

Autism Spectrum Disorder (ASD) Surveillance Year 2010 Findings & Comparison with Arkansas 2002 Baseline Prevalence Study

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Pediatrics



Background & Purpose

Background

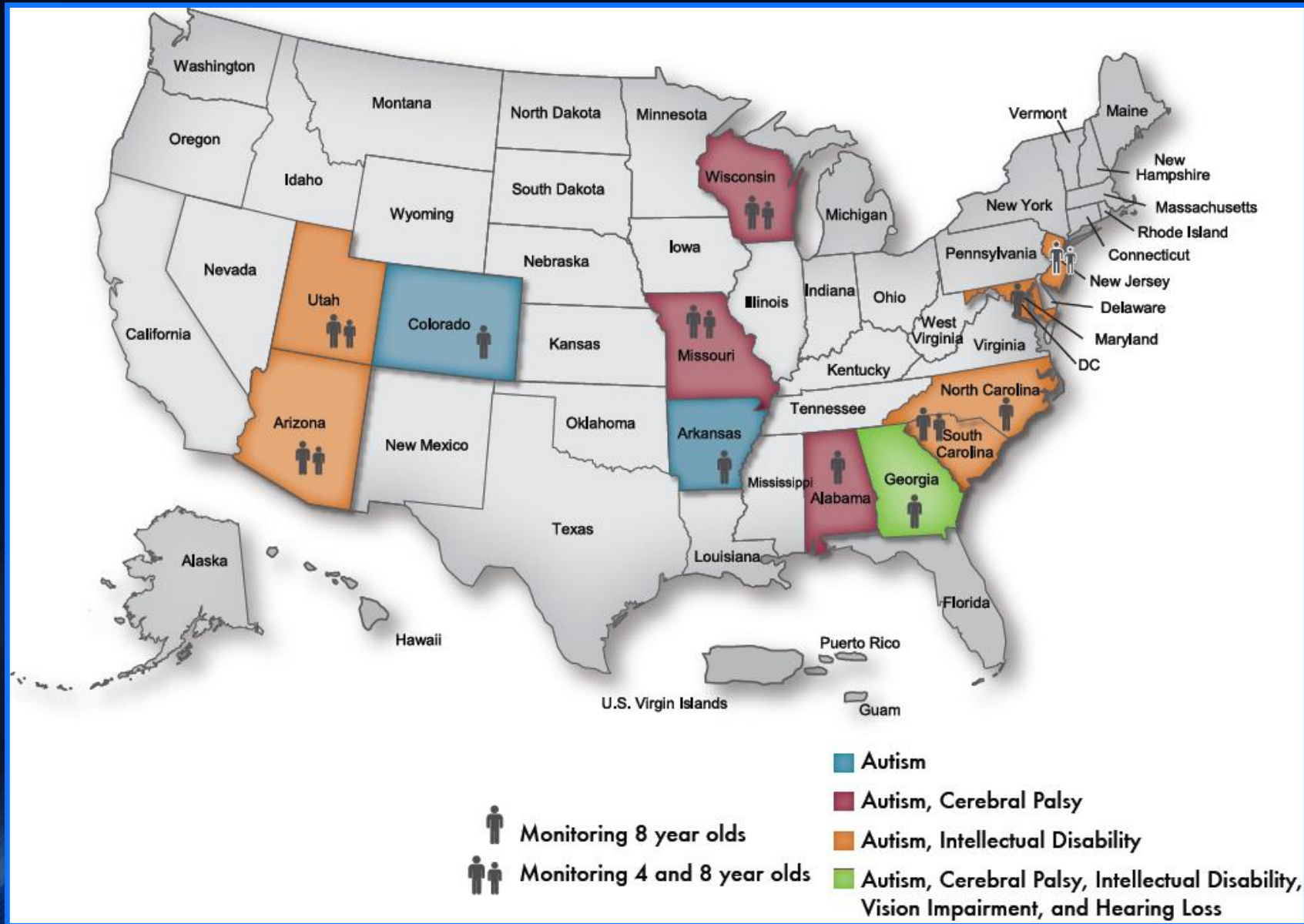
- **Autism and Developmental Disabilities Monitoring (ADDM) Network**
 - In 2000, the Centers for Disease Control and Prevention (CDC) funded researchers in several states to develop programs to determine and monitor the prevalence of autism spectrum disorders (ASDs)
- **Arkansas ADDM timeline**
 - 2002 → Statewide surveillance (baseline)—ASD and ID (Intellectual Disability)
 - 2008 → Pulaski county only (pilot)—ASD only
 - 2010 → Statewide surveillance (completed)—ASD only
 - 2012 → Statewide surveillance (in progress)—ASD and ID
 - 2014 & 2016 → New CDC Funding Opportunity Announcement pending

AR ADDM Goals (What We Report)

- **To provide as complete a count as possible of the number of children with ASD in a specific place and time (prevalence) and identify changes over time**
- **To describe characteristics of children with ASDs in the state**
- **To compare ASD prevalence among different groups of children and in different areas of the state**
- **To communicate information about the impact of autism and related conditions on the state's healthcare and education systems**

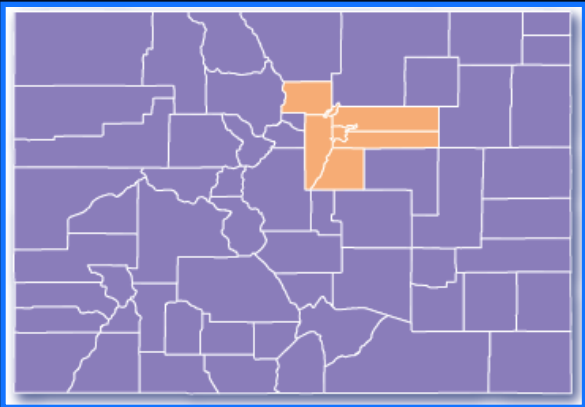
2010 & 2012 ADDM Network Surveillance Coverage Area

ADDM Network Sites – Tracking Years 2010 & 2012

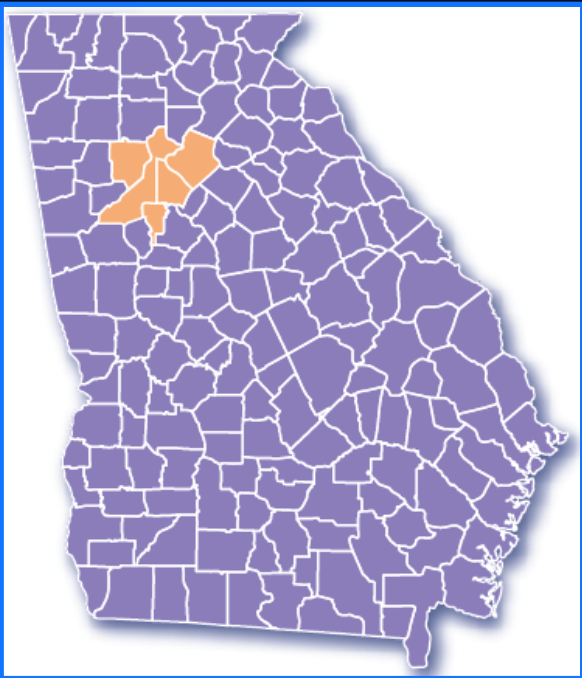


ADDM 2010 & 2012 Surveillance Coverage Area by Site

Colorado 7 Counties



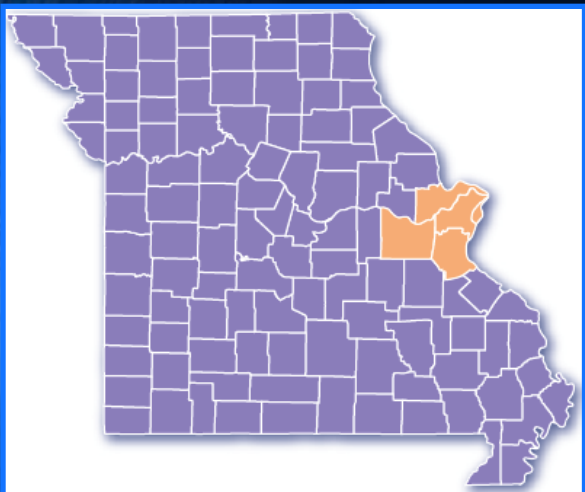
Georgia Metropolitan Atlanta Area



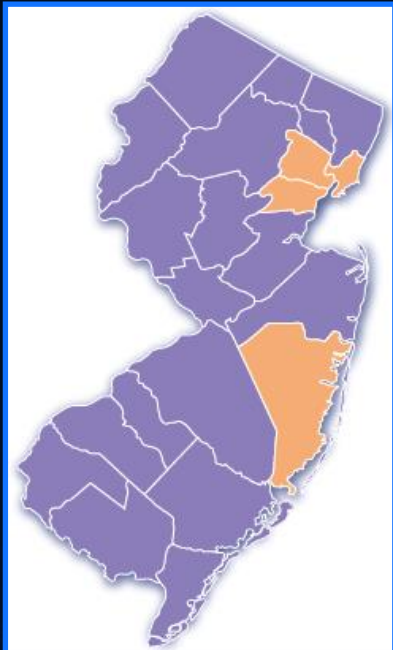
Maryland 6 Counties



Missouri 5 Counties

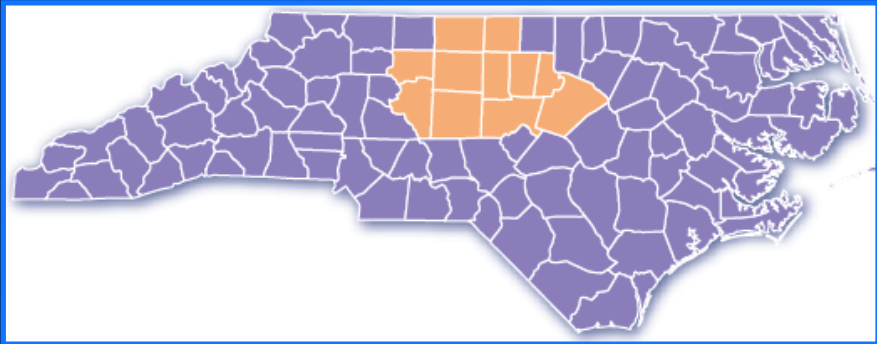


New Jersey 4 Counties

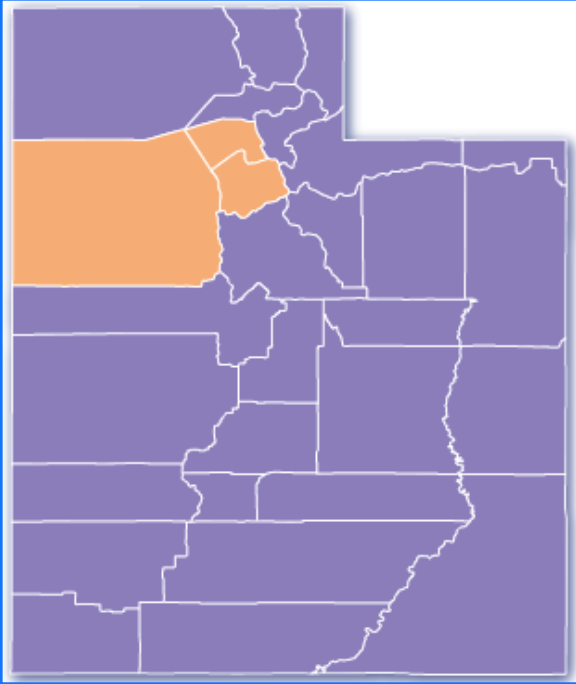


ADDM Surveillance Coverage Area by Site (continued)

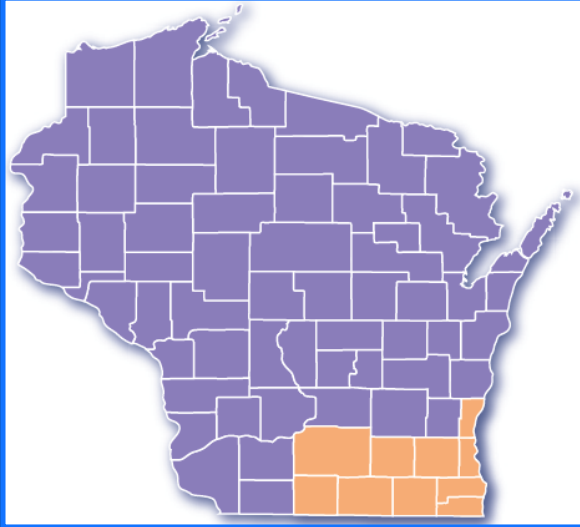
North Carolina | **11 Counties**



Utah | **3 Counties**

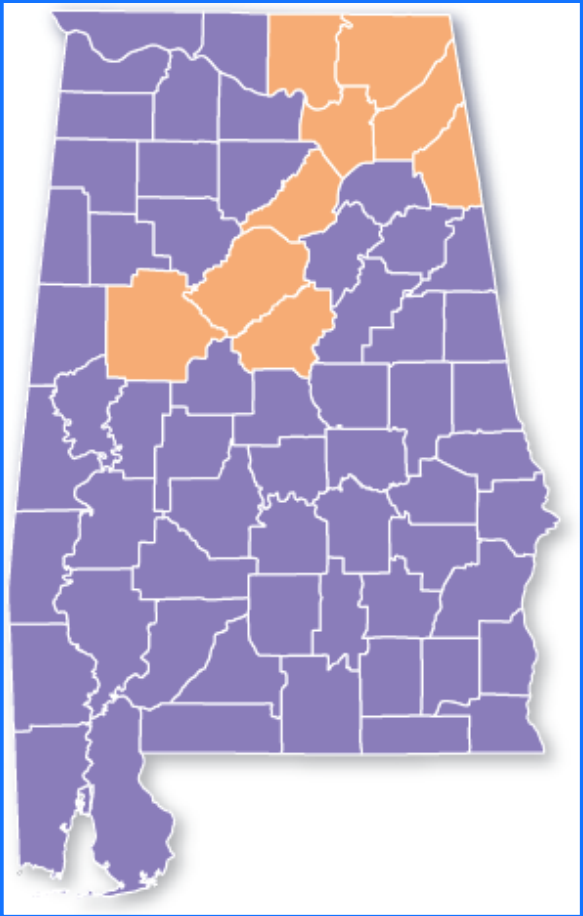


Wisconsin | **10 Counties**

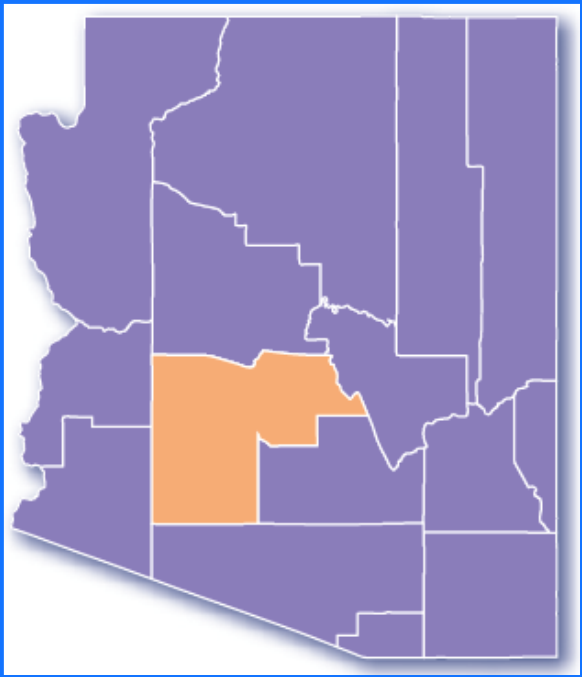


ADDM Surveillance Coverage Area by Site (*continued*)

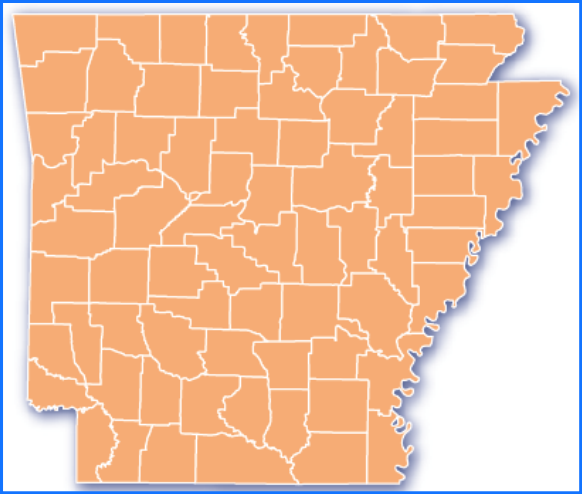
| | |
|---------|------------|
| Alabama | 9 Counties |
|---------|------------|



| | |
|---------|---------------------------|
| Arizona | Metropolitan Phoenix Area |
|---------|---------------------------|

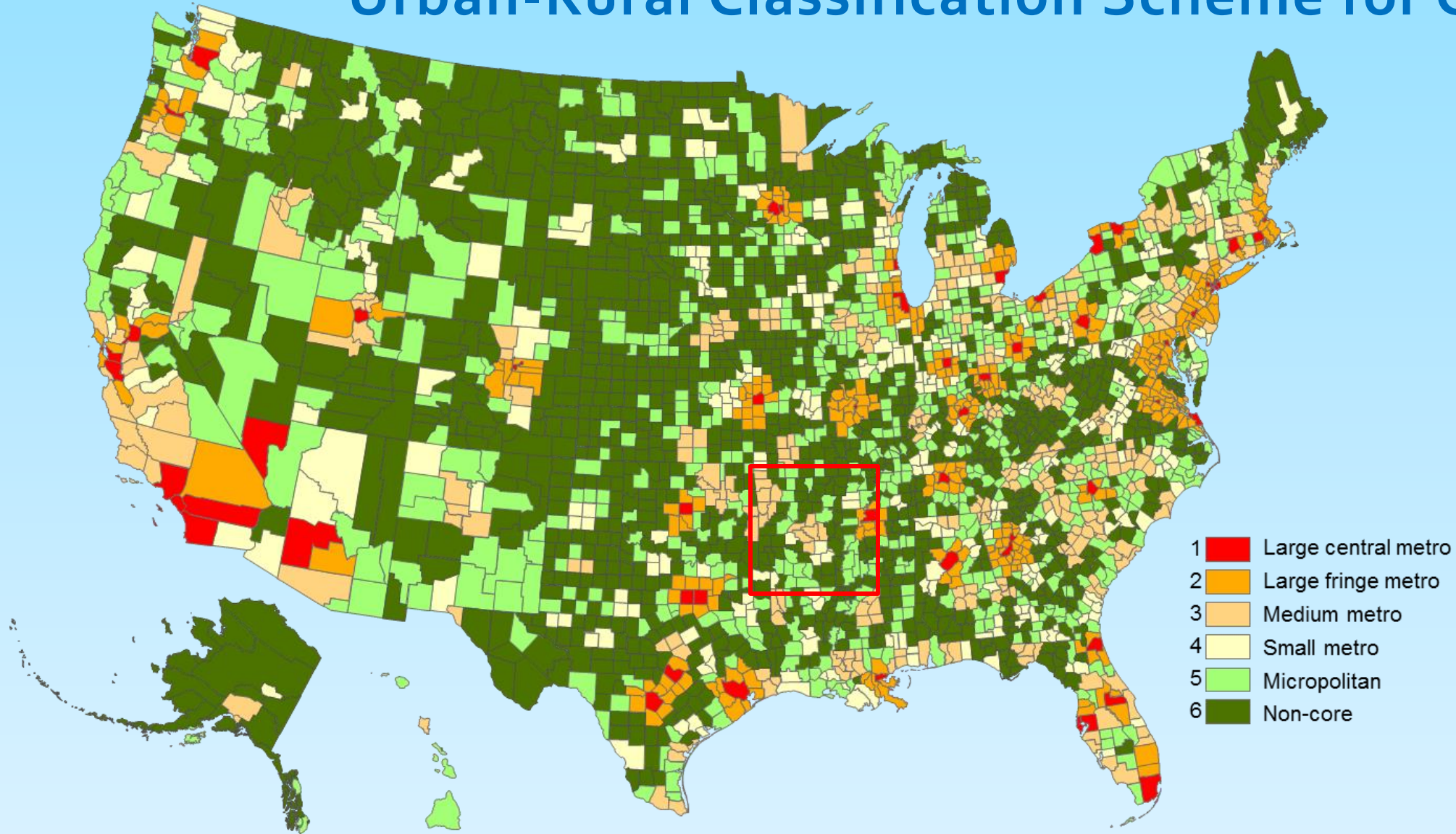


| | |
|----------|-----------------------------|
| Arkansas | Statewide – All 75 Counties |
|----------|-----------------------------|



Arkansas is the only site in the ADDM network that conducts statewide surveillance

2006 National Center for Health Statistics Urban-Rural Classification Scheme for Counties




Methods

Target Population & Case Ascertainment

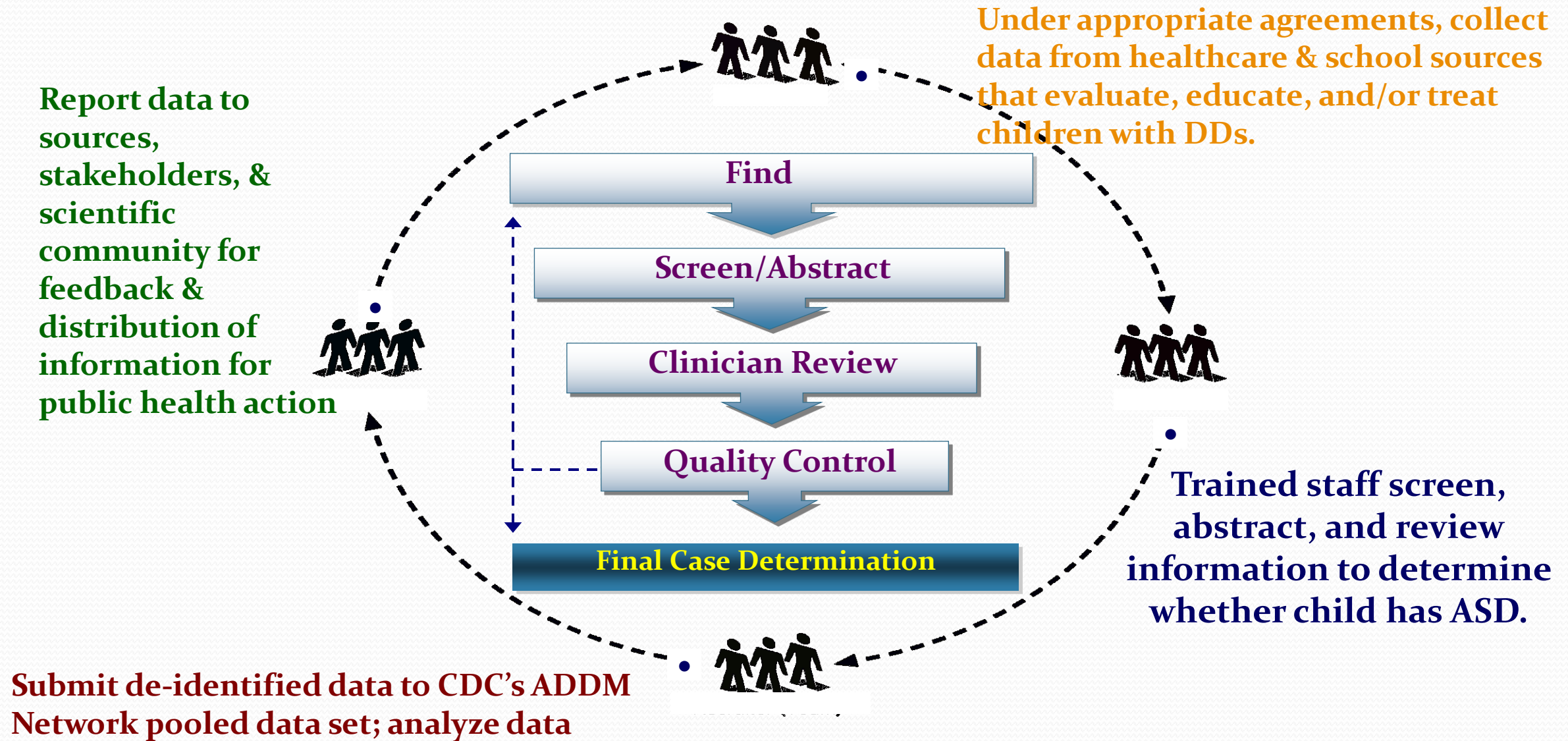
Methods

- **Target population → 8-year-old children in AR in 2010**
 - CDC's baseline study showed 8 years as age of peak prevalence
- **Multi-source, population-based surveillance system**
 - Health service records → diagnostic & delivery
 - Public school records
- **Standardized methodology of case finding, record review/abstraction, and clinician review**
 - Does not rely on a previous diagnosis of ASD

Steps to Finding a Case

- 
1. **FIND** → Find children with possible ASDs by requesting records with certain clinical diagnosis codes (health sources) and all records in Special Education (school sources)
 2. **SCREEN** → Screen evaluations of children for “triggers” that may indicate the presence of an ASD
 3. **ABSTRACT** → Collect relevant information from the record into a secure database
 4. **EXPERT REVIEW** → All evaluations for a child are reviewed by experienced, trained clinicians who score the record and look for diagnostic features (DSM-IV criteria) for an ASD (DSM-5 in future)

Summary of AR ADDM Surveillance System



Characteristics of Arkansas Autism Surveillance System AR ADDM SY2002 & SY2010

Abstracted and Reviewed Records, and Number of Confirmed Cases AR ADDM SY2002 & SY2010

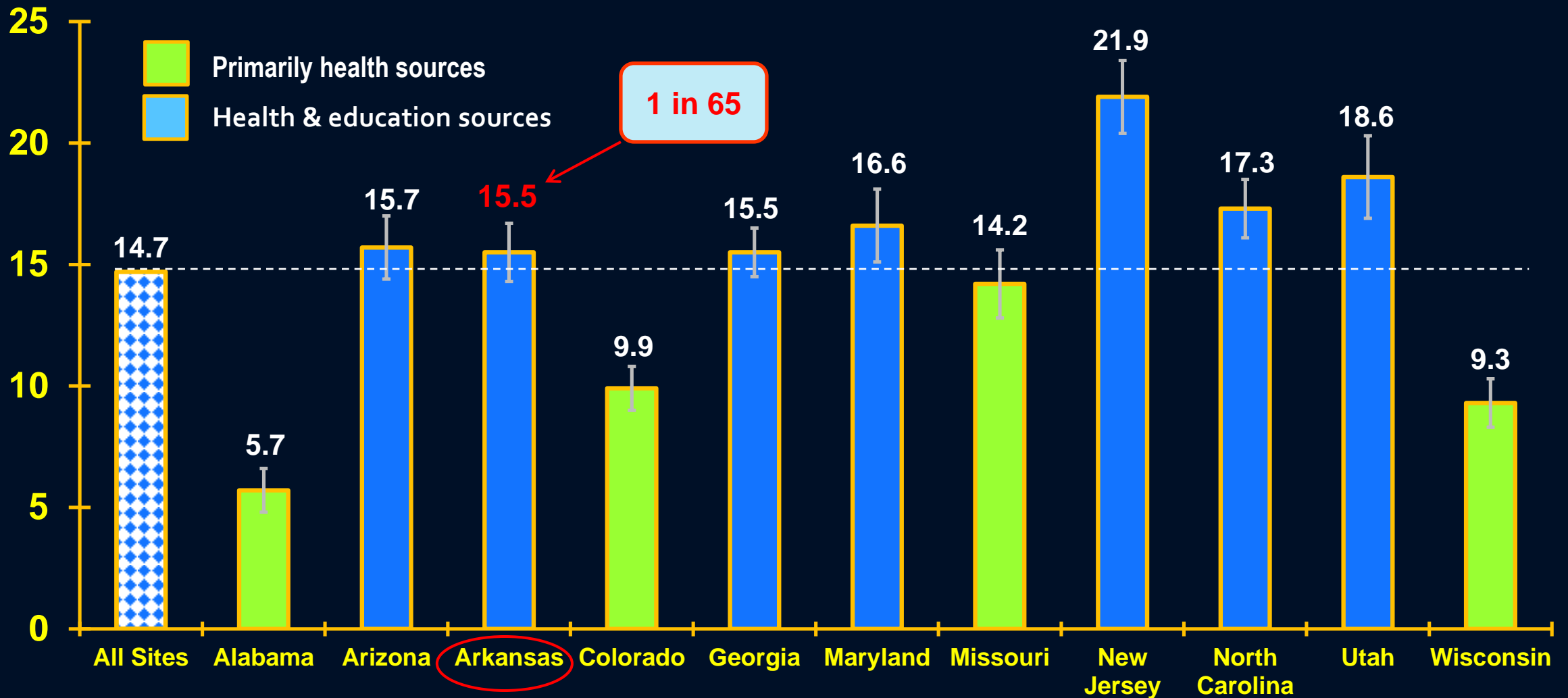
| | <u>SY2002</u> | <u>SY2010</u> |
|--|---------------|---------------|
| # of participating health & education sources | 293 | 253 |
| # of records requested | 7,547 | 7,773 |
| # of children for whom records were requested | 5,908 | 6,391 |
| # of records abstracted | 1,632 | 1,973 |
| # of children for whom records were abstracted | 1,137 | 1,228 |
| # of children reviewed for ASD by clinician reviewers | 525* | 1,228 |
| # of confirmed ASD cases | 251 | 605 |
| Confirmed cases receiving special education services | 206 | 496 |
| Number & percent of confirmed cases receiving special services w/ autism eligibility (primary spec ed. eligibility category only) | 120 (58%) | 298 (60%) |

*Streamlined abstraction in SY2002

Highlights of Findings

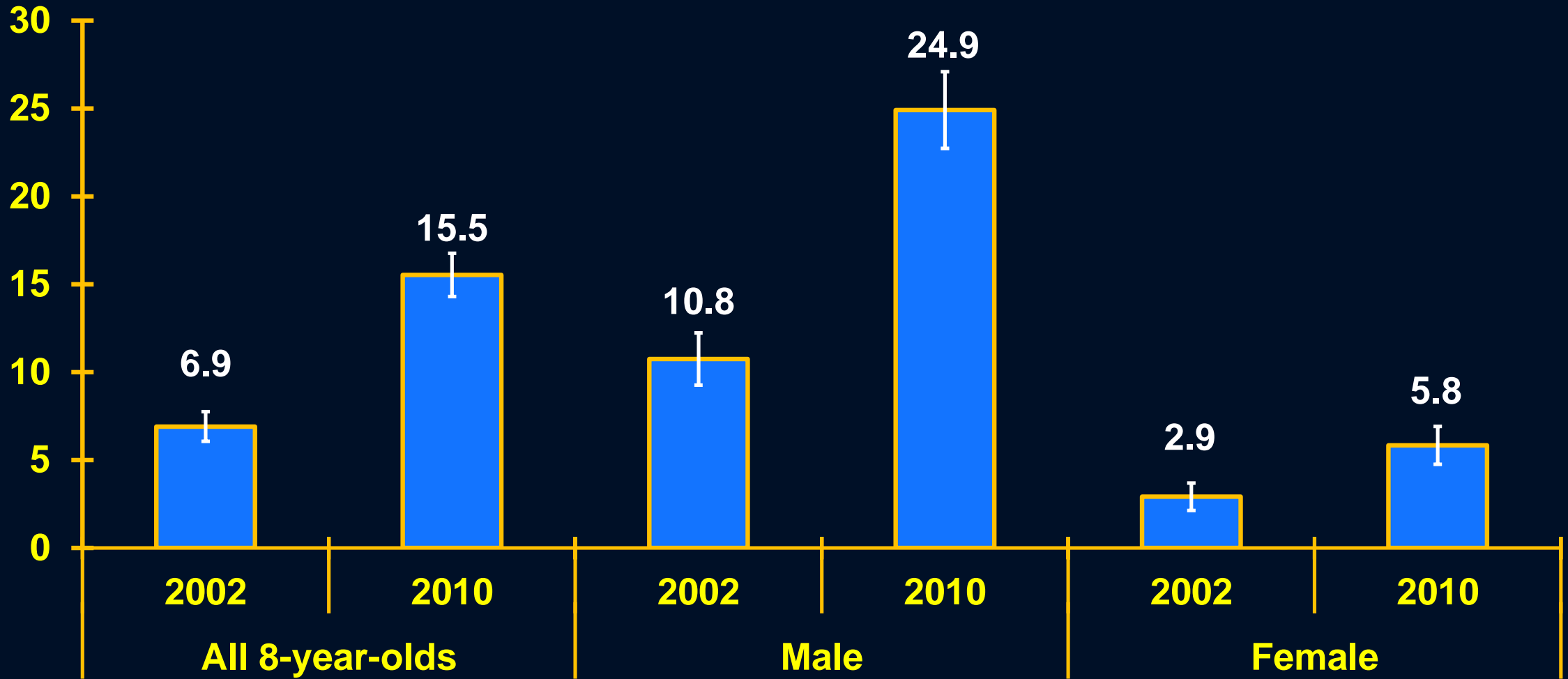
2002 VS. 2010

Prevalence of ASDs by Site, Autism and Developmental Disabilities Monitoring Network – 11 Sites, United States, 2010



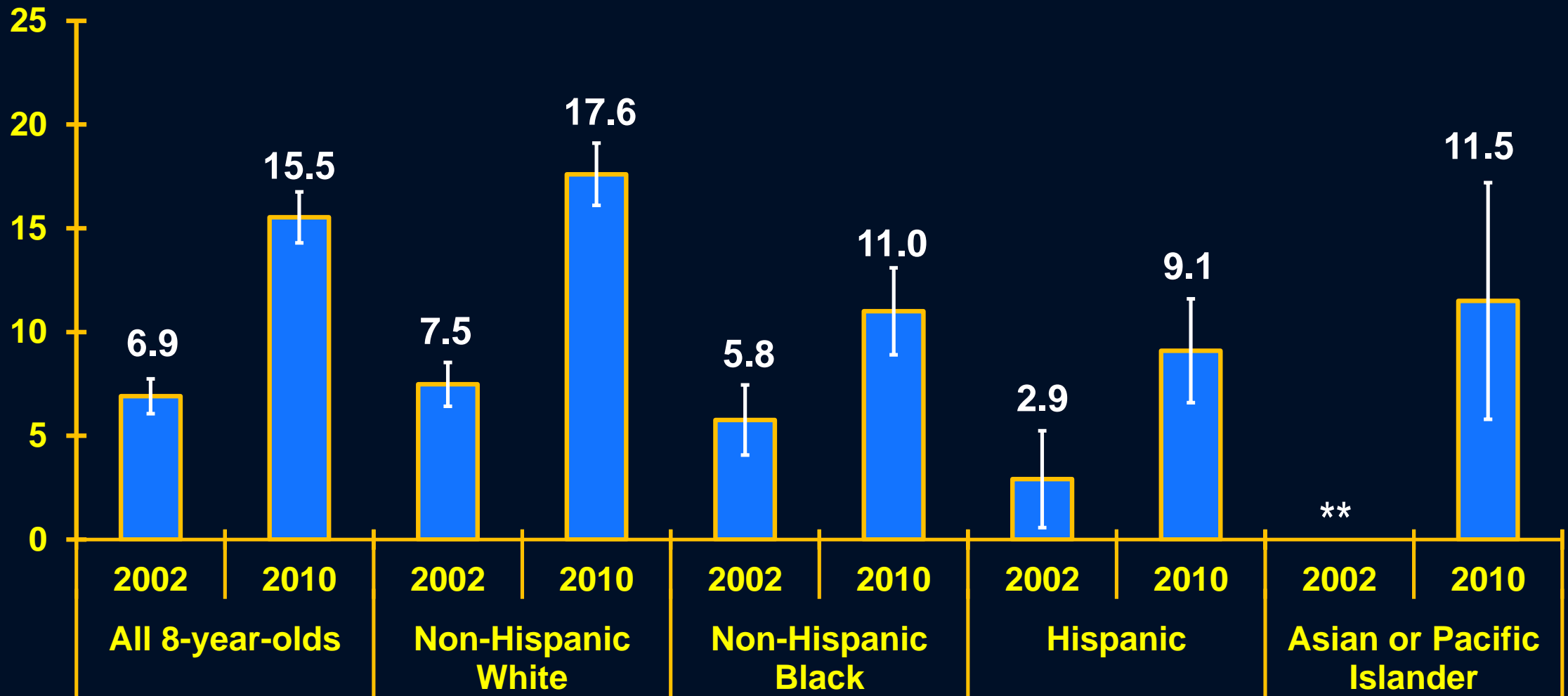
*Per 1,000 8-year-old population

Prevalence of ASDs* Overall and by Gender, Arkansas 8-year-olds 2002 vs. 2010



*Per 1,000 8-year-old population

Prevalence of ASDs* Overall and by Race/Ethnicity, Arkansas 8-year-olds 2002 vs. 2010

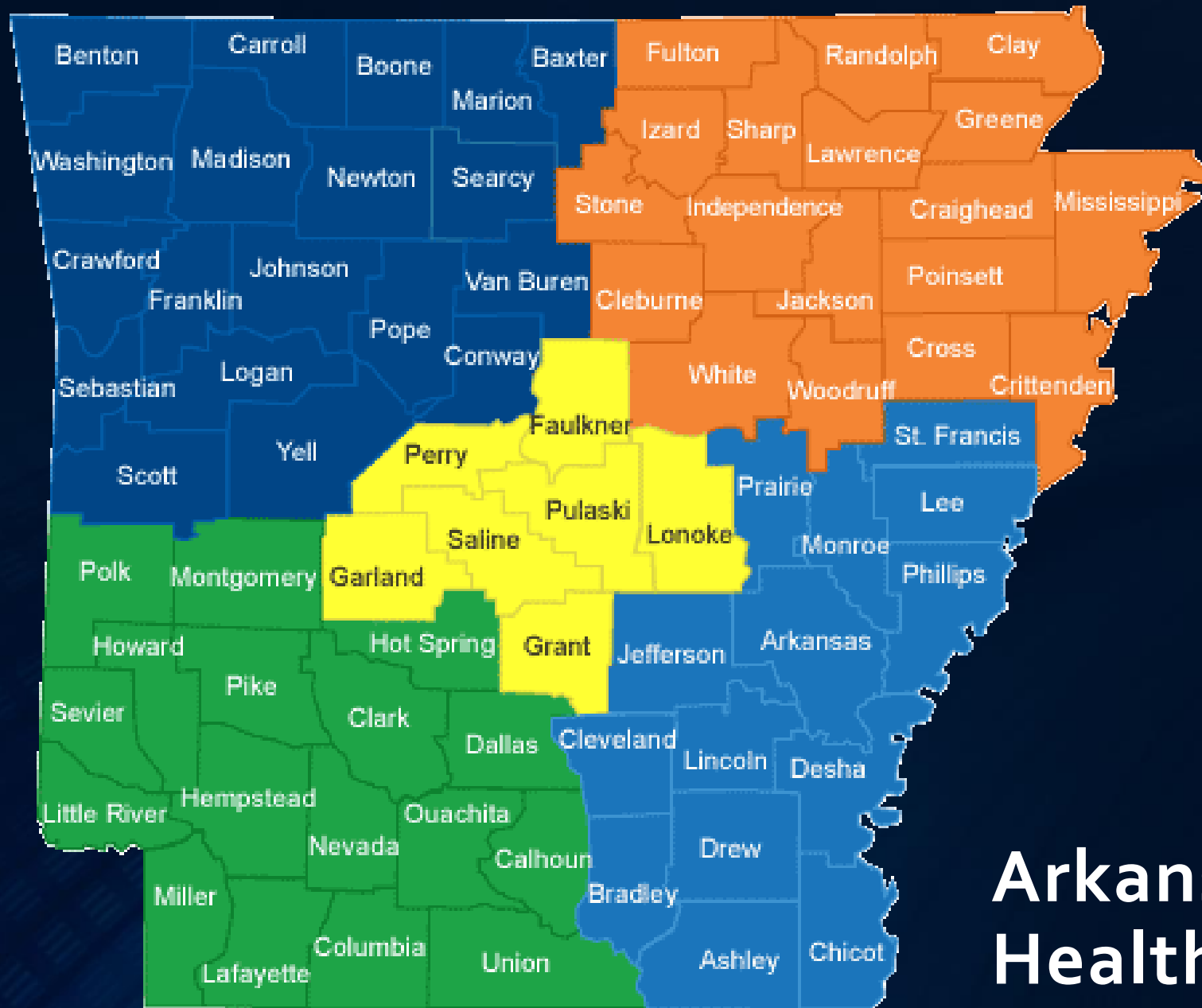


*Per 1,000 8-year-old population

**Rate for Asians/Pacific Islanders not presented due to small cell size(s) in 2002

Arkansas Statewide & Regional ASD Prevalence 2010

| | ASD confirmed cases | Population 8-year old | Prevalence per 1,000 population | 95% LCL | 95% UCL |
|--|---------------------|-----------------------|---------------------------------|-------------|-------------|
| State Total | 605 | 38,956 | 15.5 | 14.3 | 16.8 |
| Northwest Region | 231 | 13,365 | 17.3 | 15.1 | 19.5 |
| Southwest Region | 53 | 4,184 | 12.7 | 9.3 | 16.1 |
| Central Region | 164 | 10,561 | 15.5 | 13.2 | 17.9 |
| Northeast Region | 109 | 7,349 | 14.8 | 12.1 | 17.6 |
| Southeast Region | 48 | 3,497 | 13.7 | 9.9 | 17.6 |
| LCL = lower confidence limit; UCL = upper confidence limit | | | | | |



Arkansas Public Health Regions

Arkansas Statewide & Regional ASD Prevalence: 2002 vs. 2010

| | Surveillance Year 2002 | | | Surveillance Year 2010 | | |
|--------------------|------------------------|-----------------------|---------------------------------|------------------------|-----------------------|---------------------------------|
| | ASD confirmed cases | Population 8-year old | Prevalence per 1,000 population | ASD confirmed cases | Population 8-year old | Prevalence per 1,000 population |
| State Total | <u>251</u> | 36,317 | 6.9 | <u>605</u> | 38,956 | 15.5 |
| Northwest Region | <u>70</u> | 11,261 | 6.2 | <u>231</u> | 13,365 | 17.3 |
| Southwest Region | 26 | 4,437 | 5.9 | 53 | 4,184 | 12.7 |
| Central Region | 91 | 9,460 | 9.6 | 164 | 10,561 | 15.5 |
| Northeast Region | 44 | 7,071 | 6.2 | 109 | 7,349 | 14.8 |
| Southeast Region | 20 | 4,088 | 4.9 | 48 | 3,497 | 13.7 |

Prevalence by County

2002 VS. 2010

Characteristics of Arkansas' 8-year-old Children with ASDs

Intellectual Ability & First Comprehensive Evaluation

Intellectual Disability (ID)

- **AR ADDM was one of seven sites with data on ID**
 - 95% of AR cases had IQ scores available
 - 2nd highest after NC (96%)
 - Collaboration & data quality → ADE

| Among Kids with ASD: | With ID (IQ ≤ 70) | No ID (IQ > 70) |
|-----------------------------------|---|---|
| Arkansas | 5.2 per 1,000 (35% of cases) | 9.5 per 1,000 (65% of cases) |
| ADDM Network (All Sites Combined) | 4.7 per 1,000 (31%) | 10.2 per 1,000 |

ADDM Network ASD cases with Intellectual Disability:

48% of black children, 38% of Hispanic children, 25% of white children

White children were more likely to have ASD without ID than Black or Hispanic children; Black children with ASD were more likely to have ID than White or Hispanic children.

Special Education Eligibility

| Primary Special Education Eligibility | Percentage |
|--|-------------------------------|
| Autism | 60 |
| Emotional disturbance | 2 |
| Specific learning disability | 3 |
| Speech or language impairment | 16 |
| Health or physical disability | 10 |
| Multiple disabilities | 3 |
| Intellectual disability | 6 |
| Total no. of ASD cases with special education records | 496 (82% of 605 cases) |

First Evaluation for Developmental Concerns

- **Healthy People 2020 objective:**

- Increase the proportion of children w/ ASDs who have their first evaluation by 36 months
 - Arkansas → 35%
 - ADDM Network → 44% [Range 33% - 59%]

- **% who have a mention of developmental concern by 36 months:**

- Arkansas → 90%
- ADDM Network → 89% [Range 83% - 94%]

- **Median age at first evaluation:**

- Arkansas → 45 months
- ADDM Network → 44 months [Range 33 – 45 months]

First Evaluation (*continued*)

- **Median age of earliest documented ASD diagnosis (any subtype):**
 - Arkansas SY2010 → 61 months (highest in Network)
 - ADDM Network SY2010 → 53 months (range 46 – 61 months)
 - Arkansas SY2002 → 59 months
- **% who have previous diagnosis (DSM-IV-TR) in records:**
 - Arkansas → 69%
 - ADDM Network → 72% [Range 59% - 88%]

Age of ASD Diagnosis by Subtype (DSM-IV-TR)

| Subtype of Earliest Diagnosis: | Autistic Disorder | ASD/PDD | Asperger Disorder |
|---|--------------------------|--------------------------|--------------------------|
| Distribution of Subtypes—ARKANSAS | 53% | 31% | 17%* |
| Distribution of Subtypes –ADDM Network | 43% (range: 19-72%) | 46% (range: 21-73%) | 11% (range: 7-17%) |
| Median Age of Earliest Diagnosis—ARKANSAS | 55 mos | 63 mos | 75 mos |
| Median Age of Earliest Diagnosis—ADDM Network | 48 mos (range: 37-59) | 50 mos (range: 39-63) | 74 mos (range: 68-84) |

Previous ASD Classification

- **Arkansas 2010 → 77% of children had either an ADE eligibility for autism special education services at school or had an ASD diagnosis or both**
 - Remaining 23% of children identified with ASD had documented symptoms of ASD, but had not yet been classified as having ASD by a community provider
 - ADDM Network 2010 → 80% [Range 65% - 90%]
 - AR ADDM 2002 → 82%

Bottom Line

- **ASD prevalence in Arkansas has more than doubled from 1 in 145 (SY2002) to 1 in 65 (SY2010) among 8-year-olds.**
- **We are still challenged to:**
 - **Improve recognition and documentation of symptoms of ASD, particularly among children without intellectual disability and children in all racial/ethnic groups**
 - **Decrease the age when children are first evaluated for ASD, first receive an ASD diagnosis, and are first enrolled in community-based supports**

More Resources Available from CDC's ADDM Network



National Center on Birth Defects and Developmental Disabilities – Centers for Disease Control & Prevention
Autism and Developmental Disabilities Monitoring (ADDM) Network
<http://www.cdc.gov/addm>

For questions or comments,
please contact:

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