**Hepatitis A vaccination**
(minimum age: 12 months for routine vaccination)

**Routine vaccination**
- 2-dose series (minimum interval: 6 months) at age 12–23 months

**Catch-up vaccination**
- Unvaccinated persons through age 18 years should complete a 2-dose series (minimum interval: 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents age 18 years or older may receive the combined HepA and HepB vaccine, Twinrix®, as a 3-dose series (0, 1, and 6 months) or 4-dose series (doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).

**International travel**
- Persons traveling to or working in countries with high or intermediate endemic hepatitis A (www.cdc.gov/travel/):
  - Infants age 6–11 months: 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between age 12–23 months.
  - Unvaccinated age 12 months or older: Administer dose 1 as soon as travel is considered.

**Hepatitis B vaccination**
(minimum age: birth)

**Birth dose (monovalent HepB vaccine only)**
- **Mother is HBsAg-negative:**
  - All medically stable infants ≥2,000 grams: 1 dose within 24 hours of birth
  - Infants <2,000 grams: Administer 1 dose at chronological age 1 month or hospital discharge (whichever is earlier and even if weight is still <2,000 grams).
- **Mother is HBsAg-positive:**
  - Administer HepB vaccine and hepatitis B immune globulin (HBIG) (in separate limbs) within 12 hours of birth, regardless of birth weight. For infants <2,000 grams, administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose.
- **Mother’s HBsAg status is unknown:**
  - Administer HepB vaccine within 12 hours of birth, regardless of birth weight.
  - For infants <2,000 grams, administer HBIG in addition to HepB vaccine (in separate limbs) within 12 hours of birth. Administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Determine mother’s HBsAg status as soon as possible. If mother is HBsAg-positive, administer HBIG to infants ≥2,000 grams as soon as possible, but no later than 7 days of age.

**Routine series**
- 3-dose series at age 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)
- Infants who did not receive a birth dose should begin the series as soon as feasible (see Table 2).

- Administration of 4 doses is permitted when a combination vaccine containing HepB is used after the birth dose.
- Minimum age for the final (3rd or 4th) dose: 24 weeks
- Minimum intervals: dose 1 to dose 2: 2 weeks / dose 2 to dose 3: 3 weeks / dose 1 to dose 3: 16 weeks (when 4 doses are administered, substitute “dose 4” for “dose 3” in these calculations)

**Catch-up vaccination**
- Unvaccinated persons should complete a 3-dose series at 0, 1–2, 6 months.
- Adolescents age 11–15 years may use an alternative 2-dose schedule with at least 4 months between doses (adult formulation Recombivax HB® only).
- Adolescents age 18 years or older may receive a 2-dose series of HepB (Heplisav-B®) at least 4 weeks apart.
- Adolescents age 18 years or older may receive the combined HepA and HepB vaccine, Twinrix®, as a 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).
- For other catch-up guidance, see Table 2.

**Special situations**
- Revaccination is not generally recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.

- Post-vaccination serology testing and revaccination (if anti-HBs < 10 mIU/mL) is recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Hemodialysis patients
  - Other immunocompromised persons

For detailed revaccination recommendations, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html.

**Human papillomavirus vaccination**
(minimum age: 9 years)

**Routine and catch-up vaccination**
- HPV vaccination routinely recommended at age 11–12 years (can start at age 9 years) and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2- or 3-dose series depending on age at initial vaccination:
  - Age 9–14 years at initial vaccination: 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - Age 15 years or older at initial vaccination: 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 2 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 3 months; repeat dose if administered too soon)
- Interrupted schedules: If vaccine schedule is interrupted, the series does not need to be restarted.
- No additional dose recommended when any HPV vaccine series has been completed using the recommended dosing intervals.

**Special situations**
- Immunocompromising conditions, including HIV infection: 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- History of sexual abuse or assault: Start at age 9 years.

- Pregnancy: Pregnancy testing not needed before vaccination; HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant

**Influenza vaccination**
(minimum age: 6 months [IIV], 2 years [LAIV4], 18 years [recombinant influenza vaccine, RIV4])

**Routine vaccination**
- Use any influenza vaccine appropriate for age and health status annually:
  - 2 doses, separated by at least 4 weeks, for children age 6 months–8 years who have received fewer than 2 influenza vaccine doses before July 1, 2021, or whose influenza vaccination history is unknown (administer dose 2 even if the child turns 9 between receipt of dose 1 and dose 2)
  - 1 dose for children age 6 months–8 years who have received at least 2 influenza vaccine doses before July 1, 2021
  - 1 dose for all persons age 9 years or older
- For the 2021–2022 season, see www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm.
- For the 2022–23 season, see the 2022–23 ACIP influenza vaccine recommendations.

**Special situations**
- Egg allergy, hives only: Any influenza vaccine appropriate for age and health status annually
- Egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress) or required epinephrine or another emergency medical intervention: see Appendix listing contraindications and precautions
- Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine: see Appendix listing contraindications and precautions

**Measles, mumps, and rubella vaccination**
(minimum age: 12 months for routine vaccination)

**Routine vaccination**
- 2-dose series at age 12–15 months, age 4–6 years
- MMRV or MMRV may be administered

**Note:** For dose 1 in children age 12–47 months, it is recommended to administer MMV and varicella vaccines separately. MMRV may be used if parents or caregivers express a preference.

**Catch-up vaccination**
- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart
- The maximum age for use of MMRV is 12 years.
- Minimum interval between MMRV doses: 3 months

**Special situations**

- International travel:
  - Infants age 6–11 months: 1 dose before departure; revaccinate with 2-dose series at age 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.
  - Unvaccinated children age 12 months or older: 2-dose series at least 4 weeks apart before departure

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**Recommendations for children and adolescents 12 months through 18 years of age:**

- For adolescents who initiate vaccination at age 9 through 14 years, complete a 3-dose series (3 doses at 0, 1–2, and 6 months).
- For adolescents who initiate vaccination at age 15 years or older, complete a 2-dose series (2 doses at 0 and 6 months).
- Infants who did not receive a birth dose should begin the series as soon as feasible.
- For other catch-up guidance, see Table 2.