



many voices-one vision



Environmental Public Health Tracking Conference

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Pediatric Asthma Surveillance with School Health Records

The Massachusetts Experience

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**National Center for
Environmental Health**



The Problem

Existing Asthma Surveillance Sources

- Hospital discharge data
 - Emergency room data
 - Observation bed data
 - Mortality data
 - Pharmacy data – private db
 - Medicaid data – subset of pediatric population
 - Behavioral Risk Factor Surveillance Survey
- Limited by access, severity

MDPH Pediatric Asthma Surveillance

- **Implement 3-year program for statewide tracking of asthma among school aged children**
- **Source of information = school health record**

Regulatory Language Allowing Use of School Health Records

- **MA Student Record Regulations Sec 23.7(4)(h)**
- **DPH Access to Records MGL. c.111,s. 24 A**
- **Medication Administration 105 CMR 210.000**

Electronic Pediatric Asthma Data Collection

- **No personally identifying information**
- **Total number of students with asthma by gender and by grade for each school**

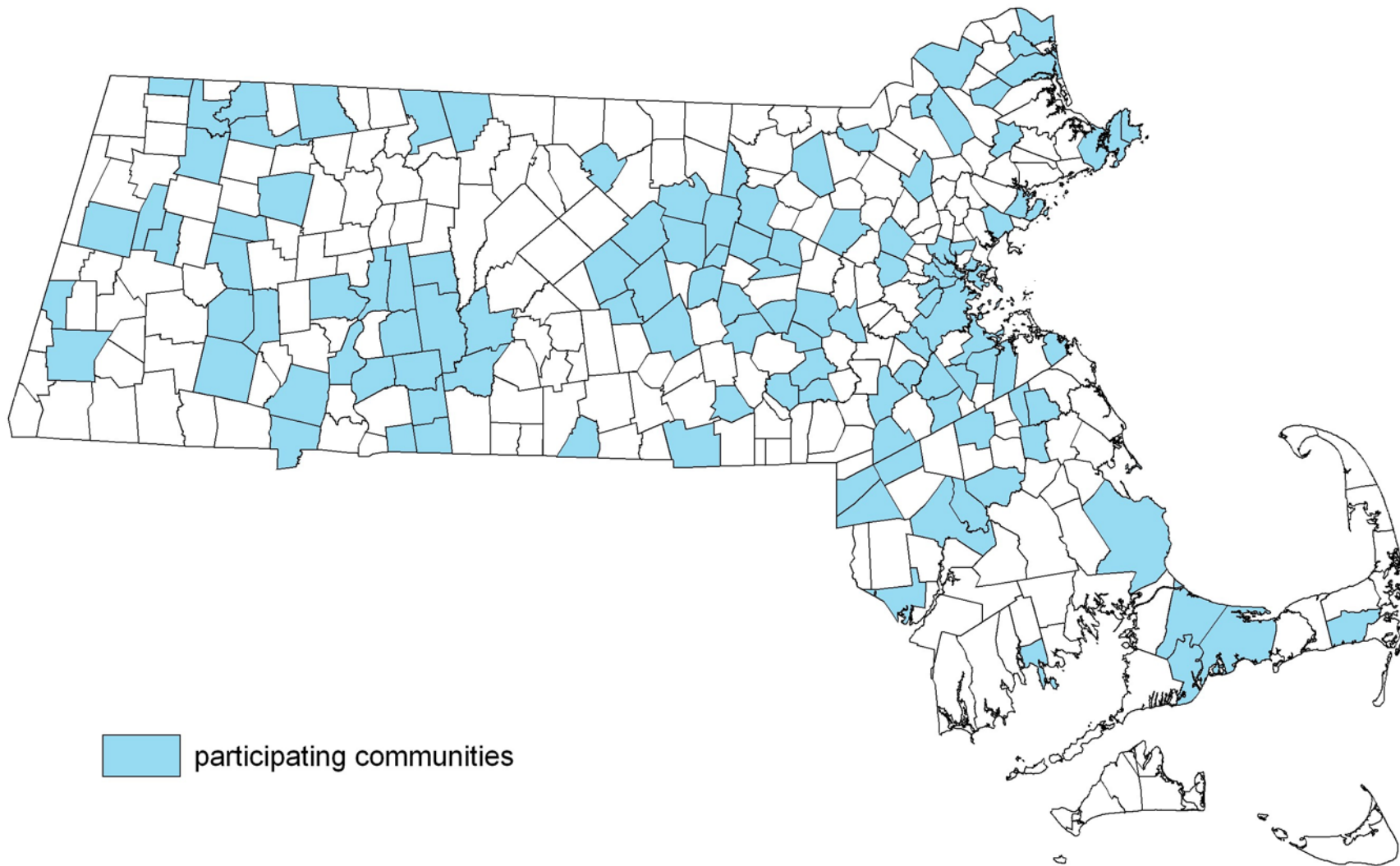
DATA COLLECTION FORM

1. FULL name of school building		3. City/Town		5. Name of Person Completing Form																																												
2. Street Address of School Building		4. Phone Number		6. Email Address																																												
7. Is this school: <input type="checkbox"/> part of the local public school district <input type="checkbox"/> part of a regional school district <input type="checkbox"/> a charter school <input type="checkbox"/> a nonpublic school			8. (If this is a public school) Which public school district is this school a part of? <hr/>																																													
9. Number of K-8 Students With Asthma By Grade ('0' = no students with asthma, 'NA' = grade not present)		10. Number of K-8 Students with Asthma By Gender ('0' = no students with asthma, 'NA' = grade not present)		12. How else did the school nurse know these students had asthma?																																												
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Grade</th> <th style="width:15%;">Number</th> <th style="width:15%;">Don't Know</th> </tr> </thead> <tbody> <tr><td>Kindergarte</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 1</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 2</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 3</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 4</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 5</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 6</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 7</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Grade 8</td><td></td><td><input type="checkbox"/></td></tr> <tr> <td>Total (should equal total by gender)</td> <td></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Grade	Number	Don't Know	Kindergarte		<input type="checkbox"/>	Grade 1		<input type="checkbox"/>	Grade 2		<input type="checkbox"/>	Grade 3		<input type="checkbox"/>	Grade 4		<input type="checkbox"/>	Grade 5		<input type="checkbox"/>	Grade 6		<input type="checkbox"/>	Grade 7		<input type="checkbox"/>	Grade 8		<input type="checkbox"/>	Total (should equal total by gender)		<input type="checkbox"/>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Gender</th> <th style="width:15%;">Number</th> <th style="width:15%;">Don't Know</th> </tr> </thead> <tbody> <tr><td>Male</td><td></td><td><input type="checkbox"/></td></tr> <tr><td>Female</td><td></td><td><input type="checkbox"/></td></tr> <tr> <td>Total (should equal total)</td> <td></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Gender	Number	Don't Know	Male		<input type="checkbox"/>	Female		<input type="checkbox"/>	Total (should equal total)		<input type="checkbox"/>	<input type="checkbox"/> emergency cards <input type="checkbox"/> parent resource <input type="checkbox"/> parent <input type="checkbox"/> student communication <input type="checkbox"/> direct observation of asthma <input type="checkbox"/> other Explain: _____	
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		11. Please estimate the number of students from item number 9 for which you have documentation of a <i>provider diagnosis</i> of asthma and/or <i>asthma medication orders</i> ?		13. Please estimate the number of students from item number 9 for which you have an <i>Asthma Action Plan</i> Number: _____																																												
		Number: _____		14. How did you collect the data for this survey? <input type="checkbox"/> computerized records <input type="checkbox"/> combination of computerized and paper records <input type="checkbox"/> paper records <input type="checkbox"/> other Explain: _____																																												

Participation K-8 Schools

- **Target = 111 school districts, 958 schools (MDPH Essential School Health Services Program (ESHS))**
- **Results = 760 public, private, charter schools participated**

Communities Participating in Pediatric Asthma Survey 2002-2003



Results – reported asthma prevalence

- **Statewide prevalence = 9.2%**
- **School-specific prevalence = 0 – 30.8%**
- **District-Wide prevalence = 2.7% - 16.2%**

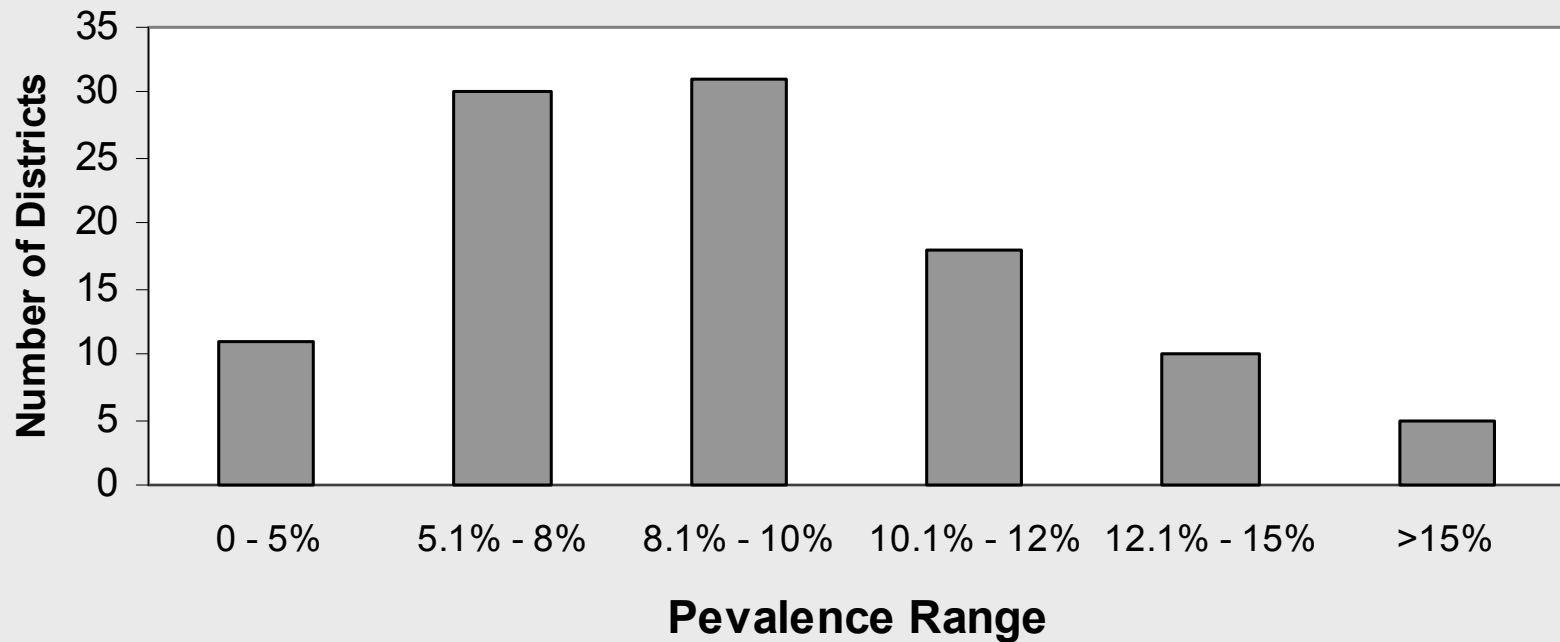
Results cont.

Reported asthma prevalence by grade. MDPH		
Grade	Prevalence (%)	95% CI (%)
K	8.1 (2,561)	7.8 – 8.4
1	7.7 (2,598)	7.4 - 8.0
2	8.3 (2,780)	8.0 – 8.6
3	9.0 (3,052)	8.7 – 9.3
4	9.5 (3,266)	9.2 – 9.8
5	10.0 (3,535)	9.7 – 10.3
6	10.3 (3,692)	10.0 – 10.6
7	10.0 (3,656)	9.6 – 10.2
8	9.8 (3,598)	9.5 – 10.2
Total	9.2 (28,738)	9.1 – 9.3

*Total K-8 students enrolled in participating schools = 311,610.

Results cont.

**Distribution of Reported District - Wide Asthma
Prevalence, 2002 - 2003**





The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington St., Boston, MA 02108

Student Asthma Surveillance Report School Year 2002 - 2003

Boston School District

1) Total number of K-8 students reported with asthma: 5,630		2) Total number of K-8 students enrolled (in participating schools): 48,739	
3) District-wide reported student asthma prevalence (in participating schools): 11.6 % (95% CI = 11.4 - 11.9)	4) Estimated statewide reported student asthma prevalence*: 9.2% (95% CI = 9.1 - 9.3)	5) Range of reported asthma prevalence among participating districts: 2.7% - 16.2%	
<p>6) <i>About the numbers:</i></p> <p>The total number of students reported with asthma (item 1), students enrolled (item 2), and district-wide prevalence (item 3) represent only those schools within the district that completed the Massachusetts Department of Public Health Pediatric Asthma Survey for the 2002-2003 school year (149 school(s) out of 157 eligible).</p> <p>District-wide reported asthma prevalence (item 3) expresses the percentage of students enrolled in public, private, or charter schools located within your school district that were reported by the school nurse to have asthma. The estimated statewide asthma prevalence (item 4) and range of prevalence for all participating districts (item 5) have been provided for reference.</p> <p>Comparison of your district's 95% prevalence confidence interval with the statewide 95% prevalence confidence interval suggests that the reported asthma prevalence in your district is <i>statistically significantly higher than</i> the statewide reported asthma prevalence. Please see the accompanying Questions and Answers sheet for an explanation of what this finding means.</p> <p>Thank you for your school's participation in the 2002-2003 pediatric asthma survey. For questions or comments regarding this report, please contact the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.</p> <p><small>*Statewide prevalence was estimated from a sample of 760 schools in 102 school districts.</small></p>			



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Student Asthma Surveillance Report
School Year 2002 - 2003
Braintree School District

1) Total number of K-8 students reported with asthma: 466		2) Total number of K-8 students enrolled (in participating schools): 3,499	
3) District-wide reported student asthma prevalence (in participating schools): 13.3 % (95% CI = 12.2 - 14.4)	4) Estimated statewide reported student asthma prevalence*: 9.2% (95% CI = 9.1 - 9.3)	5) Range of reported asthma prevalence among participating districts: 2.7% - 16.2%	
<p>6) <i>About the numbers:</i></p> <p>The total number of students reported with asthma (item 1), students enrolled (item 2), and district-wide prevalence (item 3) represent only those schools within the district that completed the Massachusetts Department of Public Health Pediatric Asthma Survey for the 2002-2003 school year (10 school(s) out of 10 eligible).</p> <p>District-wide reported asthma prevalence (item 3) expresses the percentage of students enrolled in public, private, or charter schools located within your school district that were reported by the school nurse to have asthma. The estimated statewide asthma prevalence (item 4) and range of prevalence for all participating districts (item 5) have been provided for reference.</p> <p>Comparison of your district's 95% prevalence confidence interval with the statewide 95% prevalence confidence interval suggests that the reported asthma prevalence in your district is <i>statistically significantly higher than</i> the statewide reported asthma prevalence. Please see the accompanying Questions and Answers sheet for an explanation of what this finding means.</p> <p>Thank you for your school's participation in the 2002-2003 pediatric asthma survey. For questions or comments regarding this report, please contact the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.</p> <p><small>*Statewide prevalence was estimated from a sample of 760 schools in 102 school districts.</small></p>			



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Student Asthma Surveillance Report
School Year 2002 - 2003
Lawrence School District

1) Total number of K-8 students reported with asthma: 1,328		2) Total number of K-8 students enrolled (in participating schools): 9,350	
3) District-wide reported student asthma prevalence (in participating schools): 14.2% (95% CI = 13.5 - 14.9)	4) Estimated statewide reported student asthma prevalence*: 9.2% (95% CI = 9.1 - 9.3)	5) Range of reported asthma prevalence among participating districts: 2.7% - 16.2%	
<p>6) <i>About the numbers:</i></p> <p>The total number of students reported with asthma (item 1), students enrolled (item 2), and district-wide prevalence (item 3) represent only those schools within the district that completed the Massachusetts Department of Public Health Pediatric Asthma Survey for the 2002-2003 school year (20 school(s) out of 26 eligible).</p> <p>District-wide reported asthma prevalence (item 3) expresses the percentage of students enrolled in public, private, or charter schools located within your school district that were reported by the school nurse to have asthma. The estimated statewide asthma prevalence (item 4) and range of prevalence for all participating districts (item 5) have been provided for reference.</p> <p>Comparison of your district's 95% prevalence confidence interval with the statewide 95% prevalence confidence interval suggests that the reported asthma prevalence in your district is <i>statistically significantly higher than</i> the statewide reported asthma prevalence. Please see the accompanying Questions and Answers sheet for an explanation of what this finding means.</p> <p>Thank you for your school's participation in the 2002-2003 pediatric asthma survey. For questions or comments regarding this report, please contact the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.</p> <p><small>*Statewide prevalence was estimated from a sample of 760 schools in 102 school districts.</small></p>			



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Student Asthma Surveillance Report
School Year 2002 - 2003
Natick School District

1) Total number of K-8 students reported with asthma: 375		2) Total number of K-8 students enrolled (in participating schools): 2,578	
3) District-wide reported student asthma prevalence (in participating schools): 14.5 % (95% CI = 13.1 - 15.9)	4) Estimated statewide reported student asthma prevalence*: 9.2% (95% CI = 9.1 - 9.3)	5) Range of reported asthma prevalence among participating districts: 2.7% - 16.2%	
6) About the numbers: <p>The total number of students reported with asthma (item 1), students enrolled (item 2), and district-wide prevalence (item 3) represent only those schools within the district that completed the Massachusetts Department of Public Health Pediatric Asthma Survey for the 2002-2003 school year (5 school(s) out of 7 eligible).</p> <p>District-wide reported asthma prevalence (item 3) expresses the percentage of students enrolled in public, private, or charter schools located within your school district that were reported by the school nurse to have asthma. The estimated statewide asthma prevalence (item 4) and range of prevalence for all participating districts (item 5) have been provided for reference.</p> <p>Comparison of your district's 95% prevalence confidence interval with the statewide 95% prevalence confidence interval suggests that the reported asthma prevalence in your district is <i>statistically significantly higher than</i> the statewide reported asthma prevalence. Please see the accompanying Questions and Answers sheet for an explanation of what this finding means.</p> <p>Thank you for your school's participation in the 2002-2003 pediatric asthma survey. For questions or comments regarding this report, please contact the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.</p> <p><small>*Statewide prevalence was estimated from a sample of 760 schools in 102 school districts.</small></p>			

Strengths of Data

- **School health record/nurse a reliable source of asthma status information**
- **Electronic surveillance is timely**
- **Community-level pediatric data available**
- **Community-level information may facilitate community-specific investigations and interventions**

Next Steps

- **Provide district-specific report on 2002/2003 prevalence**
- **Distribute summary report for 2002-2003 to superintendents and school nurse leaders**
- **Build electronic database for all Nurse Leaders for both public and private schools.**
- **Conduct 2004 electronic surveillance March/April 2004**
- **Conduct IAQ in a select sample of schools**
- **Provide district-specific prevalence reports in fall of 2004**

Future Goals

- **Establish Regional asthma surveillance system**
- **Expand surveillance model to all New England States**

The Future

- **With the establishment of a pediatric asthma tracking system, Massachusetts may learn more about the role that SES and the environment play in the development/exacerbation of asthma.**



**“Preliminary pediatric asthma surveillance for MA suggests 1 of these 4 children may have a diagnosis of asthma in some areas of our state...”
S.K. Condon, Associate Commissioner, MDPH**