

Annual School Immunization Assessment Report

Preschool, Kindergarten, and 7-12th Grade



A Report of...

key findings and recommendations regarding immunization coverage levels and Personal Beliefs Exemptions among Los Angeles County preschool, kindergarten, and 7-12th grade students in 2011.



2011 Annual School Immunization Assessment: Preschool, Kindergarten, and 7-12th Grade

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. Under Assembly Bill 354 (2010), students in 7th through 12th grades during the 2011-2012 school year also were required to provide documentation of either having received a booster immunization against pertussis or an exemption to immunization. The pertussis booster immunization recommended for adolescents is known as 'Tdap'. Every fall all licensed childcare facilities and public and private schools are required to report the immunization status of their enrollees, in aggregate, to the California Department of Public Health Immunization Branch.

This report presents key findings from the 2011 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.

Key Highlights

- Despite meeting most Healthy People 2020 objectives, over 30,000 preschool and kindergarten children in Los Angeles County were not adequately immunized at the start of the 2011-2012 school year.
- Both preschool and kindergarten vaccination coverage levels have continued to decline in the span of a decade.
- In contrast, both preschool and kindergarten Personal Beliefs Exemption (PBE) levels have continued to rise annually, with all-time highs in 2011, 1.9% and 1.7% respectively. Parents who choose exemptions tend to live in geographical clusters, which can promote the occurrence of outbreaks in these residing communities.

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 school coverage levels.

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 2020 goals but immunization levels continue to decline. The declining levels of immunization coverage compromises herd immunity and the ability to protect unvaccinated children in the general community. The continued occurrence of local and national vaccine-preventable disease outbreaks illustrate the need to maintain high school coverage levels.

Changes/Additions to this Report: This report has been updated with 2011 data and also includes the assessment of the 7th through 12th grade pertussis immunization (Tdap) requirement.

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	<p>Enrollees attending public or private schools at preschool, kindergarten, and 7th-12th grade levels</p> <hr/> <ul style="list-style-type: none">• Preschool enrollees within the age range of 24-59 months• Kindergarten enrollees of all ages. For ungraded classes, only enrollees within the age range of 57-69 months• 7th-12th grade enrollees younger than 18 years of age
Inclusion Criteria	
Exclusion Criteria	<p>Data were not available for preschool children attending family home day cares, day nurseries, nursery schools and development centers.</p>
Data Collection Method	<p>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. Data collection is web-based.</p>
Collected Data	<p>The grade level-specific assessment includes the following information:</p> <ul style="list-style-type: none">• 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).• Fall Assessment data can be found at: http://www.cdph.ca.gov/programs/immunize/Pages/ImmunizationLevels.aspx <p>Note: Because of rounding estimation, the proportions indicated in this report may not yield the exact number of corresponding counts cited in this report.</p>

Results

The 2011 Fall School Assessment results are grouped into nine categories:

Section	Title	Page
I.	Immunization Requirements for School Entry	4
II.	Population Size (For previous years' population estimates see Appendix)	4
III.	Percent of Preschool and Kindergarten Enrollees Meeting Immunization Requirements	5 & 6
IV.	Percent of Preschool and Kindergarten Enrollees Meeting Immunization Requirements by Vaccine Antigen	7 & 8
V.	Los Angeles County Preschool and Kindergarten Immunization Coverage Compared to Other Jurisdictions	9 & 10
VI.	Preschool and Kindergarten Personal Beliefs Exemption (PBE) Levels	11 & 12
VII.	Kindergarten Retrospective Survey	13
VIII.	Los Angeles County Status toward Healthy People 2020 Objectives	14
IX.	7 th -12 th Grade Pertussis (Tdap) Immunization Assessment	15

I. Immunization Requirements for School Entry

Table 1: Immunization requirements for school entry¹, California 2011

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.

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

^b Four 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.

^c Five 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.

^d Two 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.

Notes: 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. Effective July 1, 2011, 7th-12th grade students younger than 18 years of age are required to have one pertussis-containing vaccine on or after their 7th birthday (Tdap, DTaP, or DTP). Students may be exempted from this requirement if there is a valid medical reason for not being vaccinated or if their parent chooses to exempt them due to their personal beliefs.

II. Population Size

Table 2: Schools with Preschool, Kindergarten or 7th-12th Grade Levels¹, Los Angeles County, 2011

Students	Preschool	Kindergarten	7 th -12 th
Enrolled Students	140,610	131,142	806,166

Schools	Preschool	Kindergarten	7 th -12 th
Public	370 (15.1%)	1,274 (63.6%)	913 (60.5%)
Private	1,650 (67.4%)	728 (36.4%)	595 (39.5%)
Head Start	428 (17.5%)	-	-
Total	2,448	2,002	1,508

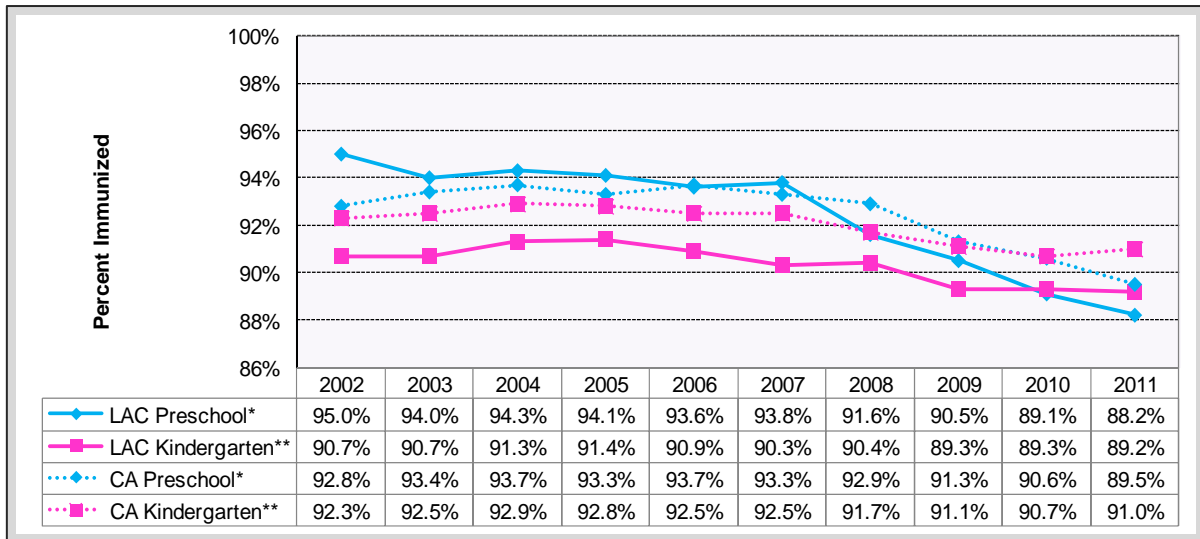
¹Only includes facilities that submitted assessment forms.

Over 1 million student enrollees were counted in the 2011 assessment.

- Fall Assessment participants consisted of a similar number of preschools and kindergartens, 2,448 and 2,002 respectively. The 2011 assessment included the most preschool enrollees observed in nine years and kindergarten enrollees in six years.
- The majority of reporting preschools is private (67.4%). In contrast, the majority of reporting kindergartens and 7th-12th grades are public (63.6% and 60.5%, respectively).

III. Percent of Enrollees Meeting Immunization Requirements

Figure 1: Percent of preschool and kindergarten enrollees up-to-date with immunizations, Los Angeles County, 2002-2011



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

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

State and local preschool and kindergarten up-to-date levels continue to decline in 2011.

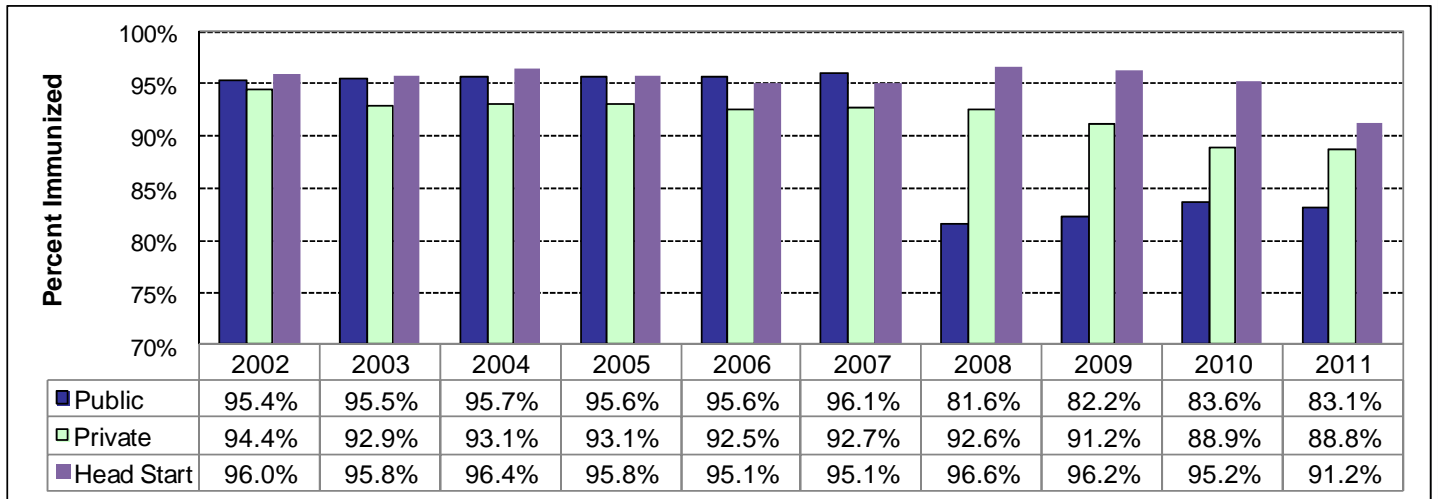
PRESCHOOL ENROLLEES

- In 2011, the percent of up-to-date preschool enrollees in Los Angeles County continued to decline, a 7% decrease from its peak in 2002.
- The 2011 immunization coverage level for preschool enrollees decreased by 1.0% from 2010.

KINDERGARTEN ENROLLEES

- In 2011, the percent of up-to-date kindergarten enrollees in Los Angeles County decreased slightly by 1.7% since 2002.
- The 2011 immunization coverage level for kindergarten enrollees was relatively unchanged from the previous year, 89.3% in 2010 and 89.2% in 2011.

Figure 2: Percent of preschool enrollees meeting immunization requirements¹, by type of child care center, Los Angeles County, 2002-2011²



¹ All Required Immunizations: Enrollee has received 4+DTaP/DTP, 3+ Polio, 1 MMR, 1 Hib, 3 Hep B, and 1 Varicella (or physician-documented varicella disease).

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 2007, coverage levels have dropped for public and private preschools.

PUBLIC SCHOOL ENROLLEES

- Coverage levels for public preschools have remained considerably below Head Start and private schools since 2008.
- Public preschool coverage levels have dropped substantially from a high of 96.1% in 2007. Although there was a slight increase (1.7%) from 2009 to 2010, the coverage level decreased again in 2011 to 83.1%.
- In 2011, LAC’s public preschool coverage level was 8.4% lower than California’s public school coverage level of 91.5%.

PRIVATE SCHOOL ENROLLEES

- The percentage of private preschool students meeting immunization requirements remained relatively the same, 88.9% in 2010 and 88.8% in 2011.
- In 2011, the percent of private preschool enrollees meeting immunization requirements remained below 90%.

HEAD START ENROLLEES

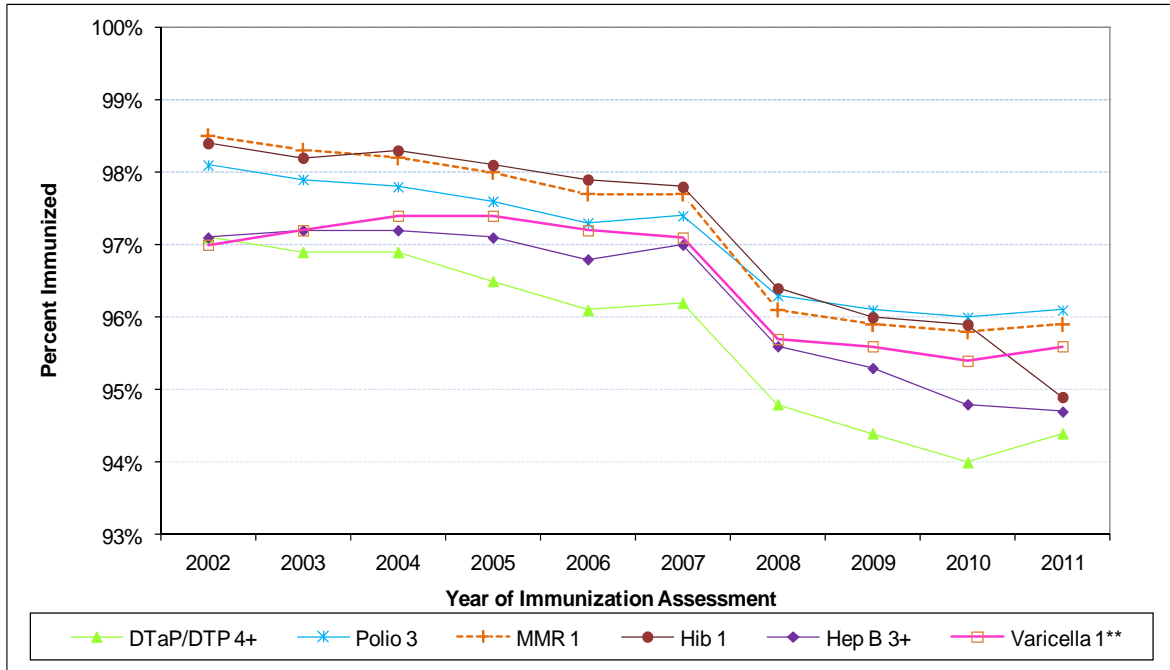
- Head Start preschool coverage levels were higher than their public and private preschool counterparts. However, coverage decreased 4.2% from 2010 to 2011.
- For the first time in ten years, Head Start preschool coverage levels dropped below 95%.

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, 2002-2011*



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

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

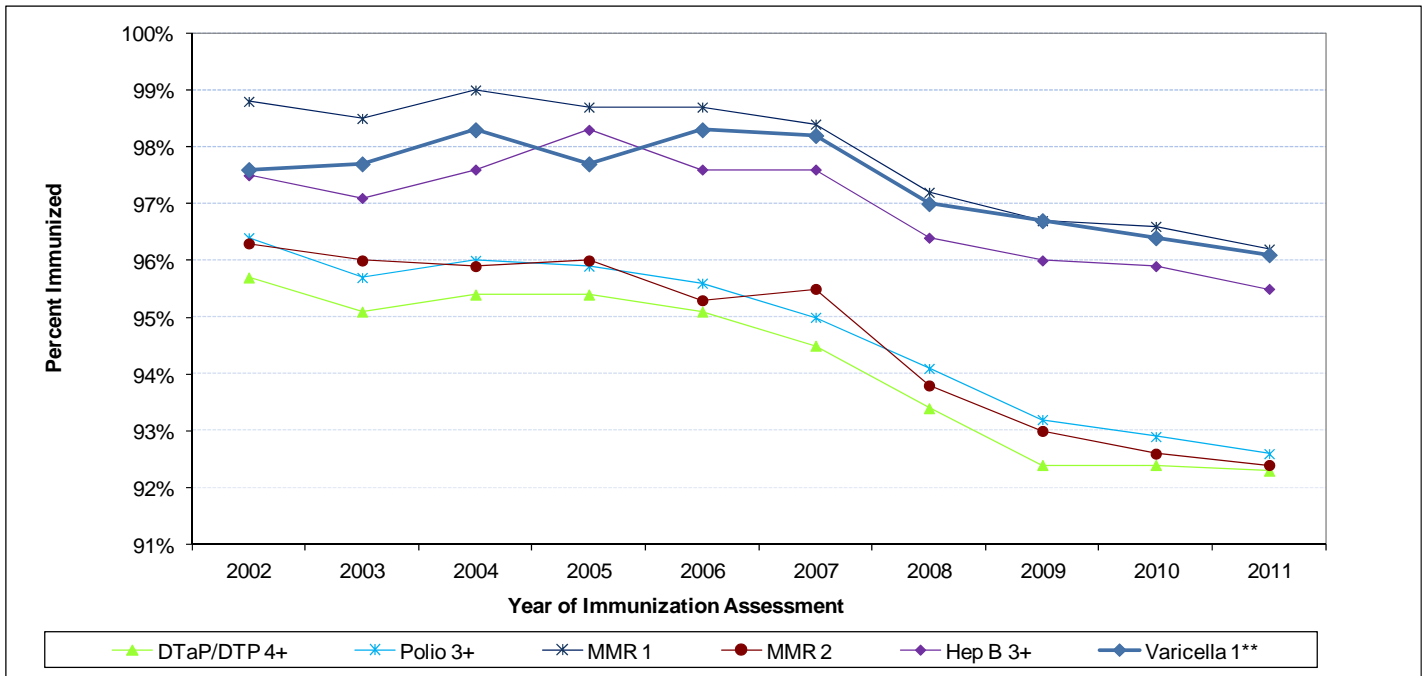
Note: DTaP/DTP represents doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any pertussis vaccine (DTP/DTaP). DTaP is the vaccine of choice for children 6 weeks through 6 years of age. Pediatric DT is recommended for children with valid contraindications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

2011 Preschool Antigen-specific Rankings			
1	Third dose of Polio	96.1%	0.1% Increase
2	First dose of MMR	95.9%	0.1% Increase
3	Varicella	95.6%	0.2% Increase
4	First dose of Hib	94.9%	1.0% Decline
5	Third dose of Hep B	94.7%	0.1% Decline
6	Fourth dose of DTaP/DTP	94.4%	0.4% Increase

Preschool coverage levels for most antigens have continued to decrease over the past decade.

- In 2011, most of the antigen-specific coverage levels for preschools showed a slight increase (0.1%-0.4%).
- The rankings among antigen-specific immunization coverage levels were similar to previous years, with a high of 96.1% for the third dose of Polio and a low of 94.4% for the fourth dose of DTaP/DTP.
- The largest decline in LAC coverage, observed for the first dose of Hib, is similar to the decrease observed for the state of California.

Figure 4: Percent of kindergarten enrollees immunized, Los Angeles County, 2002-2011*



*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 used outside of the U.S.

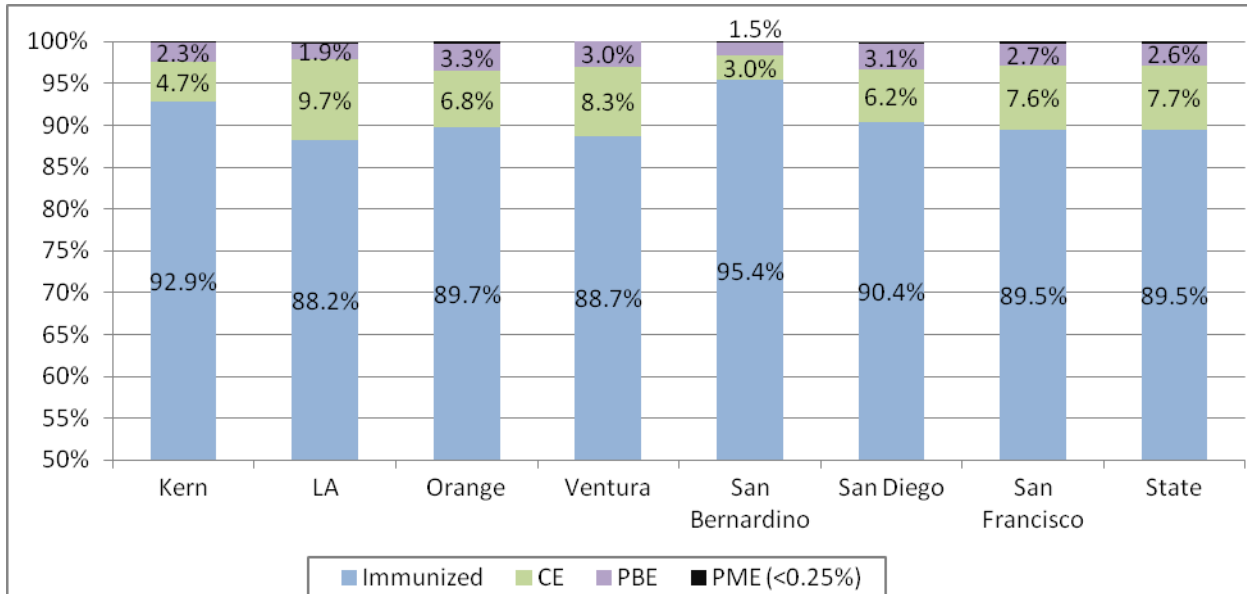
2011 Kindergarten Antigen-specific Rankings			
1	First dose of MMR	96.2%	0.4% Decline
2	Varicella	96.1%	0.3% Decline
3	Third dose of Hep B	95.5%	0.4% Decline
4	Third dose of Polio	92.6%	0.3% Decline
5	Second dose of MMR	92.4%	0.2% Decline
6	Fourth dose of DTaP/DTP	92.3%	0.1% Decline

Kindergarten coverage levels for all antigens continued to decline in 2011.

- All kindergarten enrollee antigen-specific coverage levels showed a slight decrease (<0.5%) between 2010 and 2011.
- The decline in coverage levels from 2010 to 2011 ranged between 0.1% (fourth dose of DTaP/DTP) to 0.4% (first dose of MMR and third dose of Hep B).
- The highest coverage level in 2011 was for the first dose of MMR (96.2%). The lowest coverage level was for the fourth dose of DTaP (92.3%) followed closely by the second dose of MMR (92.4%).

V. Los Angeles County Immunization Coverage Compared to Other Jurisdictions

Figure 5: Coverage levels of preschool enrollees by jurisdiction, California, 2011



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

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

COVERAGE LEVELS

- Compared to six other California jurisdictions, Los Angeles had the lowest level of preschool enrollees meeting immunization requirements (88.2%).
- Los Angeles County had a slightly lower level of preschool enrollees meeting immunization requirements compared to the state (1.3% less than the coverage level for California).

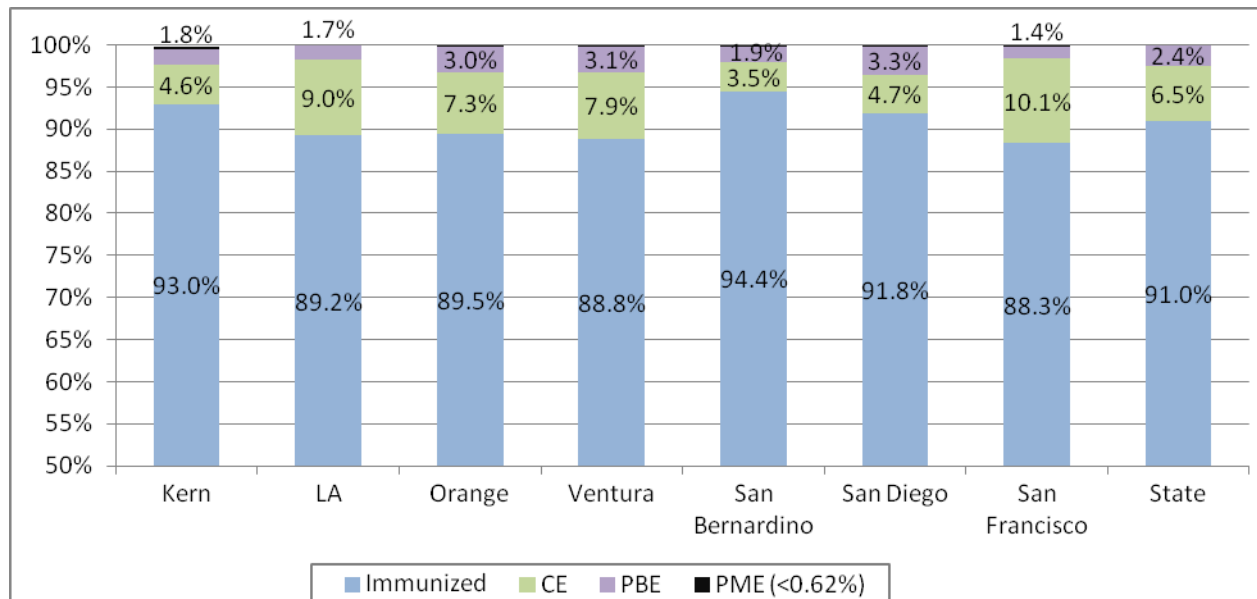
CONDITIONAL ENTRANCE

- Compared to six other California jurisdictions, Los Angeles had the highest level of conditional entrants (CEs) at 9.7%. This was a 9% increase from 2010.
- Los Angeles County had 2.0% more conditional entrants for preschools than the state.

EXEMPTIONS

- Preschool PME levels were minimal for all six jurisdictions and the state of California (<0.25%).
- At 1.9%, Los Angeles County had the second lowest preschool PBE level of all six jurisdictions.
- Los Angeles County's preschool PBE level was 0.7% lower than California's PBE level in 2011.

Figure 6: Coverage levels of kindergarten enrollees by jurisdiction, California, 2011



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

LA County kindergartens’ coverage level was the second lowest among its neighboring counties.

COVERAGE LEVELS

- Compared to six other California jurisdictions, Los Angeles kindergartens ranked fifth for meeting immunization coverage requirements (89.2%).
- Los Angeles County had a similar level of kindergarten enrollees meeting immunization requirements compared to the state (1.8% less than the coverage level for California).

CONDITIONAL ENTRANCE

- Compared to six other California jurisdictions, Los Angeles kindergartens had the second highest level of conditional entrants (9.0%). Los Angeles County had 2.5% more conditional entrants for kindergartens than the state.

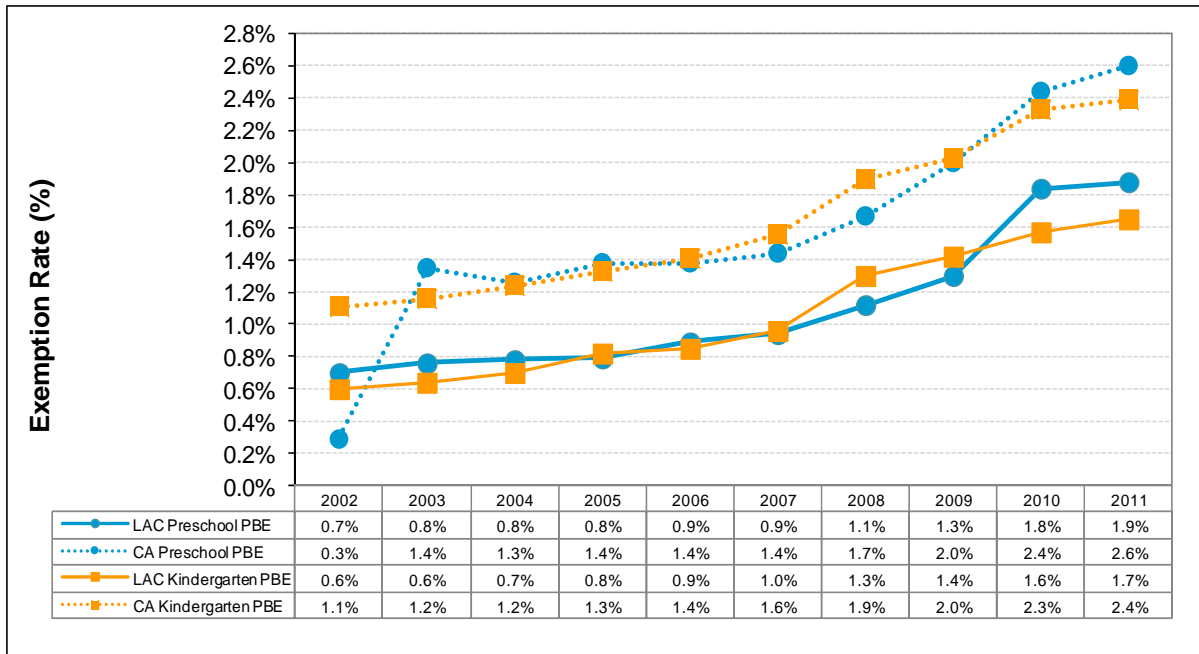
EXEMPTIONS

- Kindergarten PME levels were minimal for all six jurisdictions and the state of California (<0.65%).
- At 1.7%, Los Angeles County had the second lowest PBE level for kindergartens of all six jurisdictions.
- Los Angeles County’s kindergarten PBE level was 0.7% less than California’s PBE level in 2011.



VI. Personal Beliefs Exemption (PBE) Levels

Figure 7: Personal beliefs exemptions among preschool and kindergarten enrollees, Los Angeles County, 2002-2011



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

- Between 2002 and 2011, Los Angeles County (LAC) PBE levels have increased significantly (>170%) for both preschools and kindergartens.

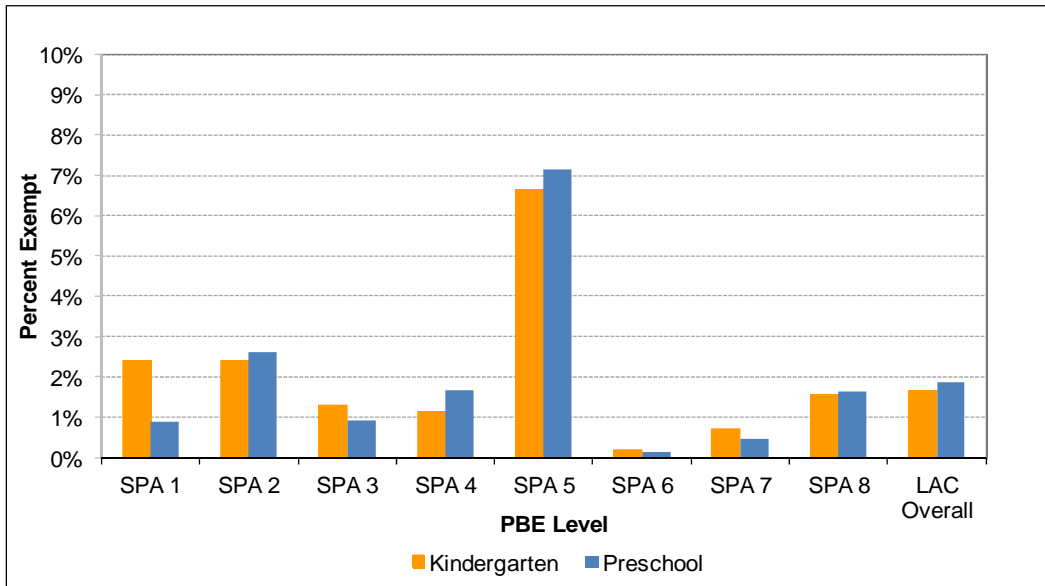
PRESCHOOL ENROLLEES

- In 2011, LAC's preschool PBE level was 0.7% lower than California's PBE level.
- The 2011 PBE level among LAC preschool enrollees reached 1.9% (2,637 enrollees), an increase of 5.6% from 2010.
- Over a ten year time span (2002-2011), LAC's preschool PBE level increased 171.4%, with an average annual increase of 12.4% (range 0% - 38.5%).

KINDERGARTEN ENROLLEES

- LAC's kindergarten PBE level was 0.7% lower than California's PBE level in 2011.
- The 2011 PBE level among LAC kindergarten enrollees reached 1.7% (2,166 enrollees), a 6.25% increase from 2010.
- Over a ten year time span (2002-2011), LAC's kindergarten PBE level increased 183.3%, with an average annual increase of 12.2% (range 0%-35.4%).

Figure 8: Personal belief exemptions among preschool and kindergarten schools¹ by Service Planning Area (SPA), Los Angeles County, 2011



	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	0.9%	2.6%	0.9%	1.7%	7.2%	0.1%	0.5%	1.6%	1.9%
Kindergarten	2.4%	2.4%	1.3%	1.1%	6.6%	0.2%	0.7%	1.6%	1.7%

¹ Schools from Long Beach and Pasadena and schools with enrollment of less than 10 students were excluded from analysis.

Note: The methodology for PBE analysis by SPA changed from previous years to the method used by the state of California.

PBE levels continue to be much higher in the western region of LA County.

- Preschools and kindergartens in SPA 5 (West) had the highest PBE levels (over 6%) followed by SPA 2 (San Fernando) with a PBE level over 2%.
- SPA 6 (South) had the lowest PBE level (≤0.2%).

PBE levels continue to vary dramatically by school.

- PBE levels for Kindergartens ranged from 0% (61% of schools) to 84% (1 school). In Los Angeles County there were 167 kindergarten schools at or above the 90th PBE percentile (6%), with 64% of them located in SPAs 2 and 5. Seventeen kindergarten schools had a PBE level greater than or equal to 31% (at or above the 99th kindergarten PBE percentile).
- PBE levels for Preschools ranged from 0% (74% of schools) to 87% (1 school). In Los Angeles County there were 221 preschools located at or above the 90th PBE percentile (5.3%), with 59% of them located in SPAs 2 and 5. Twenty-four preschools had a PBE level greater than or equal to 25% (at or above the 99th preschool PBE percentile).



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 3.5% (286 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. These data include children who enrolled in kindergarten during the 2010-2011 academic year.

Table 3: Vaccination coverage estimates at age milestones by race/ethnicity, California vs. Los Angeles County, KRS 2011.

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 series ³		4:3:1:-:3:1 series ²			
	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA	LAC	CA		
Overall	85.2 ± 3.1 ^a	83.7 ± 1.7	62.5 ± 4.2	61.4 ± 2.3	48.0 ± 5.4	44.1 ± 2.4	60.2 ± 5.4	59.6 ± 2.2	66.5 ± 3.7	63.4 ± 2.0	72.1 ± 5.0	71.0 ± 2.1	87.5 ± 2.2	85.3 ± 1.5	82.4 ± 5.0	81.8 ± 1.9
African-American	<u>76.5</u> ^b	<u>77.4</u>	47.3	<u>46.4</u>	39.6	43.4	52.2	<u>46.4</u>	<u>55.3</u>	<u>48.1</u>	67.0	<u>61.2</u>	80.7	<u>78.9</u>	77.6	<u>77.1</u>
Asian	82.0	83.1	62.4	70.5	53.3	41.8	61.9	63.6	68.5	67.6	68.8	72.0	84.4	84.8	77.8	82.3
Hispanic	88.0	85.7	63.7	59.4	52.2	47.2	63.3	61.8	67.3	64.4	74.8	72.7	88.8	86.5	85.5	84.0
White	79.7	80.8	68.1	63.2	37.9	40.6	55.0	56.3	69.7	62.4	67.0	68.6	88.9	84.6	<u>75.4</u>	78.3
Other	89.1	88.4	57.3	66.3	40.3	<u>39.0</u>	<u>44.3</u>	55.8	60.1	61.5	<u>63.9</u>	72.0	<u>79.5</u>	86.2	79.5	83.6
Unknown	79.1	81.7	<u>38.4</u>	65.0	<u>25.7</u>	41.8	50.3	63.1	55.9	69.0	71.9	74.2	83.6	84.9	78.0	80.4

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 at age milestones varied dramatically by racial/ethnic group.

- Coverage levels for Hispanics in Los Angeles County were above California's coverage level at every age milestone. In contrast, coverage levels for African Americans were below California's coverage at every age milestone.
- 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 48.0% of 13-month olds in Los Angeles and 44.1% of 13-month olds in California had received this series.
- In LA County, the coverage level was the highest at 3 months, 85.2%. By 3 years of age, the proportion of children who had received all vaccines in the 4:3:1:-:3:1 series was slightly lower at 82.4%.

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 2011 ¹ (%)	Fall Assessment 5-Year Avg 2006-2010 ¹ (%)	Clinic Audits 2011 DHS ² Facilities (%)	Clinic Audits 2011 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				
4 doses of DTaP vaccine	92.3	93.6	-	-
3 doses of Hep B vaccine	95.5	96.7	-	-
1 dose of MMR vaccine 95%	96.2	97.5	-	-
3 doses of Polio vaccine	92.6	94.2	-	-
1 dose of Varicella vaccine	96.1	97.3	-	-
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 of DTaP vaccine	94.4	95.1	57	68
3 doses of Hib vaccine	N/A	N/A	82	85
3 doses of Hep B vaccine	94.7	95.9	81	84
1 dose of MMR vaccine 90%	95.9	96.6	79	83
3 doses of Polio vaccine	96.1	96.6	80	86
1 dose of Varicella vaccine	95.6 ⁶	96.2	78	82

¹Only Preschool enrollees at 24-59 months of age and all kindergarten enrollees.

²LAC Department of Health Services health centers and hospitals. In 2010, coverage estimates were rounded to the nearest whole number.

³Community Health Centers (nonprofit healthcare providers that receive immunization subvention contract funds). In 2010, coverage estimates were rounded to the nearest whole number.

⁴Health 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).

⁵Health 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).

⁶Physician documented Varicella (chickenpox) disease history or immunity meets the Varicella requirement.

Los Angeles County continues to meet most antigen-specific Healthy People 2020 objectives.

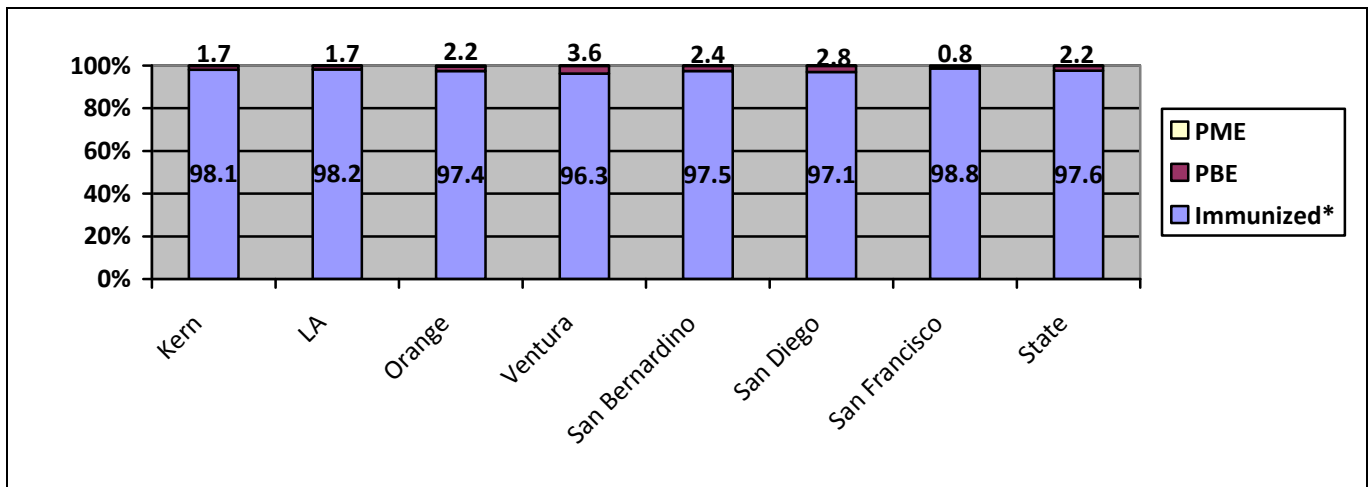
- Los Angeles County did not meet the Healthy People 2020 objectives for the 4th dose of DTaP and the 3rd dose of Polio coverage among kindergarten enrollees.
- Los Angeles County met all the Healthy People 2020 objectives for children aged 19 to 35 months.
- For all antigens, 2011 coverage levels were lower than the five-year (2006-2010) average.
- For all antigens, the coverage levels estimated through clinic audits of Department of Health Services and participating community health centers were much lower than coverage levels estimated from the Fall Assessment survey.

IX. 7th – 12th Grade Pertussis (Tdap) Immunization Assessment

The Pertussis Tdap Immunization Assessment, conducted by the California Department of Public Health, began in 2011 for the 2011-2012 school year. Beginning the 2011-2012 school year, persons entering grades 7 – 12 were required to provide either documentation of having a booster immunization on or after their 7th birthday or an exemption to immunization.

In Los Angeles County, 1,508 schools reported to CDPH. Of these, 913 (61%) were public and 595 (39%) were private schools.

Figure 9: Pertussis vaccination coverage estimates by jurisdiction, California, 2011.



*Received pertussis-containing vaccine (Tdap, DTaP, DTP) on or after 7th birthday.

PME: Permanent Medical Exemptions.

PBE: Personal Beliefs Exemptions.

Pertussis coverage level for Los Angeles County was slightly higher than California's coverage level for pertussis vaccination.

- For combined students in 7th through 12th grades, Tdap immunization coverage in Los Angeles County (98.2%) was 0.6% higher than California's coverage level (97.6%). When compared to six other California jurisdictions, Los Angeles ranked second the up-to-date level with the Tdap requirement.
- Los Angeles County's PBE level was slightly lower (0.5%) than the State's PBE level.
- Los Angeles County's PME level was the same (0.2%) as the State's PME level.
- Although Los Angeles County PBE levels for 7th-12th grade schools were small (1.7%), a similar pattern was noted in both preschool and kindergarten PBE levels as well: higher PBE levels in SPA 2 (San Fernando) and SPA 5 (West), 2.6% and 2.8% respectively (data not shown). SPA 1 (Antelope Valley) had the highest PBE level for 7th to 12th grade schools (2.9%) and SPA 7 (East) had the lowest level (0.7%).
- PBE levels varied slightly by grade level, with the lowest PBE level observed in the ninth grade (1.5%) and the highest observed in the twelfth grade (2.1%) (data not shown).

Discussion

Key Findings

The 2011 Annual School Immunization Assessment Preschool, Kindergarten, and 7th-12th Grade Assessment revealed the following:

- In 2011, Los Angeles County met eight out of ten Healthy People 2020 antigen-specific objectives for preschool and kindergarten enrollees. However, the overall coverage levels decreased from last year in an apparent trend in declining coverage levels.
- Despite meeting most Healthy People 2020 objectives, over 30,000 preschool and kindergarten children in Los Angeles County were not adequately immunized at the start of the school year.
- Preschool and kindergarten enrollees that did not meet immunization requirements primarily consisted of conditional entrants or those with personal belief exemptions.
 - Los Angeles County had higher levels of conditional entrants when compared to other areas in California, underscoring the importance of follow-up efforts to ensure compliance with school requirements.
 - PBE levels among preschool and kindergarten enrollees have increased over the past decade, reaching all-time highs in 2011, 1.9% and 1.7% respectively. A geographic concentration of unimmunized children due to personal belief exemptions was observed in SPA 5. The clustering of immunization-exempt children is consistent with California and other areas in the United States (U.S.).¹⁻² The 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. In 2011, several measles outbreaks in the U.S. consisted of primarily unvaccinated individuals, the implications of which call for a need to protect all children in areas at-risk for serious vaccine-preventable diseases.³⁻⁴
- The new school mandate requiring Tdap vaccine for 7th-12th grade students resulted in 98% of students protected from pertussis, subsequently protecting many more in the community at large. Because school mandates have been found to be successful in their first year of enforcement, with peak effectiveness observed two years after implementation, continued monitoring will be needed.⁵ Areas of higher immunization exemption levels were observed in SPA 2 (San Fernando) and SPA 5 (West), similar to preschool and kindergarten exemption distributions, as well as SPA 1 (Antelope Valley).

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"> • Parents' attitudes and beliefs are strongly associated with the decision to claim an exemption.² • Concern about vaccine safety⁶: <ul style="list-style-type: none"> ○ Perception that vaccines are correlated to development of seizures, learning disabilities, and autism ○ Vaccines overwhelming children's immune system ○ Adverse reactions • Incorrect perception that child is up-to-date with immunizations.⁷
Personal Belief Exemption (PBE) Process	<ul style="list-style-type: none"> • Ease of the exemption process in which parents only sign a waiver at the time of school entrance. <ul style="list-style-type: none"> ○ One study of parents claiming exemption to immunizations found that 26% of respondents reported they were claiming an exemption because it was convenient for their child to enroll in school.⁶ • 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 insurance, transportation, time constraints).⁷ • Lack of culturally sensitive care (i.e. language).⁷

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.

Educational Interventions

- To encourage adherence to school immunization laws and support schools' efforts to promote immunizations, LACDPH-IP offers training and technical consultation to interested schools. The Program's School Immunization Team also continues to encourage schools to provide parents/guardians who request a vaccine exemption with a fact sheet that describes vaccine risks and benefits. The fact sheet contains information on disease risks, exclusions in the event of school outbreaks, vaccine safety and effectiveness, and no-cost and low-cost immunization sources.
- LACDPH-IP provides educational materials to schools, community-based organizations, and providers 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 conducted a variety of activities to increase awareness of the new law requiring proof of a Tdap pertussis booster vaccine for 7-12th grade entry in the 2011-2012 school year. Notable activities include providing articles for multiple stakeholder newsletters, distributing educational materials and posters, developing an online toolkit and resources, leading presentations for parents and stakeholder groups, and co-hosting a press event with Kaiser Permanente.
- LACDPH-IP partners with agencies that serve large numbers of young children, including WIC programs, to promote immunizations.

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 and allows providers to conduct reminder/recall activities. Registries like CAIR are recommended by the Community Preventive Services Task Force as effective tools for improving immunization coverage.

Quality Improvement Intervention

- LACDPH-IP conducts a quality improvement initiative to encourage public clinics, community health centers, and private physician practices adopt effective strategies for improving immunization coverage levels. Recent efforts have focused on increasing the proportion of provider practices that routinely use client reminder/recall and provider prompts to increase immunization rates.

Policy Efforts

- LACDPH-IP supported the passage of the law that requires proof of a pertussis booster vaccine for middle school entry (Assembly Bill 354). Following its enactment, the Program provided information, resources, and technical assistance to support implementation efforts.

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 conducted a Personal Belief Exemptions Assessment with schools with kindergarten classes to further understand PBE practices and trends in the County. Data will be analyzed and findings will be shared with schools and other interested stakeholders.
- LACDPH-IP will partner with providers, childcare facilities, and schools to prepare for implementation of AB 2109, a bill that changed the process for claiming PBEs. Starting in 2014, a parent/guardian who wishes to exempt his/her child from a childcare or school immunization requirement will be required to receive information from a licensed health care provider regarding the risks of vaccine-preventable diseases, as well as the risks and benefits of immunizations.

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, 2002-2011

Preschool facilities¹, Los Angeles County, 2002-2011

Assessment Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Enrolled Students	110,175	113,873	130,910	129,556	131,839	134,003	137,229	117,421	114,487	140,610
Total Schools	2,075	2,135	2,419	2,331	2,366	2,359	2,450	2,092	2,009	2,448
Public Schools	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%)	370 (15.1%)
Private Schools	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%)	1,650 (67.4%)
Head Start Schools	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%)	428 (17.5%)

¹Only includes facilities that submitted assessment forms.

Schools¹ with kindergarten enrollment, Los Angeles County, 2002-2011

Assessment Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Enrolled Students	148,609	144,334	140,591	138,442	129,608	129,655	125,222	126,340	123,809	131,142
Total Schools	2,263	2,233	2,207	2,186	2,090	2,141	1,978	1,935	1,928	2,002
Public Schools	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%)	1,274 (63.6%)
Private Schools	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%)	728 (36.4%)

¹ Only includes facilities that submitted assessment forms.