Together We Can Prevent HPV-Related Cancers

Kristin Oliver, MD, MHS, FAAP
Assistant Professor, Pediatrics & Environmental Medicine and Public Health
Icahn School of Medicine at Mount Sinai
Consultant, New York City Department of Health and Mental Hygiene
The learner should be able to:

1. Discuss latest trends in HPV disease prevalence and prevention.

2. Employ evidence-based techniques for increasing HPV vaccination rates in your own practice.

3. Apply useful & compelling communication strategies and practical tips to inform parents about HPV.
Every year in the United States over 30,000 people are diagnosed with a cancer caused by HPV.

That’s 1 case every 20 minutes.
Average Number of New Cancers Probably Caused by HPV, by Sex, United States, 2008-2012

**Women (n = 19,200)**
- Oropharynx: 2,000 (10%)
- Cervix: 10,700 (56%)
- Vulva: 2,400 (13%)
- Vagina: 600 (3%)
- Anus: 3,000 (16%)

**Men (n = 11,600)**
- Anus: 1,600 (14%)
- Oropharynx: 9,100 (78%)
- Penis: 700 (6%)
- Rectum: 200 (2%)

**Data Source:** MMWR 2016; 65(26):661-666.
Disparities in Cervical Cancer Incidence and Death Rates

**Incidence rates, 2009-2013**

by race and ethnicity, for cervix
Average annual rate per 100,000, age adjusted to the 2000 US standard population.

- **Hispanic**: 9.9
- **Non-Hispanic black**: 9.8
- **American Indian and Alaska Native**: 9.7
- **Non-Hispanic white**: 7
- **Asian and Pacific Islander**: 6.1

**Death rates, 2010-2014**

by race and ethnicity, for cervix
Average annual rate per 100,000, age adjusted to the 2000 US standard population.

- **Non-Hispanic black**: 3.9
- **American Indian and Alaska Native**: 2.8
- **Hispanic**: 2.6
- **Non-Hispanic white**: 2.1
- **Asian and Pacific Islander**: 1.7

Data Sources: North American Association of Central Cancer Registries (NAACCR), 2016
© 2017 American Cancer Society CancerStatisticsCenter.cancer.org

Data Sources: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2016
© 2017 American Cancer Society CancerStatisticsCenter.cancer.org
State Variation in Rates of Cervical Cancer

Cervical Cancer Incidence Rates by State, 2013

Over 4,000 women die from cervical cancer in the US each year

Data Source: www.cdc.gov/cancer/cervical/statistics/state.htm
Implications of Pre-Cancerous Lesions

- Ongoing medical follow-up is recommended

- Cervical conization and LEEP (loop electrosurgical excision procedure) are associated with adverse obstetric morbidity

- Subsequent pregnancies are at risk of:
  - Perinatal mortality
  - Preterm delivery
  - Low birthweight

- Financial costs of care
HPV Vaccination Eliminates HPV Infection and the Downstream Consequences

Data Source: Schiffman M et al., 2013

Cervical Pre-cancer
330,000

Cervical Cancer
12,000

HPV Infection
HSIL
Cancer

Population prevalence (not to scale)

Age

0 10 20 30 40 50 60 70
Oropharyngeal Cancers

- More new oropharyngeal cancers than cervical cancers

- HPV negative
  - Smoking and alcohol-related
  - Decreased 50%

- HPV positive
  - Increased by 225%

Data Source: M. Moore. Adopted from Chaturvedi A., 2010
Anatomy of the Oropharynx

Photo Credit (left): www.inhealth.com/category_s/60.htm
Photo Credit (right): https://nn.wikipedia.org/wiki/S%C3%A5r_hals
Oropharyngeal Cancers
## Side Effects of Non-surgical Therapy

<table>
<thead>
<tr>
<th>Side Effect</th>
<th>Percent affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste Disturbance</td>
<td>88%</td>
</tr>
<tr>
<td>Nausea/Vomiting</td>
<td>36%</td>
</tr>
<tr>
<td>Dry Mouth</td>
<td>29-38%</td>
</tr>
<tr>
<td>Esophageal Stricture</td>
<td>5%</td>
</tr>
<tr>
<td>Require G tube &gt; 1 year</td>
<td>9%</td>
</tr>
</tbody>
</table>


State-based Disparities in HPV-Associated Oropharyngeal Cancer

Data Source: Adapted from www.cdc.gov/cancer/hpv/statistics/state/oropharyngeal.htm
Incidence of Diseases Covered in Adolescent Vaccine Series

- Meningococcal Disease (all serogroups)
- Meningococcal Disease Serogroup B
- Pertussis
- Oropharyngeal SCC (HPV associated)
- Cervical cancer (HPV associated)

Annual Incidence per 100,000

- Meningococcal Disease (all serogroups): 0.14
- Meningococcal Disease Serogroup B: 0.04
- Pertussis: 6.5
- Oropharyngeal SCC (HPV associated): 4.5
- Cervical cancer (HPV associated): 7.4

Meningococcal Data Source: 2014 CDC ABCs
Pertussis Data Source: 2015 CDC ABCs
Cervical & Oropharyngeal Data Source: 2008-2012 SEER
Deaths from Diseases Covered in Adolescent Vaccine Series

- **Meningococcal Disease (all serogroups)**: 70 deaths
- **Meningococcal Disease Serogroup B**: 7.5 deaths
- **Pertussis**: 6 deaths
- **Cervical cancer (HPV associated)**: 4210 deaths

**Sources:**
- Meningococcal Data Source: 2014 CDC ABCs
- Pertussis Data Source: 2015 CDC ABCs
- Cervical Data Source: 2016 American Cancer Society
Percentage of HPV types found in common HPV related cancers, US Data

9-valent vaccine is estimated to prevent:
85% of cervical, 70% of oropharyngeal, 80% of anal, and 60% of penile cancers
2017 Immunization Schedule

Age at 1st dose of HPV vaccine

- Before 15th Bday: 2 doses
- On or after 15th Bday: 3 doses
- Immunocompromised: 3 doses
What Forms of “Immunocompromise” Necessitate a 3-dose HPV Vaccine Series?

Needs 3 doses irrespective of age: Primary or secondary conditions that might reduce cell-mediated or humoral immunity

Examples:
- B lymphocyte Ab deficiencies
- T lymphocyte complete or partial defects
- HIV infections
- Malignant neoplasm
- Transplantation
- Autoimmune disease
- Immunosuppressive therapy

Can use 2-dose series for those initiating before 15th birthday:
- Asthma
- Asplenia
- Diabetes mellitus
- Sickle cell disease
- Chronic granulomatous disease
- Chronic disease of liver, lung, kidneys
- Heart disease
- CNS barrier defects (eg, cochlear implant)
- Complement deficiency, persistent complement component deficiency

Slide courtesy of Dr. Sean O’Leary
2 –Dose Immunogenicity Trial

9vHPV 2-Dose Immunogenicity Trial

Non-inferior GMT at 1 month post-last dose in 2-dose girls/boys vs. 3-dose women

<table>
<thead>
<tr>
<th>Fold difference (girls &amp; boys/women)</th>
<th>3.47</th>
<th>5.07</th>
<th>4.54</th>
<th>3.69</th>
<th>3.70</th>
<th>6.31</th>
<th>1.96</th>
<th>3.08</th>
<th>4.98</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% CI</td>
<td>(2.93, 4.11)</td>
<td>(4.32, 5.94)</td>
<td>(3.84, 5.37)</td>
<td>(3.06, 4.45)</td>
<td>(3.08, 4.45)</td>
<td>(5.36, 7.43)</td>
<td>(1.61, 2.37)</td>
<td>(2.64, 3.61)</td>
<td>(4.23, 5.86)</td>
</tr>
</tbody>
</table>

Data Source: Luxembourg presented at February 2016 ACIP
Does Immunity Last?

Follow-up through month 60

RESULTS: Antibody kinetics
- Similar in 2 groups
- Steady
- > Natural infection

Data Source: Adopted from Romanowski, 2016
Evidence of lasting immunity

- For 2-or 3-dose series?
  - No evidence of waning protection after a 3-dose series
  - So far, antibody persistence after a 2-dose series appears similar to 3-dose series

- How long?
  - Data available through ~10 years for 2vHPV and 4vHPV
  - Longer follow-up, through 14 years, ongoing in some studies
9vHPV Vaccine Safety

- 7 pre-licensure studies including 15,000 males and females

- Generally well-tolerated
  - Adverse event profile similar to that of 4vHPV across age, gender, race, and ethnicity
  - More injection-site reactions expected among those who receive 9vHPV
HPV Vaccine Long-Term Safety Data

No increased risk of:

- 2011- Allergic reactions, anaphylaxis, GBS, stroke, bloodclots, appendicitis, or seizures (than unvaccinated or who received other vaccines)
- 2013 – Blood clots or AEs related to the immune & CNS (almost 1 million girls)
- 2014 – Venous thromboembolism or blood clots (>1 million women)
- 2012 & 2014 – Autoimmune disorders (2 studies)
- 2015 – Multiple sclerosis or other demyelinating diseases
- 2016- Over 60 conditions
- 2012 - Vaccine may be associated with skin infections where the shot is given during the two weeks after vaccination and fainting on the day the shot is received
## Vaccine Efficacy from Clinical Trials

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Disease</th>
<th>Efficacy, Females</th>
<th>Efficacy, Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV4</td>
<td>High-grade abnormalities in cervix</td>
<td>100%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>High-grade abnormalities in vagina</td>
<td>100%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>High-grade abnormalities in vulva</td>
<td>100%</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>High-grade abnormalities in anus</td>
<td>N/A</td>
<td>75%*</td>
</tr>
<tr>
<td></td>
<td>Genital Warts</td>
<td>99%</td>
<td>89%</td>
</tr>
<tr>
<td>HPV2</td>
<td>High-grade abnormalities in cervix</td>
<td>93%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Only among men-who-have-sex-with-men
Efficacy vs Effectiveness

- **Efficacy** - reduction in disease under experimental conditions
  - Clinical trials

- **Effectiveness** – reduction in disease in “real world” setting
  - Observational/ecological studies
  - Linked studies

Source: ACS. Saslow 2016
HPV Vaccine Effectiveness from NHANES 2003-2014

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14-19 y</td>
<td>11.5%</td>
<td>3.3%</td>
</tr>
<tr>
<td>20-24 y</td>
<td>18.5%</td>
<td>7.2%</td>
</tr>
<tr>
<td>25-29 y</td>
<td>11.8%</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

Source: Oliver SE. J Infec Dis. 2017
Percent reduction in cervical dysplasia 5 years after vaccination, by age in 2007

Graph Source: Gertig DM, 2013
## HPV Vaccine Effectiveness from NHANES 2003-2014

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4v HPV Prevalence</td>
<td>12.2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

This corresponds to a vaccine effectiveness of 83%

Source: Oliver SE. J Infec Dis. 2017
# HPV Vaccine Effectiveness

## Table 1. Vaccine Effectiveness Against Human Papillomavirus (HPV) 16/18-Related Cervical Intraepithelial Neoplasia 2 or Worse Among Women Receiving Quadrivalent HPV Vaccine at the Start of the Baseline Study: Per-Protocol Efficacy Population

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>n</th>
<th>Number of Cases</th>
<th>Person-Years at Risk</th>
<th>Incidence Rate per 100 Person-Years at Risk (95% Confidence Interval)</th>
<th>Vaccine Effectiveness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HPV16/18-related CIN2+</strong></td>
<td>2084</td>
<td>0</td>
<td>13c794.9</td>
<td>0.0 (0.0-0.0)</td>
<td>100</td>
</tr>
<tr>
<td>By time since day 1 of base study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 years or less</td>
<td>1930</td>
<td>0</td>
<td>803.5</td>
<td>0.0 (0.0-0.5)</td>
<td></td>
</tr>
<tr>
<td>&gt;4 to 6 years</td>
<td>2083</td>
<td>0</td>
<td>4119.9</td>
<td>0.0 (0.0-0.1)</td>
<td></td>
</tr>
<tr>
<td>&gt;6 to 8 years</td>
<td>2037</td>
<td>0</td>
<td>3978.7</td>
<td>0.0 (0.0-0.1)</td>
<td></td>
</tr>
<tr>
<td>&gt;8 to 10 years</td>
<td>1914</td>
<td>0</td>
<td>3393.1</td>
<td>0.0 (0.0-0.1)</td>
<td></td>
</tr>
<tr>
<td>&gt;10 to 12 years</td>
<td>1333</td>
<td>0</td>
<td>1479.0</td>
<td>0.0 (0.0-0.2)</td>
<td></td>
</tr>
<tr>
<td>&gt;12 to 14 years</td>
<td>124</td>
<td>0</td>
<td>20.6</td>
<td>0.0 (0.0-17.9)</td>
<td></td>
</tr>
<tr>
<td><strong>By HPV type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV16-related CIN2+</td>
<td>1787</td>
<td>0</td>
<td>11809.9</td>
<td>0.0 (0.0-0.0)</td>
<td></td>
</tr>
<tr>
<td>HPV18-related CIN 2+</td>
<td>1981</td>
<td>0</td>
<td>13115.5</td>
<td>0.0 (0.0-0.0)</td>
<td></td>
</tr>
<tr>
<td><strong>By lesion type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIN 2</td>
<td>2084</td>
<td>0</td>
<td>13794.9</td>
<td>0.0 (0.0-0.0)</td>
<td></td>
</tr>
<tr>
<td>CIN 3</td>
<td>2084</td>
<td>0</td>
<td>13794.9</td>
<td>0.0 (0.0-0.0)</td>
<td></td>
</tr>
<tr>
<td>Adenocarcinoma in situ</td>
<td>2084</td>
<td>0</td>
<td>13794.9</td>
<td>0.0 (0.0-0.0)</td>
<td></td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>2084</td>
<td>0</td>
<td>13794.9</td>
<td>0.0 (0.0-0.0)</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CIN, cervical intraepithelial neoplasia; HPV, human papillomavirus.

*aVaccine effectiveness measures the relative reduction of the disease incidence in vaccine recipients compared to the baseline incidence rate of 0.287 per 100 person-years established from the incidence rate in an unvaccinated cohort.*

Source: Kjaer. CID2018
One or More Doses HPV Vaccine Among Females and Males 13-17 Years of Age, US

Source: CDC NIS Teen 2016. MMWR Aug 25, 2017
One or More Doses HPV Vaccine Among Females and Males 13-17 Years of Age, US

Percentage of adolescent boys and girls who have received one or more doses of HPV vaccine.

NATIONWIDE
6 OUT OF 10
parents are choosing to get the human papillomavirus vaccine for their children.

National coverage is 60%
Coverage by state:
- 49% or less
- 50-59%
- 60-69%
- 70% or greater

Source: CDC NIS Teen 2016. MMWR Aug 25, 2017
HPV Vaccine Coverage Among Females and Males 13-17 Years of Age, NYC

Data Source: NYC DOHMH Citywide Immunization Registry (numerators) and NYC DOHMH Epiquery and 2010 US Census (population estimates). 1 ACIP has recommended routine HPV vaccination for females ages 9-26 since 2006 and for males ages 11-21 since 2011.

2 Series can be completed with 2 or 3 doses depending on series initiation at <15 years of age and interval between dose 1 and dose 2 is >5 months.
Disparities in HPV Vaccine Coverage, NYC, Series Complete

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>18% - 45%</td>
<td>Red</td>
</tr>
<tr>
<td>46% - 57%</td>
<td>Orange</td>
</tr>
<tr>
<td>58% - 68%</td>
<td>Light orange</td>
</tr>
<tr>
<td>69% - 89%</td>
<td>Light yellow</td>
</tr>
<tr>
<td>Unpopulated areas</td>
<td>Gray</td>
</tr>
</tbody>
</table>

NYC Overall: 63.0%

Source: NYC DOHMH New York Citywide Immunization Registry

Review Date: March 31, 2017
Creation Date: May 3, 2017
Disparities in HPV Vaccine Coverage, NYC, Series Complete

NYC Overall: 56.1%
Missed Opportunities for HPV Vaccine Administration, NYC

Tdap, MCV4, and first HPV doses administered to 11 year-olds each month from January 2005 – April 2017. Overall Tdap and MCV4 doses are shown. HPV vaccine doses are reported separately for males and females.

How Should We Introduce the Vaccine?

The Architecture of Provider-Parent Vaccine Discussions at Health Supervision Visits
Douglas J. Opel, John Heritage, James A. Taylor, Rita Mangione-Smith, Halle Showalter Salas, Victoria DeVere, Chuan Zhou and Jeffrey D. Robinson
Pediatrics 2013;132;1037; originally published online November 4, 2013;

Announcements Versus Conversations to Improve HPV Vaccination Coverage: A Randomized Trial
Noel T. Brewer, PhD, Megan E. Hall, MPH, Teri L. Malo, PhD, Melissa B. Gilkey, PhD, Beth Quinn, BS, Christine Lathren, MD
How Should We Introduce the Vaccine?

- Opel et al: ‘Presumptive recommendation’
  - “We have some shots to do today”
  - Observational study

- Brewer et al: ‘Announcements’
  - “Your child is due for 3 vaccines today…”
  - RCT
Putting Presumptive into Practice: Same Day, Same Way

“Your child needs 3 vaccines today- Tdap, HPV and meningococcal”

“Today, your child should have 3 vaccines. They’re designed to protect him from meningitis, cancers caused by HPV and tetanus, diphtheria, and pertussis.”
NYC Advertising Campaign

TODAY, you could save your child’s life.

Talk to your pre-teen’s doctor about THE HPV VACCINE.

It can reduce your son or daughter’s risk of certain HPV-related cancers by up to 99%.

To learn more about the HPV vaccine, talk to your pre-teen’s doctor.

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It can reduce your son or daughter’s risk of certain HPV-related cancers by up to 99%.

To learn more about the HPV vaccine, talk to your pre-teen’s doctor.

Public Health.
Effectiveness Evaluation of Citywide HPV Campaigns, 2014

- 11% increase among 11 year-old girls compared to 2013
- 17% increase among 11 year-old boys compared to 2013
Reminder/Recall Strategies Can Increase HPV Vaccination Rates

Graph Sources: Left) Kharbanda. E et al., 2011; Right) Suh CA et al., 2012
# CIR for Coverage Reports

## Standard Coverage Report

<table>
<thead>
<tr>
<th>Report</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-11 month olds</td>
<td>3 DTP, 2 Polio, 2 Hib, 2 HepB, 3 Pneumococcal</td>
</tr>
<tr>
<td>19-35 months olds</td>
<td>4 DTP, 3 Polio, 1 MMR, 3 HepB, 4 Hib, 1 Varicella, 4 Pneumococcal</td>
</tr>
<tr>
<td>24-35 month olds</td>
<td>4 DTP, 3 Polio, 1 MMR, 3 HepB, 4 Hib, 1 Varicella, 4 Pneumococcal</td>
</tr>
<tr>
<td>11-18 year olds with MCV</td>
<td>1 MCV, 1 Td, 3 HPV (Males and females included)</td>
</tr>
<tr>
<td>13-17 year olds with MCV</td>
<td>1 MCV, 1 Td, 3 HPV (Males and females included)</td>
</tr>
</tbody>
</table>

**Review date** (date as of which age will be calculated and report will be run.)

03/15/2017

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## Influenza Coverage Report

The flu season runs from August 1st through June 30th. You may not run an Influenza coverage report outside the flu season time frame. The influenza coverage reports are not based on your MyList population but, instead, replicates the methodology used in the up-to-date coverage reports you receive in the mail. You may view the population parameters shown below each report option.

### 6-59 month-olds:
An individual is considered your patient if you reported the last immunization administered to this patient on or after 14 days of age. During the current flu season, the youngest patient in this group turned 6 months of age on September 1st, and the oldest patient turns 60 months of age on April 1st.

### 5-10 year-olds:
An individual is considered your patient if you reported the last immunization administered to this patient on or after 4 years of age. During the current flu season, the youngest patient in this group turned 5 years of age on September 1st, and the oldest patient turns 11 years of age on April 1st.

### 11-18 year-olds:
An individual is considered your patient if you reported the last immunization administered to this patient on or after 10 years of age. During the current flu season, the youngest patient in this group turned 11 years of age on September 1st and the oldest patient turns 19 years of age on April 1st.

**Report Name for identification later:**

(For flu reports, the age range will be appended to the name)

Username_20170315_01
CIR for Recall: Customizable

Create Custom Recall Job

A
- All patients in MyList
- Specific Age
  - 7-11 month olds
  - 19-35 month olds
  - 24-35 month olds
  - 11-18 year olds
  - 13-17 year olds
  - 19+ year olds

B
- Age Range
  - From ≥
  - To ≤
- DOB Range
  - Include patients born between
  - and
- Gender
  - Male
  - Female

C
- For immunization series:
  - Include patients who are missing:
    - Any age-appropriate immunization
    - Any age-appropriate immunization from the series below only:
      - Influenza
      - HepB
      - Rotavirus
      - DTaP
      - Hib
      - Pneumo, Conjugate
      - Pneumo, Polysaccharide
      - Polio
      - Tdap
      - MMR
      - Varicella
      - HepA
      - Meningococcal
- Include patients who do not have the # of specified valid doses from the series chosen below:
  - 0-1 of Influenza
  - 0-1 of HepB
  - 0-1 of Rotavirus
  - 0-1 of DTaP
  - 0-1 of Hib
### CIR for Recall: Lists Letters

| A  | B       | C       | D       | E                | F       | G       | H       | I       | J       | K       | L       | M       | N     |
|----|---------|---------|---------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|
| 1  | Recall Name: Username_MyList_Due_Any_20170315 |         |         |                  |         |         |         |         |         |         |         |         |       |       |
| 2  | Date Created: 3/15/2017 12:20:59 PM |         |         |                  |         |         |         |         |         |         |         |         |       |       |
| 3  | Created By: 22904 |         |         |                  |         |         |         |         |         |         |         |         |       |       |
| 4  | Based On: Patients in 'My List' |         |         |                  |         |         |         |         |         |         |         |         |       |       |
| 5  | Custom Recall: All Ages, Gender: Males and Females |         |         |                  |         |         |         |         |         |         |         |         |       |       |
| 6  | Total Patients: 19, Patients not UTD: 19 (100%) Patients UTD: 0 (0%) |         |         |                  |         |         |         |         |         |         |         |         |       |       |
| 8  | Doses: Patients missing any age appropriate immunization |         |         |                  |         |         |         |         |         |         |         |         |       |       |

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Last Name</td>
<td>First Name</td>
<td>DOB</td>
<td>Gender</td>
<td>CIR Id</td>
<td>Medrec Num</td>
<td>Address</td>
<td>City</td>
<td>State</td>
<td>Zip</td>
<td>Home Phone</td>
<td>Cell Phone</td>
<td>Opted Out Text Msg</td>
<td>Due Now</td>
</tr>
<tr>
<td>10</td>
<td>ALCOTT</td>
<td>LOUISA</td>
<td>02/01/2008</td>
<td>F</td>
<td>54322263</td>
<td>13 Downing Street, 1ST FLOOR, BROOKLYN, NY</td>
<td>11215</td>
<td>212-676-2312</td>
<td>917-319-0521</td>
<td>N</td>
<td>HPV-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>KATZ</td>
<td>FELIX</td>
<td>05/26/1950</td>
<td>M</td>
<td>601654053</td>
<td>195 Main Street, 3C, BROOKLYN, NY</td>
<td>11205</td>
<td>646-479-8426</td>
<td>718-666-6666</td>
<td>N</td>
<td>Influenza-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>RODGERS</td>
<td>AARON</td>
<td>03/13/1990</td>
<td>M</td>
<td>906399945</td>
<td>4209 28th Street, 5, QUEENS, NY</td>
<td>11105</td>
<td>347-396-2544</td>
<td>718-666-6666</td>
<td>N</td>
<td>DTP-1, MMR-1, Varicella-1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13</td>
<td>RUBBLE</td>
<td>BARNEY</td>
<td>04/05/2007</td>
<td>M</td>
<td>883622687</td>
<td>50 Gravel Pit Way, BEDROCK, NY</td>
<td>10101</td>
<td>718-666-6666</td>
<td>718-666-6666</td>
<td>N</td>
<td>Influenza-1, HepB-1, Polio-1, MMR-1, Varicella-1</td>
<td></td>
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</tr>
</tbody>
</table>

March 15, 2017

Dear Parent/Guardian:

Our records show that your child may need the following vaccines:

**Patient Name:** FELIX KATZ  
**Immunizations Due Now:** Influenza-1

Please call our office at 347-396-2400 to schedule an appointment at your earliest convenience.

Thank you,
CIR Text Message Recall

Select message (default recommended.) This message will be sent to each patient on your recall list.

- Use default message
  - Fill in the fields for the sample message provided.

- Use custom message
  - Type in your custom message. Make sure to include your facility name.
  - (Messages are limited to Latin alphabets.)

Your child born in
CIR will insert patient birth YEAR here
is overdue for immunization. Call

FACILITY NAME (up to 42 characters):
Characters remaining: 42

at CONTACT NUMBER:

to schedule.

130 character limit
Characters remaining: 130

NOTE: To allow patients to opt out of receiving text message reminders, the line “To stop reminders, text STOP” will be added to the end of your message.

Patients who text “STOP” will not receive any future text messages via the CIR.

Please note that it is your responsibility to adhere to the laws, rules, and regulations that apply to the disclosure of confidential and sensitive information in the content of your custom text message.
Impact of Text Message Recall

171 text message recall jobs completed by 62 facilities, 8/27/15 – 12/31/15

Patients included in text message recall jobs n=70,890

TEXTED
n=31,388 (44%)  
3,414 (11%) vaccinated within 28 days

NOT TEXTED
n=39,502 (56%)  
2,345 (6%) vaccinated within 28 days
Standing Orders

- Single physician order for all patients for recommended vaccines
- Stipulate that all patients meeting certain criteria should be vaccinated – age, underlying medical condition

Components

1. Nurse/MA tracks immunization history
2. Nurse/MA identifies eligible patients
3. Nurse/MA educates patients – alert provider if patient still has questions or wants to talk with the provider
4. Nurse administers vaccines
Benefits of Standing Orders

- Shown to be effective in both adults and children
  - For children, use of standing orders is associated with a median increase in vaccination coverage of 28%
  - Most effective evidence-based method

- Overcome administrative barriers and save time

- ‘Presumptive’ recommendation in action

Source: www.thecommunityguide.org/vaccines/RRstandingorders.html
The Denver Health Story

- Large vertically integrated community health system
  - Cares for about 1/3 of all children in Denver
  - 8 community health centers, 16 school-based health centers
- For many years, had ‘typical’ immunization process, with similar rates to national average

Photo Credit: https://commons.wikimedia.org/wiki/File:The_Childrens_Hospital_of_Denver_Front.JPG
Adolescent Vaccine Rates with Standing Orders

Graph Source: Farmar, Anna-Lisa M., et al., 2016
Why Vaccinate at Ages 11-12?

1) Better immune response

Data Source: Dobson, Simon RM, et al., 2013
2) More chances to vaccinate

Early adolescents have 3 times more preventive care visits than late adolescents.
Why Vaccinate at Ages 11-12?

3) Lack of exposure

U.S. Teen Sexual Activity
Percent of adolescents who have had sex

Data Source: Finer, Lawrence B., and Jesse M. Philbin, 2013
Why Vaccinate at Ages 11-12?

4) Long duration of immunity

- No evidence of waning protection up to 10 years after 3-dose schedule
- Antibody kinetics with 2-dose schedules are similar, suggesting there will be similar protection
Why Vaccinate at Ages 11-12?

5) Prevents twice as much pre-cancer

Percent reduction in cervical dysplasia 5 years after vaccination, by age at vaccination

Graph Source: Gertig DM, 2013
Why Vaccinate at Ages 11-12?

What I say to patients:

“The HPV vaccine works better and prevents more cancers at younger ages. If Ella gets the vaccine today she will only need 2 doses, but if we wait until she’s older she may need 3 doses.”
Why Vaccinate at Ages 11-12?
Why NOT Vaccinate at Ages 9 - 10?
You can’t vaccinate too early.....
Only too late
HPV VACCINATION RESOURCES
HPV Provider Toolkit

Key Strategies Card

Provider FAQs

Tear-off Pad* (for parents)

https://www1.nyc.gov/site/doh/providers/resources/public-health-action-kits-hpv.page

Double-sided English/Spanish. Also available in Chinese, Arabic, Bengali, Urdu, Haitian-Creole, Korean, French, Russian
For More Information

- **NYC DOHMH**
  - CIR

- **CDC**
  - [https://www.cdc.gov/hpv/hcp/index.html](https://www.cdc.gov/hpv/hcp/index.html)

- **AAP**
  - Info for parents ([www.healthychildren.org](http://www.healthychildren.org))

- **CHOP Vaccine Education Center**
  - [http://www.chop.edu/centers-programs/vaccine-education-center](http://www.chop.edu/centers-programs/vaccine-education-center)
Contact info

New York City Department of Health and Mental Hygiene
Bureau of Immunization
nycimmunize@health.nyc.gov
(347)396-2400