adelaide. POCT allowed improved triaging of patients, so needless visits to hospital ERs were avoid. Savings were substantial and the program continues today.

My Sources of Information

- Since 1995, Editor of **The Dark Report** on laboratory and pathology Management.
- Published every third Monday for 14 years.

- **DarkDaily.com**, published since 2006.
- E-briefings issued 4 times per week.
- Free service.