

2010 Annual School Immunization Assessment

Preschool and Kindergarten

A snapshot of key findings and recommendations regarding immunization coverage levels and Personal Beliefs Exemptions among Los Angeles County pre-school and kindergarten students.



2010 Annual School Immunization Assessment: Preschool and Kindergarten

State mandated immunization requirements for licensed childcare/preschool entrance play an important role in keeping children up-to-date with their immunization series¹. California school immunization laws require that enrollees entering kindergarten or preschool receive a series of immunizations before admission to any licensed public or private school or preschool. Every fall all licensed childcare facilities and public and private schools are required to report the immunization status of their preschool and kindergarten enrollees, in aggregate, to the Los Angeles County Department of Public Health Immunization Program (LACDPH-IP).

This report presents key findings from the 2010 school assessment, along with trend data from past years. It is intended to highlight achievements and help individuals and organizations identify opportunities for improving immunization coverage levels in neighborhoods and schools across Los Angeles County.

Objective: The objective of the annual immunization assessment is to monitor licensed preschools and public and private school compliance with the school immunization laws and assess immunization coverage levels of kindergartners and preschoolers.

Key Highlights

- Los Angeles County antigen-specific vaccination coverage levels declined slightly among enrollees in preschools and kindergartens between 2009 and 2010.
- Approximately 17,000 preschool and kindergarten children in Los Angeles County were not adequately immunized at the start of the school year.
- A small but increasing number of parents have refused vaccines for their children. Both preschool and kindergarten Personal Beliefs Exemption (PBE) levels reached all-time highs in 2010, 1.8% and 1.6% respectively.

Alarming, parents who choose exemptions tend to live in geographical clusters, which lead to low coverage levels in area schools.

Goals: Los Angeles County met or exceeded all Healthy People 2020 targets with the exception of coverage for Polio and DTaP/DTP among kindergarten enrollees.

Impact: We have met many of our Healthy People 2010 goals but immunization levels have declined. The declining levels of immunization coverage compromises herd immunity and the ability to protect unvaccinated children. The pertussis epidemic in 2010 illustrates the need to maintain high coverage levels in preschools and kindergartens.

Changes/Additions to this Report: This report has been revised from 2009. Please see new additions in: 1) Coverage levels of kindergarten enrollees by jurisdiction, 2) PBE analysis, and 3) Kindergarten Retrospective Survey (KRS) data.

¹ Health and Safety Code, Division 105, Part 2, Chapter 1, Sections 120325-120380; California Code of Regulations Title 17, Division 1, Chapter 4, Subchapter 8, Sections 6000-6075

Methods

Study Population

Enrollees attending public or private schools at preschool and kindergarten grade levels

Inclusion Criteria

- Preschool enrollees within the age range of 24-59 months²
- Kindergarten enrollees of all ages
- For ungraded classes, only enrollees within the age range of 57-69 months³

Exclusion Criteria

Data were not available for preschool children attending family home day cares, day nurseries, nursery schools and development centers.

Data Collection Method

Each September, the Los Angeles County Department of Public Health Immunization Program (LACDPH-IP) and the California Department of Public Health Immunization Branch (CDPH) coordinate data collection of preschool and kindergarten immunization coverage levels. Traditionally, school staff receives standardized immunization assessment forms and returns the completed assessments for each grade-level to LACDPH-IP. In 2010, data collection for the kindergarten assessment was web-based. Preschool data are analyzed by LACDPH-IP and kindergarten data are analyzed by CDPH.

Collected Data

Grade level-specific assessment forms include the following information:

- Number of enrollees who have met the immunization requirements for the specific grade level.
- Number of enrollees who have not met the immunization requirements.
- Number of conditional entrants (CE) or follow-up enrollees who have not yet met the immunization requirements.
- Number of enrollees with Permanent Medical Exemptions (PME) or Personal Beliefs Exemptions (PBE).
- The California state reports can be found at:
<http://www.cdph.ca.gov/programs/immunize/Pages/ImmunizationLevels.aspx>

Note: Because of rounding estimation, the proportions indicated in this report may not yield the exact number of corresponding counts cited in this report.

² State of California-Health and Human Services Agency (CDPH 8018A-Annual Immunization Report on Children Enrolled in Child Care Centers)

³ State of California-Health and Human Services Agency (PM 236-Immunization Assessment of Kindergarten Students Annual Report)

Results

The 2010 Fall School Assessment results are grouped into seven categories:

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I. Immunization Requirements for School Entry

Table 1: Immunization requirements for school entry¹, California 2010

Grade Level	Vaccine (# doses)					
	Polio	DTaP/DTP	MMR	Hep B	Hib	Varicella ²
Preschool	3	4	1 ^a	3	1 ^a	1
Kindergarten	4 ^b	5 ^c	2 ^d	3	Not required	1

¹Health and Safety Code, Division 105, Part 2, Chapter 1, Sections 120325-120380; California Code of Regulations, Title 17, Division 1, Chapter 4, Subchapter 8, Sections 6000-6075

²Physician-documented Varicella (chickenpox) disease history or immunity meets the Varicella requirement.

^aReceipt of the dose up to (and including) 4 days before the birthday will satisfy the preschool entry immunization requirement.

^bFour doses at any age, but 3 doses meet requirement for age 4-6 years if at least one was given on or after the 4th birthday; 3 doses meet requirement for age 7-17 years if at least one was given on or after the 2nd birthday. Receipt of the dose up to (and including) 4 days before the birthday will satisfy the school entry immunization requirement.

^cFive doses at any age, but 4 doses meet requirements for ages 4-6 years if at least one was on or after the 4th birthday. Receipt of the dose up to (and including) 4 days before the birthday will satisfy the school entry immunization requirement.

^dTwo doses of measles-containing vaccine required (both on or after 1st birthday). One dose of mumps and rubella-containing vaccine required; mumps vaccine is not required for children 7 years of age and older. Receipt of the dose up to (and including) 4 days before the birthday will satisfy the school entry immunization requirement.

Note: DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. DTP has not been used in the U.S. since 2002, but is given outside of the U.S.

II. Population Size

Table 2: Schools with Preschool or Kindergarten Grade Levels¹, LA County, 2010

Students	Preschool	Kindergarten
Enrolled Students	114,487	123,809
Schools		
Public	310 (15.4%)	1,224 (63.5%)
Private	1,341 (66.7%)	704 (36.5%)
Head Start	358 (17.8%)	
Total	2,009	1,928

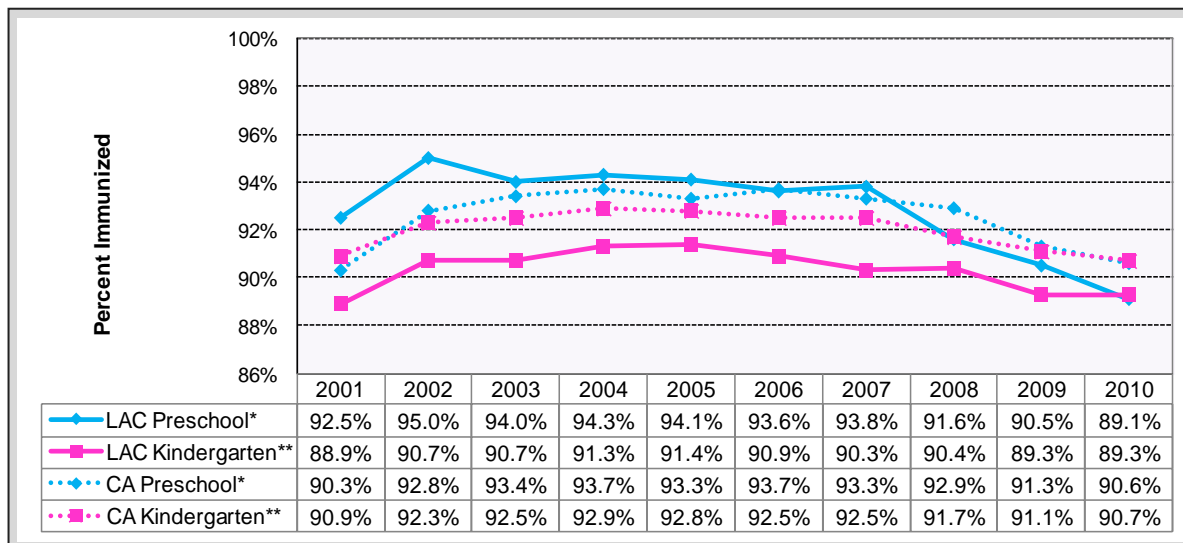
¹Only includes facilities that submitted assessment forms.

Nearly 4,000 schools participated in the 2010 assessment.

- ✓ A similar number of preschools and kindergartens participated in the Fall Assessment, 2,009 and 1,928 respectively. In the past 6 years an average of 247 more preschools participated annually in the Fall Assessment than kindergartens.
- ✓ The majority of reporting preschools is private (66.7%). In contrast, the majority of reporting kindergartens is public (63.5%).

III. Percent of Enrollees Meeting Immunization Requirements

Figure 1: Percent of preschool and kindergarten enrollees up-to-date with immunizations, Los Angeles County, 2001-2010



*Up-to-date: Enrollee has received 4+DTaP/DTP, 3+ Polio, 1 MMR, 1 Hib, 3 Hep B, and 1 Varicella.

** Up-to-date: Enrollee has received 4+DTaP/DTP, 3+ Polio, 2 MMR, 3 Hep B, and 1 Varicella. Hib is not required for kindergarten enrollment.

Preschools and kindergartens had similar up-to-date levels in 2010.

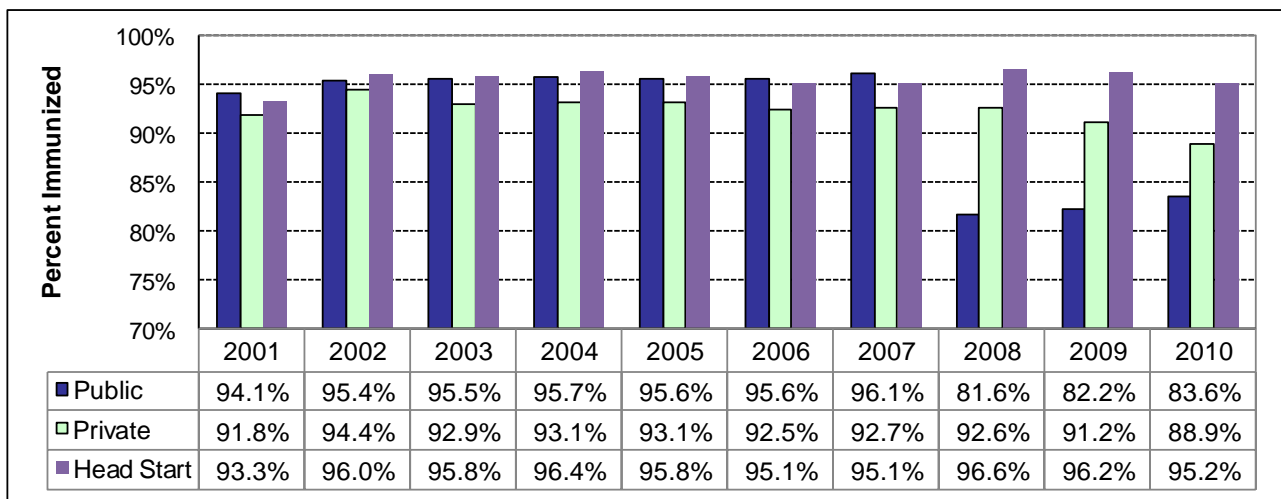
PRESCHOOL ENROLLEES

- ✓ In 2010, for the first time this decade, the percent of up-to-date preschool enrollees in Los Angeles County dropped below 90%, to 89.1%.
- ✓ The 2010 level represents a decline of 1.5% since 2009 and 3.7% since 2001.

KINDERGARTEN ENROLLEES

- ✓ The percent of up-to-date kindergarten enrollees remained stable at 89.3% between 2009 and 2010.

Figure 2: Percent of preschool enrollees meeting immunization requirements¹, by type of child care center, Los Angeles County, 2001-2010²



¹ All Required Immunizations: Enrollee has received 4+DTaP/DTP, 3+ Polio, 1 MMR, 1 Hib, 3 Hep B, and 1 Varicella.

² Denominator includes enrollees with documented personal belief exemptions and personal medical exemptions.

Note: DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine DTP has not been used in the U.S. since 2002, but is given outside of the U.S.

Since 2001, coverage levels have dropped for public and private preschools.

PUBLIC SCHOOL ENROLLEES

- ✓ For the third consecutive year, coverage levels for public schools remained considerably below Head Start and private schools.
- ✓ Coverage levels in public preschools have dropped substantially from a high of 96.1% in 2007. However, from 2009 to 2010, they increased slightly (1.7%) to the current level of 83.6%.
- ✓ In 2010, LAC's public school coverage level was 9.3% less than the California public school coverage level of 92.9%.

PRIVATE SCHOOL ENROLLEES

- ✓ In 2010, for the first time in this decade, the percent of private school enrollees meeting immunization requirements dropped below 90%. Coverage of private schools decreased 2.5% to 88.9%.

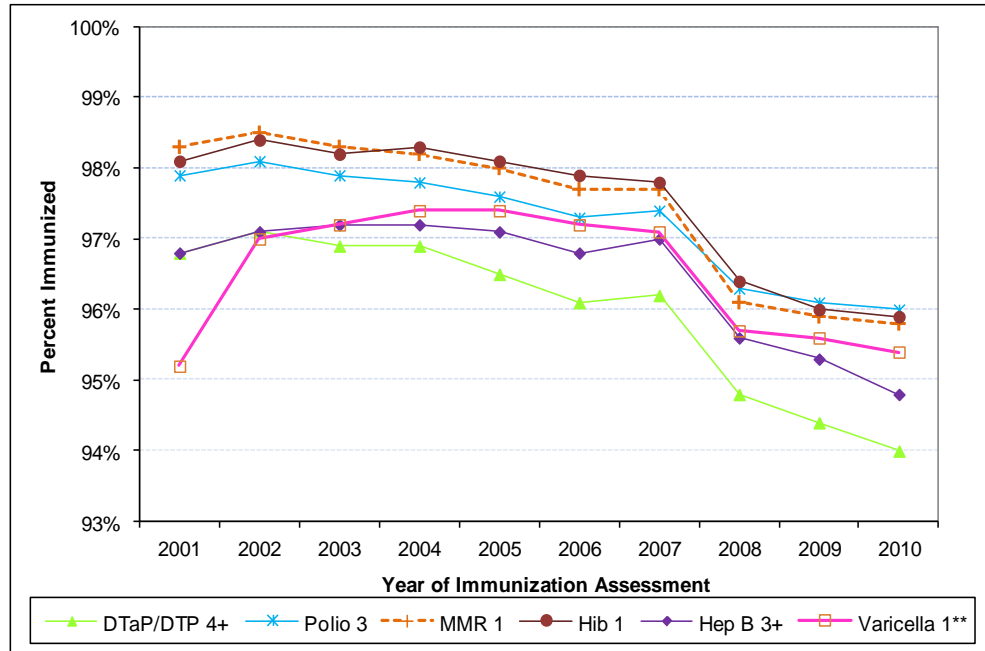
HEAD START ENROLLEES

- ✓ Head Start preschools had the highest proportion of enrollees meeting the immunization requirements. However, coverage decreased slightly, 1.0%, between 2009 and 2010 to 95.2%.

Note: Data are not available for the proportion of kindergarten enrollees meeting immunization requirements by type of school.

IV. Percent of Enrollees Meeting Immunization Requirements by Vaccine Antigen

Figure 3: Percent of preschool enrollees immunized, Los Angeles County, 2001-2010*



* Denominator includes enrollees with documented personal belief exemptions and personal medical exemptions.

** One dose of Varicella vaccine or physician documented disease/immunity.

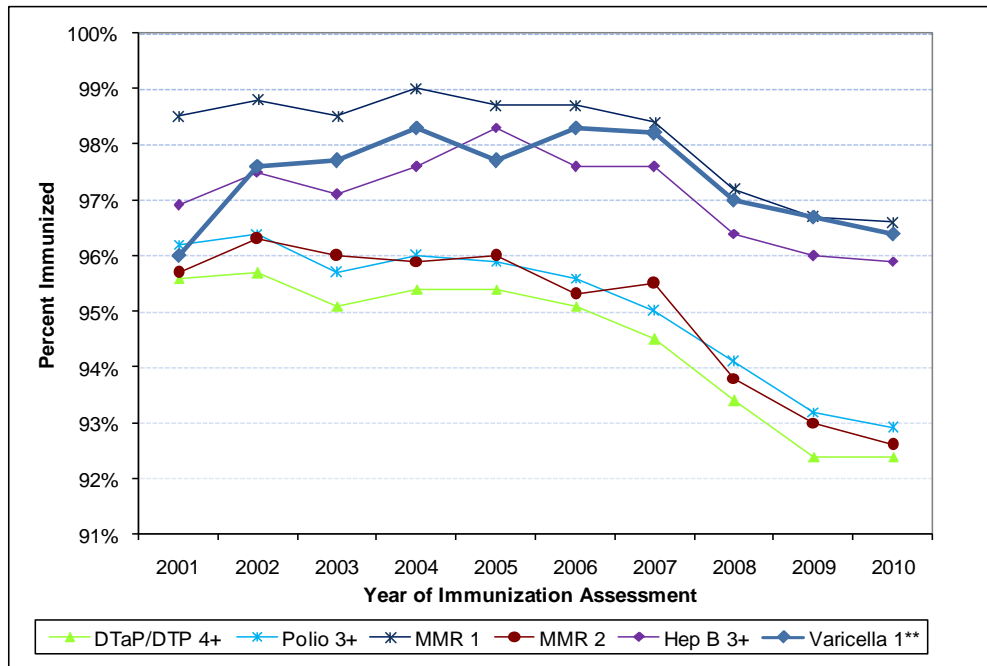
Note: DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine DTP has not been used in the U.S. since 2002 but is given outside of the U.S.

2010 Preschool Antigen-specific Rankings			
1	Third dose of Polio	96.0%	0.1% Decline
2	First dose of Hib	95.9%	0.1% Decline
3	First dose of MMR	95.8%	0.1% Decline
4	Varicella	95.4%	0.2% Decline
5	Third dose of Hep B	94.8%	0.5% Decline
6	Fourth dose of DTaP/DTP	94.0%	0.4% Decline

Preschool coverage levels for most antigens have dropped over the past decade.

- ✓ In 2010, with the exception of the first dose of varicella, all antigen-specific coverage levels for preschools dropped to their lowest levels in 10 years.
- ✓ For the second consecutive year, all antigen-specific coverage for preschools declined slightly (< 0.6% between 2009 and 2010).
- ✓ The rankings among antigen-specific immunization coverage levels were similar to previous years, with a high of 96.0% for the third dose of Polio and a low of 94.0% for the fourth dose of DTaP/DTP.

Figure 4: Percent of kindergarten enrollees immunized, Los Angeles County, 2001-2010*



*Denominator includes enrollees with documented personal belief exemptions and personal medical exemptions.

**One dose of Varicella vaccine or physician documented disease/immunity.

Note: DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine DTP has not been used in the U.S. since 2002 but is used outside of the U.S.

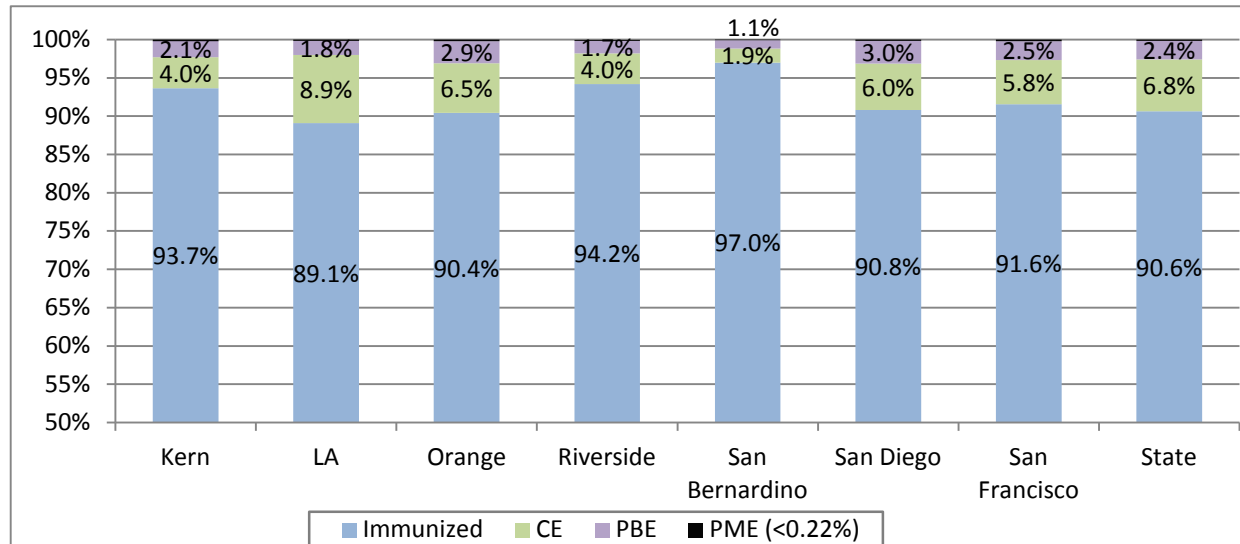
2010 Kindergarten Antigen-specific Rankings			
1	First dose of MMR	96.6%	0.1% Decline
2	Varicella	96.4%	0.3% Decline
3	Third dose of Hep B	95.9%	0.1% Decline
4	Third dose of Polio	92.9%	0.3% Decline
5	Second dose of MMR	92.6%	0.4% Decline
6	Fourth dose of DTaP/DTP	92.4%	No change

Kindergarten coverage levels for most antigens dropped in 2010.

- ✓ Similar to preschool coverage, the kindergarten enrollee antigen-specific coverage levels experienced slight declines (<0.5%) between 2009 and 2010.
 - All antigen-specific coverage levels declined, except for the fourth dose of DTaP/DTP, which remained 92.4% for the second consecutive year.
- ✓ Drops in coverage levels between 2009 and 2010 ranged between 0.1% (first dose of MMR and third dose of Hep B) to 0.4% (second dose of MMR).
- ✓ In 2010, the highest coverage level was for the first dose of MMR (96.6%). The lowest level was for the fourth dose of DTaP (92.4%).

V. Los Angeles County Immunization Coverage Compared to Other Jurisdictions

Figure 5: Coverage levels of preschool enrollees by jurisdiction, California, 2010



CE: Conditional Entrants
 PBE: Personal Beliefs Exemption
 PME: Permanent Medical Exemption

LA County preschools had lowest coverage levels and PBE levels in California.

COVERAGE LEVELS

- ✓ When compared to six other California jurisdictions, Los Angeles County had the lowest level of preschool enrollees up-to-date (89.1%).
- ✓ Los Angeles County had a similar level of preschool enrollees up-to-date to the state (1.5% less than the coverage level for California).

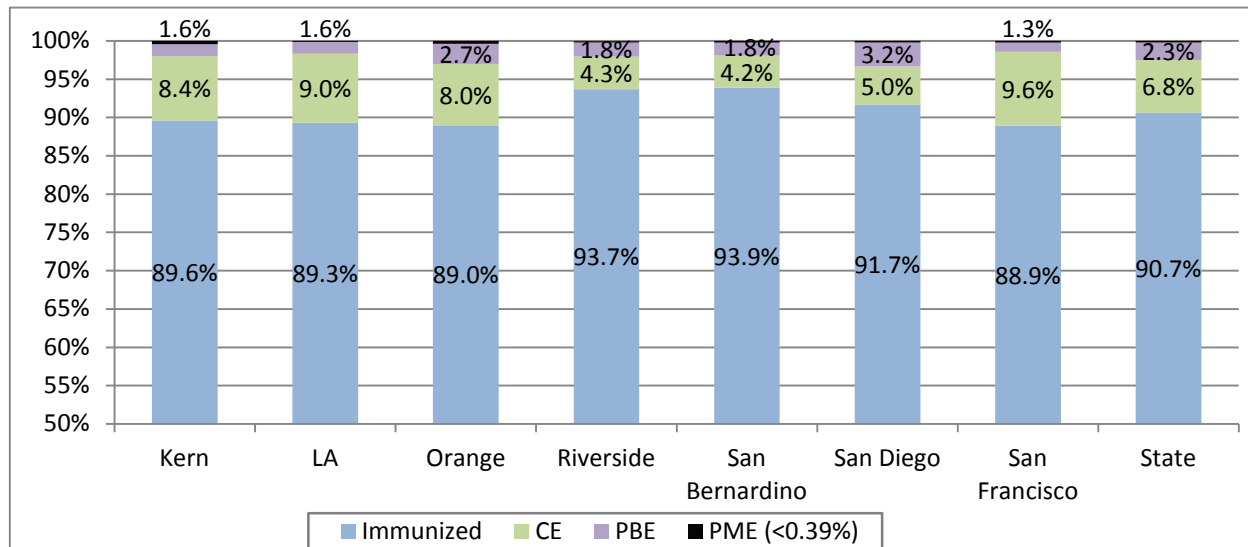
CONDITIONAL ENTRANCE

- ✓ When compared to six other California jurisdictions, Los Angeles County had the highest level of conditional entrants (CE) at 8.9%.
- ✓ Los Angeles County had 2.1% more conditional entrants for preschools than the state.

EXEMPTIONS

- ✓ PME levels for preschools were minimal for all jurisdictions and the state of California (<0.2%).
- ✓ At 1.8%, Los Angeles County had the third lowest preschool PBE level of all jurisdictions.
- ✓ In 2010, Los Angeles County's preschool PBE level was 0.6% less than California's PBE level.

Figure 6: Coverage levels of kindergarten enrollees by jurisdiction, California, 2010



CE: Conditional Entrants
 PBE: Personal Beliefs Exemption
 PME: Permanent Medical Exemption

LA County kindergartens’ coverage level was slightly lower than California’s.

COVERAGE LEVELS

- ✓ When compared to six other California jurisdictions, Los Angeles County ranked fifth for the level of kindergarten enrollees up-to-date (89.3%).
- ✓ Los Angeles County had a similar level of kindergarten enrollees up-to-date to the state (1.4% less than the coverage level for California).

CONDITIONAL ENTRANCE

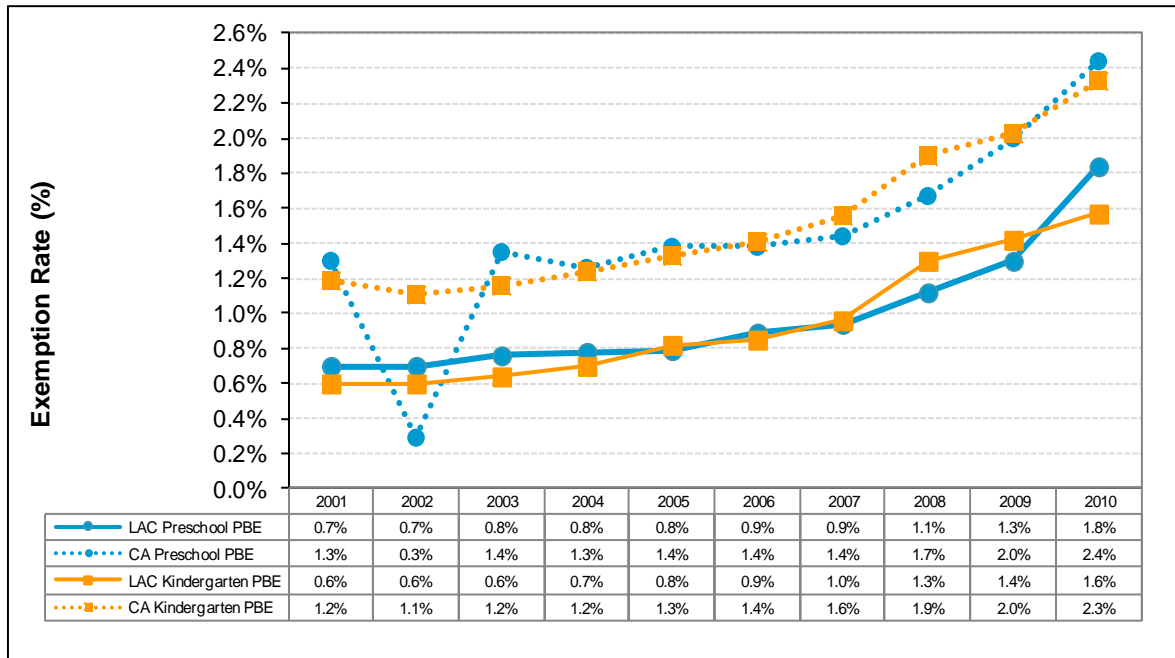
- ✓ When compared to six other California jurisdictions, Los Angeles County had the second highest level of conditional entrants (CE) for kindergartens (9.0%).
- ✓ Los Angeles County had 2.2% more conditional entrants for kindergartens than the state.

EXEMPTIONS

- ✓ PME levels for kindergartens were minimal for all jurisdictions and the state of California (<0.4%).
- ✓ At 1.6%, Los Angeles and Kern Counties had the second lowest PBE level for kindergartens of all jurisdictions. In 2010, Los Angeles County’s kindergarten PBE level was 0.7% less than California’s PBE level.

VI. Personal Beliefs Exemption (PBE) Levels

Figure 7: Personal beliefs exemptions among preschool and kindergarten enrollees, Los Angeles County, 2001-2010



LA County PBE levels remain lower than California's but have increased.

- ✓ Between 2001 and 2010, the level of PBEs has increased significantly (>150%) for Los Angeles County preschools and kindergartens.

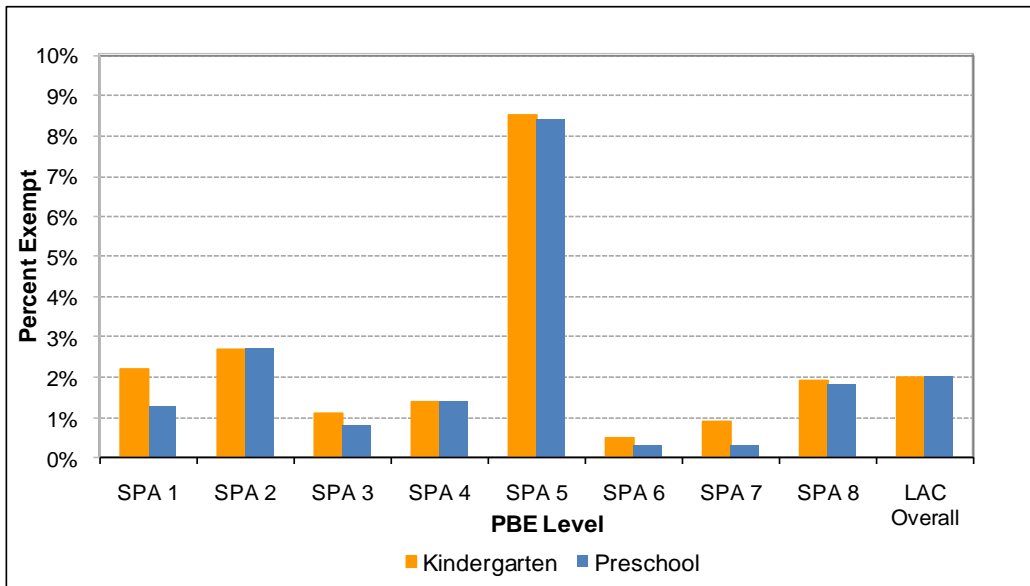
PRESCHOOL ENROLLEES

- ✓ In 2010, the Los Angeles County preschool PBE level was 0.6% less than the California level.
- ✓ In 2010, the PBE level among preschool enrollees reached 1.8% (2,112 enrollees), an increase of 38.5% from 2009.
- ✓ Over a ten year time span (2001-2010), the preschool PBE level increased 157.1%, with an average annual increase of 11.7% (range 0% - 38.5%).

KINDERGARTEN ENROLLEES

- ✓ In 2010, the Los Angeles County kindergarten PBE level was 0.7% less than the California level.
- ✓ In 2010, the PBE level among kindergarten enrollees reached 1.6% (1,947 enrollees), a 14.3% increase from 2009.
- ✓ Over a ten year time span (2001-2010), the kindergarten PBE level increased 166.7%, with an average annual increase of 11.8% (range 0%-30.0%).

Figure 8: Personal belief exemptions among preschool and kindergarten schools¹ by Service Planning Area (SPA), Los Angeles County, 2010



	SPA 1 Antelope Valley	SPA 2 San Fernando	SPA 3 San Gabriel	SPA 4 Metro	SPA 5 West	SPA 6 South	SPA 7 East	SPA 8 South Bay	LAC Overall
Preschool	1.3%	2.7%	0.8%	1.4%	8.4%	0.3%	0.3%	1.8%	2.0%
Kindergarten	2.2%	2.7%	1.1%	1.4%	8.5%	0.5%	0.9%	1.9%	2.0%

¹ Schools with enrollment of less than 10 students were excluded from analysis.

2010 PBE levels were much higher in the western region of LA County.

- ✓ For both preschools and kindergartens, SPAs 5 (West) and 2 (San Fernando) had the highest PBE levels. The SPA 5 PBE level was over 8% and the SPA 2 PBE level was over 2%.
- ✓ SPAs 3 (San Gabriel), 6 (South), and 7 (East) had preschool PBE levels of 1% or lower.
- ✓ Only SPAs 6 and 7 had an average kindergarten PBE level of 1% or lower.

2010 PBE levels vary dramatically by school.

- ✓ Kindergarten PBE levels ranged from 0% (63% of schools) to 85.7% (1 school). Throughout the eight SPAs there were 160 kindergarten schools above the 90th PBE percentile (5.6%), with 64% of them located in SPAs 2 and 5. A total of 26 kindergarten schools had a PBE rate greater than or equal to 20%.
- ✓ Preschool PBE levels ranged from 0% (73% of schools) to 100% (1 school). Throughout the eight SPAs there were 178 preschools located above the 90th PBE percentile (5.2%), with 65% of them located in SPAs 2 and 5. A total of 43 preschools had a PBE rate greater than or equal to 20%.

VII. Kindergarten Retrospective Survey

The Kindergarten Retrospective Survey (KRS), conducted by the California Department of Public Health, is an annual survey that provides state and regional estimates of vaccination coverage by race/ethnicity.

Approximately 3% (256 schools) of all California kindergarten schools that participated in the Fall Assessment were randomly selected for the KRS. Every sixth immunization record was selected at each sampled school. Collected data included kindergarten enrollee's date of birth, vaccination dates, and race/ethnicity.

Table 3: Vaccination coverage estimates at age milestones by race/ethnicity, California vs. Los Angeles County, KRS 2010.

Age	3 months		7 months		13 months		19 months		24 months		3 years					
Vaccine Series	1 DTaP/DT 1 Polio 1 Hep B		3 DTaP/DT 2 Polio 2 Hep B		3:2:1:-:2:1 series ¹		4:3:1:-:3:1 series ²		4:3:1:-:3 series ³		4:3:1:-:3:1 series ³		4:3:1:-:3:1 series ²			
	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA		
Overall	83.4 ± 4.1 ^a	83.3 ± 2.0	60.7 ± 5.3	62.1 ± 2.9	46.6 ± 6.8	43.4 ± 2.8	59.5 ± 5.5	58.8 ± 2.7	62.1 ± 5.6	61.4 ± 2.7	72.6 ± 5.2	72.1 ± 2.7	85.0 ± 3.7	85.4 ± 1.8	83.2 ± 3.8	82.8 ± 1.9
African-American	<u>77.2</u> ^b	<u>74.8</u>	<u>54.2</u>	81.4	43.1	37.4	51.4	<u>51.8</u>	58.3	<u>54.9</u>	61.7	<u>64.1</u>	78.2	<u>79.6</u>	75.3	<u>77.5</u>
Asian	88.2	81.1	64.1	64.9	54.2	50.3	59.2	58.9	61.2	60.7	69.2	69.2	82.6	84.4	81.5	82.9
Hispanic	83.2	85.6	60.0	<u>60.7</u>	47.7	46.2	61.4	59.7	63.8	61.9	74.9	73.6	85.7	87.4	84.3	85.3
White	82.1	82.4	65.4	64.3	39.9	39.2	55.8	58.3	59.4	61.1	72.5	72.6	84.1	83.3	79.6	80.4
Other	95.1	90.6	63.5	71.2	<u>34.6</u>	<u>36.6</u>	<u>39.7</u>	60.6	<u>42.3</u>	66.5	<u>42.2</u>	72.8	<u>68.8</u>	88.1	<u>66.2</u>	82.5
Unknown	85.9	78.0	60.3	63.2	47.2	42.6	60.1	59.4	60.4	59.4	70.9	69.6	89.7	84.8	89.3	81.4

¹ ≥ 3 doses of DTaP/DT, ≥ 2 doses of polio, ≥ 1 dose(s) of MMR, ≥ 2 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines. Hib is not required for kindergarten enrollment.

² ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B, and ≥ 1 dose(s) of varicella vaccines. Hib is not required for kindergarten enrollment.

³ ≥ 4 doses of DTaP/DT, ≥ 3 doses of polio, ≥ 1 dose(s) of MMR, ≥ 3 doses of Hep B vaccines. Hib is not required for kindergarten enrollment.

^a Estimates presented as point estimate (%) ± 95% confidence interval.

^b Within each vaccine series, the lowest coverage level is underlined.

Note: DTaP/DT represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP/DT). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications to pertussis vaccine. DTP has not been used in the U.S. since 2002.

Coverage levels for racial/ethnic groups varied depending on the vaccine series.

- ✓ California's African Americans had the lowest coverage level of any racial/ethnic group for 6 out of 8 of the vaccine series reported. In Los Angeles County African Americans had the lowest level for 2 series and individuals of Other race/ethnicity were lowest for the remaining 6 series.
- ✓ For both Los Angeles and California, the coverage levels were lowest for the 3:2:1:-:2:1 series at 13 months of age. Only 46.6% of 13-month olds in Los Angeles and 43.4% of 13-month olds in California had received this series.
- ✓ In LA County, the coverage level was the highest at 3 months, 83.4%. By 3 years of age, the proportion of children who had received all vaccines in the 4:3:1:-:3:1 series stayed about the same at 83.2%.

VIII. Los Angeles County Status toward Healthy People 2020 Objectives

Table 4. Immunization objectives for Healthy People 2020, target coverage levels vs. Los Angeles County coverage estimates

Healthy People 2020 Target (%)	Fall Assessment 2010 ¹ (%)	Fall Assessment 5-Year Avg 2005-2009 ¹ (%)	Clinic Audits 2010 DHS ² Facilities (%)	Clinic Audits 2010 CHC ³ Facilities (%)
Age of Enrollees	Preschool: 24-59 months Kindergarten: all ages		24-35 months	24-35 months
Healthy People Objective: Maintenance of Vaccination Coverage Levels for Enrollees in Licensed Day Care facilities ⁴				
<i>The Healthy People 2010 objective specific to day care coverage levels was no longer an objective for Healthy People 2020. Information collected on day care enrollees is compared to the Healthy People 2020 objective for children aged 19 to 35 months listed below.</i>				
Healthy People 2020 Objective: Maintenance of Vaccination Coverage Levels for Enrollees in Kindergarten Through the First Grade ⁵				
DTaP vaccine	92.4	94.2	-	-
Hep B vaccine	95.9	97.2	-	-
MMR vaccine	95%	97.9	-	-
Polio vaccine	92.9	94.8	-	-
Varicella vaccine	96.4	97.6	-	-
Healthy People 2020 Objective: Achieve and Maintain Vaccination Coverage Levels Among Children Aged 19 to 35 Months (The Fall Assessment data only include child care enrollees)				
4 doses DTaP	94.0	95.6	63	71
3 doses Hib	N/A	N/A	78	74
3 doses Hep B	94.8	96.4	85	88
1 dose MMR	90%	97.1	84	86
3 doses polio	96.0	96.9	86	90
1 dose Varicella	95.4 ⁶	96.6	83	86
¹ Only Preschool enrollees at 24-59 months of age and all kindergarten enrollees.				
² LAC Department of Health Services health centers and hospitals. In 2010, coverage estimates were rounded to the nearest whole number.				
³ Community Health Centers (nonprofit healthcare providers that receive immunization subvention contract funds). In 2010, coverage estimates were rounded to the nearest whole number.				
⁴ Health and Safety Code, Division 105, Part 2, Chapter 1, Sections 120325-120380; California Code of Regulations, Title 17, Division 1, Chapter 4, Subchapter 8, Sections 6000-6075 (California immunization requirements for Child Care: 4 doses of diphtheria-tetanus-acellular pertussis (DTaP) vaccine, 3 doses of hepatitis B vaccine, 1 dose of measles-mumps-rubella (MMR) vaccine, 3 doses of polio vaccine, 1 dose of Varicella vaccine).				
⁵ Health and Safety Code, Division 105, Part 2, Chapter 1, Sections 120325-120380; California Code of Regulations, Title 17, Division 1, Chapter 4, Subchapter 8, Sections 6000-6075 (California immunizations requirements for school entry Grades K-12: 4 doses of diphtheria-tetanus-acellular pertussis (DTaP) vaccine, 3 doses of hepatitis B vaccine, 2 doses of measles-mumps-rubella (MMR) vaccine, 3 doses of polio vaccine, 1 dose of Varicella vaccine).				
⁶ Physician documented Varicella (chickenpox) disease history or immunity meets the Varicella requirement.				

Los Angeles County met most antigen-specific Healthy People 2020 objectives.

- ✓ Los Angeles County did not meet the Healthy People 2020 objectives for DTaP and Polio coverage.
 - DTaP coverage of kindergarten enrollees was 92.4%, less than 3% below the 95% target level.
 - Polio coverage of kindergarten enrollees was 92.9%, less than 3% below the 95% target level.
- ✓ Los Angeles County met the Health People 2020 objectives for children aged 19 to 35 months.
- ✓ For all antigens, 2010 coverage levels were lower than the five-year (2005-2009) averages.
- ✓ For all antigens, the coverage levels estimated through clinic audits of Department of Health Services and participating community health centers were significantly lower than coverage levels estimated from the Fall Assessment survey.



Discussion

Key Findings

The 2010 Annual School Immunization Assessment Preschool and Kindergarten Assessment revealed the following:

- In 2010, the Los Angeles County Fall Assessment antigen-specific vaccination coverage levels slightly declined among enrollees in preschools and kindergartens. This appears to be part of a trend of declining coverage levels over the past decade.
- While coverage levels remain high, coverage for Polio and DTaP/DTP among kindergarten enrollees are below the Healthy People 2010 target of 95%. Similar trends were seen in other states across the nation. This decline in coverage levels could endanger the public's health by creating a reservoir for resurgence of these diseases.
- Despite the maintenance of high coverage levels, nearly 17,000 preschool and kindergarten children in Los Angeles County were not adequately immunized at the start of the school year.
- Los Angeles County had high levels of conditional entrants in comparison to other areas in California, underscoring the importance of follow-up efforts to assure compliance with school requirements.
- Both preschool and kindergarten PBE levels reached all-time highs in 2010, 1.8% and 1.6% respectively.
 - Parents who choose exemptions tend to live in geographical clusters which lead to low coverage levels in area schools. For example, in LAC, SPA 5 (West) had a PBE level of 8.5%. This level of unimmunized children is below the herd immunity threshold for pertussis and measles of 94% immunized, placing these communities at higher risk for outbreaks.
 - High exemption levels affect our ability to control of the spread of communicable diseases through immunizations, compromises herd immunity, and leaves more children at risk for serious vaccine-preventable diseases. According to the Centers for Disease Control and Prevention, measles outbreaks can occur when as few as 5% of children in elementary schools are exempt. In addition, high exemption levels have been directly linked to increased cases of disease. One study found that children with exemptions are almost 23 times more likely to get pertussis than vaccinated children and 11% of all pertussis cases in the total population were attributed to exemptions.¹

Key Factors that May Contribute to the Decline in Immunization Levels

Factors	Examples
Parents' Knowledge, Attitudes, Beliefs, and Practices toward Vaccinations	<ul style="list-style-type: none"> • Fears and misperceptions about vaccines and their side effects. <ul style="list-style-type: none"> ○ In a recent study, 11.5% of parents had refused at least 1 vaccine that their doctor had recommended. The most commonly refused vaccines associated with preschools and kindergarten aged children were Varicella and MMR.² • Lack of knowledge about vaccines schedules/lack of awareness that the child is overdue for the next immunization.³⁻⁶
Personal Belief Exemption (PBE) Process	<ul style="list-style-type: none"> • Ease of the California exemption process in which parents only sign a waiver at the time of school entrance. <ul style="list-style-type: none"> ○ Parents may choose to sign a PBE waiver out of convenience if their child is not up-to-date at school enrollment. ○ Parents may not receive sufficient information and guidance about the risks of PBEs at school enrollment.
Access to Care Issues	<ul style="list-style-type: none"> • Limited access to immunization (lack of continuous care, transportation, limited clinic hours).³⁻⁶ • Lack of culturally sensitive care.³⁻⁶

Los Angeles County Coverage Improvement Strategies

The enforcement of state mandated immunization requirements for school entrance has helped maintain high antigen-specific vaccination coverage levels among enrollees in preschools and in kindergartens. However, coverage levels have fallen over the past decade. To maintain coverage levels, the Los Angeles County Department of Public Health Immunization Program (LACDPH-IP), in partnership with providers and community agencies, has initiated the following local strategies to improve immunization coverage.⁷

Educational Interventions

- LACDPH-IP recommends that schools distribute a fact sheet on the risks and benefits of vaccination to parents/guardians who request a vaccine exemption. The fact sheet contains information on disease risks, exclusions in the event of school outbreaks, vaccine safety and effectiveness, and free/low-cost immunization sources.
- LACDPH-IP provides educational materials to schools, community-based organizations, and providers throughout Los Angeles County on an ongoing basis, to promote awareness of immunizations and to link community members with low-cost and no-cost immunization providers. Upon request, LACDPH-IP also provides educational presentations to parents and school staff.
- LACDPH-IP occasionally engages in print, radio, and media campaigns in order to promote awareness in the general community.

- LACDPH-IP partners with agencies that serve large numbers of young children to promote immunizations (e.g., WIC programs).

Immunization Registry

- LACDPH-IP promotes the use of the California Immunization Registry (CAIR), a web-based immunization registry for California that maintains electronic immunization records across multiple providers and tracks immunization records for patient reminder lists. Registries like CAIR are recommended by the United States Preventive Services Task Force as effective tools for improving immunization coverage.

Quality Improvement Intervention

- LACDPH-IP conducts an intensive quality improvement initiative in primary care settings such as public clinics, community health centers, and private physician practices to encourage the adoption of effective office-based strategies for improving immunization coverage levels.

Partnerships

- LACDPH-IP collaborates with other County entities, community agencies, healthcare provider organizations, and coalitions to promote awareness of vaccines, adoption of effective strategies, and policy changes that can improve immunization coverage levels.

Next Steps

LACDPH-IP will be conducting a Personal Belief Exemptions Needs Assessment with schools to further understand PBE trends in the County.

Limitations

The Fall School Assessment is a records-based estimation rather than a population-based survey. Thus, these results can only be generalized to enrollees attending licensed schools/childcare facilities in Los Angeles County.

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Appendix:

Preschool and Kindergarten Population Size, 2001-2010

Preschool facilities¹, Los Angeles County, 2001-2010

Assessment Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Enrolled Students	111,046	110,175	113,873	130,910	129,556	131,839	134,003	137,229	117,421	114,487
Total Schools	2,087	2,075	2,135	2,419	2,331	2,366	2,359	2,450	2,092	2,009
Public Schools	316 (15.1%)	331 (16.0%)	323 (15.1%)	359 (14.8%)	354 (15.2%)	354 (15.0%)	358 (15.2%)	376 (15.4%)	345 (16.5%)	310 (15.4%)
Private Schools	1,327 (63.6%)	1,271 (61.2%)	1,386 (64.9%)	1,538 (63.6%)	1,454 (62.4%)	1,483 (62.7%)	1,477 (62.6%)	1,515 (61.8%)	1,271 (60.8%)	1,341 (66.8%)
Head Start Schools	444 (21.3%)	473 (22.8%)	426 (20.0%)	522 (21.6%)	523 (22.4%)	529 (22.4%)	524 (22.2%)	559 (22.8%)	476 (22.8%)	358 (17.8%)

¹Only includes facilities that submitted assessment forms.

Schools¹ with kindergarten enrollment, Los Angeles County, 2001-2010

Assessment Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Enrolled Students	151,073	148,609	144,334	140,591	138,442	129,608	129,655	125,222	126,340	123,809
Total Schools	2,292	2,263	2,233	2,207	2,186	2,090	2,141	1,978	1,935	1,928
Public Schools	1,211 (52.8%)	1,217 (53.8%)	1,223 (54.8%)	1,227 (55.6%)	1,240 (56.7%)	1,228 (58.8%)	1,251 (58.4%)	1,217 (61.5%)	1,244 (64.3%)	1,224 (63.5%)
Private Schools	1,081 (47.2%)	1,046 (46.2%)	1,010 (45.2%)	980 (44.4%)	946 (43.3%)	862 (41.2%)	890 (41.6%)	761 (38.5%)	691 (35.7%)	704 (36.5%)

¹Only includes facilities that submitted assessment forms.