The findings and conclusions in this presentation have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Functions of Law

- **Deterrence**
  - “If you do (or don’t do) X, you will be punished”
  - In terms of vaccination: “If you don’t get your children vaccinated or obtain an exception, your children cannot attend school.”

- **Declaration**
  - “To do (or don’t do) X is the social norm.”
  - “To get your children vaccinated is the social norm.”
The Philosophical Rationale for Immunization Laws

  - "every one who receives the protection of society owes a return for the benefit, and the fact of living in society renders it indispensable that each should be bound to observe a certain line of conduct towards the rest" (John Stuart Mill, On Liberty, 1860).

Translation of the Philosophical Rationale to Law: Jacobson v. Massachusetts (1905)

- There is a social compact. There is no absolute right to be wholly freed from restraint.
- Police power upheld.
- Court’s approval of public health intervention limited by:
  - Public health necessity to prevent an unavoidable harm
  - Reasonable means: “real or substantial relation”
  - Proportionality: human burden must not be disproportionate to expected benefits
  - Harm avoidance: control measure must not pose a health risk to the subject.

History of Mandatory Vaccination Laws

- 1800s: Compulsory vaccination (against smallpox) began in Europe. Included school entry requirements.
- 1800s: Some U.S. jurisdictions enacted laws requiring smallpox vaccination, including for school entry
- 1827: Boston became first city to require smallpox vaccination for school entry
- 1853: British parliament enacted compulsory vaccination law.
- 1890: Many states had school entry laws. Laws were strongly protested in some places. Often not enforced.
- 1960s-70s: Modern era in U.S. began with indigenous measles elimination efforts

Jacobson v. Massachusetts, 197 U.S. 11 (1905)

Hand & Gostin, 2001-2002; Orenstein & Hinman, 1999
Traditional Arguments For and Against Mandatory Vaccination

- **For:**
  - Necessary
  - Effective, cost-effective
  - Solve free-rider problem

- **Against**
  - Unwarranted government interference with individual autonomy (or parental rights); government paternalism
  - Inconsistent with freedom of religion
  - Vaccinations are unsafe
  - Vaccinations are ineffective
  - Vaccinations are unnecessary

Hodge & Gostin, 2001-2002

State Power to Mandate Vaccinations

- **Police power**
  - Police power includes “broad discretion required for the protection of the public health,” including laws that exclude unvaccinated children from school. Zucht v. King (1922)

- **Parens patriae**
  - State asserts authority over child welfare.
  - “Acting to guard the general interest in youth’s well being, the state as parens patriae may restrict the parent’s control by requiring school attendance, regulating or prohibiting the child’s labor, and in many other ways.” … “Its authority is not nullified merely because the parent grounds his claim to control the child’s course of conduct on religion or conscience.” Prince v. Massachusetts (1944)


Exemptions to Vaccination Mandates

- **Religious**
  - All states except MS and WV
  - No constitutional right to religious exemption
  - Whether religious exemptions are constitutional – court decisions are mixed
  - Litigation on level of “proof” required

- **Philosophical**
  - 18 states
  - No bright line between religious and philosophical
**The Case of Tetanus Vaccine**

- Tetanus, the disease
  - Bacteria live in the environment
  - Not contagious from person to person.
  - Rare in the U.S.
- Individual protection is the main goal of vaccination.
- Should it be required?
- Some states do require it specifically (i.e., PA)
The Case of Oral Polio Vaccine (U.S.)

- Until switch to all-IPV in 2000, OPV was required for children in all 50 states
- Risk of developing paralysis from vaccine virus: 1 in 2.4 million
- Risk of polio: near zero. Polio eliminated from Western Hemisphere in 1991
- Calculation for U.S. parents:
  - More rational to “free ride” on herd immunity than to get child vaccinated
  - Justifies mandate

Individual vs. Herd Immunity for Vaccines

Polio vaccine in U.S.

<table>
<thead>
<tr>
<th>Individual Immunity</th>
<th>Herd Immunity</th>
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Justification for Mandatory Vaccination

<table>
<thead>
<tr>
<th>Stronger Justification</th>
<th>Weaker Justification</th>
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<tbody>
<tr>
<td>• Vaccine produces herd immunity</td>
<td>• Vaccine does not produce herd immunity</td>
</tr>
<tr>
<td>• Disease associated with high economic externalities</td>
<td>• Disease associated with low economic externalities</td>
</tr>
<tr>
<td>• Dangerous and/or highly prevalent disease</td>
<td>• Innocuous and/or rare disease</td>
</tr>
<tr>
<td>• Low personal vaccine $ cost or adverse effects/characteristics from vaccine</td>
<td>• High personal vaccine $ cost or adverse effects/characteristics from vaccine</td>
</tr>
<tr>
<td>• Higher vaccine effectiveness</td>
<td>• Lower vaccine effectiveness</td>
</tr>
<tr>
<td>• No vaccine alternative</td>
<td>• Many effective vaccine alternatives</td>
</tr>
</tbody>
</table>
Hypothetical Vaccine X

- Public health necessity?
- Reasonable means?
- Proportionality?
- Harm avoidance?

http://www2a.cdc.gov/phlp/
Pennsylvania § 23.83. Immunization requirements.

(a) Required for entry. The following immunizations are required for entry into school for the first time at the kindergarten or first grade level, at public, private or parochial schools in this Commonwealth, including special education and home education programs:

....

(3) Tetanus. Four or more properly-spaced doses of tetanus toxoid, which may be administered as a single antigen vaccine, in combination with diphtheria toxoid or in combination with diphtheria toxoid and pertussis vaccine. One dose shall be administered on or after the 4th birthday.

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