

# Immunization 101

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Massachusetts Department Of Public Health  
Immunization Program

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## Presenter Disclosure Information

I, Katie Reilly, have been asked to disclose any significant relationships with commercial entities that are either providing financial support for this program or whose products or services are mentioned during my presentations. I have no relationships to disclose.

I may discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration

- But in accordance with ACIP recommendations

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## Outline

- Herd Immunity
- Types of vaccines
- Tips on using the 2016 birth to 18 years schedule
- Screening prior to vaccination
- Contraindications and precautions to vaccination
- Vaccine Safety
- Vaccine Information Statements (VIS)
- Vaccine administration documentation requirements
- Vaccine adverse events and medical error reporting
- Use of Model Standing Orders

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### Tips when Using the Catch-up Schedule

**Use the catch-up schedule when the patient is in your office:**

- And is more than 1 month delayed on the routine vaccination schedule
- To determine if a vaccine dose can be administered today or not
- To determine when the next dose is due

**You need to know:**

- Current age of patient
- For the vaccine in question, dates of prior vaccine doses (if any) and ages at which those doses were administered
- Health status of the patient

**Once the patient is 'caught up', return to using the routine vaccination schedule**

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### Screening

- Is key to preventing serious adverse reactions
- Specific questions intended to identify
  - contraindications or precautions to vaccination
- Screening must occur at every immunization encounter (not just before the first dose)
- Use of a standardized form will facilitate effective screening

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/genrec.pdf>

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### Immunization Action Coalition (IAC) Screening Forms

- Child and Teen Immunizations
- Adult Immunizations
- IIV Seasonal Influenza

<http://www.immunize.org/handouts/screening-vaccines.asp>

**Screening Checklist for Contraindications to Vaccines for Children and Teens**

*As a precautionary measure, the following questions will help us determine which children need child size for your child. If you answer "Yes" to any questions, it does not necessarily mean your child should not be vaccinated. If you answer additional questions, we will adjust it if a question is not their child and your healthcare provider is unclear.*

	Yes	No	Blank
1. Is the child sick today?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the child have allergies to medications, food, a vaccine component, or latex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the child had a seizure reaction to a vaccine in the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Has the child had a health problem with legs, feet, hands or wrists/feet, thumb? (e.g., Arthritis, stroke, or a blood disorder)? Is/has he or she been on long-term aspirin therapy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Information for Healthcare Professionals about the Screening Checklist for Contraindications (Children and Teens)**

*Are you interested in learning why we included a certain question on the screening checklist? If so, read the information below. If you want to find out even more, consult the references listed at the end.*

1. **Is the child sick today?** ...  
 2. **Does the child have allergies to medications, food, a vaccine component, or latex?** ...  
 3. **Has the child had a seizure reaction to a vaccine in the past?** ...  
 4. **Has the child had a health problem with legs, feet, hands or wrists/feet, thumb? (e.g., Arthritis, stroke, or a blood disorder)? Is/has he or she been on long-term aspirin therapy?** ...

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## Vaccination of Pregnant Women

- Live vaccines should not be administered to women known to be pregnant
- In general, inactivated vaccines may be administered to pregnant women for whom they are indicated
- HPV vaccine should be deferred during pregnancy

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/generic.pdf> MIAP 2016

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## CDC Guidelines for Vaccinating Pregnant Women

- Guidelines for vaccination
- Travel and other vaccines
- Breastfeeding and vaccination
- Prenatal screening



<http://www.cdc.gov/vaccines/pregnancy/hcp/guidelines.html>

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## Immunizations and Pregnancy



Vaccine	Before pregnancy	During pregnancy	After pregnancy	Type of vaccine
Influenza	Yes	Yes, during flu season	Yes	Inactivated
Tdap	May be recommended; it is better to vaccinate during pregnancy when possible	Yes, during <b>each</b> pregnancy	Yes, immediately postpartum, if Tdap never received in lifetime; it's better to vaccinate during pregnancy	Toxoid/ Inactivated
Td	May be recommended	May be recommended, but Tdap is preferred	May be recommended	Toxoid
Hepatitis A	May be recommended	May be recommended	May be recommended	Inactivated
Hepatitis B	May be recommended	May be recommended	May be recommended	Inactivated
Meningococcal	May be recommended	Base decision on risk vs. benefit; inadequate data for specific recommendation	May be recommended	Inactivated
Pneumococcal	May be recommended	Base decision on risk vs. benefit; inadequate data for specific recommendation	May be recommended	Inactivated
HPV	May be recommended (through 26 years of age)	No	May be recommended (through 26 years of age)	Inactivated
MMR	May be recommended; once received, avoid conception for 4 weeks	No	May be recommended	Live
Varicella	May be recommended; once received, avoid conception for 4 weeks	No	May be recommended	Live

<http://www.cdc.gov/vaccines/pregnancy/downloads/immunizations-preg-chart.pdf>

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## Importance of Vaccine Safety

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Decreases in disease risks and increased attention on vaccine risks

Public confidence in vaccine safety critical

- Higher standard of safety is expected of vaccines
- Vaccinees generally healthy (vs. ill for drugs)
- Lower risk tolerance = need to search for rare reactions
- Vaccination universally recommended and mandated

<http://www.cdc.gov/vaccines/pubs/pinkbook/safety.html> MIAP 2016 19

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## US Post-licensure Vaccine Safety System

System	Collaboration	Description
Vaccine Adverse Event Reporting System (VAERS)	CDC and FDA	Frontline spontaneous reporting system to detect potential vaccine safety issues
Vaccine Safety Datalink (VSD)	CDC and 9 Integrated Health Care Systems	Large linked database system used for active surveillance and research ~9.4 million members (~3% of US pop.) -Conducts monitoring & evaluation
Clinical Immunization Safety Assessment (CISA) Project	CDC and 7 Academic Centers	Expert collaboration that conducts individual clinical vaccine safety assessments and clinical research
Post-Licensure Rapid Immunization Safety Monitoring Program (PRISM)	FDA and 4 partner organizations	Large distributed database system used for active surveillance and research ~170 million individuals

Source: HPV Safety Presentation by Julianne Gee, MPH Immunization Safety Office Centers for Disease Control and Prevention (CDC) August 4, 2016

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## The Provider's Role

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Immunization providers can help to ensure the safety and efficacy of vaccines through proper:

- Vaccine storage and administration
- Timing and spacing of vaccine doses
- Observation of contraindications and precautions
- Management of adverse reactions
- Reporting to VAERS
- Benefit and risk communication

<http://www.cdc.gov/vaccines/pubs/pinkbook/safety.html> MIAP 2016 21

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### Vaccine Information Statements (VISs)

#### Healthcare provider requirements

- Public and private providers
- Give VISs **before** vaccine is administered
- Applies to **every dose** of a vaccine series not just the first dose
- Opportunities for questions should be provided before each vaccination
- Offer a copy of the VISs to take away
- Available in multiple languages

<http://www.cdc.gov/vaccines/hcp/vis/about/facts-vis.html#give>

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### Your Sources for VISs

<http://www.cdc.gov/vaccines/hcp/vis/index.html>

**Get Email Updates**

To receive email updates about this page, enter your email address:

What's this?

**NEW** New and Revised VISs  
Check here for weekly updates

**Current VIS Dates**

Check your stock of VISs against this list. If you have outdated VISs, get current versions.

Adenovirus	01/11/14	MMR	4/22/12
Ardmore	3/12/12	MMR	5/21/10
Chikungunya	3/13/08	MMR vaccine	11/5/10
DTPaP	5/17/07	PCV13	11/5/10
HB	4/21/15	PPSV23	4/24/15
Hepatitis A	7/20/10	Polio	7/20/10
Hepatitis B	7/22/10	Rabies	1/24/05
HPV-Cervarix	3/29/11	Rubella	4/15/10
HPV-Cervarix	5/17/13	Shingles	1/26/09
HPV-Gardasil	3/31/10	Td	2/24/10
Influenza	8/7/10	Tdap	2/24/10
J. mening	1/24/14	Typhoid	5/29/12
MCV4/AMPV4	3/31/10	V. fever	3/30/11
MenB	5/6/10		

[PRINT VERSION](#)

<http://www.immunize.org/vis/>

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### Healthcare Provider Documentation Requirements

Record vaccine administration in patient medical record or permanent office log

- date vaccine was administered
- vaccine manufacturer
- lot number
- name, address and title of person administering vaccine
- VIS edition date
- date VIS was provided

MDPH also recommends the vaccine type, dose, site and route of administration be documented

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/vacc-admin.pdf>

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### MDPH Vaccine Administration Record

**Vaccine Administration Record – All Ages**

Record No. / Insurance No. \_\_\_\_\_ Clinic Name and Address \_\_\_\_\_

Patient Name \_\_\_\_\_

Address \_\_\_\_\_

Birth Date \_\_\_\_\_ Male \_\_\_\_\_ Female \_\_\_\_\_ Use Reverse Side for Names and Initials of Vaccine Administrators

Vaccine administrator: Provide the patient, parent or legal representative with the most recent copy of the Vaccine Information Statement (VIS), which explains risks and benefits of vaccine, for each dose of vaccine given.

Type of Vaccine: Record the generic abbreviation for the type of vaccine given (e.g., DTap), not the trade name. For combination vaccines, indicate the type (e.g., DTap-Hib) and all other information for each individual antigen (e.g., in the DTap and Hib sections) comprising the combination. Document all lot numbers for each component.

Vaccine	Type of Vaccine	Date Given MM/YY	Dose	Route (PO, SQ, IM, ID, IN, IM*)	Site (DLA, RT, LT)	Vaccine		Vaccine Information Statement		Vaccine Admin Initials
						Lot #	exp.	Date on VIS	Done	
<b>Hepatitis B</b> <small>(e.g., Hept-Hib, Hept- Hib, DTap/Hept- Hib, HeptA-HeptB)</small>				IM						
<b>Diphtheria, Tetanus, Pertussis</b> <small>(e.g., DTap, DTap- Hib, DTaP/Hept-Hib, IPV, DTap/IPV, Td, Tdap)</small>				IM						
<b>Haemophilus influenzae Type B</b> <small>(e.g., Hib, Hept-Hib, DTaP/Hept-Hib, IPV/Hib, IPV/Hib-HeptCIV)</small>				IM						

<http://www.mass.gov/eohhs/docs/doh/cdc/immunization/record-vaccine-admin-clinic.pdf>

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### MIIS Reporting Requirements

Legislation passed in June 2010, charging MDPH to establish an immunization registry (M.G.L. c. 111, s.24M)

- **Mandatory reporting of all immunizations administered in MA**

Regulations were promulgated January 2015

- outline information on system access, confidentiality, and requirements for data elements to be reported
- describe a provider's duty to inform patients, and a patient's right to object to data sharing across providers
- specify compliance schedule for provider reporting

See MIIS table or [www.contactmiis.info](http://www.contactmiis.info) for more information

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### Vaccine Adverse Reactions

**Adverse reaction**

- extraneous effect caused by vaccine
- side effect

**Adverse event**

- any medical event following vaccination
- may be true adverse reaction
- may be only coincidental

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/genrec.pdf> MIAP 2016 30

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### Vaccine Adverse Reactions

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**Local**

- Pain, swelling, redness at site of injection
- Occur within a few hours of injection
- Usually mild and self-limited

**Systemic**

- fever, malaise, headache
- nonspecific
- may be unrelated to vaccine

**Severe Allergic (anaphylaxis)**

- due to vaccine or vaccine component
- rare
- risk minimized by screening

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/genrec.pdf> MIAP 2016 31

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### Reporting of Vaccine Errors and Adverse Events

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- **VAERS:** Vaccine Adverse Event Reporting System
  - Report all vaccine adverse events to VAERS at [vaers.hhs.gov](http://vaers.hhs.gov) or (800) 822-7967. VAERS report forms are available at [vaers.hhs.gov](http://vaers.hhs.gov)
- **ISMP:** Institute for Safe Medication Practice
  - Report vaccine administration errors (e.g., wrong route, wrong dose, and wrong age) to the (ISMP) via the Vaccine Error Reporting Program (VERP) website <http://ismp.org>.
  - Vaccine administration errors should also be reported to VAERS (as described above), and **MUST** be reported if they resulted in an adverse event.

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### Vaccine Injury Compensation Program (VICP)

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- Established by National Childhood Vaccine Injury Act (1986)
- "No fault" program
- Covers all routinely recommended childhood vaccines
- Vaccine Injury Table
  - Lists conditions associated with each vaccine
  - <http://www.hrsa.gov/vaccinecompensation/vaccineinjurytable.pdf>

<http://www.cdc.gov/vaccines/pubs/pinkbook/safety.html> MIAP 2016 33

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### Tips to Increase Immunization Rates

Incorporate measures to improve vaccination rates

- Strong routine recommendation for vaccines
- Reminder/recall
- Standing orders/vaccine only visits
- Speak from personal experience
- Provide information in foreign languages
- Avoid "missed opportunities"

What you say matters.  
*How you say it matters even more!*

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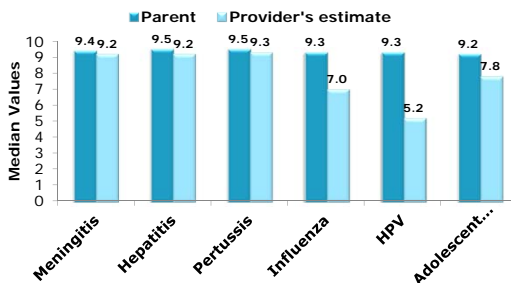
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### Many Providers Underestimate the Value Parents Place on Vaccines



Adapted from Healy et al. Vaccine. 2014;32:579-584.

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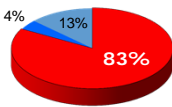
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### Participatory vs. Presumptive approach

#### Participatory approach

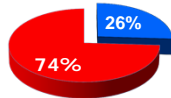
- 83% of parents were resistant to vaccine recommendations when providers used a "participatory" approach.
- Only 4% accepted



■ % Resisted  
■ % Accepted  
■ % Parent's Own Plan

#### Presumptive approach

- 74% accepted
- Only 26% of parents were resistant to vaccine recommendations when providers used a "presumptive" approach.



■ % Resisted  
■ % Accepted

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### Model Standing Orders

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Protocol enabling assessment of vaccination status and vaccine administration w/o direct physician order

- Provider offices
- Health departments
- Schools & their health centers
- Pharmacies
- Commercial vaccinators



Facilitates adolescents and adults beginning vaccination in one venue and finishing in another

**Strong evidence from over 34 studies with a median increase in coverage 24-27 percentage points.**

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### How Standing Orders Benefit Provider Offices

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- Empowers nurses and other professionals to give immunizations, rather than relying on an individual clinician's order
- Integrates immunization assessment and administration into your practice flow
- **REDUCES MISSED OPPORTUNITIES**
- Helps you meet or exceed your goals for vaccination rates in your practice.

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### Standing Orders in MA

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- Licensed registered and practical nurses can administer vaccines using standing orders (BORN Advisory Ruling No. 9804, updated 9-9-15)
  - <http://www.mass.gov/eohhs/gov/departments/dph/programs/hcq/dhpl/nursing/nursing-practice/advisory-rulings/administration-of-immunizing-agents.html>
- Pharmacists (and interns under supervision of a pharmacist) can administer vaccines to adults using standing orders written by a physician (105 CMR 700.004(B)(6)(c)1)
  - <http://www.mass.gov/eohhs/docs/dph/quality/boards/pharmacy/alerts/policy-2015-01.pdf>

IAC model standing orders available at:  
<http://www.immunize.org/standing-orders/>  
 MDPH model standing orders available at:  
[www.mass.gov/dph/imm](http://www.mass.gov/dph/imm)

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### Regional Immunization Nurses

Denise Dillon – Northeast	978-851-7261
Linda Jacobs – Southeast	508-984-0621
Lila Coverstone – Metro Boston	617-983-6811
Theodora Wohler – Metro West	617-983-6837
Katie Reilly, Nurse Manager	617-983-6833

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### Resource slides

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### Information and Resources for Parents and Providers



- Links to CDC, Children's Hospital of Philadelphia (CHOP), American Academy of Pediatrics (AAP), Immunization Action Coalition (IAC)
- <http://www.mass.gov/dph/imm>, click on "Vaccine Safety"

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**ACIP General Recommendations**

- Vaccine administration guidelines
- Contraindication and precautions
- Table 1 Recommended and Minimum Ages and Intervals Between Doses and its footnotes

<http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf>



**MMWR**  
Morbidity and Mortality Weekly Report  
Recommended Reports, 16, 86, No. 2  
January 8, 2017

General Recommendations on Immunization  
Recommendations of the Advisory Committee on Immunization Practices (ACIP)

**Table 1. Recommended and minimum ages and intervals between vaccine doses<sup>1,2</sup>**

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Interval <sup>3</sup> (if not live)	Minimum interval to next dose
DTaP-1	2 months	6 weeks	2-4 weeks	4 weeks
DTaP-2	4 months	10 weeks	2-4 weeks	4 weeks
DTaP-3	6 months	18 weeks	2-4 weeks	4 weeks
DTaP-4	15-18 months	18 months	2-4 weeks	4 weeks
DTaP-5	4-6 years	4 years	2-4 weeks	4 weeks
DTaP-6	11-12 years	11 years	2-4 weeks	4 weeks
DTaP-7	16-18 years	16 years	2-4 weeks	4 weeks
DTaP-8	19-26 years	19 years	2-4 weeks	4 weeks
DTaP-9	65 years and older	65 years	2-4 weeks	4 weeks
DTaP-10	70 years and older	70 years	2-4 weeks	4 weeks
DTaP-11	75 years and older	75 years	2-4 weeks	4 weeks
DTaP-12	80 years and older	80 years	2-4 weeks	4 weeks
DTaP-13	85 years and older	85 years	2-4 weeks	4 weeks
DTaP-14	90 years and older	90 years	2-4 weeks	4 weeks
DTaP-15	95 years and older	95 years	2-4 weeks	4 weeks
DTaP-16	100 years and older	100 years	2-4 weeks	4 weeks

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/A/age-interval-table.pdf>

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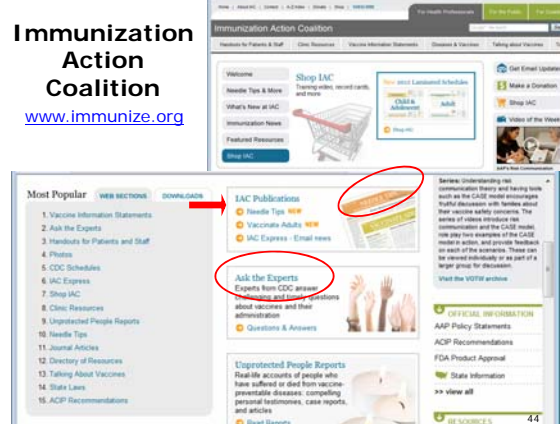
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**Immunization Action Coalition**  
[www.immunize.org](http://www.immunize.org)



Immunization Action Coalition

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Welcome to the Immunization Action Coalition website. Here you will find the latest news, resources, and information about vaccines and immunization.

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- Journal Articles
- Directory of Resources
- Talking About Vaccines
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**IAC Publications**

- Needle Tips
- Vaccinate Adults
- IAC Express - Email news

**Ask the Experts**

Experts from CDC answer **Meaning and Scope** questions about vaccines and their administration.

**Unprotected People Reports**

Readable accounts of people who have suffered or died from vaccine-preventable diseases; compelling personal testimonies, case reports, and articles.

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- AAP Policy Statements
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**MDPH Immunization Program Contact Information**



**Immunization Program Main Number**  
For questions about immunization recommendations, disease reporting, etc.  
Phone: 617-983-6800  
Fax: 617-983-6840  
Website: [www.mass.gov/dph/imm](http://www.mass.gov/dph/imm)

**MIIS Help Desk**  
Phone: 617-983-4335  
Fax: 617-983-4301  
Email: [miishelpdesk@state.ma.us](mailto:miishelpdesk@state.ma.us)  
Website: [www.contactmiis.info](http://www.contactmiis.info) | [www.mass.gov/dph/miis](http://www.mass.gov/dph/miis)

**MDPH Vaccine Unit**  
Phone: 617-983-6828  
Fax: 617-983-6924  
Email: [dph-vaccine-management@state.ma.us](mailto:dph-vaccine-management@state.ma.us)  
Website: [www.mass.gov/dph/imm](http://www.mass.gov/dph/imm)

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