

Politics, Policy & Public Health

American Public Health Association

135th Annual Meeting and Exposition

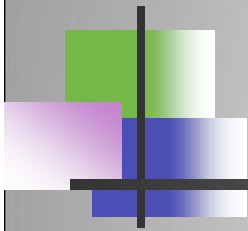
Washington, DC

November 3-7, 2007

Massachusetts Preschool Vision Screening Program: Two Year Program Evaluation



Massachusetts Preschool Vision Screening Program: Two Year Program Evaluation



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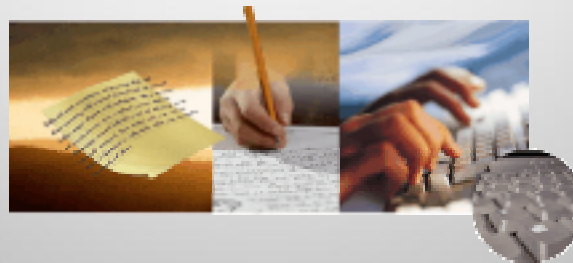
Preschool Vision Screening Discussion Summary

- Background Information
 - Massachusetts legislative mandate
 - Massachusetts preschool vision screening protocol
 - Strategic model for preschool vision screening program
 - Implementation activities
- Massachusetts program
 - Evaluation activities
 - Evaluation results
 - Percent kindergarteners receiving preschool vision screening
 - Quality of preschool vision screening: PCPs and school nurses
 - Percent failed screenings receiving follow-up with eye professional

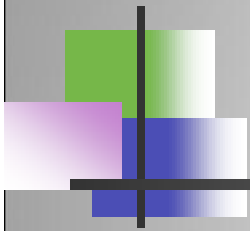


MA Preschool Vision Screening Legislative Mandate: MGLc71s57

- Signed into law July 15, 2004
- Requires proof of vision screening within 12 months prior to entering kindergarten
 - Approved personnel
 - Approved vision screening protocol
- Requires documentation of comprehensive eye examination :
 - Children who not pass vision screening
 - Children who are diagnosed with neuro-developmental delay



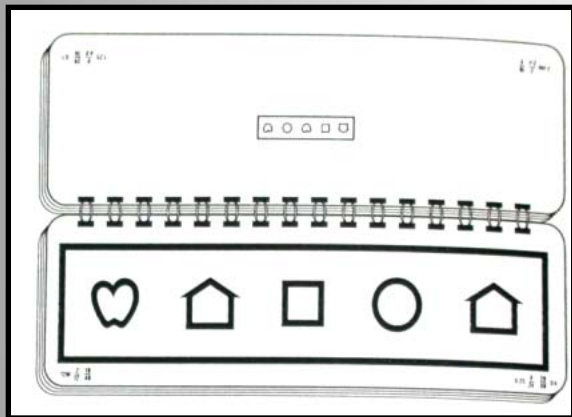
Massachusetts Preschool Vision Screening Program



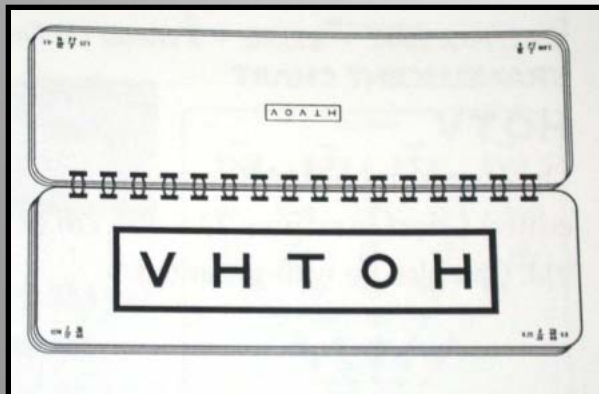
Vision Screening Protocol

MA Preschool Vision Screening Visual Acuity Protocol

Mass VAT: Lea symbols



Mass VAT: HOTV letters



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MA Preschool Vision Screening Visual Acuity Protocol

- Specific instructions given for monocular occlusion



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MA Preschool Vision Screening Stereo Testing Protocol

- Random Dot E
 - three cards
 - stereo glasses

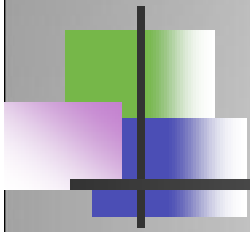


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Massachusetts Preschool Vision Screening Program



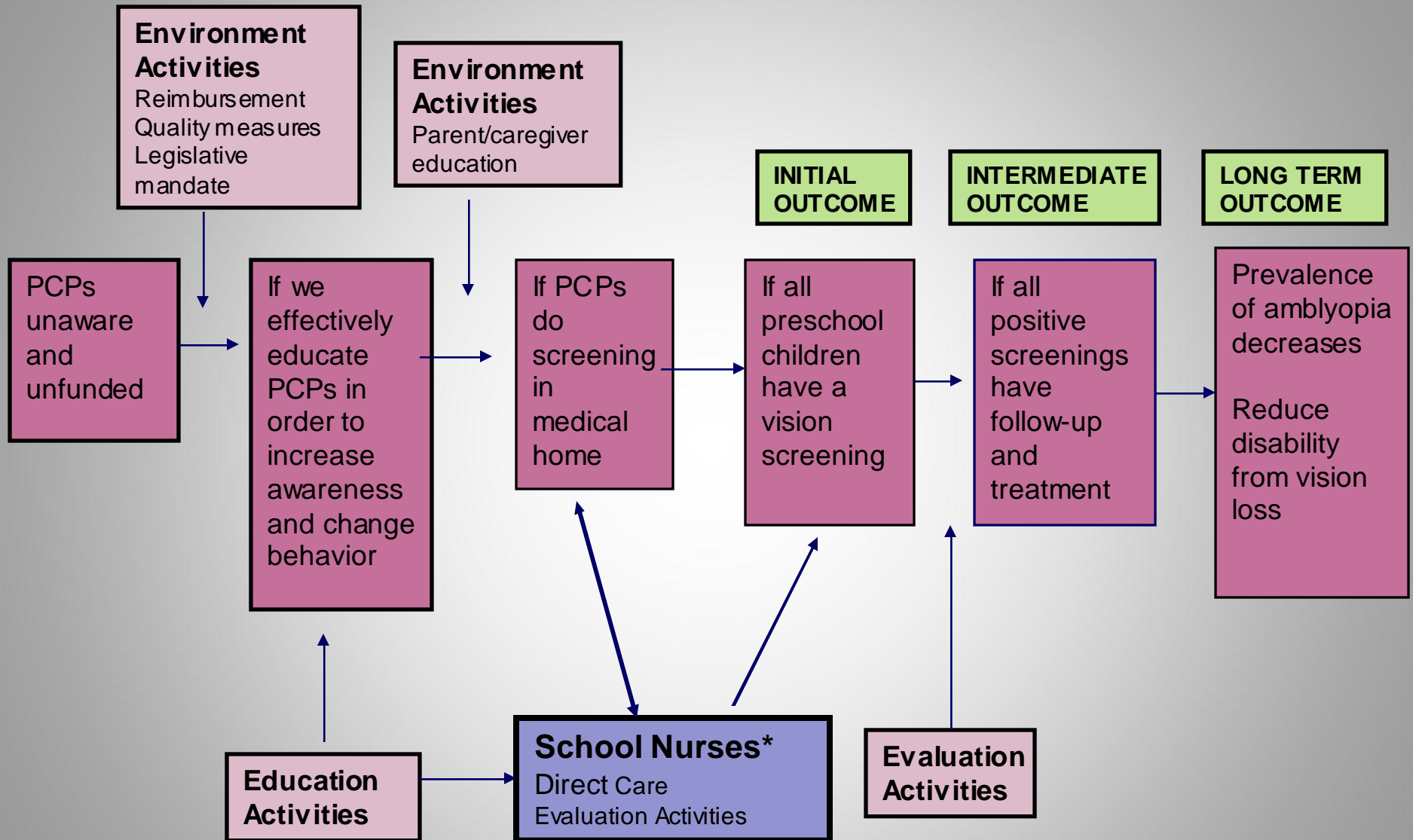
Logic Model

MA Preschool Vision Screening Program Strategic Model

- Program based on “medical home”: All children to receive vision screening at primary care provider’s office
 - 95% MA children have health insurance and primary care provider
 - School nurses play critical role as a “safety net”, to capture children upon entry into kindergarten
 - Value of serial vision screenings well recognized (AAP, AAO guidelines)



MA Preschool Vision Screening Program: Logic Model

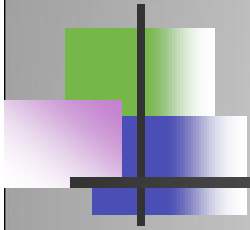


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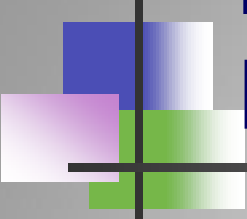
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Massachusetts Preschool Vision Screening Program



Implementation



MA Preschool Vision Screening Education Materials

- Powerpoint training presentation
- Vision screening video
 - video web site:
<http://www.ace.neu.edu/shi/links.php>
- Written protocols, new physical exam forms
- Massachusetts Department of Public Health web site:
www.mass.gov/dph/fch/schoolhealth
- MA Preschool Vision Screening CD
 - Alcon Laboratories
 - Massachusetts Medical Society

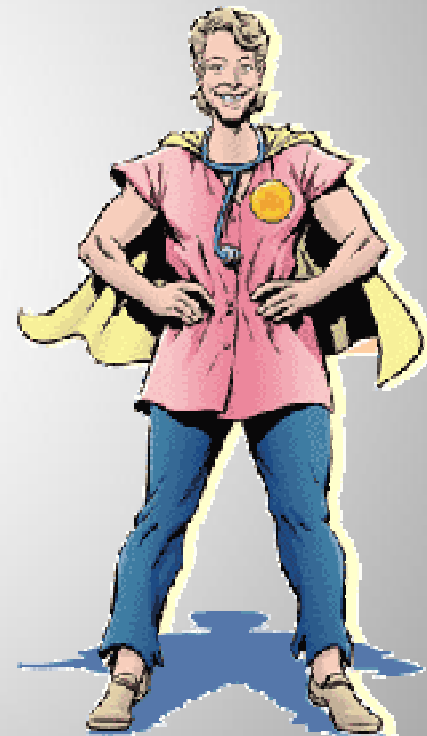
MA Preschool Vision Screening Education Activities

- Pedi Primary Care Providers
 - Two mass mailings ('05, '07)
 - CME conferences
 - Hospital Grand Rounds
 - Professional newsletters (MA Chapters of AAP, AAFP) list serves, web sites
 - Office instructional CD
 - Hot line number

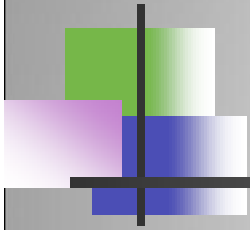


MA Preschool Vision Screening Education Activities

- School Nurses
 - CD mailing ('07)
 - School Health Institute
 - On going conferences, workshops
 - Train-the-Trainer
 - Professional newsletters, list serves, web sites
 - Hot line number

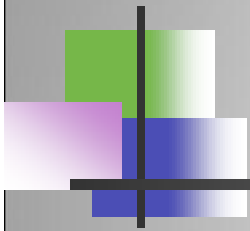


Massachusetts Preschool Vision Screening Program



Evaluation

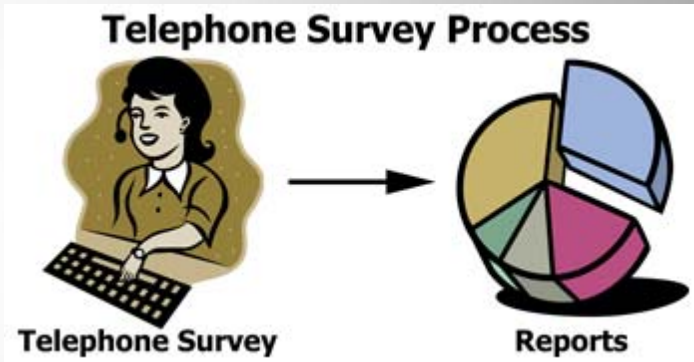
Massachusetts Preschool Vision Screening Program



Unit of Observation: Primary Care
Providers

MA Preschool Vision Screening Phone Survey

- Randomized phone survey, August-September 2006
 - Eighteen months after initial educational initiative
 - One hundred primary care pediatric practices
 - **Ninety nine percent (90%)** were aware of the new mandated preschool vision screening program
 - **Eighty nine percent (89%)** were implementing the new protocol in their offices





Preschool Vision Screening Questionnaire: 2005

- Baseline mail survey of pediatric healthcare providers
- Four hundred ninety one (491) pediatric healthcare provider respondents
- Data based on 302 respondents who reported that at least 75% of practice involved pediatric patients



Preschool Vision Screening Questionnaire: 2007

- Follow-up mail survey of pediatric primary care providers
- Questions similar to base line 2005 survey
- One hundred thirty (130) respondents
- Data based on 91 respondents who reported that at least 75% of practice involved pediatric primary care practice
 - 70% private group practice, 14% private solo practice
 - 7% hospital based, 6% community health center
 - 81% 11+ years in practice

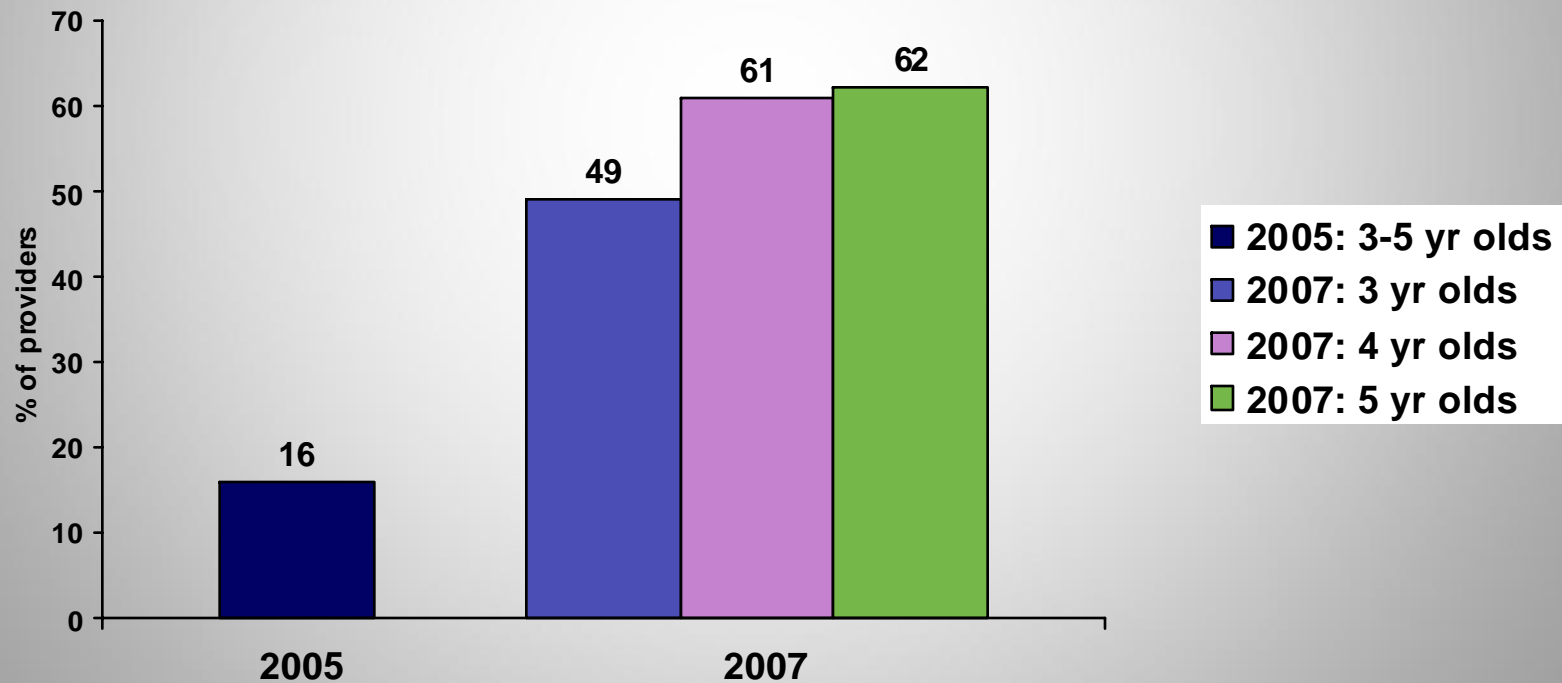


Preschool Vision Screening Questionnaire: 2007

73% of respondents reported using
the new Massachusetts Preschool
Vision Screening Protocol

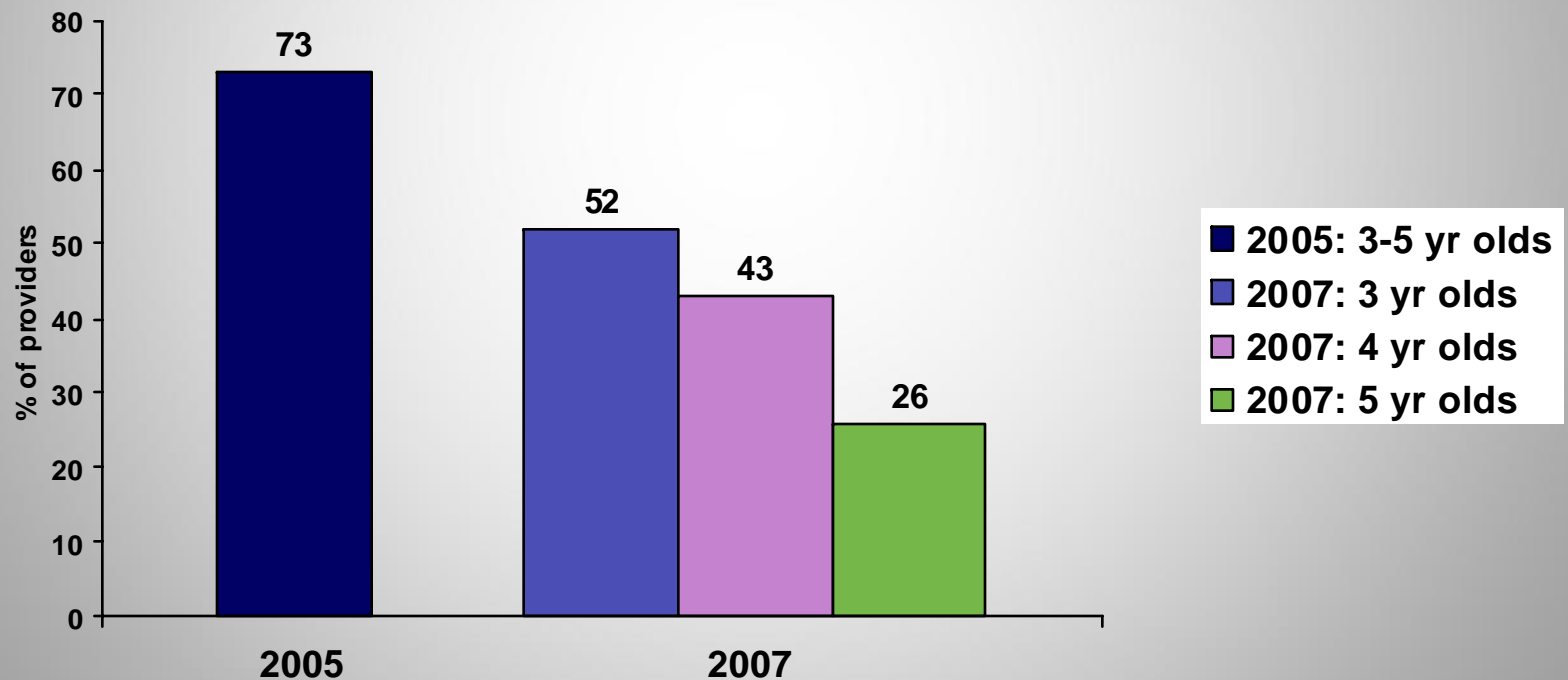
Visual Acuity Tests: HOTV or Lea Symbols

Percent of providers who use HOTV or Lea symbols for visual acuity testing, by age and year



Visual Acuity Tests: Pictures

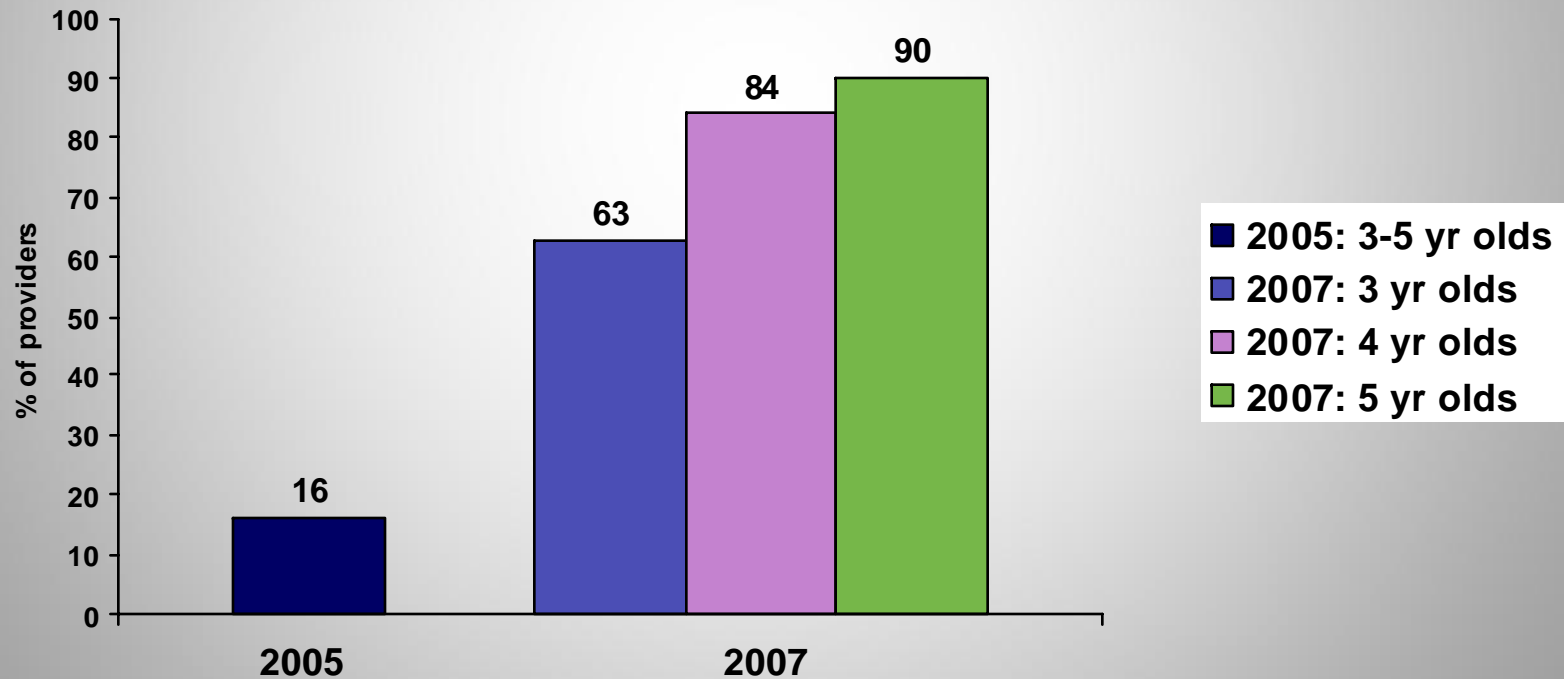
Percent of pediatric providers who use pictures for visual acuity testing, by age and year





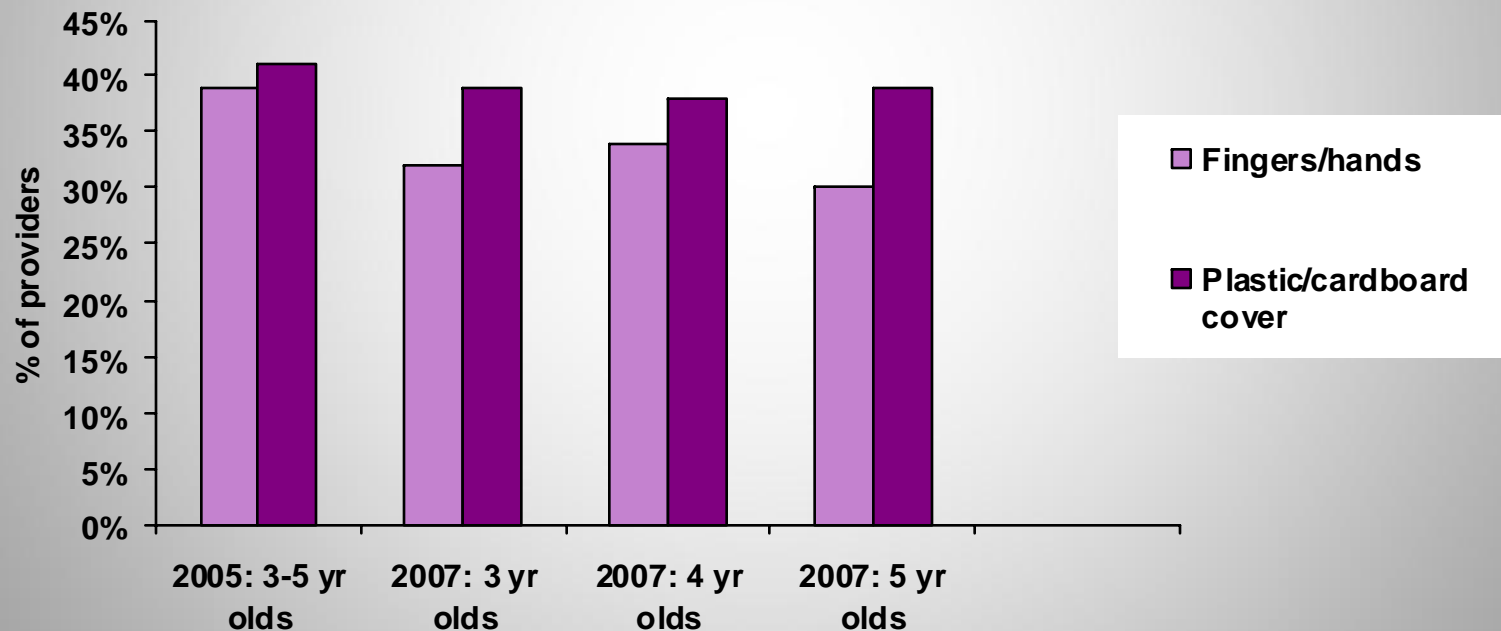
Alignment Tests: Stereo Test

Percent of pediatric providers who use stereo test for alignment testing, by age and year



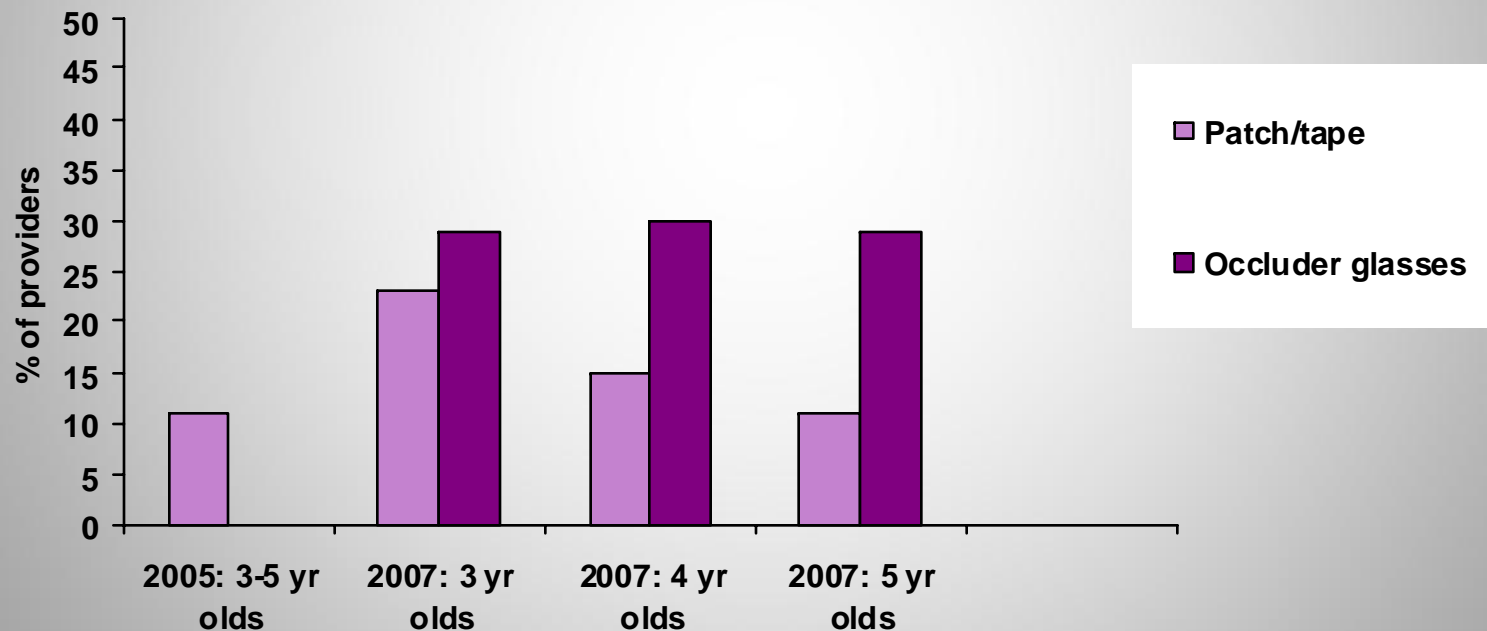
Visual Acuity Tests: Method of Occluding Eye

Percent of providers who occlude eye by using hands or plastic/cardboard cover, by age and year



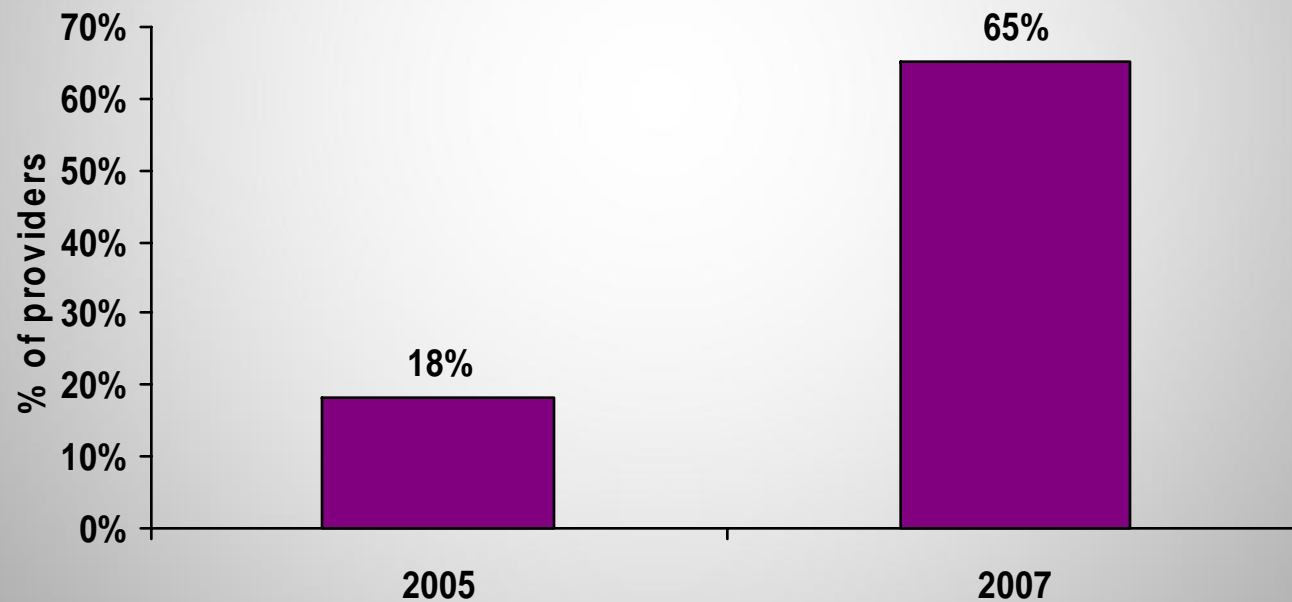
Visual Acuity Tests: Method of Occluding Eye

Percent of providers who occlude eye by using patch/tape
or occluder glasses, by age and year



Visual Acuity Tests: HOTV & Lea Symbols

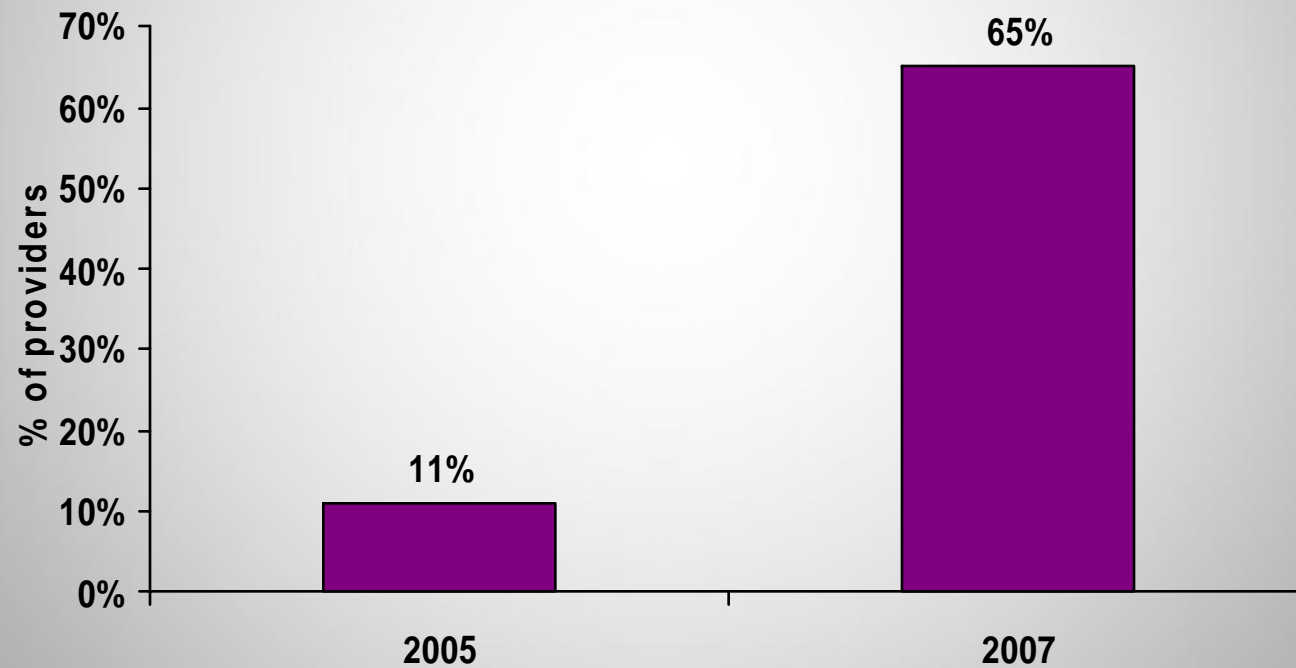
Percent of respondents who use HOTV or Lea symbols
for visual acuity testing in 3-5 year olds



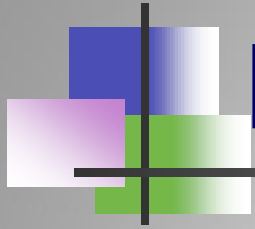
$X^2 = 75.3, df=1, p<.001$

Visual Acuity Tests: Method of Occluding Eye

Proportion of respondents who used patch, tape, or occluder glasses when assessing visual acuity in 3-5 year olds, by year

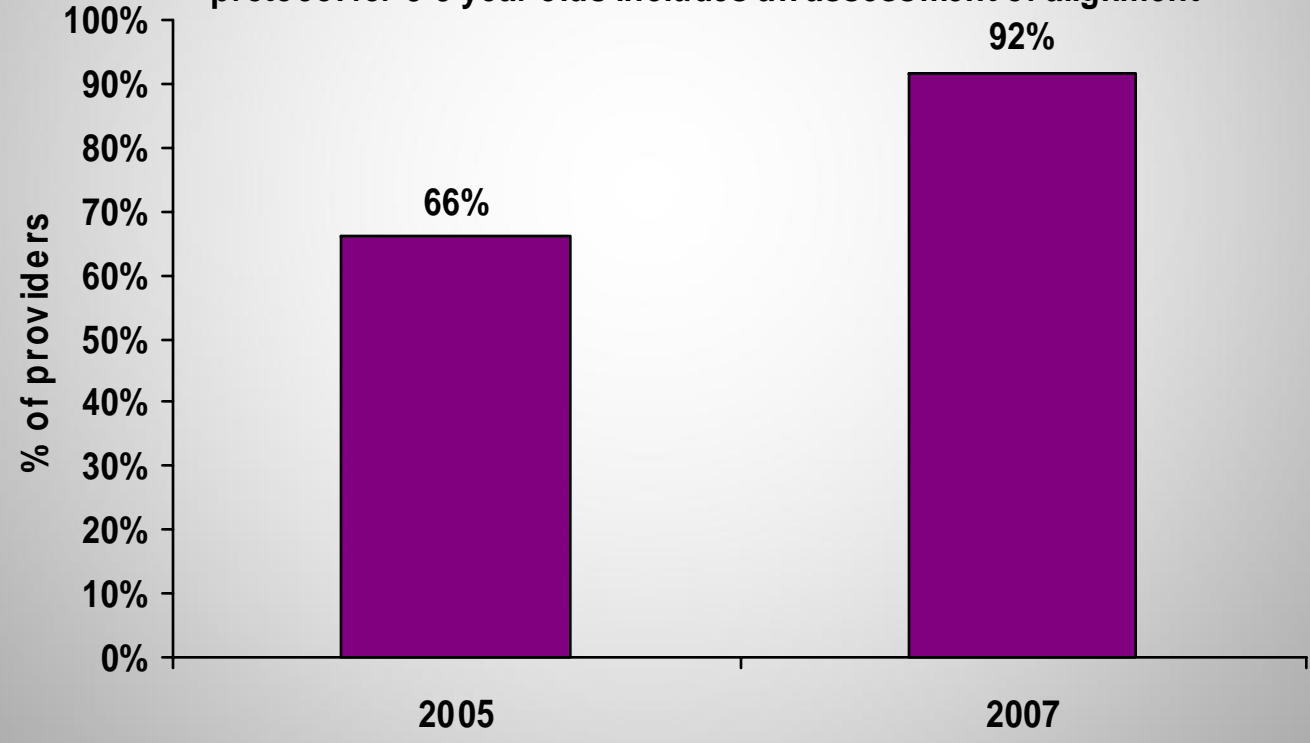


$X^2 = 32.7, df=1, p<.001$



Preschool Vision: Alignment

Percent of primary care providers whose preschool vision screening protocol for 3-5 year olds includes an assessment of alignment

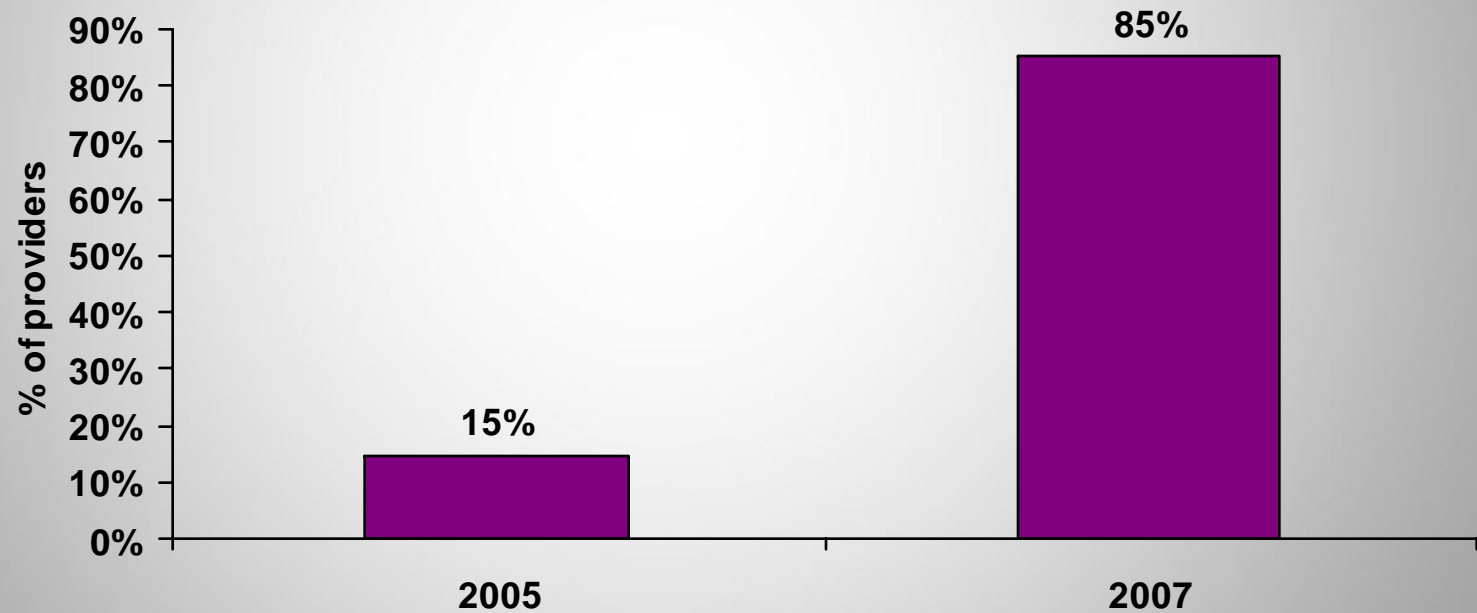


$X^2 = 29.5, df=2, p<.001$

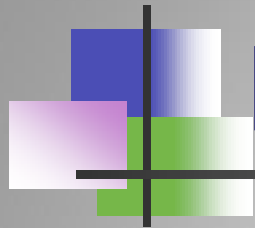


Alignment Tests: Stereo Test

Percent of respondents who used stereo testing as a method of assessing alignment in 3-5 year olds, by year



$X^2 = 122.1, df=1, p<.001$



PCP Survey Conclusions

- Significant increase in number of PCPs using MA Preschool Vision Screening Protocol:
 - Acuity: HOTV and Lea symbols (18% to 65%)
 - Acuity: Pictures
 - Alignment testing (66% to 92%): stereo test (15% to 85%)
 - Method of occlusion: glasses and patch (11% and 65%)
- Large number continue to use inappropriate methods of occlusion: palm of hand, cover



PCP Survey Limitations

- Small sample size for 2007
- Not random sample
- Selection bias
- Results suggest a sample which may be LESS compliant with the recommendations, compared with the randomized sample in the phone survey

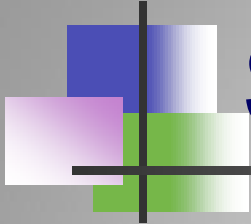
Massachusetts Preschool Vision Screening Program



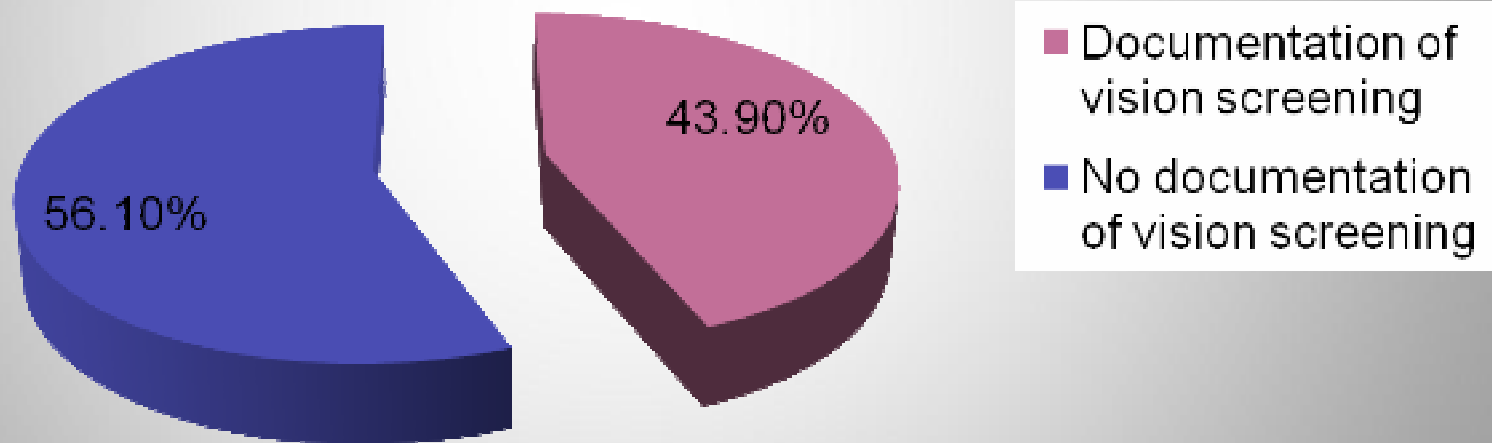
Evaluation

Unit of Observation: School Nurses

2005-2006 School Nurse Survey



Percent of kindergarteners with documentation of preschool vision screening



Total kindergarten students reported: 29,811

Data collected by Massachusetts Department of Public Health

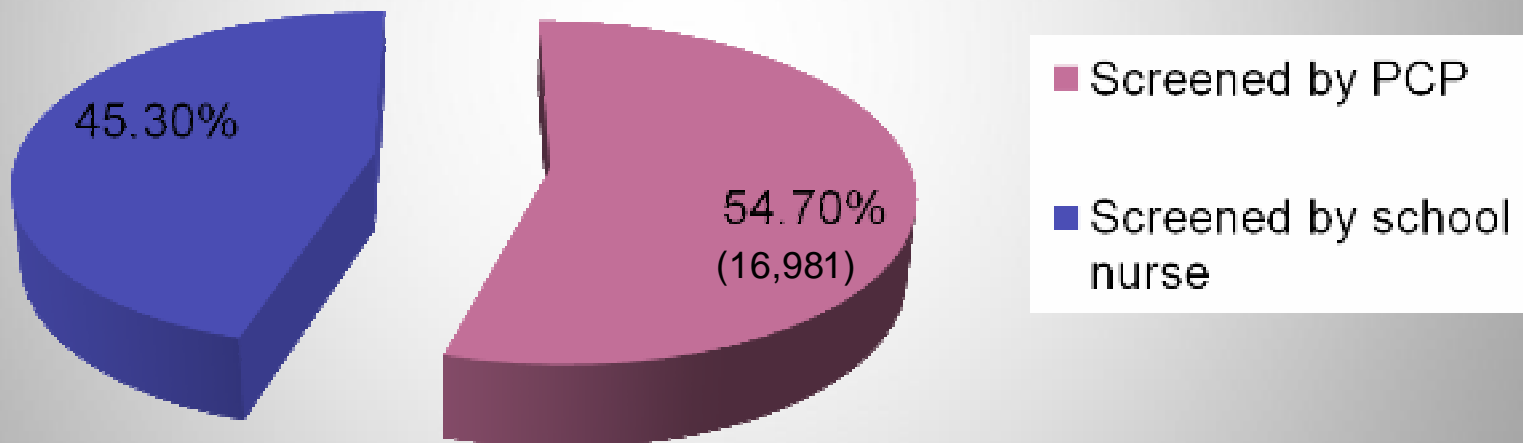
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2006- 2007 School Nurse Survey (April 2007)

**Percent of kindergarteners with
documentation of vision screening, by source**



Total kindergarten students reported: 31,031 (45% of total enrollment of 68,585)
*Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public,
administered by MA Medical Foundation*

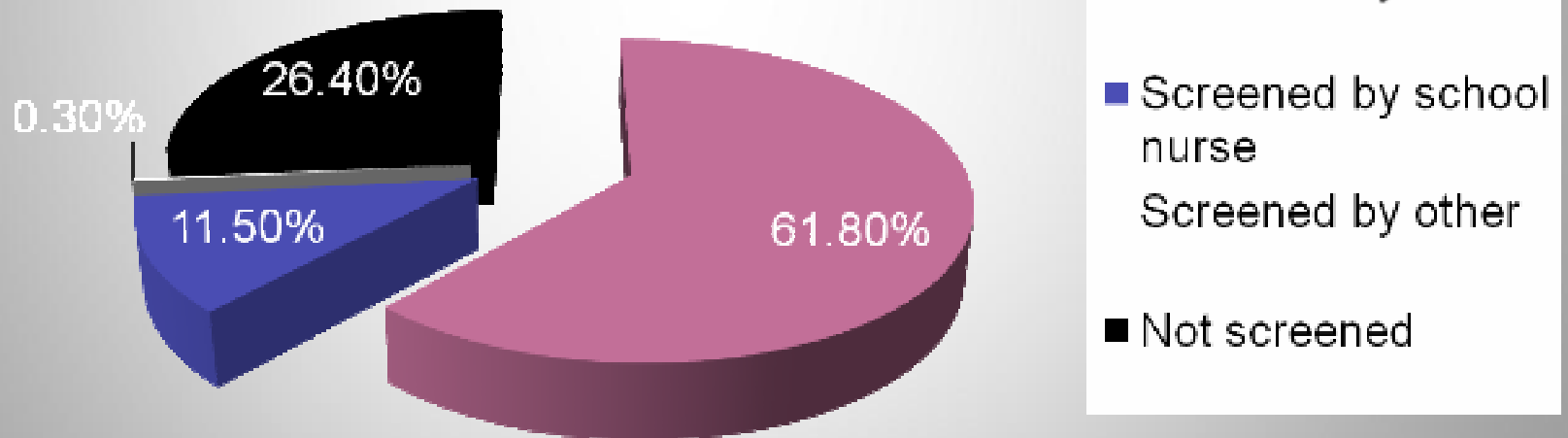
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2007-2008 School Nurse Survey (Oct-Nov 2007)

Percent of kindergarteners with documentation of preschool vision screening, by source



Total K reported: 22,432 (33%) of total K enrollment of 68,585.

Total screened: 16,512 (73.6% of reported kindergarteners)

Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public.

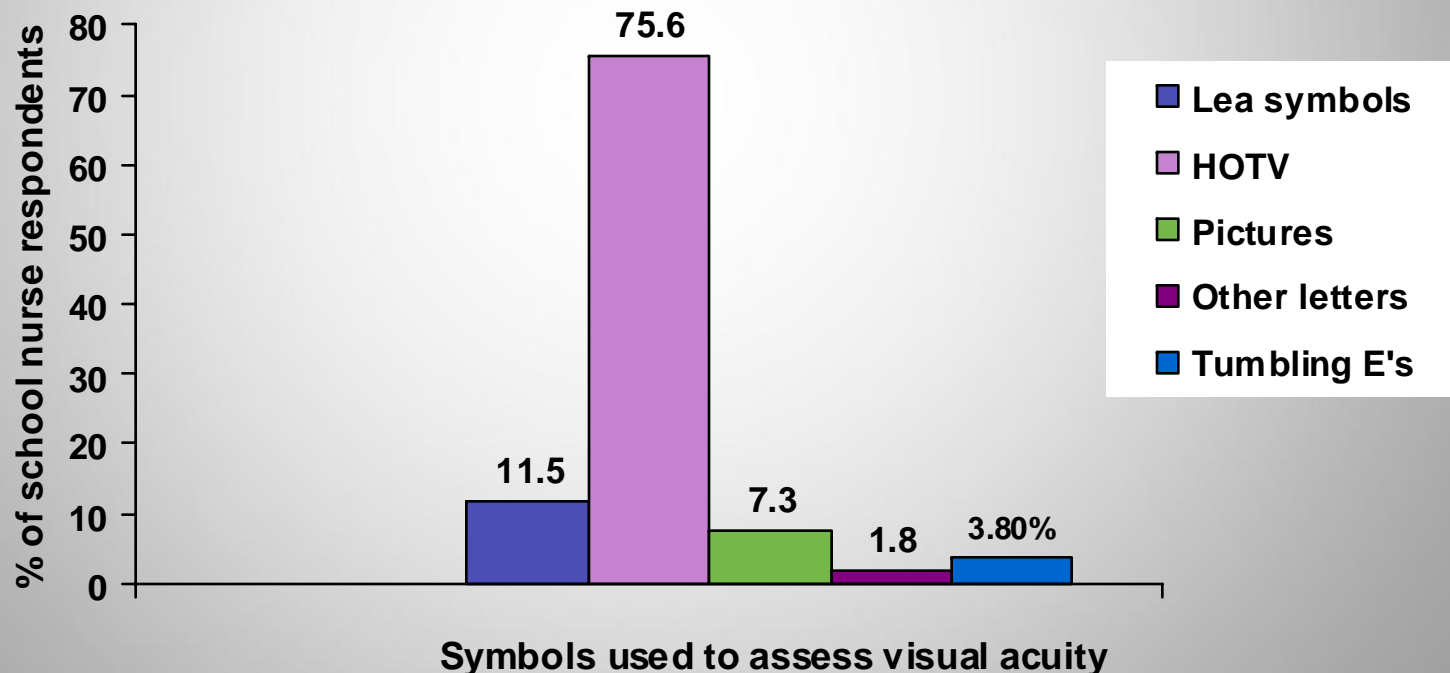
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2007-2008 School Nurse Survey: Visual Acuity Symbols

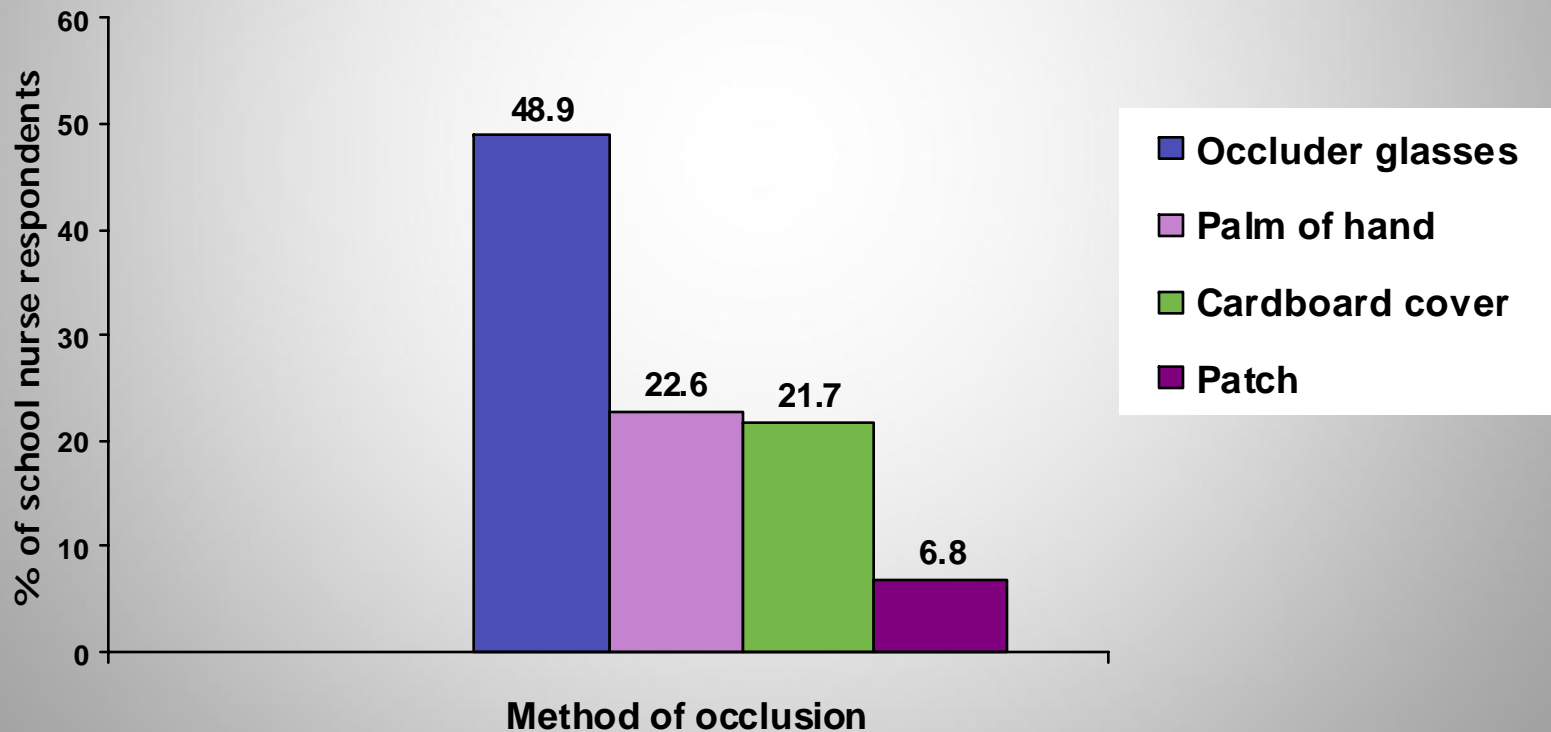
Report of school nurse respondents on symbols used to assess visual acuity on children entering kindergarten most of the time



Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public.

2007-2008 School Nurse Survey: Method of Occlusion

Report of school nurse respondents on method used to occlude the eye when screening children entering kindergarten



Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public.

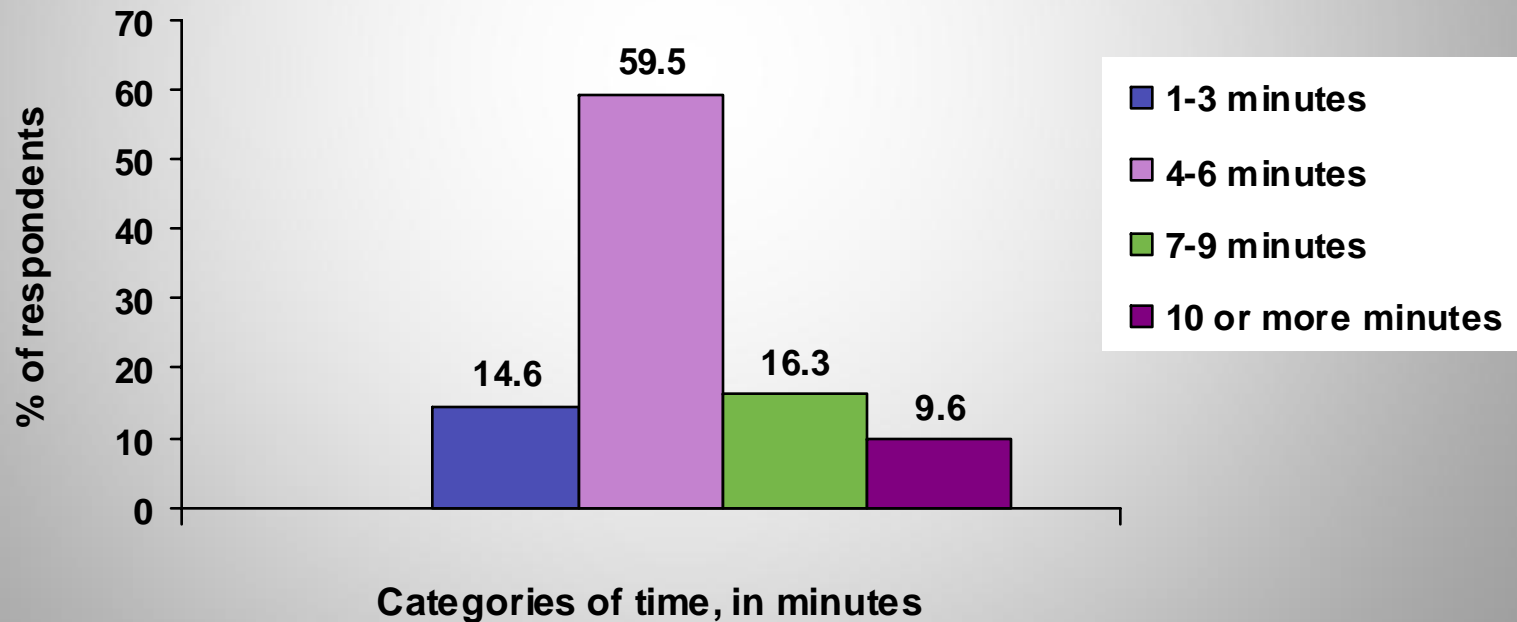
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2007-2008 School Nurse Survey: Time to Complete

Report of school nurse respondents on time to complete preschool vision screening on a child entering kindergarten

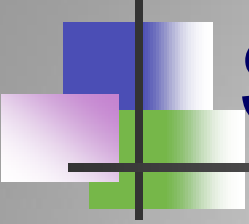


Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public.

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2007-2008 School Year Survey (Oct-Nov 2007)

- 89% rated preschool vision screening as important or extremely important
- 65% reported that both visual acuity and stereopsis are recorded on the physical exam form at least half the time
 - More than half of the respondent nurses NEVER contact the pediatrician's office when the screening is not completed accurately
- 44.1% reported that eye care providers almost always or always communicate results from the eye examination

Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public.



2007 Ongoing Survey Results

- 8.3% (1275) of those screened did not pass
 - 63.8% (813) did not pass the acuity section
 - 49.7% (633) did not pass the stereo section
 - 27.9% presented comprehensive eye examination (October 2007)

Data collected by on-line questionnaire, reaching 85% MA schools, public and non-public.



Continuous Quality Improvement (CQI) *Vision Screening Project*

- Self selecting cohort of nurse leaders for 2006-2007 school year
- Provides information on referral and follow-up rates



Continuous Quality Improvement (CQI) *Vision Screening Project*

- Report on 10,868 enrolled kindergarten students
- 51.7% (5,626) presented with documentation of completed preschool vision screening by PCP
 - 61.3% of these had stereopsis screening documented



Continuous Quality Improvement (CQI) Vision Screening Project

- Report on 4,073 Pre-K students (16.9% of total PreK enrollment of 24,073)
 - 2681 (65.6%) were screened initially
 - 11% PreK students referred for failed vision screening
 - 76.4% of those referred had a comprehensive eye examination
 - 2% referred for developmental delay



Continuous Quality Improvement (CQI) *Vision Screening Project*

- Report on 14,091 Kindergarten students
 - 11,725 (83.2%) were screened initially
 - 9.8% K students referred for failed vision screening
 - 63.9%% of those referred had a comprehensive eye examination
 - 68.2% confirmed a vision issue
 - 0.5% referred for developmental delay



School Nurse Surveys: Conclusion

- Increase in the number of preschoolers screened by PCP since 2005: 43.9% to 61.8%
- Quality of school nurse screening:
 - Acuity symbols: 87.1% respondents use Lea and HOTV
 - Occlusion: 55.7% respondents use occluder glasses and patch
- Comprehensive eye examination (CEE)/follow-up:
 - CQI data: 63.9% and 76.4% completed referral
 - Online survey: 27.9% CEE at October 2007



MA Preschool Vision Screening Program: Conclusion

- Increase in rates of preschool vision screening documentation
- Improvement in quality of vision screening: PCP and school nurse
- Baseline data for follow-up
- Areas for concern:
 - Methodology: ocular occlusion
 - Communication with PCP



MA Preschool Vision Screening Program: Moving Forward

- Continue aggressive professional education campaign:
 - Primary care providers and school nurses
- Continue process of program evaluation:
 - Multiple sites
 - PCP and school nurse
- Develop unified system to record data and track failed screenings

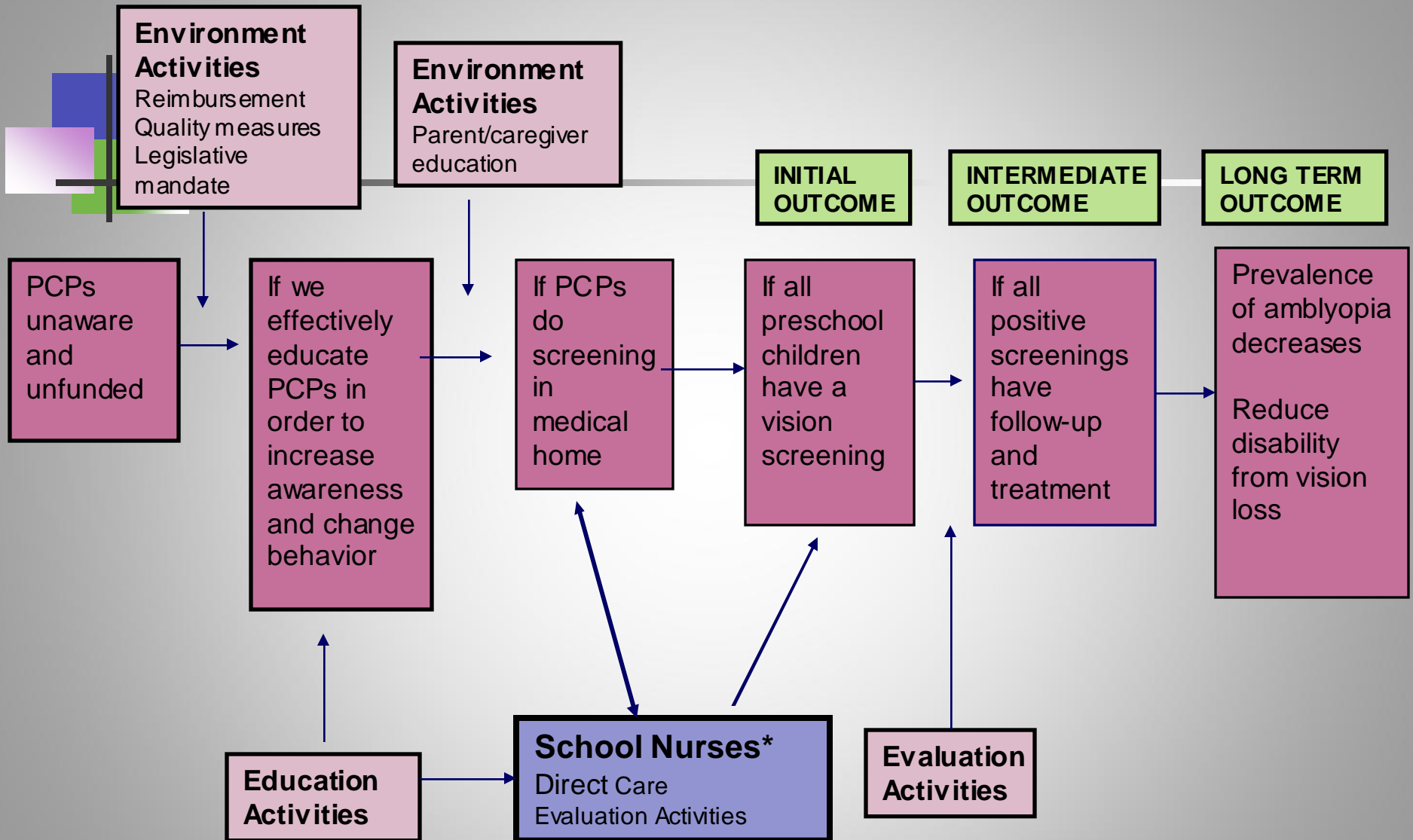
MA Preschool Vision Screening

Moving Forward: Environment Activities

- Develop methods for funding vision screening
 - Insurer reimbursement in the medical home
 - Legislative mandate: bill filed



MA Preschool Vision Screening Program: Logic Model



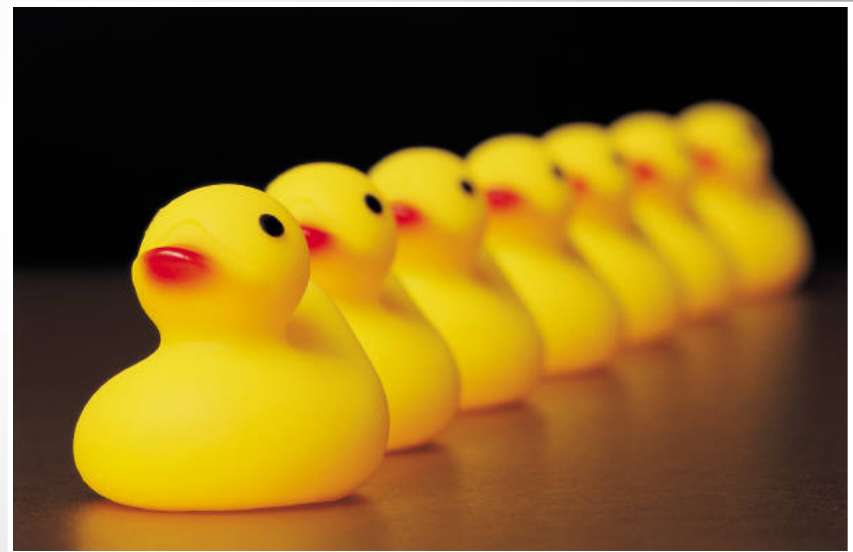
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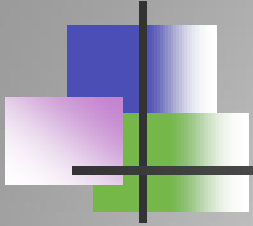
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MA Preschool Vision Screening Moving Forward: Environment Activities

- Develop Health Literacy / Consumer Engagement Campaign
 - Target audience: parents and caretakers
 - Media campaign
 - T.V., radio, print
 - Public service announcement (PSA)
 - Investigate collaborative possibilities





Kids deserve it!

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Thank you

