

State Epidemiology Capacity and Workforce

**Where we are now, Where we've
been, and a Vision for the next
decade**

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Outline

- Background
- Where we are now: 2009 ECA highlights
- How did we get to where we are now?
- Where do we go from here?
 - What contributes to epi capacity?
 - Vision for next decade

Background

Importance of Epidemiology

Epidemiology is the foundation of all public health functions and is essential for the detection, control, and prevention of major public health problems.

How much epidemiology capacity do we need?

1988 & 2002 - IOM recommended that every health dep't regularly and systematically collect, analyze and make available info re: health of community

- ***What capacity is needed to do this?***

CDC and State HDs – basic planning questions:

- ***What is current capacity nationally?***
- ***What is optimal capacity – # epis per 100,000 population?***
- ***Is the capacity in my state in the ball park of what other states have?***

HP 2010 objective 23-14: increase in the proportion of state and local public health agencies that provide or assure comprehensive epi services to support essential services of public health

CSTE's Epidemiology Capacity Assessment

- Long history of CSTE and CDC trying to define & build state-level epidemiology capacity
- 2001 - first of current series of standardized national ECAs:
 - Purpose: ***assess epi capacity in states – assessment of capacity to perform the 10 Essential Services of Public Health***
 - Baseline assessment for HP 2010: 23-14
- Periodic Standardized Assessments since
 - 2004, 2006 and 2009

Four ESPH Dependent on Epi and Surveillance Capacity

- **Monitor** health status to identify & solve community problems
- Diagnose & **investigate** health problems & hazards
- **Evaluate** effectiveness, accessibility & quality of personal and population-based services
- **Research** for new insights & innovative solutions

Milestones in Epi Capacity Building

- 1980s – interest in developing epi capacity in non-ID areas grew
 - National Center for Chronic Disease Prevention and Health Promotion est. in 1988, subsequent cooperative agreements for non-ID areas
- 1990s – concept of multiple “state epidemiologists” or “program area epidemiology leaders” - ID, chronic disease, MCH, environmental health, occupational health, injury
 - CSTE executive committee representation in specific program areas
- 2000s – epidemiology workforce development

Where we are now

2009 ECA

Objectives – 2009 ECA

Assess current epidemiology capacity and recent trends:

- conduct the periodic enumeration and characterization of state-employed epidemiologists
- measure current core epidemiology capacity
 - Overall and in key program areas
 - Surveillance system technologic capacity

Supplements to assess chronic disease and MCH capacity in more detail

Methods

- Questionnaire sent on-line to each State Epidemiologist
 - April 1- June 30, 2009 response period
 - Individual worksheets for details on epi workforce
- Each state given opportunity to review their submission
 - Total number of epidemiologists actively verified with State Epidemiologist
- Response rate
 - 100% at state level
 - 70% at individual level

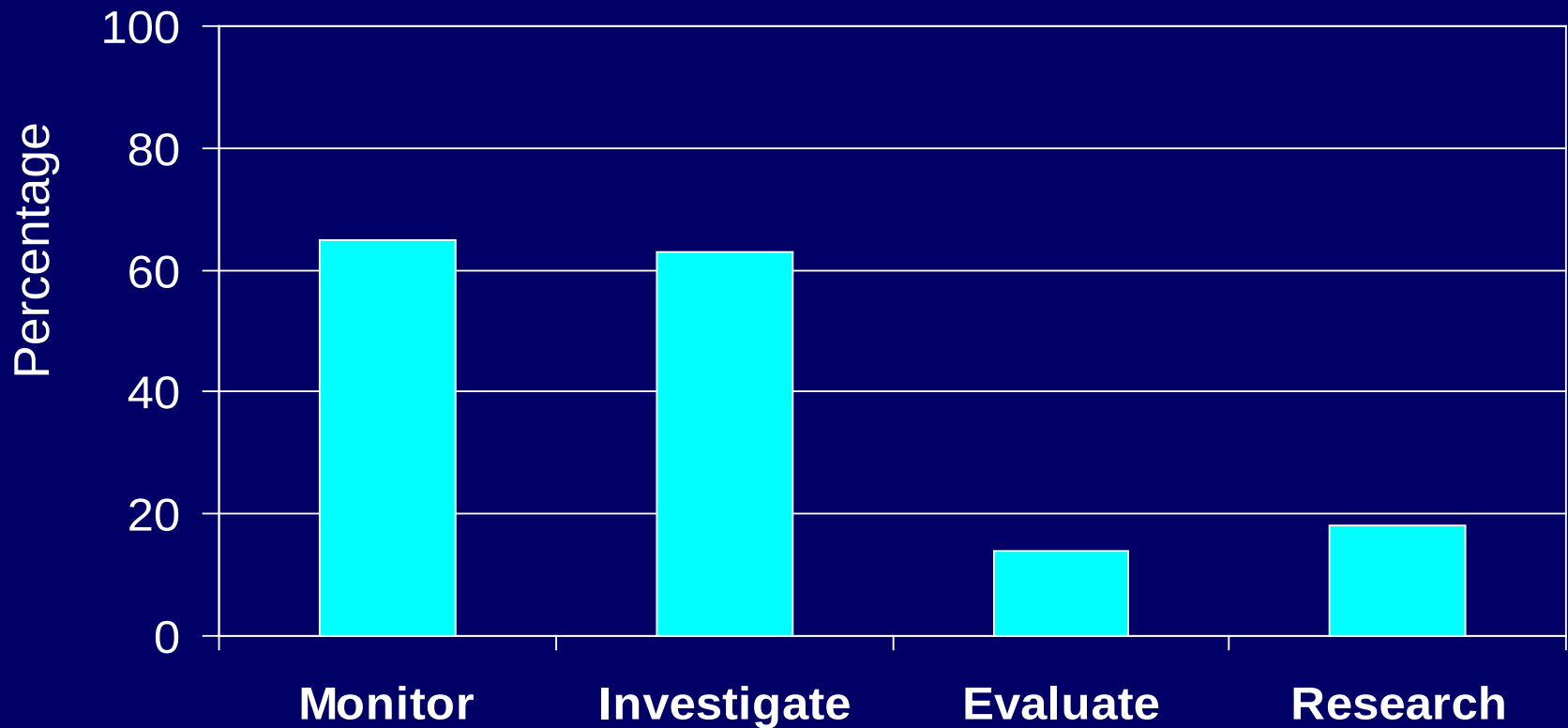
Qualitative Measurement of Epi Capacity

“Does your state have adequate epi capacity to provide the following 4 essential services of public health (ESPH)?”

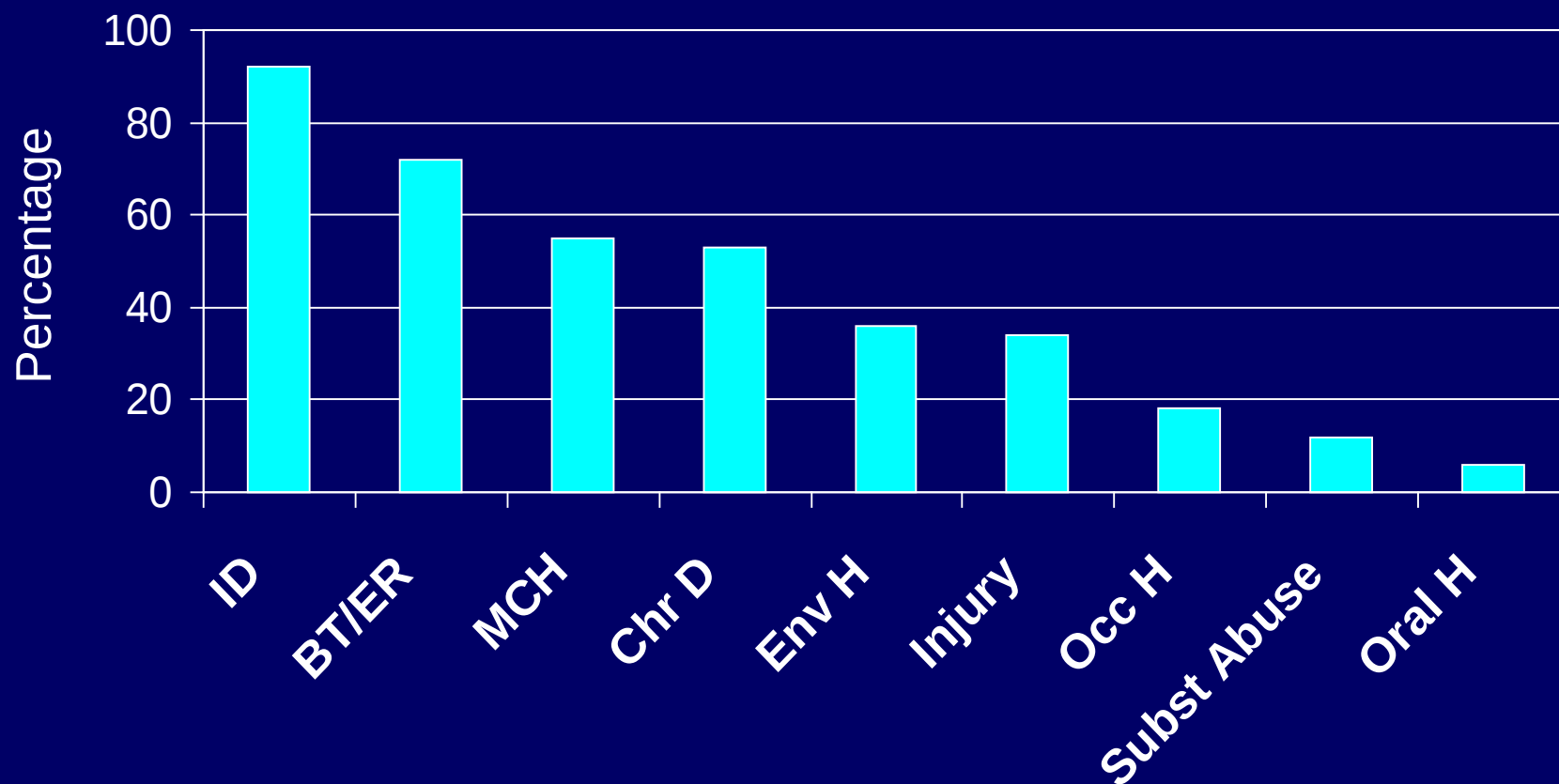
Measured by 6 point scale for each ESPH based on percentage of the activity, knowledge or resources needed are currently met.

- “substantial-almost full-full” = $\geq 50\%$
- “minimal-to-none” = $< 25\%$

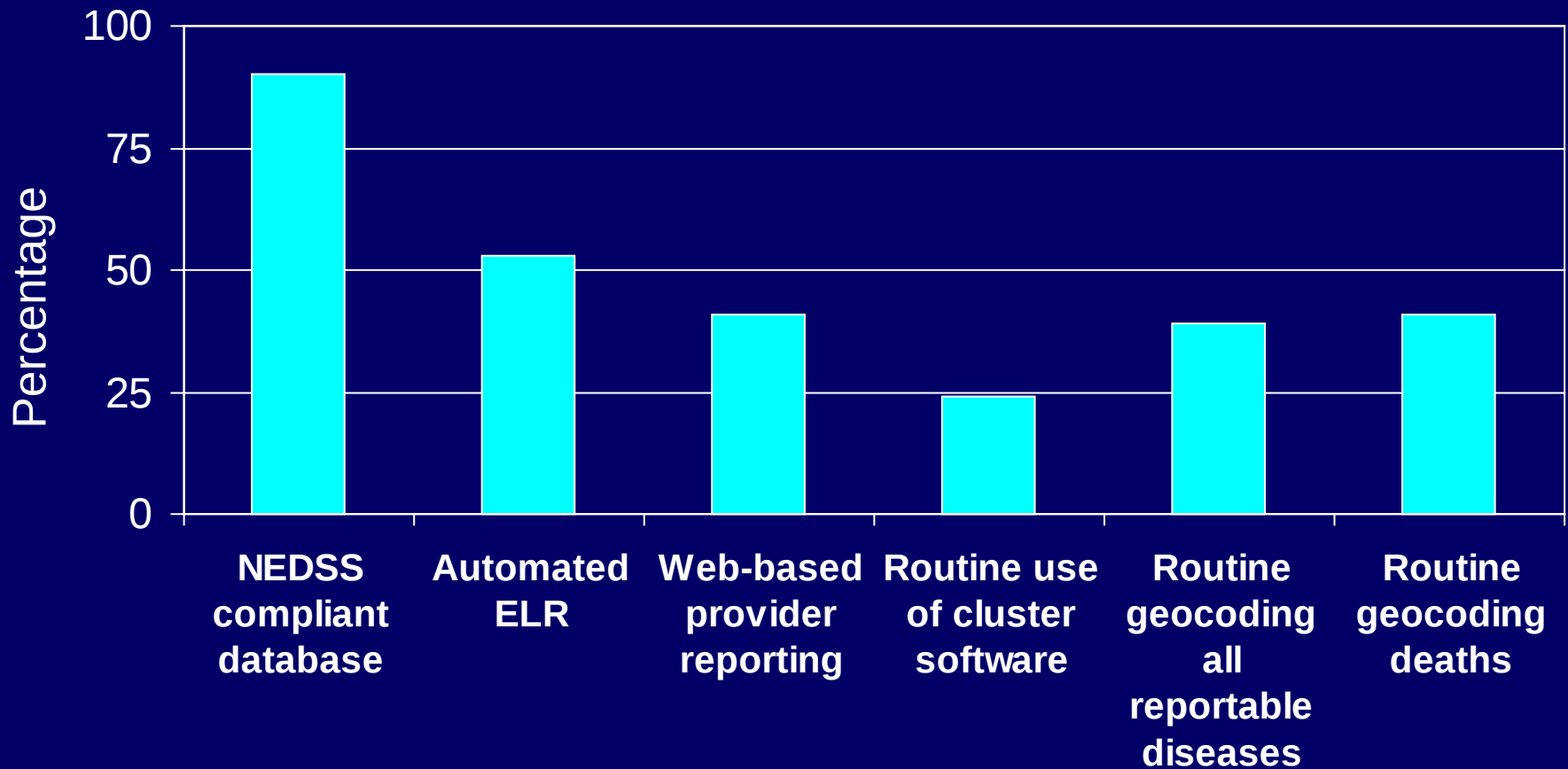
Percentage of states reporting substantial-to-full capacity for 4 ESPH –2009 ECA



Percentage of states reporting substantial-to-full epi & surveillance capacity, by program area 2009 ECA



Percentage of states reporting functioning surveillance-related technology capacities – 2009



Numeric Capacity

- Total of 2,193 epidemiologists
- 0.72 per 100,000 population

<u>By state size</u>	<u>Median*</u>	<u>Range*</u>
Small (<2.65 M)	1.10	(0.2-4.1)
Medium (2.65-5.9 M)	1.21	(0.4-2.8)
Large (≥ 6 M)	0.47	(0.2-1.5)

* no. per 100,000 population

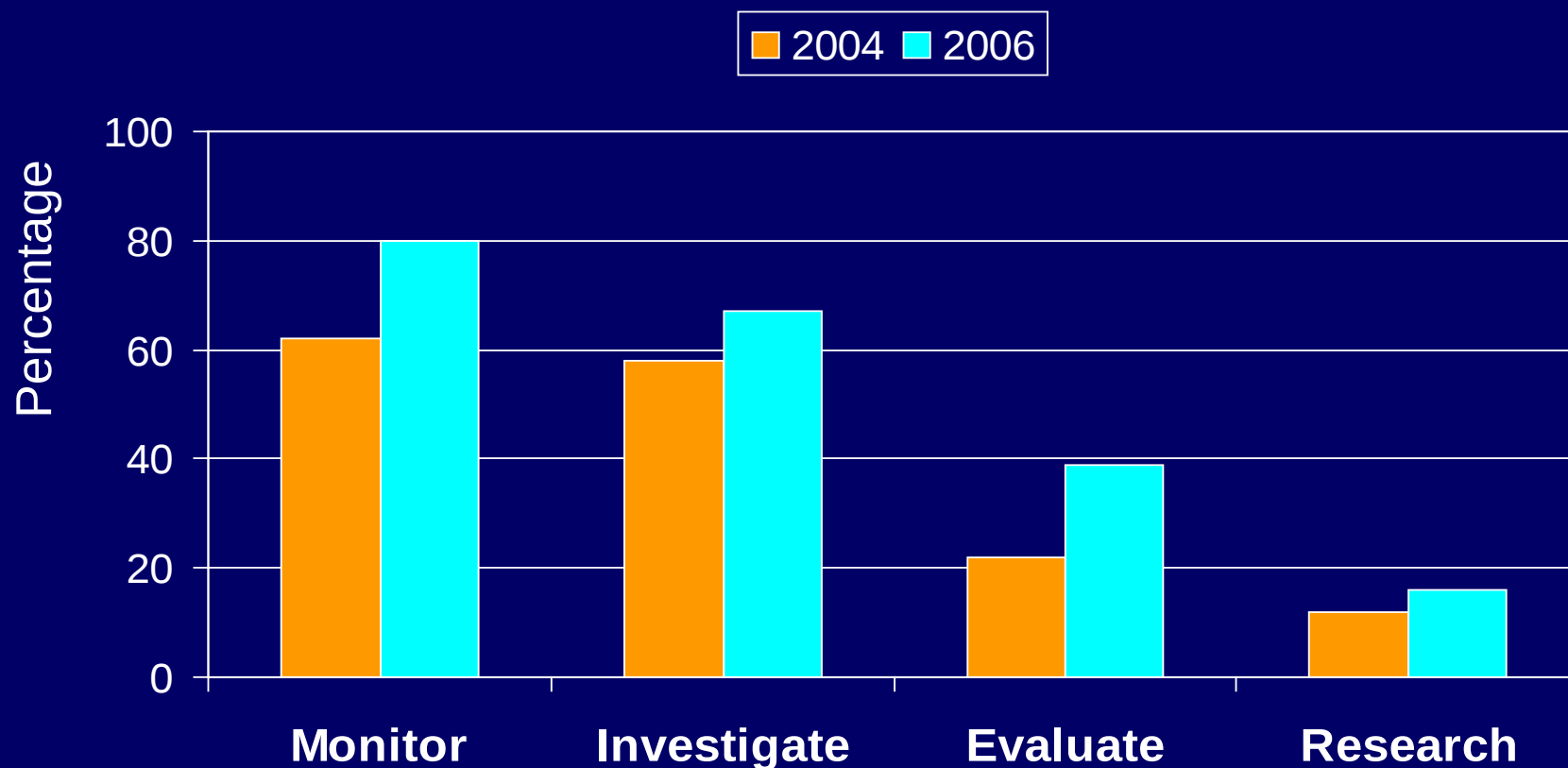
Conclusions re: Epi Capacity 2009

- Glass is half full – have come a long way since 1980s.
 - Some capacity in many states in a wide range of program areas
 - Many states have key technologic capacities
- Glass is half empty
 - Huge gaps in capacity for several ESPH
 - Many states haven't achieved very much functioning technologic capacity
 - Some program areas have little capacity anywhere

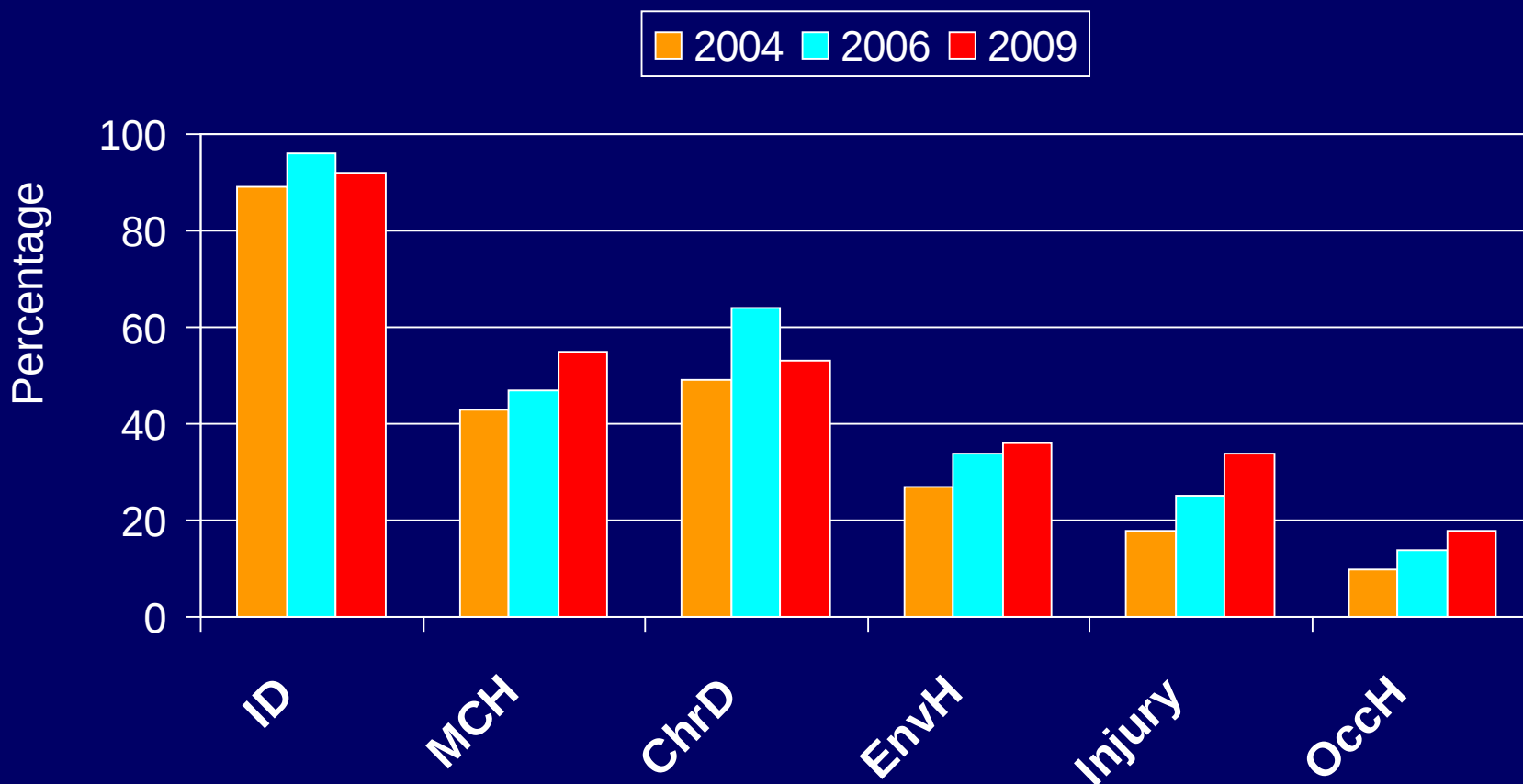
Trends in Epi Capacity since 2000

Positive trends

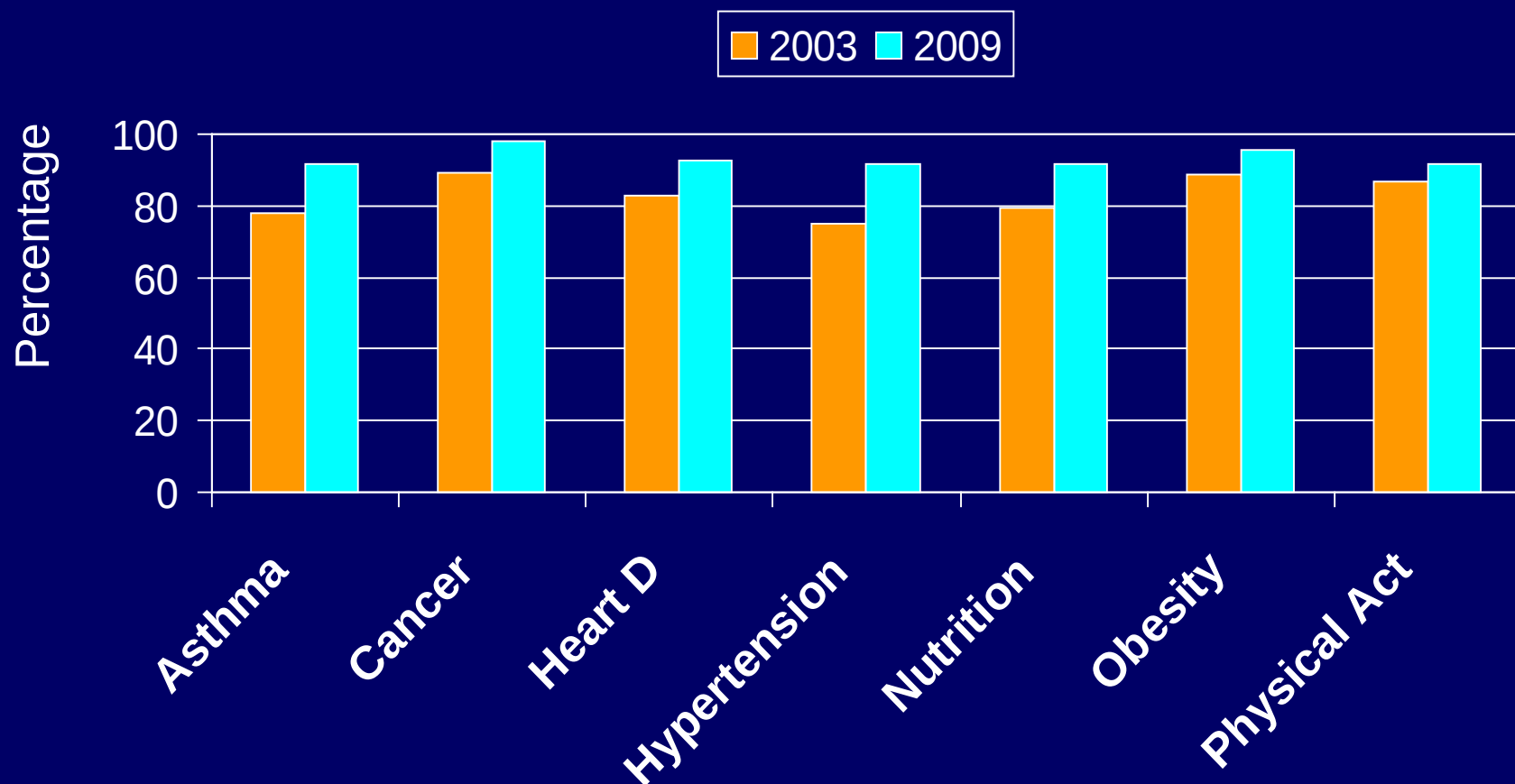
Percentage of states reporting substantial-to-full capacity for 4 ESPH -- 2004 and 2006



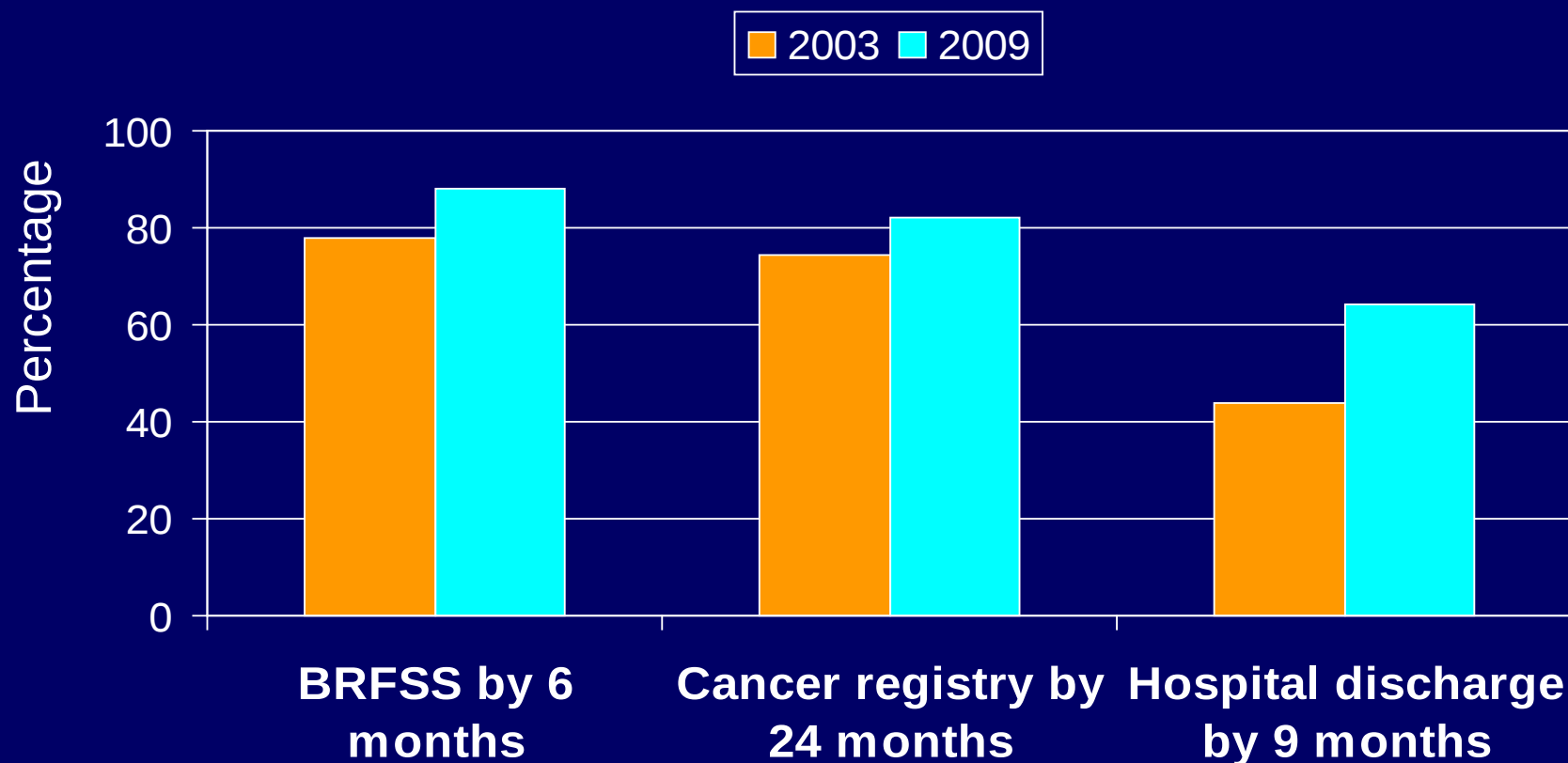
Percentage of states reporting substantial-to-full epi & surveillance capacity, by selected program areas –2004, 2006 and 2009



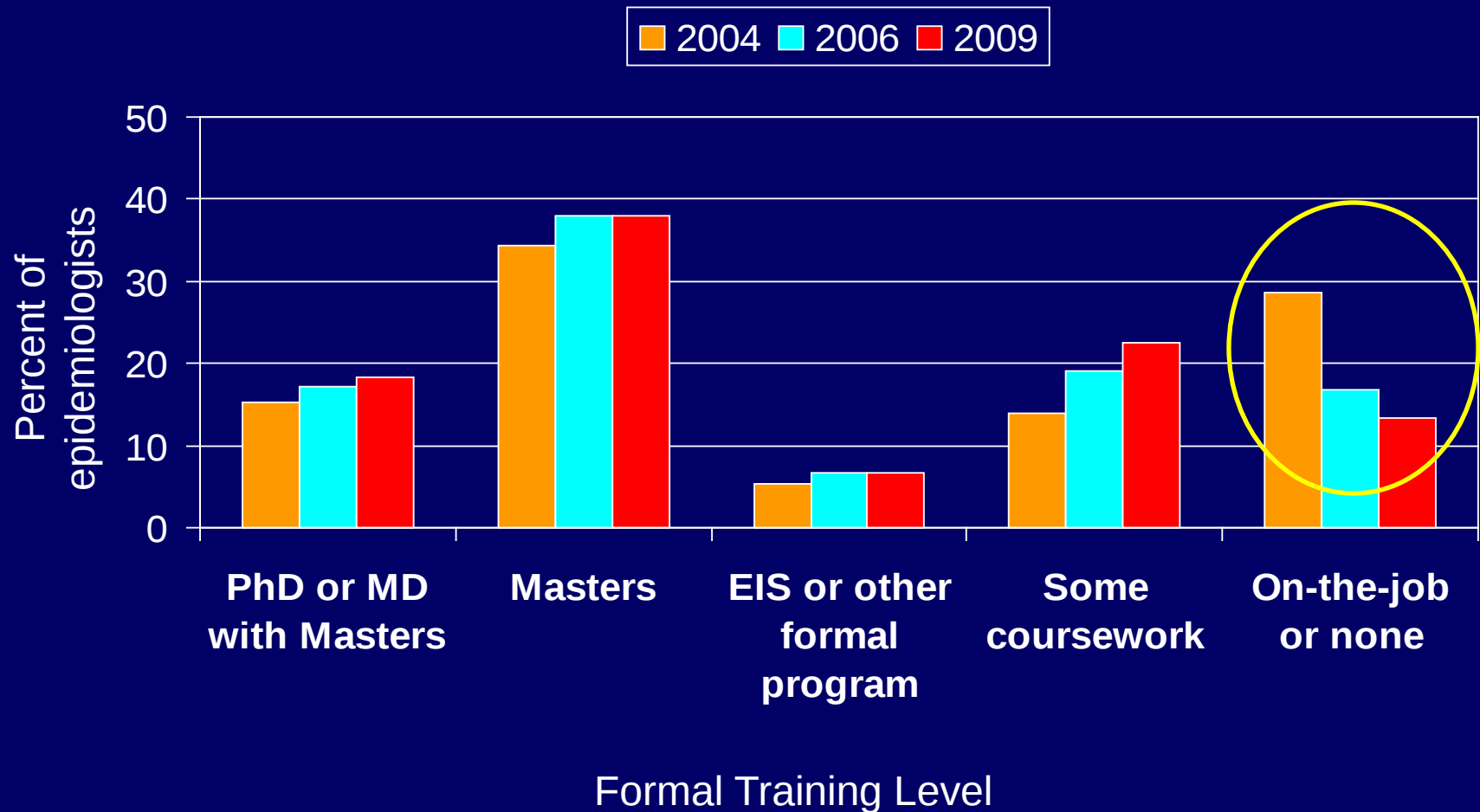
Percentage of state chronic disease epi programs involved in selected chronic disease activities in past year –2003 and 2009 CD ECAs



Percentage of state chronic disease epi programs reporting unfettered and timely access to key datasets –2003 and 2009

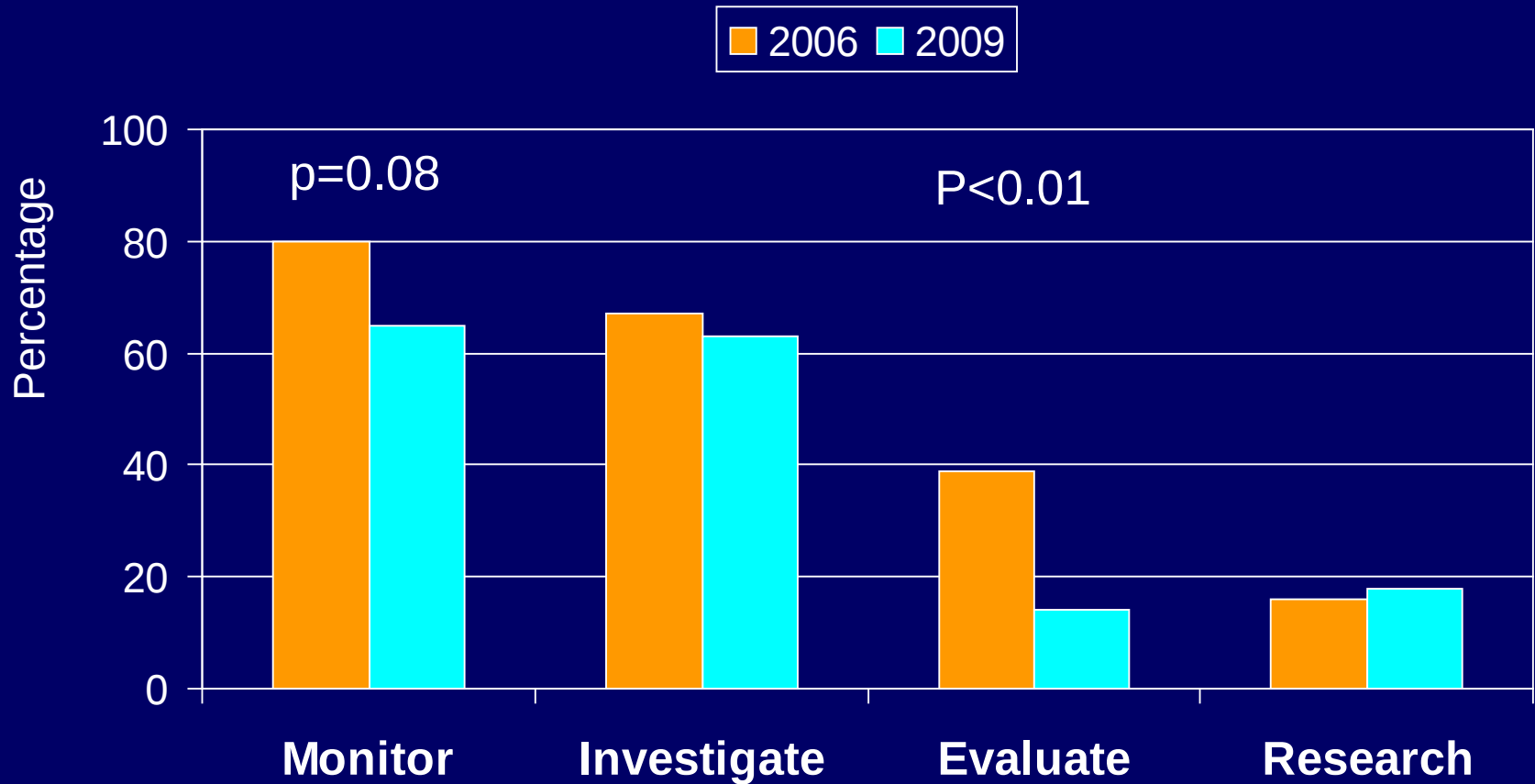


Trends in state-level workforce with formal epidemiology training –2004 – 2009 ECAs

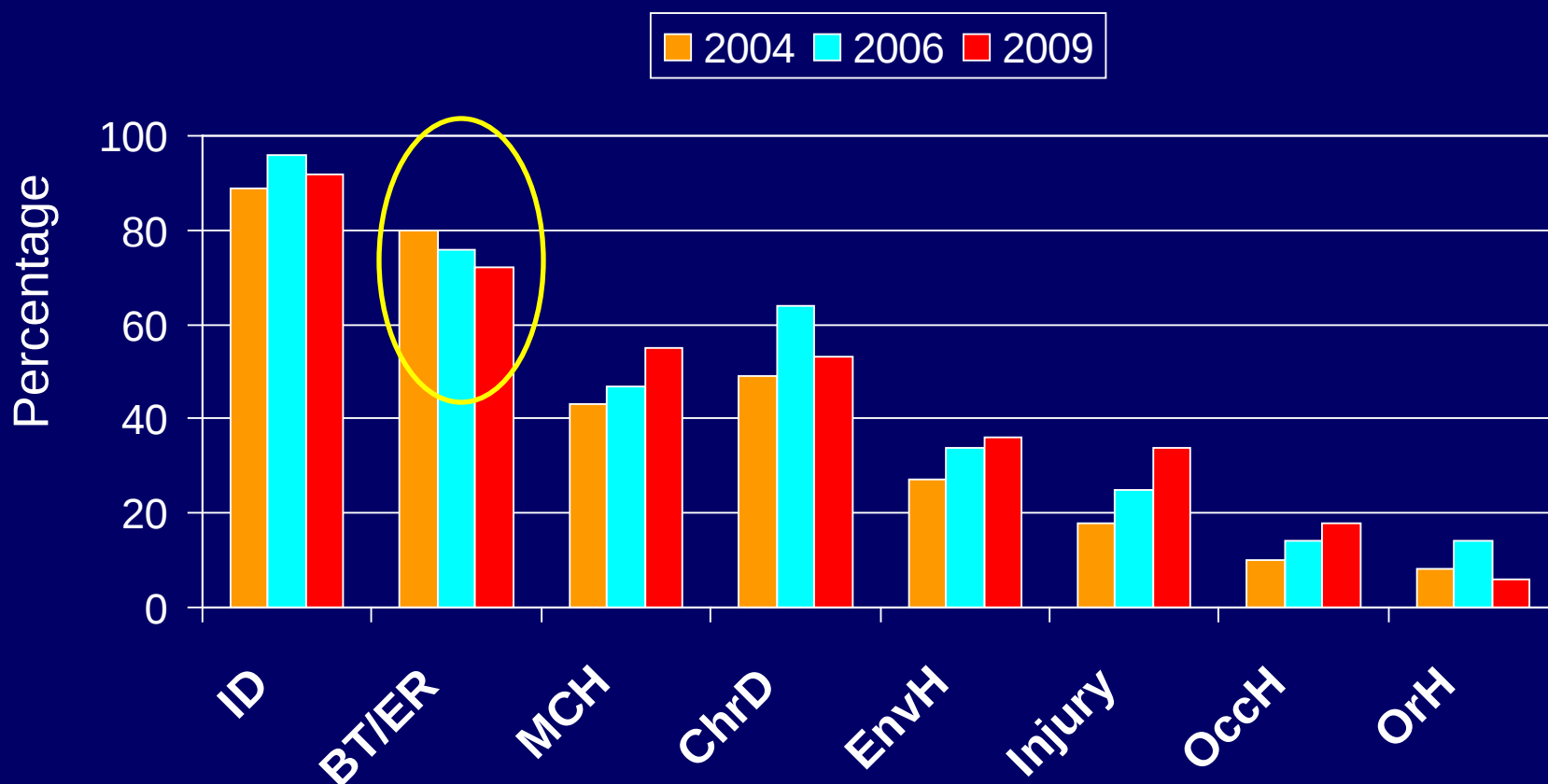


Negative trends

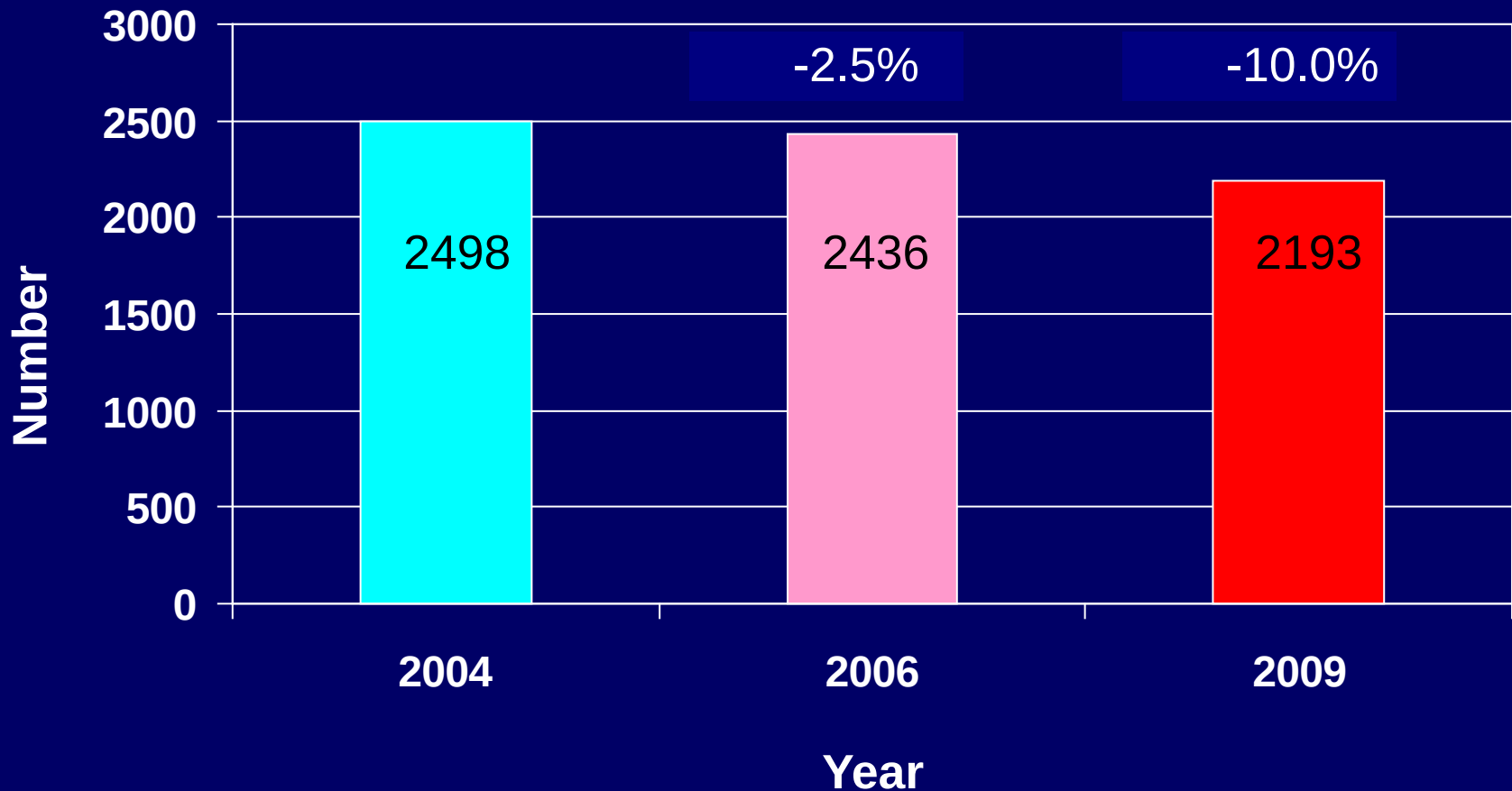
Percentage of states reporting substantial-to-full capacity for 4 ESPH – 2006 and 2009



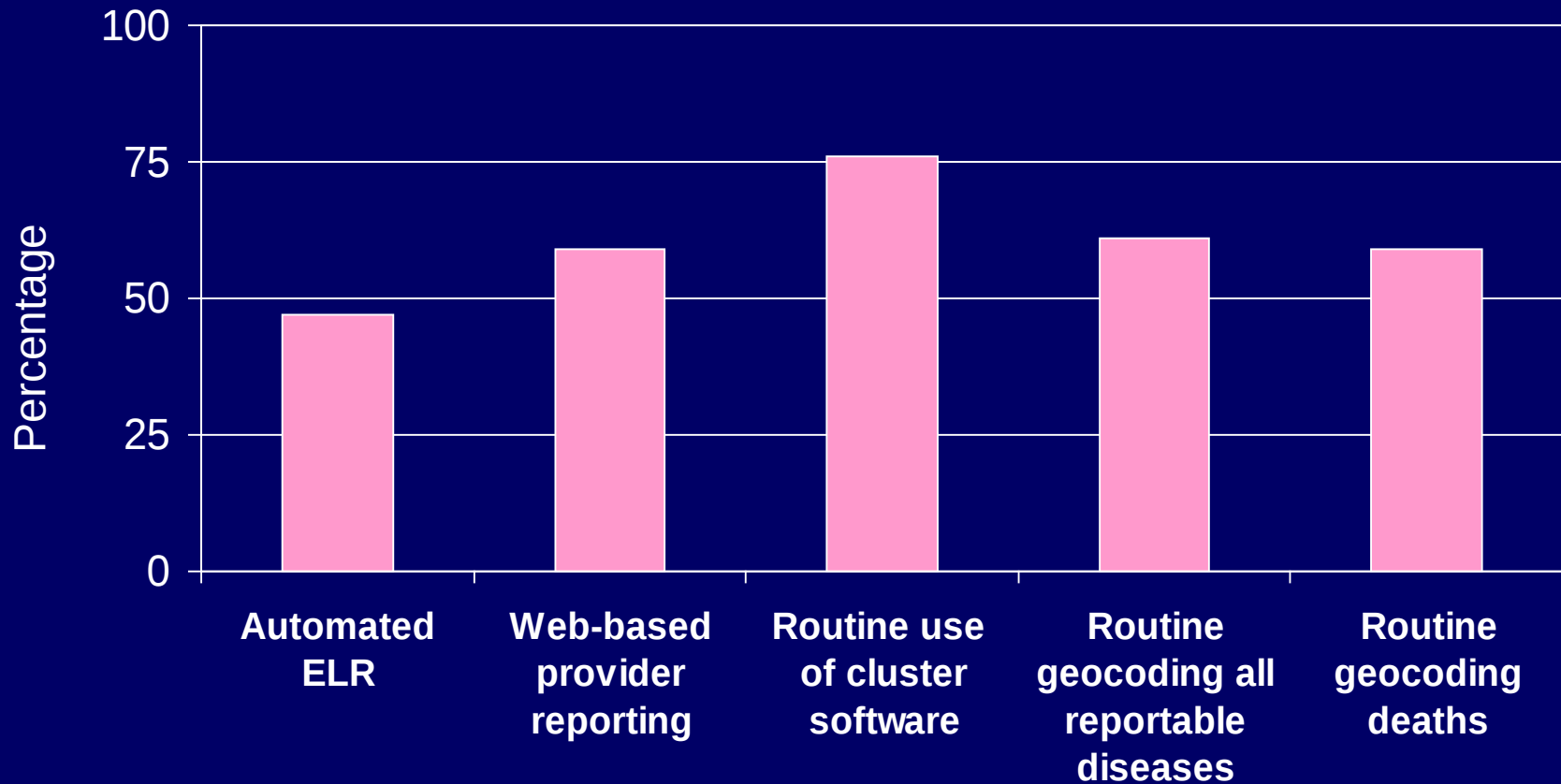
Percentage of states reporting substantial-to-full epi & surveillance capacity, by program area –2004, 2006 and 2009



Total Number of Epidemiologists 50 State Health Departments and DC, 2004-2009



Percentage of states reporting *no* functioning surveillance-related technology capacity in selected areas 2009



Revised Conclusions re: Epi Capacity 2009

- Glass is half full – have come a long way since 1980s.
 - Some capacity in many states in a wide range of program areas – **esp. those in which has been some focus**
 - Many states have key technologic capacities
- Glass is half empty **and leaking**
 - Huge gaps in capacity for several ESPH
 - **Most** states haven't achieved very much functioning technologic capacity
 - Some program areas have little capacity anywhere
 - **Overall capacity and # of epis have gone down.**

How did we get to where we are now?

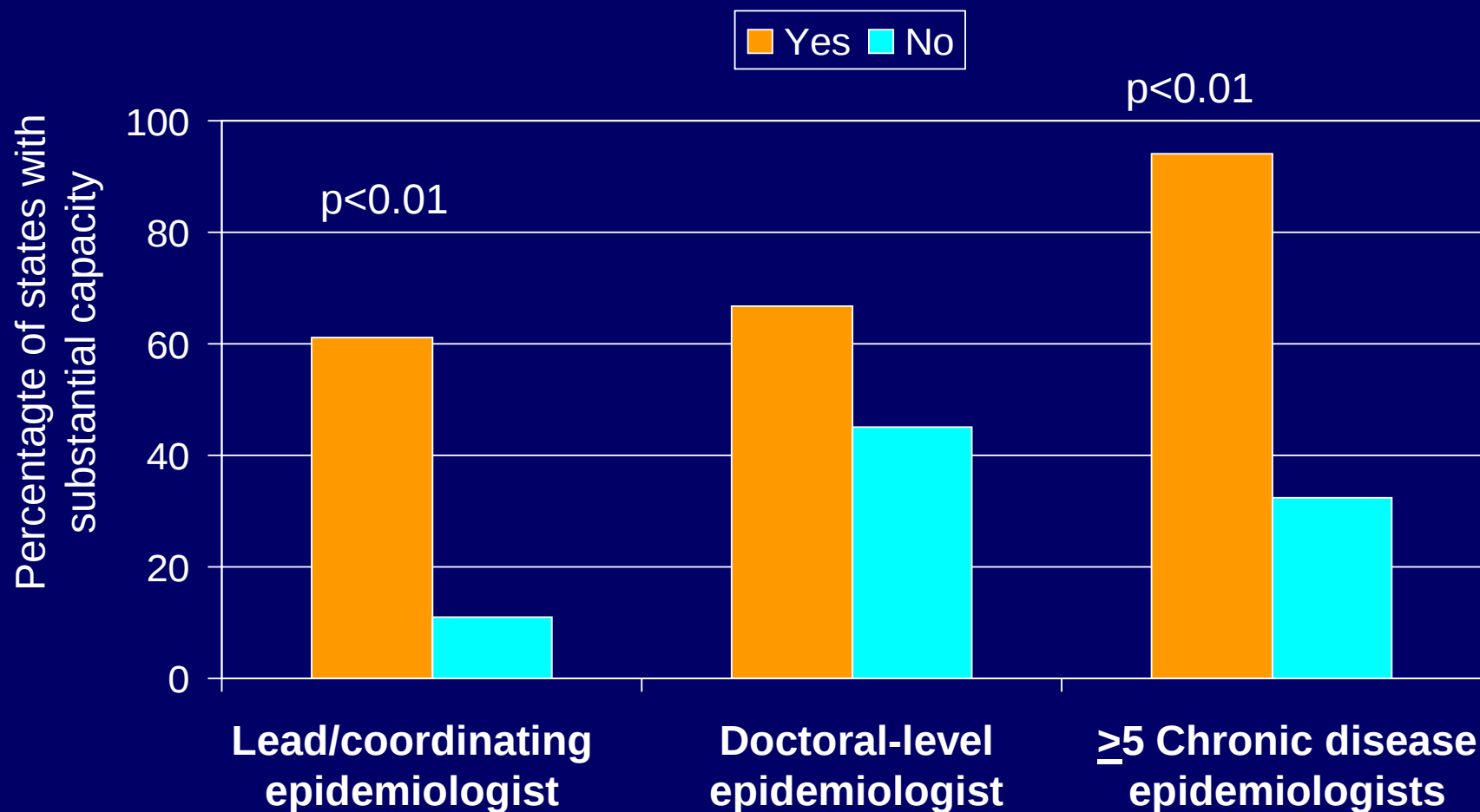
Factors contributing to increased capacity

- Overall capacity
 - **Vision** – CDC and CSTE (going beyond ID, applying epi and making epi the foundation)
 - **Funding** = more person power
 - ID: ELC (EIP), PHP, categorical funding (HIV, Immunizations, STD, TB)
 - Non-ID: large prevention and MCH block grants, categorical funding
 - **Training** programs = persons prepared to lead
 - EIS, PMR, PHPS, CSTE, CDC epi assignees to states (CEFO)
- Program-specific capacity
 - **Focused efforts**, e.g. chronic disease, MCH
 - Position statements, standards for program-level role of epi leadership, milestones
 - Monitoring progress

Chronic Disease Epidemiology Capacity Building Efforts

- CSTE Position Statements /Activities – Chronic disease
 - 1992 – 3 statements on role of CDC and CSTE to develop and maintain chronic disease epi capacity
 - 2000 – Strategic plan and position statement “Development nationwide of state-based epidemiology capacity” – each state have CDE leadership to work collaboratively with program managers to assure essential epi functions; other milestones
 - 2003 – Chronic disease ECA
 - 2004 – Document on “Essential functions of CD epidemiology in state health departments”
 - 2007 – “State-level chronic disease epidemiology capacity” – goal of a minimum workforce in each state not yet met (1 doctoral level CDE, 5 CDEs, lead CDE) → specific recommendations to improve it.
 - 2009 – Chronic disease ECA

Association of selected CD capacity-building milestones with having at least substantial epidemiology capacity–2009 ECA



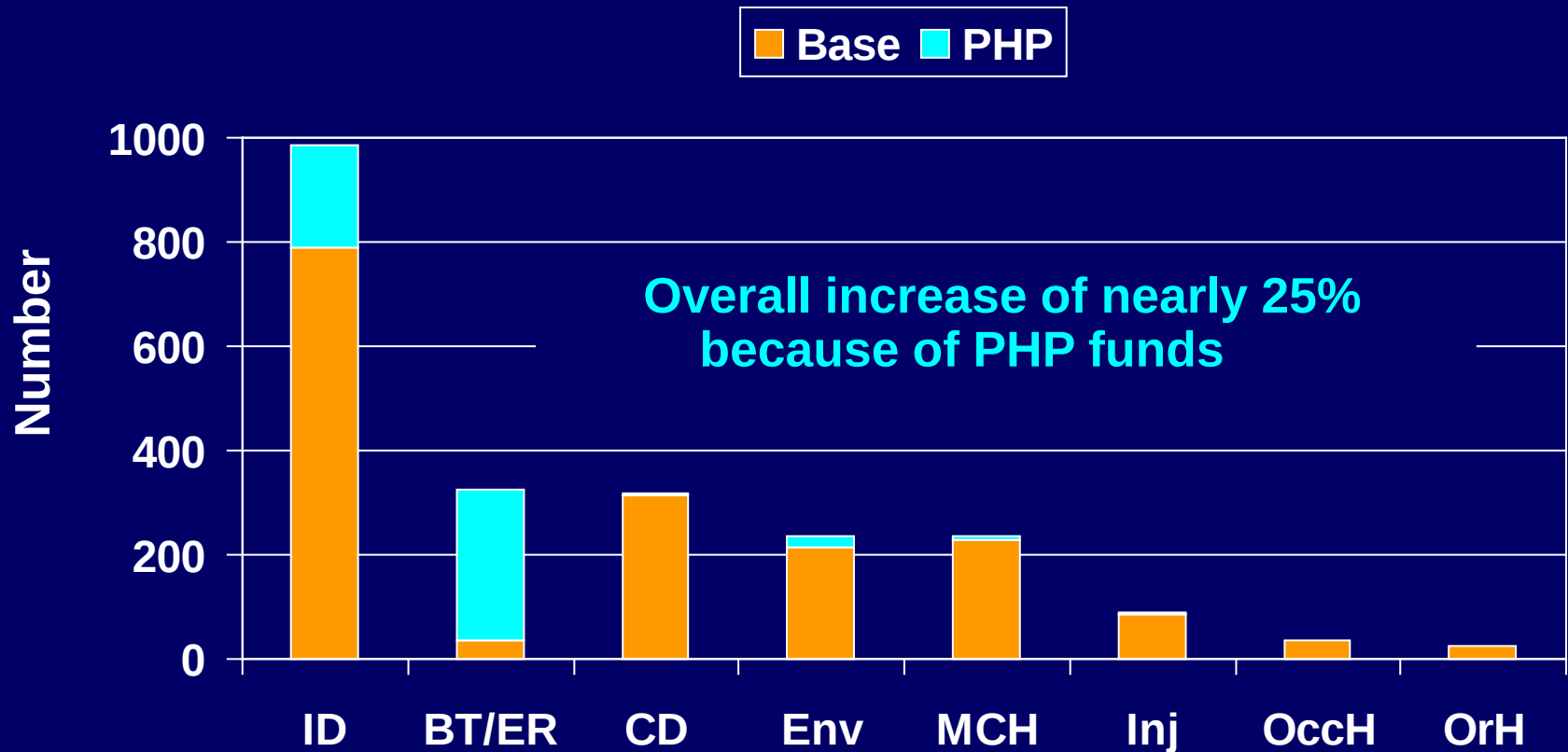
Results of Chronic Disease Epi Capacity Building

- Majority of states have
 - At least substantial epi and surveillance capacity
 - A lead CDE
 - At least one doctoral level epidemiologist
- Despite lack of change in overall capacity since 2004, continued improvement in some areas
 - More states involved in more CD activities
 - More CDEs have ready access to key data
 - More states do a wider spectrum of analyses

Factors contributing to decreased overall epidemiology capacity

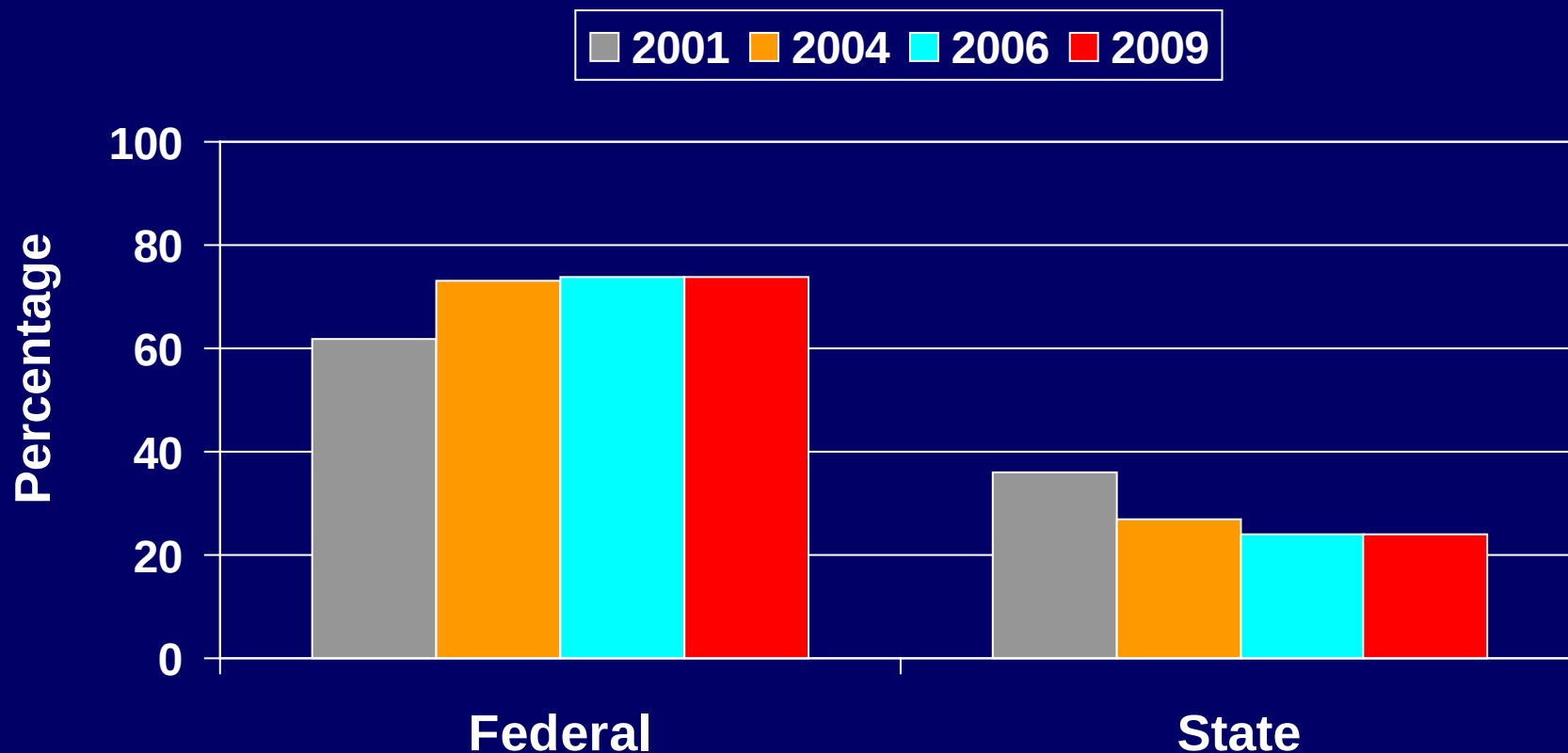
- **Funding / Funding / Funding**
 - Decrease in PHP funding
 - State-level financial crisis
- **Fuzzy (lack of?) Vision**
 - No clear long-term vision for how epi capacity related to PHP and how PHP funding could/should support development and maintenance of enhanced epi capacity
 - Lack of agenda for technology worked out with states – lost opportunities for across-the-board technology development

No. Epidemiologists by Program and Public Health Preparedness Funding, 2006*



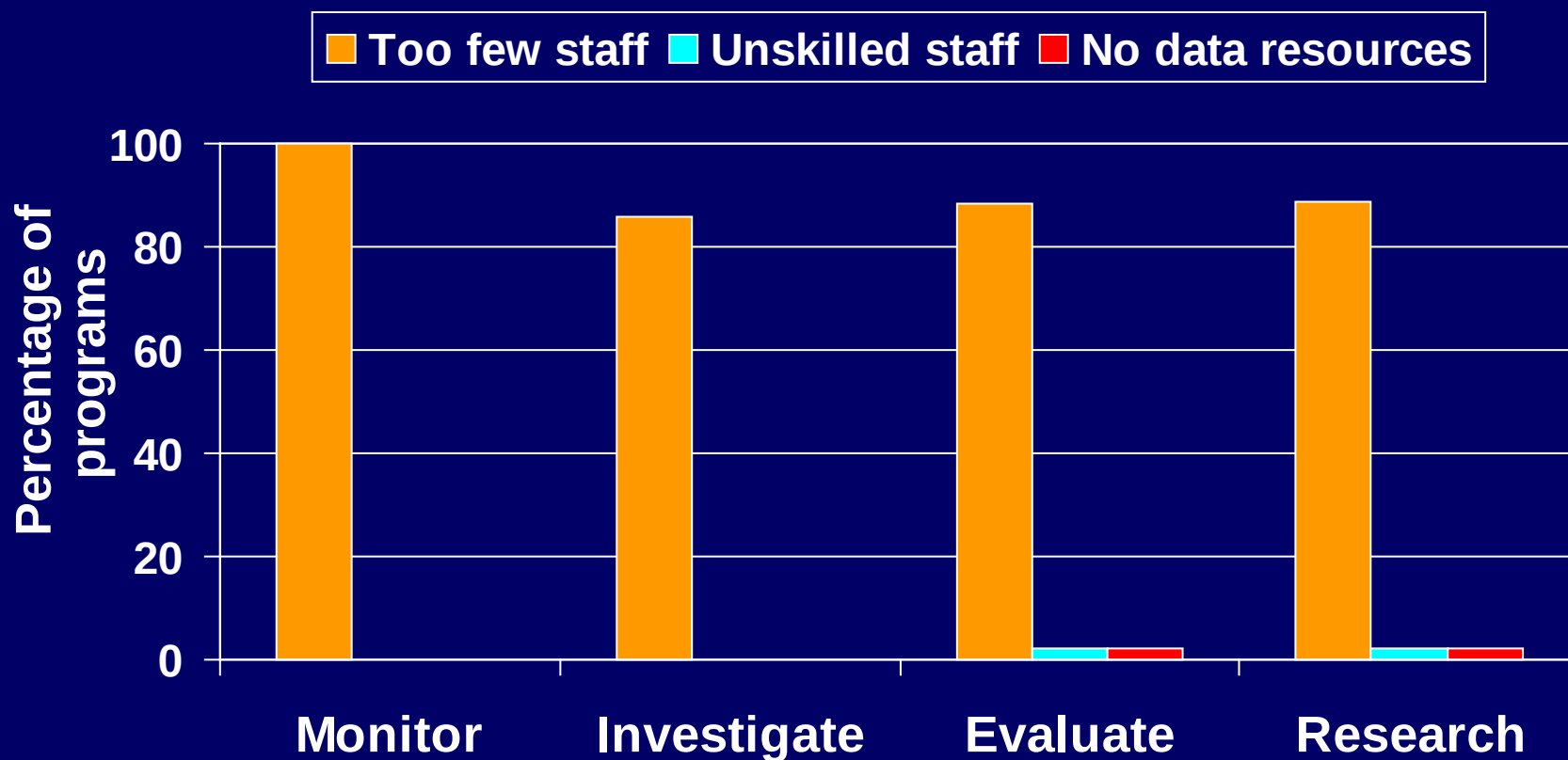
* Based on 2006 ECA, 100% response

Trend in Main Sources of Funding for Epidemiology Capacity, 2001-2009*



* Average percentage among states; No. respondents differs each year

Barriers to achieving at least 75% of capacity to perform each of 4 epi-related ESPH, State MCH Programs*, 2009



* Those that had not achieved at least “almost full capacity” – n=35-45

Where do we go from here?

What do we need?

1. Adequate staffing in each program area
2. Sufficiently trained staffing
3. Full technologic capacity to support surveillance (includes lab)
4. Structural organization that enables epidemiologists to play a key role in planning and policy decisions
5. Epidemiologist leaders with vision

What do we want?

We don't really collectively know what we want.

- How many staff in each program area?
 - What level of training for the lead epis?
- What program areas are most in need of immediate investment?
- What currently available technology should each program area have - by when?

Ideal staff numbers to support full epidemiology capacity by state population size, 36 jurisdictions, 2009 ECA

N=1470 additional epidemiologists needed

Median No./100,000 pop.

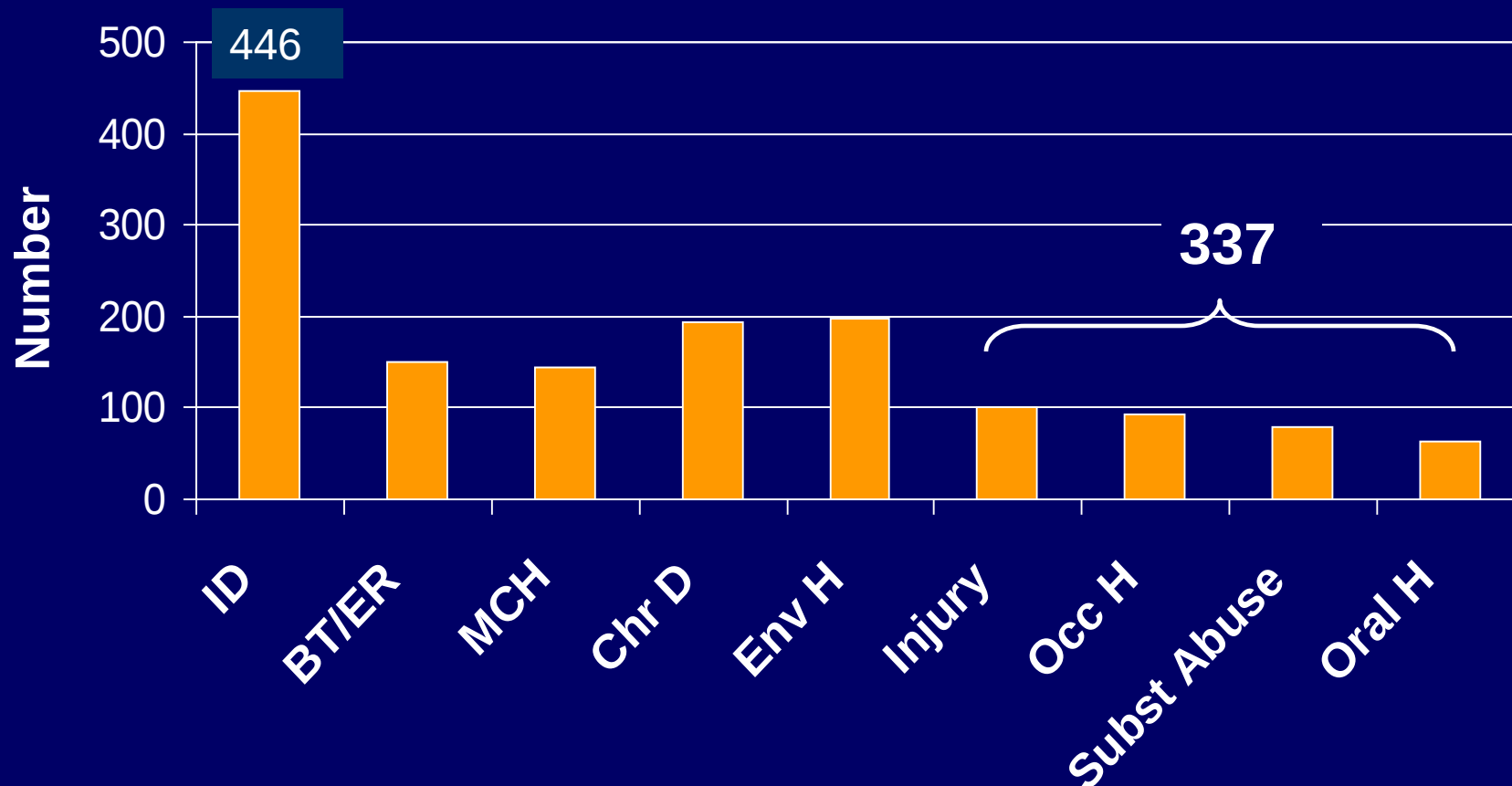
Current

Small (<2.65 M)	1.10	}	0.72
Medium (2.65-5.9 M)	1.21		
Large (≥ 6 M)	0.47		

Ideal

Small	3.56	}	1.21
Medium	2.35		
Large	0.63		

Additional number of epidemiologists needed, by program area, 36 jurisdictions - 2009 ECA N=1470 additional epis



Do we know how to get there?

Yes and no

- We know how we got to where we are:
 - CDC & CSTE vision and collaboration on funding
 - Program-area blueprints and milestones for development independent of funding
 - Monitoring of progress

But

- We have no vision or plan for the future
 - However, have opportunities if we take and make them

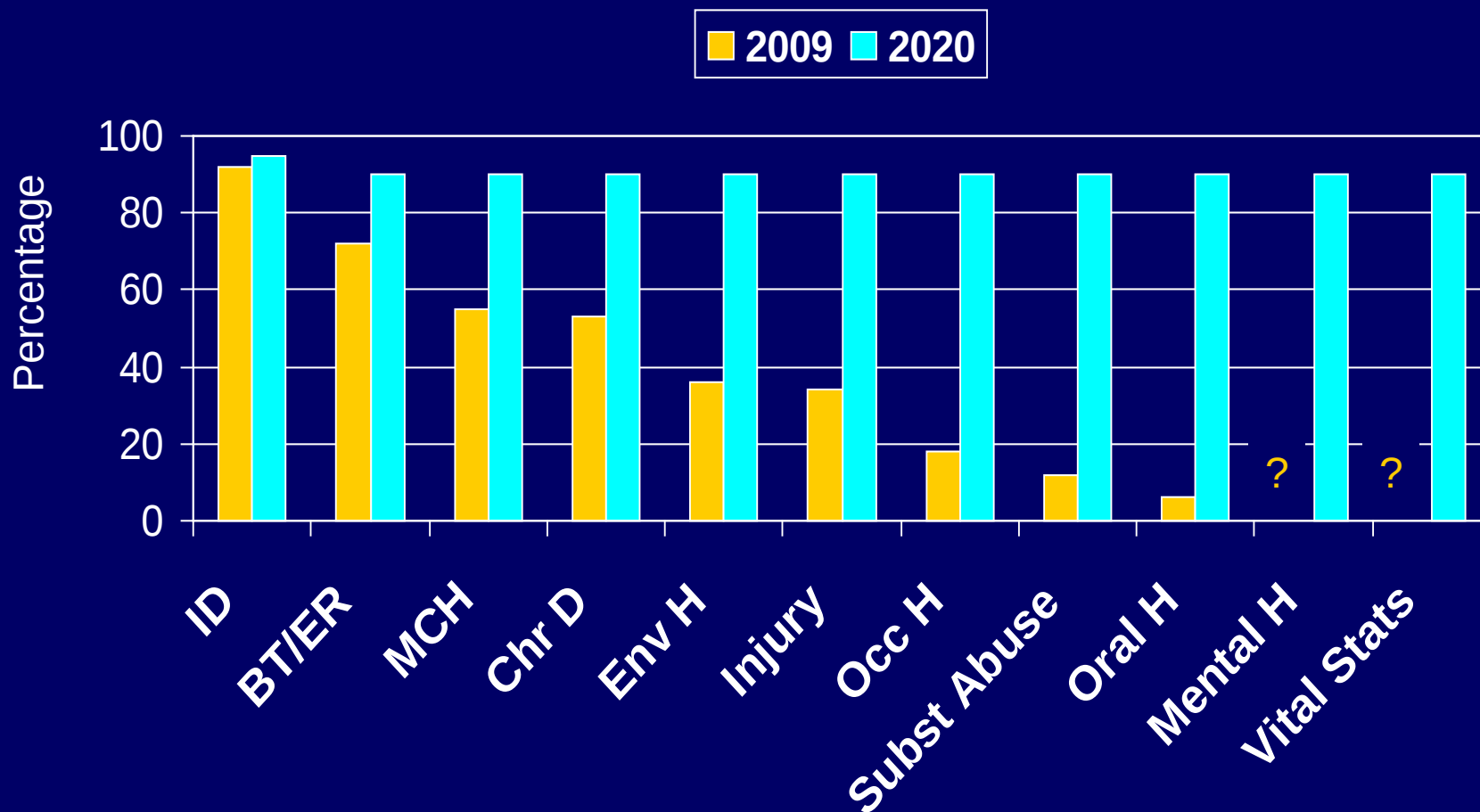
Opportunities

- We can develop a vision and a plan for the future
- For all current sources of support
 - Assure continuity, program announcements that include strong epi components
 - Assure that all are aware of what PHP funding has enabled and that as PHP funding decreases, alternative sources are identified to support lost epi capacity
- Develop new sources of support
 - Health care reform funding may provide opportunities
 - May need to provide a blueprint for what is needed to legislators

Vision

- CDC and CSTE work together to develop a vision and plan for epi capacity development and a blueprint for achieving it – including identification of needs and possible funding sources (may take a special workgroup, meetings, CSTE resolutions)
- CDC and CSTE form additional program area working groups to foster development of epi capacity goals & milestones for each program area.
- CSTE continue to monitor overall and program-area-specific epidemiology capacities

Percentage of states reporting substantial-to-full epi & surveillance capacity, by program area 2009 and 2020 ECAs



Thanks!

Definition of epidemiologist*, who to count

- An investigator who studies the occurrence of disease or other health-related conditions in the population.
- Control of disease in populations also a task for the epidemiologist.
- Work includes: surveillance, analysis of data, study of risk behaviors
- Don't consider job title – rather, job function
- Count all employed or contracted by the State HD regardless of where work

* Last, *A Dictionary of Epidemiology*, 4th ed., 2001

Percentage of states reporting minimal-to-no epi & surveillance capacity, by program area – 2009

