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#### **VARICELLA OUTBREAKS AFTER VACCINE LICENSURE: PROBLEMS WITH VACCINATION COVERAGE, STORAGE OR EFFICACY?**

In 1998, three years after vaccine licensure, childcare centers (CCC) and schools in Los Angeles County continued to report varicella outbreaks. Parents and school administrators contacted the Acute Communicable Disease Control Unit (ACD) about the outbreaks, frequently expressing concern that a high proportion of ill children had previously been immunized. This stimulated ACD to investigate two CCC outbreaks in order to identify a cause, such as low vaccination coverage levels or unexpected low vaccine effectiveness.

Information on past history of varicella, illness during the outbreak, and prior varicella vaccination among childcare center attendees was collected. In the first of the two outbreaks (CCC "H"), vaccination coverage levels among the children were high; in the other outbreak (CCC "L"), levels were low. CCC "H" had a vaccination coverage level of 87% (34/39) compared to 30% (6/20) in CCC "L." The overall attack rate was lower in CCC "H" (31%) than in CCC "L" (61%; p-value=0.03). Vaccine effectiveness for varicella was 71% in CCC "H" and 100% in CCC "L." In general, vaccinated children with varicella had milder disease than those who were unvaccinated, although this was not statistically significant. Vaccine had been administered by six different health care providers. Five had stored and handled the vaccine correctly; the sixth had retired and could not be evaluated.

In conclusion, varicella outbreaks occurred in CCCs with both high and low vaccination coverage levels. Vaccination led to a lower attack rate in CCC "H" and appeared to protect from severe disease. Vaccine effectiveness was within the range predicted by the literature (70-90%) and there was no indication of improperly stored or mishandled vaccine.